PHILADELPHIA'S WET WEATHER MANAGEMENT PROGRAMS

COMBINED SEWER MANAGEMENT PROGRAM ANNUAL REPORT

National Pollutant Discharge Elimination System (NPDES) Permits
Nos. PA0026689, PA0026662, PA0026671

STORMWATER MANAGEMENT PROGRAM ANNUAL REPORT

National Pollutant Discharge Elimination System (NPDES) Permit
No. PA 0054712

Reporting Period July 1st 2023 to June 30th 2024

Submitted to:

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Clean Water

And

ENVIRONMENTAL PROTECTION AGENCY – REGION III
Water Protection Division

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Errata

1. The errata submitted on November 26, 2024 includes replacements for Tables 2 and 3 of Appendix D – FY24 NPDES Annual CSO Status Report.

2. The errata submitted on November 26, 2024 includes a replacement to page 10 of Section II.D.4, Maintain and Modify Combined Sewer Collection System/Chambers to send more flow to the POTW.

3. The errata submitted on November 26, 2024 includes replacements for Tables 40, 41, 52, and 55 of Appendix G – PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary.

Combined Sewer Management Program Annual Report

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Nos. PA0026689, PA0026662, PA0026671
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I. Management and Control of CSOs

This report is submitted pursuant to meeting the requirements of NPDES Permits #'s PA0026662, PA0026671, and PA0026689, PART C, I. Other Requirements, Combined Sewer Overflows (CSOs), III. Implementation of the Long Term CSO Control Plan, C. Watershed-Based Management, IV. Monitoring and Assessment. This section requires that the permittee submit an Annual CSO Status Report. The purpose of this report is to document the status and changes made to programs implemented by the City of Philadelphia (City), during Fiscal Year 2024 (FY24), which encompasses the period of July 1st, 2023 through June 30th, 2024, to manage and reduce the CSOs permitted to discharge to waters of the Commonwealth of Pennsylvania.

II. Implementation of the Nine Minimum Controls

The Philadelphia Water Department (PWD) submitted an Updated Nine Minimum Control Report to the Department on June 1, 2013, to supplement the 1995 report and describe current activities as a result of new technology or practices. The nine minimum controls (NMCs) are low-cost actions or measures that can reduce CSO discharges and their effect on receiving waters, do not require significant engineering studies or major construction, and can be implemented in a relatively short time frame.

II.A NMC 1 - Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs

II.A.1 Implement a Comprehensive Geographic Information System (GIS) of the City Sewer System

To ensure PWD's investment in GIS is as accurate and up to date as possible, edits and improvements are made to data daily. PWD utilizes the GIS coverages as the foundation for many of its operations including maintenance management, capital improvements, and hydraulic modeling.
During FY24, GIS layers were updated and maintained to ensure the accurate tracking and reporting of PWD assets and infrastructure.

II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP)

PWD continues to implement a comprehensive SAP to provide inspection of the collection system using closed circuit television (CCTV) and sonar. The SAP is a critical tool for operations and maintenance as it provides information on existing pipe conditions and helps to locate where repairs are needed. The program is also used to guide the capital improvement program to ensure that the existing sewer systems are adequately maintained, rehabilitated, and reconstructed.

CCTV inspections are conducted/managed by PWD's Flow Control group and performed by PWD personnel and contractors. During FY24, 66.78 miles of sewer inspections were completed via CCTV, averaging about 5.57 miles a month as shown in **Table 1 Monthly TV Inspections.** In addition, the CCTV Unit completed a total of 1,474 inspections of green stormwater infrastructure systems during FY24.

Table 1: Monthly TV Inspections

Date	Collector Systems (Miles Inspected)
Jul-23	8.40
Aug-23	8.70
Sep-23	8.89
Oct-23	9.48
Nov-23	9.36
Dec-23	6.63
Jan-24	2.82
Feb-24	3.09
Mar-24	3.01
Apr-24	2.41
May-24	2.53
Jun-24	1.47
Average	**5.57**
Total	**66.78**

II.B NMC 2 - Maximum Use of the Collection System for Storage

II.B.1 Continue to Institutionalize a Comprehensive Monitoring and Modeling Program

Monitoring

PWD maintains an extensive monitoring network throughout the combined sewer system including rain gages, pump stations, and connections from adjacent outlying communities. Information on the monitoring network with an updated listing of the monitors, rain gages, and pumping stations can be found in **Appendix B - Flow Monitoring**.

Modeling

The hydrologic and hydraulic (H&H) models will be updated as needed to support Nine Minimum Controls implementation and reporting.

II.B.2 Continue to Operate and Maintain a Network of Permanent and Temporary Flow Monitoring Equipment

PWD continues to maintain a CSO permanent monitoring network with temporary monitoring programs to support planning for CSO control projects and to minimize dry weather overflows and tidal inflows.

Permanent Flow Monitoring Program

PWD uses a network of permanent flow monitors that are connected to a newer data acquisition system (TELOG) which uses cellular-based telemetry and improved enterprise data management software. As of FY24, the Collector System Monitoring Network is connected to over 320 sites at various locations including CSO regulators, rain gages, pump stations, interceptors, chemical feed tanks, and hydraulic control points which collect over 720 individual measurements with over a ninety percent (90%)

operational status. All monitoring devices deployed throughout the PWD collection system continually store data and periodically communicate monitoring information back to the Collector Systems Headquarters for review and use by staff. The listing of permanent flow monitors can be found in **Appendix B – Flow Monitoring.**

Temporary Flow Monitoring Program

PWD maintains its temporary flow monitoring program, initiated in July 1999, which consists of deploying portable flow meters throughout targeted Philadelphia sewershed areas to quantify sanitary and combined flow from the sewer system and characterize the tributary sewersheds. During FY24, PWD monitored 71 sites for the purposes of model calibration, inflow/infiltration (I/I) identification, design support, etc. The listing of all temporary flow monitors, their location, and the deployment projects can be found in **Appendix B – Flow Monitoring: Table 6 – Listing of all Temporary Flow Monitors Deployed by Projects.**

II.B.3 Continue to Evaluate the Collection System to Ensure Adequate Transport Capacity for Dry and Wet Weather Flow

Long Term Control Plan Update

System-wide H&H models have been developed in support of the CSO Program and the Long Term Control Plan Update (LTCPU). Model evaluations have been performed to evaluate the system performance benefits of various system improvement scenarios.

The evaluations of the system-wide models were completed in FY08 to support the LTCPU development. Since 2008, EPA's Stormwater Management Model (SWMM) has been updated to SWMM 5. PWD continues to update the H&H models as needed to support planning and regulatory reporting needs. A summary overview of the H&H model rebuild is provided with a full description included in Appendix C of the Year 10 Evaluation and Adaptation Plan (EAP).

PC-30 Extreme Wet Weather Overflow

PWD continues to monitor PC-30. For additional information on other efforts conducted for this site, please refer to **Section III.B.2: Table 13** on page 35.

Flood Risk Management

PWD has a robust flood risk management program to analyze and reduce property damage from flooding and basement backups. Aspects of this program include property data collection, implementing individual property mitigation when appropriate, sewer system H&H analysis to understand flood prone areas, and developing policies to reduce flood risk in the city.

Flood Relief Project Summary

The focus of PWD's flood risk management efforts include historic flood prone neighborhoods such as~~:~~ South Philadelphia, Northern Liberties, Germantown, and Eastwick. The goal of these efforts is to improve the conveyance of stormwater by targeting peak flow and volume reduction and reducing the potential for flooding. Hydrologic and hydraulic modeling indicates that sewer system improvements or source reduction can sometimes reduce the frequency and/or severity of flooding events. However, the potential benefits of structural improvements to the city's drainage infrastructure must always be counterbalanced by the financial, economic, and social impacts of implementation. PWD continues to refine and optimize mitigation alternatives to minimize negative impacts to communities.

To better understand and define surface flooding and sewer backups from the collection system, PWD has embarked on a citywide 2-dimensional modeling approach using PCSWMM. The modeling effort is on-going, but the finished deliverables will have maximum flood depths and inundation areas mapped for a variety of design storms which will be used to better inform capital planning. In FY2024, PWD has completed the modeling for D44, D45, D68, D69, D70, D25, and S42/42A.

South Philadelphia

In FY24, PWD decided to move forward with modifying the D67 regulating chamber for the Moore Street Storm Flood Relief (SFR) Project. The project originally involved the construction of 8' x 12' reinforced concrete box sewers that drain to the Delaware River. However, PWD's refined modeling methodology at the parcel level demonstrated fewer net benefits associated with constructing the box sewers compared to modifying the regulating chamber.

Northern Liberties

SFR sewer projects were initiated in the Northern Liberties neighborhood to reduce flood risk in the combined sewer neighborhoods of Northern Liberties, Fishtown, Port Richmond, and Lower Kensington. **Table 2** demonstrates the status of the Northern Liberties SFR program at the end of FY24:

Table 2: Northern Liberties SFR Sewer Improvement Projects

Project Name	Location	Project Status
Northern Liberties Phase 1	Delaware Avenue and Laurel Street	Construction Complete (2011)
Northern Liberties Phase 2	Canal Street Chamber	Construction Complete (2016)
Northern Liberties Phase 3	Delaware Ave to River (Undertaken by Sugar House)	Construction Complete (2016)
Northern Liberties Phase 4	Canal & Laurel Sts. to Germantown Ave. &Wildey St.	Construction Complete (2016)
Northern Liberties Phase 5	Germantown Ave. from Wildey St. to Girard Ave.	Construction Completed (2022)
Northern Liberties Phase 6	Germantown Ave. & Thompson St. to Master & Randolph Sts.	In Projects Control[1]

[1] BRIC Grant submitted. Waiting on award decision

Germantown

The East Germantown section of Philadelphia has been impacted by flooding from intense rainstorms, such as Hurricane Irene (8/27/11) and Tropical Storm Lee (9/7/11). In FY24 PWD completed the design of the N. 21st Street Sewer Improvement Project which aims to reduce residual flooding in this area. The project is scheduled to be bid in a future fiscal year contingent upon the award of ARPA H20 Grant Funding. PWD successfully awarded a 3-year professional services contract to advance the design of the Wingohocking Creek Storm Flood Relief/Combined Sewer Overflow Tunnel focusing on hydraulic optimization, community and stakeholder engagement, geotechnical studies, and the evaluation of regulatory impacts.

Eastwick

The Eastwick neighborhood is in a naturally low-lying area in southwest Philadelphia. The neighborhood has experienced severe riverine flooding from multiple storms including Hurricane Floyd, Hurricane

Irene, Tropical Storm Lee, and Hurricane Isaias. The City of Philadelphia, acting through PWD, executed the Federal Cost Share Agreement in May 2019 to move forward with the feasibility study through the Continuing Authorities Program. The United States Army Corps of Engineers (USACE) completed the draft feasibility study in August 2023. The USACE are awaiting additional cost share funding from the City of Philadelphia to further document the upstream and downstream flood risk impacts of the levee in Delaware County as well as evaluate complimentary measures in reducing the induced flood risks. The EPA and the City's Office of Sustainability have continued to refine a separate hydraulic model with the goal of establishing the height and placement of HESCO barriers as an interim flood protection measure while the implementation of the levee is still a decade away.

II.B.4 Fully Integrate the Real-Time Control Facility into the Operations of PWD

Real Time Control Evaluation

Several projects were previously evaluated for Real Time Control; for additional information on these projects, please refer to Section 2.1 Evaluate Real Time Control in LTCP on page 10 of the 1996 Annual CSO Status Report and Section II.B.3.4 Real Time Control Evaluation on page 26 of the CSO-Stormwater FY10 Annual Report. For details regarding the current operational statuses of the City's real time control CSO regulator sites, see **Section II.B.5** below.

There are currently three projects in the Department's design process that are being evaluated for the use of real-time control technology:

D-05 CSO Regulator (State Road and Magee Avenue)

The D-05 regulator is being examined for additional CSO capture through the installation of a new, enlarged interceptor connection with a real-time controlled sluice gate. As of FY24, this project is in the construction stage and is slated for completion on December 14th, 2024. This project is expected to result in enhanced storage and conveyance of wet weather flows via modification to an existing computer controlled CSO.

Thomas Run Relief Sewer (R-01)

A capital construction project for the modification of the Thomas Run relief sewer has been initiated. The project is evaluating the potential for this system to be maximized for in-line storage during wet weather by creating a static dam, a new interceptor connection, and CSO regulator site. Alternatives considered include relocating the outfall to minimize disruption to trees and recreational areas in the Cobbs Creek Park.

Southwest Drainage District Regulator Modification (S-05, S-20, S-26)

The primary project goal is to increase the flow capacity through each regulator to decrease CSO volumes in the Southwest Drainage District. The project will include increasing the opening area of the existing DWOs, removal of existing Brown & Brown regulators, and will consider implementation of locally actuated, real-time, flow control at each site. During FY24, this project was at 50% design status and currently has a target design complete of FY26.

II.B.5 Operate and Maintain In-Line Collection Storage System Projects Contained within the LTCP

Main Relief

The Main Relief project is operating as designed with a 7.5-foot static dam. The current configuration achieves an overflow reduction of approximately 30 MG annually.

Tacony Creek Park (T-14)

The T-14 storage sewer provides combined sewer overflow capture in the Northeast Drainage District (NEDD). The T-14 storage sewer system is operating under automated controls and reducing overflow volume during wet weather events. T-14 operated at the full design level during FY24.

Rock Run Relief (R-15)

The Rock Run Relief Sewer provides flood relief to combined sewer areas upstream of regulator T-8 in the Northeast Drainage District (NEDD). An inflatable dam was constructed in the Rock Run Relief Sewer to allow for utilization of in-system storage to retain combined flows during wet weather events. The Rock Run storage facility operated at the full design capacity during FY24.

Computer-Controlled CSO Regulators

PWD has eight computer-controlled CSO regulators that are configured to maximize storage during wet weather. All PWD computer-controlled regulators are in the Northeast drainage district (NEDD). As of FY24 seven of the eight computer-controlled regulator sites had control upgrades installed and were back into service with the completion of upgrades to the computer control system. F-25 is the final computer-controlled CSO regulator site to be upgraded so that all computer-controlled cabinets from D-2 through F-25 will be uniform with the newest PLC and Unity Software.

II.C NMC 3 - Review and Modification of Pretreatment Requirements to Assure CSO Impacts Are Minimized

II.C.1 Expand the Pretreatment Program to Include Significant Industrial Users (SIUs) Whose Facilities Contribute Runoff to the Combined Sewer System

The City of Philadelphia's Pretreatment Program regulates all Significant Industrial Users (SIUs) that discharge into PWD's service area, which includes SIUs in both the separate and combined sewer systems. The City continually reevaluates the Pretreatment Program to determine if improvements can be made. Through annual monitoring and inspection activities, PWD currently regulates 119 SIUs that discharge to the sanitary system. PWD conducts SIU program review and inspections on a calendar year cycle, having inspected all 119 permitted facilities during the 2023 calendar year.

PWD also maintains a website to inform the public and industries of permitting regulations, requirements and other information that may benefit or impact industrial users. Information on the City of Philadelphia's Pretreatment Program and industrial requirements is located at the following web address: water.phila.gov/industrial-waste.

II.C.2 Incorporate Guidance on BMPs for Industrial Stormwater Discharges into Stormwater Management Regulations Guidance

The Philadelphia Stormwater Management Guidance Manual was developed to assist developers in meeting the requirements of the Philadelphia Stormwater Regulations and is updated when necessary to incorporate new information. The current version of the manual is available at https://water.phila.gov/development/stormwater-plan-review/manual/.

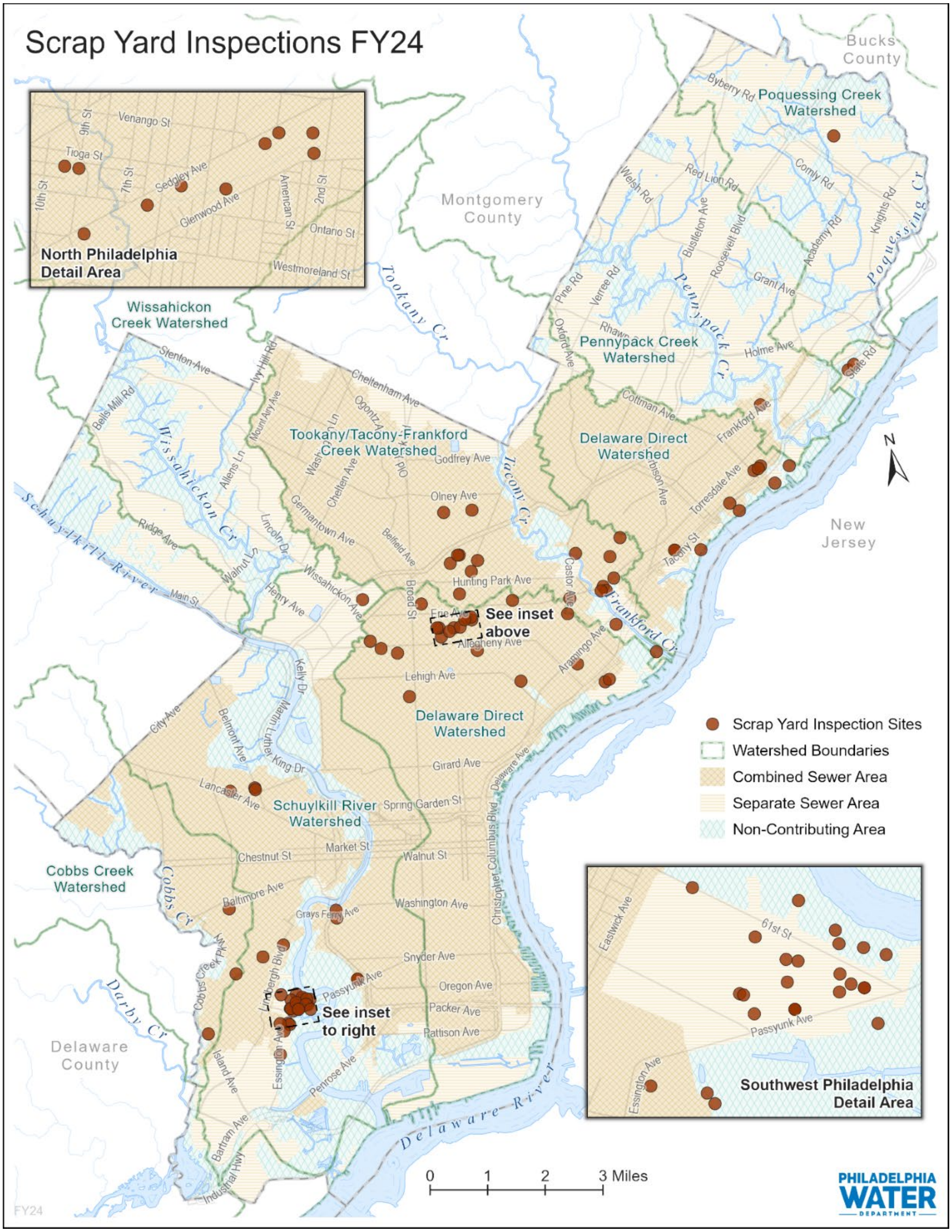
Please refer to the MS4 Annual Report **Section F.5.g - Stormwater BMP Handbook and Construction Site BMP Sediment & Erosion Control Checklist** on page 38 for additional information on the updated manual.

II.C.3 Continue to Serve as a Member of the Philadelphia Inter-Governmental Scrap and Tire Yard Task Force

The Scrap Yard Task Force (SYTF) was created to address numerous complaints about the operation of scrap metal and auto salvage businesses, which may cause polluted runoff to enter the city's sewers, blight in city neighborhoods, and contribute to short dumping and other environmental hazards to area waterways. The goal of the taskforce is to ensure businesses conducting metal and auto salvage activities, including tire salvage, are following appropriate regulations. Agencies that have been involved with the SYTF include PWD, PADEP's Solid Waste division, Philadelphia Department of Licenses and Inspections (L&I), Philadelphia Police Auto Squad, and the Philadelphia Fire Department Hazmat Administration Unit. Over recent years, staffing from these agencies for the SYTF program has been reallocated to other priorities.

In FY24, the City issued 14 new and 61 renewed Auto Wrecking/ Waste Handling (formally tire storage) licenses, 28 new and 24 renewed Tire Dealer licenses and 5 new and 68 renewed Precious Metal Dealer licenses. In FY24, 96 inspections were conducted at suspected scrapyard facilities, 55 suspected sites were confirmed to be no longer operating as scrap metal and auto salvage business. The locations of the inspections are displayed in **Figure 1: SYTF Sites Inspected in FY24** on page 8.

Figure 1: SYTF Sites Inspected in FY24



II.D NMC 4 - Maximization of Flow to the Publicly Owned Treatment Works (POTW) for Treatment

II.D.1 Continue to Analyze and Implement Non-Capital-Intensive Steps to Maximize the Wet Weather Flow to the POTW

Modified Regulator Plan

The Modified Regulator Plan (MRP) was designed to deliver more flow to the water pollution control plants (WPCPs) more frequently and enable greater pollutant removals. The projected flow increase associated with the MRP was implemented by the submission of the 1997 Annual Combined Sewer Overflow Status Report. Additional plan implementation efforts were included in the Updated Nine Minimum Controls Report which can be found online by accessing the following link: http://water.phila.gov/pool/files/NMC_Report_Final.pdf.

Maximization of Wet Weather Treatment in the LTCPU

PWD operates three Water Pollution Control Plants (WPCPs): the Northeast, Southwest, and Southeast WPCP. The Wet Weather Facility Plan (WWFP), which was submitted on June 1, 2016, provides details on scheduling, cost, and anticipated construction completion for each project. The WWFP is available at the following link: Wet_Weather_Facility_Plan_website.pdf (phila.gov).

II.D.2 Continue the Program Which Requires Flow Reduction Plans in Agreements to Treat Wastewater Flows from Satellite Collection Systems Where Violations of Contractual Limits are Observed

PWD provides wastewater service to some of its neighboring communities. Communities that exceed their contractual limits must develop flow reduction plans, under PWD review. A comprehensive report on the Wholesale Wastewater Customer contracts, flow exceedances and flow reduction plans are reported in PWD's annual Chapter 94 Wasteload Management report.

Table 3: Listing of Wholesale Wastewater Customer Contracts and Capacities

Customers	Average Annual Daily Flow Maximum (MGD)	Maximum Daily Flow (MGD)	Instantaneous Maximum Rate (Cubic ft./sec)
Northeast Plant			
Abington	2.97	4.45	9.54
Bensalem	6.13	-	11.74
Bucks	24	33.00	74.26
Cheltenham	-	-	26
Lower Moreland	1.90	2.85	5.88
Lower Southampton	7.14	9.28	15.79
Southwest Plant			
DELCORA	50.00	75.00	155.00
Lower Merion	14.50	-	31.57
Springfield (Erdenheim)	3.20	-	6.65
Upper Darby	17.00	-	35.00
Southeast Plant			
Springfield (Wyndmoor)	1.00	-	1.93

II.D.3 Use Comprehensive Monitoring and Modeling Program to Identify Suburban Communities Where Excessive Rainfall-dependent I/I Appear to be Occurring

The US EPA's SWMM was used to develop the watershed-scale model for the combined and separate sanitary sewer systems. Suburban communities are modeled as separate sanitary sewersheds that load to the PWD sewer network. The rainfall response from these sheds is calibrated to flow monitoring data collected at each respective connection to PWD sewer network (if the sewershed is not monitored then a reference shed is used to obtain the rainfall response). Presently, permanent, and temporary flow monitors are installed at 62 connections. **Appendix B – Flow Monitoring: Table 2** contains the list of all known connections, their location and whether the connection is permanently monitored.

II.D.4 Maintain and Modify Combined Sewer Collection System/Chambers to send more flow to the POTW

PWD monitors regulating chambers regularly. Issues are identified and addressed as soon as possible. Modifications include the following:

- T-14: The SWO crest gate was locked at 52% open on 7/1/2023 while issues with the hydraulic control system are addressed.
- D-05: The control mechanism was placed in manual control mode on 1/9/2024 due to an electrical outage at the site.
- Frankford Creek Inverted Siphon: On 2/22/2024 bypass piping was opened to allow for the reconstruction of the Frankford Creek Inverted Siphon.
- H-36: One 6" stop log was removed from the inflow chamber on 5/16/2024.

Appendix D – FY24 NPDES Annual CSO Status Report: Table 2 shows the CSO volume, duration, and frequency of overflow events per permitted outfall for the rainfall that fell in FY24 utilizing SWMM 5 model version 2017.B.02.05. Table 3 shows the same statistics as table 2 but for the typical year rainfall utilizing the SWMM model that support the Year 10 EAP submitted in May 2022.

II.E NMC 5 - Prohibition of CSOs during Dry Weather

II.E.1 Optimize the Real-Time Control Facility to Identify and Respond to Blockages and (non-chronic) Dry Weather Discharges

Regular inspections, reactive inspections, and maintenance of combined sewer overflow (CSO) regulators are performed throughout the city to ensure that sediment accumulations and/or blockages are identified and corrected immediately to avoid dry weather overflows. PWD utilizes daily a remote monitoring network system to help identify locations showing abnormal flow patterns.

CSO Regulator Inspection & Maintenance Program

PWD maintains 175 CSO regulator chambers with regulator devices that control the diversion of wastewater flow to the interceptor system and 26 storm relief diversion chambers that allow excess flow during storm events to be diverted to storm relief sewers. These chambers discharge through 164 NPDES permitted point sources which make up the CSO outfalls. The maintenance of the chambers is critical to the performance of the system in that they control the frequency, duration, and quantity of CSO discharges.

PWD continues to implement its policy of conducting next day follow-up inspections at sites that experience a dry weather discharge. Ongoing assessment of all inspection scheduling continues to ensure that CSO regulators are inspected at the frequency required to ensure timely response to operational issues and minimize the likelihood of dry weather discharges. During FY24, Flow Control crews completed 4,424 inspections on 201 CSO regulator sites and storm relief diversion chambers. The crews cleared 197 CSO regulator blockages to prevent possible discharges from developing. There were 2 dry weather discharges during FY24. Details of the inspections during FY24 can be found in **Appendix C – FY24 CSO Maintenance Program Annual Report.**

Tide Gate Inspection and Maintenance Program

Tide gates are located at approximately half of the CSO regulator chambers in the city's system and prevent tidal inflow into the combined sewer system from the estuary receiving water body. Maintenance of the 89 gates is critical to system performance because inflow from the receiving water body can adversely affect the combined sewer system and treatment facilities by reducing system capacities, potentially causing dry weather discharges. In FY24, CSO tide gate preventative maintenance was completed 121 times at 13 of the tidally affected CSO regulator sites. Summaries of the tide gate inspection and maintenance completed during the past fiscal year are in **Appendix C – FY24 CSO Maintenance Program Annual Report**, which documents the locations of tide gate preventative maintenance performed in FY24. PWD regularly inspects regulators, pump stations, junction chambers, and sewers which are known to accumulate grit. These sites are scheduled for flushing and vacuuming on an as-needed basis.

Somerset Grit Chamber Cleaning/D-25 Regulating Chamber

The Somerset grit chamber was previously removed from service because the upstream regulator (D-25) was being relocated. This relocation project was completed during FY16. During FY24, PWD cleaned and removed a total of 35.84 tons of debris and grit from the D-25 regulating chamber.

D-37 Regulating Chamber

During FY24, PWD cleaned and removed a total of 21.36 tons of debris and grit from the D-37 regulating chamber.

D-45 Regulating Chamber

During FY24, PWD cleaned and removed a total of 72.45 tons of debris and grit from the D-45 regulating chamber.

Central Schuylkill Pumping Station (CSPS) Grit Pocket Cleaning

During FY24, the two grit pockets at the CSPS siphon were not cleaned due to the rehabilitation of the station and vendor availability. Additional information on the CSPS cleaning activities conducted in FY24 is available in **Appendix C – FY24 CSO Maintenance Program Annual Report.**

II.F NMC 6 - Control of Solid and Floatable Materials in CSOs

II.F.1 Control the Discharge of Solids and Floatables by Cleaning Inlets and Catch Basins

PWD’s Inlet Cleaning Unit (ICU) is responsible for inspecting and cleaning stormwater inlets within the city. When fully staffed, there are forty-one inlet cleaning crews whose primary duties include cleaning, removing, and properly disposing of debris (solids and floatables) from inside city inlets as well as street level cleaning in the vicinity of inlets to prevent debris from entering the collection system and waterways. Other duties include inspection of inlet conditions and referral of structural defects to the Sewer Maintenance Unit for repair to ensure proper function. Crews are responsible for cleaning high volume traffic areas, retrieving and installing inlet covers, replacing missing inlet covers, installing locking covers, and unclogging choked inlet traps and outlet pipes so inlets can take water. A high level of focus is placed on responding to customer complaints of flooding, blockages, and foul odors.

During FY24, the ICU was responsible for maintenance of approximately 72,000 stormwater inlets connected to the city's combined and separate storm sewer systems (gray inlets). ICU is also responsible for cleaning of pretreatment on stormwater inlets connected to green stormwater infrastructure (green inlets). By the end of the year, ICU was responsible for monthly preventative maintenance of approximately 2,900 green inlets. Fiscal year totals for work on Green Stormwater Infrastructure (GSI)-connected inlets included 18,549 inlet inspections and 17,786 pretreatment cleanings.

Statistics related to the ICU's work productivity during FY24 can be found in **Table 4**, below. The quantities for inlets inspected, inlets cleaned, debris removed, and pounds per inlet during FY24 include work conducted at both gray and green inlets. The process of dewatering debris at a central location has increased cleaning efficiency (higher number of inlets cleaned per crew) and decreased the weight of materials taken for disposal.

Table 4: Inlet Cleaning Statistics

	FY24
Total Inlets Inspected	108,735
Total Inlets Cleaned	94,981
Total Covers Replaced	57
Total Covers Retrieved	97
Total Covers Chained	909
Debris Removed (tons)	5,794
Avg. Lbs./ Inlet	122

II.F.2 Continue to Fund and Operate the Waterways Restoration Team (WRT)

PWD's Waterways Restoration Team (WRT) is a multi-crew force dedicated to performing stream examinations, infrastructure protection projects, and cleanup work throughout the city including large trash and debris removal and restoration of eroded streambanks and streambeds. WRT's stream examinations consist of assessing a variety of field conditions including waterway, infrastructure, site access, and sewage discharge assessments. WRT waterway maintenance work involves debris removal, stream restoration work, and assisting with sewer maintenance work to help provide a safe work environment while protecting stream ecosystems. WRT works in partnership with Philadelphia Parks and Recreation (PPR) staff and various Friends of the Parks groups to maximize resources and build positive relationships with our communities.

During FY24, WRT conducted 165 stream examinations and performed maintenance 490 times. WRT removed a total of 802 tons of debris from the city's waterways (**Table 5**). Of the total debris removed, most of the weight can be attributed to large organic material (e.g. trees) that have fallen into the waterways and restricted flow, thus increasing the potential for bank erosion and/or damage to infrastructure.

Table 5: Waterways Restoration Team – Annual Activity Summary FY19-FY24

Activity	FY19	FY20	FY21	FY22	FY23	FY24
Total Tons Removed	1070	618	613	525	360	802
Cars Removed	0	2	0	3	0	0
Tires Removed	1713	1983	535	1559	81	166
Shopping Carts Removed	203	20	3	8	12	11
# of Stream Site Cleanups	997	764	545	543	520	490
# of Stream Site Exams	381	357	479	365	279	165

II.F.3 Continue to Operate and Maintain a Floatables Skimming Vessel

Skimming vessels are one of the control measures to remove floatable material from the Schuylkill and Delaware River. These vessels also increase public awareness and help to educate on the impact of floatables to Philadelphia's receiving waterways. In previous years, PWD utilized multiple PWD owned vessels to conduct skimming of the Delaware & Schuylkill Rivers. As of June 2023, a new skimming contract took over the primary skimming responsibilities for the City, and the PWD vessels are utilized for other watershed protection priorities.

Future of Floatables Skimming Program

In place of the R.E. Roy Skimming Boat that operated in over 17 years, PWD executed a new contract in June of 2023 that offers the contractor the flexibility to utilize their equipment to choose the most appropriate means to conduct skimming operation, such that the skimming program would not be limited to the capacities of a single vessel (i.e. R.E. Roy). PWD previously operated smaller skimming vessels to retrieve floating trash and debris from the Schuylkill and Delaware Rivers within Philadelphia. The smaller skimming vessels were more effective in tight spaces found in marinas, among piers, and in near shore (shallow) areas. These smaller skimming vessels were also able to conduct skimming operations and other activities in the non-tidal portions of the Delaware and Schuylkill rivers, specifically in areas not accessible by the larger skimming vessels.

The new skimming contract serves the role that both the PWD large and smaller skimming vessels owned used to serve. The additional flexibility to the means and methods of conducting skimming operation or waterway debris collection would allow for opportunities to capture more marine debris as the contracts could utilize their existing resources such as barges, cranes, etc. In addition, an additional scope of work was included in the new skimming contract to explore and evaluate new technologies to that could improve and innovate waterway debris management and support other boat needs for City.

Table 6: Debris Collected and Days of Skimming Vessel Operation

Date	Total Tons Removed	Cubic Yards Collected	Recyclable Collected (lbs.)	Days in Operation	Days on Schuylkill	Days on Delaware
July 2023	4.2	30.3	1490.5	20	6.5	13.5
August 2023	3.5	27.1	1641.5	23	13	10
September 2023	3.9	26.6	1421.5	20	12	8
October 2023	3.3	36.4	1413.5	19	12	7

Date	Total Tons Removed	Cubic Yards Collected	Recyclable Collected (lbs.)	Days in Operation	Days on Schuylkill	Days on Delaware
November 2023	1.6	11.7	1104.9	16	11.5	4.5
December 2023	0.3	2.7	204	8	7.5	0.5
January 2024	Skimming Operation Out of Service for Winter Season					
February 2024						
March 2024						
April 2024	1.6	11.6	724	13	8.5	4.5
May 2024	3.3	18.4	1562.5	21	10.5	10.5
June 2024	3.5	17.9	1331	19	9.5	9.5
FY24 Total	**25.1 Tons**	**182.7**	**5.5 Tons**	**159**	**91**	**68**

* Tons removed and weights recycling of tires and wheels removed were not available.
** Skimming operation conducted by the R.E. Roy vessel was transferred over a new skimming operations contract that will utilize their own vessels

II.F.4 Other Floatables Control Activities

Other activities conducted within the City are performed with the intention of managing waste and therefore would capture floatables. These initiatives provide integral components to ensure additional floatable and solids do not enter the city's waterways and surrounding areas. Some of these activities are described below.

Department of Sanitation

Every year, the Department of Sanitation collects over 610,000 tons of trash and over 80,000 tons of recycling. In addition to mechanically cleaning 410,000 miles of streets.

Volunteer Water Adjacent Cleanups

The City has embraced the value of supporting and conducting volunteer water adjacent land-based cleanups with local partners and communities in areas in Philadelphia and surrounding region. These volunteer cleanup events provide an opportunity to make a significant difference in a given area within a few hours with the help of people willing to volunteer their time. The cleanup events also serve as opportunities to provide important information and public outreach about PWD's and the City's programs and how the volunteers' efforts are beneficial not only on an environmental/ecological standpoint but also helps promote social behavior changes. This April 2024, PWD and the Sanitation department collaborated for a special earth week cleanup event, removing over 223 tons of debris from area adjacent to the Mingo Creek with 38.5 tons containing just illegally discarded tires, therefore at least 3,000 tires.

United By Blue Cleanups

PWD partners with United By Blue (UBB), a Philadelphia-based sustainable outdoor apparel company who conducts annual stream cleanups programs. Part of UBB business model includes the amiable mission: "For every product sold, United By Blue removes one pound of trash from oceans and waterways through company organized and hosted cleanups." PWD partners with UBB by recommending litter-prone locations that are adjacent to Philadelphia waterways, promoting and supporting volunteer based cleanup events hosted by UBB, and helping coordinate pick up of event collections by PWD, Philadelphia Parks and Recreation (PPR) or the Philadelphia Sanitation Department staff. Much of the work conducted by UBB are often in locations under the purview of PWD's floatables control and pollution prevention programs. Following a hiatus due to company restructuring, UBB resumed community cleanups in 2024. Since 2016, UBB and PWD have collaborated on 39 cleanups, resulting in 906,662 lbs. of trash and litter being removed from City waterways and parks.

Schuylkill Scrub

The Schuylkill Scrub is a program that encourages and supports cleanup events throughout the entire Schuylkill watershed- from the headwaters in Schuylkill County down to its confluence with the Delaware River in Philadelphia every Spring since 2009. The Schuylkill Action Network coordinates the initiative, along with multiple partners, with a shared goal of cleaning as many miles of road, stream, and parkland in the Schuylkill watershed. Their efforts help prevent trash from making its way into Philadelphia's drinking water sources and keep the City's land and waters clean and litter-free. The Schuylkill Scrub is a part of the Pick Up Pennsylvania initiative coordinated by Keep PA Beautiful, which shares a common goal of working towards the larger goal of cleaning up and beautifying the entire state of Pennsylvania. Free cleanup supplies (trash bags, gloves, and vests) are provided through Keep PA Beautiful courtesy of PennDOT and PA DEP. In addition, in 2024, registered events can have trash and debris disposed of for no cost to event organizers (dumpster drop-off fees or transportation to waste facility is not included) during the month of April because of a donation from the members and landfill owners of the Pennsylvania Waste Industries Association. The 2023 Schuylkill Scrub was held at over 50 locations and approximately 2,600 tires and over 27,000 bags of trash were removed. The last advertised Schuylkill Scrub was held in calendar year 2024, with clean up data pending.

Tookany/Tacony-Frankford Trash Task Force

PWD continues to support more targeted efforts to focus on litter have been initiated in the corridors surrounding the Tacony Creek watershed. During FY24, the TTF continued to deploy Trail Ambassadors on a regular basis to walk the trail, clean the gateways and trail, and report dumping and other issues needing attention to Philly311. The consistent presence and reporting have resulted in quicker resolution of trash issues and a cleaner, more welcoming park. TTF continued to implement their stewardship program to conduct regular maintenance of the areas around Tacony Creek. During FY24, TTF hosted 27 clean-ups, attended by 391 participants (358 adults and 33 children), amounting to 1,170 volunteer hours resulting in the collection of 530 trash bags of trash, amounting to 12,654 pounds. In addition, TTF activities resulted in the planting of 60 trees and marking 58 storm drains with the help of 6 dedicated volunteers.

Riverfront North Partnership

The Riverfront North Partnership (RFN) helps to maintain the riverfront trail and network of parks along the Delaware River that connects residents of urban neighborhoods to nature, offering recreational, community building, and environmental education activities. During FY24, RNP removed approximately 1775 pounds of trash along the greenway. This occurred with volunteers at about 15 volunteer days where we worked on invasive removal, tree care and shoreline trash removal at Pennypack on the Delaware, Lardner's Point Park and the Frankford Bot Launch.

Philadelphia Department of Parks & Recreation illegal dumping initiatives

The Philadelphia Department of Parks and Recreation (PPR) is tasked with protecting over 10,200 acres of public land and waterways, and managing hundreds of recreation, environmental, and cultural centers. Throughout this effort, PPR encounters illegal dumping or short dumping often and thus must devise solutions to prevent and minimized these unwelcome occurrences. In FY24, PPR encountered 170 dumping incidents cleanups resulting in 1,403 staff hours spent cleaning dumping, removing 441 tons of materials. In addition, in FY24 PPR implemented several dumping prevention tactics including the installation of 4 physical barriers and 8 surveillance cameras to prevent or discourage illegal dumping.

Love Your Park

Love Your Park is a collaboration between Fairmount Park Conservancy, PPR, and Philadelphia's Park Friends Network. The groups work together to support communities in active City neighborhood parks and watershed natural areas, with a focus on volunteering. Their flagship events are Love Your Park Week in May and the Love Your Park Fall Service Day in November, when thousands of volunteers support City parks. This year-round Neighborhood Park Stewardship program supports a network of 140 community-run park friends' groups, and our regular volunteer opportunities invite groups and individuals to get involved. These programs continued in 2024, resulting in numerous volunteer events and engaged thousands of volunteers. During these weeks, volunteers helped plant trees, weed and mulch over a thousand existing trees, removed several tons of trash from Philadelphia's parks and waterways, and collected thousands of bags of organic plant debris (like branches and leaves) for composting. Love Your Park continued implementing Love your Park Solo Cleanups, encouraging park users to safely clean up trash and litter individually or with their families as they enjoy Philadelphia parks this year. Unfortunately, the 2023 and 2024 Love Your Park service events results were not available at the time of reporting.

Friends of the Wissahickon Cleanups

The Wissahickon Creek is a treasure to many Philadelphians and visitors to the area, who are searching for an escape to nature, providing a stunning green space for hiking, biking, and fishing. Wissahickon Valley Park is a huge park that has over 1 million visits per year and is surrounded by busy roads on all sides. The downside of this fantastic accessibility is an accumulation of litter in the park. The Friends of the Wissahickon (FOW) continues to conduct park cleanups within the Wissahickon Valley Park for many years. In 2020, FOW launched the Wissahero Program, an individual stewardship initiative that was spurred during the early days of the covid-19 lockdown when this program was the only stewardship options that could be offered. The Wissahero Program proved to be extremely successful, and that continues through to this day. In 2023 alone, Wissaheroes removed almost 4,000 pounds of litter from the forests and creeks in and around Wissahickon Valley Park, ensuring a cleaner and healthier habitat and watershed. Throughout FY24, FOW conducted several stewardship events including 77 volunteer service days, 117 Wissahero sessions, host cleanup with 12 Corporate & School Groups and 28 Seasonal Field Staff clean-ups. These 234 stewardship events/sessions resulted in the removal of a total of 35,945 pounds of trash from the Wissahickon watershed, of that total 9,000 pounds were specifically from collected from the park's most visited destination, Devil's Pool.

Philadelphia Canoe Club Partnership

In the Spring of 2019, PWD established a partnership with the Philadelphia Canoe Club (PCC), as they expressed an increased desire to help the city with some of the environmental issues, they observe daily from their clubhouse located on the bank of the confluence of the Wissahickon Creek and Schuylkill River, within the Fairmount Park System of Philadelphia. The Philadelphia Canoe Club is a dedicated group of canoeists and kayakers promoting paddling, and paddle sports in the Philadelphia area, training new paddlers, and leading trips all over the US and has been in existence since 1905. Together with

PWD and other local partners, PCC helps recruit volunteers to cleanup areas around the Wissahickon Creek and Schuylkill River. During FY24, PCC took a short hiatus from conducting large volunteer cleanup events and began focusing on supporting and hosting environmental education outreach event at the PCC clubhouse.

Tire Roundup Program

The Tire Round-Up Program is a volunteer-driven partnership between the City, block captains and stakeholders that helps to get tires safely off city streets, sidewalks, parks, alleys, and riverbanks, all while raising funds for future community programming. The Tire Round-up program was developed in 1995 to keep illegally dumped tires from entering the waste stream. Tires that make their way into the landfill take approximately 50 to 80 years to decompose. Collecting and properly disposing of tires helps keep neighborhoods clean, removes unsightly and potentially hazardous material, protects the public health and natural environment. To enroll into this program, block captains and community groups must register with the Philadelphia More Beautiful Committee (PMBC), and while program occurs typically in the summer months, PMBC will reimburses registered groups 50 cents for each illegally discarded tire they bring to a drop-off site. During the 2023 Tire Round Up, 11,261 tires were collected and properly disposed of.

Philadelphia Hazardous Waste & Special Waste Collection Events

The Philadelphia Sanitation Department hosts household hazardous waste (HHW) collection events for Philadelphia residents every year. The events provide an opportunity for the public to drop-off household hazardous waste that is not collected curbside or through other routine disposal options. Philadelphia residents can drop-off these items at the designated Streets' Sanitation Convenience Center between the hours of 9 a.m. to 3 p.m. Trained staff will be on hand to sort and properly package materials dropped off for disposal. Computers are not accepted at any of the HHW events as they can be taken to any of the Sanitation Convenience Centers (SCC) during normal business hours. The Sanitation Dept. also began to collect Universal waste (e.g., fluorescent light bulbs and lithium, rechargeable, and lead-acid batteries) in destinated bulb or battery containers at select SCC. Waste materials generated by a business will also not be accepted. Businesses must get rid of materials through a private service. Businesses must get rid of materials through a private service. In addition, the City of Philadelphia has developed a tool for the public to find options for donating or recycling items. During FY24, Sanitation Dept. held seven (7) HHW events resulting in contributions from at least 4,482 individuals, removing 403,462 lbs. of hazardous materials and separately removing 7,954 lbs of Universal Waste (e.g., fluorescent light bulbs and lithium, rechargeable, and lead-acid batteries) (**Table 7**). For more information on the hazardous waste program please visit: https://www.phila.gov/services/trash-recycling-city-upkeep/dispose-of-household-hazardous-waste/.

Table 7: FY24 Household Hazardous Waste and Universal Waste Collection Metrics

HHW Event Location	Event Date	Participants	Quantity (lbs)
Northeast Philadelphia - 8401 State Rd., 19136	July 13, 2023	250	67,647
North Philadelphia - 2121 W. York St., 19132	September 16, 2023	398	43,387
Southwest Philadelphia – 3033 S. 63rd St., 19153	October 21, 2023	371	33,682
Port Richmond – 3901 N. Delaware Ave., 19137	November 4, 2023	464	40,497
Northeast Philadelphia - 8401 State Rd., 19136	April 6, 2024	972	92,648
West Philadelphia - 4800 Parkside Ave., 19131	May 11, 2024	522	45,900

HHW Event Location	Event Date	Participants	Quantity (lbs)
Northwest Philadelphia – 320 Domino Lane, 19128	June 8, 2024	1005	79,701
HHW Event Total	**7 Events**	**4,482**	**403,462**

Table 8: FY24 Universal Waste Container Collections

Universal Waste Container Collections			Quantity (lbs)
NW & NE Sanitation Convenience Centers	September 2023		776
NW, NE & Strawberry Mansion Sanitation Convenience Centers	December 2023		3,206
NW, NE & SW Sanitation Convenience Centers	February 2024		1,799
NW, NE & SW Sanitation Convenience Centers	June 2024		2,173
Universal Waste Total			**7,954**

Community Life Improvement Program (CLIP)

The Community Life Improvement Program (CLIP) helps Philadelphians make the City a nicer place to live. Their mission includes removing graffiti vandalism from buildings, street signs, and other street fixtures; enforcing the City's regulations to make sure vacant lots and areas are kept clean; Lending supplies and offer trash pickup for CLIP-coordinated neighborhood cleanups; and providing adult non-violent offenders the opportunity to complete their community service sentences by cleaning and beautifying the city. CLIP partners with residents, community groups, businesses, other city departments, and agencies to improve the quality of life in our neighborhoods. In 2023, the CLIP remove graffiti from 185,750 properties, inspected 56,927 vacant lot parcels, CLIP crews cleaned 15,074 VACANT LOT, completed 6,381 community service projects, provided cleanup supplies to 505 community organizations, loaned 4,280 pieces of equipment through the community partnership program, inspected 20,882 exteriors of properties, and of those abated 4,485 exteriors.

The Plastic Bag Ban

Philadelphians use about a billion plastic bags each year. Unless properly disposed of, many of these bags become litter in our streets, waterways, and commercial corridors. The City's the ordinance on single-use plastic bags, originally passed by City Council in December 2019, although due to impacts of COVID-19, the implementation was delayed to beginning July 1, 2021. Philadelphia's plastic bag ban prohibits retail establishments from providing single-use plastic bags and paper bags that do not meet certain requirements. The City issues violation notices for businesses using non-compliant bags. These notices carry a minimum penalty of $150. Each violation of the ordinance is subject to a separate fine. If businesses repeatedly or egregiously violate the ordinance, the City may take them to court and ask the judge to impose additional penalties. Through 2024, City continues to enforce the ban, the ban helped to reduce single-use plastic waste and improve the environmental quality and cleanliness of our city. There has been a measurable decrease in plastic bag use in the city. An efficacy study by a PhD student at the University of Pittsburgh in partnership with the City entitled "Philadelphia's Plastic Bag Ban and Changes in Bag Usage in the City" was released April 28,2023. The study demonstrates that in the year since the City began enforcement of the single-use plastic bag ordinance, there has been a measurable change in shopper behavior as well as a decrease in plastic bag usage in the city after the ban was implemented. Other additional impacts found prior to the ban, 64 percent of shoppers used at least one plastic bag while grocery shopping at stores in the study. After the ban was fully implemented, this percentage dropped to near zero. There was an increase in the number of shoppers using paper bags, reusable bags, or choosing not to use a bag at all. The proportion of consumers using a reusable bag almost doubled from 22 percent to 42 percent. The study estimates that the ban prevented over 200 million disposable plastic bags from being distributed in the city in its first year. A copy of the report can be found: https://www.phila.gov/media/20230428110156/PlasticBagBanReportApril2023.pdf

Circular Free Property Program

The city has provided property owners and tenants may register their property to request a circular free property decal that will notify to advertisers to not leave circulars, handbills, and other advertising on the registered property. This program would prevent individuals/businesses from leaving unwanted circulars and ads on their property. There is no fee for this service, but applicants must 1) complete a Circular Non-Delivery Decal request form, 2) wait to receive the decal in the mail and 3) affix the decal where it can be seen from the street. In addition, individual businesses can be reported to the Department of Licenses and Inspections (L&I) if property continues to receive circulars, as violators will issue a code violation for $150. The Circular-Free Property Program continued to be implements in FY24, the number of applicants requesting the decal this year or the total number of properties registered were not available at the time of reporting. More information on the Circular-Free Property Program can be found here: https://www.phila.gov/services/property-lots-housing/request-a-no-circulars-sticker/

Repair, Rehabilitation, and Expansion of Outfall Debris Grills and Grit Cleanings

Debris grills are maintained regularly at sites where the tide introduces large floating debris into the outfall conduit. This debris can become lodged in a tide gate, causing inflow from the receiving water. Additionally, debris grills provide entry restriction and some degree of floatables control.

Standard operating procedures require the inspection of debris during all regulator inspections unless the outfall is submerged at the time of inspection. During FY24, 117 debris grill maintenance events were completed. The list of the debris grill preventative maintenance activities is available in **Appendix C – FY24 CSO Maintenance Program Annual Report.**

II.G NMC 7 - Pollution Prevention

II.G.1 Continue to Develop and Share a Variety of Public Information Materials Concerning the CSO LTCP

The Public Outreach and Participation conducted in FY24 for the Green City, Clean Waters program has been provided in **Section 7.0 - Public Outreach and Participation** starting on page 28 **of Appendix A – Green City, Clean Waters FY24 Annual Report** and **Section II.G.3 Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications** on page 27 of this report.

II.G.2 Continue to Maintain Watershed Management and Source Water Protection Partnership Websites

In May 2018, PWD incorporated watershed protection projects and program information onto the City of Philadelphia's official website at https://water.phila.gov/sustainability/watershed-protection/. This provides an alternate channel for PWD customers and the public to learn about watershed protection initiatives. The website contains key plans and reports as well as detailed information on watershed partnerships, planning, public communication, and technology-based planning and assessment tools.

Philly RiverCast

Philly RiverCast (http://www.phillyrivercast.org) is the first operable web-based recreational warning system in the United States. Using near real-time flow, precipitation, and turbidity data, the RiverCast algorithm translates predicted bacteria levels in the non-tidal Schuylkill River from Boathouse Row to Flatrock Dam in Manayunk into one of three ratings, each of which corresponds to suggested guidelines for safe recreation. RiverCast guidelines offer tools for the public to make informed decisions about recreation, and thus helps protect the public against illnesses caused by bacteria. In 2022, PWD launched a revamped version of the website to modernize its appearance and enhance public comprehension. PWD continues to assist individuals and recreational groups in interpreting RiverCast ratings. In 2019, PWD analyzed the data communicated by RiverCast as it compared to laboratory-tested data from PWD routine sampling. This analysis showed that RiverCast continues to protect public health by providing accurate characterizations of ambient bacteria conditions in the river. Ultimately, RiverCast helps ensure continued safe recreational use of the non-tidal Schuylkill River, while promoting public awareness of water quality concerns and indirectly engaging support for source water protection measures. More than 1.6 million users have visited the Philly RiverCast website since it launched in June 2005.

Schuylkill Action Network

The Schuylkill Action Network (SAN) was established as a permanent watershed-wide organization charged with identifying problems, prioritizing projects, and securing funding sources to bring about water quality improvements in the Schuylkill River watershed. The SAN is organized into six focused workgroups. One of the workgroups, the SAN Stormwater workgroup, was formed to identify a cost-effective approach to stormwater management through project prioritization and planning. The workgroup is a partnership of representatives from PWD, PADEP, EPA, DRBC, conservation districts, watershed organizations, municipalities, and other water utilities and groups throughout the Schuylkill River watershed. The SAN website supports the SAN's Stormwater Workgroup by providing project and event information, SAN publications, and public messaging about restoring and protecting the Schuylkill River. The SAN Stormwater Workgroup's goal is to prevent or maximize reduction of stormwater runoff pollution. During its 20 years of existence, the workgroup has served as an advisory committee for state and local governments, an ordinance review board for municipalities, and a support group for large and small projects throughout the Schuylkill River watershed. During the last year, SAN projects have addressed important pollution sources including agriculture, abandoned mine drainage, and stormwater. Efforts from SAN partners in the last calendar year are included in the following table (**Table 9**):

Table 9: Schuylkill Action Network Partner Progress

	Cumulative Progress of Watershed Partners (2003-2023)	**Highlights from CY 2023**
Agriculture Workgroup	• Constructed over 185 manure storage facilities • Completed over 190 barnyard or heavy use area construction • Installed over 90 stream crossings • Planted over 700 acres of riparian buffers of agricultural lands • Over 10,000 acres of agricultural lands have best management practices	• Construction of 5 manure storage facilities • Over 60 acres of riparian buffer planted • Over 170 additional acres placed under agricultural easement • Approximately 4,000 linear ft of streambank restored and 7 acres of floodplain restoration

	Cumulative Progress of Watershed Partners (2003-2023)	Highlights from CY 2023
Abandoned Mine Drainage (AMD) Workgroup	• Received over $17M in AMD funding • Reduced annual watershed loadings of iron, aluminum, and manganese • Installed, monitored, and maintained five treatment systems	• Actively maintaining 5 AMD treatment systems • SAN hosted a workgroup hike to Silver Creek reservoir to view Caparell Stripping pits and Big Creek limestone dosing area for 19 attendees. • Middleport habitat improvement project (1,500 linear feet) completed.
Stormwater Workgroup	• Engaged over 30 schools in green stormwater infrastructure • SAN has hosted presentations, workshops, and tours for businesses, municipalities, and other professionals	• SAN hosted a tour for 22 attendees of a rain garden project at along the Schuylkill River Trail featuring innovative and experimental use of recycled ground glass as sand substrate substitute. • SAN collaborated with the Center for Watershed Protection and Upper Merion Township to host a stormwater BMP operation and maintenance workshop which drew over 70 municipal staff and environmental organization attendees across southeast PA.
Pathogens & Point Source Workgroup	• SAN has promoted drug takeback events and the Delaware Valley Early Warning System. • SAN has hosted tech transfer presentations and water utility forums for water and wastewater professionals to connect with resources and funding	• Over 5,000 impressions and 15 interactions on SAN social media promoting National Drug Takeback Day in April and October 2023. • SAN hosted a workgroup meeting and tour for 13 attendees of the recently updated Upper Montgomery Joint Authority plant.
Engagement & Stewardship Workgroup	• Unites environmental education, outreach, recreation, stewardship, and volunteerism in the Schuylkill River Watershed • Coordinates yearly Schuylkill Scrub, a watershed-wide clean up initiative that takes place every spring	• Over 3,000 tires and nearly 17,000 bags of trash were collected at over 600 locations during the 2023 Schuylkill Scrub • SAN collaborated with Perkiomen Watershed Conservancy, Cool Heron and Montgomery County Intermediate Unit to host an educator workshop on new STEEL/MWEE standards at Green Lane Reservoir.
Schuylkill River Restoration Fund	Since its inception in 2006, the SRRF has awarded over $5M for over 136 projects that have helped restore the Schuylkill Watershed, as well as leveraged over $5M in other funding sources.	In 2024, the SRRF awarded $499,750 to 7 projects in the Schuylkill Watershed.

Since its inception, the SAN has grown to include nearly 350 organizational and individual partners working together to protect the Schuylkill River watershed. To communicate the accomplishments of the SAN Stormwater workgroup to stakeholders as well as other SAN workgroups, the SAN routinely updates their website, http://www.schuylkillwaters.org, with input from PWD, the SAN Planning Committee, and other SAN workgroups. The website was redesigned in February 2018 and includes an internal component that allows for improved communication among SAN workgroup members and facilitates on-the-groundwork. The SAN website, together with https://water.phila.gov/, provide data and reports from the source water assessments for the Schuylkill River.

Delaware Valley Early Warning System

The Delaware Valley Early Warning System (EWS) is an integrated monitoring, notification, and communication system designed to provide advanced warning of surface water contamination events to subscribing water suppliers, industrial surface water users and partner government agencies in the Schuylkill and Lower Delaware River Watersheds. The Delaware Valley EWS covers the entire length of the Schuylkill River as well as the Delaware River from the Delaware Water Gap to just below Wilmington, Delaware.

The EWS incorporates a monitoring network of nearly 90 online water quality data stations throughout the watershed. Real-time and historic flow data are applied to a time of travel model that generates a range of estimated arrival times for each intake in the system. This time of travel model is also incorporated into a spill simulation tool that can be used for planning and training purposes.

When a responding agency reports a water quality event via the EWS website or telephone hotline, the entire user base is notified almost instantaneously via email. In the case of a high-risk event, supplemental phone notifications are placed using CodeRed technology, allowing all users to receive an automated telephone notification in less than three minutes. EWS users can log in to the secure website to view additional event details, spill routing, and predicted arrival times to their intakes. Additionally, a sophisticated tidal modeling component has been developed to better predict and communicate the arrival times of spills on the tidal Delaware River with a user-friendly spill trajectory animation. The EWS received the Governor's Award for Environmental Excellence and is nationally recognized for its use of stakeholder partnerships to meet regional source water protection objectives. In 2016, the EWS was featured as a case study in EPA's publication Online Source Water Quality Monitoring: For Water Quality Surveillance and Response Systems.

In the last couple of years, PWD implemented significant updates to the EWS user interface. Notable updates include full mobile device (smartphone) functionality for the EWS web site, improved mapping and notification features and a new website feature, the Flooding Forecast Viewer (FFV). These updates were presented to EWS users through a series of regional trainings and webinars.

Other PWD Related Websites and Social Media

PWD Main Web Site
water.phila.gov

The official website for the Philadelphia Water Department (PWD) contains comprehensive information about stormwater management for our customers. Resources span from the CSO LTCPU to plain language statements to help the average customer understand the importance of stormwater management.

The pages at water.phila.gov/stormwater received 28,095 pageviews from 17423 unique users in FY24. The Stormwater Grants page is geared to non-residential property owners interested in receiving grants to construct stormwater retrofit projects. The Stormwater Grants web page received 5,804 pageviews in FY24.

PWD Parcel Viewer and Stormwater Billing online:
https://stormwater.phila.gov/

The stormwater.phila.gov microsite plays an important role in showing users how their stormwater bill is calculated, how to apply for credits, or how to make appeals. The “parcel viewer” map application is the core of the site. Here, customers can search for a specific parcel or freely explore the map. When a parcel is clicked, data such as gross area, impervious area, and the monthly stormwater charge breakdown, are displayed. Users are encouraged to take actionable steps to reduce the amount of stormwater entering the sewer system and lower their stormwater bills.
There were 85,190 pageviews from 32,179 unique users in FY24.

In June 2022, PWD launched Stormwater Connect - an online tool designed to link green stormwater vendors with non-residential property owners. Vendors and property owners sign up to share their specifications, specialties, and interests. Once vendors complete a profile, they can start searching potential projects that align with their expertise. When a property owner signs up, they will find a list of vendors that match their needs using filters, such as experience building GSI. Vendors they're interested in are notified. From there, vendors can request a direct follow-up. Once connected, they can confirm what is possible on the non-residential site and a Stormwater Grant team partnership can be formed. Then, the team applies for a grant, which can cover up to 100% of design and construction costs. There were 889 pageviews from 522 unique users in FY24

Phillywatersheds.org

Watershed information was also housed on Phillywatersheds.org; however, PWD began archiving this site on September 1st, 2019. This content continues to be migrated to www.phila.gov/water and https://water.phila.gov . Phillywatersheds.org will remain an archived site that redirects to new locations until all content is moved or decommissioned. More information about content available on the site is discussed below but notice that some content may no longer be housed on phillywatersheds.org, and no new content is being added.

In spring of 2021, PWD launched Green City, Clean Waters’ official new landing page: water.phila.gov/green-city, replacing the decommissioned phillywatersheds.org and the official destination for Green City, Clean Waters on the web. The page received 11,289 pageviews from 6,781 unique users in FY24.

Development Review Program Website
https://www.pwdplanreview.org/

Since its deployment in FY16, the use of this site has grown and continues to be one of the most used websites in the city, a testament to its effectiveness in helping developers to meet Philadelphia’s stormwater regulations. There were 102,691 pageviews on the site in FY24.

For more information on the activities conducted by the Development Review Program please refer to the MS4 Annual Report **Section F.5 – Monitor and Control Stormwater from Construction Activities** on page 30.

PWD Department on Social Media

Social media is an essential tool for engaging communities in the development of stormwater infrastructure projects and best practices. These platforms are an important tool for disseminating departmental messaging about stormwater management, pollution prevention, and programs that improve the city's water resources. Social media is also an accessible tool for building and strengthening relationships with partner organizations and community groups.

The sections below describe the City's social media:

@PhillyH2O Blog

The @PhillyH2O Blog (water.phila.gov/blog/) launched in 2018 as a mobile-friendly "rolling collection of stories, tips, and news powered by the people of the Philadelphia Water Department."

The blog is part of a customer priority-focused digital strategy and provides quick access to information residents served by the department can use. The site often acts as a streamlined showcase of messaging campaigns that are amplified by press releases, social media, direct mail, and email.

Posts promote a wide variety of topics, including how to use the Basement Protection Program, which provides free plumbing improvements for those impacted by combined sewer overflows; community input meetings for GSI construction sites and other projects; updates about the progress of Green City, Clean Waters, and highlights of current programs and events and relevant partner initiatives. There were a total of 9 posts during FY24. In FY24, the blog received over 15,000 page views.

During FY24, the most viewed blog, "A Delaware Dilemma," published in February of 2024, received nearly 1,200 views. The blog shares PWD's position on the EPA's proposed changes to water quality standards in the Delaware River around increasing levels of dissolved oxygen.

PWD Customer Contact List

The PWD subscribers' contact list is a distribution list of email addresses. Subscribers to the PWD lists sign up to receive PWD updates on several GovDelivery topics.

Subscriber totals at the end of FY 24:

- Customer Assistance Programs - 17,535
- Events - 6,121
- Alerts & Notifications - 12,618
- Water Quality Updates - 5,672
- Water Revitalization Plan: 2,202
- Employment - 12,515
- PWD General News - 15,260
- Philadelphia Press - 2,540

Subscribers in these topics are added through online sign-up builders and collected at public events and meetings hosted by PWD.

Correspondence includes standard communication about various PWD programs and services, targeted communications about localized updates, such as planned infrastructure work in their neighborhood or ZIP code or other best practice information, and critical updates for PWD customers.

Metrics goals are based on a 2023 Digital Communications Benchmark Report created by Granicus – a digital civic engagement company for governmental use. PWD's GovDelivery system is a product of Granicus.

PWD Public Affairs uses the following industry benchmarks:

- Public Works & Utilities: median open rate of 32% and a median click rate of 2%
- Water & Sanitation: median open rate of 39% and a median click rate of 3%

During FY 24, 6,523 bulletins were sent to 2,442,297 email recipients and SMS 120,841 recipients, totaling 2,563,138 subscribers. The average email open rate is 44.1% and the average email click rate was 5.2%. The average SMS click rate was 15.4%.

KUBRA E-billing

The Philadelphia Water Revenue Bureau maintains a list of e-billing subscribers. Subscribers can manage their account online and receive bill information via email. There were more than 285,000 e-billing subscribers at the end of FY24.PWD often interacts with and/or sends GovDelivery email bulletins to subscribers throughout the year.

Facebook

The Philadelphia Water Department has a Facebook page located at http://www.facebook.com/PhillyH2O

The Fairmount Water Works (FWW) also maintains a Facebook page that extends the reach of departmental messaging. The page can be accessed at https://www.facebook.com/FairmountWW/

- PWD page had 5,447 followers at the end of FY 24.
- Fairmount Water Works page had approximately 3,000 followers at the end of FY 24.

X, formerly known as Twitter

X is a valuable communications channel for resolving customer complaints, providing customer information, and delivering news concerning the department, education, and water in general. The Department also builds connections with national and international peer cities and other stakeholders in the stormwater management field through Twitter. By the end of FY24, the Philadelphia Water Department X account, @PhillyH2O, had approximately 14,500 followers.

Instagram

The Philadelphia Water Department maintains an Instagram account, @PhillyH2O, to share visual information and resources around its services. At the end of FY 24, the Instagram account had 7,197 followers.

Nextdoor

The Philadelphia Water Department maintains a NextDoor.com account with more than 274,000 members representing Department customers in city neighborhoods. The platform has proved a valuable tool for hyper-local outreach. Posts containing detailed information about construction projects supporting the LTCPU are made available to communities directly impacted. More than 200 posts received nearly 375,380 impressions from Philadelphia users in FY24.

LinkedIn

The Philadelphia Water Department LinkedIn account had a total of more than 7,200 followers at the end of FY24. The Department continued to share both employment-based posts and general information pertaining to the utility and its services.

PWD Department Videos

PWD hosts videos on Vimeo, YouTube, and all social media platforms. Video content provides information about topics including:

- Why infrastructure investment is needed to reduce sewer overflows
- How green and traditional infrastructure protects waterways
- Careers building and maintaining infrastructure, and more.

PWD video content includes animation. While some content is highly produced with support from contracted professionals, videos produced in-house by Public Affairs staff also play an important role in communicating with residents. Videos not shared on social media can be accessed at the following links:

- http://www.vimeo.com/phillywatersheds
- http://www.youtube.com/pwdepartment

During FY 24, there were approximately 3,325 video views on PWD's Vimeo page. In that same period, PWD's YouTube account received approximately 2,340 video views.

II.G.3 Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications

The PWD develops numerous publications for the public that are distributed throughout the city at advisory committee meetings, public meetings, and other public events, in addition to being distributed through the water/sewer/stormwater bill to PWD customers. The following publications, meetings and events have been shared with and/or involved the public during FY24:

Media Advisories and Press Releases

2023

- Media Alert: State Grant Program May Offer Phila. Customers Up to $5,000 for Past-Due Water Bills - 7/10
- Media Alert: Phila. Water Dept. Opens Treatment Plant Sept. 30 for Public Tours, Career Fair - 9/13
- Media Alert: Water Dept. Hosting Job Fair, Demonstrations Tomorrow - 9/29

2024

- Media Alert: Phila. Water Dept. to Mark $25 Million in Grant Funding from State - 1/23
- Mayor Parker Reappoints Commissioner Hayman at Philadelphia Water Dept. - 3/07
- Media Alert: Phila. Water Dept. Files Notice of 2024 Rate Proceedings - 3/25
- Media Alert: Philadelphia Water Department Honors Stormwater Pioneers - 4/18

- Press Release: Water Dept. Partners with Mural Arts, Academy of Natural Sciences for Germantown Project - 4/29
- Media Alert: Water Revitalization Plan Family Discovery Day May 13! - 5/09

Publications

Annual Consumer Confidence Report of 2023 Water Quality Data, which can be found here: https://water.phila.gov/drops/2022-drinking-water-quality-report/

Bill stuffers – Print and Digital

- Delaware River Festival 2023 – August 2023
- Rate Changes – September 2023
- Taking Care of Storm Drains – November 2023
- Damaged Water Mains & Pipes: Water Infrastructure Emergencies – January 2024
- All About Frozen Pipes – February 2024
- April is Earth Month: Plastic Free Philly – March 2024
- Free Library Summer Reading Program -May 2024

Water Quality Report Campaign

From July 2023 through November 2023, PWD's Public Affairs unit conducted a targeted digital campaign highlighting the 2022 Water Quality Report. The project focused on reaching regions of the city with the least amount of awareness of the report and the least amount of trust in tap water – based on PWD customer survey findings conducted with the University of Pennsylvania. Over the course of the four-month campaign, the content was broken down by various sections of the report and distributed to subscribers via GovDelivery bulletins by ZIP code and Nextdoor posts by neighborhoods.

Philly Water Bar

During FY24, PWD hosted nearly 20 Water Bar events reaching over 2,600 people who were engaged at PWD's Water Bar in FY24. As is standard, Public Affairs worked together to showcase digital communications around the annual Water Bar launch using social media, media alerts, and our digital newsletter bulletins using GovDelivery. During FY24, 2 bulletins with approximately 17,000 recipients each were sent to PWD newsletter subscribers announcing the Water Bar pop-up events at City Hall. Learn more: water.phila.gov/drops/philly-water-bar-2024

Stormwater Pioneers

In April 2024, PWD recognized Awbury Arboretum and the Philadelphia Federal Credit Union (PFCU). Both institutions have implemented outstanding green stormwater infrastructure projects on their properties. These local establishments represent excellence in retrofitting existing systems to manage stormwater runoff.

The Stormwater Pioneers program recognizes the best stormwater management on property not owned by the City of Philadelphia. These private properties display exceptional commitment to maintaining stormwater infrastructure and use their green tools as inspiration for education and community engagement. Learn more: water.phila.gov/stormwater/pioneers

Waterway Arts Initiative

In 2024, Public Affairs launched the Waterway Arts Initiative. This project is a partnership between the Philadelphia Water Department, the Academy of Natural Sciences of Drexel University, and Mural Arts

Philadelphia seeking to foster environmental discourse, empower community resilience, and share information and resources about critical flooding issues facing the Germantown community.

With a central focus on community engagement, the initiative brings together an alliance of residents, artists, and scientists to investigate flooding in Germantown, utilizing multidisciplinary research, community science, and creative storytelling.

The coalition includes Germantown residents, local artists, and Academy scientists. Each member brings a critical perspective to the project, from data science and installation art to firsthand experience with flooding in the neighborhood. Learn more: water.phila.gov/drops/waterway-arts-initiative-germantown

II.G.4 Continue to Support the Fairmount Water Works Interpretive Center

In FY24, the Fairmount Water Works Interpretive Center (FWWIC) and partners **hosted close to 23,000 individuals in environmental education and outreach events** that featured *Green City, Clean Waters* and/or urban waters themed educational content. FWWIC and its educators offered programming on-site, in the field, in the classroom, and on the water all while working with partners like the Alliance for Watershed Education, Tookany/Tacony-Frankford Watershed Partnership, the Partnership for the Delaware Estuary, the Schuylkill River Development Corporation, Philadelphia Parks & Recreation, and the Philadelphia School District.

Table 10: Fairmount Water Works Interpretive Center – FY23 Education Center Attendance

FWWIC Types of Visitors & Attendance	Visitors
General FWWIC Visitors	6,727
School Groups, Camps & Recreational Centers	7,247
UUW	1,917
Tours	491
Special Events	1,292
Outreach Efforts	4,910
FY24 Total Visitors	**25,374**

**The drop in engagement numbers (tours) can be attributed to the end of POOL, the grant funded, award winning exhibition, March 2023. A shift in strategic priorities led to an increase in school groups and outreach.*

Visitor engagement consisted of organized exterior tours for adults, families and children, ongoing activities with school groups and summer camps, in-classroom presentations on urban watershed issues, treatment plant processes, FWW history and two, well received by both the media and public, art exhibitions: Take Me To The River, curated by artist Corrine Dieterle, Fall 2023 and 'Wandering: Observations of Our Watershed', curated by Thom Duffy Fine Arts (April – July 2024). Outreach efforts also included encouraging teachers and students to participate in the Understanding the Urban Watershed (UUW) middle years curriculum project, with a special emphasis on Mussels in the Classroom.

FWWIC continues to deploy Understanding the Urban Watershed (UUW) to both teachers and students across Philadelphia. Understanding the Urban Watershed is a cross-disciplinary curriculum Units for Grade 4th through 9th, with multiple Learning Experiences in each Unit that are accessible online (link here). The website provides links to instructional materials, resources, videos, and differentiated learning opportunities. Teachers are encouraged to provide engaging student field experiences

(Meaningful Watershed Educational Experiences, or MWEEs) and hands-on exploration to complement classroom instruction.

Understanding the Urban Watershed is aligned with both the School District of Philadelphia's (District) core content and the new PA Academic Standards or STEELS (Science, Engineering, Environmental Literacy and Sustainability). Development and implementation of the curriculum has been a collaborative effort with the District Offices of Curriculum, Instruction and Assessment, and Environmental Management & Services. Part of this is a one-week Summer Professional Development Training Institute for Teachers, supported by the School District. The curriculum is an exemplar for goals and targets as outlined in the District's Sustainability Plan, GreenFutures, and is easily embedded into core standards and performance indicators as assessed using performance criteria.

The UUW Curriculum offers students, teachers[1], schools[2], and the community active learning experiences about the value of water, water systems, and civic action and responsibility. It connects students to Philadelphia and the role they play on their block, in their school, and throughout their city, with a goal to achieve positive local and global impacts through experiential watershed education, and to transform users into stewards and advocates for our shared water resources.

[1] Number of teachers in 2023-24: 31 total (6 Elementary, 21 Middle School, 4 HS).
[2] Number of schools: 19 (4 Elementary, 13 Middle, 2 HS).

II.H NMC 8 - Public Notification to Ensure that the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts

PWD has developed and will continue to enhance a series of informational brochures and other materials about its CSO discharges and the potential effects these discharges have on the receiving waters. In addition, PWD has enlisted watershed organizations and partnerships to assist in this endeavor to raise the level of citizen awareness about the function of CSO and stormwater outfalls through a variety of educational mediums.

II.H.1 Launch a Proactive Public Notification Program Using Numerous Media Sources

PWD is advancing a proactive public notification program that uses print, internet, outfall signage, and other media to distribute information on the locations of CSOs, information on hazards, and potential public actions.

CSO Outfall Signage

In summer 2007, PWD initiated a pilot project to install 13 informative signs at CSO outfalls throughout the city. During a follow-up survey in October 2007, it was found that 5 of the 13 signs had been either removed or vandalized. Currently each CSO outfall location, except for 8 inaccessible locations, has an identification sign installed which helps the public to accurately identify an outfall when reporting a problem.

Other Notification Measures

PWD continues to develop informational materials and maintain websites to educate the public about its CSO discharges and the potential effect on receiving waters. PWD has found that one of the best ways for public notification of CSOs is through the traditional public outreach programs described in NMC7: Pollution Prevention Program, please refer **Section II.G – NMC 7- Pollution Prevention** on page 20.

II.H.2 Expand the Internet-Based Notification System (RiverCast) to the Tidal Section of the Lower Schuylkill River

In order to expand the web-based water quality forecasting system for the Schuylkill River, RiverCast, PWD developed another internet-based notification system called CSOcast in 2008, which reports on the overflow status of outfalls in every CSO shed.

The website is built using the Google Maps API which allows for the dynamic loading of geographically referenced data that can be viewed with a familiar and user-friendly interface. The map is available 24 hours a day and displays the most up-to-date data available. PWD is constantly updating and improving the notification system as well as the flow monitoring network to deliver the best information possible to the public. During FY24, CSOcast had a total of 3,827 pageviews. The CSOcast notification system can be accessed through: https://water.phila.gov/maps/csocast/.

II.I NMC 9 - Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls

II.I.1 Report on the Status and Effectiveness of Each of the NMCs in the Annual CSO Status Report

The Combined Sewer Management Program Annual Report, combined with the Stormwater Management Program Annual Report, will be submitted in September of each year, documenting the previous fiscal year activities.

III. Implementation of the LTCP

Table 11: Summary of 1997 CSO LTCP Capital Projects

Project	Status
Real Time Control (RTC) Program	
RTC - Main Relief Sewer Storage (R-7 through R-12)	Complete
RTC - Tacony Creek Park Storage (T-14)	Complete
RTC - Rock Run Relief Sewer Storage (R-15)	Complete
Establish RTC Center	Complete
RTC & Flow Optimization (Southwest Main Gravity Interceptor, Cobbs Creek Cut-Off, and Lower Schuylkill West Side)	Complete
Targeted Infiltration/Inflow Reduction Programs	On-Going
Solids & Floatables Control Program	On-Going
85% CSO Capture Pennypack Watershed (P1 through P5)	Complete
Eliminate Outfalls: Dobson's Run Phase I	Complete
Eliminate Outfalls: Dobson's Run Phase II & III	Complete
Eliminate Main & Shurs Overflow (R-20)	Complete
Eliminate 32nd & Thompson Outfall (R-19)	Complete
Collection System Improvements	
Upgrade Frankford Siphon	Complete
Somerset Interceptor Sewer Conveyance Improvements	Complete
Cobbs Creek Low Level Conveyance Improvements	Complete
Cobbs Creek Low Level Control Project	Complete

Project	Status
Water Pollution Control Plant (WPCP) Wet Weather Treatment Maximization Program	Complete

III.A CSO LTCP Update

The full Philadelphia Combined Sewer Overflow LTCPU report can be found at the following address: https://water.phila.gov/green-city/.

Please refer to **Appendix A – Green City, Clean Waters FY24 Annual Report** for an update on implementation progress.

III.B Capital Improvement Projects

III.B.1 On-going Capital Improvement Projects

Please see **Table 12** – Status updates for On-going Capital Improvement Projects on page 30.

Table 12: Status updates for On-going Capital Improvement Projects

Project	Status	Update / Reference
Completion and Operation of the Real-time Control Center and Rehabilitate and Maintain the Monitoring Network	Completed in 2003	For details on maintenance of monitoring network please refer to Appendix C – FY24 Program Maintenance Annual Report.
WPCP Wet Weather Treatment Maximization (NE)	Evaluated and implemented options from the Jan. 2000 Stress Testing Report	Refer to Section III.B.1.2 WPCP Wet Weather Treatment Maximization (NE) on page 66 of the CSO-Stormwater FY12 Annual Report
Evaluate Stress Test Report Options in the LTCPU	Completed March 2009 (all three WPCPs)	Refer to Section III.B.1.2.1 Evaluate Stress Test Report Options in the LTCPU on page 69 of the CSO-Stormwater FY12 Annual Report
Implement Options 1, 2, and 4 from the Stress Test Report (NE)	Completed January 2006	Refer to Section III.B.1.3.2 Implement Options 1, 2, and 4 from the Stress Test Report on page 91 in the CSO-Stormwater FY10 Annual Report.
Plan, Design, and Construct Options 5 & 7 of the Stress Test Report to Increase the Secondary Plant Capacity to 435 MGD	Completed February and August 2012	Refer to Section III.B.1.2.3 Plan, Design, and Construct Options 2 & 6 from the Stress Test Report on page 70 in the CSO-Stormwater FY 2012 Annual Report.
Explore increasing the preliminary treatment, primary treatment, and final effluent disinfection treatment capacities in excess of the existing secondary treatment capacity at the NE WPCP	Plan was originally submitted to the PADEP on June 1, 2013. The NE Facility Concept Plan (FCP) was revised based on comments from PADEP and re-submitted on December 31, 2013.	PWD operates three Water Pollution Control Plants (WPCPs): the Northeast, Southwest, and Southeast WPCP. The Wet Weather Facility Plan (WWFP), which was submitted on June 1, 2016, provides details on scheduling, cost, and anticipated construction completion for each project. The WWFP is available at the following link: http://water.phila.gov/pool/Wet_Weather_Facility_Plan_website.pdf
Initiate the Facility Planning and Design for the By-pass Conduit	PADEP approved on April 1, 2009, the bypass of secondary treatment for 100 MGD of additional wet weather flow at NE WPCP	As described in the LTCPU, PWD committed to the expansion of the NE WPCP to include a 215 million gallon/day secondary treatment bypass. PWD proceeded with a design and the bypass of the plant secondary processes for total plant flows that exceed 435 MGD is currently under construction. Project renamed as NEWPCP High Flow Management System.
Report to the DEP the Status of these Projects in the Annual Status Reports when Major Work Elements Are Completed	As Necessary	The CSO Annual Report continues to include information in the WPCP wet weather treatment maximization at the NE WPCP
85% Capture (NE) - 85% Flow Capture Technical Report	August 2008	Refer to Section III.B.1.3 85% Capture (NE) on page 71 of the CSO-Stormwater FY 2012 Annual Report.
In-Line System Storage Projects (NE)	N/A	Reported on in Section II.B.5 Operate and Maintain In-line Collection Storage System Projects Contained Within the LTCP of this report, starting on page 5.

Project	Status	Update / Reference
Implementation of the Southwest Plant Stress Test Report Option 1	Option 1, to inspect and repair leaking weirs and concrete surfaces in the final sedimentation tanks at the Southwest Plant, was completed in April of 2002	Option 1 and other improvements were also discussed in further detail within the Facility Concept Plan for the Southwest Water Pollution Control Plant that was submitted to the PADEP on June 1, 2013. This plan is available on-line through the following website: https://water.phila.gov/pool/files/SW-Facility-Concept-Plan-Final_FINAL.pdf
Real Time Control (RTC) and Flow Optimization for the Southwest Drainage (SW) - Implementation of Projects for Real Time Control (RTC) and Flow Optimization for the Southwest Drainage District	Completed April 2010	Refer to Section III.B.1.8 Real Time Control and Flow Optimization for the Southwest Drainage on page 74 of the CSO-Stormwater FY12 Annual Report.
RTC/Main Relief Sewer Storage (SW) - Construction and Implementation of Main Relief Sewer Storage and Real-time Control	Please see **Section II.B.5 Main Relief** on page 5 of this report for status	Refer to **Section II.B.5 Main Relief** on page 5 of this report
Eliminate CSO/Dobson Run Project (SW) - Construction and Implementation of the Dobson's Run Project	Phases I completed in 1998; Phases II and III were completed by 2011.	Refer to Section III.B.1.10 Eliminate CSO/Dobson's Run Project on page 95 of the CSO-Stormwater FY11 Annual Report
Eliminate CSO/Main and Shurs Off-Line Storage (SW) - Construction and Implementation of the Main and Shurs Off-line Storage Project	Please see **Section III.B.1** below for status	Please see **Section III.B.1** below for update

III.B.1 On-going Capital Improvement Projects

Eliminate CSO/Main and Shurs Off-Line Storage (SW) - Construction and Implementation of the Main and Shurs Off-line Storage Project

The Upper Schuylkill East Side Interceptor Sewer (USES) is located along the Schuylkill River adjacent to the Manayunk Canal in the northwest section of Philadelphia. It conveys sewage from collection systems which serve the northwest section of the city. During extreme wet weather events, the USES exceeded its capacity and overflows occurred at relief point R-20 into a storm sewer upstream of storm water outfall S-052-5. To abate the hydraulic overload conditions in the USES, PWD finished construction of a 4 MG offline storage tank in May of 2013, which captures and stores excess flows. The tank serves to eliminate surcharges and prevent overflow conditions at the R-20 relief location.

The Venice Island Storage Facility is currently in service and operating as designed. In FY24, the facility captured stormwater from 16 major storms. The total captured volume was approximately 9.46 MG of sanitary wastewater. The weir elevation at the R-20 relief window remained at 65 inches during FY24.

Grit accumulation is a known USES issue that reduces interceptor capacity and the effectiveness of the Venice Island storage tank. PWD performs periodic grit surveys of the USES to better understand grit type and accumulation frequency. PWD performed a sonar inspection on the lower reach of the USES interceptor in FY19 which showed minimal grit deposition at that time. Routine level trending of the R-20 interceptor sensor indicated that grit deposition was not enough to warrant an interceptor cleaning during FY24. PWD will continue to track grit deposition in the USES and results from the on-going sonar inspection will guide PWD’s future interceptor cleaning efforts. By taking a proactive approach, PWD can schedule flushing and sewer cleaning to maximize capacity of the interceptor and the Venice Island storage tank’s effectiveness.

III.B.2 New Capital Improvement Projects to be Included in LTCPU

Please see **Table III.B.2-1** – Status updates for New Capital Improvement Projects to be included in LTCPU on page 34.

PC-30 Parallel Relief Sewer

The project and stipulations of the COA regarding the parallel relief sewer were completed on 12/27/11. As of July 2013, the parallel relief sewer and all appurtenances have been operating as designed. In FY19, two float switches were installed at PC-0030 to monitor overflows at the location with greater accuracy. During FY24, there were three overflow events at manhole PC-0030. Information regarding PC-30 monitoring and modeling data for overflow observation are submitted monthly to PADEP.

Table 13: Status updates for New Capital Improvement Projects to be Included in LTCPU

Project	Status	Update / Reference
Asset and Capacity Management Program		
Geographic Information System	Ongoing	Refer to Section II.A.1 Implement a Comprehensive Geographic Information System (GIS) of the City sewer system on page 1
Sewer Assessment Program	Ongoing	Refer to Section II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP) on page 1
Monitoring and Modeling Program	Ongoing	Refer to II.B.1 Continue to Institutionalize a Comprehensive Monitoring and Modeling Program on page 2
Inflow/Infiltration (I/I) Controls		
Tide Inflow	Completed in 1999	PWD continues to inspect and maintain all tide gates to ensure their correct performance. Refer to Section 2.1.2 Corrective Actions – Tide Inflow on page 28 of the 2001 CSO Annual Status Report
Sewer Assessment Program		Refer to Section II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP) on page 1 of this report
Infrastructure Assessments	Completed in 2008; PWD continues to monitor and inspect for problem areas	Refer to Section III.B.2.2 Infrastructure Assessments on page 82 of the CSO-Stormwater FY08 Annual Report
Interceptor Relining	• Cobbs Creek Interceptor (CC) – Ongoing (~50% Complete) • Tacony Creek Interceptor (TC) – Ongoing (~50% Complete)	• CC – Phase 2 – In PC Contract Management ~ 5,100 ft. • CC – Phase 4 – Contract closed - Complete ~ 8,350 ft. • TC – Phase 3 – Design 30% ~ 6,550 ft. • TC – Phase 4 – Design 90% ~ 5,825 ft. • TC – Phase 5 – Design 90% ~ 6,400 ft.
PC-30 Parallel Relief Sewer	COA stipulations completed on 12/27/11. Operating as designed as of July 2013. Floats installed in FY19.	During FY24, there were three overflow events at manhole PC-0030.
Sewer Separation		
	Sewer separation was studied and modeled as one of the options in the LTCPU and deemed cost prohibitive. No large-scale sewer separation projects have been identified or implemented during the reporting period.	
New Storage Facilities		
	PWD is continuing to investigate opportunities to construct off-line CSO storage facilities to maximize existing sewer treatment capacity and increase the volume of CSO captured and treated. No new storage facility projects have been implemented during the reporting period.	

III.C Watershed-Based Management - Continue to Apply the Watershed Management Planning Process and Produce and Update the Watershed Implementation Plans

Watershed Alliance of Southeastern Pennsylvania

In 2013, PWD and its designated watershed partnership facilitator, the Pennsylvania Environmental Council (PEC), initiated the Watershed Alliance of Southeastern PA to unite the watershed partnerships in the Philadelphia area. The Alliance members became an integral component of the Upstream Suburban Philadelphia Cluster, part of the Delaware River Watershed Initiative (DRWI), created in 2014. Since 2014, PEC has facilitated DRWI Upstream Suburban Philadelphia partners including watershed groups and academic institutions. This partnership has implemented over 67 stormwater management and watershed restoration capital projects at 46 project locations, and over 230 smaller homeowner stormwater management projects. PEC and partners also conduct education and outreach programs that promote homeowner and large landowner stormwater management best practices. The partnership also conducts extensive monitoring of project impacts and general water quality conditions, including citizen science volunteers who monitor stream health. A Story Map summary of the DRWI Upstream Suburban Philadelphia initiative is available here. The overall effort seeks to improve water quality and manage stormwater where it falls, to benefit Philadelphia area watershed residents both inside and upstream of the City. PEC continues to facilitate the implementation of the Upstream Philadelphia Cluster working with eight environmental non-profit organizations and Temple and Villanova universities.

Implementation Planning - Development of Target Approach for Meeting Goals and Objectives

The culmination of the watershed management planning process often results in an Integrated Watershed Management Plan (IWMP), or a watershed-specific planning document. The process for developing watershed planning documents has evolved and depends on the interests of the partnerships. Table III.C.1-2 contains the status of the various plans in each of Philadelphia's watersheds. Information on the each of the watersheds and the completed plans can be found at www.phillywatersheds.org/your_watershed. Many of the recommended management options in the TTF and Cobbs Creek IWMPs have been institutionalized a city-wide basis and continue to be implemented.

The watersheds in the MS4 section of the city have undergone a slightly different process. In these watersheds (Pennypack, Poquessing, and Wissahickon), the stakeholder goals and objectives were established through the development of Rivers Conservation Plans and Act 167 Plans. PWD works with the watershed partners through these existing watershed-based planning efforts. Details on the Act 167 Plans can be found in **Section III.C.3.7 Basin-Specific Stormwater Management Plans (ACT 167)** on page 44. The Act 167 process has met PWD's goal to have watershed-wide commitment to the watershed planning process and allows the process to be partner-driven and focused on implementation.

Table 14: Planning by Watershed

Watershed	Preliminary Reconnaissance	Watershed Monitoring Program	River Conservation Plan	Watershed Management Plan	Implementation Commitment Status
Delaware River (tidal, non-tidal)	Monitoring Only		Completed in 2011	PWD continues to work with watershed partners on implementing specific projects.	Philadelphia commitment documented in the LTCPU and its supplements.
Cobbs-Darby Creeks	2003	2003	Darby RCP completed in 2005 by Darby Creek Valley Association	Completed 2004	Philadelphia commitment documented in the LTCPU and its supplements.
Tacony-Frankford Creek	2000/2001	2004	Completed in 2004	Completed 2005	Philadelphia commitment documented in the LTCPU and its supplements.
Pennypack Creek	2002	2007-2008	Completed in 2005	Act 167 Stormwater Management Plan approved in July 2013	Philadelphia is implementing the Act 167 Plan through the Philadelphia Stormwater Management Regulations.
Schuylkill River (tidal, non-tidal)	Monitoring Only		Completed in 2001 by the Academy of Natural Sciences, Natural Lands Trust, and the Conservation Fund	PWD continues to work with watershed partners on implementing specific projects.	Documented in the LTCPU and its supplements.
Poquessing Creek	2001	2008-2009	Completed in 2007	Act 167 Stormwater Management Plan approved August 28, 2013.	Philadelphia is implementing the Act 167 Plan through the Philadelphia Stormwater Management Regulations.
Wissahickon Creek	2001	2005-2006	Completed in 2000 by FPC	Act 167 Stormwater Management Plan approved on July 10, 2015	A Wissahickon TMDL Implementation Plan was submitted in 2012. Implementation plan depends on watershed partnership support for a watershed-wide initiative.

III.C.1 LAND: Wet-Weather Source Control

Watershed management fosters the coordinated implementation of programs to control sources of pollution, reduce polluted runoff, and promote managed growth in the city and surrounding areas, while protecting the region's drinking water supplies, fishing and other recreational activities, and preserving sensitive natural resources such as parks and streams.

PWD is committed to a balanced "land-water-infrastructure" approach to achieve its watershed management and CSO control goals. Where appropriate, this method includes infrastructure-based approaches, but focuses on implementation of a range of land-based stormwater management techniques and physical reconstruction of aquatic habitats where appropriate. The ultimate goal of PWD's approach is to regain the resources in and around streams that have been lost due to urbanization, both within the City of Philadelphia and in the surrounding counties, while achieving regulatory compliance objectives in a cost-effective manner. Central to all of these planning programs is a commitment to greening, sustainability, open space, waterfront revitalization, outdoor recreation, and quality of life.

The wet-weather source controls have been formalized in the LTCPU and its supplements, including the Consent Order and Agreement signed on June 1, 2011, which formally approved the Green City, Clean Waters program. Detailed information on the land-based wet-weather source controls can be found in **Appendix A – Green City, Clean Waters FY24 Annual Report**.

III.C.1.1 Ordinance and Regulations Modifications - Continue to review and revise stormwater

management regulations for development and redevelopment

PWD's Stormwater Management Regulations became effective in Philadelphia on January 1, 2006, which provided PWD with an opportunity to ensure development/redevelopment that protects our water resources, reduces neighborhood flooding, and improves the quality of life in our communities. The Stormwater Management Regulations are triggered when a project disturbs 15,000 or more square feet of earth. Effective July 1, 2015, the Stormwater Regulations were updated to improve and strengthen PWD's stormwater programs. For more information on PWD's Regulations, please see the MS4 Annual Report **Section F.5.b – Post-Construction Stormwater Management in New Development and Redevelopment** on page 35.

III.C.1.2 Guidance on Stormwater Management Regulations Implementation

PWD staff in charge of Stormwater Regulation implementation are available to the development community to discuss both general questions as well as technical details regarding specific projects. Guidance is provided by PWD staff as it relates to regulatory applicability as well as stormwater management implementation and approach. For improved accessibility, PWD staff have utilized virtual meetings that have allowed for the Department to be more available on short notice to applicants. PWD staff continue to be available for pre-application meetings and project discussions on demand as needed. To request a meeting with PWD staff, applicants are directed to use the online pre-application meeting request form: https://www.pwdplanreview.org/apply/application/pre_app_meeting.

III.C.1.3 Implementation of Stormwater BMPs and LID - Continue to implement best management and LID demonstration

PWD continues to implement stormwater BMPs and LID, now referred to as Green Stormwater Infrastructure (GSI) through the Green City, Clean Waters program. Please refer **to Appendix A – Green City, Clean Waters FY24 Annual Report** for a detailed description on the City's implementation of GSI during FY24.

III.C.1.4 Catch Basin Control Program - Continue to maintain the trapped inlets

PWD continues to maintain all City-owned inlets and catch basins to ensure they are clear and operating correctly. For a full description of the activities conducted by inlet cleaning programs during FY24, please refer to **Section II.F.1 Control the Discharge of Solids and Floatables by Cleaning Inlets and Catch Basins** on page 12.

III.C.1.5 Impervious Cover Disconnection - Evaluate the feasibility of separating the stormwater runoff from large impervious land tracts for management and direct discharge

PWD evaluates opportunities to separate stormwater runoff from large impervious tracts of land using incentives and regulatory-based approaches. Projects that apply for PWD's grant programs are evaluated for disconnection potential and encouraged to construct connections to available separate storm sewer or private stormwater outfalls where feasible. PWD continues to evaluate opportunities for separating stormwater runoff from large impervious land tracts through private development and incentivized retrofits.

III.C.1.6 Reforestation - Work to implement reforestation demonstration projects to provide additional tree canopy

Green Stormwater Infrastructure Projects

Community greening and tree planting is a key component of green stormwater infrastructure and the Green City, Clean Waters plan. PWD has been planting trees as part of the GSI projects. Please refer to **Appendix A – Green City, Clean Waters FY24 Annual Report** for information on trees planted as part of GSI projects implemented in the city.

Street Tree Planting

As part of supporting the City's GreenWorks goals, PWD has partnered with PPR to conduct street tree plantings. PPR contracted trees to be planted in the right-of-way in front of properties and on public lands. During FY24, 953 street trees were planted through this contract.

TreePhilly Community Forestry Program

The TreePhilly community forestry program directly engages Philadelphians in improving their communities by planting and maintaining trees. Released in February 2023, the Philly Tree Plan, a 10-year strategic plan for the equitable growth and care of Philadelphia's urban forest, outlines the goal to increase tree canopy to 30% throughout the city. It focuses on 7 priority areas:

- To communicate the social, economic, and ecological value of the urban forest
- To prioritize equity in service delivery, ensuring that the most vulnerable and underserved communities benefit from a healthy tree canopy
- To facilitate collaboration and identify clearly defined roles among City agencies, nonprofits, scientists, and engaged residents
- To plan for the proactive planting and care of our urban forest
- To identify funding goals and strategies for Philadelphia's urban forest
- To propose strong and enforceable public policy for the protection of our city trees
- To build a culture of trust and collaboration between Philadelphia residents and the institutions that serve our urban forest

A $12 million US Department of Agriculture grant will help fund the implementation of the plan. With the grant agreement recently finalized, groups can start using the funds. In FY24, community organizers on the TreePhilly team distributed 1,495-yard trees for residents to plant on private property, facilitated the planting of 125 street trees along commercial corridors, and planted 28 park trees.

III.C.2 Water Ecosystem Restoration and Aesthetics

III.C.2.1 Waterways Restoration Team - Continue the assignment of a dedicated clean-up team to remove cars, shopping carts, and other debris, from CSO receiving waters

During FY24, the Waterways Restoration Team has continued their program which includes removal of cars, shopping carts, and other debris from receiving waters. Please refer to **Section II.F.2 Continue to Fund and Operate the Waterways Restoration Team** on page 13 for information pertaining to the Waterways Restoration Team's activities during FY24.

III.C.2.2 Waterways Restoration Team - Evaluate the capabilities of this crew in performing minor stream bank and bed repair around outfall pipes and to remove debris at these outfalls

During FY24, the Waterways Restoration Team continued their program, which includes conducting minor stream bank and bed repairs around outfalls and removing debris around them. Please refer to **Section II.F.2 Continue to Fund and Operate the Waterways Restoration Team** on page 13 for information pertaining to the Waterways Restoration Team's activities during FY24.

III.C.2.3 Stream Habitat Restoration - Propose and implement demonstration projects to address habitat degradation by engineering the stream channels to modern day flows and directly reconstructing the aquatic habitat

PWD employs natural stream channel design (NSCD) and associated stormwater management BMPs as a means to improve the health of aquatic communities in receiving waters with degraded flow and habitat alterations due to stormwater runoff. For a description of these projects, please see the MS4 Annual Report **Section F.2.Step 3.a – Assess the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach** on page 14.

III.C.2.4 Wetland Enhancement and Construction

Three stormwater treatment wetlands facilities were designed and implemented to remove pollutants and mitigate peak flows, while providing aesthetic and ecological benefits. For a description of these projects, please refer to the MS4 Annual Report **Section F.2.Step 3.a – Access the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach** on page 14.

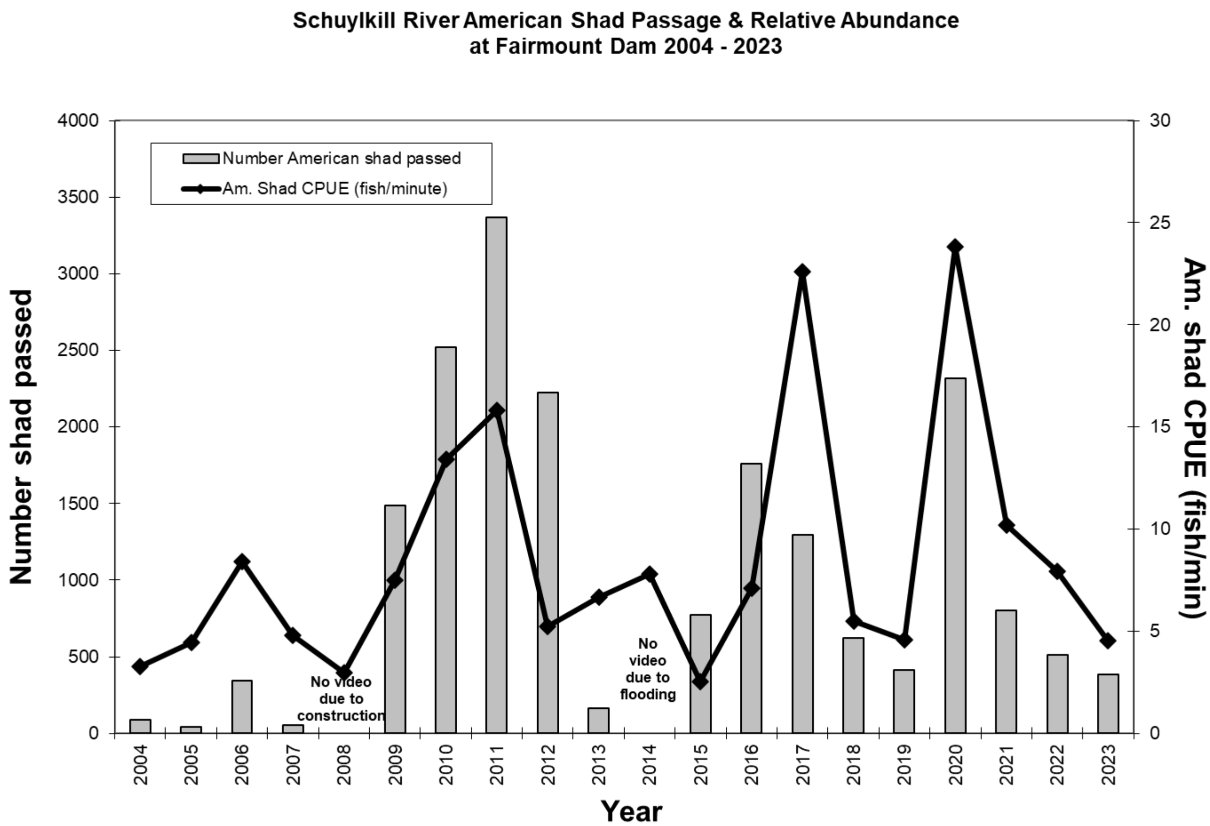
III.C.2.5 Fish Passage Projects

Schuylkill River: Fairmount Fishway

In 2009, through a joint cooperative agreement with the USACE, the City of Philadelphia upgraded many features of the fishway to improve hydraulics and overall fish passage efficiency.

Adult American Shad relative abundance (CPUE, number of shad per minute of electrofishing) in the tidal Schuylkill River in 2023 ranked 16th overall in the time-series (2002-2023). The 20223CPUE at Fairmount Dam (4.55 shad/minute) fell significantly below the time series average (2002 – 2023), and slightly below both the geometric mean (6.94 shad/minute) and the median value (6.90 shad/minute). It should be noted that boat electrofishing survey effort in 2023 (45.92 hours) was slightly above the time series average (5.2 hours) and represents a return to pre-COVID 19 pandemic sampling effort. . The 2023 American Shad passage at Fairmount Fishway returned to actual recorded video counts, following two years of a linear regression model (*$y = 1.8104x + 1.0769$; $r^2 = 0.5826$*) of electrofishing relative abundance (catch per unit effort CPUE) and shad passage of multi-decadal time-series data (2004 – 2022) during to COVID years. Adult American Shad passage (n = 383) in 2023 ranked 13th overall in the time-series, falling significantly below the passage arithmetic mean (n = 1065) and well below the passage geometric mean of 580 Shad. The Fairmount Fishway remained fully open and operational during the 2023 season, and video monitoring recordings were captured and analyzed Otolith analysis revealed that 100% of adult American Shad returning to the Schuylkill River in 2023 were hatchery-origin fishes, indicative of limited reproduction in the wild.

Figure 2 Catch-Per-Unit-Effort and Fish Passage of American Shad



Pennypack Creek: Rock Ramp Fishway at Sanitary Sewer Crossing

A rock ramp fishway was constructed in Pennypack Creek in 2007 to alleviate the excessive drop in water surface elevation caused by the sanitary sewer crossing of the creek which prevented fish from moving upstream of this site. PWD electrofishing surveys of the tidal Pennypack Creek have documented a limited spawning population of anadromous Alewife and Blueback Herring several miles downstream of the rock ramp fishway. Both juvenile and adult Striped Bass have been collected in the tidal portion, but not above the rock ramp. No adult Hickory Shad have been collected above or below the rock ramp; no larvae were stocked 2016 to 2023 by PA Fish and Boat Commission, who had been stocking larvae for several years to establish a self-sustaining wild population, which has yet to be realized.

III.C.2.6 Riparian Buffer Creation and Enhancement

Environment, Stewardship & Education Division

PWD continues to support Philadelphia Parks and Recreation, which undertakes a broad range of environmental restoration activities throughout the park system. Restoration activities have been ongoing since 2008. These efforts have been discussed in previous years; for more details and a full list of these activities, please refer to Section III.C.2.6 Environment, Stewardship & Education Division on page 121 of the CSO-Stormwater FY12 Annual Report.

Riparian Buffer component of Stream Restoration Projects

Riparian buffer enhancement will be evaluated in all stream restorations that are completed. Typically, riparian buffer enhancement activity includes invasive species management, live-stake planting, native tree and shrub planting, and native seed mix application. Invasive species management usually begins one to two years prior to construction. Once the construction of the stream restoration project is complete, a landscaping plan is implemented which includes all the applications mentioned above. Please refer to the MS4 Annual Report **Section F.2.Step 3.a – Access the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach** on page 14 for more information on these topics.

PWD and PP&R Stream Projects Coordination

The PWD and PP&R Stream Projects Coordination Meeting Series (formerly the Natural Lands Team), initiated in 2011, is a group comprised of members from PWD's Ecological Restoration Unit, Waterways Restoration Team, Public Affairs, PWD Design Branch, and staff from Philadelphia's Department of Parks and Recreation. Quarterly meetings are held to coordinate a wide range of projects that affect the city's stream corridors and natural areas. Through centralizing the myriad of ongoing and upcoming projects, this group works to improve efficiency and communication. Projects include but are not limited to stream restoration, wetland creation, stormwater management, infrastructure protection, and invasive species management. During FY24, PWD and PP&R Stream Projects group convened to discuss upcoming projects and potential issues that could be addressed by the team members.

III.C.3 Other Watershed Projects

III.C.3.1 River Conservation Plan - Continue to work in partnership with local partners to complete and implement River Conservation Plans (RCPs)

All River Conservation Plans (RCPs) are available for viewing at: https://water.phila.gov/reporting/watershed-plans-reports/ under each respective watershed's key documents.

Table 15: River Conservation Plan References

River Conservation Plans	Complete Date	Previous Reference
Darby Creek	2005	Page 121 of the CSO-Stormwater FY 2008 Annual Report
Tacony-Frankford	2004	Page 74 of the FY 2005 Stormwater Annual Report
Pennypack	2005	Page 122 of the CSO-Stormwater FY 2008 Annual Report

River Conservation Plans	Complete Date	Previous Reference
Poquessing	2007	Page 155 of the CSO-Stormwater FY 2010 Report
Delaware Direct	2011	Page 151 of the CSO-Stormwater FY 2011 Annual Report

III.C.3.2 Watershed Information Center - Create a website to serve as a Watershed Information and Technology Center

The City maintains several websites that provide information on our watersheds and activities within them, please refer to **Section II.G.2 Continue to Maintain Watershed Management and Source Water Protection Partnership Websites** on page 20 and **Section II.H.2 Expand the Internet-Based Notification System (River cast) to the Tidal Section of the Lower Schuylkill River** on page 30 for additional information on the websites.

III.C.3.3 Integrated Water Use Status Networks - Pilot a communication and water quality monitoring network that supports the identification and analysis of water quality events

PWD has two communication and water quality monitoring networks. RiverCast supports the identification and analysis of water quality events to support recreational water use status decisions (swimming, triathlons, rowing, etc.) and makes this information available in real time to the public. EWS is used to monitor water quality and notify water utilities about such events as hazardous substance spills or sudden changes in water quality.

Please refer to **Section II.G.2 Continue to Maintain Watershed Management and Source Water Protection Partnership Websites** on page 20 for details about these communication and water quality monitoring systems.

III.C.3.4 Integrated Water Use Status Networks - Evaluate the technical and fiscal needs to expand the network into additional receiving waters where recreational uses are taking place.

Please refer to **Section II.H.2 Expand the Internet-based Notification System (RiverCast) to the Tidal Section of the Lower Schuylkill River** on page 30 for information pertaining to this topic.

III.C.3.5 Interpretive Signage - Continue to implement interpretive signage

Green Stormwater Infrastructure and Restoration Locations Signage

Information on the Green City, Clean Waters Signage Program can be found within **Appendix A- Green City, Clean Waters FY24 Annual Report**.

III.C.3.6 Interpretive Centers - Continue to support existing educational interpretive centers to educate citizens about their community and the water environment

PWD supports several existing educational centers including FWW and many public outreach efforts conducted by partners. Please refer to **Section II.G.3 Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications** on page 27 and **Section II.G.4 Continue to Support the Fairmount Water Works** on page 28 for more information on activities done in FY24 by the FWW and partner sponsored events.

III.C.3.7 Basin-Specific Stormwater Management Plans (Act 167) - Continue to support the State Act 167 Storm water Management Planning process and integrate the results of these efforts into the watershed management plans and implementation plans

As of July 10, 2015, all Act 167 plans have been approved. Please refer to **Table 14 Planning by Watershed** on page 37 for more information. The reports for each watershed are available to the public through the internet at the following address: http://water.phila.gov/reporting/watershed-plans-reports/.

III.C.3.8 Sewage Facility Planning - Continue to review sewage facility planning modules and downstream sewage conveyance and treatment facilities to ensure that adequate capacity exists within these systems to accommodate flow

During FY24, PWD granted Act 537 approvals for 702 building permit applications for projects within Philadelphia County. During the same time period, PWD also issued sanitary sewer capacity certifications for 53 projects within portions of suburban municipalities that are tributary to Philadelphia's conveyance and treatment system.

III.C.4 Monitoring and Assessment

III.C.4.1 NPDES – Quarterly Special Discharge Monitoring Report

PWD is committed to submitting the Quarterly Special Discharge Monitoring Report (DMR) documenting the Department's CSO discharges during the specified time periods. This report is due 45 days after the end of each quarter, and is submitted by February 15, May 15, August 15, and November 15 of each year. During FY24, four DMRs were submitted within the 45-day timeframe. These reports are also referred to as Quarterly Combined Sewer Overflow Status Reports.

III.C.4.2 NPDES - Annual CSO Status Report

Monitoring and characterization of CSO impacts from a combined wastewater collection and treatment system are necessary to document existing conditions and to identify water quality benefits achievable by CSO mitigation measures. The tables included in **Appendix D** and other information provided within this annual report represent the average annual CSO overflow statistics for period July 1, 2023 – June 30, 2024 as required in the NPDES Permit. Please refer to **Table 1 in Appendix D – NPDES Annual CSO Report Status FY24** for a listing of all CSO permitted outfalls. The tables have been organized to present overflows by the specific receiving water into which the CSOs from a given interceptor system discharge. To be consistent, the column headings are presented in the same format found in the System Hydraulic Characterization (SHC) and NMC Documentation.

III.C.4.3 Rotating Basin Approach to Watershed Monitoring - Continue to implement a rotating basin approach to watershed monitoring in CSO receiving waters in order to characterize the impact of CSO discharges and other pollutant/pollution sources and the efficacy of CSO controls and watershed restoration practices.

The Rotating Basin Approach has been replaced with a "Comprehensive Watershed Monitoring Program," a monitoring strategy developed by PWD to comply with both the City's stormwater and CSO permit requirements and to assist with the Source Water Protection Program's objectives. Please refer to **Appendix 4** of the COA report for more details.

Please refer MS4 Annual Report **Section F.2.Step 1.b – Preliminary physical, chemical, and biological quality assessment** on page 8 for information about Comprehensive Watershed Monitoring Program.

Stormwater Management Program
Annual Report

National Pollutant Discharge Elimination System (NPDES) Permit
No. PA 0054712
Reporting Period July 1, 2023 to June 30, 2024

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Part I Permit Conditions

Section A Applicability and Limitation on Coverage

The City will comply with the permit language on what are authorized and unauthorized stormwater discharges.

Section B Legal Authority

In accordance with the National Pollutant Discharge Elimination System (NPDES) regulations contained in 40 C.F.R. Sections 122.26(d)(1)(ii) and (d)(2)(i), the City maintains adequate legal authority to enforce the Stormwater Management Program through the Philadelphia Code (Code) and the Water Department (PWD) Regulations.

Code Section 13-603 regulates discharges into the storm sewer system and includes penalties for violations. Code Section 13-603(4)(a) grants PWD and the Department of Licenses and Inspections (L&I) the authority to require compliance, including issuing regulations, and investigating, inspecting, and monitoring all premises. Under the City's zoning provisions in Code Sections 14-301(10) and 14-704(3), PWD has the authority to regulate stormwater management on a City-wide basis. Code Section 14-306(1) grants PWD and L&I specific enforcement authority for zoning violations. The Code can be accessed at https://codelibrary.amlegal.com/codes/philadelphia/latest/overview.

PWD Regulations further provide PWD legal authority to enforce the Stormwater Management Program. Section 500 prohibits cross connected sewer laterals and Chapter 6 implements the authority to regulate stormwater management for new and redevelopment in the City. PWD Regulations can be accessed at https://www.phila.gov/water/wu/ratesregulationsresp/Pages/Regulations.aspx.

This Annual Report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) and the US EPA, in accordance with requirements of the City of Philadelphia's NPDES Stormwater Management Permit No. PA 0054712. The report documents the Fiscal Year 2024 (FY24) progress completed in order to comply with the requirements during the reporting period from July 1, 2023 to June 30, 2024.

Section D Sediment Total Maximum Daily Load (TMDL) for Wissahickon Creek

Wissahickon Sediment TMDL Monitoring Plan Implementation

PWD submitted a Wissahickon Siltation TMDL Implementation Plan Update in March 2018. This document includes updates on the 2012 Siltation TMDL Implementation Plan's four components: stream restoration, stormwater wetlands, inlet catch basin cleaning, and City of Philadelphia Stormwater Regulations (enacted in January 2006) and the estimated sediment reduction associated with these activities. A more detailed Wissahickon Siltation TMDL Monitoring Report (with appendices) was also submitted in March 2018. The monitoring report includes results from cross-sectional survey analysis of stream restoration projects, photo monitoring, in-stream evaluations of stream restoration structures, and Hydraulic and Hydrologic modeling of stormwater wetlands.

Section E Pollutant Minimization Plan for Polychlorinated Biphenyls in the City's MS4

During the seventeenth year of the PCB PMP, the following tasks were accomplished:

- 138 of the 337 remaining sites listed by EPA or other agencies as housing PCB containing devices were inspected.
- Wet-weather PCB sampling and analysis of the three Water Pollution Control Plants' (WPCPs) effluent was performed as required by the WPCP NPDES permits.
- PWD continued monitoring outlying township connections using EPA Method 680.
- PWD continued monitoring of groundwater discharged from new construction and remediation sites to ensure compliance with PWD's published PCB limit of "non-detection by EPA Method 680."
- PWD received 19 groundwater permit applications and issued 18 new groundwater discharge permits in calendar year 2023. All permittees except one was compliant with PWD's regulatory PCB limit of "non-detectable by EPA Method 608." One of the permittees reported a detection of Arochlor 1424 above the method detection limit in the groundwater and/ or accumulated stormwater discharged to the City's sewer system during August 2023. The laboratory re-extracted a sample aliquot from the original sample volume, and the result of Arochlor 1424 was below the method's detection limit. This first detectable result was deemed a false positive under the original analysis.
- PWD wet and dry weather WPCP effluent data have been entered into the DRBC PCB database. For more information, please see **Appendix E - PCB PMP 17th Annual Report**.

Additionally, the following initiatives were undertaken:

- PWD's PCB database, developed in 2017, is now being utilized to track and report the 2023 inspections.
- Each inspection location has been given a unique ID and geocoded in PWD's GIS database. Maps of PCB sites inspected in 2023 were created to display inspections by WPCP drainage area.

Section F Stormwater Management

F.1. Source Identification

A description of PWD's MS4 Infrastructure, including stormwater outfalls, lengths of sanitary sewer, and lengths of stormwater sewer within Philadelphia are shown in **Table 1**. The 205 "Non-PWD Owned" outfalls listed in the table are owned by other City agencies, private entities, or individuals. The PWD-owned stormwater outfall locations and MS4 areas are shown in **Figure 1**. PWD continues to improve GIS datasets.

Table 1: Description of MS4 Infrastructure

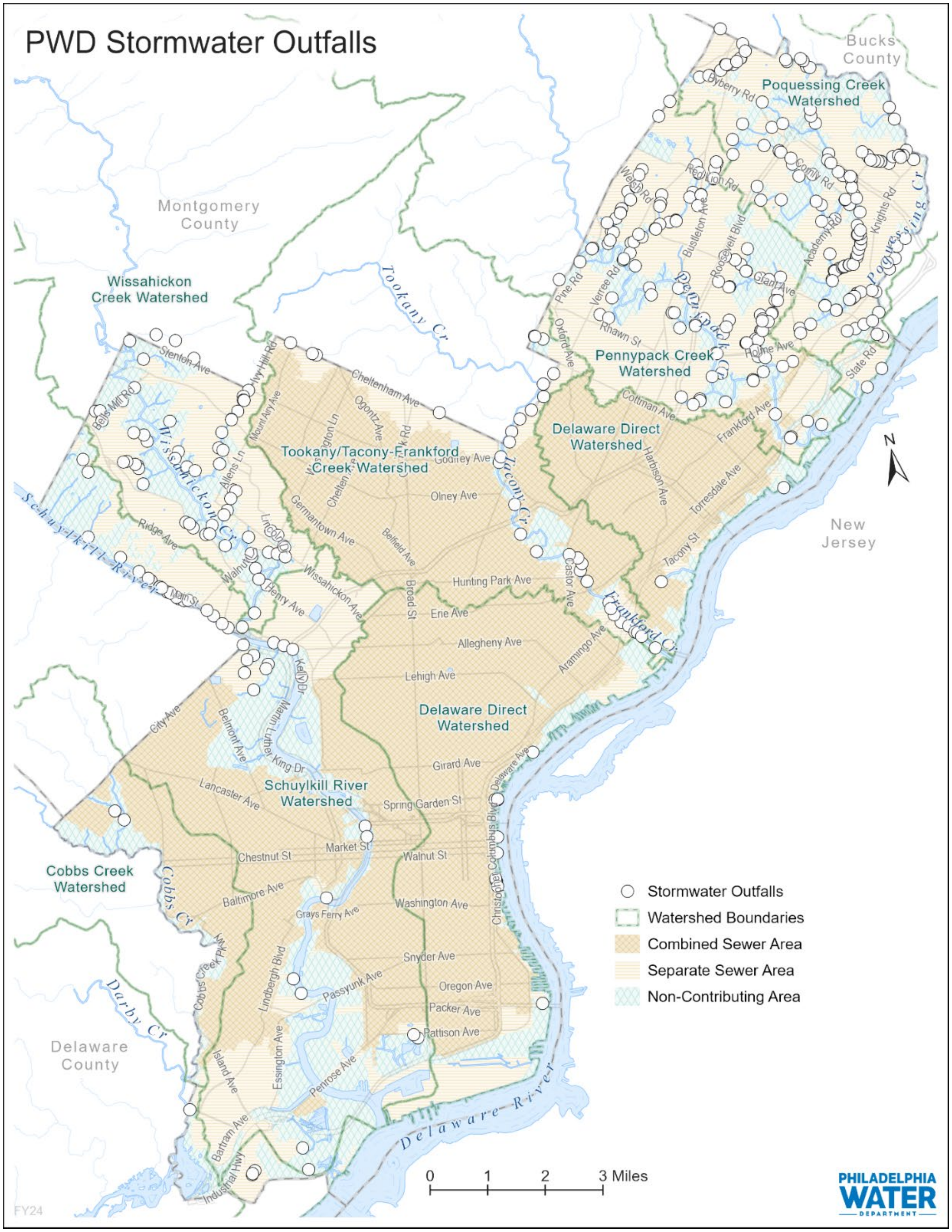
Watershed	Drainage Area (Square Miles)	Miles of Pipe			MS4 Outfalls Count	
		Stormwater	Sanitary	Total MS4	PWD Owned	Non-PWD Owned
Darby-Cobbs	-	1.02	0.81	1.82	3	-
Delaware Direct	3.15	79.81	52.68	132.49	18	122
Pennypack	11.67	234.93	234.03	468.96	130	14
Poquessing	8.00	154.71	156.52	311.23	141	19
Schuylkill	8.48	153.43	156.82	310.26	45	47
Tacony	2.47	54.46	59.02	113.48	34	1
Wissahickon	5.79	95.18	104.86	200.03	63	2
Total	**39.56**	**773.53**	**764.74**	**1538.27**	**434**	**205**

GIS Data Layers have been submitted within an ESRI file geodatabase, **PWD_Annual_Report_GIS_Data_FY24.gdb** which can be found in the **digital download link**. The GIS data feature class filenames within the geodatabase are provided in **Table 2**.

Table 2: GIS Data Feature Classes within Geodatabase named - PWD_Annual_Report_GIS_Data_FY24.gdb

• All_PWD_Monitoring_FY24	• NPDES_Permitted_Dischargers_FY24
• GSI_Monitored_Locations_FY24	• Detention_Basins_Philadelphia
• Public_GSI_Projects_Completed_FY24	• Impervious_Surfaces_Planimetric_2004
• Public_GSI_Projects_Planned_FY24	• Major_Watersheds_Full_Extent
• Pollution_Migration_Events_FY24	• Major_Watersheds_Philadelphia_Clip
• Active_Construction_Sites_FY24	• Sewersheds_FY24
• Verified_Regulations_FY24	• Census_Blocks_2020_Philadelphia
• Verified_Retrofits_FY24	• Census_Tracts_Population_ACS2021
• New_Project_Submissions_FY24	• Stormwater_Outfalls
• Technical_Approvals_FY24	• Stormwater_Outfalls_with_DrainageArea_Summary
• Hydrology_Centerline	• Stormwatersheds_Pennypack
• Hydrology_Polygon	• Stormwatersheds_Poquessing
• Land_Use_PCPC_FY24	• Stormwatersheds_Wissahickon
• PCB_Locations_Known_Historical	• Point_Sources_Wissahickon
	• Scrap_Yard_Inspections_FY24

Figure 1: City of Philadelphia Water Department Stormwater Outfalls



Descriptions of the GIS layers referenced in **Table 2** are provided below:

All_PWD_Monitoring_FY24
This layer presents the locations of PWD's chemical, fish, macroinvertebrate, and algae sampling sites. The contents of this feature class are discussed in **Section F.2.Step.1.b** on page 8.

GSI_Monitored_Locations_FY24
This layer presents the locations of existing green stormwater infrastructure projects actively monitored by PWD in Philadelphia County.

Public_GSI_Projects_Completed_FY24
This layer presents the locations of completed publicly implemented green stormwater infrastructure projects within Philadelphia County.

Public_GSI_Projects_Planned_FY24
This layer presents the locations of planned publicly implemented green stormwater infrastructure projects sorted by their status within Philadelphia County.

Pollution_Migration_Events_FY24
This layer presents the locations of spills documented by PWD Industrial Waste Unit within Philadelphia in FY24. The contents of this layer are discussed in **Section F.7.a – Pollutant Migration/Infiltration to the MS4 System** on page 38.

Active_Construction_Sites_FY24
This layer presents the locations of active construction private development projects tracked by PWD within Philadelphia in FY24. The contents of this layer are discussed in **Section F.5 – Monitor and Control Stormwater from Construction Activities** on page 29.

Verified_Regulations_FY24
This layer presents the locations of constructed and verified private development projects subjected to stormwater regulations within Philadelphia in FY24. The contents of this layer are discussed in **Section F.5 – Monitor and Control Stormwater from Construction Activities** on page 29.

Verified_Retrofits_FY24
This layer presents the locations of constructed and verified private retrofit development projects subjected to stormwater regulations within Philadelphia in FY24. The contents of this layer are discussed in **Section F.5 – Monitor and Control Stormwater from Construction Activities** on page 29.

New_Project_Submissions_FY24
This layer presents the locations of new project submissions for conceptual stormwater plan review in FY24. The contents of this layer are discussed in **Section F.5.b – Post-Construction Stormwater Management in New Development and Redevelopment** on page 34.

Technical_Approvals_FY24
This layer presents the locations of projects issued Post-Construction Stormwater Management Plan (PCSMP) by PWD in FY24. The contents of this layer are discussed in **Section F.5.b – Post-Construction Stormwater Management in New Development and Redevelopment** on page 34.

Hydrology_Centerline
This layer presents the surrounding watershed hydrology in a polyline-based feature class.

Hydrology_Polygon
This layer presents the surrounding watershed hydrology in a polygon-based feature class.

Land_Use_PCPC_2023
This layer presents Philadelphia land use as ascribed to individual parcel boundaries or units of land. Land use is the type of activity occurring on the land such as residential, commercial, or industrial. Each unit of land is assigned to one of nine major classifications of land use (2-digit codes) and where possible more narrowly defined into one of 70 sub-classifications (3-digit codes).

PCB_Locations_Known_Historical
This layer presents the location of all known and historical PCB locations within Philadelphia. The contents of this layer are discussed in **Section E – Pollutant Minimalization Plan for Polychlorinated Biphenyls in the City's MS4** on page 2.

NPDES_Permitted_Dischargers_FY24
This layer presents the location within Philadelphia of all NPDES Industrial Stormwater permitted dischargers. The contents of this layer are discussed in **Section F.2.Step 1.c** on page 14 and a list of permitted facilities can be found in **Appendix J – NPDES Industrial Stormwater Permitted Sites – Philadelphia County.**

Detention_Basins_Philadelphia
This layer presents the location of all known stormwater detention basins within Philadelphia County.

Impervious_Surfaces_Planimetric_2004
This layer presents percent imperviousness and the amount of impervious area in Philadelphia County.

Major_Watersheds_Full_Extent
This layer presents the delineation of the Philadelphia County and surrounding counties' watershed boundaries including Darby-Cobbs, Delaware-Direct, Pennypack, Poquessing, Schuylkill, Tacony-Frankford, and Wissahickon watersheds.

Major_Watersheds_Philadelphia_Clip
This layer presents the delineation of the Philadelphia County's watershed boundaries including Darby-Cobbs, Delaware-Direct, Pennypack, Poquessing, Schuylkill, Tacony-Frankford, and Wissahickon watersheds.

Sewersheds_FY24
This layer presents the boundaries of the separate, combined sewer, un-sewered, non-contributing, and stormwater only areas within Philadelphia County and the neighboring contributing areas.

Census_Blocks_2020_Philadelphia
This layer presents the results of the 2020 Census in Philadelphia County on a block level.

Census_Tracts_Population_ACS2022
This layer presents the most recent population estimates for census tracts in Philadelphia as determined by the most recently available US Census Bureau's American Community Survey five-year estimates.

Stormwater_Outfalls
This layer presents locations of all permitted stormwater outfalls within Philadelphia County and the neighboring contributing areas.

Stormwater_Outfalls_with_DrainageArea_Summary
This layer presents locations of all permitted stormwater outfalls within Philadelphia County and the neighboring contributing areas. Drainage area analysis values are appended in the attribute table to display outfall metrics including total drainage area, total impervious drainage area, percent impervious, and runoff coefficient.

Stormwatersheds_Pennypack
This layer presents the stormwater drainage areas to receiving waterways and stormwater outfalls within the Pennypack Watershed.

Stormwatersheds_Poquessing
This layer presents the stormwater drainage areas to receiving waterways and stormwater outfalls within the Poquessing Watershed.

Stormwatersheds_Wissahickon
This layer presents the stormwater drainage areas to receiving waterways and stormwater outfalls within the Wissahickon Watershed.

Point_Sources_Wissahickon
This layer presents permitted Point source locations within the Wissahickon Watershed.

Scrap_Yard_Inspections_FY24
This layer presents the locations of scrap yards inspected during the fiscal year. Data was provided to PWD by the Department of Licenses and Inspections.

GIS Stormwater Data Conversion Geodatabase Layers
The City has previously submitted additional GIS data layers that will not be included in the FY24 report. These layers include outfalls, manholes, inlets, and various pipe as listed in **Table 3**. The reason for their removal is the City's policy effective since the FY09 Annual Report to not release these data layers to the public due to security concerns. PWD would make these layers available for viewing, should it be necessary.

Table 3: GIS Data Feature Classes within Geodatabase named -StormwaterDataConversion.mdb

DataConv_GISAD_stBasin	DataConv_GISAD_stInletPipe
DataConv_GISAD_stBoring	DataConv_GISAD_stMeterChamber
DataConv_GISAD_stCasin	DataConv_GISAD_stOffsetAccess
DataConv_GISAD_stChamber	DataConv_GISAD_stOpenChannel
DataConv_GISAD_stCulvert	DataConv_GISAD_StormNetwork_Junctions
DataConv_GISAD_stDisconnectedInlet	DataConv_GISAD_stOutfall
DataConv_GISAD_stFitting	DataConv_GISAD_stPointFeature
DataConv_GISAD_stFlare	DataConv_GISAD_stPump
DataConv_GISAD_stForceMain	DataConv_GISAD_stRainGauges
DataConv_GISAD_stGravityMain	DataConv_GISAD_stStructure
DataConv_GISAD_stHostPipe	DataConv_GISAD_stTunnel
DataConv_GISAD_stManhole	DataConv_GISAD_stVentPipe
DataConv_GISAD_stManholeOther	DataConv_GISAD_stVirtualLink
DataConv_GISAD_stInlet	DataConv_GISAD_stVirtualNo

F.2. Discharge Management, Characterization, and Watershed-based Assessment and Management Program

Step 1. Preliminary Reconnaissance: Permit Issuance through end of Year 2

a. Land use and resource mapping

PWD has conducted extensive mapping of information relevant to stormwater management planning. Previously discussed in **Section F.1 – Source Identification** of this document on page 2, the GIS layers include MS4 outfalls and contributing drainage areas, land use, population, monitoring locations, and other relevant layers. The maps and supporting GIS layers are included in the **digital download link**.

b. Preliminary physical, chemical, and biological quality assessment

Comprehensive Watershed Monitoring Program

Comprehensive assessment of Philadelphia's waterways is integral to planning for the long-term health and sustainability of the City's water systems. By measuring all factors that contribute to supporting fishable, swimmable, and drinkable water uses, appropriate management strategies can be developed for each watershed land area that Philadelphia shares.

PWD has carried out extensive sampling and monitoring programs to characterize conditions in seven local watersheds**,** both within the county boundaries and outside counties/municipalities. From 1999 to 2024, PWD has implemented a comprehensive watershed assessment strategy, integrating biological, chemical, and physical assessments to provide both quantitative and qualitative information regarding the aquatic integrity of the Philadelphia regional watersheds. This information was published in Comprehensive Characterization Reports (CCRs) and used to plan improvements to watersheds in the Southeast Region of Pennsylvania.

Monitoring Timeline Strategy

Prior to the creation of PWD's Comprehensive Watershed Monitoring Program, baseline assessments were conducted in all Philadelphia regional watersheds to assess the degree, location, and type of impairments occurring within each system. Baseline assessments, encompassing benthic, fish, habitat, and discrete water quality monitoring, were routinely completed on a watershed within one year. With the addition of continuous and wet-weather water quality monitoring, periphyton assessments, and specialized physical assessment programs (e.g., Fluvial Geomorphologic (FGM) assessments), CCRs were typically accomplished on a two-year timeline.

PWD conducted benthic macroinvertebrate and physical habitat monitoring activities at 19 stream monitoring sites in spring 2023 **(Table 4)**.

As described in PWD's *Comprehensive Watershed Monitoring Program: Proposed Strategy 2010-2015*, the scale of watershed stressors is expansive, and the BMP program is still in its early phase which means that full implementation is limited but will increase once the program is further established. Therefore, PWD is focusing its monitoring efforts at maintaining a "sentinel" monitoring presence in each of the City's watersheds rather than dedicating monitoring efforts to individual watersheds. This regional monitoring approach has been greatly enhanced through a partnership with the United States Geological Survey (USGS). Continuous water quality data are collected from 11 USGS gaging stations, and quarterly baseflow water samples are analyzed for microbial and nutrient parameters of concern. PWD also continues to assess performance of stormwater BMP projects as they are constructed.

Table 4: Overview of PWD Watershed Monitoring Activities 2010-2024

Watershed/Geographic Area	Activity	Period
PWD/USGS Gages	Continuous Water Quality Monitoring	2010-2024
PWD/USGS Gages	Quarterly Water Quality Grab Samples	2010-2024
Philadelphia Area Watersheds	Stormwater BMP Monitoring	2010-2024
Philadelphia Area Watersheds	Stream Restoration Project Monitoring	2010-2024
Cobbs Creek Watershed	Watershed-wide Comprehensive Assessment	2012-2013, 2021
Tookany-Tacony/Frankford Watershed	Watershed-wide Comprehensive Assessment	2013-2014, 2022
Wissahickon Creek Watershed	Tributary Assessment	2014-2015, 2023
Wissahickon Creek Watershed	Watershed-wide Comprehensive Assessment	2015-2016, 2024
Pennypack Creek Watershed	Tributary Assessment	2016-2017
Poquessing Creek Watershed	Watershed-wide Comprehensive Assessment	2018-2019
Schuylkill River Watershed	Tributary Assessment	2019

Monitoring Timeline

As described in the *Comprehensive Watershed Monitoring Program: Proposed Strategy 2010-2015*, PWD's current proposed strategy for watershed assessments includes a less intense, but ongoing monitoring effort within each watershed, primarily through a partnership with the USGS. It should be noted that although the monitoring plan nominally covers 2010-2015, the assessments of the Wissahickon, Pennypack and Poquessing watersheds are continuations of that plan and are thus included here. Currently, PWD is focused on monitoring efforts to evaluate the performance of stormwater BMPs and restoration projects. Allowing 10 years before watershed reassessment will potentially allow for a greater number of projects to be implemented.

The proposed strategy for watershed assessments 2010-2023 includes resuming watershed-scale bioassessment activities at several stations within targeted watersheds **(Table 5: Proposed Watershed Monitoring Timeline 2010-2024)**. These watershed scale reassessments should complement the "adaptive management" approach favored by the integrated watershed management plan implementation process and allow for the locations and methods of assessment to be changed, depending upon the number of projects implemented and their spatial distribution within the watershed. It is hoped that these data will be useful as a long-term record of water quality changes in the region, more appropriate for assessing the goals of a City-wide distributed green infrastructure program than an approach that focuses on individual watersheds.

Table 5: Proposed Watershed Monitoring Timeline 2010-2024

Watershed	BMP Monitoring	Quarterly WQ Grab sampling	Continuous WQ Monitoring	Annual WQ Summary	Bioassessment	Bioassessment Data Analysis
Cobbs	2010-2024	2010-2024	2010-2024	2010-2024	2012, 2021	2012-2013, 2022
Tacony-Frankford	2010-2024	2010-2024	2010-2024	2010-2024	2013, 2022	2013-2014
Wissahickon	2010-2024	2010-2024	2010-2024	2010-2024	2014-2016, 2023-2024	2014-2016, 2023
Pennypack	2010-2024	2010-2024	2010-2024	2010-2024	2016-2018	2016-2018
Poquessing	2010-2024	2010-2024	2010-2024	2010-2024	2018	2018-2019

Water Quality Sampling and Monitoring

Guiding Principles of Urban Water Chemistry Assessment

PWD's water quality assessment strategy has been designed to facilitate separate analyses of dry weather (i.e., baseflow) and wet weather water quality conditions. This program has evolved over time, as personnel and technological advancements have improved our abilities to collect more data from an increasing number of sampling locations in a more efficient manner. Automated sampling has greatly increased the temporal resolution of stormwater sampling at multiple sampling locations for a single storm event.

To comply with the State-regulated stormwater permit obligations, PWD worked with USGS to record continuous water quality data at 10 gage stations in the Philadelphia region from July 2023 through November 2023 and March 2024 through June 2024. Four types of sampling were performed as discussed below. Parameters were chosen based on state water quality criteria, or because they are known or suspected to be important in urban watersheds.

Discrete Water Chemistry Assessment

Each USGS/PWD cooperative monitoring gage site was sampled once during the course of a few hours, to allow for travel time and sample processing/preservation. Samples are collected during dry weather and parameters were chosen based on the conclusions from baseline sampling that indicated dry weather problems are primarily related to bacteria and nutrients. Results of samples collected to date are presented in **Appendix F – PWD Quarterly Dry Weather Water Quality Monitoring Program.** Previous annual reports describe PWD's extensive surface water grab sampling efforts dating back to 2002.

Boat run grab samples were not collected in FY24. PWD has collected 24 samples from the Schuylkill River and 49 samples from the Delaware River by boat since 2011. Results from quarterly dry weather grab sampling thus far are generally similar to data collected during the CCR data collection periods.

Continuous Water Quality Assessment

Each USGS/PWD cooperative monitoring gage site records water quality data for dissolved oxygen, temperature, flow, pH, and specific conductance. Selected locations are also instrumented for turbidity, precipitation, and photosynthetically active radiation (PAR). These data are made available to the public in near real-time on the internet at https://www.usgs.gov/centers/pa-water/science/philadelphia-water-resources-monitoring-program. The monitoring results from FY24 are presented in **Appendix G – PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary**.

In addition to continuously monitoring water quality at USGS gaging stations, PWD continued deployment of an in situ self-contained data logging continuous water quality monitoring sonde (YSI Inc. Model EXO2) in the tidal Schuylkill River at SC048 (Schuylkill River at the Navy Yard) from March – November in 2023 that will continue to be monitored between March and November in 2024.

Long-term continuous monitoring for TMDL compliance and building a long-term water quality data record for the aforementioned watersheds will be accomplished in 2010-2024 through the partnership with the USGS. Results from City-wide continuous monitoring thus far are generally similar to data collected during the CCR data collection periods. For this reason, PWD will re-evaluate whether additional water quality sampling is needed to characterize water quality in targeted watersheds on a case-by-case basis. Continuous water quality instruments will also be utilized in evaluating the performance of certain stormwater BMPs and assessing conditions in tidal portions of the Schuylkill and Delaware Rivers as well as Frankford Creek.

Groundwater Monitoring

A city-wide groundwater level monitoring network will provide long-term monthly data documenting current water levels and trends in groundwater elevations throughout the City, helping to track the impacts of widespread implementation of stormwater management practices (SMPs) and global climate change. Data from the groundwater monitoring network will also be used to calibrate a Philadelphia groundwater model and update the USGS groundwater contour map of Philadelphia (Paulachok 1984).

PWD and USGS identified existing wells that would be suitable for the network and obtained permission for site access. Once wells were identified and accessible, well condition and suitability for inclusion in the monitoring network were investigated by continuous water level monitoring and remote video camera inspection when accessible. Wells that met acceptance criteria were added to the monitoring network. After examining readily available information about existing wells, PWD elected to drill additional wells to provide better spatial distribution of wells in the monitoring network. Status of the groundwater monitoring network and a summary of data collected through June 30, 2024, are presented in **Appendix H – PWD/USGS Groundwater Monitoring Program**.

Biological Monitoring

The biological monitoring protocols employed by PWD are based on methods developed by the US EPA (Barbour et al. 1999) and the PADEP. These procedures are as follows:

- Rapid Bioassessment Protocol III (Benthic Macroinvertebrate Sampling)

- Periphyton Assessment (Algae Monitoring)

Macroinvertebrate Assessments

As described in the PWD *Comprehensive Watershed Monitoring Program: Proposed Monitoring Strategy 2010-2015*, PWD's approach is intended to be a compromise, recognizing not only the benefits of collecting data from randomly selected sites but also the importance of maintaining a monitoring effort at consistent locations over time. This plan is based on a similar monitoring program that USGS has implemented in Chester County (Reif 2002, Reif 2004). The plan reflects the workforce constraints of collecting and processing samples with the PADEP Instream Comprehensive Evaluation (ICE) protocol. It is hoped that this approach will achieve some of the benefits of a randomized approach, while providing periodic reevaluation of the watersheds required to inform the watershed planning process and comply with environmental mandates **(Table 6: Proposed Benthic Invertebrate Monitoring Timeline 2011-2024).**

Table 6: Proposed Benthic Invertebrate Monitoring Timeline 2011-2024

Period	Monitoring Activity (number of samples*)
2011	USGS gage samples (9); Randomly selected sites (16)
2012	Cobbs Creek (6**); USGS gage samples (9); Random (10)
2013	Tookany/Tacony Creek (10**) USGS gage samples (9); Random (6)
2014	Wissahickon Creek Tributaries (15); USGS gage samples (9); Random (1)
2015	Wissahickon Creek (10**); USGS gage samples (8); Random (4)
2016	Pennypack Creek Tributaries (11**); USGS gage samples (9); Random (5)
2017	Pennypack Creek (12**); USGS gage samples (9); Random (4)
2018	Poquessing Creek (12**); USGS gage samples (9); Random (4)
2019	Schuylkill River Tributaries (3); USGS gage samples (8); Random (3)
2020	USGS gage samples (6); Random (2)
2021	Cobbs Creek (6**); USGS gage samples (9); Random (7)
2022	Tookany/Tacony Creek (10**); USGS gage samples (9); Random (6)
2023	Wissahickon Creek Tributaries (15); USGS gage samples (9); Random (1)
2024	Wissahickon Creek (12**); USGS gage samples (9); Random (4)*

* Number of samples estimated, actual number of samples may vary
** Number of monitoring sites excludes 2 USGS gage sites in target watershed

During April and May 2023, PWD conducted Rapid Bioassessment Protocols (RBP III) at 19 (n=19) locations within Philadelphia area watersheds. Sampling was conducted at 7 USGS gages in the PWD/USGS Cooperative Monitoring program and 12 tributary sites in the targeted Wissahickon Creek watershed. These data are presented in **Appendix I – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments**. In spring 2024, PWD sampled nine USGS gages, 12 sites in the Wissahickon Creek Watershed, and 4 randomly chosen sites.

Algae Assessments

Chlorophyll-a measurements may be used to provide information for the parameterization of water quality models. In spring 2016, PWD began a pilot effort to collect continuous chlorophyll-a data at three USGS stations along the Delaware River: 01467200 (Ben Franklin Bridge), 014670261 (Delaware River near Pennypack Woods), and 01463500 (Trenton). In addition, PWD deployed two buoys in the Delaware River (at Pea Patch Island and upstream of the confluence with the Schuylkill River) from

March-November. Sondes attached to these buoys monitor continuous chlorophyll-a levels. Bi-weekly grab samples are collected and analyzed at these locations to calibrate the sensors.

Physical Monitoring

Physical Habitat Assessments

Habitat assessments are conducted along with benthic macroinvertebrate monitoring and thus the habitat assessment strategy is described under the heading **Biological Monitoring – Macroinvertebrate Assessments**, above. PWD assesses stream physical habitat condition using PADEP ICE protocols. During calendar year 2022, PWD conducted physical habitat assessments at 25 locations within Philadelphia area watersheds. Sampling was conducted at 9 USGS gages in the PWD/USGS Cooperative Monitoring program, 10 sites in the targeted Tookany/Tacony Creek watershed, and 6 randomly selected sites. These data are presented in **Appendix I – PWD Wadeable Stream Benthic Macroinvertebrate and Physical Habitat Assessments**. In spring 2023, PWD sampled nine USGS gages, 15 sites in the targeted Wissahickon Creek Watershed, and one randomly chosen site.

Fluvial Geomorphologic (FGM) / Infrastructure Analysis

FGM studies establish the physical attributes of the stream, identify areas of concern, and provide recommendations for rehabilitation of the stream corridors and floodplains. To date, FGM analysis has been conducted on the Darby-Cobbs, Tookany/Tacony-Frankford, Wissahickon, Pennypack, and Poquessing Creeks. Analysis was conducted in order to characterize channel morphology, disturbance, stability, and habitat parameters as well as to provide a template for hydrologic and hydraulic modeling and serve as a baseline for assessing channel bank and bed changes. Data provided from the FGM analyses will also serve to develop reach rankings within each watershed in order to prioritize restoration strategies. In FY24, designs were advanced for several stream restoration and riparian infrastructure protection projects throughout Philadelphia’s watersheds. Of these, one project was completed and another was substantially completed through the construction phase. These projects will reduce streambank erosion, improve aquatic habitat, and protect critical infrastructure in the stream corridor. Planning studies are also being developed by a dedicated stream restoration planning group to identify and prioritize stream restoration and infrastructure protection project opportunities throughout the city's watersheds.

Summary of Monitoring Locations

Biological, physical, and chemical monitoring locations are based on three criteria: 1) appropriate habitat heterogeneity; 2) access availability; and 3) proximity to USGS stream gaging stations and PADEP 305b monitoring sites. In general, the number of monitoring sites is proportional to the size of the drainage and the watershed’s link magnitude (i.e., number of 1st order streams). Maps of assessment sites by watershed and program (biological, chemical, or physical) are available as GIS data.

Quality Assurance/Quality Control (QA/QC) and Data Evaluation

PWD has planned and carried out an extensive sampling and monitoring program to characterize conditions in Philadelphia’s watersheds. Sampling and monitoring follow the Standard Operating Protocols (SOPs) and Quality Manual as maintained by PWD’s Bureau of Laboratory Services (BLS). These documents cover the elements of quality assurance, including field and laboratory procedures, chain of custody, holding times, collection of blanks and duplicates, and health and safety.

They are intended to help the program achieve a level of quality assurance and control that is acceptable to regulatory agencies. More information regarding SOPs for chemical and biological assessments is available from BLS.

c. Inventory of Point and Non-Point sources

At the end of FY24, there are 124 NPDES permitted dischargers in Philadelphia County, as shown in **Appendix J – NPDES Industrial Stormwater Permitted Sites – Philadelphia County**. This listing was downloaded from the PADEP Environment Facility Compliance Tracking System (eFACTS). The eFACTS website can be accessed through the following link: http://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx.

PWD is also involved in developing estimates of non-point source pollutants. The results of this analysis are described in the hydrologic models in **Section G - Assessment of Controls** on page 50.

d. Preliminary problem assessment

CCRs were completed for the Wissahickon (2007), Pennypack (2009), and the Poquessing (2010) Creek Watersheds. These reports include analysis of data collected over the monitoring period and present a characterization of problems within the watershed. The reports for each watershed are available to the public through the internet at the following address: http://water.phila.gov/reporting/watershed-plans-reports/.

Step 2. Watershed Plan Development: Permit issuance through end of Year 4

For information on the status of the Act 167 plans, please refer to the CSO Annual Report **Table 14 - Planning by Watershed** on page 37. Please refer to the City's Watershed Plans at the following address: https://water.phila.gov/reporting/watershed-plans-reports/. The Wissahickon Act 167 Plan can be found here: https://www.montgomerycountypa.gov/DocumentCenter/View/34408/Wissahickon-Act-167-Plan.

Step 3. Watershed Plan Implementation and Performance Monitoring: Permit issuance through expiration

a. Dry Weather Water Quality and Aesthetics

Operate the Defective Lateral Program

Over the last fiscal year, PWD has continued to successfully operate its Defective Lateral Program. A detailed discussion of this program is provided within this report in **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 26.

Debris removal from waterways impacted by storm water discharges

PWD continues to employ the Waterways Restoration Team (WRT) to remove debris and conduct small scale stream restoration projects within the city's waterways. Please refer to the CSO Annual Report **Section II.F – NMC 6 - Control of Solid and Floatable Materials in CSOs** on page 12 for information about debris removal from waterways impacted by storm water discharges.

Lincoln Drive sewer relining

PWD completed the Lincoln Drive sewer relining in 2004. Additional information on this project was reported previously; please refer to **Section F.2.3.a.iii on page 261 of the FY10 CSO-Stormwater Annual Report.**

Stormwater Outfall Dry Weather Inspections

The City maintains a stormwater outfall inspection program in compliance with the MS4 permit. All 434 of the City's permitted stormwater outfalls are scheduled to be inspected by the Industrial Waste unit at least once each permit cycle. Those with dry weather flow are sampled for fecal coliform and fluoride analysis. The results of these samples are reported on a quarterly basis and summarized in this annual report. During FY24, 41 outfall inspections were conducted, and 31 samples were taken due to observed dry weather flow as part of the permit inspection program.

Those outfalls identified as priority outfalls under the MS4 permit are inspected quarterly. During FY24, 46 priority outfall inspections were conducted, and 19 samples were taken due to observed dry weather flow as part of the Priority Outfall inspection program.

Table 7: Stormwater Outfall Inspection Program – 5 Year Summary

	Permit Inspection Program		Priority Outfall Program	
Fiscal Year	Inspections	Samples	Inspections	Samples
2020	96	62	46	39
2021	262	126	42	39
2022	77	31	41	35
2023	74	33	46	36
2024	41	31	46	19
Total	**550**	**283**	**221**	**168**

Defective Lateral Program - Priority Outfalls

7th & Cheltenham Avenue Outfall (T-088-01)

As of June 30, 2024, Defective Connection Group (DCG) program activities have performed 2,609 complete tests in this sewershed, identifying 109 cross-connections, all of which have been abated.

The locations of dry weather diversion devices, and the number of inspections, blockages, and discharges found by the Flow Control unit during FY24 are listed below.

Table 8: 7th & Cheltenham Ave – Diversion Devices - FY24 Summary

Location	ID #	Inspections	Blockages	Discharges
Plymouth St. west of Pittsville St.	CFD-01	19	0	0
Pittsville St. south of Plymouth St.	CFD-02	19	3	0
Elston St. east of Bouvier St.	CFD-03	17	0	0
Ashley St. west of Bouvier St.	CFD-04	17	0	0
Cheltenham Ave. east of 19th St.	CFD-05	20	1	0

Verbena St. south of Cheltenham Ave.	CFD-06	23	0	0
Cheltenham Ave. east of 7th St.	CFD-07	61	11	0
7th St. south of Cheltenham Ave.	CFD-08	59	2	0

Inspections and fecal coliform sampling at this outfall continue quarterly. Results for the outfall samples during FY24 are listed below.

Table 9: 7th & Cheltenham Ave - Fecal Coliform Results – FY24 Summary

Date	Fecal Count (MPN per 100 ml)
09/06/2023	10,462
11/09/2023	4,106
01/09/2024	11,620
04/10/2024	17,329

Monastery Avenue Outfall (W-060-01)

As of June 30, 2024, DCG program activities have performed 637 complete tests in this sewershed, identifying 17 cross-connections, all of which have been abated.

The locations of dry weather diversion devices and the number of inspections, blockages, and discharges found by the Flow Control unit during FY24 are listed below.

Table 10: Monastery Ave - Diversion Devices - FY24 Summary

Location	ID#	Inspections	Blockages	Discharges
Jannette St. west of Monastery Ave.	MFD-01	22	2	0
Green La. North of Lawnton St.	MFD-02	20	0	0

Inspections and fecal coliform sampling at this outfall continue quarterly. Results for the outfall samples during FY24 are listed below.

Table 11: Monastery Ave - Fecal Coliform Results – FY24 Summary

Date	Fecal Count (MPN per 100 ml)
09/07/2023	687
10/26/2023	122
Quarter 3	*High Flows
Quarter 4	*High Flows

*High Flows indicates that a sample was not taken due to water flows being too high

Monoshone Creek Outfalls (W-068-05)

Additional areas of focus: W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04

As of June 30, 2024, DCG program activities have performed 2,750 complete tests in these sewershed areas, identifying 95 cross-connections, all of which have been abated. Most of the efforts have been in the W-068-05 sewershed area which is the largest in terms of drainage area and properties served.

Inspections and fecal coliform sampling at the W-068-05 outfall continue quarterly. Results for the outfall samples during FY24 are listed below.

Table 12: Monoshone Creek (W-068-05 Outfall) - Fecal Coliform Results – FY24 Summary

Date	Fecal Count (MPN per 100 ml)
09/05/2023	38,730
12/15/2023	*NF
01/05/2024	7,030
06/05/2024	23,820

Note: * NF indicates that no flow was observed

Manayunk Canal Outfalls (S-051-06, S-058-01, S-059-01 through S-059-11)

As of June 30, 2024, DCG program activities have performed 2,478 complete tests in these sewershed areas, identifying 65 cross-connections, 64 of which have been abated. Most of the efforts have been in the S-059-04 sewershed area.

Inspections and fecal coliform sampling at the following outfalls continue quarterly. Results for the outfall samples during FY24 are listed below.

Table 13: Manayunk Canal - Fecal Coliform Results – FY24 Summary

Outfall	Date	Fecal Count (MPN per 100 mL)
S-058-01	09/22/2023	19,680
	12/15/2023	100
	02/23/2024	*Submerged Outfall
	06/13/2024	3,550
S-059-01	06/13/2024	3,550
	09/22/2023	32,550
	12/15/2023	3,840
	02/23/2024	8,800
	06/13/2024	5,200
S-059-02	09/21/2023	20,350
	12/15/2023	>241,960
	02/23/2024	4,960
	06/13/2024	86,640
S-059-03	09/28/2023	12,997,000
S-059-03	09/28/2023	12,997,000
	12/20/2023	>241,960
	02/26/2024	81,640
	06/20/2024	241,960
S-059-04	09/28/2023	7,330
	12/20/2023	14,390

Outfall	Date	Fecal Count (MPN per 100 mL)
	02/26/2024	*Submerged Outfall
	06/20/2024	740
S-059-05	09/28/2023	NF*
	12/20/2023	NF*
	02/26/2024	*Submerged Outfall
	02/26/2024	*Submerged Outfall
	06/20/2024	NF*
S-059-07	-	-
S-059-09	09/28/2023	19,350
	12/20/2023	2,130
	02/26/2024	*High Flows
	06/20/2024	22,820

Note: NF* indicates that no flow was observed, *Submerged Outfall indicates that a sample was not taken due to the outfall being underwater, *High Flows indicates that a sample was not taken due to water flows being too high

Defective Lateral Program - Other Important Outfalls

Sandyford Run Outfall (P-090-02)

As of June 30, 2024, DCG program activities have performed 5,818 complete tests in this sewershed, identifying 100 cross-connections, 92 of which have been abated. The location of the dry weather diversion device and the number of inspections, blockages, and discharges found by the Flow Control unit during FY24 are listed below.

Table 14: Sandyford Run - Diversion Device - FY24 Summary

Location	ID#	Inspections	Blockages	Discharges
Brous and Lexington Aves.	PFD-01	70	10	0

Table 15: Sandyford Run – Diversion Device - Fecal Coliform Results – FY24 Summary

Date	Fecal Count (MPN per 100 ml)
08/24/2023	2
10/15/2023	2,419.6
01/03/2024	8.6
04/09/2024	85

Franklin and Hasbrook Outfall (T-089-04)

As of June 30, 2024, DCG program activities have performed 1,025 complete tests in this sewershed, identifying 46 cross-connections, 44 of which have been abated. The location of the dry weather diversion device and the number of inspections, blockages, and discharges found by the Flow Control unit during FY24 are listed below.

Table 16: Franklin and Hasbrook - Diversion Device - FY24 Summary

Location	ID#	Inspections	Blockages	Discharges
Franklin and Hasbrook	CFD-01	70	8	0

The outfall was inspected throughout the year but was found to be clean and dry during all quarterly visits.

Please refer to **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 27 for additional information on activities conducted for the Defective Lateral Program.

Priority Outfall Closure Testing

Investigation will continue within each priority outfall area (sewershed) until the priority outfall status may be removed. During FY24, none of the priority outfalls were authorized to be removed from the list by PADEP.

Healthy Living Resources

Develop integrated storm water management plans

PWD developed integrated stormwater management plans for all of the City's watersheds. Please refer to the CSO Annual Report in **Section III.C.3.7 - Basin-Specific Stormwater Management Plans (ACT 167)** on page 44 for an explanation of the City's watershed stormwater management plans.

Assess the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach

PWD employs natural stream channel design (NSCD) and associated stormwater management BMPs to improve the health of aquatic communities in receiving waters with degraded flow and habitat alterations due to stormwater runoff. PWD has conducted several projects that have been designed with NSCD that implement a targeted approach to stream restoration to optimize capital funds and ecological uplift. PWD's stream habitat restoration program integrates environmental stressor reduction and streamside sewer asset protection and/or relocation.

As each of PWD's NSCD projects are constructed, PWD realizes the importance of the extensive monitoring and O&M that accompanies such projects. Each project provides the opportunity to learn about what techniques do and do not work in their respective hydrologic and hydraulic regimes. To assess the effectiveness of these NSCD projects, PWD conducts post implementation monitoring at each site that includes the measurement of relevant biological, habitat, and physical parameters to be used in comparison to pre-construction conditions. Additional information on NCSD stream restoration projects is contained in **Table 17** below.

PWD has also designed and implemented three stormwater treatment wetlands facilities to remove pollutants and mitigate peak flows, while providing aesthetic and ecological benefits. These projects are:

- Saylor's Grove (Construction Completed in 2006)
- Wise's Mill (Construction Completed in 2012)
- Cathedral Run (Construction Completed in 2012)

In total, these three facilities receive and treat stormwater from more than 300 acres of the MS4 service area. These projects were completed as part of PWD's compliance with the Wissahickon Sediment TMDL Implementation Plan. PWD submitted a Wissahickon Siltation TMDL Implementation Plan Update and a Wissahickon Siltation TMDL Monitoring Report (with appendices) in March 2018. PWD staff maintain these project sites as needed. Additional information on these wetlands is provided in **Table 17** below.

Table 17: Ecological Restoration Projects

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
Status: **Complete**		
Saylor Grove	150 acres	• First stormwater wetland constructed by PWD in the fall of 2005. • The one-acre wetland treats ~70 million gallons of urban stormwater a year before it reaches the Monoshone Creek. • This project is now monitored regularly through a formal inspection protocol. Monitoring efforts at this site are now included in the Wissahickon TMDL monitoring efforts. • Maintenance dredging occurred in the Fall 2020.
Cathedral Run Stormwater Wetland	90 acres	• Cathedral Run Wetland is a stormwater management facility that is about an acre in area and treats ~90 acres of drainage area. • The wetland removes sediment and nutrients from storm runoff while helping reduce the peak volume reaching Cathedral Run and Wissahickon Creek. • Maintenance dredging and replanting was conducted in Fall 2021.
Marshall Road Stream Restoration	900 feet	• Goal was to stabilize an exposed section of the Cobbs Creek Interceptor. • Through funding from a Growing Greener Grant in 2003, PWD embarked on full scale stream restoration design to stabilize the 900 ft segment of the Creek. • Construction was completed in 2006. • PWD has maintained an active role in seasonal and annual monitoring of the restoration site and continually evaluates the long-term success of the project.
Whitaker Ave Stream Restoration	2200 feet	• 2,200-foot stretch of the Tacony Creek main stem that begins 500 feet downstream of the Whitaker Avenue bridge and ends about 800 feet upstream of the Fishers Lane bridge. • PWD, in partnership with the USACE – Philadelphia District, bid and constructed this project which was completed in November 2010. • PWD began its monitoring program at this site in spring 2011.
Indian Creek CSO Storage and Daylighting	2100 feet	• Located within the Cobbs Creek Watershed at the confluence of the East and West branches of Indian Creek in Morris Park, Philadelphia, Pennsylvania. • Included the construction of a new stream channel by removing approximately 700 ft. of the West Branch Indian Creek from a brick culvert. Also included bank stabilization of the existing creek and the associated forested riparian buffer around the new channel. The new stream channel reconnects the West Branch to the East Branch of Indian Creek.

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
		• The existing brick culvert was converted into temporary storage for Combined Sewer Overflow (CSO) during wet weather events reducing the total CSO discharges into the Cobbs Creek Watershed. Estimated removal of approximately 2 million gallons of combined sewage discharge to Indian Creek annually.
Wises Mill Stream Restoration	1000 feet	• 1st/2nd order tributary to the Wissahickon Creek • Stream was fully assessed and determined to be a significant source of sediment to Wissahickon Creek through bank erosion and sediment transport processes. • The project is currently in the project monitoring phase.
Bells Mill Stream Restoration	5100 feet	• This 2nd order tributary to the Wissahickon Creek arises from an outfall near the intersection of Lykens Lane and Bells Mill Roads. It then travels through a wooded area parallel to Bells Mill Road for approximately 5,100 ft before reaching the confluence with the Wissahickon Creek. • Energy dissipating structures such as rock vanes and channel-spanning boulder step structures were installed. • Follow up maintenance activities were performed in 2014.
Gorgas Run Stream Restoration	2100 feet	• Gorgas Run is a steep headwater tributary to the Wissahickon Creek with a drainage area of 499 acres. • High peak stormwater flows have severely degraded Gorgas Run • PWD used NSCD principles to restore the 1,800 feet of stream channel that encompasses Gorgas Run and another 300 feet of tributary to Gorgas Run. • Rehabilitation of the stream corridor included in-stream stabilization structures, repairs and protection for PWD and Fairmount Park infrastructure, stabilization of stormwater gullies below Henry Avenue and park trail enhancements.
Wissahickon Creek Ridge Ave 2nd Dam	200 feet	• Bank restoration around exposed manhole at the dam on Wissahickon Creek upstream of the Ridge Ave culvert. • The project restored approximately 200 feet of stream bank.
Paul's Run Stream Restoration	500 feet	• Approximately 350 feet of stream restoration along Paul's Run, tributary to Pennypack Creek to protect an exposed sanitary sewer and stabilize the stream channel.
Wises Mill Wetland	92 acres	• System of 3 stormwater wetlands with total surface area of approximately 2 acres. • Manages stormwater from a 92-acre drainage area. • PWD monitoring sediment accumulation and vegetation within the wetlands. • PWD has conducted site maintenance recently including construction of an armored channel between the wetlands to fix gully erosion, repairs to a berm that separates the wetland from the Wises Mill Run stream channel, and installation of a larger outlet inflow pipe for proper drainage of the wetlands.
Carpenters Woods	600 feet	• Project addressed significant gully erosion downstream of 3 outfalls. • Included construction of channel bed armoring, bank revetments, and vegetation to stabilize the channels and enhance the forest off Mount Pleasant Rd in northwest Philadelphia.

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
Cathedral Run Stream Restoration	300 feet	• The culvert below Forbidden Drive trail had become clogged with debris and the banks upstream of the structure had eroded and bed downgraded. • The project constructed bank and bed stabilization structures in the area just upstream of the culvert.
Rex Ave	300 feet	• Project included stabilization of a portion of the stream channel parallel to Rex Avenue.
Cresheim Creek St. Martins	450 feet	• Construction of 3 grade control structures (cross-vanes) and bank revetments on both sides of the stream channel below the pedestrian bridge off St. Martins Road. • Stream work was conducted in conjunction with a bridge and sewer replacement.
Hartwell Lane	300 feet	• Restoration of the stream channel upstream of a culvert structure that conveys PWD's Wissahickon High Level Interceptor. • Includes 3 cross vanes for grade control and bank revetments on both sides of Hartwell Run. • Bank revetments and scour protection downstream of the culvert. • Masonry repairs were made to the culvert structures.
Cresheim Creek Interceptor and Outfall	200 feet	• Project goals include reconfiguration of the intercepting sewer crossing between the two culverts near Woodbrook Lane, replacement of a deteriorated outfall, and installation of bank stabilization and grade control features in the stream channel. • Construction was substantially completed in FY23.
Millbourne Cobbs Creek Bank Stabilization	500 feet	• The project goals include protection of a 3'-6" brick sewer exposed near the channel downstream of Millbourne Dam and stabilization of two separate portions of the downstream left side of Cobbs Creek. • The design includes concrete encasement and boulder toe revetments to protect the existing brick sewer and the access roadway, replacement of an undersized and collapsed corrugated metal pipe with a larger RCP culvert, and removal of the compromised stormwater conduit to promote proper drainage beneath the sewer maintenance access road. • Construction was substantially completed in FY23.
Cardone Outfall Bank Stabilization at Rock Run	350 feet	• A stormwater outfall owned by the adjacent Cardone Factory and draining its parking lot has been collapsing into the stream due in part to its location directly across from the Rock Run regulator. • The regulator's flows have also resulted in about 70 LF of active bank erosion downstream of the outfall. • This project aims to stabilize the outfall structure, protect the eroded bank with a new boulder wall tying in to an existing bank stabilization, and enhance the stream channel upstream of the outfall using an engineered riffle with riprap bank protection.
Status: **In Construction**		

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
Flat Rock Dam Flow Diversion	TBD	• Project goals include improving flow to the Manayunk Canal by effectively diverting more flow through the canal and remove the dam designation from the City owned portion of the dam. • Work associated with the project is focused on the headworks of the Manayunk Canal but will improve conditions along length of the canal. • Construction started in FY22 and is ongoing in FY23
Park Line Dr Interceptor - Gorgas Chute and Outfall	250 feet	• Project work is to occur across three sites. • Site 1 includes stabilization and structural repairs to the interceptor crossing and installation of a plunge pool and stream bank stabilization structures at the sewer crossing down the trail from the intersection of Park Line Dr and Hortter St. • Site 2 includes repairs to the concrete chute that conveys storm runoff flows to Gorgas Run from the outfall near Fountain St. • Site 3 includes the installation of new pipe from the collapsed outfall off of Henry Ave that has created a large gully crossing the Yellow Trail and a new outfall structure discharging under the trail into Gorgas Run.
Status: **In Design**		
Cresheim Creek Outlet Tunnel	300 feet	• The end of the culvert tunnel has degraded and the stream banks and bed around the culvert have significantly eroded. The erosion has exposed a 36-inch water main that was previously in the bank next to the culvert. The water main passes through the culvert, creating blockage for water flow through the culvert. • The project will relocate the water main below the culvert, repair and/or rebuild storm and sanitary infrastructure, and stabilize stream banks downstream of the culvert exit.
Neill Drive Stream Corridor Restoration	1600 feet	• The stream channel parallels sewer gravity and force mains and is deeply entrenched and eroding. There is a significant amount of exposed and vulnerable PWD infrastructure including sanitary sewers, a sanitary force main, a water main crossing, and damaged stormwater outfalls. • The project will protect the vital infrastructure and stabilize eroding streambanks and streambed.
Sandy Run Stream Restoration, Infrastructure Protection and Stormwater Wetland	1500 feet	• The objective of the design will relocate a sewer crossing downstream of the Ryan Avenue Bridge and include related stream restoration elements such as floodplain reconnection.
Pennypack Corridor Improvement Project at Holme Ave	1500 feet	• Two sanitary sewer crossings are exposed in the mainstem of the Pennypack Creek between Holme Ave and Axe Factory Run. Increased widening and downcutting of the channel over time has destabilized the banks and stranded a manhole.

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
		• Project design consists of installing grade control measures to protect the assets in-place, removing the manhole, stabilizing banks to prevent further erosion and widening, and increasing floodplain connectivity along this reach to the maximum extents possible.
Mount Moriah Streambank and Cobbs Creek -Interceptor Stabilization	500 feet	• Located along Cobbs Creek in the area adjacent to Mt. Moriah Cemetery, about 350 ft of a 5'-0" brick interceptor and its manholes are exposed along the left bank in multiple areas of the reach. • Work will focus on protecting the sewer in-place using bank protection structures while also employing stream restoration principles to optimize the compromised flow pattern through the three bridges.
Benton Brook Stream Restoration	1200 feet	• The project will address streambank erosion and exposed infrastructure along Benton Brook in the Pennypack Creek Watershed.
Green Tree Run Outfall Stabilization	300 feet	• Objective: stabilize the stream channel around the 54-inch outfall just off Shawmont Ave at Minerva Rd. The gabion baskets have collapsed into the stream channel and the banks continue to erode. • The private property owner signed an easement agreement with Streets when the outfall was originally installed and has complained about the discharge from the outfall causing the erosion of the stream channel.
Roosevelt Blvd Dam Removal	1000 feet	• This project will lower the existing dam by 4 feet and stabilize the walls protecting the trail by installing bank protection measures. • Periodic flooding and erosion of the adjacent Pennypack Trail surface will be reduced through the lowering of the dam crest elevation. • A culvert conveying a tributary will be repaired as it has collapsed and is causing further damage on the trail. • A rock ramp will be constructed to promote fish passage.
Tacony Creek - Reach 6 (Juniata Dam Removal)	1000 feet	• Project will improve water quality and aquatic habitat and provide fish passage. • The Juniata dam is on the Tacony Creek, approximately 700-feet upstream from the Castor Ave. bridge. The dam is in good condition however, much of the upstream impoundment was filled by sediment. • The combination of the reduced flow velocity and nutrient-rich sediment supply are suspected of reducing the available dissolved oxygen in the water column. • The height of the dam also presents a complete barrier to fish passage during the majority of flow conditions.

Project Name	Stream Length (ft)| Drainage Area (acres)	Description
Tacony Creek – Reaches 4-5	1700 feet	• This project entails the restoration of Tacony Creek Reaches 4 and 5 as identified by the Tacony Creek Restoration and Ecosystem Enhancement Program, 4/28/2010. • Objective: restore ~1700 feet of stream channel, enhancement of floodplain wetlands, improvement of the riparian buffer, and the completion of a paved Fairmount Park trail connection from Tabor Road to I and Ramona Sts • This project will connect with the existing Whitaker Avenue stream rehabilitation project.
East Branch Indian Creek Stream Restoration and Infrastructure Protection	TBD	• Project will address areas of significant bank erosion and protect critical riparian sewer infrastructure • Aquatic habitat will be improved through reduced sedimentation of the creek bed
Pennypack Outfalls at Upstream Rhawn Crossing	1200 feet	• Project will address areas of significant erosion downstream of three outfalls and protect critical riparian sewer infrastructure • Aquatic habitat will be improved through reduced sedimentation of the creek bed
Status: **On Hold**		
Woodland Dam Removal	TBD	• Will investigate, select, design and construct the best alternative to reestablish fish passage along Cobbs Creek. • After selection of a recommend type of fish passage design, concurred by both the Corps and PWD, the project will progress to plans and specifications, and construction contingent on the availability of funds. • During FY24, project stakeholders convened to discuss resuming the project.

Wet Weather Water Quality and Quantity

Implement several BMP projects

PWD and its partners have implemented many BMP projects throughout the city including GSI, stream restoration, and wetland creation projects. In FY24, 32 projects were approved in the separate sewer area through Philadelphia Stormwater Management Regulations for construction that will manage post-construction impervious area for water quality. For more information refer to **Section F.5.c Applications/Permits** on page 35 of this report. For a complete listing of both completed and current GSI projects in the combined sewer system (CSS), please refer to the **Appendix A - Green City, Clean Waters FY24 Annual Report**.

Monitor three demonstration BMPs

PWD is committed to ensuring stormwater BMPs owned and operated by the City are maintained. This commitment is often evaluated through monitoring of these sites. PWD is currently monitoring multiple stormwater BMP project types – for example, stormwater tree trenches, stormwater planters, and porous pavement – and continues to develop and improve monitoring protocols. Monitoring activities for PWD's green stormwater infrastructure projects during FY24 are documented within **Appendix A: Green City, Clean Waters FY24 Annual Report Section-Appendix 4: GSI Monitoring Status Report**. PWD has detailed activities conducted during FY24 for PWD's stream restoration, and wetland creation; please refer to the **Natural Stream Channel Design (NSCD)** section above.

F.3 Detection, Investigation, and Abatement of Illicit Connection and Improper Disposal

a. Prevention of Illicit Discharges

Sewer and Lateral Inspections

The City requires plumbing permits for connections to the municipal sewer system. The permit affords the property owner an inspection of the plumbing work performed. Corrections of defective connections are confirmed to ensure that the ultimate discharge to the receiving waters does not contain sanitary waste. PWD reviewed 1946 new sewer and storm connections during FY24. This number includes all connections (storm, sanitary, and /or combined sewers). A single project or permit may also have one connection or multiple connections.

b. Investigation of Illicit Discharge Sources

Rank the MS4 outfalls according to their priority for corrective actions

PWD maintains a stormwater outfall monitoring system in compliance with the MS4 permit issued by the PADEP. Samples are collected for outfalls that have dry weather flow and analyzed for fecal coliform and fluoride. Priority outfalls have been established through the 1998 Stormwater Consent Order and Agreement and internally, additional areas of focus have been added to maintain progress in the screening, testing and abating program and for efficient crew deployment. Priority Outfalls are sampled on a quarterly basis. Refer to **page 15** of this report for FY24 priority outfall summaries.

Investigate dry weather flow to identify sewer lateral defects

During FY24, the DCG performed 474 complete dye tests with 56 defective connections found and 32 abatements completed. Details of FY24 activities are listed below.

Table 18: Defective Connections Program – FY24 Summary

	Jul1-Sep30	Oct1-Dec31	Jan1-Mar31	Apr1-Jun30	FY24 Total
Completed Tests	110	130	101	133	**474**
No Cross Connections	90	115	88	125	**418**
Cross Connection Identified	20	15	13	8	**56**
Abatements *	10	5	5	12	**32**

*Some cross connections abated may have been identified in prior fiscal years

Reports of potential dry weather discharge from the stormwater system are also investigated, primarily through the Industrial Waste and/or Sewer Maintenance units. During FY24, 26 incidents were investigated. For details, refer to **Appendix L – Sanitary Infiltration Events** during FY24.

The DCG Field Investigation SOP was updated in March 2017. A copy is available upon request.

d. Abatements

Written notice about sewer lateral defects

The Plumbing Repair Unit handles customer communications (through letters, telephone, or site visits) and is responsible for the abatement of the defects identified.

Abatements of Cross Connections

Details of 32 abatements and costs are listed below.

Table 19: Defective Connection Abatements – FY24 Cost Summary

# Cross Connections Abated		Total Cost of Abatements
Residential	Commercial	
31	1	$ 301,113.20

[1]Cost information was not available for all abatements at time of FY report

Residential Properties Cross Connections Abatement

During FY24, 30 residential abatements were completed at a cost of $290,218.70. 1 internal cross connection property was abated with no cost to the city.

Commercial and Industrial Properties Cross Connections Abatement

During FY24, 1 commercial abatement was completed at a cost of $10,894.50.

Defective Connections Abatement Schedule
All defective connections are required to be abated within 120 days of discovery, in compliance with the MS4 permit.

Defective Connections Abatement Confirmation Tests
All abatements completed during FY24 were tested to confirm that the abatement was properly completed.

e. Defective Connection Program Reporting

Illicit connection program quarterly report
Defective Lateral Quarterly Reports are submitted four times a year to PADEP as part of the reporting requirements of the City of Philadelphia NPDES MS4 Permit No. PA 0054712. The report covers three-month periods starting in January, April, July, and October which are submitted no later than 45 days from the end of the reporting period. The quarterly reports were submitted as required during FY24.

Illicit connection program quarterly report contents
The report content within the illicit connection program quarterly reports has not changed in FY24.

F.4 Monitor and Control Pollutants from Industrial Sources

a. Applications/Permits

The City can obtain information about NPDES permits/discharge from industries if they contribute stormwater into the City's sewer system. Industries that contribute stormwater directly into a waterway or discharge non-industrial waste into the system usually coordinate directly with the PADEP. A list of NPDES permits that involve stormwater associated with industrial activities in the city were obtained from the PADEP's website and are listed in **Appendix J – NPDES Industrial Stormwater Permitted Sites**.

b. Inspections

Industrial inspections
The Philadelphia Local Emergency Planning Committee (PLEPC) is the entity tasked with meeting the responsibilities of SARA Title III.

As part of the MS4 permit requirement, the City is required to perform a stormwater inspection at all SARA Title III facilities located in the MS4 each fiscal year. In FY24, PWD conducted a stormwater inspection at 166 SARA Title III facilities located in the MS4.

Industrial waste inspection forms
The Industrial Waste Inspection Form was updated in 2006 to include a stormwater inspection section. A copy of the form can be found in previous reports; please refer to Appendix O of the CSO-Stormwater FY09 Annual Report.

c. Monitoring/Enforcement

Industrial DMR submission
When necessary, the City shall request Discharge Monitoring Reports (DMR) or additional sampling from the PADEP for surrounding industries to ensure compliance with NPDES effluent limitations.

NPDES permits enforcement
Should PWD personnel observe a violation of NPDES permit terms and conditions, PWD will report the violation immediately and notify PADEP, on a case-by-case basis.

F.5 Monitor and Control Stormwater from Construction Activities

Stormwater runoff is a concern both during construction and post-construction. Within the City's development review process, PWD is provided the authority to regulate the runoff from earth disturbance activities of 15,000 square feet or more to improve water quality. Additionally, post-construction stormwater management plan review extends beyond peak rate control and encompasses water quality and water quantity technical requirements for more frequent storm events. Efforts continue to be focused on improving plan review for both Erosion & Sedimentation (E&S) as well as post-construction stormwater management. The following sections document the progress made so far in terms of stormwater runoff from construction activities including the collaboration between the Philadelphia development community, multiple City Departments, and State agencies.

During FY24, PWD performed numerous tasks in direct compliance with the NPDES MS4 Permit as well as tasks that support the ongoing growth of the stormwater management program for development construction activities. Some of the FY24 activities include the following:

- Continued coordination efforts with Philadelphia Licenses and Inspections (L&I) regarding permit review and issuance for development projects applicable to the Stormwater Regulations. At a minimum, the L&I issuance of Zoning, Demolition, Site, and Building permits was coordinated appropriately between the two agencies. L&I supports PWD in enforcement measures through the issuance of Stop Work Orders and withholding Certificate of Occupancy permits for sites that are non-compliant. PWD continues to serve as a reviewing entity in L&I's online permit program, eCLIPSE, by providing pre-requisite signoff on applicable permits. Applicants no longer have to visit PWD offices in order to obtain sign-off, thus streamlining the permitting process. Starting on August 1st, 2023, the certificate of occupancy will be held by L+I on all building permits for regulated stormwater projects.
- Continued coordination with the PADEP Southeast Regional Office Waterways and Wetlands Program through regular project communication and periodic meetings with PADEP and Southeast Region Conservation District staff. The periodic meetings provide a platform to discuss regional and district updates, permitting services and projects, and other topics. PWD also regularly participated in pre-application and project meetings with PADEP staff and applicants to discuss upcoming projects and active projects. In FY24 PWD and PADEP also actively coordinated on several enforcement cases and performed joint site inspections.
- Scheduled and held coordination meetings with local universities and other large landowners to discuss upcoming or current development projects as well as identify ways to strengthen communication and streamline the review and post-construction inspections process.

Additionally, projects in enforcement are discussed, deadlines are communicated, and guidance is provided to bring projects back into compliance.

- Continued to implement erosion and sediment (E&S) compliance as an element of all active construction inspections by ensuring appropriate controls are in place throughout construction activity. Potential E&S issues or violations are documented as part of an inspection report provided to the on-site representative. The reports identify the required corrective actions, and active construction inspectors will return to the site to verify compliance. E&S violations may trigger active construction enforcement actions such as a Stop Work Order and fine for illicit discharge, requiring continued coordination through L&I.
- Continued to update website content to provide clear and accessible resources to the applicant to support quality submittals and efficient reviews. In FY24 PWD continued the process of migrating web content from a separate plan review website to the main PWD website https://water.phila.gov/.
- Continued to review projects applying for stormwater-based zoning incentives including Philadelphia's Green Roof Density Bonus, which was incorporated into the Zoning Code in 2015. This bonus offers exceptions to certain residential density rules for development projects that include a green roof. In 2018, the bonus was expanded to allow eligibility for existing buildings undergoing renovation or expansion. The green roof must meet PWD's requirements and be approved by PWD before the bonus can be awarded. In FY24, PWD approved 11 projects citywide as eligible to apply for this bonus.
- Continued to attend bi-monthly Business Industry Association (BIA) meetings for the Government Affairs/Fix It Philly subcommittee. In these meetings, representatives from the development community including developers, architects, and engineers come together with City agency representatives from PWD, L&I, Planning, and Streets to discuss policy and legislation impacting development in Philadelphia to ensure a transparent and efficient development process.
- In FY24, PWD engaged directly with developer stakeholder groups such as the BIA and Sustainable Business Network on topics such as L&I eCLIPSE permitting. PWD continued to conduct reviews of stormwater management plans and maintain the website to allow online submittal of plans and requests for pre-application meetings.

A summary of plan review activities city-wide in FY24 is presented in **Table 20** on page 33.

a. Construction Site Runoff Control

PWD reviews and approves E&S Plans, along with PCSMPs, for all development sites disturbing more than 15,000 square feet of earth citywide. For E&S plans, PWD follows policies and practices as provided within the PADEP E&S Control Manual. PWD conducts coordinated reviews with the PADEP for projects disturbing more than one acre of earth.

Site inspections of E&S controls are conducted on a reoccurring basis and in response to any received complaints during active construction. The purpose of reoccurring inspections is to monitor E&S controls on projects where construction and earth moving activities are active, and to require site operators to maintain E&S controls as needed. PWD inspects controls such as, but not limited to, rock construction entrances, silt fencing, inlet protection, stockpile location and protection, and concrete washouts. During an inspection, the inspector communicates with the site representative and requests to see a copy of the on-site E&S Plan. Photographs are taken documenting site conditions. An inspection report detailing any non-compliance items is generated and distributed to the site representative, and then maintained as part of PWD's electronic project file. Failure to adhere to the requirements in the inspection reports can result in a NOV or a Stop Work Order. For more information regarding enforcement actions, see **Section F.5.e** on page 37.

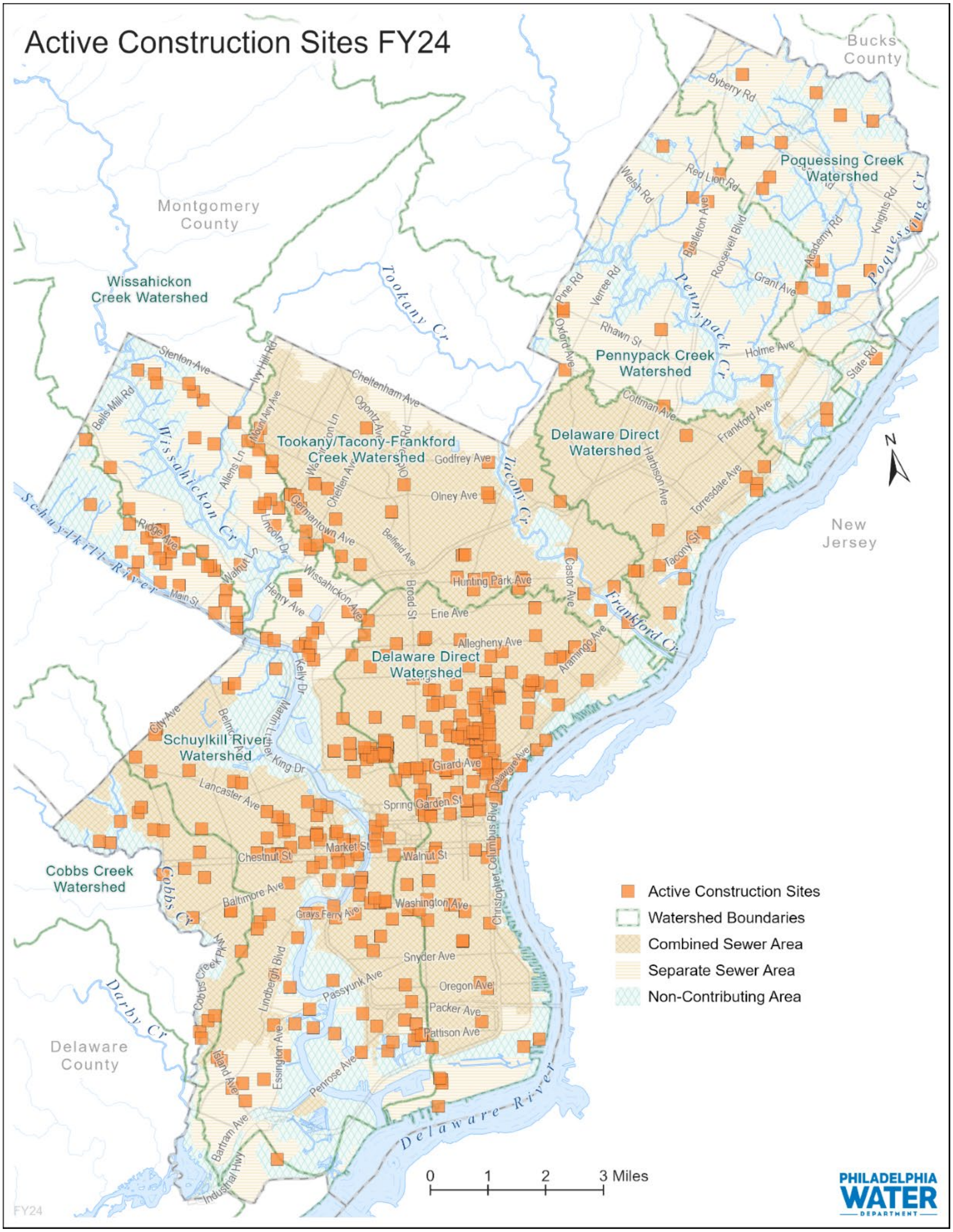
The sites visited cover all of Philadelphia including both separate storm sewer areas and combined sewer areas as depicted in **Figure 2** on page 34.

Table 20: FY24 Summary of Plan Review Activities

	Jul. '23	*Aug. '23*	*Sep. '23*	*Oct. '23*	*Nov. '23*	*Dec. '23*	*Jan. '24*	*Feb. '24*	*Mar. '24*	*Apr. '24*	*May '24*	*Jun. '24*	*FY24 Total*
Conceptual Review Stage													
Approvals	12	8	6	15	7	4	7	17	10	10	6	9	111
Rejections	32	38	28	26	33	32	44	27	21	43	29	27	380
Reviews	51	50	40	42	44	37	62	50	32	57	41	40	546
New Project Submittals	20	21	21	20	32	19	41	21	24	28	23	26	296
Average Review Time (days)	7.4	4.7	3.2	3.4	4.6	5.3	5.1	6.3	2.6	5.9	6.0	5.8	5.0
Post Construction Stormwater Management Plan Review Stage													
Technical Approvals Issued	5	7	8	6	7	4	6	4	9	5	13	6	80
Rejections	24	36	22	29	23	23	28	29	27	33	30	22	326
Full Technical Reviews	40	65	43	54	48	40	60	60	52	52	63	47	624
New Project Submittals Received	27	21	18	12	16	17	24	25	19	23	23	17	242
Average Number of Reviews per Approval	6.4	5.0	4.9	3.8	5.6	5.0	4.7	4.3	5.0	4.0	4.6	4.5	4.8
Average Approval Time (days)	452	334	320	136	323	185	266	277	261	255	358	293	288
Acres of Earth Disturbance Approved	44.0	26.2	11.3	16.1	74.3	7.2	44.8	11.6	29.2	1.6	285.8	8.0	560.0
Acres of Green Roofs Approved	0.0	0.2	0.0	0.0	0.6	0.2	0.4	0.0	0.2	0.2	0.0	0.1	1.9
Acres of Porous Pavement Approved	0.0	0.0	0.2	0.0	2.1	0.0	0.7	0.2	0.2	0.2	2.8	0.0	6.3
PADEP Reviews													
New Coordinated Reviews	7	11	6	7	7	7	8	6	8	6	6	10	89
Erosion and Sedimentation Plan Review													
Defer to PADEP	1	0	1	2	0	1	1	4	2	1	2	2	17
Approved	3	6	8	3	4	3	7	6	6	6	7	2	61
Rejected	10	18	5	8	7	8	9	14	9	15	7	8	118
Not Applicable	15	15	13	6	9	9	21	17	12	18	15	10	160
Total Inspections													
New Sites Inspected	32	19	28	34	36	34	40	44	37	61	105	136	606
Total Inspections	316	302	308	302	320	351	340	336	298	312	295	200	3680
Active Construction Inspections at Project Sites with MS4 Sewers	91	87	85	86	78	106	105	77	61	74	87	48	985
Post Construction Inspections at Project Sites with MS4 Sewers	1	8	4	8	6	6	2	5	5	6	3	2	56
Total Inspections at Project Sites with MS4 Sewers	92	95	89	94	84	112	107	82	66	80	90	50	1041
Active Construction Inspections at Project Sites with Combined Sewers	175	160	184	155	174	193	178	186	167	175	145	119	2011
Post Construction Inspections at Project Sites with Combined Sewers	14	12	12	10	13	6	9	13	9	14	23	4	139
Total Inspections at Project Sites with Combined Sewers	189	172	196	165	187	199	187	199	176	189	168	123	2150

Total Inspections includes projects in "Non-Contributing" sewered areas

Figure 2: FY24 Active Construction Sites



b. Post-Construction Stormwater Management in New Development and Redevelopment

Adopted in January 2006, the Philadelphia Stormwater Regulations enabled PWD to review plans for both new and redevelopment sites throughout the City to ensure water quality and quantity were part of the proposed management plan. Since 2006, PWD has collected and synthesized feedback from the development community regarding improvements to the stormwater plan review program. Updates are made to the Stormwater Regulations to improve and strengthen PWD's stormwater programs and stay current in policy procedures. The Philadelphia Stormwater Management Regulations are available online at http://www.phila.gov/water/PDF/PWDregCH6.pdf.

c. Applications/Permits

Across the entire city during FY24, 296 unique projects were submitted to PWD for conceptual review through the program's website. PWD approved PCSMPs for 80 projects citywide during FY24. It should be noted that this number does not include plans re-submitted for review, some of them multiple times. The distribution of development projects by drainage type and watershed that submitted post-construction stormwater management plans for review are presented in **Table 21** and **Table 22**. Locations of new project submissions and technical approvals are shown in **Figure 3** on page 36.

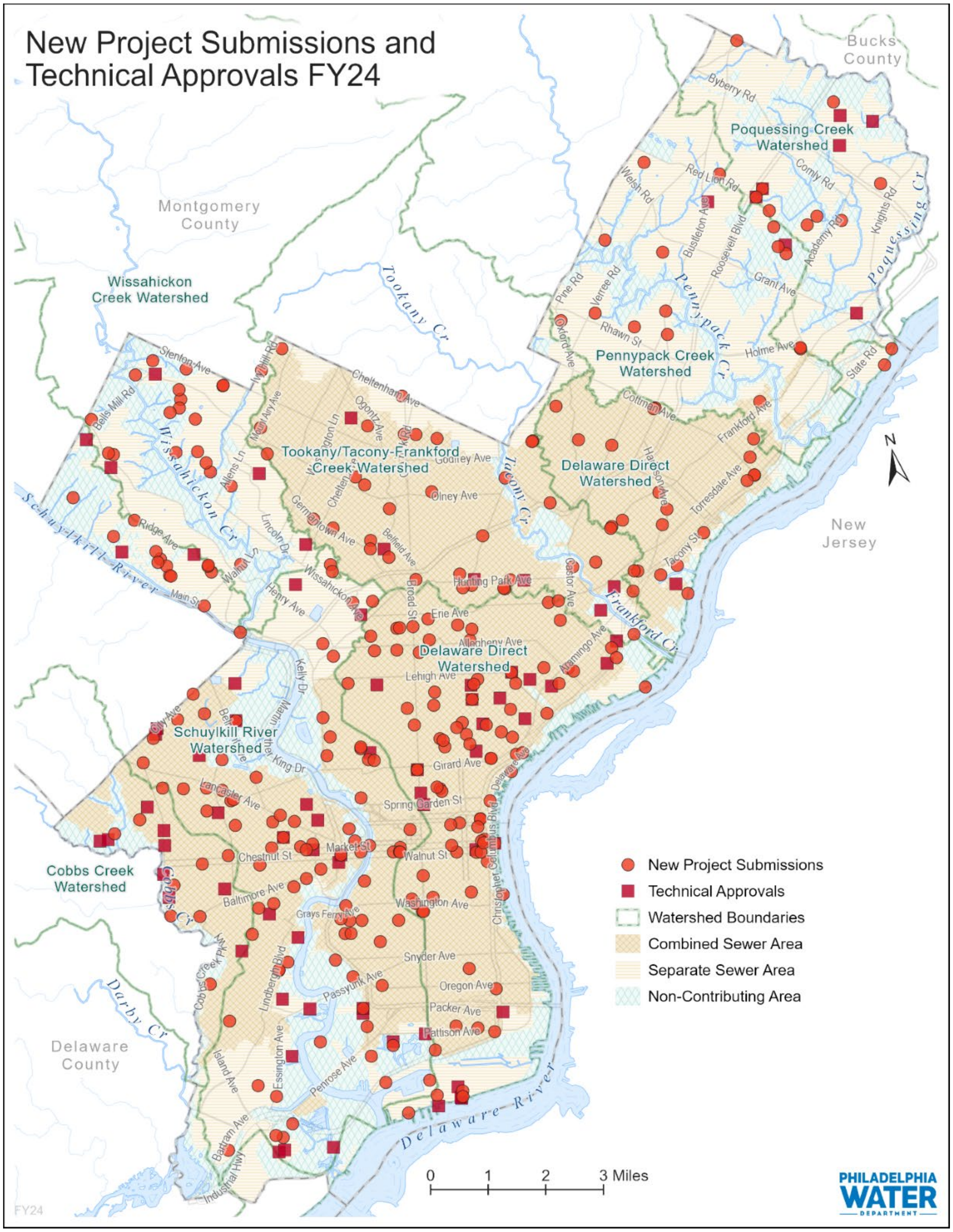
Table 21: Approved PCSMP Location Summary by Contributing Area

Drainage Type	Number of Locations
Combined Sewer Area	45
Non-Contributing Area	17
Separate Sewer Area	18
Total	**80**

Table 22: Approved PCSMP Location Summary by Watershed

Drainage Watershed	Number of Locations
Delaware River	21
Poquessing Creek	6
Pennypack Creek	2
Schuylkill River	32
Tacony/Frankford Creek	6
Wissahickon Creek	4
Darby-Cobbs Creek	9
Total	**80**

Figure 3: Locations of New Project Submissions and Technical Approvals



d. Inspections

PWD requires a pre-construction meeting prior to commencement of earth moving activities for projects applicable to post-construction stormwater management requirements. In FY24, PWD conducted 90 pre-construction meetings citywide for development projects. During the pre-construction meeting, both the approved E&S Control Plan and the approved PCSMP are discussed with the construction manager and property owner representative. Post-Construction Stormwater Management inspections are discussed in **Section F.8** on page 41.

The active construction inspection program continued in FY24 by conducting inspections of stormwater structural controls on applicable land development sites. PWD stormwater inspectors conducted site visits for 456 active sites citywide during FY24. Technical plan review staff members were also on-site, as needed, to verify construction of the SMPs was completed in accordance with the approved plan. In the case that concerns are identified regarding SMP installation during construction, the technical plan reviewer will discuss the necessary corrective actions for the project with the PWD inspector, as well as the project's engineer and construction manager.

PWD stormwater inspectors observe the installation of SMPs and erosion and sedimentation controls during active construction for development sites. During FY24, PWD was able to maintain its presence in the field by conducting 985 active construction inspections on 104 sites in the separate sewered areas of the city. Many sites were visited multiple times to ensure compliance with appropriate requirements **(Table 23)**.

Table 23: Active Construction Inspection Site Location Summary

Drainage Watershed	Number of Locations
Combined Sewer Area	309
Non-Contributing Area	43
Separate Sewer Area	104
Total	**456**

e. Monitoring/Enforcement

As part of the 2017 EPA AOCC CWA-03-2017-0146DN, PWD was required to develop an SOP to detail enforcement procedures for responding to E&S control issues when established enforcement methods do not result in compliance. In FY24, PWD continued to use the Repeat Offenders SOP as a guide when implementing enforcement action.

The SOP outlines Notice of Violations (NOVs) which includes a deadline for compliance and reinspection. If a project remains out of compliance, PWD may coordinate with the L&I to issue a Stop Work Order. Starting in August 2023, PWD began holding all Certificates of Occupancy for newly approved projects until all construction close-out documentation is provided. In some cases, projects may fall out of compliance after enforcement actions were previously taken during the construction period.

PWD issues a NOV to sites when significant or persistent issues with E&S controls or the installation of required SMPs are not addressed in a timely manner. In FY24, PWD issued a NOV to 24 projects under construction citywide. In addition, PWD issued follow-up NOV notices to the projects to ensure full compliance. Of the 24 active NOVs issued in FY24, 21 have been partially or fully resolved bringing the site back into compliance. The major compliance issues for active construction projects include improper installation or absence of E&S controls, the contractor not following the approved plans, and non-permitted construction activity.

In FY23, PWD hired a dedicated staff member for active construction enforcement, with continued program growth in FY24. As a result, PWD was able to increase its capacity for issuing violation notifications. In addition, the enforcement referral process was streamlined allowing PWD to respond to construction complaints more quickly and further escalate non-compliant sites. Enforcement escalation was also expanded to include fines for sediment discharges. This fine was issued to eight sites in FY24.

f. NPDES Permit Requests

PWD continues to provide Conservation District functions for the City of Philadelphia for NPDES Construction Permitting Requirements and Chapter 102 Regulations relating to Erosion and Sedimentation Pollution Control. PWD continues to receive notifications and coordinate reviews for permitting. For more information and full details on this process described in previous reports, please refer to Section F.5.f NPDES Permit Requests on page 204 of the CSO-Stormwater FY12 Annual Report.

g. Stormwater BMP Handbook and Construction Site BMP Sediment & Erosion Control Checklist

The Philadelphia Stormwater Management Guidance Manual Version 3.0 represents a comprehensive revision released in conjunction with the updated Stormwater Regulations on July 1, 2015. Since 2015, the Manual has received three subsequent updates; Version 3.1 released on July 2, 2018, Version 3.2 released on October 1, 2020, and version 3.3 released on July 1, 2023. Primarily a web-based resource, this version of the manual is organized to reflect the life cycle of a development project from initial submission through operation and maintenance. In addition to providing context on the regulatory framework for stormwater management in the city, the manual builds upon over a decade of program growth and technological advancements to streamline the technical design requirements and clearly document the plan review process for applicants. The PWD leveraged feedback from design engineers to clarify existing content, provide new resources, and develop a fully searchable and accessible online manual. The manual is located on the web at https://water.phila.gov/development/stormwater-plan-review/manual/.

F.6 Watershed, Combined Sewer Overflow (CSO), and Source Water Protection Programs

PWD, through the Planning and Environmental Services Division (PESD), strives to reduce the amount of point and non-point discharges entering regional waterways and improve the environmental health of the region so that all waters are fishable and swimmable. The main programs within PESD, in addition to the Stormwater Management Program, that work together to improve regional ecological health, water quality, and sustainability are: Watershed Planning, Source Water Protection Program, CSO Management Program, and Wetlands Mitigation Registry. The Watershed Planning Program is presently explained in detail throughout **Section III.C of the CSO Annual Report** on page 37.

Source Water Protection Program

PWD's Source Water Protection Program embodies PWD's multi-barrier approach to ensuring the safety and quality of Philadelphia's drinking water. Drinking water sources consist of the Schuylkill and Delaware Rivers. The Source Water Protection Program conducts planning, research, and on-the-ground projects to better understand and address priority sources of water quality impairment in the 10,000 square mile upstream area encompassing Philadelphia's source watersheds. The staff works closely with PWD water treatment plant operators to anticipate and respond to emergencies and challenges to conventional treatment technology. PWD continues to implement the Source Water Protection Program. For more information on this program, please refer to the following sections:

- Schuylkill Action Network
  Please refer the CSO Annual Report **Section II.G.2 – Schuylkill Action Network** on page 20 for information about this topic.
- Delaware Valley Early Warning System
  Please refer the CSO Annual Report **Section II.G.2 – Delaware Valley Early Warning System** on page 20 for information about this topic.
- RiverCast
  Please refer the CSO Annual Report **Section II.G.2 – Philly RiverCast** on page 20 information about RiverCast.

Combined Sewer Overflow Management Program

The Combined Sewer Overflow management program works to implement technically viable, cost-effective improvements and operational changes that mitigate the impacts of combined sewer overflows. Please refer to the **FY24 CSO Annual Report** and **Appendix A – Green City, Clean Waters FY24 Annual Report** for additional information.

Watershed Mitigation Registry

Please refer to **Section F.2.Step 3.a – Access the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach** on page 19 for information about the Watershed Mitigation Registry.

F.7 Miscellaneous Programs and Activities

a. Pollutant Migration/Infiltration to the MS4 System

PWD responds to all notifications and reported complaints of liquid, solid, or gaseous pollutants within Philadelphia. A list of all pollutant migration events in the MS4 section of the city that occurred in FY24 is presented in **Appendix M – FY24 Pollutant Migration/Infiltration**.

b. Public Education and Awareness

Public Education Literature

The City takes an active role in providing information and education to the public and our community. Several events and programs are conducted each year in which the City provides literature to the public. Please refer to the CSO Annual Report **Section II.G – Pollution Prevention** on page 20 for information about this topic.

c. Pesticides, Herbicides, and Fertilizer Controls

Integrated Pest Management protocol

The majority of the City does not use pesticides or conduct any practices that require the use of the Integrated Pest Management (IPM) protocol. The City is currently focusing on invasive plant management through the use of herbicide to remove invasive plants.

The Philadelphia Health Department uses larvicides, Bacillus Sphaericus (brand name Vectolex), Methoprene (Altosid), and Spinosad (Natular), to prevent mosquito breeding. These larvicides are approved for use in stormwater catch basins and are applied as such. The IPM protocol is followed when using the larvicides by inspecting the catch basins before treatments, using the least toxic or non-toxic product, and submitting a request for repairs when necessary. PWD and the Department of Public Health work closely together. This collaboration has resulted in the Health Department receiving maps with locations of the City's storm water inlets and surface basins. This allows PWD improved access to refer concerns of pests in the water collections systems for treatment by Health Department staff.

All associated Philadelphia Health Department staff are certified pest control applicators in accordance with the Pennsylvania Department of Agriculture. To maintain this certification, on-going training is required. The Philadelphia Health Department holds several on-site trainings per year for staff.

Education materials to private pesticide users

The Philadelphia Health Department provides educational materials to organizations, companies, and/or individuals upon request. Often private exterminators, especially companies that handle pest control work for City facilities, request this information since most buildings in the City contract out for pest control work through the individual Departments. Health Department Sanitarians (Inspectors) have this information available to provide to the public.

d. Snow Management Plan

The City faces winter storms that bring potentially dangerous accumulations of ice, sleet, freezing rain, and snow. To mitigate the impact of these storms, the Streets Department prepares a Snow and Ice Operations Plan which provides a detailed outline of the City's response to adverse winter weather conditions. The plan includes the salt storage locations at the six Highway Districts and outlines the city's salting policy. The Snow and Ice Removal Operations Plan content did not change for FY24. The **City of Philadelphia Snow and Ice Operations Plan Winter** is available upon request.

e. Municipal/Hazardous Waste, Storage, Treatment, and Processing Facilities

The City's one active waste transfer station, Northwest Transfer Station, is located at Domino Lane and Umbria Street in the Roxborough section of the city. Due to the existing facility's progressive deterioration a new waste transfer facility has been designed on a different portion of the same property and the construction project is underway with substantial completion scheduled for June of 2025. The City intends to begin transferring waste and recycling with the new facility by September of 2025 pending official completion of construction and final approval of the permit from PADEP. The approved design includes stormwater management best practices such as an oil/water separator connected to all trench drains in the facility and three lined rain gardens to manage stormwater runoff on-site.

F.8 Best Management Practices (BMPs)

a. Submit Storm Sewer Discharge Ordinance

The authority for PWD to adopt stormwater regulations is found within Title 14 Zoning and Planning Code under §14-704(3) Stormwater Management. PWD maintains Stormwater Regulations as Chapter 6 of PWD's regulations. These regulations were originally adopted in 2006, with a significant update made in July of 2015. Most recently, the regulations were updated in July 2022, to clarify the Flood Control and Channel Protection requirements, as well as updates to the O&M Agreement section. These regulations require stormwater management on development projects that exceed an earth disturbance threshold of 15,000 square feet. For more information regarding PWD's regulation updates within the last year, see **Section F.5.b. – Post-Construction Stormwater Management in New Development and Redevelopment** on page 35.

PWD has added documentation to a website (https://water.phila.gov/development/stormwater-plan-review/) to provide the development community a means of accessing the most recent stormwater management information.

b. Commercial and Residential Source Controls

b.i. Mingo Creek Surge Basin

Given notice to proceed on 01/26/2023, a capital construction project for the rehabilitation of Mingo Creek is ongoing. The rehabilitation project is in response to flooding in the Eastwick area of Philadelphia because of the Cobbs Creek overtopping. For more information on this project, please refer to Section F.8.b.i on page 214 of the CSO-Stormwater FY12 Annual Report.

b.ii. Existing privately owned structural controls

To ensure ongoing SMP maintenance of private facilities, PWD continues to utilize four means: executing Operation & Maintenance Agreements, maintaining comprehensive operations and maintenance information, conducting post-construction maintenance inspections, and enforcing on non-compliant projects.

An Operation and Maintenance agreement between the property owner and PWD is executed and recorded against the property as part of the PWD post-construction stormwater management plan process. These agreements outline the SMP(s) on the private site and stipulate maintenance requirements. The agreements also include language granting PWD the authority to inspect on-site SMPs and even perform maintenance on behalf of the property owner if necessary.

PWD maintains comprehensive operations and maintenance information geared toward the private development community in Chapter 4 of the Philadelphia Stormwater Management Guidance Manual. Each SMP section provides guidance on SMP maintenance activities, including a recommended SMP maintenance schedule and maintenance factsheets, which are available as a resource for the property owner. In addition, as part of the post-construction stormwater management plan review process, projects must create an SMP Maintenance Guide. The SMP Maintenance Guide is unique to each project and includes a site map and Maintenance Schedule Form for each SMP to allow the owner to track maintenance activities for the site. Please see the links below for more information:

- Philadelphia Stormwater Management Guidance Manual, Chapter 4
- Maintenance Schedule and Fact Sheets
- SMP Maintenance Guide

Post-construction maintenance inspections of private facilities were conducted throughout the reporting period. PWD utilizes visual inspections and specialized inspection techniques to assess the condition of private SMPs. PWD conducts post-construction maintenance inspections on all applicable private facilities. As projects are identified for maintenance inspection, the PWD post-construction inspection staff contacts the property owner to schedule the inspection. PWD prefers to conduct the inspection with the property owner or their maintenance representative present so any concerns or questions can be verbally discussed. After inspection, a post-construction inspection report is generated and issued to the property owner. Any required corrective actions are identified in the report along with a deadline for resolution. After actions are taken, PWD re-inspects the property and compliant sites are closed until their next routine inspection date. Inspectors will provide guidance to the property owner to ensure corrective actions are resolved. In addition to visual inspections, PWD has identified other effective methods and technologies, including closed-circuit television, surveys of critical system elevation points, confined space, pole-mounted camera photography, and wet weather inspections. PWD will continue to evaluate and refine post-construction inspection protocols. In FY24, PWD performed 56 post-construction inspections in the MS4 and 217 post-construction inspections citywide.

Referral for enforcement is pursued if compliance is not achieved within the timeframe specified during the post-construction inspection process. PWD initiates an enforcement case with the issuance of a post-construction enforcement letter to the property owner if a PCSMP is found to be insufficiently maintained. This notification includes a description of any issues identified and a timeline to achieve compliance. The City is authorized to compel maintenance of SMPs on private property under the Philadelphia Code and PWD Regulations. Development sites that are subject to the regulations, as well as properties that have grant-funded SMPs, are required to maintain the SMP(s) to function as designed. If initial notification is unsuccessful at bringing action from the property owner, PWD can compel compliance through several enforcement tools, including NOVs, fines, court action, and/or a nuisance abatement and lien by the City. For non-compliant projects, PWD will also suspend any applicable stormwater billing credits if corrective actions are not completed. In **FY24**, PWD successfully resolved **18** enforcement cases consisting of **53** SMPs **citywide**. Of the enforcement cases closed, escalated enforcement tools were utilized consisting of seven NOVs, with **five** escalating to fines. PWD will continue to work with property owners to ensure that SMPs are inspected and maintained in accordance with Regulations and recorded O&M agreements.

c. Development Plans Review

PWD and the City Planning Commission provide review of drainage plans for new and redevelopment. The drainage plans address both flood control and potential stormwater pollutants under the authority of the Philadelphia Code. Please refer to **Section F.5 – Monitor and Control Stormwater from Construction Activities** on page 30 for additional information.

d. Street Cleaning Program

During FY22, the Streets Department developed the Mechanical Street Cleaning Pilot Program as part of the City of Philadelphia's commitment to reduce trash and litter conditions in the City's most vulnerable communities. Mechanical street cleaning is an effective tool in reducing litter from city streets and preventing trash and debris from entering the water systems. In FY24, 33,939 miles were swept, and 1,205 tons of material were removed from the streets.

The Streets Department launched Phase II in 14 neighborhoods identified through the Litter Index as having the highest concentration of litter. These areas have been identified as requiring additional City services to supplement cleaning efforts in the area. The program runs from early May through November 30th to coincide with the warmer-weathered months and decrease the potential for snow and ice. Some streets in each pilot area receive sidewalk cleaning maintenance along with mechanical broom cleaning weekly. Since FY14 the Streets Department has initiated monthly street sweeping operations on routes along the Tookany/Tacony Frankford, Wissahickon, Cobbs Creek, and Pennypack watersheds within the city.

In addition, the Center City District (CCD) and University City District (UCD) conduct sidewalk cleaning. Heavily trafficked commercial streets and areas receive daily sweeping with pans and brooms and mechanical cleaning. Other areas with a high density are cleaned at least twice weekly with machines (some areas are cleaned daily). Sidewalks also get a monthly power washing, except in winter, to remove accumulated stains, gum, and grime. In FY24, 80,756 miles of streets were mechanically cleaned. Through a variety of fee-for-service arrangements, CCD crews clean several adjacent commercial and residential areas and provide a 24-hour deployment to clean the three and a half mile long underground subway concourse and Center City's two regional rail stations.

Public awareness of litter

Waste and litter, illegal dumping, and graffiti negatively impact the beauty and cleanliness of Philadelphia's rights-of-way, waterways, and other public and private spaces, and landfilling waste creates emissions that contribute to climate change. To accomplish the goals of reducing waste and litter in Philadelphia, the office of clean and green continues to maintain an interdepartmental effort to combat litter, enhance the cleanliness of streets and public spaces, and with a goal of making Philadelphia the safest, cleanest, greenest big city in the nation.

The City's recycling program operates on an enormous scale, collecting over 80,000 tons of recycling. Recycling right saves resources. It's good for the environment, reduces litter and pollution, and keeps our communities clean and healthy. Improper recycling is putting trash in your recycling, where it ruins good materials, damages equipment, and endangers workers. It only takes one bad bin to ruin a truckload of good recycling. Recycling is the law in Philadelphia. The Streets & Walkways Education and Enforcement Program (SWEEP) educates Philadelphia residents, businesses, and property owners about sanitation regulations and enforces code violations. SWEEP officers are trained, uniformed civilians. They educate local businesses and apartment managers about their responsibility for keeping their properties clean, work with communities on outreach efforts, patrol streets to enforce litter laws, issue warnings and citations.

The Philadelphia More Beautiful Committee (PMBC) works with registered block captains to keep City blocks clean and green. PMBC promotes and organizes clean-up events, provides block captains with cleaning tools, information, and guidance; supports and celebrates volunteer block captains. Together with 41,968 volunteers, PMBC cleans 6,042 blocks each year. PMBC also organizes neighborhood cleaning events citywide. Such cleaning efforts are bolstered every April by the Philly Spring Cleanup, a citywide event that kicks off the cleaning season uniting residents, civic organizations, businesses, and nonprofits to work together to remove litter, beautify blocks, spruce up shared spaces like parks, gardens, and recreation centers. Philly Spring Cleanup is Philadelphia's largest city-wide, single-day clean-up event. Since its 2008 launch, a total of 200,000 volunteers have removed more than 11.4 million pounds of trash and 950,000 pounds of tires from city streets at nearly 6,750 project sites. The most recent event was held April 6, 2024, the results of the most recent event were not available at the time of reporting.

A BigBelly is an enclosed litter basket that often includes a recycling station. The Department of Streets installs BigBelly units on commercial corridors in high pedestrian areas to help reduce litter and provide access to public recycling. Advertisements on BigBelly units help fund the program. There are about 500 BigBelly in Center City, and another 460 in other commercial districts throughout the city. The City of Philadelphia also implements a Community Cans Program that the partners with community organizations and businesses to place wire mesh litter baskets in designated locations along commercial corridors with a goal of reducing litter in Philadelphia neighborhoods.

e. Animal Waste and Code Enforcement

Educational material regarding control of animal waste

The Philadelphia Code and Charter Chapter 10.100 – Animals and Chapter 10.700 – Refuse and Littering address the proper clean-up of pet waste and applicable fines and penalties. In addition, signs advertising said penalties are displayed city-wide to prevent residents from violating this statute. The City of Philadelphia also provides the text of this code online at http://municipalcodes.lexisnexis.com/codes/philadelphia/.

PWD provides additional information on pet waste to the public including how it affects stormwater and why to pick it up through its website located at the following site: http://water.phila.gov/drops/dog-waste/

Dog Waste Control Program

PWD's approach to address dog waste in Philadelphia focuses on partnerships with key dog-related organizations, including dog shelters, vet clinics, and animal nonprofits. In FY24, the program partnered with four such organizations to distribute materials to current pet owners, including an updated 'Pick up After Your Pets' educational postcard. PWD worked with the Partnership for the Delaware Estuary (PDE) to create the 2024 dog waste education social media campaign, which reached over 17,000 accounts with over 400 engagements across social media platforms. Attendance at dog related events was a key feature of the work this year; in total, PDE and PWD attended seven events throughout Philadelphia, interacting with 725 individuals and distributing 673 giveaway items and 276 publications. More information can be found at the following website: http://www.delawareestuary.org/manage-dog-waste/.

f. Flood Management and Flood Control Devices

Structures built within the floodplain

All development within the Special Flood Hazard Area (SFHA), which is identified on FEMA's Flood Information Rate Maps (FIRM's), is reviewed and approved per the City's codes and regulations found in both Zoning and Building codes. L&I will identify all City parcels within the SFHA, and upon an application submission, will determine whether the floodplain codes apply. If the development site itself is determined to be within the SFHA, structures built will be designed to an elevation of Base Flood Elevation (BFE) plus a safety factor of at least 18 inches. L&I will maintain records of compliance for all development located with the SFHA. Licenses and Inspections issued 619 permits in total, which includes separate building, mechanical/electrical/plumbing (MEP) permits, and alteration permits.

Evaluate new and existing structural drainage controls

Our evaluation of structural drainage controls was discussed in further detail in **Section F.8.b.ii - Existing privately owned structural controls** on page 41 of this report.

Work is being completed in sections of the city that have chronic flooding to eliminate or reduce these occurrences; please refer to CSO Annual Report **Section II.B.3 – Flood Relief Project Summary** on page 3 for more information about the SFR projects and details on evaluating structural drainage controls.

Streambank Restoration and Wetland Enhancement

Please refer to **Section F.2.Step 3.a – Access the benefits of implementing a Natural Stream Channel Design (NSCD) and effectiveness of the NSCD restoration approach** on page 19.

g. Sanitary Infiltration Controls

Limit sanitary infiltration

As part of the Cross-Connection Repair Program, PWD has conducted 1,745 abatements to correct cross -connection in sewer laterals since 1994; 30 abatements were completed in FY24. PWD also has in place twelve dry weather diversion devices which divert sanitary flow back into the sanitary sewer but still allow stormwater to pass through during wet weather events. PWD estimates that these abatements and dry weather diversion devices have prevented over 243.52 million gallons of contaminated flow from entering our waterways since the inception of the program and about 4.22 million gallons during FY24. Please refer to **Section F.3 – Detection, Investigation, and Abatement of Illicit Connection and Improper Disposal** on page 27 for more information on the Cross-Connection Repair Program.

In addition, as part of PWD's Sewer Maintenance Program, sewer lining is routinely conducted on both sanitary and storm sewers. Lining sewers helps to reinforce, seal, and rehabilitate the existing sewers, specifically preventing infiltration to allow the pipe capacity to be reserved for sanitary and storm flow. Apart from those being done under consent orders, there are several sewer lining projects in the city that originate from sewer maintenance issues like street cave-ins, depressions, backups, as well as outputs from sewer assessment meetings.

As a part of PWD's commitment to improvement of water quality and aesthetics in dry weather, large sewer lining projects were initiated on the intercepting sewers along the Tookany/Tacony-Frankford and Cobbs Creeks. Please refer to **Appendix A Green City, Clean Waters FY24 Annual Report Section 3.3 Interceptor Rehabilitation Program** on page 8 for more information on the interceptor relining project. Construction of a storage tank upstream of relief sewer manhole R-20, located at Main Street and Shurs Lane, to capture and store excess flows was completed during November of 2013. The consent order requirement for sewer linings around regulator R-20 to reduce inflow and infiltration has been completed. Please refer to CSO Annual Report **Section III.B.1– Construction and Implementation of the Main and Shurs Off-line Storage Project** on page 32 for more information on the Main and Shurs Off-line Storage Project and efforts to reduce inflow and infiltration at R-20.

PWD constructed a parallel relief sewer in December of 2011 to eliminate overflows at manhole PC-30 as per a consent order issued by the PADEP. The overflows at PC-30 were caused by a combination of various factors which influence the hydraulic carrying capacity of the Poquessing Creek Interceptor during wet weather events. During FY24, there were three overflow events at manhole PC-0030. Information regarding PC-30 monitoring and modeling data for overflow observation are submitted monthly to PADEP.

Investigate, remediate, and report sanitary infiltration

PWD responds to all citizen complaints of liquid, solid, or gaseous pollutants within Philadelphia. A database called the Sewage Pollution Incident & Location Log (SPILL), which stores information about unintentional sanitary discharges including the date reported, problem location, spill type, description, and abatement date, is maintained. Detailed information on the events found on the SPILL database of reported sewage pollution incidents in FY24 are found within **Appendix L – FY24 Sanitary Infiltration Events**.

The following locations have been identified by the Department as locations suffering from chronic discharges of sanitary sewage to the storm sewer system and/or waterways. A description of the specific site issues and the status of remediation efforts is provided for each location.

Neill Drive Pumping Station

Historically, force main failures occurred at the Neill Drive Pumping Station due to faulty fittings and plastic couplings. In FY24, PWD continued to plan for the proactive replacement of the remaining fittings and couplings. No sanitary sewer overflows (SSO) occurred in FY24.

Navy Yard Force Mains

Issues with the force mains associated with Pump Station 603 in the Philadelphia Navy Yard have been ongoing for several years, and the Department saw significant progress in the necessary upgrade and rehabilitation of a portion of these mains in FY24. The force main and associated pumping station are integral in conveying sanitary flows out of the western area of the Navy Yard to the Southeast Water Pollution Control Plant.

Pump Station 603

In 2021, PNBC-603 experienced multiple force main breaks due to the corrosive effluent from PNCB-648 eroding the inner wall of the main. After years of recurring breaks, a two-phase project was initiated in 2021 to replace the force main with a corrosive resistant material. The first half of the project entailed replacing the main starting at the station and ending around 1000 ft west of Broad St. The construction of this project is complete, and the work was accepted by PWD construction on October 12, 2022. The second phase of the project is currently being expedited and includes replacing the rest of the main from the first phase to the discharge manhole near PNBC-796. The second phase of the project is 100% designed and has been transmitted to Project Control. In FY24, there were no SSOs due to the corrosion of the 8" force main.

Pump Station 648

Force main deterioration issues have been ongoing for several years at this location, and the Department completed a major overhaul of Pump Station 648 (which discharges to Pump Station 603) and the cast iron force main in 2020. The project consisted of replacing the force main with high density polyethylene and all internal station piping, pumps, and fittings with stainless steel to help resist corrosion.

Hortter Street Sewer

On December 13th, 2020, PWD responded to the fourth SSO along the 300 and 400 blocks of W Hortter Street in a four-year period. The Department has completed several CCTV inspections of sanitary and storm sewers in this street, with the most recent occurring in February 2019. The primary causes of the SSOs have been heavy debris accumulation and failures in the terracotta pipe sanitary sewer installed in the late 1800s, resulting in the restriction of flows and discharge through manholes or privately owned fresh-air-inlets. The Department has been able to respond to the SSO incidents by completing sewer flushing and cleaning activities and point repairs when necessary.

During FY24, PWD continued to monitor this location and no SSOs occurred at the Hortter Street sewer. Construction for the sewer reconstruction project started on 4/26/2022 and is substantially complete as of 8/23/2023.

Cresheim Valley Drive (CV-0145)

PWD previously identified a hydraulic overload along a 1,000-foot section of separate sanitary sewer in the Cresheim Valley. A hydraulic model analysis revealed a portion of this system was hydraulically limited during wet weather events with a 1-year return interval. Pursuant to Chapter 94 reporting requirements, the PWD notified the PADEP of this restriction and submitted a Corrective Action Plan (CAP) as a component of its Chapter 94 Report for the 2020 calendar year. Construction of the new intercepting sewer began in November 2021, and the sewer has been in service since March 2022. The project replaced approximately 1,500' of the former egg-shaped Cresheim Valley intercepting sewer and replaced it with 42" centrifugally cast fiberglass pipe that is watertight at all joints, connections, and manholes. This project successfully eliminated the hydraulic restriction that existed between manholes CV-138 and CV-137. PWD conducted post-construction monitoring of the former egg-shaped intercepting sewer to assess the suitability for abandonment and filling per the original project specifications. A partial bulkhead was constructed at CV-0128 on 11/15/2022 as PWD continued to monitor any potential flows in the former intercepting sewer. On 7/7/2023 clear water was observed behind the bulkhead, which was later determined to be groundwater infiltration. PWD decided to postpone the complete bulkheading of CV-0128 until drier conditions prevailed. Subsequently, on October 18, 2023, PWD finalized the full bulkhead installation on CV-0128.

On-lot septic/disposal system

During FY24, no complaints of malfunctioning on-lot sewage disposal systems were received. Also, during FY24, eight applications were submitted for the installation or repair of on-lot sewage disposal systems, and four permits were approved. In addition, 440 portable toilet permits were issued. PWD continues to support the inspection and remediation of these systems.

h. Spill Prevention and Response

The City's response plan to respond to and contain harmful spills that may discharge to the municipal separate storm sewer system is managed by the Office of Emergency Management.

To protect PWD's structures and treatment processes, PWD staff respond to oil and chemical spills and other incidents that have the potential to threaten the water supply or impact the sewer system, twenty-four hours per day, seven days per week. PWD responds to all incidents that can impact the sewer system or endanger PWD employees. This includes both the sanitary sewer system and the storm sewer system. PWD supervises cleanup activities and assesses environmental impact. PWD inspectors also investigate various other types of complaints. In FY24, 25 pollution migration events occurred. A list of all pollutant migration events in the MS4 section of the City that occurred in FY24 is presented in **Appendix M – Pollutant Migration/Infiltration**.

i. Public Reporting of Illicit Discharges, Improper Disposal

The City encourages residents to report the occurrence of illicit discharges that may impact the sewer system and water bodies. To facilitate the timely reporting of such events, PWD operates a Municipal Dispatcher 24 Hours/Day, 7 Days/Week to handle reports from the public. In addition, a customer service hotline (215 685-6300) is also operated that provides the ability to connect to the dispatcher. This information is distributed in mailings, as well as online at http://www.phila.gov/water/contact_us.html.

Upon the reporting of such an incident, a PWD inspector is immediately dispatched to the site to investigate and determine the source of the discharge, as well as the extent of impact on the receiving water body. Each incident is logged into an electronic database that enables tracking of the details of each occurrence.

The PWD Customer Contact Center received 381,959 inbound phone calls in FY24. Currently PWD does not track phone calls specifically related to illicit discharges and improper disposals in the MS4 area, but instead tracks broader topics including sewage backup, flooding, street cave-ins, and water service disruptions.

Philly 311

Philly311 was created to help eliminate the need to sort through the numerous phone numbers and hotlines available to contact the city government. A customer service specialist will connect the user to the information and services they may need either by calling 3-1-1, asking a question on the website, or through Twitter @philly311. A Philly 311 mobile app is available for iPhone, Android, or Blackberry devices to report issues such as graffiti, potholes, litter and more. For more information on uses of Philly311, please visit: http://www.phila.gov/311/. During FY24, Philly 311 transferred 3,068 non-emergency inlet and hydrant requests to Customer Service Call Center.

j. Used Oil and Toxic Material Disposal

The City continues to facilitate the proper disposal of used oil and other toxic materials. This program includes collections events, distribution of educational materials, the operation of a website, and a hotline accessible to the public. During FY24, Streets Department held seven (7) Household Hazardous Waste events resulting in contributions from at least 4,482 individuals and removing 397,765 lbs. of hazardous materials (Table 24). For more information on the hazardous waste program please visit: https://www.phila.gov/services/trash-recycling-city-upkeep/dispose-of-household-hazardous-waste/.

Table 24: FY24 Household Hazardous Waste Collection Events

Date	Area	Address
Thursday, July 13, 2023	Northeast Philadelphia	8401 State Rd., 19136
Saturday, September 16, 2023	North Philadelphia	2121 W. York St., 19132
Saturday, October 21, 2023	Southwest Philadelphia	3033 S. 63rd St., 19153
Saturday, November 4, 2023	Port Richmond	3901 N. Delaware Ave., 19137
Saturday, April 6, 2024	Northeast Philadelphia	8401 State Rd., 19136
Saturday, May 11, 2024	West Philadelphia	4800 Parkside Ave., 19131
Saturday, June 8, 2024	Northwest Philadelphia	320 Domino Lane, 19128

k. Storm Water Inlet Labeling/Stenciling

Since 2015, PWD's stormwater inlet labeling program has included watershed specific markers representing the seven watersheds in Philadelphia. Each marker features a unique color scheme and an animal native to its respective watershed. Storm drain marking kits are assembled and distributed to volunteers, both individually and through partnerships with community and environmental organizations; kits include enough supplies to mark 15 storm drains as well as educational tip cards to inform the public about how their actions can reduce stormwater runoff pollution. PWD continues to utilize its web-based marking app to track which storm drains are marked by volunteers.

During FY24, a total of 99 storm drain marking kits were distributed to volunteers leading to 1,255 storm drains being marked throughout Philadelphia. The Partnership for the Delaware Estuary led eight storm drain marking events with various organizations, as well as a public event with the Philadelphia Water Department. The public event featured four sites around Philadelphia and engaged 15 volunteers. Eight watershed and civic organizations and eight schools or youth education related organizations were engaged with storm drain marking this year, both in the distribution of kits and the installation of markers. Additionally, 3 presentations were given about the program and its connection to stormwater runoff.

Section G Assessment of Controls

PWD has selected a set of effective post-construction stormwater management controls to address problems identified in the waterways and documented these controls in the Philadelphia Stormwater Management Guidance Manual. Philadelphia's stormwater regulations obligate all development projects subject to these regulations to implement the identified controls. The requirements of the stormwater regulations were developed through the Act 167 planning process in coordination with neighboring counties. The requirements are explained in detail in Section 1.2.1 of the Stormwater Management Guidance Manual and summarized below.

Water Quality

The Water Quality requirement focuses on the removal of both runoff volume and pollutants and is similar to requirements in surrounding states and other major cities across the country. Because flow rates and velocities were identified as significant causes of aquatic ecosystem impairment, infiltration is emphasized as the preferred water quality management practice unless evidence is provided that it is infeasible on a particular site. Additional water quality benefits are provided, in part, by slowing water flow rate and allowing suspended solids and associated pollutants to settle.

The Water Quality requirement stipulates infiltration of the first 1.5 inches of runoff from all directly connected impervious area (DCIA) within the limits of earth disturbance. The initial 2006 regulations required 1.0 inch of runoff to be managed, based on water budget analyses and precedents for control of the 90th percentile event set by Maryland and other nearby states with similar climates. In 2015, this requirement was increased to 1.5 inches based on evidence provided by simulations showing that this level of control will further reduce the volume and flow rate of runoff to waterways.

Channel Protection

Erosion of stream beds and banks caused by high volumes and velocities of urban runoff was identified as a significant contributing factor to aquatic ecosystem impairment in Philadelphia's stream systems. For this reason, a channel protection requirement was incorporated in the stormwater regulations. This requirement is based on the concept of effective channel forming discharge and is similar to precedents set by Maryland and other nearby states with similar climates and geology.

The Channel Protection requirement stipulates the detention and release of runoff from the one-year, 24-hour Natural Resources Conservation Service Type II design storm event for all DCIA within the limits of earth disturbance at a maximum rate of 0.24 cfs per acre of directly connected impervious drainage area in no more than 72 hours.

Flood Control

Act 167 Plans identified peak rates of runoff as a contributing factor to out-of-bank flooding events in Philadelphia and surrounding counties. To address peak rate control, geographically specific requirements were incorporated in Philadelphia's stormwater regulations and manual.

The Flood Control requirement stipulates that a development project meet or reduce peak rates of runoff, as determined by its Flood Management District, from predevelopment to post-development conditions during certain storm events.

Directly Connected Impervious Area (DCIA)

There are approximately 20.7 square miles of impervious area in the portion of the City that falls under the MS4 permit. Since July 2010, approximately 1.70 square miles (1,091 acres) of directly connected impervious area are tributary to completed or approved green stormwater infrastructure. This is approximately 8.2% of the impervious area.

Section H Fiscal Resources

Maintain adequate program funding

During FY24, the City provided fiscal resources needed to support operation and maintenance of the Stormwater Management Program. The budget for the upcoming FY25 budget is available upon request.

Annually submit fiscal analysis

The conditions of the NPDES permit can be achieved through appropriate budget planning supporting the projects and assessments critical to a successful program. Any funding changes will be included as part of subsequent annual reports.

APPENDIX A

Green City, Clean Waters

FY 2024 Annual Report

Thirteenth Annual Report for the City of Philadelphia's Consent Order and Agreement on Green City, Clean Waters

Reporting period July 1, 2023 – June 30, 2024

Submitted to
The Commonwealth of Pennsylvania
Department of Environmental Protection
And
The United States Environmental Protection Agency

By the City of Philadelphia Water Department
September 30, 2024

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Glossary of Acronyms

AOCC	Administrative Order for Compliance on Consent
BMP	Best Management Practice
BOD	Biological Oxygen Demand
City	City of Philadelphia
CMP	Comprehensive Monitoring Plan
COA	Consent Order and Agreement
CSO	Combined Sewer Overflow
EAP	Evaluation and Adaptation Plan
FWWIC	Fairmount Water Works Interpretive Center
GA	Greened Acre
GIS	Geographic Information Systems
GSI	Green Stormwater Infrastructure
LTCPU	Long Term Control Plan Update
NASSCO	National Association of Sewer Service Companies
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PACP	Pipeline Assessment Certification Program
PADEP	Pennsylvania Department of Environmental Protection
PCSMP	Post Construction Stormwater Management Plan
PennDOT	Pennsylvania Department of Transportation
PIDC	Philadelphia Industrial Development Corporation
PPR	Philadelphia Parks and Recreation
PSWMR	Philadelphia Stormwater Management Regulations
PWD	Philadelphia Water Department
SDP	School District of Philadelphia
SIUA	Soak It Up Adoption
SMP	Stormwater Management Practice
SRT	Simulated Runoff Testing
UUW	Understanding the Urban Watershed
US EPA	United States Environmental Protection Agency
WPCP	Water Pollution Control Plant
WQBEL	Water Quality-Based Effluent Limit

1.0 Introduction

In 2011, the Consent Order and Agreement (COA) between the City of Philadelphia (City) and the Pennsylvania Department of Environmental Protection (PADEP), and in 2012 the Administrative Order for Compliance on Consent (AOCC) between the City and the United States Environmental Protection Agency (US EPA), formalized the regulatory approval of the *Green City, Clean Waters* program and amended the 2009 CSO Long Term Control Plan Update (LTCPU). This is the thirteenth Annual Report submitted under the requirements of the COA. Fiscal Year 2024 (FY24) covers the City's *Green City, Clean Waters* implementation progress activities that occurred between July 1, 2023, and June 30, 2024.

The Year 10 Evaluation and Adaptation Plan (EAP) submitted on May 30, 2022 to PADEP can be found at https://water.phila.gov/pool/files/gccw-year-10-eap.pdf. The Year 10 EAP provides a comprehensive assessment of program progress at the Year 10 milestone, including an assessment of compliance with Water Quality Based Effluent Limits (WQBEL) Performance Standards and an updated assessment of receiving water conditions. The FY24 COA Annual Report will focus on the progress accomplished in FY24.

1.1 Water Quality Based Effluent Limit Performance Standards

The Water Quality-Based Effluent Limits (WQBEL) performance standards are broken into incremental targets that must be achieved by the City every five years of the 25-year program. This annual report includes water pollution control plant and collection system improvements, interceptor lining, and greened acre (GA) interim progress towards the Year 15 WQBEL targets. Volume reduction and mass capture are only reported every 5 years with updated values to be reported in the upcoming Year 15 EAP. **Table 1: Water Quality-Based Effluent Limits** displays the cumulative progress achieved at Year 10 and includes the upcoming Year 15 (2026) WQBEL targets.

Table 1: Water Quality-Based Effluent Limits

Metric	Units	Base Line Value	Cumulative Amount as of Year 5 (2016)	Cumulative Amount as of Year 10 (2021)	Year 15 WQBEL Target
NE WPCP Improvements	*Percent Complete*	0	Reported progress in Year 5 EAP	**Reported progress in Year 10 EAP**	To report progress in Year 15 EAP
SE WPCP Improvements	*Percent Complete*	0			
SW WPCP Improvements	*Percent Complete*	0			
Miles of Interceptor Lined	*Miles*	0	7.5	**9.2**	14.5
Overflow Reduction Volume	*Million Gallons Per Year*	0	1,710	**3,080**	3,619
Total GAs	*GAs*	0	837.7	**2,196**	3,812
Equivalent Mass Capture *(TSS)*	*Percent*	62%	70.5%	**77.5%**	Report value
Equivalent Mass Capture *(BOD)*	*Percent*	62%	88.9%	**~100.0%***	Report value
Equivalent Mass Capture *(Fecal Coliform)*	*Percent*	62%	72.0%	**77.1%**	Report value

*BOD5 capture has met or exceeded the 85% equivalent mass capture. The amount of BOD5 captured has met or exceeded the load reduction that is associated with 85 percent capture volume treated using primary clarification and disinfection using the end-of-pipe treatment technology.

1.2 Green City, Clean Waters Green Infrastructure

Greened Acres (GA) are achieved through three implementation approaches: Public Retrofits, Private Development, and Incentivized Retrofits. **Table 2: Cumulative Greened Acres** displays the cumulative program progress towards meeting the Year 25 GA target at the end of Year 13.

Table 2: Cumulative Greened Acres

Implementation Approach	Cumulative Number of Projects (FY11-FY24)	Cumulative GAs (FY11-FY24)
Public Retrofits	335	1,058
Private Development	542	1,077
Incentivized Retrofits	122	1,009
Total	**999**	**3,144**

It is important to note that project specific GA values are subject to change and do not remain constant over time. A project's GA value is calculated using the best available information based on phase and site conditions which can result in adjustments. The designed GA is established from final design drawings and is then informed and updated upon the completion of construction to produce an as-built GA value. The as-built value can be updated post construction as maintenance and monitoring data is gathered to create an as-maintained GA value when appropriate. The GA calculation method revision introduced in the Year 10 EAP and solidified in the FY22 COA Annual Report is another example of the dynamic nature of the GA metric. The Greened Acre calculation method revision was based upon applying a data-driven understanding of performance gained through 10 years of program implementation, data collection, and analyses to date. For more details, please see https://water.phila.gov/pool/files/gccw-year-10-eap.pdf.

The current greened acre calculation method now accounts for storage, infiltration, and slow-release processes where applicable, with the following formula:

$$Wd(in) = \frac{\left(V_{storage}(ft^3) + V_{infiltration}(ft^3) + V_{slow\ release}(ft^3)\right)}{DCIA(ft^2)} * 12\left(\frac{in}{ft}\right)$$

2.0 Implementation Tracking and Reporting

2.1 Green City, Clean Waters Program Tracking System

Various databases track program implementation and support data requests for internal and external reporting. The development of the *Green City, Clean Waters* program tracking system has integrated the data from the various Water Department systems to streamline and present program wide implementation progress in one location.

During FY24, work continued on the *Green City, Clean Waters* program tracking system to re-establish connectivity with the private GSI data through the new Stormwater Plan Review Inspection Tracking and Enforcement (SPRITE) application. The Department continues to ensure proper programmatic alignment across the various source databases for metrics calculations and reporting.

Table 3: FY24 Status Updates for Existing Databases and Systems

Existing Databases and Systems	Status
PlanIT	PWD's tracking system that stores information from site evaluations conducted on locations throughout Philadelphia. All sites must undergo an initial evaluation to determine the feasibility of green infrastructure before they can be transferred to CIPIT to begin design phase. In FY24, development of planning stage project tracking capabilities for Ecological Restoration Planning (ERP) team-initiated projects continued in earnest, with updates made to the mapping and data entry interfaces that support ERP workflows.
GreenIT	PWD's metrics tracking system for all public green stormwater infrastructure (GSI) projects. GreenIT tracks estimated, designed, built, and maintained compliance metrics. The GreenIT Data Entry Application is used to create metrics reports by consultants and staff that are directly uploaded to the GreenIT database. In FY24, existing reports and landing pages were enhanced to display additional information.
CIPIT	CIPIT is PWD's Capital Program Information Tracking System. In FY24, no major changes occurred.
SPRITE Application	PWD's tracking system that stores metrics and detailed SMP data of private development projects that are subject to the Philadelphia Stormwater Regulations, as well as voluntary stormwater management retrofit projects. The application is designed to track workflows related to reviews and inspections, including the status of conceptual and technical reviews, record drawing reviews, active and post-construction inspections, and post-construction enforcement. An update was recently completed on the existing tracking system and the new application offers expanded functionality and accessibility for internal stakeholders as well as the Philadelphia development community. This new app provides a system that will stay current with functionality and technology.
Geographic Information System (GIS) Asset Tracking	GIS is used to track the location of all PWD assets. This includes public retrofit, private development and incentivized retrofit SMPs.
Maintenance Management Systems	Inspection and maintenance activities for public green stormwater infrastructure are tracked in PWD's Cityworks work order management system. This system is linked to the

Existing Databases and Systems	Status
	City's GIS data and provides tools to track and manage work performed on other PWD assets such as fire hydrants, inlets, water mains, and sewers.

2.2 Reporting Metrics

Green Stormwater Infrastructure through Public Implementation

The information in GreenIT is used to produce compliance reporting outputs for the completed and planned public project tables in Appendices 1 and 2 of this report. The Public Completed Projects reporting format and metric definitions are described in Table 1 in **Appendix 1**. The Public Planned Projects reporting format is described in Table 1 in **Appendix 2**.

Green Stormwater Infrastructure through Private Development

Information from the SPRITE application is used to produce reporting outputs for completed Private Development and Incentivized Retrofits project tables in **Appendix 3**. The reporting format is described in Table 1 in **Appendix 3**.

Stormwater Management Practice (SMP) Types

SMP types used for public implementation are described in Table 2 of **Appendix 1** and SMP types used for private implementation are defined in Table 2 of **Appendix 3**.

3.0 Water Pollution Control Plant and Collection System Project Progress

3.1 Water Pollution Control Plant and Collection System Project Progress

Upgrades to increase the peak flow capacity at each of the City's Water Pollution Control Plants (WPCPs) were described in the Wet Weather Facility Plan (WWFP), submitted on June 1, 2016. During FY24, PWD has continued working towards completing the projects committed to in the Wet Weather Facility Plan. Within the following sections, progress in FY24 on these projects is presented. The *Green City, Clean Waters* Wet Weather Facility Plan can be referenced here: http://water.phila.gov/pool/Wet_Weather_Facility_Plan_website.pdf.

3.1.1 Northeast Water Pollution Control Plant

Within **Table 4**, the seven Northeast WPCP improvements committed to in the Wet Weather Facility Plan are listed with their required operation years, as approved by the PADEP. To date, five improvements have been completed and the remaining two improvements are on track for completion by the required operation date.

Table 4: Status of Northeast WPCP Improvements

Northeast WPCP Improvements	Anticipated Completion	Project Status (FY24)
Facility Improvements		
Remove Double Deck Effluent Channel in Final Sedimentation Tanks Set 2	6/1/2016	Complete (FY16)
New (4 x 48") conduits from Preliminary Treatment Building to Primary Sedimentation Tanks Set 1	6/1/2016	Complete (FY16)
High Flow Management System	6/1/2021	Complete (FY19)
Gravity Sludge Thickeners	6/1/2021	Complete (FY19)
Preliminary Treatment Building #2	6/1/2031	In Construction
New Influent Baffles in Primary Sedimentation Tanks Set	6/1/2031	In Planning
Operational Improvements		
Operate with minimal sludge blanket when Gravity Sludge Thickeners in service	6/1/2021	Complete (FY19)

The Preliminary Treatment Building #2

PWD is upgrading the Northeast Water Pollution Control Plant (NE WPCP), located at the confluence of Tacony-Frankford Creek and Delaware River, with a new Preliminary Treatment Building (PTB) to increase treatment capacity. The primary benefit of this project is to reduce combined sewer overflow to the Tacony-Frankford Creek and to improve the water quality. The new PTB also eliminates some of the hydraulic constrictions which will increase the inflow into the NE WPCP. The project will result in approximately 500-550 MG/year of CSO volume reduction. In FY24, construction of the electrical and distribution conduit for the PTB was completed and concrete work for the grit facility and PTB has progressed.

3.1.2 Southeast Water Pollution Control Plant

All Southeast WPCP improvement commitments in the Wet Weather Facility Plan were completed in FY16, meeting the required operation date of June 1, 2016. For more detailed information, please see the *Green City, Clean Waters* Wet Weather Facility Plan or the Year 5 EAP.

3.1.3 Southwest Water Pollution Control Plant

Within **Table 5**, the Southwest WPCP improvement committed to in the Wet Weather Facility Plan is listed with its associated required operation year. The project has been completed prior to the required operation date.

Table 5: Status of Southwest WPCP Improvements

Southwest WPCP Improvements	Anticipated Completion	Project Status (FY24)
Facility Improvements		
Additional Effluent Pump	6/1/2026	Complete (FY19)

3.2 Philadelphia Collection System Improvements

Within **Table 6**, the three Collection System improvements committed to in the Wet Weather Facility Plan are listed with their required operation dates. Two of the improvements were completed, meeting the required deadlines. The other improvement identified is a study to evaluate CSO regulator capacities and identify improvements, if necessary. This study is ongoing and is anticipated to continue throughout the implementation of the LTCPU, as PWD is committed to maintaining and improving the efficiency of the collection system. Additional Collection System improvements are described below.

Table 6: Status of Collection System Improvements

Collection System Improvements	Anticipated Completion	Project Status (FY24)
Improvements		
NE Second 66" Frankford Grit Chamber Bypass In Service	6/1/2016	Complete (FY16)
NE Frankford High Level Second Barrel Rehabilitation	6/1/2016	Complete (FY16)
All Districts: Balancing CSO Regulator Wet Weather Capacities	Study - Ongoing	On Track

3.2.1 Additional Collection System Improvements

PWD continues to conduct research and evaluate tools and technologies used within the Collection System and at the WPCPs to enhance performance when possible. PWD studies and evaluates potential collection system and WWFP projects to determine feasibility and cost effectiveness for inclusion in a Combined Sewer Overflow (CSO) mitigation program to expand upon or in addition to the projects committed to in the Wet Weather Facility Plan submitted in June 2016.

Frankford Creek Crossing

The project will replace the four separate pipes of the Frankford Creek Siphon with single box sewer in order to remove a flow constriction in the Upper Delaware Low Level Interceptor. The new box sewer will result in approximately 100 million gallons of CSO volume reduction in a typical year precipitation (based on the Year 5 EAP submissions) and provide the capacity required for operation of the new D-05 chamber and other future improvements in the NEDD.

D-05 CSO Regulator (State Road and Magee Avenue)

The D05 regulator is being examined for additional CSO capture through the installation of a new, enlarged interceptor connection with a real-time controlled sluice gate. As of FY24, this project is in the constructed started stage and is slated for completion in FY25. This project is expected to result in enhanced storage and conveyance of wet weather flows via modification to an existing computer controlled CSO.

42nd Street Pump Station Expansion

Based on evaluation of the collection system, as well as considering the necessary operation upgrades, it was determined that there are advantages to replacing the combined sewer pump station located at 42nd Street with a station of larger pumping capacity. To support this expansion, modifications to regulating chamber S-50 would also be considered part of the pump station expansion project. A preliminary feasibility study has been completed to determine the constructability and sizing of the pump station. The study determined that the current 8 MGD (peak flow) pump station could be expanded to 60-100 MGD. This upgrade would accommodate increased flow to the SW WPCP and help reduce CSO volume. The project is currently in the design phase, and it is estimated that it will reduce CSO volume by approximately 200-250 MG/year, but the reduction will be dependent on final sizing of the pump station.

The following two projects in the Department's design process are being evaluated for the use of real-time control technology:

Thomas Run Relief Sewer (R-01)

A capital construction project for the modification of the Thomas Run relief sewer has been initiated. The project is evaluating the potential for this system to be maximized for in-line storage during wet weather by creating a static dam, a new interceptor connection, and CSO regulator site. Alternatives considered include relocating the outfall to minimize disruption to trees and recreational areas in the Cobbs Creek Park.

Southwest Drainage District Regulator Modification (S-05, S-20, S-26)

The primary project goal is to increase the flow capacity through each regulator to decrease CSO volumes in the Southwest Drainage District. The project will include increasing the opening area of the existing DWOs, removal of existing Brown & Brown regulators, and will consider implementation of locally actuated, real-time, flow control at each site. During FY24, this project was at 50% design status and currently has a target design complete of FY26.

3.3 Interceptor Relining and Rehabilitation

3.3.1 FY24 Progress on Miles of Interceptor Lined

The WQBEL Performance Standards required 6 miles of interceptor lining to be completed by the end of Year 10 (2021) which was achieved and reported in the Year 10 EAP. To date, 10.8 miles of interceptor have been completed. Looking at progress towards the Year 15 target, there is 1.0 mile in construction, and 2.3 miles in design (**Table 7**).

Table 7: Interceptor Relining FY24 Status

Project Name	Street Extents	Length (Miles)
Construction Complete		**10.8**
60th and Cobbs Creek Parkway to 75th and Wheeler Sewer Lining	60th and Cobbs Creek Parkway to 75th and Wheeler	2.2
Cobbs Creek Park to 63rd and Market Sewer Lining	Cobbs Creek Park to 63rd and Market	0.5
Cobbs Creek Interceptor Phase 1 CIPP Lining	63rd and Market to 62nd and Baltimore	1.6
Tacony Creek Intercepting Sewer Lining Phase 1	Chew & Rising Sun to I & Ramona	1.9
Tacony Creek Intercepting Sewer Lining Phase 2	2nd St & 64th Ave to Chew & Rising Sun; DRW Mascher to Tacony Interceptor; Cheltenham Ave to Crescentville & Godfrey	1.3
Cobbs Creek Interceptor Lining Phase 3	City Avenue to D R/W in former 67th Street	1.7
Cobbs Creek Intercepting Sewer Lining Phase 4 (Indian Creek Branch)	City Avenue to D R/W in former 67th Street	1.6
In Construction		**1.0**
Cobbs Creek Intercepting Sewer Lining Phase 2	61st and Baltimore to 60th and Warrington	1.0
In Design		**2.3**
Upper Frankford LL Collector/Tacony Intercepting Sewer Lining Phase 4	Castor & Wyoming to Frankford/Hunting Park	1.1
Upper Frankford Creek LL Collector/Tacony Intercepting Sewer Lining Phase 5	Frankford/Hunting Park to Luzerne & Richmond	1.2
On Hold		**1.0**
*Tacony Creek Intercepting Sewer Lining Phase 3	I & Ramona to O & Erie	1.0
Total Anticipated Miles of Interceptor Lined		**14.1**

*PWD has shared inspection results of the phase 3 Tacony Creek Intercepting Sewer relining segment to PADEP, along with a recommendation that the segment is not appropriate for lining. DEP responded in agreement with the recommendation with an understanding that PWD must maintain the segment in serviceable condition.

4.0 Green Stormwater Infrastructure through Public Implementation

The programmatic strategies for achieving public GAs are benchmarked in four phases: planning, design, construction, and post-construction maintenance. The following four subsections describe the progress made during FY24 for each of these phases. **Table 8** summarizes Public GSI projects and GAs for FY24. Later in this section, **Figure 1** displays the Planned and Completed Public GSI projects. A full list of completed public projects can be found in **Appendix 1** and a full list of planned public projects can be found in **Appendix 2**.

Table 8: FY24 Summary of Public Green Stormwater Infrastructure

	End of FY24			Cumulative
Project Phase	In Design	In Contract Development	In Construction	Completed
Number of Projects	169	67	51	**335**
Current Number of GAs	TBD*	277	266	**1,058**

*An accurate GA value cannot be provided until the design phase is completed.

4.1 Planning Approaches for Green Stormwater Infrastructure Implementation

PWD has continued to evaluate entire neighborhoods and specific sites to identify appropriate locations for GSI implementation. During FY24, PWD completed analysis of public retrofit opportunities in high priority sewersheds where GSI would have the highest impact on CSO volume reduction. With the predominant program type being green streets, GSI Planning has continued its extensive coordination with water and sewer planning to address holistic linear asset replacement. In FY24, PWD enhanced its engagement with right-of-way partners, such as Office of Transportation and Infrastructure Systems (OTIS), to identify potential corridor collaboration opportunities and grant funding.

GSI Planning has also continued to meet regularly with PWD units to improve feedback loops and streamline project processes. As more GSI projects are constructed, communication has increased around project retrofits and retirement, operation and maintenance needs, and data tracking.

4.1.1 Planning Outreach and Coordination

PWD works closely with a variety of partners to implement the *Green City, Clean Waters* program throughout all stages of a project. In FY24, coordination with City agency partners such as Streets Department and Philadelphia Parks and Recreation was improved to address project-level feedback and tracking to minimize impacts to project designs and timelines. The creation of new city offices in 2024, such as Clean and Green and Capital Projects, also presented opportunities for alignment and expanded collaboration. Coordination is ongoing with these teams, as well as with the newly hired Clean Water Task Force manager to build implementation support across agencies.

This past year, GSI Planning continued to coordinate with PWD's Public Affairs team to refine outreach workflows to ensure communities received consistent notification and engagement throughout the planning and design phases. This work has also included strategy development to address the increase in integrated projects that include GSI, water, and sewer replacement. In addition to moving forward on planning for public retrofit GSI, coordination with non-City partners has supported projects applying for stormwater grants and other implementation mechanisms. Planning outreach and coordination will continue to take a holistic approach to maximizing stormwater management by utilizing a combination of implementation tools available.

4.2 Design Approaches

In FY24, PWD continued work on streamlining the design process through coordination and improvement of design guidance.

- Rebranded from "GSI Unit" to "Green Stormwater & Stream Design" (GSSD), the goal being to find a name that better highlights the design-focus of the unit and one that is more encompassing of the stream program.
- Developed and released a beta version of a dashboard to assist supervisory staff and design engineers in tracking and understanding reviews, projections, and performance.
- Re-initiated PWD and Streets Coordination monthly meeting series after change in OTIS staff. Meeting series focuses on GSI-related topics to streamline workflows and project production.
- Continued coordination meetings within PWD to facilitate project reviews and improve feedback, including:
    - Updated GSI Design meeting formats to promote more involvement, ownership, and participation at the supervisory and working levels.
    - Established a quarterly meeting between Public Affairs, GSI Planning, and GSSD for more proactive, direct communication prior to on-site activities for GSI and Ecological Restoration (ER) during the design development phase (i.e., survey, Geotech).
    - Collaborated with Development Services, Compliance, GSI Planning, and Plants & Facilities Design to draft updates to the current workflow that eliminates many inefficiencies by rethinking how PWD treats stormwater management on PWD facilities from a regulated development activity to a public GSI retrofit.
    - Developed a procedure in coordination with Compliance, Green Stormwater Operations (GSO), and Construction that provides instruction on retrofit design, analyses, initiation, and associated tracking for projects with closed construction contracts.
- Updated the Project Status Reporting procedure to simplify submissions and reduce administrative efforts without compromising coordination between PWD and contracted consultants.
- Improved file sharing internally by consolidating multiple servers used for GSI Design, ER Design, and Photography into a single, well-organized server.
- Added a "Best of" Landscaping subfolder to the shared photos folder for information sharing purposes, to showcase the work of the unit, and to provide better collaboration and communication with the vendor community.
- Continued progress towards future updates to existing procedures, standards, and guidance building on feedback from operations, monitoring, partner agencies, and other PWD units.

4.3 Construction

In FY24, PWD continued work on streamlining and improving the construction process through staff training, guidance updates, additional construction support tasks from the design team, and coordination.

Continued engaging design consultants on post-design bidding and construction support tasks. In FY24, an additional 20 task orders were initiated.

- Implemented use of a project-specific supplement attached to doorhangers to augment early project-level outreach.
- Developed a procedure for troubleshooting drain down performance issues on projects with open construction contracts that provides clear instructions for roles and responsibilities across GSSD, GSO, and Construction Units.
- Updated the construction submittal review procedure process for approving stormwater and planting soil that relies more on third-party lab reports and allows for greater competition in the soil vendor market.
- Refined a procedure and developed supporting resources for streamlining as-built development by creating pre-as-built (PAB) documents in an approved format. In FY24, PABs for 15 projects were sent to construction and several more are currently in development.
- Refined annual updates to the GSI Master Specifications, Construction Details, and Bid Item List/Engineering Estimate template. Continued work of reconciling specification differences for green-only and green on water/sewer projects.
- Expansion to full implementation of a liner performance testing program for all GSI fully lined with geomembranes prior to construction acceptance. 140 tests were conducted on 90+ systems over the last year. Using test results and observations since 2020, specification updates were implemented for FY25 to all fully lined GSI to enforce more stringent liner performance standards. 3rd party testing was initiated to augment PWD’s testing capacity in order to meet construction demands.
- Continued research and modifications to design and construction guidance to improve performance of fully lined and partially lined systems, domed riser performance, centralized GSI performance, geotextile alternatives, pipe material, tree root intrusion, and VCP inlet connections.

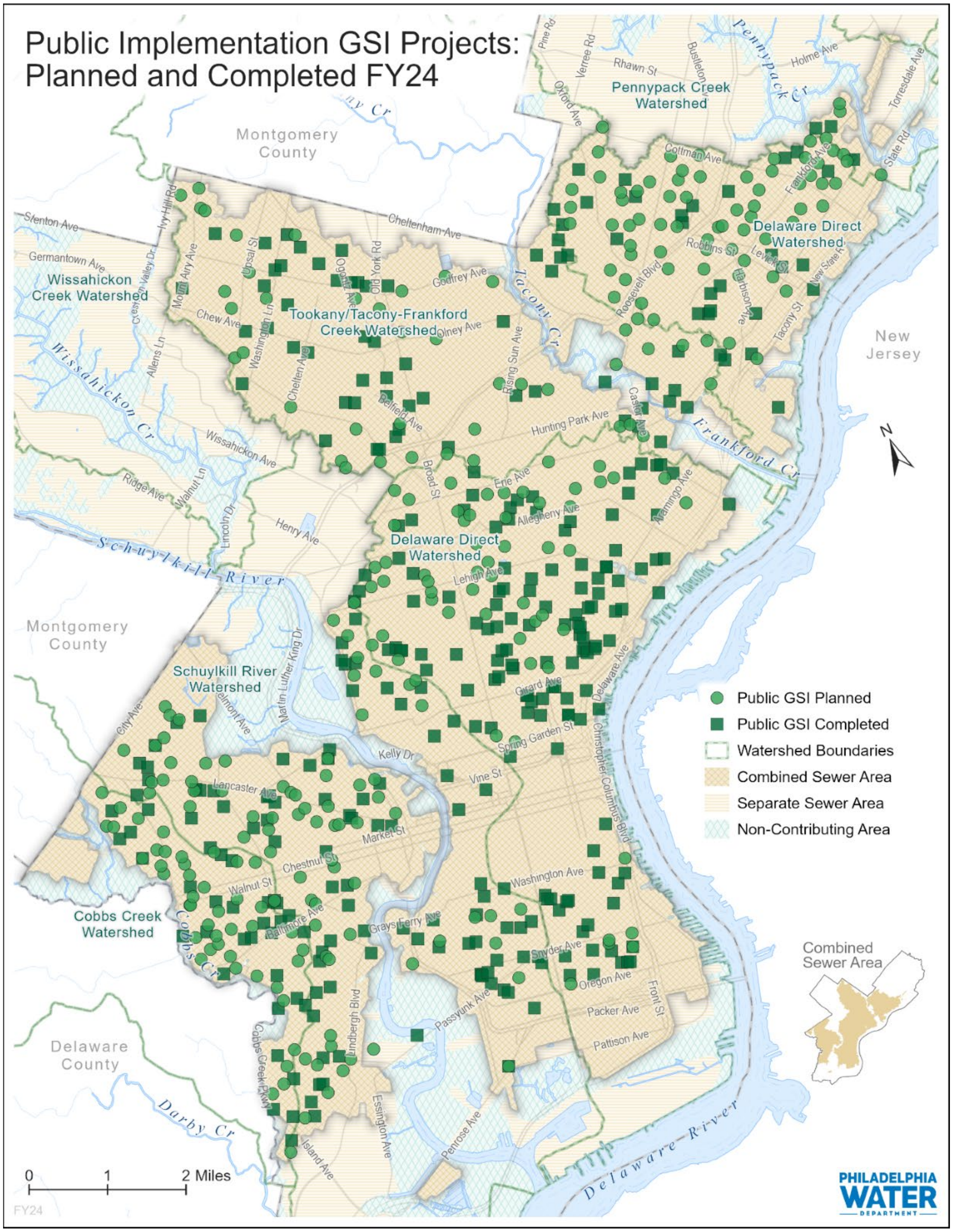

Figure 1: Public Green Stormwater Infrastructure Projects

4.4 Public Green Stormwater Infrastructure Maintenance Program

To ensure the function and sustainability of stormwater management infrastructure investments, PWD continues to implement a GSI maintenance program. **Table 9** provides a count of SMPs by type currently in PWD's maintenance program. PWD implements post construction maintenance in accordance with the Green Infrastructure Maintenance Manual.

Table 9: FY24 PWD SMP Types in Maintenance

SMP Types	Total Number of SMPs in the Combined Sewer System (CSS)	Total Number of SMPs Citywide
Tree Trench	542	638
Rain Garden	175	190
Stormwater Planter	96	130
Stormwater Bump out	138	165
Infiltration/Storage Trench	433	540
Pervious Paving	6	7
Green Roof	1	2
Swale	48	50
Basin	2	3
Stormwater Tree	141	142
Drainage Well	3	3
ROW Connection (Inlets)	60	62
ROW Connection (Trench Drains)	6	6
Green Gutter	1	1
Wetland	4	4
Total Number of SMPs		**1,943**

4.4.1 Inspections

Inspection of Surface Elements

While PWD has prescribed maintenance frequencies for GSI, practice and experience have determined that pre-maintenance inspections are the best method to determine the level of maintenance required. At each SMP that has surface features, PWD completed pre-maintenance surface inspections.

In FY24, PWD conducted 3,693 pre-maintenance surface inspections. The condition of the site at the time of the pre-maintenance inspection determined whether maintenance is required. PWD also performs dry weather and wet weather inspections for a more comprehensive assessment. By the conclusion of FY24, PWD completed 2,585 dry weather inspections and 247 wet weather inspections. In FY24, PWD conducted a total of 6,525 surface inspections.

Inspection of Subsurface Elements

The objective of the subsurface inspection program is to observe and assess all structural components of SMPs that exist below street level. Inspections are performed in dry weather conditions as capturing discernable video during wet weather conditions is difficult. Inspection staff are certified through the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP).

PWD completed a total of 895 post-construction inspections and 1,789 post-maintenance inspections. The post-construction inspections were associated with 271 SMPs and a total of 30.6 miles of pipe. The post-maintenance inspections were associated with a total of 717 SMPs and 74.8 miles of pipe. The conditions of each pipe run at the time of the inspection determined whether maintenance was completed and if any structural defects were present.

4.4.2 Maintenance

PWD's GSI maintenance program operates through three types of maintenance activities to adequately address the maintenance needs of PWD's GSI. Work orders associated with inspection and maintenance events for surface maintenance, subsurface maintenance, and porous maintenance are summarized in **Table 10**.

Table 10: FY24 Summary of Maintenance Events by Type

Work Order Type	Number of FY24 Events
Surface	
Surface Inspection	3,693
Surface Maintenance -Routine	2,375
Surface - Mulching	724
Surface - Pruning	556
Surface Maintenance -Watering	1,627
Tree Maintenance	419
Trench Drain Maintenance	667
Work Zone Protection	1
Aesthetic	215
Signage Repair	135
Surface Vegetation Cutback	428
Snow Removal	7
Rough Mowing	29
Surface Maintenance - Reactive	
Surface Vegetation Repair	232
Earthwork	3
Surface Structural Repair	69
Drainage Modification	13
Subsurface	
Subsurface – Post Construction Inspection	895
Sub-surface Maintenance	1,784
Sub-surface Inlet Cleaning	2,033
Sub-surface Inlet Protection Maintenance	766
Surface Inlet Protection Maintenance	18,557

Work Order Type	Number of FY24 Events
Non-Standard Subsurface Inspection	35
Non-Standard Subsurface Maintenance	26
Subsurface Structural Repair	32
Porous	
Routine Porous Maintenance	5
Restorative Porous Maintenance	0
Total	**35,326**

PowerCorpsPHL

Over the past decade, the City and PWD have implemented new strategies to promote the economic and social growth of the city and meet environmental, ecological, and business missions. In support of these initiatives, and to augment PWD's GSI aesthetic maintenance responsibilities, PWD entered into partnership with PowerCorps_PHL. PowerCorps is a City of Philadelphia AmeriCorps initiative designed to engage youth, ages 18-26, which transforms lives through service and workforce development. **Table 11** summarizes the amount of material collected by PowerCorps in FY24.

Table 11: PowerCorps_PHL Trash and Debris Removal in FY24

Amount collected (in pounds)	Amount collected (in tons)
31,026	**15.5**

4.4.3. SMP Abandonments

A total of 14 SMPs were retired and abandoned in FY24. When a SMP is retired due to performance issues or nearby development impacts, it is permanently taken offline, no longer maintained, and is removed from compliance credit tracking.

5.0 Green Stormwater Infrastructure through Private Development

5.1 Philadelphia Stormwater Management Regulations

The Philadelphia Stormwater Management Regulations (PSWMR) were established in January 2006 and revised in July 2015, providing the foundation for the private sector's role in stormwater management. Effective July 2, 2018, PWD made changes to how streets are regulated to better align with Chapter 102 requirements in the Pennsylvania Code. Most recently, the regulations were updated in July 2022, to clarify the Flood Control and Channel Protection requirements, as well as updates to the O&M Agreement section. The City of Philadelphia requires stormwater management for land development projects in the City of Philadelphia that feature 15,000 square feet or more of earth disturbance. Plans for proposed projects must be submitted for Conceptual Review to pursue a zoning permit, while the submission of detailed stormwater management plans must receive a technical review and approval prior to obtaining a building permit.

A summary of constructed GAs through private development projects by watershed is listed below in **Table 12**. A full list of completed private development projects can be found in Table 3 **Appendix 3**. At the end of this section, **Figure 3** displays the completed green infrastructure installed through private development and incentivized retrofits.

Table 12: FY24 Cumulative Completed Greened Acres by Watershed through Private Development

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Cumulative Completed
Number of Projects	19	241	4	67	211	542
Greened Acres	22	500	8	131	415	**1,077**

5.1.1 Expedited Review

PWD offers a service level goal of no more than a fifteen-day review for all projects submitted for post-construction stormwater management plan review. However, projects that propose preferred green stormwater management approaches are eligible for an expedited, five-day review. PWD offers two types of expedited reviews: 1) disconnection green review and 2) surface green review. The disconnection green review ensures redevelopment projects that disconnect 95% or more of the post-construction impervious area—using features such as green roofs, porous pavement, and new tree canopy—will receive a review response within five days. The surface green review expands the number of eligible projects by including both new development and redevelopment projects that manage 100% of the post-construction impervious area through bioinfiltration and bioretention basins as well as the practices that qualify for the disconnection green review. In FY24, a total of 16 projects qualified for an expedited review in the combined sewer areas, with ten projects selecting the disconnection green review and six projects selecting the surface green review.

5.1.2 Active Construction Inspections

For projects that proceed to construction, the installations of SMPs are inspected by PWD during construction. Active construction inspections are completed for both private development and incentivized retrofit projects in accordance with standard inspection procedures. During FY24, PWD conducted 2,011 inspections during active construction in the combined sewer area.

5.1.3 Construction Verification Initiative

PWD continued to refine a construction verification process with the goal of assessing individual projects prior to counting GAs toward compliance totals. This process emphasizes communication efforts from the start of the development project so property owners can adequately plan for record drawing creation. Throughout construction and at the time of construction completion, PWD conducts inspections of the site to observe and document installation of the approved SMPs. PWD also continued to perform outreach at the close of construction to solicit record drawings from project engineers and owners. Starting in August 2023, PWD is holding the certificate of occupancy for all approvals until the record drawing and other required documents are provided. These record drawings allow PWD to verify SMP installation and function.

In addition to this process, PWD continued to pursue a verification initiative to gather documentation of approvals that have not otherwise been verified and create record drawings to document the constructed conditions. To date, 216 projects totaling 328 GAs have been inspected and verified through this supplemental approach.

5.1.4 I-95 Reconstruction Project

Pennsylvania Department of Transportation (PennDOT) is reconstructing Interstate 95 (I-95) in Philadelphia. Three components of the I-95 reconstruction project support stormwater management: 1) disconnection of stormwater from the combined sewer system; 2) ensuring that redevelopment occurs in a manner consistent with the PSWMR; and 3) installation of GSI in the public right-of-way.

The work on I-95 in Philadelphia is broken into two sectors: Sector A and Sector B. The multi-phased work between Bleigh Avenue and Race Street is known collectively as Sector A. Sector A of the I-95 Reconstruction Project is divided into five major design sections, moving from north to south: CPR, BSR, BRI, AFC, and GIR. Each of these sections is further subdivided into a total of twenty-four construction subsections. Sector B encompasses the area from Race Street to Girard Point Bridge (airport side). At present, Sector B has two design sections delineated, Section CAP from Chestnut to Walnut, and Section CSP from Vine Street to Girard Point Bridge (airport side). Some of the design and construction work for Sector B may be concurrent with the work in Sector A.

A graphic illustrating the I-95 Reconstruction Project sections is featured below in **Figure 2**.

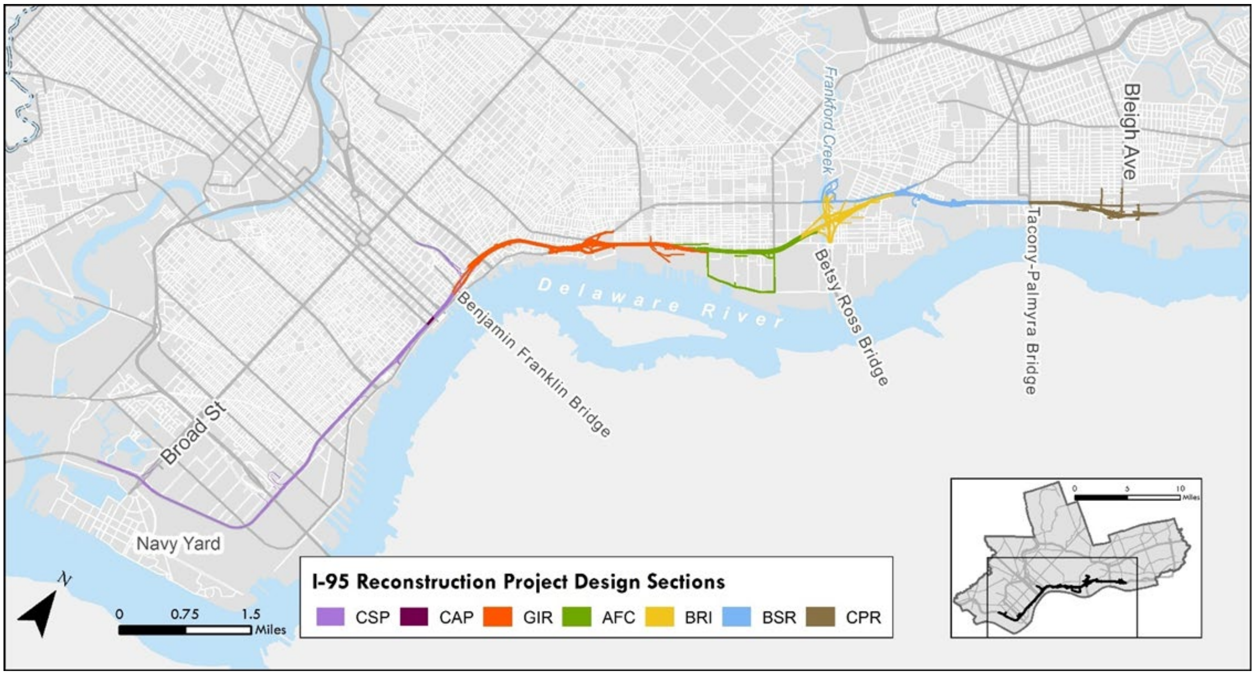

Figure 2: I-95 Reconstruction Project Sections

Project updates for the construction subsections with significant design or construction progress in FY24 are summarized in **Table 13.**

Table 13: I-95 Construction Section FY24 Updates and Anticipated Bid Dates

Section	Project Description/ Update	FY24 Project Phase	Completion Date
Sector A – Between Bleigh Avenue and Race Street			
Section CPR (Cottman-Princeton Ramp Area)			
CP2	Six new separate stormwater outfalls have been completed in Cottman Avenue, Princeton Avenue, Magee Avenue, Disston Street, Unruh Avenue, and Bleigh Avenue. The stormwater pipes are designed to accept the drainage from the highway as well as the area in between the highway and the Delaware River as development occurs.	Completed	2017
CP3	Relocation of approximately 1500 feet of sanitary sewer. Anticipated completion date calendar year 2024.	In Construction	(2024)
Section BSR (Bridge Street Ramp Area)			
BS1	Construction underway. Work includes the construction of one bioretention system, one media filter, two VorTech separators, and one new outfall in Levick Street will be constructed to treat stormwater from the mainline highway. Anticipated completion date calendar year 2023.	Completed	2023
BS4	New PWD storm sewers, inlets, and new outfalls were installed to covey the new Adams Street runoff. Three basins with amended soils	Completed	2020

	and impervious liners were constructed to treat stormwater from the new interchange ramps.		
BS2	Work will include two bioinfiltration basins and five bioretention basins to manage stormwater from the mainline highway. Also proposing 9 tree trenches which will be owned and maintained by PWD. A portion of the drainage area to the tree trenches is existing impervious ROW which will be banked for trade in future phases of the I-95 expansion project. Anticipated bid date calendar year 2022.	In Construction	(2027)
BS3	Reconstruction of Aramingo Avenue from Church Street to Tacony Street; continuing north on Harbison Avenue to Amtrak overpass. Project is anticipated to be bid in 2026.	In Design	(2030)
BS5	Extension of Delaware Avenue from its current terminus at Orthodox Street to Tacony Street. Anticipated bid date end of calendar year 2025.	In Design	(2028)
Section BRI (Betsy Ross Interchange Area)			
BR0	PWD sanitary and storm sewer culverts were relocated. Stormwater runoff from the reconstructed portions of the highway and ramps was treated by under-drained bioretention and water quality units then directly discharged to the Frankford Creek, removing the drainage area from the CSO system.	Completed	2017
BR2	Under construction. Basins built in BR0 will be reused in BR2 and new basins will be installed. The new basins will be sized for future phases as well. All basins will have forebays, be non-infiltrating, and have amended soils and underdrains with a rock layer and liner. The PennDOT-owned outfall locations in BR2 will be reconstructed in the same locations as existing outfalls. Anticipated completion date calendar year 2023.	Completed	2023
BR3	Reconstruction of northbound lanes of I-95 from Wheatsheaf Lane to just north of Margaret Street. Anticipated bid date calendar year 2024.	In Design	(2028)
BR4	Reconstruction of the southbound lanes of I-95 from Wheatsheaf Lane to just north of Margaret Street. Anticipated bid date calendar year 2026.	In Design	(2031)
BR5	Includes work related to the Conrail/NJ Transit railroad line. Bridge over northbound ramps to the Betsy Ross Bridge and Aramingo Avenue will be rehabilitated. Anticipated bid date calendar year 2027.	In Design	(2031)
Section AFC (Ann to Frankford Creek Area)			
AF1	Streetscape work within the Richmond Street right-of-way (ROW) between Allegheny and Westmoreland is not subject to the stormwater regulations. Improvements to Melvale Street will be managed by two infiltration trenches that will be owned and maintained by PWD.	Completed	2020
AF2	Work included rebuilding of side streets prior to mainline construction. Proposing a net decrease in impervious area and a GSI tree trench along Castor Avenue. The managed area was banked for future phases.	Completed	2023
AF3	Reconstruction of northbound and southbound I-95 and its structures between Tioga Street and Wheatsheaf Lane. Section SF3 is in Final Design and tentatively scheduled to start construction in 2025.	In Design	(2029)

AF4	Reconstruction of southbound I-95 and its structures between Tioga Street and Clearfield Street. Section AF4 is in Final Design and tentatively scheduled for construction in 2029.	In Design	(2032)
Section GIR (Girard Avenue Interchange Area)			
GR1	The reconstruction of Richmond Street was managed by street trees and a bioretention basin. A new separate sewer system was constructed and connected below the regulators in Dyott Street and Cumberland Street.	Completed	2017
GR2	The mainline highway areas are managed by multiple bioretention basins along the side of the highway.	Completed	2016
GR3	GR3 is the northbound mainline highway segment. One separate sewer outfall was constructed in Cumberland Street. In Dyott Street, a pipe was constructed that ties in below the regulating chamber. A sewer was found in the old Lehigh Avenue ROW and rehabilitated to separate a portion of the highway drainage. Stormwater is managed in GR3 using bioretention basins, infiltration basins, and detention basins. The basins are designed to manage the water quality volume.	Completed	2018
GR4	GR4 is the southbound mainline highway segment and is currently under construction. Stormwater is managed in GR4 using bioretention basins, infiltration basins, and detention basins. The basins are designed to manage the water quality volume.	Complete	2023
GR5/ GR6	Reconstruction of I-676/Vine Street ramp connections with northbound/southbound I-95. Anticipated construction start for GR6 is calendar year 2026. Anticipated construction start date for GR5 is calendar year 2028.	In Design	(2030/2032)
Sector B – Race Street to Girard Point Bridge (Airport Side)			
Section CSP (Central and South Philadelphia Area)			
CAP	CAP project is a 600' wide structure spanning I-95 and Christopher Columbus Blvd between Walnut and Chestnut Streets. An area of fill will gently slope from the structure to the Delaware River waterfront. A vegetated park, recreational areas, walkways, and several building structures are proposed on the CAP structure and fill area. The majority of the CAP structure is proposed to function as a green roof with the remaining impervious area managed by a cistern with captured runoff reused as greywater for the restroom facilities and a subsurface detention basin. Earth disturbance in 95 and Columbus will be minimal under the CAP. Areas outside of LOD, managed by the CAP are eligible for management banking. All SWM components must be designed and built in accordance with the Green Stormwater Infrastructure design standards.	In Construction	(2029)
CSP - I-95 NB/SB between Race Street and Girard Point Bridge		**Planning Study Underway**	

5.2 Incentives for Private Property Owners to Implement Green Stormwater Infrastructure

PWD offers private landholders incentives to implement stormwater management practices on existing properties that reduce stormwater pollution entering the City's sewers and surrounding waterways while enhancing water quality in the region's watersheds. A summary of completed GAs from incentivized retrofit projects by watershed is listed below in **Table 14**. A full list of completed incentivized retrofit projects is available in Table 4 of **Appendix 3**.

Table 14: FY24 Cumulative Completed Greened Acres by Watershed through Incentivized Retrofits

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Cumulative Completed
Number of Projects	0	38	6	37	41	**122**
Incentivized GAs	0	387	45	268	309	**1,009**

5.2.1 Zoning Bonuses

The Philadelphia Zoning Code incentivizes stormwater management through height and density bonuses. PWD helps determine the criteria for earning a bonus, but the code is written by the Philadelphia City Planning Commission and enacted by City Council, which limits PWD's control over the process.

Green Roof Density Bonus

The Philadelphia Zoning Code offers incentives to projects citywide that install green roofs by providing exceptions to certain residential density rules. To be eligible for these exceptions, the project must be located in the designated zoning districts and propose coverage of at least sixty percent (60%) of the roof's surface with a green roof. In July 2018, the Zoning Code was amended to allow eligibility for existing buildings. New building construction must involve at least 5,000 square feet of earth disturbance, while existing buildings must have a minimum footprint of 5,000 square feet. The green roofs are designed to PWD standards and inspected by PWD during construction. PWD also executes operation and maintenance agreements with the project owners, ensuring the long-term maintenance and functionality of the green roof system. Projects submitted for this bonus sized between 5,000 square feet and 15,000 square feet of disturbance were not required to install stormwater management practices to comply with the PSWMR. These bonus projects make up at least half of the bonus submissions. In FY24, a total of 11 projects took advantage of the green roof density bonus, all of which were located in the combined sewer area.

Height Bonus

The Philadelphia Zoning Code offers incentives to projects in the East Callowhill Overlay (ECO) and Central Delaware Overlay (CDO) Districts that provide stormwater open space and/or manage stormwater runoff from the public right-of-way (ROW) that front their property. PWD also executes Operation and Maintenance agreements with the project owners who take advantage of these bonuses, ensuring long-term maintenance and functionality of the SMPs. To date, four projects have received post-construction stormwater management plan (PCSMP) approval using a height bonus and one of those projects has started construction.

5.2.2 Stormwater Pioneers

In 2014, PWD launched *Stormwater Pioneers*, a recognition program celebrating excellence in the design and construction of stormwater management practices on private property. Since Stormwater Pioneers' debut, PWD has honored a total of 24 projects across multiple properties. Most recently, in 2024 PWD selected its newest Stormwater Pioneers: Awbury Arboretum and Philadelphia Federal Credit Union (PFCU). This year's awardees were both retrofit projects that rebuilt existing flood control infrastructure to meet current PWD water quality standards. Both projects were also recipients of PWD Stormwater Grants resources that provided significant funding for each site's construction activities.

The awardees were celebrated at a ceremony held during Earth Week and hosted by Awbury Arboretum; the event featured remarks by the Department's Commissioner Randy E. Hayman, Esq. and received local media coverage.

Over the last decade, the Stormwater Pioneers program has annually convened elected representatives, community members, private landowners, and Department officials to acknowledge the importance of stormwater management on private property. Most critically, PWD prepares a case study about each project to help other developers and business owners learn from these successful examples. More information about the Stormwater Pioneers program, including past awardees and 2024's Stormwater Pioneers, can be accessed at https://www.phila.gov/water/wu/stormwater/Pages/Pioneers.aspx.

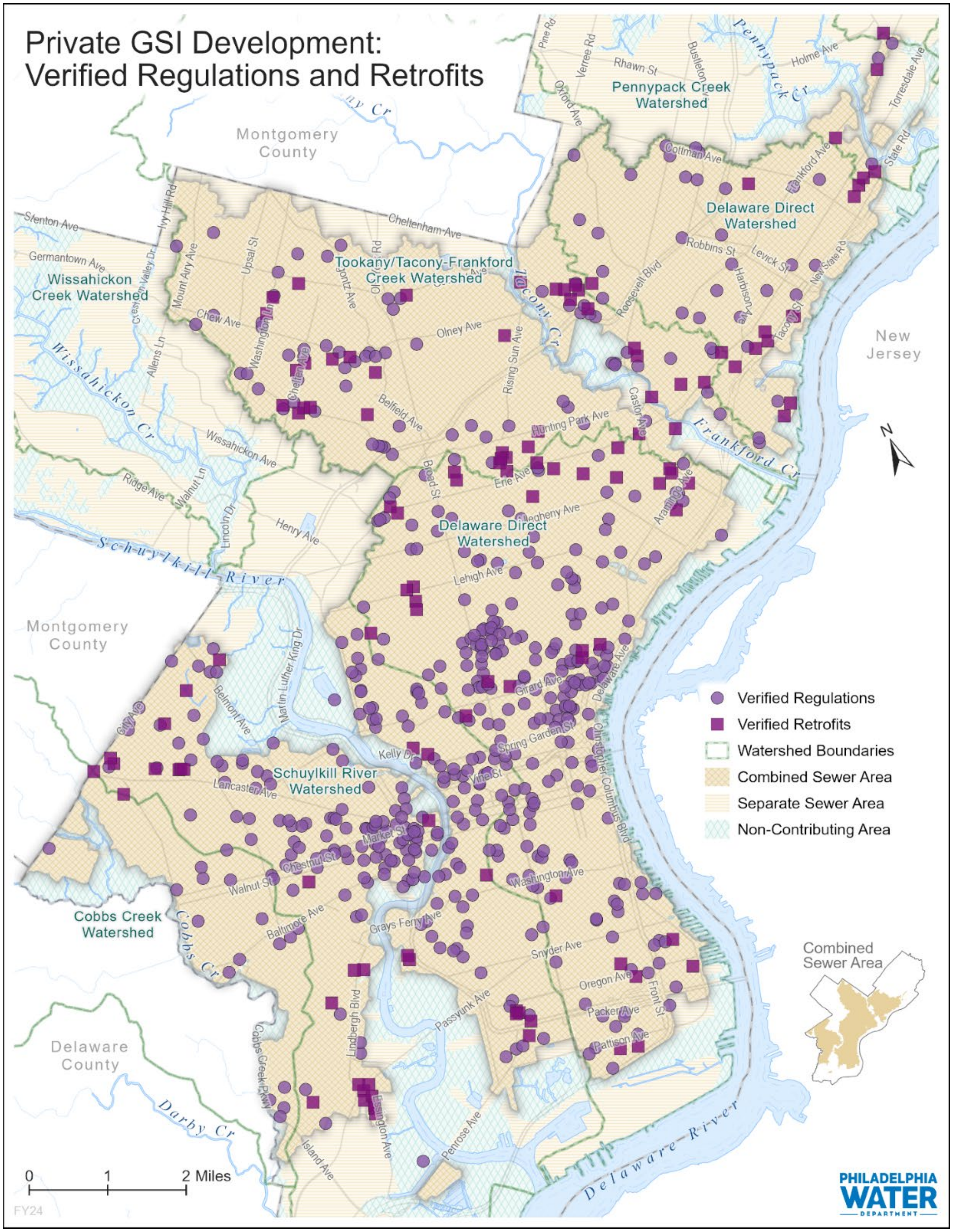

Figure 3: Completed Regulations and Retrofit GSI projects

5.3 Post-Construction Maintenance of Private Facilities

To ensure ongoing SMP maintenance of private facilities constructed through the stormwater management regulations or incentivized retrofit projects, PWD continues to use the following combination of tools: executing Operation and Maintenance (O&M) agreements, conducting post-construction maintenance inspections, utilizing enforcement, and administering stormwater credits.

An Operation and Maintenance agreement between the property owner and PWD is executed and recorded against the property as part of the PWD post-construction stormwater management plan process. These agreements outline the SMPs on the private site and stipulate maintenance requirements. The agreements also include language granting PWD the authority to inspect on-site SMPs and even perform maintenance on behalf of the property owner if necessary.

PWD maintains comprehensive operations and maintenance information geared toward the private development community in Chapter 4 of the Philadelphia Stormwater Management Guidance Manual. Each SMP section provides guidance on SMP maintenance activities, including a recommended SMP maintenance schedule and maintenance factsheets that are available as a quick resource for the property owner. In addition, as part of the post-construction stormwater management plan review process, projects must create an SMP Maintenance Guide. The SMP Maintenance Guide is unique to each project and includes a site map and Maintenance Schedule Form for each SMP to allow the owner to track maintenance activities for the site. Please see the links below for more information:

- Philadelphia Stormwater Management Guidance Manual, Chapter 4
- Maintenance Schedule and Fact Sheets
- SMP Maintenance Guide

Post-construction maintenance inspections of private facilities were conducted throughout the reporting period. PWD utilizes visual inspections and specialized inspection techniques to assess the performance of private SMPs. PWD conducts post-construction maintenance inspections on all applicable private facilities. As projects are identified for maintenance inspection, the PWD post-construction inspection staff contacts the property owner to schedule the inspection. PWD attempts to conduct the inspection with the property owner or their maintenance representative present so any concerns or questions can be verbally discussed.

After inspection, a post-construction inspection report is generated and issued to the property owner. Any required corrective actions are identified in the report along with a deadline for resolution. After actions are taken, PWD reinspects the property and compliant sites are closed until their next routine inspection date. Inspectors will provide guidance to the property owner to ensure corrective actions are resolved. In addition to visual inspections, PWD has identified other effective methods and technologies, including closed-circuit television, surveys of critical system elevation points, confined space, pole-mounted camera photography, and wet weather inspections. PWD will continue to evaluate and refine post-construction inspection protocols. In FY24, PWD performed 139 post-construction inspections in the combined sewer areas of the city.

Referral for enforcement is pursued if compliance is not achieved within the timeframe specified during the post-construction inspection process. PWD initiates an enforcement case with the issuance of a post-construction enforcement letter to the property owner if a PCSMP is found to be insufficiently maintained. This notification includes a description of any issues identified and a timeline to achieve compliance. The City is authorized to compel maintenance of SMPs on private property under the Philadelphia Code and PWD Regulations. Development sites that are subject to the PSWMR, as well as properties that have grant funded SMPs, are required to maintain the SMPs to function as designed. If initial notification is unsuccessful at bringing action from the property owner, PWD can compel compliance through several enforcement tools, including Notices of Violation (NOVs), fines, court action, and/or a nuisance abatement and lien by the City. For non-compliant projects, PWD will also suspend any applicable stormwater billing credits if corrective actions are not completed. In FY24, PWD successfully resolved 10 enforcement cases consisting of 35 SMPs in the combined sewer area of the city. Of the enforcement cases closed, escalated enforcement tools were utilized, consisting of four NOVs, with two escalating to fines. PWD will continue to work with property owners to ensure that SMPs are inspected and maintained in accordance with the Regulations and recorded O&M agreements.

5.3.1 Stormwater Credits

Non-residential property owners are eligible for *Stormwater Credits*—a direct reduction to the monthly stormwater charge—if they own and maintain stormwater management practices that reduce stormwater flows and volume to the City's sewer systems and surrounding waterways. Both retrofit and development projects are eligible for credits against their stormwater charge upon completion of construction, and owners must renew their credits every four years. With the credits renewal application, owners may provide maintenance logs and/or PWD may perform an inspection to demonstrate that the SMPs continue to be functional. PWD approved or renewed 164 combined sewer area (394 citywide) stormwater billing credit applications during the reporting period. Failure to adhere to the credit requirements will result in the suspension or termination of the billing reduction.

6.0 Data Collection and Analysis

6.1 Green Stormwater Infrastructure Post-Construction Monitoring

Proposed methodologies for the *Green City, Clean Waters* monitoring program were outlined in a revised Comprehensive Monitoring Plan (CMP) that was submitted on January 10, 2014, and approved on May 28, 2014, by PADEP. PWD has updated methods through new standard operating procedures (SOPs) that better reflect current techniques.

Monitoring and testing green stormwater infrastructure are essential to evaluate its effectiveness in managing stormwater and reducing CSOs. PWD uses post-construction monitoring and post-construction testing at the SMP and system levels to ensure functionality, evaluate the performance of stormwater management practices, and to provide information for improvements to design and maintenance. FY24 monitoring activities are described in detail in **Appendix 4 GSI Monitoring Status Report.** FY24 updates on other, non-GSI infrastructure components of the CMP can be referenced in Section **F.2 Step 1.b. of the Stormwater Management Program Annual Report.**

PWD has completed its 5-year green stormwater infrastructure pilot program and results were reported in the Year 5 Evaluation and Adaptation Plan. Information on the selected sites, associated variables, and results are available here:
https://water.phila.gov/pool/files/Year5_EAPBody_website.pdf.

PWD continued extensive data collection and analyses performed during the second 5 years of the program implementation. This assessment of the program performance is provided in Section 3.0 of the Year 10 Evaluation and Adaptation Plan available here:
https://water.phila.gov/pool/files/gccw-year-10-eap.pdf.

7.0 Public Outreach and Participation

7.1 Public Engagement & Participation Overview

PWD's Public Engagement Team, nested within the Public Affairs unit, continues to engage a broad range of residents, ratepayers, and stakeholders. In FY24, PWD interacted with over 91,000 people through a variety of notification, outreach, engagement, public education, and/or program and initiatives. A summary of this engagement and programming is outlined in **Table 15**. PWD also hired and on-boarded a new role this fiscal year; the Community Outreach Associate tasked with outreach and engagement support to Community Outreach Specialists in their districts.

Figure 4: PWD Public Affairs Team

Table 15: FY24 Public Engagement Metrics at a Glance

Public Outreach & Participation Programming	Approximate Number of Direct Connection(s) to Residents
GSI Notification, Outreach & Engagement	21,643
Focused Digital GSI Outreach	30,528
Water Bar	2,673
Rain Check	1,150
Soak It Up Adoption	12,506
Fairmount Water Works Interpretive Center	22,584
Total	**91,084**

7.2 Green Stormwater Infrastructure (GSI) Notification

Public notification, education, and engagement around green stormwater infrastructure (GSI) projects in Philadelphia's neighborhoods continued as outlined through PWD's Green City, Clean Waters (GCCW) program. Along with traditional GCCW outreach (such as community presentations at public meetings and tabling), PWD used focused digital media strategies for even broader public awareness.

7.2.1 Public GSI Events & Touchpoints

During FY24 over 21,500 community members attended events and/or received promotional notifications in the CSS area. A summary of this engagement by PWD GSI District is available in **Table 16**. PWD pairs internal technical milestones with appropriate external messaging to communicate project updates. Each community meeting, tabling event, and/or other event (e.g., community fun day, GSI tour, etc.) is generally preceded by public notification and promotion. After the event PWD updates project tracking sheet, metrics, and other necessary documents.

Table 16: FY24 GSI/GCCW Traditional Community Meeting Metrics

PWD GSI District	Number of Public GSI Projects	Number of Public GSI Outreach Events	Number of GSI Event Participants	Number of GSI 1:1 Project Letters Sent	Number of GSI Bid-Award Letters Sent	Estimated Total Community Reach by District
GSI District 1 - West Philly	55	10	267	190	4,775	5,232
GSI District 2 - South Philly & Riverwards	9	5	217	2	2,904	3,121
GSI District 3 - Lower North Philly	32	11	300	142	1,731	2,173
GSI District 4 - Northeast & Northwest Philly	63	12	276	215	10,626	11,117
Total(s):	**159**	**38**	**1,060**	**549**	**20,036**	**21,645**

**Due to the technical classification of some of these projects, and/or based on internal workflows, and/or the fact that PWD does integrated projects (GSI, water, sewer), this is a best-faith estimate.*

As a digital complement to traditional outreach, PWD continued to increase production of its "Project Pages" as an online resource for public facing GSI project information.

7.2.2 Focused Digital Communications Around Public GSI Projects

PWD consistently used digital engagement strategies focused on customer awareness of GSI projects to support outreach needs. Examples include sending focused digital communications to inform residents about GSI project status updates and/or GSI meetings in their neighborhood.

Digital communications were sent to specific ZIP codes via GovDelivery digital newsletter bulletins and posted to specific neighborhoods via Nextdoor at the following GSI project phases:

- GSI Street Survey & Geotechnical Work Notifications
- Early GSI Design Quarterly Sends
- GSI Community Meeting Promotions
- Bid-Awarded GSI Notifications

Subscribers of the PWD newsletter, which is sent digitally to the public, sign up to receive email bulletins about various topics related to PWD services and programming. Specific subscribers in the following topics receive GSI targeted digital bulletins filtered by ZIP code: Alerts and Notification, Cottman Avenue Streetscape Open House, Customer Assistance Programs, Events, Infrastructure and Environment News, PWD Partners, and Registered Community Organizations (RCO).

During FY24, nearly 70 focused Nextdoor posts were published informing the public about these project phases/events. Each focused post reaches between approximately 1,000 - 5,000 subscribers on average. **Table 17** below showcases select targeted digital communications metrics for GovDelivery email and SMS bulletins.

Table 17: FY24 GSI/GCCW Targeted Digital Communications Metrics

Bulletin Content Messaging, Sent via Email & SMS Text	Total Bulletins Sent	Email Recipients	Total Recipients (Email + SMS Text)	Email Open Rate	Email Click Rate	SMS Text Recipients	SMS Text Click Rate
Survey & Geotechnical Work for GSI Systems	18	5,657	6,381	50%	3.2%	724	19.8%
Early GSI Design	26	10,711	12,449	52%	8.4%	1,738	25.4%
GSI Community Meeting	9	3,819	4,716	47.4%	9.4%	897	15.8%
Bid-Awarded GSI	14	5,927	6,982	53.3%	10%	1,055	35.3%
Total and/or Average:	**67**	**26,114**	**30,528**	**51.2%**	**7.8%**	**4,414**	**24.8%**

7.3 Other Public Education, Outreach, & Engagement Programs

7.3.1 Green City, Clean Waters Interpretive Signage

In FY24, PWD continued to develop and install interpretive *Green City, Clean Waters* permanent signage, which included new designs and additional fabrication and installation details. This process includes site visits, coordination with property owners/partners, and promotion of the signage. As of this report, PWD has **installed a total of 218 *GCCW* interpretive signs at 132 sites;** of these totals, 20 new GSI signs at an additional 10 sites will be installed because of the FY24 contract. Additionally, custom signage for signature sites such as American Street and Cruz Recreation Center was developed, detailing unique public engagement processes and special features.

7.3.2 Rain Check – A Green Homes Program

Rain Check, a program managed by the Pennsylvania Horticultural Society (PHS) through a contract with PWD, seeks to install stormwater management tools on residential properties within Philadelphia. The Rain Check program hosted **29** virtual and/or in-person workshops in FY24, which reached **almost 1,200 PWD customers** and resulted in **575** stormwater management tools installed on residential properties throughout the city. Participation in the Rain Check program is highlighted in **Table 18** below.

Table 18: FY24 Rain Check Metrics

FY24 Rain Check Metrics	Total(s)
Rain Barrels Installed*	414
Metal Downspout Planters Installed*	146
Permeable Paving Installed*	14
Rain Gardens Installed*	1
Total Number of Residential Tools Installed*	**575**
Workshops Hosted	29

Workshop Attendees	1,150

**Installations Completed: For some participants who signed up this FY, the installation of their tools is still in progress.*

7.3.3 Soak It Up Adoption – A Green Communities Program

The FY24 Soak It Up Adoption (SIUA) program provided small annual grants to eligible organizations and served a dual purpose: to clean and help PWD maintain these public GSI sites and to engage local residents about what GSI is and how it is connected to protecting local waterways.

In FY24, nine organizations participated in the Soak It Up Adoption (SIUA) program. Throughout the year, SIUA partners and their employees removed over 1,700 bags of trash and engaged over 12,500 local residents. Through these grants, 27 community representatives were paid to help clean and maintain almost 80 PWD-owned public GSI sites. Information about the programs can be found at the following links: SIUA Home Page, SIUA 'In the News', and SIUA 'My Favorite Thing'.

Traditionally SIUA partners engage residents and their community to highlight their adopted infrastructure. However, due to the lingering impacts of the COVID-19 pandemic, most of the engagement during this reporting period was digital and conducted through social media, e-newsletters, etc. In person events typically include guided tours, tabling sessions at local public events, and presentations at civic association meetings. **Table 19** showcases metrics used by PWD to track the Soak It Up Adoption program throughout the fiscal year. These figures reflect the variety of adopted stormwater management practices (SMPs), the amount of trash collected, and the number of people engaged.

Table 19: FY24 Soak It Up Adoption (SIUA) Metrics

Soak It Up Adoption (SIUA) Partner List	Number of GSIs Sites Adopted	Number of Trash Bags Collected*	Number of Residents Engaged
Asociación Puertorriqueños en Marcha (APM)	15	141.5	56
Centennial Parkside Community Development Corporation (CPCDC)	7	652.75	53
Cloud 9 Community Farms (C9CF)	5	45.2	6
Frankford Community Development Corporation (FCDC)	2	370.95	3,936
Make the World Better (MTWB)	10	107.75	855
North10 & Hunting Park Community Gardens (North10 & HPCG)	6	37	10
South Kensington Community Partners (SKCP)	8	49.75	72
Southwest Community Development Corporation (SWCDC)	22	265	7,500
Tookany-Tacony Frankford Watershed Partnership (TTF)	4	85	18
Total(s):	**79 GSI Sites**	**~1,755 bags of trash**	**~12,506 engaged residents**
Conversion from 30-Gallon Bag Total to Pounds (lbs)**		**~68,266+ lbs**	

**All SIUA partners collected trash in 30-gallon paper bags.*
***Conversion from 30-gallon bags to pounds (lbs.) of trash is done using the EPA-originated factors/equations.*

7.3.4 Noteworthy *Green City, Clean Waters* Events, Tours, and/or Blog Examples

Table 20 below outlines examples of public engagement events and strategies implemented by PWD during FY24.

Table 20: FY24 Examples of Various Public Engagement Events and/or Strategies

Date	Effort	Description	Relevant Links
Aug '23	PWD Blog on 53rd & Baltimore GSI	Award Winning GSI Site	water.phila.gov/blog/spotlight-on-award-winning-west-philly-green-stormwater-project/
Sept '23	Delaware River Festival (DRF) Tabling	Community Festival Celebrating the Delaware River with General PWD Tabling, Water Bar & Water Quality Report, GCCW Info, FWWIC Activities	www.flickr.com/photos/philadelphiawater/albums/72177720311182170/
Mar '24	Soak It Up Adoption (SIUA) Spring Seminar	PWD & All SIUAPartners Met to Discuss GSI Best Care Practices & Community Engagement Strategies	water.phila.gov/adoption/
April '24	Tookany-Tacony Frankford (TTF) Watershed Ecological Restoration (ER) Tour & Info	PWD & The Sustainable Business Network Led a TTF Stream Restoration Tour with Project-Based & General PWD Info Available	ttfwatershed.org/event/birds-of-a-feather-2/ www.facebook.com/photo/?fbid=872896241548965&set=pcb.872896311548958
April '24	PWD Stormwater Pioneers Award Ceremony	PWD Celebrated the 2023 Stormwater Pioneers at an Award Ceremony with Program & Project Information & Celebrations	www.flickr.com/photos/philadelphiawater/albums/72177720316469266/ water.phila.gov/blog/2023-2024-stormwater-grant-awardees-announced/
April '24	GCCW Overview for PSU Master Watershed Stewards	PE Team Leadership Gave a GCCW Program Overview, Including Outreach, Specs, Data, Visuals, GSO & Challenges	extension.psu.edu/programs/watershed-stewards

7.4 Public Education & Urban Watersheds Curriculum

7.4.1 Fairmount Water Works Interpretative Center (FWWIC)

In FY24, the Fairmount Water Works Interpretive Center (FWWIC) and partners **hosted close to 23,000 individuals in environmental education and outreach events** that featured *Green City, Clean Waters* and/or urban waters themed educational content. FWWIC and its educators offered programming on-site, in the field, in the classroom, and on the water all while working with partners like the Alliance for Watershed Education, Tookany/Tacony-Frankford Watershed Partnership, the Partnership for the Delaware Estuary, the Schuylkill River Development Corporation, Philadelphia Parks & Recreation, and the Philadelphia School District. **Table 21** summarizes the engagement methods implemented by FWWIC.

Table 21: FY24 Fairmount Water Works Interpretive Center (FWWIC) Engagement Metrics

FWWIC Engagement Methods	FY24
General FWWIC Visitors	6,727
School Groups, Camps & Rec Centers	7,247
Understanding the Urban Watershed (UUW)	1,917
Tours*	491
Special Events	1,292
Outreach Efforts	4,910
FY24 Total Visitors	**22,584**

Visitor engagement consisted of organized tours for adults, families and children, ongoing activities with school groups and summer camps, in-classroom presentations on urban watershed issues, treatment plant processes, FWW history, and two, well received by both the media and the public, art exhibitions: Take Me To The River, curated by artist Corrine Dieterle, Fall 2023 and 'Wandering: Observations of Our Watershed', curated by Thom Duffy Fine Arts (April – July 2024).

Understanding the Urban Watershed (UUW) Curriculum Program

FWWIC continues to deploy *Understanding the Urban Watershed (UUW)* to both teachers and students across Philadelphia, with a special emphasis on the "Mussels in the Classroom" content. *Understanding the Urban Watershed* is a cross-disciplinary curriculum for Grades 4 through 9 with multiple Learning Experiences in each Unit that are accessible online (https://resourcewater.org/). The website provides access to instructional materials, resources, videos, and other learning opportunities. Teachers are encouraged to provide engaging student field experiences (Meaningful Watershed Educational Experiences, or MWEEs) and hands-on exploration to complement classroom instruction.

Understanding the Urban Watershed is aligned with both the School District of Philadelphia's (District) core content and the new PA Academic Standards or STEELS (Science, Engineering, Environmental Literacy and Sustainability). Development and implementation of the curriculum has been a collaborative effort with the District Offices of Curriculum, Instruction and Assessment, and Environmental Management & Services. The program includes a one-week Summer Professional Development Training Institute for Teachers, supported by the School District. The curriculum is an exemplar for goals and targets as outlined in the District's Sustainability Plan, GreenFutures, and is easily embedded into core standards and performance indicators. The UUW Curriculum offers active learning experiences to students, teachers, and schools[1], and the community about the value of water, water systems, and civic action and responsibility. The program connects students to Philadelphia and the role they play on their block, in their school, and throughout their city, with a goal to achieve positive local and global impacts through experiential watershed education, and to transform participants into stewards and advocates for our shared water resources. In FY24, FWWIC engaged with 31 total teachers and 19 total schools through the UUW curriculum.

[1] 6 elementary teachers, 21 middle school teachers, 4 high school teachers and 4 elementary schools, 13 middle schools, and 2 high schools.

Appendix 1

Completed Public Green Stormwater Infrastructure Projects

Completed Public Green Infrastructure Reporting Metrics

The Public Completed Projects reporting format and metric definitions are described in Table 1 below.

Table 1: Public Reporting Metric Definitions

Metric	Definition
Work Number	Work Number is a unique assigned identifier from the CIPIT program. A CIPIT work number is attached to construction proposals, bids, work orders, contracts and invoices.
Project ID	This is a unique number, which is assigned automatically by the system when the project is created.
System Number	Unique identifier for system. Composed of the project ID and the System ID.
Construction Completion Date	Date PWD inspector confirmed completion of GSI system.
Storage Volume	The volume of runoff managed by the system. For all systems, the entire depth of the system is counted, except for detention/slow-release systems that are completely lined with an impermeable liner. For those systems, only the depth above the orifice is counted.
New Trees	Total number of new trees planted in association with a system. This number also includes non-SMP trees, which are trees planted as part of a project but are not part of a stormwater management system.
Drainage Area (acres)	Area, in square footage, of impervious and/or pervious surface(s) flowing into a system(s) and SMP(s).
Greened Acres (acre-inch)	Greened Acres is a metric that accounts for the conversion of a highly impervious urban landscape through the implementation of projects that reduce storm water runoff. A Greened Acre is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage at least one inch of stormwater runoff. If storage is provided, systems can credit up to two inches of the stormwater runoff from that acre. The best available Greened Acre value is pulled from the database for regulatory reporting.
SMP Type(s)	A Stormwater Management Practice (SMP) is a technique that controls the rate and volume of stormwater runoff and/or improves runoff water quality. Multiple SMP types can be grouped together in a larger GSI system. The SMP types were originally defined in Table 2-1 of the IAMP.
Program	Current public programs which a greened acre can be assigned to include: • Alleys/Driveways • Campuses • Facilities • Industry and Business • Open Space • Parking • Schools • Streets • Vacant Land

Metric	Definition
Green Construction Cost	Projects with a status of Construction Complete will have a finalized cost of construction provided.
Partner(s)	External entities involved in a project.
Watershed	The City of Philadelphia watershed where the project is located. Four of the City's seven watersheds fall at least partially within the combined sewer area. These watersheds are: • Cobbs-Darby Creek Watershed • Delaware Direct Watershed • Tookany/Tacony-Frankford Creek Watershed • Schuylkill River Watersheds

Table 2: Public SMP Definitions

Public SMP Type Definitions	
Field/Metric	**Definition/Purpose**
Basin*	A stormwater basin is a basin or depression that is vegetated with mowed grass. It is designed to detain and release stormwater runoff and/or infiltrate where feasible.
Blue Roof	A blue roof is a storage system designed into a roof surface such that the roof retains stormwater. Blue roofs are designed to reduce the rate of stormwater runoff.
Bump-out*	A stormwater bump-out is a vegetated curb extension that intercepts gutter flow. It is designed to detain and release stormwater runoff and/or infiltrate where feasible.
Cistern/Rain Barrel	A cistern/rain barrel is a tank or storage receptacle that captures and stores runoff and can thereby reduce runoff volume. The stored water may be used to serve a variety of non-potable water needs (e.g., irrigation).
Depaving	Depaving projects remove existing impervious pavement and restore the surface with grass, other types of vegetation, or loose materials (stone, mulch, etc.) such that the area can thereafter be considered pervious area. Depaving projects remove contributing impervious area from the sewer system.
Drainage Well	A stormwater drainage well is manhole structure designed to manage stormwater runoff by receiving stormwater from upstream collection and pretreatment systems and then discharging the stormwater into the surrounding soils through perforations in the manhole. It is designed to infiltrate stormwater.
Green Gutter	A green gutter is a narrow and shallow landscaped strip along a street’s curb line. It is designed to manage stormwater runoff by placing the top of the planting media in the green gutter lower than the street’s gutter elevation allowing stormwater runoff from both the street and sidewalk to flow directly into the green gutter. It is designed to slowly infiltrate stormwater.
Green Roof	A green roof is a vegetated surface installed over a roof surface.
Infiltration/Storage Trench	An infiltration/storage trench is a subsurface structure designed to detain and release stormwater runoff and/or infiltrate where feasible.
Non-SMP Tree	A non-SMP tree is a planted tree that does not have stormwater directed to it.
Pervious Paving	Pervious paving is a hard permeable surface commonly composed of concrete, asphalt or pavers. It is designed to detain and release stormwater runoff and/or infiltrate where feasible.
Planter*	A stormwater planter is a structure filled with soil media and planted with vegetation or trees. It is designed to detain and release stormwater runoff and/or infiltrate where feasible. Planters often contain curb edging or fencing as barrier protection around the planter.

Public SMP Type Definitions	
Rain Garden	A rain garden is a shallow vegetated area designed to detain and release stormwater runoff and/or infiltrate where feasible. Rain gardens may also be referred to as bioinfiltration basins and bio-retention basins. They are typically integrated into landscape features (e.g. median strips) and are non-mowed areas.
Stormwater Tree	A stormwater tree is planted in a specialized tree pit that has stormwater runoff directed to its pit. It is designed to manage stormwater by placing the top of the planting media in a tree pit lower than the street's gutter elevation and connecting the tree pit to an inlet which directs runoff from the street into the tree pit. It is designed to detain and release stormwater runoff and/or infiltrate where feasible.
Swale	A swale is a channel designed to convey stormwater. It can be designed to attenuate and/or infiltrate where feasible.
Tree Trench*	A stormwater tree trench is a subsurface infiltration/storage trench that is planted with trees. They are typically linear features that are constructed between the curb and the sidewalk. It is designed to detain and release stormwater runoff and/or infiltrate where feasible.
Wetland*	A stormwater wetland is a vegetated basin designed principally for pollutant removal. It typically holds runoff for periods longer than 72 hours and may include a permanent pool. Wetlands can also detain and release stormwater runoff.

*The word 'stormwater' was previously included in these types but was removed because it was redundant.

Table 3: Completed Public Green Stormwater Infrastructure Projects

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
20391	1056	1056-1	Ashville/Ditman/Rhawn etal	04-May-20	Combined	2462	11	0.3	0.7	Tree Trench	Streets	$552,000.00		Delaware,Pennypack
		1056-2		04-May-20	Combined	4438	11	0.8	1.6	Tree Trench	Streets			Delaware,Pennypack
		1056-3		04-May-20	Combined	2774	11	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware,Pennypack
20400	306	306-1	Ontario, "A" - Glenwood / Glenwood	24-Mar-17	Combined	820	9	0.1	0.3	Tree Trench	Streets	$411,000.00		Delaware
		306-2		24-Mar-17	Combined	574	9	0.1	0.2	Tree Trench	Streets			Delaware
		306-3		24-Mar-17	Combined	1287	9	0.2	0.4	Tree Trench	Streets			Delaware
		306-4		24-Mar-17	Combined	1763	9	0.3	0.6	Tree Trench	Streets			Delaware
		306-5		24-Mar-17	Combined	1000	9	0.2	0.3	Tree Trench	Streets			Delaware
20422	517	517-1	Woodland / 56th	06-May-16	Combined	1684	5	0.2	0.3	Tree Trench	Streets	$175,000.00		Schuylkill
		517-2		06-May-16	Combined	2394	5	0.3	0.7	Tree Trench	Streets			Schuylkill
20439	584	584-1	Ellsworth / 20th etal	07-Nov-18	Combined	1683	10	0.3	0.5	Tree Trench	Streets	$577,000.00		Delaware,Schuylkill
		584-2		07-Nov-18	Combined	1748	10	0.2	0.5	Tree Trench	Streets			Delaware,Schuylkill
		584-3		07-Nov-18	Combined	1150	10	0.2	0.3	Tree Trench	Streets			Delaware,Schuylkill
		584-5		07-Nov-18	Combined	1527	10	0.3	0.5	Tree Trench	Streets			Delaware,Schuylkill
20443	411	411-1	Juniata : Cayuga/Claridge/Lawndale etal Ferko Playground	08-Dec-17	Combined	41804	0	7.2	13.3	Bumpout, Infiltration/Storage Trench	Open Space	$2,717,000.00	Philadelphia Department of Parks & Recreation	TTF
20444	563	563-1	Corinthian / Fairmount	26-Mar-19	Combined	3779	5	0.9	1.3	Tree Trench	Streets	$688,000.00		Delaware,Schuylkill
		563-2		26-Mar-19	Combined	3935	5	0.6	1.2	Tree Trench	Streets			Delaware,Schuylkill
		563-3		26-Mar-19	Combined	2442	5	0.4	0.7	Infiltration/Storage Trench	Streets			Delaware,Schuylkill
		563-4		26-Mar-19	Combined	1382	5	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware,Schuylkill
20456	994	994-1	Tulpehocken / Mansfield / Lowber / Duval / Johnson	14-Dec-17	Combined	3103	0	0.5	0.9	Infiltration/Storage Trench	Streets	$562,000.00		TTF
		994-2		14-Dec-17	Combined	1131	0	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		994-3		14-Dec-17	Combined	1302	0	0.4	0.5	Infiltration/Storage Trench	Streets			TTF
		994-4		14-Dec-17	Combined	814	0	0.1	0.3	Infiltration/Storage Trench	Streets			TTF
20458	1006	1006-1	Bridge/Creston/Darrah/Penn	23-Apr-18	Combined	1886	7	0.3	0.6	Tree Trench	Streets	$1,319,000.00		Delaware
		1006-2		23-Apr-18	Combined	4702	7	0.6	1.3	Infiltration/Storage Trench	Streets			Delaware
		1006-3		23-Apr-18	Combined	2459	7	0.3	0.6	Tree Trench	Streets			Delaware
		1006-4		23-Apr-18	Combined	2122	7	0.3	0.6	Tree Trench	Streets			Delaware
		1006-5		23-Apr-18	Combined	2299	7	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware
		1006-6		23-Apr-18	Combined	2855	7	0.7	1.0	Infiltration/Storage Trench	Streets			Delaware
20461	1066	1066-1	Frankford / Pacific / Wheatsheaf	22-Aug-16	Combined	588	0	0.1	0.2	Infiltration/Storage Trench	Streets	$570,000.00		Delaware,TTF
		1066-2		22-Aug-16	Combined	1112	0	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware,TTF
		1066-3		22-Aug-16	Combined	1480	0	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware,TTF
		1066-4		22-Aug-16	Combined	1093	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1066-5		22-Aug-16	Combined	2400	0	0.5	0.8	Infiltration/Storage Trench	Streets			Delaware,TTF
		1066-6		22-Aug-16	Combined	1084	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
20475	1042	1042-1	31st / 34th / 35th / Wharton	06-Aug-21	Combined	1683	9	0.3	0.5	Tree Trench	Streets	$318,000.00		Schuylkill
		1042-2		09-Jul-21	Combined	844	9	0.2	0.3	Tree Trench	Streets			Schuylkill
20480	1266	1266-1	Somerset / 7th	05-Jun-20	Combined	3343	4	0.5	1.0	Tree Trench	Streets	$186,000.00		Delaware
20483	1294	1294-1	Fanshawe/Longshore/Unruh/ Bingham/Kerper	30-Mar-22	Combined	1192	0	0.1	0.3	Infiltration/Storage Trench	Streets	$143,000.00		Delaware
		1294-2		30-Mar-22	Combined	1258	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
20489	1136	1136-1	Angora / Cedar / Yewdall / 57th	26-Feb-19	Combined	2464	0	0.4	0.8	Infiltration/Storage Trench	Streets	$388,000.00		Cobbs-Darby
		1136-2		26-Feb-19	Combined	1048	0	0.2	0.4	Infiltration/Storage Trench	Streets			Cobbs-Darby
		1136-3		26-Feb-19	Combined	924	0	0.2	0.3	Infiltration/Storage Trench	Streets			Cobbs-Darby

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
20490	1206	1206-1	Wishart/Clementine/Elkhart/ Helen/Jasper	18-Jan-19	Combined	850	0	0.2	0.3	Infiltration/Storage Trench	Streets	$315,000.00		Delaware
		1206-2		18-Jan-19	Combined	1194	0	0.1	0.3	Infiltration/Storage Trench	Streets			Delaware
		1206-3		18-Jan-19	Combined	1172	0	0.3	0.4	Infiltration/Storage Trench	Streets			Delaware
20497	1215	1215-1	44th / Larchwood / Osage / Pine	22-Nov-19	Combined	1437	4	0.2	0.4	Tree Trench	Streets	$116,000.00		Schuylkill
20499	1248	1248-1	Crease / Frankford / Mascher / Thompson / Girard	26-May-21	Combined	1175	0	0.3	0.4	Infiltration/Storage Trench	Streets	$248,000.00		Delaware
20513	1338	1338-1	Mayfair I / Tyson / Brighton / Princeton / Et al	14-Oct-22	Combined	3250	0	0.7	0.9	Infiltration/Storage Trench	Streets	$285,000.00		Delaware
40330	289 *	289-1	Coral, Sergeant-Huntingdon / Sepviva, Susquehanna - Dauphin	27-Jan-10	Combined	962	17	0.6	0.3	Infiltration/Storage Trench	Streets	$209,000.00		Delaware
		289-10		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-11		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-12		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-13		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-14		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-15		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-16		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-17		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-18		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-2		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-3		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-4		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-5		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-6		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-7		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-8		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
		289-9		27-Jan-10	Combined	38	17	0.0	0.0	Stormwater Tree	Streets			Delaware
40368	234	234-1	Franklin, Berks - Norris / Norris - Diamond /16th Street / Dauphin Street	24-Oct-13	Combined	601	32	0.2	0.2	Tree Trench	Streets	$185,000.00		Delaware
		234-2		24-Oct-13	Combined	1128	32	0.3	0.4	Tree Trench	Streets			Delaware
		234-3		24-Oct-13	Combined	525	32	0.2	0.2	Tree Trench	Streets			Delaware
		234-4		24-Oct-13	Combined	2343	32	0.4	0.8	Tree Trench	Streets			Delaware
		234-5		24-Oct-13	Combined	2618	32	0.4	0.8	Tree Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
40577	441 *	441-1	Wagner St.,12th - Broad; Rockland St., 11th - Broad	08-Apr-11	Combined	480	21	0.4	0.2	Infiltration/Storage Trench	Streets	$924,000.00		TTF
		441-11		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-12		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-13		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-14		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-15		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-16		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-2		08-Apr-11	Combined	3160	21	2.0	1.0	Infiltration/Storage Trench	Streets			TTF
		441-21		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-22		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-25		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-27		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-28		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-3		08-Apr-11	Combined	1902	21	1.7	0.6	Infiltration/Storage Trench	Streets			TTF
		441-31		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-32		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-38		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-39		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-42		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-43		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-45		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-5		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-7		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
		441-8		08-Apr-11	Combined	38	21	0.0	0.0	Stormwater Tree	Streets			TTF
40599	233	233-1	Belgrade / Crease / Marlborough	20-Dec-12	Combined	847	1	0.2	0.3	Infiltration/Storage Trench	Streets	$27,000.00		Delaware
		233-2		20-Dec-12	Combined	416	1	0.1	0.1	Infiltration/Storage Trench	Streets			Delaware
40607	235	235-2	Northern Liberties Flood Relief	15-Jul-16	Combined	530	13	0.2	0.2	Tree Trench	Streets	$147,000.00		Delaware
		235-4		15-Jul-16	Combined	791	13	0.1	0.3	Tree Trench	Streets			Delaware
40659	207	207-1	Waterview Rec Center Stormwater Management Improvements	01-Jul-08	Combined	786	4	0.3	0.5	Pervious Paving, Tree Trench	Streets	$50,000.00	Pennsylvania Horticulture Society, Philadelphia Department of Recreation	TTF
40662	218	218-3	Green Streets Pilot Project - Passyunk Avenue Locations	05-Mar-13	Combined	5137	0	0.7	1.3	Bumpout	Streets	$0.00	Philadelphia Streets Department	Schuylkill
40750	304	304-1	Adams / Church / Penn	09-Mar-20	Combined	710	1	0.2	0.3	Tree Trench	Streets	$317,000.00		TTF
		304-2		09-Mar-20	Combined	1184	1	0.2	0.4	Infiltration/Storage Trench	Streets			TTF
40755	305	305-1	Ellsworth / Federal / Wharton	25-Sep-19	Combined	1594	2	0.3	0.5	Tree Trench	Streets	$233,000.00	Philadelphia Department of Parks & Recreation	Delaware
		305-2		25-Sep-19	Combined	1251	2	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
40771	301	301-2	Dauphin / Sepviva etal	26-Aug-15	Combined	1444	10	0.2	0.4	Tree Trench	Streets	$133,000.00		Delaware
40773	469	469-1	Galloway/Roseberry etal	13-Jun-18	Combined	1312	5	0.2	0.4	Tree Trench	Streets	$105,000.00		Delaware
40784	406	406-1	Conestoga / Thompson	25-Nov-19	Combined	902	0	0.2	0.3	Infiltration/Storage Trench	Streets	$169,000.00		Schuylkill
		406-2		25-Nov-19	Combined	1067	0	0.2	0.4	Infiltration/Storage Trench	Streets			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
40795	443	443-1	Cobbs Creek GSI	11-Jun-20	Combined	2233	58	0.5	1.1	Rain Garden	Open Space	$3,508,000.00	Philadelphia Department of Parks & Recreation	Cobbs-Darby
		443-10		10-Jul-19	Combined	4738	58	0.7	1.3	Tree Trench	Streets			Cobbs-Darby
		443-11		10-Jul-19	Combined	2017	58	0.3	0.6	Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-12		10-Jul-19	Combined	3177	58	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-13		10-Jul-19	Combined	3428	58	0.6	1.1	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-14		11-Jun-20	Combined	8390	58	1.4	2.7	Basin, Infiltration/Storage Trench, Rain Garden	Open Space			Cobbs-Darby
		443-15		11-Jun-20	Combined	1902	58	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Open Space			Cobbs-Darby
		443-16		11-Jun-20	Combined	2135	58	0.4	0.7	Rain Garden	Open Space			Cobbs-Darby
		443-17		11-Jun-20	Combined	573	58	0.1	0.2	Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-18		11-Jun-20	Combined	1467	58	0.3	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-3		11-Jun-20	Combined	1897	58	0.3	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-4		11-Jun-20	Combined	1862	58	0.3	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby
		443-5		11-Jun-20	Combined	4533	58	0.7	1.3	Infiltration/Storage Trench, Rain Garden	Open Space			Cobbs-Darby
		443-6		11-Jun-20	Combined	3917	58	0.4	0.9	Infiltration/Storage Trench, Rain Garden	Open Space			Cobbs-Darby
		443-7		10-Jul-19	Combined	1008	58	0.2	0.3	Rain Garden	Open Space			Cobbs-Darby
		443-8		10-Jul-19	Combined	2390	58	0.3	0.7	Tree Trench	Streets			Cobbs-Darby
		443-9		10-Jul-19	Combined	4196	58	0.6	1.2	Tree Trench	Streets			Cobbs-Darby
40796	1086	1086-1	Sepviva Street	27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets	$150,000.00		Delaware
		1086-10		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-11		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-12		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-13		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-14		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-15		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-16		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-17		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-18		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-19		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-2		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-20		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-21		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-22		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-23		27-Dec-12	Combined	28	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-24		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-25		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-26		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-27		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-3		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-6		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-7		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware
		1086-9		27-Dec-12	Combined	38	32	0.0	0.0	Stormwater Tree	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
40798	518	518-1	Ludlow / Hirst / Robinson	16-Jul-20	Combined	835	28	0.2	0.3	Infiltration/Storage Trench	Streets	$465,000.00		Cobbs-Darby
		518-2		16-Jul-20	Combined	932	28	0.2	0.3	Infiltration/Storage Trench	Streets			Cobbs-Darby
		518-3		16-Jul-20	Combined	661	28	0.2	0.2	Infiltration/Storage Trench	Streets			Cobbs-Darby
		518-4		16-Jul-20	Combined	923	28	0.3	0.3	Infiltration/Storage Trench	Streets			Cobbs-Darby
40799	556	556-1	Cleveland/Gratz/Greene/Roberts	01-Nov-18	Combined	2884	0	0.4	0.8	Infiltration/Storage Trench	Streets	$144,000.00		TTF
		556-2		01-Nov-18	Combined	1433	0	0.4	0.5	Infiltration/Storage Trench	Streets			TTF
40800	502	502-1	59th St / Edgewood St / Vogdes St / Yocum St / Trinity St	31-Jul-20	Combined	1735	6	0.3	0.5	Tree Trench	Streets	$355,000.00		Cobbs-Darby
40816	554	554-1	Weikel / Witte / Gaul	07-Jan-19	Combined	3795	5	0.4	0.7	Tree Trench	Streets	$710,000.00		Delaware
		554-2		07-Jan-19	Combined	2350	5	0.3	0.7	Stormwater Tree, Tree Trench	Streets			Delaware
		554-3		07-Jan-19	Combined	1714	5	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		554-4		07-Jan-19	Combined	653	5	0.1	0.2	Tree Trench	Streets			Delaware
		554-5		07-Jan-19	Combined	638	5	0.1	0.2	Infiltration/Storage Trench	Streets			Delaware
		554-6		07-Jan-19	Combined	1058	5	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		554-7		07-Jan-19	Combined	787	5	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
40817	1293	1293-1	C/F/Mayfield/Rosehill/Hartville	29-Jan-18	Combined	1002	0	0.1	0.3	Infiltration/Storage Trench	Streets	$270,000.00		Delaware
		1293-2		29-Jan-18	Combined	1907	0	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1293-3		29-Jan-18	Combined	3038	0	0.6	0.9	Infiltration/Storage Trench	Streets			Delaware
40821	504	504-2	9th / Mifflin / Pierce	19-Dec-18	Combined	1194	2	0.2	0.3	Tree Trench	Streets	$567,000.00		Delaware
40824	525	525-1	52nd / 53rd / Gainor	20-Mar-20	Combined	1473	11	0.3	0.5	Tree Trench	Streets	$335,000.00		Schuylkill
		525-2		20-Mar-20	Combined	1005	11	0.3	0.3	Tree Trench	Streets			Schuylkill
		525-3		20-Mar-20	Combined	2463	11	0.5	0.9	Tree Trench	Streets			Schuylkill
40828	657	657-1	Brandywine / Green / Melon / North	07-Jun-17	Combined	1217	2	0.3	0.4	Tree Trench	Streets	$113,000.00		Delaware
40829	990	990-1	Galloway / Orianna / Leithgow	27-Sep-19	Combined	1255	0	0.2	0.4	Infiltration/Storage Trench	Streets	$249,000.00		Delaware
		990-2		27-Sep-19	Combined	635	0	0.2	0.2	Infiltration/Storage Trench	Streets			Delaware
40839	995	995-1	50th / Rodman / Walton	25-Jan-23	Combined	1498	0	0.3	0.5	Infiltration/Storage Trench	Streets	$411,000.00		Cobbs-Darby,Schuylkill
		995-2		25-Jan-23	Combined	1494	0	0.3	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		995-3		25-Jan-23	Combined	1714	0	0.5	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
40844	989	989-1	Master / Wanamaker / Hobart	03-Jul-19	Combined	2670	0	0.6	1.2	Infiltration/Storage Trench	Streets	$182,000.00		Schuylkill
		989-2		15-Oct-20	Combined	1919	0	0.5	0.7	Infiltration/Storage Trench	Streets			Schuylkill
40856	1060	1060-1	Nicholas / 28th / Myrtlewood	09-Dec-22	Combined	1197	6	0.3	0.4	Tree Trench	Streets	$118,000.00		Schuylkill
40862	1064	1064-1	8th / 12th / Lemon / North	27-May-20	Combined	2068	6	0.3	0.6	Tree Trench	Streets	$263,000.00		Delaware
		1064-2		27-May-20	Combined	1583	6	0.2	0.5	Infiltration/Storage Trench	Streets			Delaware
40863	1010	1010-1	Bouvier / Monument / Willington / 17th	03-Jun-19	Combined	1788	3	0.3	0.6	Infiltration/Storage Trench	Streets	$489,000.00		Delaware
		1010-2		03-Jun-19	Combined	1109	3	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1010-3		03-Jun-19	Combined	1334	3	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1010-4		03-Jun-19	Combined	530	3	0.1	0.2	Infiltration/Storage Trench	Streets			Delaware
		1010-5		03-Jun-19	Combined	2034	3	0.2	0.5	Tree Trench	Streets			Delaware
40865	1057	1057-2	Crowson / Stokes / Woodlawn	30-Aug-18	Combined	675	0	0.2	0.2	Infiltration/Storage Trench	Streets	$534,000.00		TTF
		1057-4		30-Aug-18	Combined	970	0	0.3	0.3	Infiltration/Storage Trench	Streets			TTF
		1057-5		30-Aug-18	Combined	1572	0	0.4	0.5	Infiltration/Storage Trench	Streets			TTF
		1057-6		30-Aug-18	Combined	504	0	0.1	0.2	Infiltration/Storage Trench	Streets			TTF
40866	1065	1065-1	Creighton / Spring / Vogdes / Race	17-Sep-21	Combined	1462	4	0.3	0.5	Tree Trench	Streets	$134,000.00		Cobbs-Darby

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
40877	1550	1550-1	I-95 Section AF2	23-Oct-23	Combined	958	0	0.2	0.3	Infiltration/Storage Trench	Streets	Unknown		Delaware
		1550-2		23-Oct-23	Combined	779	0	0.1	0.2	Infiltration/Storage Trench	Streets			Delaware
40888	1011	1011-1	SR 3037, Section JFK - Rehab of bridges over 21st, 22nd, & 23rd	29-Jan-20	Combined	1868	19	0.5	0.6	Tree Trench	Streets	Unknown		Schuylkill
		1011-10		29-Jan-20	Combined	750	19	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1011-2		29-Jan-20	Combined	906	19	0.2	0.3	Tree Trench	Streets			Schuylkill
		1011-3		29-Jan-20	Combined	1211	19	0.2	0.4	Infiltration/Storage Trench	Streets			Schuylkill
		1011-4		29-Jan-20	Combined	831	19	0.2	0.3	Tree Trench	Streets			Schuylkill
		1011-5		29-Jan-20	Combined	914	19	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1011-6		29-Jan-20	Combined	877	19	0.2	0.3	Tree Trench	Streets			Schuylkill
		1011-7		29-Jan-20	Combined	837	19	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1011-8		29-Jan-20	Combined	1157	19	0.3	0.4	Tree Trench	Streets			Schuylkill
		1011-9		29-Jan-20	Combined	899	19	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
40891	1062	1062-2	Wynnefield, Monument - 170' W. of 50th	25-May-17	Combined	1859	13	0.3	0.6	Tree Trench	Streets	$595,000.00		Schuylkill
		1062-3		25-May-17	Combined	2184	13	0.6	0.8	Infiltration/Storage Trench	Streets			Schuylkill
		1062-4		25-May-17	Combined	2926	13	0.6	0.9	Tree Trench	Streets			Schuylkill
		1062-5		25-May-17	Combined	3276	13	0.4	0.9	Tree Trench	Streets			Schuylkill
		1062-6		25-May-17	Combined	809	13	0.2	0.2	Tree Trench	Streets			Schuylkill
		1062-7		25-May-17	Combined	5458	13	0.8	1.6	Tree Trench	Streets			Schuylkill
40900	1058	1058-1	Medary Avenue from 13th Street to Broad Street	31-May-16	Combined	1605	0	0.3	0.6	Infiltration/Storage Trench	Streets	$161,000.00		TTF
		1058-2		31-May-16	Combined	868	0	0.2	0.3	Infiltration/Storage Trench	Streets			TTF
40903	656	656-1	Market / 43rd / Ludlow / 45th	07-Sep-16	Combined	541	3	0.1	0.2	Tree Trench	Streets	$71,000.00		Schuylkill
40906	1246	1246-1	Church / Orchard / Ruan / Salem	12-Mar-20	Combined	867	0	0.1	0.3	Infiltration/Storage Trench	Streets	$122,000.00		TTF
40918	1149	1149-1	Loudon / Carlisle	28-Sep-17	Combined	1379	0	0.4	0.5	Infiltration/Storage Trench	Streets	$134,000.00		TTF
		1149-2		28-Sep-17	Combined	572	0	0.1	0.2	Infiltration/Storage Trench	Streets			TTF
40928	1275	1275-1	SR1026 Section H04	06-Sep-19	Combined	3521	28	0.5	0.9	Tree Trench	Streets	Unknown		TTF
		1275-2		06-Sep-19	Combined	5371	28	0.7	1.4	Tree Trench	Streets			TTF
		1275-3		06-Sep-19	Combined	1731	28	0.2	0.4	Tree Trench	Streets			TTF
		1275-4		06-Sep-19	Combined	2520	28	0.5	0.8	Tree Trench	Streets			TTF
		1275-5		06-Sep-19	Combined	1083	28	0.1	0.3	Tree Trench	Streets			TTF
		1275-6		06-Sep-19	Combined	2578	28	0.3	0.6	Tree Trench	Streets			TTF

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
40938	1423	1423-1	I-95 Section AF1	04-Aug-20	Combined	2133	24	0.6	1.3	Infiltration/Storage Trench	Streets	Unknown		Delaware
		1423-10		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-11		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-12		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-13		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-14		04-Aug-20	Combined	27	24	0.2	0.0	Stormwater Tree	Streets			Delaware
		1423-15		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-16		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-17		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-18		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-19		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-2		04-Aug-20	Combined	1897	24	0.4	0.7	Infiltration/Storage Trench	Streets			Delaware
		1423-20		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-21		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-22		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-23		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-24		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-25		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-26		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-27		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-28		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-29		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-6		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-7		04-Aug-20	Combined	27	24	0.0	0.0	Stormwater Tree	Streets			Delaware
		1423-8		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
		1423-9		04-Aug-20	Combined	27	24	0.1	0.0	Stormwater Tree	Streets			Delaware
40945	1292	1292-1	Univ. City HS Redev. Infrastructure Proj	07-Apr-23	Combined	639	23	0.2	0.2	Tree Trench	Streets	Unknown		Schuylkill
		1292-10		07-Apr-23	Combined	625	23	0.2	0.2	Tree Trench	Streets			Schuylkill
		1292-2		07-Apr-23	Combined	639	23	0.2	0.2	Tree Trench	Streets			Schuylkill
		1292-3		07-Apr-23	Combined	514	23	0.1	0.2	Tree Trench	Streets			Schuylkill
		1292-4		07-Apr-23	Combined	558	23	0.1	0.2	Tree Trench	Streets			Schuylkill
		1292-5		07-Apr-23	Combined	577	23	0.2	0.2	Tree Trench	Streets			Schuylkill
		1292-6		07-Apr-23	Combined	878	23	0.2	0.3	Tree Trench	Streets			Schuylkill
		1292-7		07-Apr-23	Combined	1426	23	0.4	0.7	Tree Trench	Streets			Schuylkill
		1292-8		07-Apr-23	Combined	1426	23	0.4	0.7	Tree Trench	Streets			Schuylkill
		1292-9		07-Apr-23	Combined	625	23	0.2	0.2	Tree Trench	Streets			Schuylkill
40996	1366	1366-1	Thompson / Belgrade / Freedly / Hazzard	17-Apr-23	Combined	1196	4	0.2	0.3	Tree Trench	Streets	$119,000.00		Delaware
41034	1399	1399-1	Natrona / Napa / Huntingdon	28-Feb-22	Combined	1155	0	0.3	0.4	Infiltration/Storage Trench	Streets	$106,000.00		Schuylkill
41039	1455	1455-1	I-95 Section BS1	02-Oct-23	Combined	1935	11	0.3	0.5	Tree Trench	Streets	Unknown		Delaware
		1455-2		02-Oct-23	Combined	2488	11	0.4	0.8	Tree Trench	Streets			Delaware
		1455-3		02-Oct-23	Combined	1513	11	0.2	0.4	Tree Trench	Streets			Delaware
		1455-4		02-Oct-23	Combined	1183	11	0.2	0.4	Tree Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50001	14 *	14-1	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1452	0	0.5	0.5	Infiltration/Storage Trench, Rain Garden	Streets	$873,000.00	Department of Recreation, Passyunk Square Civic Association	Delaware
50001	15 *	15-2	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1536	4	0.3	0.5	Tree Trench	Streets	$873,000.00	Passyunk Square Civic Association	Delaware
50001	16 *	16-1	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1112	5	0.2	0.3	Tree Trench	Streets	$873,000.00	Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware
50001	162 *	162-1	Passyunk Square Model Neighborhood	17-Sep-13	Combined	604	13	0.1	0.2	Bumpout, Tree Trench	Streets	$873,000.00	Department of Recreation	Delaware,Schuylkill
50001	162 *	162-2	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1236	13	0.3	0.4	Bumpout, Tree Trench	Streets	$873,000.00	Department of Recreation	Delaware,Schuylkill
50001	162 *	162-3	Passyunk Square Model Neighborhood	17-Sep-13	Combined	2041	13	0.4	0.7	Tree Trench	Streets	$873,000.00	Department of Recreation	Delaware,Schuylkill
50001	162 *	162-4	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1316	13	0.2	0.4	Tree Trench	Streets	$873,000.00	Department of Recreation	Delaware,Schuylkill
50001	313 *	313-1	Passyunk Square Model Neighborhood	17-Sep-13	Combined	1452	0	0.3	0.4	Infiltration/Storage Trench	Streets	$873,000.00	Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware
50002	8 *	8-2	New Kensington Model Neighborhood	04-Nov-11	Combined	1681	3	0.5	1.0	Rain Garden	Streets	$173,000.00	Department of Recreation, New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware
50003	12 *	12-1	Northern Liberties Model Neighborhood	08-Feb-13	Combined	163	7	0.1	0.1	Infiltration/Storage Trench	Streets	$455,000.00	City Play, Mural Arts Program, Northern Liberties Neighborhood Association	Delaware
50003	12 *	12-3	Northern Liberties Model Neighborhood	08-Feb-13	Combined	336	7	0.1	0.1	Tree Trench	Streets	$455,000.00	City Play, Mural Arts Program, Northern Liberties Neighborhood Association	Delaware
50003	12 *	12-4	Northern Liberties Model Neighborhood	08-Feb-13	Combined	479	7	0.1	0.1	Tree Trench	Streets	$455,000.00	City Play, Mural Arts Program, Northern Liberties Neighborhood Association	Delaware
50003	91 *	91-1	Northern Liberties Model Neighborhood	08-Feb-13	Combined	1463	7	0.4	0.4	Bumpout, Tree Trench	Streets	$455,000.00	Northern Liberties Neighborhood Association	Delaware
50005	1 *	1-1	Green Street Project in 16th Street	10-Nov-10	Combined	1676	6	0.5	0.7	Tree Trench	Streets	$402,000.00	Pennsylvania Horticulture Society	Delaware
50005	1 *	1-2	Green Street Project in 16th Street	10-Nov-10	Combined	1280	6	0.3	0.4	Tree Trench	Streets	$402,000.00	Pennsylvania Horticulture Society	Delaware
50005	1 *	1-3	Green Street Project in 16th Street	10-Nov-10	Combined	600	6	0.2	0.2	Tree Trench	Streets	$402,000.00	Pennsylvania Horticulture Society	Delaware
50005	18 *	18-1	Green Street Project in 16th Street	10-Nov-10	Combined	609	8	0.3	0.2	Tree Trench	Streets	$402,000.00		Schuylkill
50005	9 *	9-1	Green Street Project in 16th Street	10-Nov-10	Combined	494	5	0.1	0.1	Tree Trench	Streets	$402,000.00	New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware
50005	9 *	9-2	Green Street Project in 16th Street	10-Nov-10	Combined	779	5	0.1	0.3	Tree Trench	Streets	$402,000.00	New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware
50006	187	187-1	Columbus Square Park Infrastructure Demonstration Project	26-May-10	Combined	20	0	0.0	0.0	Planter	Streets	$66,000.00	Department of Public Property, Department of Recreation, Friends of Columbus Square	Delaware
50006	187	187-2	Columbus Square Park Infrastructure Demonstration Project	26-May-10	Combined	20	0	0.0	0.0	Planter	Streets	$66,000.00	Department of Public Property, Department of Recreation, Friends of Columbus Square	Delaware
50006	187	187-3	Columbus Square Park Infrastructure Demonstration Project	26-May-10	Combined	882	0	0.2	0.3	Infiltration/Storage Trench, Planter	Streets	$66,000.00	Department of Public Property, Department of Recreation, Friends of Columbus Square	Delaware
50007	21 *	21-1	Blue Bell Inn Triangle Stormwater Improvements	31-Oct-13	Combined	2066	12	0.6	1.2	Swale	Streets	$278,000.00	Fairmount Park Commission, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Cobbs-Darby
50009	20 *	20-10	Queen Lane Bumpouts	14-May-11	Combined	1357	13	0.3	0.6	Tree Trench	Streets	Unknown		TTF

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50010	19 *	19-1	Barry Playground - Tree Trenches	14-Oct-13	Combined	2777	36	0.7	0.9	Tree Trench	Streets	$975,000.00	Department of Recreation	Schuylkill
		19-2		14-Oct-13	Combined	3979	36	0.6	1.2	Tree Trench	Streets			Schuylkill
		19-3		14-Oct-13	Combined	2180	36	0.4	0.7	Tree Trench	Streets			Schuylkill
		19-4		14-Oct-13	Combined	4463	36	0.5	1.1	Tree Trench	Streets			Schuylkill
		19-5		14-Oct-13	Combined	2745	36	0.3	0.6	Tree Trench	Streets			Schuylkill
50011	194	194-1	N. 3rd St and Wildey St	01-Jun-09	Combined	849	24	0.2	0.4	Rain Garden	Open Space	$22,000.00	Northern Liberties Neighborhood Association, Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Delaware
50012	186	186-1	Cliveden Park Extended Detention	01-Oct-07	Combined	876	0	0.6	0.3	Rain Garden	Open Space	$175,000.00	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	TTF
		186-2		01-Oct-07	Combined	3687	0	0.6	1.0	Rain Garden	Open Space			TTF
50013	208	208-1	West Mill Creek Stormwater Tree Trench	01-Jul-06	Combined	311	4	0.2	0.1	Tree Trench	Streets	$66,000.00	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Recreation	Schuylkill
		208-2		01-Jul-06	Combined	456	4	0.1	0.2	Tree Trench	Streets			Schuylkill
		208-3		01-Jul-06	Combined	63	4	0.0	0.0	Pervious Paving	Streets			Schuylkill
50014	181	181-1	47th and Grays Ferry Rain Garden	01-Apr-07	Combined	1260	7	0.4	0.7	Rain Garden	Vacant Land	$16,000.00	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, University City Green	Schuylkill
50015	185	185-1	Clark Park Stormwater Bed	01-Nov-07	Combined	3080	0	0.7	0.9	Infiltration/Storage Trench	Open Space	Unknown	Pennsylvania Department of Environmental Protection, Pennsylvania Department of Conservation & Natural Resources, Philadelphia Department of Parks & Recreation	Schuylkill
50019	154 *	154-1	Anna B. Day School, Epiphany of Our Lord, Francis Scott, Dickinson Sq	25-Nov-14	Combined	1853	15	0.4	0.7	Tree Trench	Streets	$948,000.00	Tookany/Tacony-Frankford Watershed Partnership	TTF
		154-2		25-Nov-14	Combined	2754	15	0.4	0.9	Tree Trench	Streets			TTF
		154-3		25-Nov-14	Combined	2349	15	0.5	1.0	Tree Trench	Streets			TTF
		154-4		25-Nov-14	Combined	2926	15	0.4	0.8	Tree Trench	Streets			TTF
	17 *	17-1		25-Nov-14	Combined	2635	5	0.4	0.9	Bumpout, Infiltration/Storage Trench	Streets		Department of Recreation, Friends of Dickinson Park, Southeastern Transportation Authority	Delaware
		17-2		25-Nov-14	Combined	1015	5	0.2	0.4	Tree Trench	Streets			Delaware
	79 *	79-1		25-Nov-14	Combined	619	1	0.1	0.2	Infiltration/Storage Trench	Streets		Lower Moyamensing Civic Association	Delaware
	81 *	81-1		25-Nov-14	Combined	1606	2	0.3	0.5	Tree Trench	Streets			Delaware
		81-2		25-Nov-14	Combined	1374	2	0.2	0.5	Infiltration/Storage Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50020	157 *	157-1	Welsh and Wakisha School	23-Apr-13	Combined	900	19	0.2	0.3	Tree Trench	Streets	$679,000.00	Department of Recreation	Delaware
		157-2		23-Apr-13	Combined	1234	19	0.3	0.4	Tree Trench	Streets			Delaware
		157-3		23-Apr-13	Combined	943	19	0.2	0.3	Tree Trench	Streets			Delaware
	2 *	2-1		23-Apr-13	Combined	989	7	0.3	0.3	Infiltration/Storage Trench, Rain Garden	Streets		Pennsylvania Horticulture Society	Delaware
		2-2		23-Apr-13	Combined	828	7	0.2	0.3	Tree Trench	Streets			Delaware
	245 *	245-1		23-Apr-13	Combined	974	7	0.2	0.3	Tree Trench	Streets			Delaware
	296 *	296-1		23-Apr-13	Combined	1034	4	0.2	0.3	Tree Trench	Streets			Delaware
	312 *	312-1		23-Apr-13	Combined	1183	7	0.3	0.4	Tree Trench	Streets		Department of Recreation	Delaware
		312-2		23-Apr-13	Combined	1130	7	0.3	0.4	Tree Trench	Streets			Delaware
50022	13	13-1	Madison Park	16-Dec-11	Combined	402	13	0.2	0.2	Infiltration/Storage Trench	Open Space	$99,000.00	City Play, Digsau, Northern Liberties Neighborhood Association, Philadelphia Department of Parks & Recreation	Delaware
50023	192	192-1	Herron Playground porous basketball court	02-Oct-12	Combined	539	12	0.1	0.3	Infiltration/Storage Trench, Rain Garden	Open Space	$191,000.00	Philadelphia Capital Program Office, Philadelphia Department of Parks & Recreation	Delaware
		192-2		02-Oct-12	Combined	2150	12	0.2	0.4	Pervious Paving	Open Space			Delaware
50024	170	170-1	Work in Shissler Playground Blair and Hewson Street	10-Oct-10	Combined	1533	4	0.2	0.4	Infiltration/Storage Trench	Open Space	$50,000.00	New Kensington Community Development Corporation, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Delaware
		170-2		10-Oct-10	Combined	1500	4	0.2	0.4	Tree Trench	Open Space			Delaware
50025	223 *	223-1	A.S. Jenks School, Sacks Playground, Smith Elementary, St. Thomas Aquinas	22-Oct-13	Combined	1684	18	0.3	0.5	Tree Trench	Streets	$1,150,000.00	Lower Moyamensing Civic Association	Delaware
		223-2		22-Oct-13	Combined	1690	18	0.3	0.5	Tree Trench	Streets			Delaware
	224 *	224-1		22-Oct-13	Combined	2813	12	0.4	0.8	Tree Trench	Streets			Delaware
		224-2		22-Oct-13	Combined	1625	12	0.3	0.5	Tree Trench	Streets			Delaware
		224-3		22-Oct-13	Combined	2131	12	0.4	0.8	Tree Trench	Streets			Delaware
	227 *	227-1		22-Oct-13	Combined	1843	18	0.3	0.7	Tree Trench	Streets			Schuylkill
		227-2		22-Oct-13	Combined	1291	18	0.3	0.6	Tree Trench	Streets			Schuylkill
		227-3		22-Oct-13	Combined	1588	18	0.3	0.7	Tree Trench	Streets			Schuylkill
50026	210 *	210-1	Daroff School, Shepard Rec Center, Sayre School, Andrew Hamilton School	13-Dec-12	Combined	2048	42	0.4	0.7	Infiltration/Storage Trench	Streets	$1,659,000.00	Pennsylvania Environmental Council	Cobbs-Darby
		210-2		13-Dec-12	Combined	3420	42	0.5	1.1	Tree Trench	Streets			Cobbs-Darby
		210-3		13-Dec-12	Combined	2828	42	0.5	0.9	Tree Trench	Streets			Cobbs-Darby
	211 *	211-1		13-Dec-12	Combined	2765	73	0.6	0.9	Bumpout, Tree Trench	Streets			Schuylkill
		211-2		13-Dec-12	Combined	3718	73	0.4	0.8	Basin, Planter, Tree Trench	Streets			Schuylkill
		211-3		13-Dec-12	Combined	2799	73	0.4	0.9	Tree Trench	Streets			Schuylkill
	216 *	216-1		13-Dec-12	Combined	4551	14	1.0	2.0	Tree Trench	Streets			Cobbs-Darby
	231 *	231-1		13-Dec-12	Combined	2511	39	0.5	0.8	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		231-2		13-Dec-12	Combined	4884	39	0.8	1.5	Bumpout, Planter, Tree Trench	Streets			Cobbs-Darby,Schuylkill
		231-3		13-Dec-12	Combined	2915	39	0.6	1.0	Tree Trench	Streets			Cobbs-Darby,Schuylkill

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50027	212 *	212-1	Samuel Huey School, Bryant School, Christy Rec Center,	23-Nov-12	Combined	2786	15	0.4	0.9	Tree Trench	Streets	$952,000.00	Pennsylvania Environmental Council	Cobbs-Darby
		212-2		23-Nov-12	Combined	1507	15	0.2	0.4	Tree Trench	Streets			Cobbs-Darby
		212-3		23-Nov-12	Combined	886	15	0.1	0.3	Tree Trench	Streets			Cobbs-Darby
	213 *	213-1		23-Nov-12	Combined	1103	19	0.2	0.3	Tree Trench	Streets		Department of Recreation, Pennsylvania Environmental Council	Cobbs-Darby
		213-2		23-Nov-12	Combined	1771	19	0.3	0.6	Tree Trench	Streets			Cobbs-Darby
		213-3		23-Nov-12	Combined	2582	19	0.5	1.1	Tree Trench	Streets			Cobbs-Darby
	214 *	214-1		23-Nov-12	Combined	753	11	0.1	0.2	Tree Trench	Streets			Cobbs-Darby
		214-2		23-Nov-12	Combined	2052	11	0.3	0.7	Tree Trench	Streets			Cobbs-Darby
	215 *	215-1		23-Nov-12	Combined	2534	16	0.4	0.8	Tree Trench	Streets		Pennsylvania Environmental Council	Cobbs-Darby
		215-2		23-Nov-12	Combined	3886	16	0.6	1.2	Tree Trench	Streets			Cobbs-Darby
	59 *	59-1		23-Nov-12	Combined	3251	5	0.5	1.0	Tree Trench	Streets			Cobbs-Darby
50028	175 *	175-1	Phila. Military Academy/MLK Rec Center/FD Elementary /Towey Rec Center	24-Dec-12	Combined	5051	20	0.7	1.5	Tree Trench	Streets	$606,000.00		Delaware
	176 *	176-1		24-Dec-12	Combined	2401	14	0.5	0.9	Tree Trench	Streets			Delaware
	177 *	177-1		24-Dec-12	Combined	3800	10	0.4	0.7	Tree Trench	Streets			Delaware
		177-2		24-Dec-12	Combined	3390	10	0.6	1.1	Tree Trench	Streets			Delaware
	178 *	178-1		24-Dec-12	Combined	2904	6	0.3	0.7	Tree Trench	Streets		Fairmount Park Commission, Pennsylvania Horticulture Society	Delaware
		178-2		24-Dec-12	Combined	1348	6	0.1	0.3	Tree Trench	Streets			Delaware
50029	147 *	147-1	Morris Leeds School, Pleasant Playground, Simons Rec. Center	10-May-13	Combined	709	32	0.3	0.3	Infiltration/Storage Trench	Streets	$1,152,000.00	Department of Recreation	TTF
	179 *	179-1		10-May-13	Combined	1473	80	0.3	0.6	Tree Trench	Streets			TTF
		179-10		10-May-13	Combined	1337	80	0.2	0.5	Tree Trench	Streets			TTF
		179-11		10-May-13	Combined	2499	80	0.4	0.8	Tree Trench	Streets			TTF
		179-12		10-May-13	Combined	1443	80	0.5	0.5	Tree Trench	Streets			TTF
		179-13		10-May-13	Combined	2387	80	0.4	0.8	Tree Trench	Streets			TTF
		179-14		10-May-13	Combined	1974	80	0.3	0.6	Tree Trench	Streets			TTF
		179-2		10-May-13	Combined	1950	80	0.3	0.6	Tree Trench	Streets			TTF
		179-3		10-May-13	Combined	2586	80	0.5	0.8	Tree Trench	Streets			TTF
		179-4		10-May-13	Combined	2778	80	0.5	1.0	Tree Trench	Streets			TTF
		179-5		10-May-13	Combined	4188	80	0.6	1.2	Tree Trench	Streets			TTF
		179-6		10-May-13	Combined	3805	80	0.6	1.3	Tree Trench	Streets			TTF
		179-7		10-May-13	Combined	1518	80	0.2	0.4	Tree Trench	Streets			TTF
		179-8		10-May-13	Combined	1700	80	0.2	0.5	Tree Trench	Streets			TTF
		179-9		10-May-13	Combined	1532	80	0.2	0.4	Tree Trench	Streets			TTF
50030	171	171-1	KendertonField, Cecil B.Moore, Congeso de Latinos, HM Stanton School	27-Sep-18	Combined	1528	11	0.2	0.5	Tree Trench	Streets	$1,363,000.00	Fairmount Park Commission, Pennsylvania Horticulture Society	Delaware
		171-2		27-Sep-18	Combined	1238	11	0.3	0.4	Tree Trench	Streets			Delaware
		171-3		27-Sep-18	Combined	2356	11	0.4	0.7	Tree Trench	Streets			Delaware
	172	172-1		27-Sep-18	Combined	3921	14	0.5	1.0	Bumpout, Tree Trench	Streets			Delaware
		172-2		27-Sep-18	Combined	3573	14	0.3	0.7	Bumpout, Tree Trench	Streets			Delaware
		172-3		27-Sep-18	Combined	1721	14	0.4	0.5	Bumpout, Tree Trench	Streets			Delaware
		172-4		27-Sep-18	Combined	1534	14	0.2	0.4	Tree Trench	Streets			Delaware
		172-5		27-Sep-18	Combined	1943	14	0.4	0.6	Infiltration/Storage Trench	Streets			Delaware
	173	173-1		27-Sep-18	Combined	1152	5	0.2	0.4	Tree Trench	Streets			Delaware
		173-2		27-Sep-18	Combined	1276	5	0.2	0.4	Tree Trench	Streets			Delaware
50031	123	123-1	58th St. Connector - Greenway Ave.	15-Jan-13	Combined	1705	7	0.4	0.6	Rain Garden	Streets	$368,000.00		Cobbs-Darby,Schuylkill
		123-2		15-Jan-13	Combined	1672	7	0.4	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		123-3		15-Jan-13	Combined	1534	7	0.3	0.6	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50032	180	180-1	PHS Tree Trenches	05-Nov-11	Combined	646	4	0.1	0.2	Tree Trench	Streets	$0.00	Pennsylvania Horticulture Society	Delaware
	324	324-1		05-Nov-11	Combined	768	3	0.2	0.3	Tree Trench	Streets			Delaware
	325	325-1		05-Nov-11	Combined	1088	4	0.2	0.3	Tree Trench	Streets			Delaware
	326	326-1		05-Nov-11	Combined	1047	6	0.4	0.3	Tree Trench	Streets			Delaware
	327	327-1		05-Nov-11	Combined	1029	4	0.2	0.3	Tree Trench	Streets			Delaware
	342	342-1		05-Nov-11	Combined	1292	4	0.3	0.6	Tree Trench	Streets			Delaware
50033	46	46-1	Lancaster Ave 59th to 62nd Tree Trenches	01-Nov-10	Combined	2075	17	0.6	0.6	Tree Trench	Streets	Unknown	Environmental Protection Agency, Philadelphia Department of Commerce, Philadelphia Industrial Development Corporation	Schuylkill
		46-2		01-Nov-10	Combined	782	17	0.1	0.2	Bumpout	Streets			Schuylkill
		46-3		01-Nov-10	Combined	1470	17	0.5	0.5	Rain Garden, Swale	Streets			Schuylkill
		46-4		01-Nov-10	Combined	3953	17	0.5	0.9	Swale	Streets			Schuylkill
50034	10 *	10-1	Trenton and Norris, Thompson and Columbia	20-Sep-13	Combined	3428	3	0.7	1.4	Bumpout, Tree Trench	Streets	$581,000.00	New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware
	88 *	88-1		20-Sep-13	Combined	2738	0	0.4	0.8	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
50035	45	45-1	Ben Franklin Parkway Tree Trenches	01-Jun-11	Combined	1011	0	0.2	0.4	Infiltration/Storage Trench	Streets	$216,000.00	Fairmount Park Commission	Schuylkill
		45-2		01-Jun-11	Combined	852	0	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		45-3		01-Jun-11	Combined	1698	0	0.2	0.5	Infiltration/Storage Trench	Streets			Schuylkill
50036	228 *	228-1	29th / Cambria / William Cramp / Barton / Hunting Park	25-Apr-14	Combined	1189	2	0.2	0.4	Tree Trench	Streets	$623,000.00	Philadelphia Department of Parks & Recreation	Delaware
	277 *	277-1		25-Apr-14	Combined	3380	11	0.6	1.1	Tree Trench	Streets			Delaware
		277-2		25-Apr-14	Combined	1500	11	0.3	0.6	Tree Trench	Streets			Delaware
	278 *	278-1		25-Apr-14	Combined	4885	5	0.9	1.6	Tree Trench	Streets			TTF
	50 *	50-1		25-Apr-14	Combined	3353	0	0.6	1.0	Bumpout, Infiltration/Storage Trench	Streets		Philadelphia Department of Parks & Recreation	Delaware,Schuylkill
50037	250 *	250-1	Cassidy/Overbrook/Shoemaker/Cathedral/Durham/sister Clara/James Rhoads/Belmont	09-Sep-13	Combined	2261	29	0.4	0.8	Tree Trench	Streets	$1,547,000.00		Schuylkill
		250-2		09-Sep-13	Combined	2675	29	0.4	0.8	Tree Trench	Streets			Schuylkill
		250-3		09-Sep-13	Combined	1561	29	0.2	0.5	Tree Trench	Streets			Schuylkill
	251 *	251-1		09-Sep-13	Combined	3614	13	0.6	1.1	Tree Trench	Streets			Schuylkill
	252 *	252-1		09-Sep-13	Combined	1467	15	0.3	0.5	Tree Trench	Streets			Schuylkill
		252-2		09-Sep-13	Combined	1466	15	0.3	0.5	Tree Trench	Streets			Schuylkill
	253 *	253-1		09-Sep-13	Combined	2989	39	0.6	1.0	Tree Trench	Streets			Schuylkill
		253-2		09-Sep-13	Combined	1288	39	0.2	0.3	Tree Trench	Streets			Schuylkill
		253-3		09-Sep-13	Combined	2818	39	0.6	1.0	Tree Trench	Streets			Schuylkill
	254 *	254-1		09-Sep-13	Combined	1488	4	0.2	0.5	Tree Trench	Streets			Schuylkill
		254-2		09-Sep-13	Combined	1809	4	0.3	0.6	Tree Trench	Streets			Schuylkill
	255 *	255-1		09-Sep-13	Combined	3159	9	0.6	1.1	Tree Trench	Streets			Cobbs-Darby
		255-2		09-Sep-13	Combined	2617	9	0.4	0.8	Tree Trench	Streets			Cobbs-Darby
	256 *	256-1		09-Sep-13	Combined	3189	3	0.6	1.1	Tree Trench	Streets			Schuylkill
	257 *	257-1		09-Sep-13	Combined	2921	12	0.6	0.9	Tree Trench	Streets			Schuylkill
50038	247 *	247-1	Donald/Wilson/Vare/StephenGirard/Southwark/Markward/Cherry/JulianAbele	16-May-13	Combined	3566	7	0.5	1.0	Tree Trench	Streets	$1,336,000.00	Department of Public Property	Schuylkill
	258 *	258-1		16-May-13	Combined	3728	23	0.7	1.2	Tree Trench	Streets			Schuylkill
	259 *	259-1		16-May-13	Combined	6155	18	0.8	1.7	Tree Trench	Streets			Schuylkill
		259-2		16-May-13	Combined	2778	18	0.4	0.9	Tree Trench	Streets			Schuylkill
	260 *	260-1		16-May-13	Combined	2991	20	0.5	0.9	Tree Trench	Streets			Schuylkill
		260-2		16-May-13	Combined	1480	20	0.3	0.6	Tree Trench	Streets			Schuylkill
	261 *	261-1		16-May-13	Combined	1604	6	0.2	0.4	Tree Trench	Streets			Schuylkill
	262 *	262-1		16-May-13	Combined	2029	3	0.4	0.7	Tree Trench	Streets			Delaware

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50039	268 *	268-1	Temple / William Gray / Dick Elementary / Parking Lot 12th and Diamond	01-Aug-14	Combined	1715	9	0.4	0.6	Tree Trench	Streets	$889,000.00		Delaware
		268-2		01-Aug-14	Combined	1495	9	0.2	0.5	Infiltration/Storage Trench	Streets			Delaware
		268-3		01-Aug-14	Combined	1015	9	0.2	0.3	Tree Trench	Streets			Delaware
	269 *	269-1		01-Aug-14	Combined	1601	21	0.3	0.5	Tree Trench	Streets			Delaware
		269-2		01-Aug-14	Combined	1776	21	0.3	0.6	Tree Trench	Streets			Delaware
		269-3		01-Aug-14	Combined	1303	21	0.2	0.4	Tree Trench	Streets			Delaware
		269-4		01-Aug-14	Combined	1402	21	0.2	0.4	Tree Trench	Streets			Delaware
		269-5		01-Aug-14	Combined	1605	21	0.2	0.4	Tree Trench	Streets			Delaware
	270 *	270-1		01-Aug-14	Combined	3933	11	0.3	0.7	Tree Trench	Streets			Delaware
		270-2		01-Aug-14	Combined	2708	11	0.3	0.6	Tree Trench	Streets			Delaware
	283 *	283-1		01-Aug-14	Combined	1985	1	0.3	0.6	Tree Trench	Streets		Philadelphia Housing Authority	Delaware
50040	153	153-1	Yorktown Green Streets	20-Feb-19	Combined	1666	15	0.5	0.9	Infiltration/Storage Trench, Planter	Streets	$1,418,000.00		Delaware
		153-2		14-Mar-19	Combined	2677	15	0.5	1.0	Infiltration/Storage Trench, Planter	Streets			Delaware
		153-3		11-Dec-18	Combined	1004	15	0.2	0.4	Infiltration/Storage Trench, Planter	Streets			Delaware
		153-4		07-Nov-18	Combined	997	15	0.2	0.4	Infiltration/Storage Trench, Planter	Streets			Delaware
		153-5		16-Oct-18	Combined	891	15	0.2	0.4	Infiltration/Storage Trench, Planter	Streets			Delaware
		153-6		13-Sep-18	Combined	1327	15	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware
50041	167 *	167-1	Longstretch, Little Sisters of Poor, McCresh Plground, Cobbs Crk Pkwy. Island	13-Jan-14	Combined	2798	33	0.4	0.8	Tree Trench	Streets	$1,232,000.00	Snyderville Community Development Corporation	Schuylkill
		167-2		13-Jan-14	Combined	2733	33	0.5	1.0	Tree Trench	Streets			Schuylkill
		167-3		13-Jan-14	Combined	4354	33	0.8	1.6	Tree Trench	Streets			Schuylkill
	264 *	264-1		13-Jan-14	Combined	4488	13	0.8	1.6	Planter, Tree Trench	Streets			Cobbs-Darby
	265 *	265-1		13-Jan-14	Combined	1754	12	0.3	0.5	Tree Trench	Streets			Cobbs-Darby
		265-2		13-Jan-14	Combined	1446	12	0.2	0.4	Infiltration/Storage Trench	Streets			Cobbs-Darby
		265-3		13-Jan-14	Combined	2587	12	0.5	0.9	Infiltration/Storage Trench	Streets			Cobbs-Darby
		265-4		13-Jan-14	Combined	1481	12	0.3	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby
		265-5		13-Jan-14	Combined	1212	12	0.2	0.4	Tree Trench	Streets			Cobbs-Darby
	266 *	266-1		13-Jan-14	Combined	3312	6	0.8	1.5	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby

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50042	271 *	271-1	Bridesburg Sch., Dorsey Plygrnd, Roosevelt Plygrnd, Magnolia Cem.,Carmell	30-Sep-13	Combined	1930	3	0.4	0.8	Infiltration/Storage Trench, Rain Garden	Streets	$1,765,000.00	Philadelphia Department of Parks & Recreation, Tacony Civic Association	Delaware
		271-2		30-Sep-13	Combined	1108	3	0.2	0.5	Infiltration/Storage Trench	Streets			Delaware
		271-3		30-Sep-13	Combined	4671	3	0.6	1.1	Tree Trench	Streets			Delaware
	272 *	272-1		30-Sep-13	Combined	1128	16	0.2	0.3	Tree Trench	Streets		Tacony Civic Association	Delaware,TTF
		272-2		30-Sep-13	Combined	1438	16	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		272-3		30-Sep-13	Combined	1685	16	0.3	0.6	Tree Trench	Streets			Delaware,TTF
		272-4		30-Sep-13	Combined	1673	16	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		272-5		30-Sep-13	Combined	1583	16	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		272-6		30-Sep-13	Combined	2446	16	0.3	0.7	Tree Trench	Streets			Delaware,TTF
		272-7		30-Sep-13	Combined	2761	16	0.4	0.7	Tree Trench	Streets			Delaware,TTF
	273 *	273-1		30-Sep-13	Combined	2213	35	0.3	0.6	Tree Trench	Streets			Delaware
		273-2		30-Sep-13	Combined	1814	35	0.3	0.5	Tree Trench	Streets			Delaware
		273-3		30-Sep-13	Combined	1725	35	0.3	0.5	Tree Trench	Streets			Delaware
	274 *	274-1		30-Sep-13	Combined	3559	42	0.6	1.1	Tree Trench	Streets		Roosevelt Playground Park Advisory Council, Tacony Civic Association	Delaware
		274-2		30-Sep-13	Combined	2091	42	0.3	0.5	Tree Trench	Streets			Delaware
		274-3		30-Sep-13	Combined	1122	42	0.1	0.2	Tree Trench	Streets			Delaware
		274-4		30-Sep-13	Combined	1667	42	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware
	275 *	275-1		30-Sep-13	Combined	1968	2	0.3	0.5	Tree Trench	Streets		Tacony Civic Association	Delaware
50043	279 *	279-1	Harpers Hollow, Wakefield Park	04-Dec-12	Combined	2996	0	0.6	1.1	Basin	Open Space	$474,000.00	Philadelphia Department of Parks & Recreation	TTF
	281 *	281-1		04-Dec-12	Combined	1798	0	0.4	0.8	Rain Garden	Open Space			TTF
		281-2		04-Dec-12	Combined	2769	0	0.5	1.0	Rain Garden	Open Space			TTF
50044	280	280-1	Wister Woods, Kemble Park	21-Jan-15	Combined	21592	69	3.1	6.1	Rain Garden, Swale	Open Space	$2,360,000.00	Philadelphia Department of Parks & Recreation	TTF
		280-2		21-Jan-15	Combined	5052	69	0.7	1.4	Infiltration/Storage Trench	Open Space			TTF
		280-3		21-Jan-15	Combined	7996	69	1.2	2.4	Infiltration/Storage Trench	Open Space			TTF
		280-4		21-Jan-15	Combined	2008	69	0.3	0.6	Infiltration/Storage Trench	Open Space			TTF
	282	282-1		21-Jan-15	Combined	9158	7	0.9	1.8	Rain Garden	Open Space			TTF
		282-2		21-Jan-15	Combined	11228	7	1.3	2.6	Rain Garden	Open Space			TTF
		282-3		21-Jan-15	Combined	11275	7	1.3	2.6	Rain Garden	Open Space			TTF
		282-4		21-Jan-15	Combined	9504	7	1.3	2.6	Rain Garden	Open Space			TTF
50045	292	292-1	Ben Franklin Parkway 16-19th St.	16-Mar-17	Combined	3338	0	0.5	1.1	Infiltration/Storage Trench	Streets	Unknown	Department of Public Property, Philadelphia Department of Parks & Recreation	Schuylkill
		292-2		16-Mar-17	Combined	1920	0	0.3	0.5	Infiltration/Storage Trench	Streets			Schuylkill
		292-3		16-Mar-17	Combined	1680	0	0.2	0.5	Infiltration/Storage Trench	Streets			Schuylkill
		292-4		16-Mar-17	Combined	1322	0	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		292-5		16-Mar-17	Combined	2424	0	0.3	0.6	Infiltration/Storage Trench	Streets			Schuylkill
		292-6		16-Mar-17	Combined	2414	0	0.5	0.8	Infiltration/Storage Trench	Streets			Schuylkill
50046	243 *	243-1	Womrath Park	27-Sep-12	Combined	3539	7	1.1	1.2	Infiltration/Storage Trench, Rain Garden, Swale	Open Space	$540,000.00	Tookany/Tacony-Frankford Watershed Partnership, Philadelphia Department of Parks & Recreation, Frankford Civic Association	TTF

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50047	366	366-1	Philadelphia Zoo Green Streets Project	29-May-13	Combined	875	5	0.2	0.3	Rain Garden	Streets	$358,000.00	Philadelphia Department of Parks & Recreation, Philadelphia Zoo	Schuylkill
		366-10		29-May-13	Combined	816	5	0.1	0.2	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		366-2		29-May-13	Combined	894	5	0.2	0.4	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		366-3		29-May-13	Combined	385	5	0.1	0.1	Rain Garden	Streets			Schuylkill
		366-4		29-May-13	Combined	814	5	0.2	0.4	Rain Garden	Streets			Schuylkill
		366-5		29-May-13	Combined	582	5	0.1	0.2	Rain Garden	Streets			Schuylkill
		366-6		29-May-13	Combined	797	5	0.1	0.3	Rain Garden	Streets			Schuylkill
		366-8		29-May-13	Combined	650	5	0.1	0.2	Infiltration/Storage Trench	Streets			Schuylkill
		366-9		29-May-13	Combined	697	5	0.1	0.2	Infiltration/Storage Trench	Streets			Schuylkill
50048	375	375-1	Kinsey Sch./National Cem./Rowen Sch./Wagner Sch.	26-Oct-17	Combined	3997	10	0.7	1.3	Tree Trench	Streets	$1,108,000.00		TTF
		375-2		26-Oct-17	Combined	2070	10	0.3	0.5	Tree Trench	Streets			TTF
	377	377-1		26-Oct-17	Combined	591	0	0.1	0.2	Infiltration/Storage Trench, Swale	Streets			TTF
		377-2		26-Oct-17	Combined	720	0	0.2	0.4	Infiltration/Storage Trench, Swale	Streets			TTF
		377-3		26-Oct-17	Combined	587	0	0.2	0.3	Infiltration/Storage Trench, Swale	Streets			TTF
	378	378-1		26-Oct-17	Combined	3260	9	0.6	1.2	Tree Trench	Streets			TTF
	379	379-1		26-Oct-17	Combined	3457	11	0.6	1.2	Tree Trench	Streets			TTF
		379-2		26-Oct-17	Combined	1913	11	0.4	0.6	Tree Trench	Streets			TTF
50049	291	291-1	Sharswood & Our Lady of Carmel Schs./ St. Monica/ Taggart Sch.	27-Sep-17	Combined	3023	3	0.4	0.8	Tree Trench	Streets	$1,235,000.00	Community Design Collaborative	Delaware
		291-2		27-Sep-17	Combined	875	3	0.2	0.3	Tree Trench	Streets			Delaware
		291-3		27-Sep-17	Combined	2063	3	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
	388	388-1		27-Sep-17	Combined	2006	5	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		388-2		27-Sep-17	Combined	1494	5	0.4	0.5	Tree Trench	Streets			Delaware
		388-3		27-Sep-17	Combined	985	5	0.2	0.3	Tree Trench	Streets			Delaware
		388-4		27-Sep-17	Combined	1479	5	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
	389	389-1		27-Sep-17	Combined	2177	3	0.5	0.7	Infiltration/Storage Trench	Streets			Delaware
		389-2		27-Sep-17	Combined	1306	3	0.2	0.5	Tree Trench	Streets			Delaware
50051	392	392-1	73rd/Elmwood Pk./Patterson Sch./Connell Pk./Mother Mary Sch./St. James Ch.	03-Feb-15	Combined	4871	8	0.8	1.6	Tree Trench	Streets	$2,526,000.00		Cobbs-Darby,Schuylkill
		392-2		03-Feb-15	Combined	4663	8	0.9	1.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
	393	393-1		03-Feb-15	Combined	4901	9	0.9	1.8	Infiltration/Storage Trench, Rain Garden	Streets		Philadelphia Department of Parks & Recreation	Schuylkill
		393-2		03-Feb-15	Combined	2267	9	0.4	0.7	Tree Trench	Streets			Schuylkill
		393-3		03-Feb-15	Combined	3855	9	0.8	1.2	Rain Garden, Tree Trench	Streets			Schuylkill
		393-4		03-Feb-15	Combined	1081	9	0.1	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		393-5		03-Feb-15	Combined	4995	9	0.9	1.6	Tree Trench	Streets			Schuylkill
	394	394-1		03-Feb-15	Combined	1425	6	0.2	0.4	Tree Trench	Streets			Schuylkill
		394-2		03-Feb-15	Combined	3184	6	0.6	1.0	Tree Trench	Streets			Schuylkill
		394-3		03-Feb-15	Combined	881	6	0.1	0.3	Infiltration/Storage Trench	Streets			Schuylkill
	396	396-1		03-Feb-15	Combined	4331	17	0.7	1.4	Tree Trench	Streets			Schuylkill
		396-2		03-Feb-15	Combined	1413	17	0.4	0.7	Tree Trench	Streets			Schuylkill
		396-3		03-Feb-15	Combined	3229	17	0.5	1.0	Tree Trench	Streets			Schuylkill
	397	397-1		03-Feb-15	Combined	3846	8	0.7	1.2	Tree Trench	Streets			Schuylkill
		397-2		03-Feb-15	Combined	1832	8	0.4	0.7	Tree Trench	Streets			Schuylkill
	398	398-1		03-Feb-15	Combined	12536	18	2.2	3.9	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		398-2		03-Feb-15	Combined	3931	18	0.4	0.8	Tree Trench	Streets			Cobbs-Darby,Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50052	335	335-1	Chelten Hills Cem./Finley Pg./Ivy Hills Cem./Pennypacker Sch./ Sedgwick Sta.	12-Mar-18	Combined	6081	2	1.0	1.8	Bumpout, Infiltration/Storage Trench	Streets	$2,256,000.00	Southeastern Transportation Authority	TTF
	380	380-1		12-Mar-18	Combined	5493	0	1.1	1.7	Infiltration/Storage Trench	Streets			TTF
		380-10		12-Mar-18	Combined	1560	0	0.3	0.5	Infiltration/Storage Trench	Streets			TTF
		380-11		12-Mar-18	Combined	1534	0	0.2	0.4	Infiltration/Storage Trench	Streets			TTF
		380-12		12-Mar-18	Combined	2048	0	0.3	0.6	Infiltration/Storage Trench, Swale	Streets			TTF
		380-2		12-Mar-18	Combined	2615	0	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			TTF
		380-3		12-Mar-18	Combined	2709	0	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			TTF
		380-4		12-Mar-18	Combined	2922	0	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			TTF
		380-5		12-Mar-18	Combined	1544	0	0.2	0.4	Infiltration/Storage Trench	Streets			TTF
		380-6		12-Mar-18	Combined	3284	0	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			TTF
		380-9		12-Mar-18	Combined	3185	0	0.5	1.0	Infiltration/Storage Trench, Swale	Streets			TTF
	383	383-1		12-Mar-18	Combined	3622	0	0.6	1.2	Infiltration/Storage Trench	Streets			TTF
		383-2		12-Mar-18	Combined	2952	0	0.6	0.9	Infiltration/Storage Trench	Streets			TTF
50053	314	314-1	Logan Sch./Wayne/Windrim/Richmond Lib./Stokley/Vacant Lot/Skev. Pk./Westmoreland	28-Mar-18	Combined	1465	16	0.3	0.5	Tree Trench	Streets	$1,843,000.00		TTF
		314-2		28-Mar-18	Combined	1746	16	0.4	0.6	Tree Trench	Streets			TTF
		314-3		28-Mar-18	Combined	2932	16	0.8	1.0	Tree Trench	Streets			TTF
	384	384-1		28-Mar-18	Combined	4170	9	0.7	1.3	Tree Trench	Streets			Delaware
	385	385-1		28-Mar-18	Combined	2054	7	0.4	0.7	Tree Trench	Streets			Delaware
		385-2		28-Mar-18	Combined	905	7	0.1	0.3	Tree Trench	Streets			Delaware
	413	413-1		28-Mar-18	Combined	1365	0	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets		Department of Public Property	TTF
		413-2		28-Mar-18	Combined	1093	0	0.2	0.3	Bumpout, Infiltration/Storage Trench	Streets			TTF
50055	246	246-1	40th St./Drexel COMAD/Malcom X Pk./42nd St.Vacant Lot/Beeber Sch./Upland Way	20-Mar-19	Combined	2458	13	0.4	0.7	Tree Trench	Streets	$1,941,000.00	Drexel University	Schuylkill
		246-2		20-Mar-19	Combined	2794	13	0.4	0.8	Tree Trench	Streets			Schuylkill
	344	344-1		20-Mar-19	Combined	2506	3	0.3	0.6	Tree Trench	Streets			Schuylkill
	399	399-1		20-Mar-19	Combined	2525	29	0.3	0.6	Tree Trench	Streets		Philadelphia Planning Commission, Philadelphia Department of Parks & Recreation	Cobbs-Darby,Schuylkill
		399-2		20-Mar-19	Combined	3759	29	0.7	1.2	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		399-3		20-Mar-19	Combined	1605	29	0.3	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		399-4		20-Mar-19	Combined	3382	29	0.5	1.0	Tree Trench	Streets			Cobbs-Darby,Schuylkill
	400	400-1		20-Mar-19	Combined	3279	0	0.5	1.0	Bumpout, Infiltration/Storage Trench, Swale	Streets		American Cities Foundation	Schuylkill
		400-2		20-Mar-19	Combined	1756	0	0.2	0.4	Bumpout, Infiltration/Storage Trench, Swale	Streets			Schuylkill
		400-3		20-Mar-19	Combined	1704	0	0.2	0.4	Bumpout, Infiltration/Storage Trench, Swale	Streets			Schuylkill
		400-4		20-Mar-19	Combined	5082	0	0.8	1.6	Infiltration/Storage Trench, Swale	Streets			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50057	417	417-1	Stenton Ave. & E. Washington Ln.	08-Jul-14	Combined	2326	0	0.3	0.6	Rain Garden	Streets	$34,000.00	Philadelphia Streets Department, Ogontz Avenue Revitalization Corporation, Mayors Office of Transportation & Utilities	TTF
50059	410	410-1	Harrowgate Park	01-Sep-16	Combined	1842	0	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Open Space	$808,000.00	Southeastern Transportation Authority, Philadelphia Department of Parks & Recreation	Delaware
		410-2		01-Sep-16	Combined	2885	0	0.4	0.8	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
		410-3		01-Sep-16	Combined	4049	0	0.4	0.8	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
		410-4		01-Sep-16	Combined	5789	0	0.8	1.5	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
50060	416	416-1	Hunting Park	31-Jan-20	Combined	1642	29	0.2	0.4	Infiltration/Storage Trench, Rain Garden	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-10		31-Jan-20	Combined	10061	29	1.4	2.8	Infiltration/Storage Trench, Rain Garden	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-2		15-Nov-19	Combined	6476	29	0.9	1.8	Infiltration/Storage Trench	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-3		31-Jan-20	Combined	1828	29	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-4		07-Oct-19	Combined	2894	29	0.4	0.8	Infiltration/Storage Trench	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-5		02-Nov-19	Combined	2955	29	0.4	0.8	Infiltration/Storage Trench	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-6		19-Sep-19	Combined	972	29	0.2	0.4	Rain Garden	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-7		24-Nov-20	Combined	1963	29	0.3	0.5	Infiltration/Storage Trench	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
		416-9		31-Jan-20	Combined	15146	29	2.1	4.2	Infiltration/Storage Trench, Rain Garden	Open Space	$1,824,000.00	Philadelphia Department of Parks & Recreation	Delaware,TTF
50061	471	471-1	Bustleton Avenue South, TIGER 3 Project (w/PWD Green Streets Funding)	08-Feb-16	Combined	2650	0	0.5	0.9	Infiltration/Storage Trench	Streets	$188,000.00	Philadelphia Streets Department	Delaware
50062	470	470-1	TIGER III: Woodland Ave. Corrdor (For PWD Green Streets Program)	14-Dec-15	Combined	1820	15	0.4	0.7	Tree Trench	Streets	$438,000.00	Philadelphia Streets Department	Cobbs-Darby,Schuylkill
		470-2		14-Dec-15	Combined	770	15	0.2	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		470-3		14-Dec-15	Combined	3118	15	0.6	1.0	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		470-4		14-Dec-15	Combined	1024	15	0.2	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
50063	310	310-1	Eadom St. Parking Lot - 5312-50 Eadom	02-May-12	Combined	3973	20	0.8	1.2	Rain Garden	Parking	$0.00	Department of Public Property	Delaware
		310-2		02-May-12	Combined	1949	20	0.3	0.6	Rain Garden	Parking			Delaware
		310-3		02-May-12	Combined	675	20	0.1	0.2	Rain Garden	Parking			Delaware
		310-4		02-May-12	Combined	223	20	0.0	0.0	Rain Garden	Parking			Delaware
		310-5		02-May-12	Combined	2689	20	0.6	0.8	Rain Garden	Parking			Delaware
		310-6		02-May-12	Combined	1289	20	0.1	0.3	Rain Garden	Parking			Delaware
50065	367	367-1	Panati Playground	14-May-15	Combined	3770	8	0.9	1.3	Infiltration/Storage Trench, Rain Garden	Open Space	$227,000.00	Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50067	276	276-1	29th and Cambria PWD Facility Parking Lot	31-Oct-16	Combined	3963	58	0.8	1.3	Swale, Tree Trench	Streets	$1,023,000.00		Delaware
		276-2		31-Oct-16	Combined	4302	58	0.9	1.4	Swale, Tree Trench	Streets			Delaware
50068	244	244-1	Ingersoll Commons	08-Nov-16	Combined	6056	17	0.7	1.4	Infiltration/Storage Trench, Rain Garden, Swale	Open Space	$795,000.00	Community Ventures, Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware
50069	511	511-1	Callowhill St. from 2nd St. to 7th St.	05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets	$0.00	Philadelphia Streets Department	Delaware
		511-10		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-2		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-3		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-4		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-5		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-6		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-7		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-8		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
		511-9		05-Feb-16	Combined	27	10	0.0	0.0	Stormwater Tree	Streets			Delaware
50070	524	524-1	Benson Park	13-Nov-15	Combined		0	0.2	0.2	Pervious Paving	Open Space	Unknown	Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware
		524-2		13-Nov-15	Combined	700	0	0.2	0.3	Infiltration/Storage Trench	Open Space			Delaware
50071	475	475-1	Green2015 - Phase I - Collazo (2.37 GA)	23-Jun-17	Combined	5697	16	1.2	1.9	Infiltration/Storage Trench, Rain Garden	Open Space	$353,000.00	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	Delaware
50075	479	479-1	Green2015 - Phase I - William Dick Elementary	13-Jun-14	Combined	8738	0	1.5	2.8	Rain Garden	Schools	$207,000.00	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	Delaware
50077	322	322-1	Baker, Heston, Haverford Triangle	16-Sep-16	Combined	877	10	0.2	0.3	Infiltration/Storage Trench	Vacant Land	$739,000.00		Schuylkill
		322-2		16-Sep-16	Combined	2596	10	0.6	0.8	Rain Garden	Vacant Land			Schuylkill
		322-3		16-Sep-16	Combined	1901	10	0.4	0.7	Infiltration/Storage Trench, Rain Garden, Swale	Vacant Land			Schuylkill
	530	530-1		16-Sep-16	Combined	1419	0	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Streets		Philadelphia Department of Parks & Recreation	Schuylkill
	558	558-1		16-Sep-16	Combined	3638	4	0.7	1.3	Infiltration/Storage Trench, Rain Garden	Vacant Land		Department of Public Property, Philadelphia Department of Parks & Recreation	Schuylkill
50078	303	303-1	Clearview Community Park & Morris Estate Park	07-Oct-16	Combined	3531	0	0.7	1.5	Infiltration/Storage Trench, Rain Garden	Vacant Land	$866,000.00	Tookany/Tacony-Frankford Watershed Partnership	TTF
	642	642-2		07-Oct-16	Combined	1037	13	0.3	0.6	Tree Trench	Open Space		Philadelphia Department of Parks & Recreation	TTF
		642-3		07-Oct-16	Combined	4670	13	0.8	1.5	Infiltration/Storage Trench, Rain Garden	Open Space			TTF
		642-6		07-Oct-16	Combined	1978	13	0.4	0.7	Tree Trench	Open Space			TTF
50079	401	401-1	Guerin Recreation Center	23-Jul-18	Combined	5641	1	0.7	1.5	Infiltration/Storage Trench	Open Space	$1,148,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
		401-2		23-Jul-18	Combined	9563	1	1.3	2.6	Infiltration/Storage Trench	Open Space			Schuylkill
		401-3		23-Jul-18	Combined		1	2.1	0.1	Depaving	Open Space			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50080	588	588-2	Penn Street Trail	13-Jun-13	Combined	1260	25	0.6	0.3	Rain Garden	Streets	$0.00	DRWC	Delaware
		588-3		13-Jun-13	Combined	447	25	0.2	0.1	Rain Garden	Streets			Delaware
50082	597	597-1	33rd and Dauphin St. Sept Bus Loop Green Streets Project	31-Jul-13	Combined	481	0	0.1	0.1	Infiltration/Storage Trench	Streets	$0.00	Southeastern Transportation Authority	Schuylkill
50083	151	151-1	Weccacoe Playground	09-Dec-16	Combined	1181	9	0.3	0.4	Infiltration/Storage Trench, Rain Garden	Open Space	$119,000.00	Philadelphia Department of Parks & Recreation	Delaware
		151-2		09-Dec-16	Combined		9	0.3	0.0	Depaving	Open Space			Delaware
		151-3		09-Dec-16	Combined		9	0.3	0.0	Depaving	Open Space			Delaware
		151-4		09-Dec-16	Combined		9	0.3	0.1	Depaving	Open Space			Delaware
		151-5		09-Dec-16	Combined		9	0.3	0.0	Depaving	Open Space			Delaware
		151-6		09-Dec-16	Combined		9	0.3	0.0	Depaving	Open Space			Delaware
50084	487	487-1	Moss Playground/Carmella Playground	13-Jan-20	Combined	6088	15	1.0	2.0	Tree Trench	Open Space	$1,742,000.00	Philadelphia Department of Parks & Recreation	Delaware
		487-2		13-Jan-20	Combined	11478	15	1.7	3.5	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
	580	580-1		13-Jan-20	Combined	4241	0	0.7	1.4	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware,TTF
		580-2		13-Jan-20	Combined	5611	0	0.8	1.6	Rain Garden	Open Space			Delaware,TTF
		580-3		13-Jan-20	Combined	1775	0	0.2	0.5	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware,TTF
		580-4		13-Jan-20	Combined	4630	0	0.8	1.6	Rain Garden	Open Space			Delaware,TTF
		580-5		13-Jan-20	Combined	1943	0	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware,TTF
		580-6		13-Jan-20	Combined	875	0	0.1	0.3	Infiltration/Storage Trench	Open Space			Delaware,TTF
50085	574	574-1	Ralph Brooks Park	08-Oct-15	Combined	1609	5	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Open Space	$152,000.00	Philadelphia Department of Parks & Recreation, Councilman Johnson, Urban Roots	Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50088	546	546-1	Rowland and Crispin	11-Sep-20	Combined	2009	16	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets	$4,415,000.00		Delaware
		546-2		06-Jul-21	Combined	1009	16	0.2	0.4	Tree Trench	Streets			Delaware
		546-3		18-Aug-21	Combined	2120	16	0.3	0.6	Infiltration/Storage Trench, Planter	Streets			Delaware
		546-4		06-Jul-21	Combined	3112	16	0.6	1.0	Infiltration/Storage Trench, Planter	Streets			Delaware
		546-5		11-Sep-20	Combined	2380	16	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		546-6		18-Nov-20	Combined	1475	16	0.2	0.5	Tree Trench	Streets			Delaware
		546-7		11-Sep-20	Combined	4188	16	0.8	1.3	Infiltration/Storage Trench, Planter, Swale	Streets			Delaware
		546-8		18-Nov-20	Combined	3616	16	0.6	1.2	Infiltration/Storage Trench, Swale	Streets			Delaware
	595	595-1		15-Dec-21	Combined	2447	16	0.5	0.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-10		03-May-21	Combined	876	16	0.1	0.3	Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-11		09-Sep-20	Combined	3785	16	0.7	1.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-12		09-Sep-20	Combined	3027	16	0.5	1.0	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-2		12-Apr-22	Combined	5507	16	1.1	1.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-3		26-Aug-22	Combined	5113	16	1.1	1.6	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-4		19-Aug-21	Combined	4327	16	0.8	1.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-5		26-Aug-22	Combined	5137	16	1.0	1.7	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-6		03-May-21	Combined	1040	16	0.2	0.3	Tree Trench	Streets			Delaware,Pennypack
		595-7		13-Apr-22	Combined	2842	16	0.6	0.9	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-8		26-Aug-22	Combined	4120	16	0.8	1.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
		595-9		09-Sep-20	Combined	6412	16	1.1	2.1	Bumpout, Infiltration/Storage Trench	Streets			Delaware,Pennypack
	596	596-1		27-May-20	Combined	3903	6	0.6	1.3	Bumpout, Infiltration/Storage Trench	Streets			Pennypack
		596-2		27-May-20	Combined	4244	6	0.7	1.4	Bumpout, Infiltration/Storage Trench	Streets			Pennypack
		596-3		26-May-20	Combined	1899	6	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets			Pennypack
		596-4		26-May-20	Combined	1361	6	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Pennypack

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50089	455	455-1	Erie, Francis Hopkins, and Mariana Bracetti	29-Oct-19	Combined	1911	0	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets	$1,819,000.00		TTF
		455-2		29-Oct-19	Combined	6567	0	0.9	1.8	Infiltration/Storage Trench, Planter	Streets			TTF
	459	459-1		29-Oct-19	Combined	8729	3	1.8	2.9	Planter, Tree Trench	Streets			TTF
		459-2		23-Oct-19	Combined	899	3	0.4	0.3	Infiltration/Storage Trench, Planter	Streets			TTF
50090	539	539-1	Protestant Home and Devereaux	21-May-24	Combined	2161	9	0.5	0.7	Tree Trench	Streets	$1,964,000.00		Delaware
		539-2		21-May-24	Combined	1568	9	0.4	0.5	Tree Trench	Streets			Delaware
		539-3		21-May-24	Combined	1006	9	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
		539-4		21-May-24	Combined	2852	9	0.6	1.0	Infiltration/Storage Trench	Streets			Delaware
	540	540-1		06-Dec-23	Combined	4215	19	1.1	1.4	Tree Trench	Streets			Delaware
		540-2		06-Dec-23	Combined	2209	19	0.4	0.7	Infiltration/Storage Trench	Streets			Delaware
		540-3		06-Dec-23	Combined	2387	19	0.4	0.9	Tree Trench	Streets			Delaware
		540-4		06-Dec-23	Combined	4127	19	0.9	1.6	Tree Trench	Streets			Delaware
50091	589	589-1	Stinger Square	06-Jul-16	Combined	1475	15	0.2	0.5	Infiltration/Storage Trench	Open Space	$232,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
		589-2		06-Jul-16	Combined	1558	15	0.4	0.5	Infiltration/Storage Trench, Rain Garden	Open Space			Schuylkill
50097	483	483-1	Black Coyle McBride Playground	10-Jul-19	Combined	2711	4	0.5	1.0	Infiltration/Storage Trench	Open Space	$1,200,000.00	Philadelphia Department of Parks & Recreation	Delaware
	634	634-1		30-Mar-18	Combined	1683	3	0.3	0.5	Tree Trench	Streets			Delaware
	637	637-1		05-Nov-18	Combined	1371	11	0.2	0.3	Tree Trench	Streets			Delaware
		637-2		16-Aug-18	Combined	3322	11	0.6	1.0	Tree Trench	Streets			Delaware
	638	638-2		09-Jan-18	Combined	786	6	0.1	0.2	Tree Trench	Streets			Delaware
		638-3		02-Feb-18	Combined	958	6	0.1	0.2	Tree Trench	Streets			Delaware
	993	993-1		06-Aug-18	Combined	1471	2	0.2	0.4	Tree Trench	Streets			Delaware
50098	1007	1007-1	Neighborhood Parks - Wissinoming Park	15-Feb-18	Combined	2225	25	0.6	0.7	Infiltration/Storage Trench, Rain Garden	Open Space	$500,000.00	Philadelphia Department of Parks & Recreation	Delaware
		1007-2		15-Feb-18	Combined	4815	25	1.0	1.5	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
50101	1049	1049-1	Kingsessing Recreation Center and Street Locations	06-Mar-19	Combined	793	12	0.1	0.3	Tree Trench	Streets	$1,789,000.00		Cobbs-Darby,Schuylkill
		1049-2		19-Mar-19	Combined	1349	12	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1049-3		08-Jan-19	Combined	1405	12	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1049-4		18-Dec-18	Combined	1312	12	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1049-5		26-Mar-19	Combined	1194	12	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
	608	608-1		15-Jan-19	Combined	9421	17	1.6	3.0	Infiltration/Storage Trench, Rain Garden	Open Space		Philadelphia Department of Parks & Recreation	Schuylkill
		608-2		04-Jun-19	Combined	16397	17	2.2	4.4	Infiltration/Storage Trench, Rain Garden	Open Space			Schuylkill
		608-3		31-Oct-18	Combined	5410	17	0.7	1.4	Infiltration/Storage Trench, Rain Garden	Open Space			Schuylkill
		608-4		19-Feb-19	Combined	3661	17	0.6	1.1	Infiltration/Storage Trench	Open Space			Schuylkill
50102	1012	1012-1	Gray's Ferry Neighborhood Disconnection SMP Lanier Park	06-Oct-16	Combined	224448	0	0.0	0.0	Infiltration/Storage Trench	Open Space	$3,692,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
50103	1024	1024-1	Drainage Well	07-Sep-18	Combined	561	0	0.2	0.2	Drainage Well	Streets	$583,000.00		Cobbs-Darby
	1025	1025-1		07-Sep-18	Combined	258	0	0.2	0.3	Drainage Well	Streets			Delaware
	1029	1029-1		07-Sep-18	Combined	458	0	0.4	0.3	Drainage Well	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50104	1050	1050-1	Stenton Park and Streets Locations	06-Apr-18	Combined	2045	23	0.3	0.6	Tree Trench	Streets	$2,294,000.00		TTF
		1050-2		24-May-18	Combined	3580	23	0.5	1.0	Tree Trench	Streets			TTF
		1050-3		14-Jun-18	Combined	939	23	0.2	0.4	Tree Trench	Streets			TTF
		1050-4		15-Oct-18	Combined	1740	23	0.3	0.6	Tree Trench	Streets			TTF
		1050-5		17-May-18	Combined	2652	23	0.4	0.8	Infiltration/Storage Trench	Streets			TTF
		1050-8		29-Aug-18	Combined	2487	23	0.5	0.8	Tree Trench	Streets			TTF
		1050-9		14-May-18	Combined	1241	23	0.2	0.4	Infiltration/Storage Trench	Streets			TTF
	578	578-1		04-Jun-18	Combined	7803	21	1.1	2.1	Infiltration/Storage Trench	Open Space		Philadelphia Department of Parks & Recreation	TTF
		578-2		18-Oct-18	Combined	6283	21	0.8	1.6	Infiltration/Storage Trench, Rain Garden	Open Space			TTF
		578-3		18-Oct-18	Combined	6416	21	0.8	1.7	Infiltration/Storage Trench, Rain Garden	Open Space			TTF
		578-4		07-Dec-18	Combined	2299	21	0.3	0.6	Rain Garden	Open Space			TTF
		578-5		19-Oct-18	Combined	1430	21	0.2	0.5	Tree Trench	Open Space			TTF
50105	1051	1051-1	Francis Myers Recreation Center and Streets Locations	17-Nov-20	Combined	8410	70	1.8	3.5	Green Gutter, Infiltration/Storage Trench	Streets	$4,242,000.00		Cobbs-Darby,Schuylkill
		1051-10		16-Apr-21	Combined	1902	70	0.3	0.6	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-11		16-Apr-21	Combined	1676	70	0.4	0.9	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1051-12		16-Apr-21	Combined	3058	70	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1051-13		15-Jul-21	Combined	4459	70	0.9	1.5	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1051-14		22-Apr-21	Combined	2359	70	0.4	0.7	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-15		28-Apr-21	Combined	3188	70	0.4	0.9	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-16		10-Jun-21	Combined	2674	70	0.4	0.8	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-17		22-Apr-21	Combined	901	70	0.1	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-18		21-May-21	Combined	4218	70	0.6	1.2	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-19		15-Jul-21	Combined	1325	70	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-2		17-Nov-20	Combined	4330	70	0.6	1.2	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-20		02-Jun-21	Combined	653	70	0.1	0.2	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1051-21		02-Jun-21	Combined	2531	70	0.4	0.8	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-22		02-Jun-21	Combined	3282	70	0.6	1.0	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-3		25-Jan-21	Combined	2092	70	0.5	0.7	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-4		25-Jan-21	Combined	1135	70	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-5		25-Jan-21	Combined	1567	70	0.3	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-6		25-Jan-21	Combined	1548	70	0.3	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-7		25-Jan-21	Combined	2894	70	0.4	0.8	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1051-8		22-Apr-21	Combined	1898	70	0.4	0.6	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1051-9		16-Apr-21	Combined	2506	70	0.4	0.8	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50108	1053	1053-1	Fotterall Square Streets	12-May-21	Combined	1274	24	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets	$1,740,000.00		Delaware
		1053-10		12-May-21	Combined	1842	24	0.4	0.6	Tree Trench	Streets			Delaware
		1053-2		13-May-21	Combined	766	24	0.1	0.3	Bumpout, Tree Trench	Streets			Delaware
		1053-3		17-Sep-21	Combined	3588	24	0.5	1.0	Tree Trench	Streets			Delaware
		1053-4		13-May-21	Combined	1634	24	0.2	0.5	Tree Trench	Streets			Delaware
		1053-5		13-May-21	Combined	1840	24	0.3	0.6	Tree Trench	Streets			Delaware
		1053-6		17-Sep-21	Combined	1469	24	0.2	0.5	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1053-7		15-Feb-22	Combined	936	24	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1053-8		04-Mar-22	Combined	1585	24	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware
		1053-9		20-Sep-21	Combined	1560	24	0.3	0.5	Tree Trench	Streets			Delaware
	1054	1054-1		07-Mar-22	Combined	1786	3	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Open Space		Philadelphia School District	Delaware
50109	1023	1023-1	Osage Ave from 42nd to 43rd	28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets	$197,000.00		Schuylkill
		1023-10		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-11		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-2		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-3		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-4		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-5		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-6		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-7		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-8		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
		1023-9		28-Mar-19	Combined	40	11	0.0	0.0	Stormwater Tree	Streets			Schuylkill
50110	242	242-1	North Morris Park	03-Jul-21	Combined	8165	85	2.3	4.6	Infiltration/Storage Trench, Rain Garden	Streets	$2,372,000.00	Philadelphia Department of Parks & Recreation	Cobbs-Darby
		242-2		31-Oct-23	Combined	10827	85	1.7	3.4	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby
50111	376	376-1	Mt. Airy Church	29-Oct-18	Combined	4812	15	0.7	1.3	Bumpout, Infiltration/Storage Trench	Streets	$967,000.00		TTF
		376-2		29-Oct-18	Combined	1891	15	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets			TTF
		376-3		29-Oct-18	Combined	1284	15	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			TTF
		376-4		29-Oct-18	Combined	1771	15	0.2	0.5	Tree Trench	Streets			TTF
		376-5		29-Oct-18	Combined	1590	15	0.2	0.4	Tree Trench	Streets			TTF
		376-6		29-Oct-18	Combined	2545	15	0.4	0.8	Tree Trench	Streets			TTF
50112	1055	1055-1	Botanic Ave	09-Feb-18	Combined	5745	50	0.4	0.7	Rain Garden	Streets	$500,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
		1055-2		09-Feb-18	Combined	1526	50	0.7	0.5	Rain Garden	Streets			Schuylkill
		1055-3		09-Feb-18	Combined	9540	50	1.5	2.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
50113	600	600-1	37th and Mount Vernon Playground	16-Dec-16	Combined	2006	5	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Open Space	$72,000.00	Philadelphia Department of Parks & Recreation	Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50118	1059	1059-1	Street Crossings - Aramingo, Cedar, Cambria, Almond	14-Dec-20	Combined	2605	10	0.4	0.9	Infiltration/Storage Trench, Rain Garden	Streets	$1,230,000.00		Delaware
		1059-2		03-Dec-20	Combined	3643	10	0.9	1.2	Infiltration/Storage Trench	Streets			Delaware
		1059-3		30-Jul-20	Combined	1261	10	0.3	0.4	Tree Trench	Streets			Delaware
		1059-4		26-Aug-20	Combined	1618	10	0.3	0.5	Tree Trench	Streets			Delaware
		1059-5		25-Nov-20	Combined	2353	10	0.4	0.8	Bumpout, Tree Trench	Streets			Delaware
50119	1067	1067-1	Cement Park (Northern Liberties Rec Center)	08-May-19	Combined	3163	0	0.7	1.1	Infiltration/Storage Trench	Streets	$1,222,000.00		Delaware
		1067-2		08-May-19	Combined	1024	0	0.1	0.3	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1067-3		08-May-19	Combined	1661	0	0.3	0.5	Basin, Infiltration/Storage Trench, Planter	Streets			Delaware
		1067-4		08-May-19	Combined	3191	0	0.5	1.0	Rain Garden	Streets			Delaware
	1068	1068-1		08-May-19	Combined	1603	5	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware
50120	1070	1070-1	McPherson Streets	24-Mar-21	Combined	3019	56	0.6	1.2	Tree Trench	Streets	$1,924,000.00		Delaware
		1070-10		24-Mar-21	Combined	1437	56	0.3	0.6	Tree Trench	Streets			Delaware
		1070-11		24-Mar-21	Combined	1019	56	0.2	0.3	Tree Trench	Streets			Delaware
		1070-12		24-Mar-21	Combined	1116	56	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		1070-13		24-Mar-21	Combined	1688	56	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		1070-14		24-Mar-21	Combined	2088	56	0.3	0.6	Tree Trench	Streets			Delaware
		1070-15		24-Mar-21	Combined	1677	56	0.3	0.5	Tree Trench	Streets			Delaware
		1070-16		24-Mar-21	Combined	2454	56	0.6	1.0	Tree Trench	Streets			Delaware
		1070-3		24-Mar-21	Combined	3136	56	0.6	1.0	Tree Trench	Streets			Delaware
		1070-4		24-Mar-21	Combined	2078	56	0.4	0.7	Tree Trench	Streets			Delaware
		1070-5		24-Mar-21	Combined	1478	56	0.2	0.5	Tree Trench	Streets			Delaware
		1070-6		24-Mar-21	Combined	2747	56	0.5	1.0	Infiltration/Storage Trench, Tree Trench	Streets			Delaware
		1070-7		24-Mar-21	Combined	1689	56	0.3	0.5	Tree Trench	Streets			Delaware
		1070-8		24-Mar-21	Combined	2012	56	0.4	0.6	Tree Trench	Streets			Delaware

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50122	1077	1077-1	Mount Sinai	07-Jun-19	Combined	4959	2	0.9	1.8	Infiltration/Storage Trench	Open Space	$3,652,000.00		Delaware,TTF
		1077-2		30-Aug-19	Combined	2646	2	0.5	1.0	Tree Trench	Vacant Land			Delaware,TTF
	1083	1083-1		20-Jun-19	Combined	837	59	0.2	0.3	Infiltration/Storage Trench	Streets		Philadelphia Department of Parks & Recreation	Delaware,TTF
		1083-10		06-May-19	Combined	3808	59	0.7	1.3	Bumpout, Tree Trench	Streets			Delaware,TTF
		1083-11		01-May-19	Combined	1852	59	0.3	0.6	Tree Trench	Streets			Delaware,TTF
		1083-12		03-May-19	Combined	2263	59	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1083-13		29-Jul-19	Combined	1353	59	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware,TTF
		1083-14		17-Jul-19	Combined	3737	59	0.7	1.2	Planter, Tree Trench	Streets			Delaware,TTF
		1083-2		03-Apr-19	Combined	2689	59	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1083-3		03-Apr-19	Combined	2539	59	0.4	0.9	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1083-4		03-Apr-19	Combined	7041	59	1.0	2.0	Bumpout, Tree Trench	Streets			Delaware,TTF
		1083-5		04-Jan-19	Combined	2975	59	0.6	1.1	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1083-6		01-Apr-19	Combined	7304	59	1.3	2.3	Infiltration/Storage Trench, Swale	Streets			Delaware,TTF
		1083-7		01-Apr-19	Combined	5245	59	1.0	1.9	Infiltration/Storage Trench, Swale	Streets			Delaware,TTF
		1083-8		20-Dec-18	Combined	2766	59	0.5	0.9	Tree Trench	Streets			Delaware,TTF
		1083-9		20-Dec-18	Combined	1115	59	0.2	0.4	Tree Trench	Streets			Delaware,TTF
50123	1084	1084-1	Allegheny Ave Safety Corridor Improvement Project (MPMS 85417)	10-Jan-19	Combined	1419	0	0.2	0.4	Infiltration/Storage Trench	Streets	Unknown	PennDOT	Delaware
		1084-2		10-Jan-19	Combined	1485	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1084-3		10-Jan-19	Combined	1027	0	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
		1084-4		10-Jan-19	Combined	1293	0	0.2	0.3	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1084-5		10-Jan-19	Combined	1582	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1084-6		10-Jan-19	Combined	2086	0	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1084-7		10-Jan-19	Combined	1598	0	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1084-8		10-Jan-19	Combined	1106	0	0.1	0.3	Infiltration/Storage Trench	Streets			Delaware

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50124	1085	1085-1	Trenton and Auburn Playground	05-Feb-20	Combined	55349	0	7.7	15.4	Infiltration/Storage Trench	Open Space	$3,167,000.00		Delaware
50125	1087	1087-1	Lawncrest Streets Southeast	07-Sep-21	Combined	3866	9	0.7	1.5	Bumpout, Infiltration/Storage Trench	Streets	$2,446,000.00		Delaware,TTF
		1087-2		08-Sep-21	Combined	5982	9	1.1	2.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-3		08-Sep-21	Combined	6721	9	1.2	2.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-4		08-Sep-21	Combined	5698	9	1.0	2.1	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-5		02-Sep-21	Combined	5216	9	1.0	1.7	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-6		02-Sep-21	Combined	5881	9	1.0	2.0	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-7		06-Sep-21	Combined	5031	9	1.0	2.0	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-8		03-Sep-21	Combined	4494	9	0.7	1.5	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1087-9		03-Sep-21	Combined	2627	9	0.5	0.9	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
50129	1127	1127-1	Girard Park and Warriner Post Park	29-Jun-20	Combined	5602	11	0.8	1.7	Rain Garden, Tree Trench	Vacant Land	$2,352,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
	1128	1128-1		29-Jun-20	Combined	4925	8	0.8	1.6	Bumpout, Tree Trench	Streets			Schuylkill
		1128-2		29-Jun-20	Combined	4395	8	0.6	1.1	Bumpout, Tree Trench	Streets			Schuylkill
		1128-3		29-Jun-20	Combined	5064	8	0.9	1.7	Bumpout, Tree Trench	Streets			Schuylkill
	1129	1129-1		21-Feb-20	Combined	1139	19	0.1	0.3	Tree Trench	Streets			Schuylkill
		1129-2		21-Feb-20	Combined	690	19	0.1	0.2	Tree Trench	Streets			Schuylkill
		1129-3		10-Jan-20	Combined	1015	19	0.1	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1129-4		10-Jan-20	Combined	4439	19	0.6	1.1	Tree Trench	Streets			Schuylkill
		1129-5		13-Jan-20	Combined	1374	19	0.2	0.4	Tree Trench	Streets			Schuylkill
		1129-6		17-Jan-20	Combined	4530	19	0.7	1.4	Tree Trench	Streets			Schuylkill
		1129-7		17-Jan-20	Combined	4214	19	0.6	1.2	Infiltration/Storage Trench	Streets			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50132	1137	1137-1	Max Myers	19-May-21	Combined	12427	17	1.8	3.7	Infiltration/Storage Trench, Rain Garden, Swale	Open Space	$3,089,000.00		Delaware
		1137-2		25-Nov-19	Combined	20572	17	3.2	6.4	Infiltration/Storage Trench, Planter	Streets			Delaware
		1137-3		25-Nov-19	Combined	2893	17	0.7	1.3	Infiltration/Storage Trench	Streets			Delaware
		1137-4		25-Nov-19	Combined	3237	17	0.5	1.0	Infiltration/Storage Trench	Streets			Delaware
		1137-5		25-Nov-19	Combined	1262	17	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1137-6		25-Nov-19	Combined	790	17	0.1	0.2	Infiltration/Storage Trench	Streets			Delaware
		1137-7		25-Nov-19	Combined	5851	17	0.8	1.6	Tree Trench	Streets			Delaware
	1138	1138-1		25-Nov-19	Combined	1208	11	0.2	0.3	Tree Trench	Streets			Delaware
		1138-2		25-Nov-19	Combined	796	11	0.1	0.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1138-3		25-Nov-19	Combined	709	11	0.1	0.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1138-4		25-Nov-19	Combined	3928	11	0.7	1.2	Infiltration/Storage Trench	Streets			Delaware
		1138-5		25-Nov-19	Combined	818	11	0.1	0.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1138-6		25-Nov-19	Combined	2930	11	0.4	0.9	Bumpout, Tree Trench	Streets			Delaware
		1138-7		12-Feb-20	Combined	1566	11	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1138-8		25-Nov-19	Combined	1562	11	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50133	1139 *	1139-1	Lawncrest Streets Southwest	18-May-23	Combined	2718	64	0.5	0.9	Bumpout, Infiltration/Storage Trench	Streets	$5,766,000.00		TTF
		1139-10		10-Mar-23	Combined	1998	64	0.4	0.6	Tree Trench	Streets			TTF
		1139-11		17-Nov-22	Combined	1820	64	0.3	0.7	Tree Trench	Streets			TTF
		1139-12		07-Mar-23	Combined	1673	64	0.4	0.5	Infiltration/Storage Trench	Streets			TTF
		1139-13		25-May-23	Combined	1387	64	0.3	0.5	Infiltration/Storage Trench	Streets			TTF
		1139-14		08-Mar-22	Combined	1554	64	0.3	0.5	Infiltration/Storage Trench	Streets			TTF
		1139-15		25-May-23	Combined	1822	64	0.3	0.6	Infiltration/Storage Trench	Streets			TTF
		1139-16		25-May-23	Combined	1702	64	0.4	0.6	Infiltration/Storage Trench	Streets			TTF
		1139-17		14-Nov-23	Combined	2221	64	0.6	0.8	Infiltration/Storage Trench	Streets			TTF
		1139-18		14-Nov-23	Combined	1310	64	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1139-19		25-May-23	Combined	2050	64	0.5	0.6	Tree Trench	Streets			TTF
		1139-2		22-Sep-23	Combined	2984	64	0.4	0.9	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-20		14-Nov-23	Combined	2318	64	0.4	0.7	Tree Trench	Streets			TTF
		1139-21		15-Jul-22	Combined	2125	64	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-22		15-Jul-22	Combined	4355	64	1.1	1.4	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-23		25-Aug-22	Combined	4204	64	0.6	1.2	Infiltration/Storage Trench, Stormwater Tree	Streets			TTF
		1139-24		15-Jul-22	Combined	2023	64	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-25		15-Jul-22	Combined	1865	64	0.3	0.6	Infiltration/Storage Trench	Streets			TTF
		1139-26		15-Jul-22	Combined	1674	64	0.2	0.5	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-27		15-Jul-22	Combined	3774	64	0.8	1.7	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-28		15-Jul-22	Combined	3282	64	0.6	1.2	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1139-29		15-Jul-22	Combined	5402	64	1.0	1.7	Tree Trench	Streets			TTF
		1139-3		10-Mar-21	Combined	2996	64	0.6	0.9	Tree Trench	Streets			TTF
		1139-4		10-Mar-23	Combined	1156	64	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1139-5		10-Mar-23	Combined	1359	64	0.3	0.5	Tree Trench	Streets			TTF
		1139-6		10-Mar-23	Combined	1140	64	0.3	0.5	Tree Trench	Streets			TTF
		1139-7		10-Mar-23	Combined	853	64	0.3	0.3	Tree Trench	Streets			TTF
		1139-8		17-Nov-22	Combined	887	64	0.2	0.3	Tree Trench	Streets			TTF
		1139-9		10-Mar-23	Combined	1196	64	0.2	0.4	Tree Trench	Streets			TTF
	1298 *	1298-1		15-Jul-22	Combined	1205	0	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1298-2		15-Jul-22	Combined	2080	0	0.5	0.8	Infiltration/Storage Trench	Streets			TTF
50134	1140	1140-1	Wharton Square Greening Improvements	18-Jun-19	Combined	11800	11	1.8	3.6	Infiltration/Storage Trench, Rain Garden	Open Space	$1,088,000.00		Schuylkill
		1140-2		08-Feb-19	Combined	1279	11	0.3	0.6	Rain Garden	Open Space			Schuylkill
		1140-3		13-Feb-19	Combined	9545	11	2.0	3.1	Rain Garden, Tree Trench	Open Space			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50135	1142	1142-1	PHA/Blumberg Campus Green Streets	30-Mar-20	Combined	1687	13	0.2	0.4	Infiltration/Storage Trench, Planter	Streets	$291,000.00	Philadelphia Housing Authority	Schuylkill
		1142-2		30-Mar-20	Combined	1726	13	0.2	0.4	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1142-3		30-Mar-20	Combined	1718	13	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1142-4		30-Mar-20	Combined	1747	13	0.2	0.5	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1142-5		30-Mar-20	Combined	1595	13	0.2	0.3	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1142-6		30-Mar-20	Combined	1485	13	0.2	0.3	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1142-7		30-Mar-20	Combined	1897	13	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1142-8		30-Mar-20	Combined	1875	13	0.2	0.4	Infiltration/Storage Trench, Planter	Streets			Schuylkill
50138	1145	1145-1	Buist Avenue Green Streets and Buist Park Improvements	19-Nov-19	Combined	2226	21	0.3	0.6	Bumpout, Tree Trench	Streets	$2,579,000.00	Philadelphia Department of Parks & Recreation	Schuylkill
		1145-10		19-Nov-19	Combined	769	21	0.1	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-11		19-Nov-19	Combined	2709	21	0.5	0.9	Bumpout, Tree Trench	Streets			Schuylkill
		1145-12		19-Nov-19	Combined	2736	21	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-13		19-Nov-19	Combined	3074	21	0.5	0.9	Bumpout, Tree Trench	Streets			Schuylkill
		1145-2		19-Nov-19	Combined	957	21	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1145-3		19-Nov-19	Combined	2011	21	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-4		19-Nov-19	Combined	1107	21	0.1	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1145-5		19-Nov-19	Combined	1435	21	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-6		19-Nov-19	Combined	892	21	0.1	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-7		19-Nov-19	Combined	1822	21	0.4	0.6	Bumpout, Tree Trench	Streets			Schuylkill
		1145-8		19-Nov-19	Combined	961	21	0.1	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1145-9		19-Nov-19	Combined	1601	21	0.3	0.5	Bumpout, Tree Trench	Streets			Schuylkill
	1146	1146-1		19-Nov-19	Combined	7861	3	1.3	2.6	Bumpout, Infiltration/Storage Trench, Rain Garden	Open Space			Schuylkill
50143	1195	1195-1	Parkside Edge - Green Streets Buyback	19-Jan-18	Combined	11930	0	0.8	1.6	Infiltration/Storage Trench, Rain Garden	Open Space	$1,163,000.00	Fairmount Park Conservancy	Schuylkill
		1195-2		19-Jan-18	Combined	4341	0	0.6	1.2	Rain Garden	Open Space			Schuylkill
		1195-3		19-Jan-18	Combined	9397	0	1.2	2.4	Rain Garden	Open Space			Schuylkill
50145	1163	1163-1	Nelson Playground and Hissey Playground Green Improvement	07-Feb-20	Combined	1861	6	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Open Space	$636,000.00		Delaware
		1163-2		07-Feb-20	Combined	8344	6	1.4	2.6	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50146	1197	1197-1	Point Breeze Vacant Lots	21-May-19	Combined	1750	3	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Vacant Land	$2,193,000.00		Schuylkill
	1198	1198-1		19-Nov-18	Combined	874	43	0.1	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1198-2		25-Oct-18	Combined	1314	43	0.3	0.4	Tree Trench	Streets			Schuylkill
		1198-3		29-Oct-18	Combined	8816	43	1.7	3.3	Tree Trench	Streets			Schuylkill
		1198-4		09-Nov-18	Combined	1132	43	0.2	0.3	Tree Trench	Streets			Schuylkill
		1198-6		14-Mar-19	Combined	979	43	0.2	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1198-7		03-May-19	Combined	4256	43	0.5	0.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1198-8		28-Jan-19	Combined	3304	43	0.5	1.0	Tree Trench	Streets			Schuylkill
50148	1200	1200-1	Elmwood Medians Package	08-Oct-20	Combined	7164	21	1.1	2.2	Infiltration/Storage Trench, Rain Garden	Streets	$942,000.00		Cobbs-Darby,Schuylkill
		1200-2		08-Oct-20	Combined	3278	21	0.5	1.0	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby,Schuylkill
		1200-3		08-Oct-20	Combined	2578	21	0.4	0.8	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby,Schuylkill
		1200-4		08-Oct-20	Combined	3831	21	0.6	1.2	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby,Schuylkill
		1200-5		08-Oct-20	Combined	1283	21	0.2	0.4	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
50149	1202	1202-1	Erie and Rising Sun Street Improvements	30-Jul-19	Combined	1239	30	0.3	0.4	Tree Trench	Streets	$1,690,000.00		Delaware
		1202-10		30-Jul-19	Combined	1303	30	0.2	0.5	Tree Trench	Streets			Delaware
		1202-11		30-Jul-19	Combined	1456	30	0.3	0.5	Tree Trench	Streets			Delaware
		1202-12		30-Jul-19	Combined	1659	30	0.4	0.6	Infiltration/Storage Trench	Streets			Delaware
		1202-2		30-Jul-19	Combined	1316	30	0.3	0.4	Tree Trench	Streets			Delaware
		1202-3		30-Jul-19	Combined	921	30	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
		1202-4		30-Jul-19	Combined	2074	30	0.3	0.6	Tree Trench	Streets			Delaware
		1202-5		30-Jul-19	Combined	1274	30	0.3	0.4	Infiltration/Storage Trench, Planter	Streets			Delaware
		1202-6		30-Jul-19	Combined	1031	30	0.3	0.4	Tree Trench	Streets			Delaware
		1202-7		30-Jul-19	Combined	1230	30	0.3	0.4	Tree Trench	Streets			Delaware
		1202-8		30-Jul-19	Combined	4158	30	0.9	1.4	Tree Trench	Streets			Delaware
		1202-9		30-Jul-19	Combined	1077	30	0.3	0.4	Tree Trench	Streets			Delaware
	1379	1379-1		30-Jul-19	Combined	5811	3	0.8	1.6	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
50150	1015	1015-1	Hagert Playground	10-Feb-17	Combined	1941	1	0.4	0.7	Infiltration/Storage Trench, Rain Garden	Open Space	$251,000.00	Philadelphia Department of Parks & Recreation	Delaware
		1015-2		10-Feb-17	Combined	2283	1	0.4	0.7	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
50151	1204	1204-1	Reading Viaduct	13-Jun-18	Combined	1091	0	0.1	0.3	Bumpout, Infiltration/Storage Trench	Streets	Unknown	Center City District	Delaware
50152	1209	1209-1	Athletic Square	29-Jan-20	Combined	733	9	0.1	0.3	Tree Trench	Streets	$813,000.00		Schuylkill
		1209-2		29-Jan-20	Combined	1659	9	0.3	0.6	Tree Trench	Streets			Schuylkill
		1209-3		29-Jan-20	Combined	1863	9	0.3	0.6	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1209-4		29-Jan-20	Combined	1243	9	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1209-5		29-Jan-20	Combined	2002	9	0.3	0.6	Infiltration/Storage Trench	Streets			Schuylkill
		1209-6		29-Jan-20	Combined	1098	9	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50155	488	488-1	Smith Playground Green Improvements	22-May-18	Combined	970	8	0.2	0.3	Infiltration/Storage Trench	Open Space	$678,000.00	Department of Public Property, Philadelphia Department of Parks & Recreation, Councilman Johnson, Urban Roots	Schuylkill
		488-2		22-May-18	Combined	4257	8	0.8	1.5	Rain Garden, Tree Trench	Open Space			Schuylkill
		488-3		22-May-18	Combined	2249	8	0.4	0.8	Infiltration/Storage Trench	Open Space			Schuylkill
		488-4		22-May-18	Combined	2168	8	0.4	0.8	Infiltration/Storage Trench	Open Space			Schuylkill
		488-5		22-May-18	Combined	1081	8	0.2	0.3	Infiltration/Storage Trench	Open Space			Schuylkill
50157	1240	1240-1	Kensington Green Street Improvements	17-Mar-20	Combined	1195	18	0.2	0.4	Tree Trench	Streets	$984,000.00		Delaware
		1240-2		20-Mar-20	Combined	461	18	0.1	0.2	Tree Trench	Streets			Delaware
		1240-3		20-Mar-20	Combined	720	18	0.2	0.3	Tree Trench	Streets			Delaware
		1240-4		20-Mar-20	Combined	1713	18	0.3	0.5	Tree Trench	Streets			Delaware
		1240-5		20-Mar-20	Combined	787	18	0.2	0.3	Tree Trench	Streets			Delaware
		1240-6		20-Mar-20	Combined	684	18	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
		1240-7		20-Mar-20	Combined	4408	18	0.7	1.3	Tree Trench	Streets			Delaware
		1240-8		19-Mar-20	Combined	1350	18	0.4	0.5	Tree Trench	Streets			Delaware
		1240-9		13-Mar-20	Combined	850	18	0.2	0.3	Tree Trench	Streets			Delaware
50158	1221	1221-1	53rd and Baltimore	27-Aug-21	Combined	3099	0	0.5	1.0	Infiltration/Storage Trench, Rain Garden	Streets	$247,000.00	Philadelphia Streets Department	Cobbs-Darby
		1221-2		11-May-21	Combined	6233	0	0.8	1.6	Infiltration/Storage Trench, Rain Garden	Streets			Cobbs-Darby
50160	1242	1242-1	Kensington Neighborhood Greening Phase 2	08-Apr-21	Combined	1993	17	0.3	0.6	Infiltration/Storage Trench	Streets	$1,338,000.00		Delaware
		1242-10		08-Apr-21	Combined	2647	17	0.5	0.8	Infiltration/Storage Trench	Streets			Delaware
		1242-11		17-Aug-22	Combined	2497	17	0.5	0.8	Tree Trench	Streets			Delaware
		1242-2		08-Apr-21	Combined	2418	17	0.5	0.7	Tree Trench	Streets			Delaware
		1242-3		08-Apr-21	Combined	2511	17	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware
		1242-4		08-Apr-21	Combined	1030	17	0.2	0.3	Tree Trench	Streets			Delaware
		1242-7		08-Apr-21	Combined	1268	17	0.2	0.4	Tree Trench	Streets			Delaware
		1242-8		08-Apr-21	Combined	1184	17	0.2	0.4	Tree Trench	Streets			Delaware
		1242-9		08-Apr-21	Combined	915	17	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware
50162	1265	1265-1	Cedar Park Neighborhood Streets Package 1	17-Feb-20	Combined	1105	16	0.2	0.3	Tree Trench	Streets	$1,951,000.00		Cobbs-Darby,Schuylkill
		1265-10		02-Jul-20	Combined	2992	16	0.5	1.0	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-11		08-Jun-20	Combined	1821	16	0.3	0.6	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-12		06-Jul-20	Combined	1483	16	0.3	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-13		20-Jul-20	Combined	926	16	0.2	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-14		29-Jul-20	Combined	1439	16	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-15		31-Aug-20	Combined	704	16	0.2	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-2		20-May-20	Combined	2042	16	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-3		20-May-20	Combined	1563	16	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-4		11-Mar-20	Combined	1214	16	0.3	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-5		18-Sep-20	Combined	1261	16	0.2	0.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-6		11-Mar-20	Combined	1448	16	0.2	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1265-7		06-May-20	Combined	1253	16	0.2	0.4	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-8		15-Sep-20	Combined	876	16	0.3	0.3	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1265-9		20-May-20	Combined	1123	16	0.2	0.3	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50166	1264	1264-1	Temple Station Green Streets	24-Nov-20	Combined	4582	16	0.9	1.5	Tree Trench	Streets	$1,661,000.00		Delaware
		1264-2		24-Nov-20	Combined	833	16	0.2	0.3	Tree Trench	Streets			Delaware
		1264-3		24-Nov-20	Combined	2122	16	0.3	0.6	Bumpout, Tree Trench	Streets			Delaware
		1264-4		24-Nov-20	Combined	5121	16	0.9	1.8	Infiltration/Storage Trench, Planter	Streets			Delaware
		1264-5		24-Nov-20	Combined	981	16	0.1	0.3	Tree Trench	Streets			Delaware
		1264-6		24-Nov-20	Combined	4095	16	0.8	1.5	Infiltration/Storage Trench	Streets			Delaware
50167	1267	1267-1	Wissinoming	29-Oct-21	Combined	66213	78	11.4	22.7	Rain Garden, Wetland	Open Space	$8,187,000.00		Delaware
		1267-2		05-Nov-21	Combined	22842	78	3.1	6.2	Infiltration/Storage Trench	Open Space			Delaware
		1267-3		05-Nov-21	Combined	47461	78	6.4	12.8	Infiltration/Storage Trench	Open Space			Delaware
50170	1272	1272-10	East Park Greenways	11-Feb-22	Combined	1444	6	0.3	0.5	Bumpout, Tree Trench	Streets	$1,412,000.00		Schuylkill
		1272-9		05-Apr-22	Combined	2749	6	0.5	0.9	Bumpout, Tree Trench	Streets			Schuylkill
	1273	1273-1		13-Aug-20	Combined	1819	15	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Streets		Philadelphia Department of Parks & Recreation, Fairmount Park Conservancy	Schuylkill
		1273-2		13-Aug-20	Combined	1470	15	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1273-3		05-Apr-22	Combined	1840	15	0.4	0.6	Infiltration/Storage Trench	Streets			Schuylkill
		1273-4		05-Apr-22	Combined	1370	15	0.3	0.4	Infiltration/Storage Trench	Streets			Schuylkill
		1273-5		09-Feb-22	Combined	2179	15	0.5	0.7	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1273-6		20-Jan-22	Combined	4424	15	0.9	1.4	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1273-7		06-May-21	Combined	2493	15	0.5	0.8	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1273-8		11-Feb-22	Combined	6303	15	1.1	2.0	Tree Trench	Streets			Schuylkill
50171	1274	1274-1	South Street Headhouse Square	12-May-21	Combined	12780	0	2.2	3.8	Infiltration/Storage Trench	Streets	$703,000.00	Department of Public Property, Philadelphia Streets Department	Delaware
50174	1279	1279-1	Tioga Green Streets Phase I & II	05-Aug-20	Combined	1127	29	0.2	0.5	Tree Trench	Streets	$1,689,000.00		Delaware
		1279-10		06-Oct-20	Combined	2402	29	0.4	0.8	Tree Trench	Streets			Delaware
		1279-11		05-Oct-20	Combined	1460	29	0.3	0.5	Tree Trench	Streets			Delaware
		1279-12		05-Oct-20	Combined	923	29	0.2	0.3	Tree Trench	Streets			Delaware
		1279-13		27-Oct-20	Combined	1748	29	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		1279-14		06-Oct-20	Combined	1115	29	0.2	0.4	Tree Trench	Streets			Delaware
		1279-2		05-Aug-20	Combined	883	29	0.1	0.3	Tree Trench	Streets			Delaware
		1279-3		05-Aug-20	Combined	1431	29	0.4	0.6	Tree Trench	Streets			Delaware
		1279-4		08-Oct-20	Combined	1087	29	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1279-5		07-Aug-20	Combined	1732	29	0.2	0.5	Tree Trench	Streets			Delaware
		1279-6		08-Jun-20	Combined	1987	29	0.3	0.6	Tree Trench	Streets			Delaware
		1279-7		05-Aug-20	Combined	2034	29	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		1279-8		07-Oct-20	Combined	2766	29	0.6	1.0	Infiltration/Storage Trench, Tree Trench	Streets			Delaware
		1279-9		07-Oct-20	Combined	1282	29	0.2	0.4	Tree Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50175	1281	1281-1	American Street Corridor Improvements	30-Aug-18	Combined	3227	269	0.5	0.9	Infiltration/Storage Trench, Rain Garden	Streets	$5,203,000.00		Delaware
		1281-10		21-Apr-21	Combined	7223	269	0.8	1.7	Tree Trench	Streets			Delaware
		1281-11		21-Apr-21	Combined	4097	269	0.5	1.0	Tree Trench	Streets			Delaware
		1281-12		21-Apr-21	Combined	2272	269	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware
		1281-13		21-Apr-21	Combined	6198	269	0.8	1.7	Swale	Streets			Delaware
		1281-14		21-Apr-21	Combined	5196	269	0.5	0.9	Swale	Streets			Delaware
		1281-15		19-Nov-20	Combined	11715	269	1.6	3.2	Infiltration/Storage Trench	Streets			Delaware
		1281-16		19-Nov-20	Combined	5431	269	0.7	1.4	Infiltration/Storage Trench	Streets			Delaware
		1281-17		19-Nov-20	Combined	6771	269	0.9	1.8	Swale	Streets			Delaware
		1281-18		19-Nov-20	Combined	6057	269	0.8	1.6	Swale	Streets			Delaware
		1281-19		01-Dec-20	Combined	5570	269	0.7	1.5	Swale	Streets			Delaware
		1281-2		02-Apr-19	Combined	696	269	0.1	0.2	Tree Trench	Streets			Delaware
		1281-20		01-Dec-20	Combined	7304	269	1.0	2.0	Infiltration/Storage Trench, Swale	Streets			Delaware
		1281-21		01-Dec-20	Combined	4458	269	0.6	1.3	Infiltration/Storage Trench	Streets			Delaware
		1281-22		01-Dec-20	Combined	4057	269	0.5	1.1	Infiltration/Storage Trench	Streets			Delaware
		1281-23		01-Dec-20	Combined	4054	269	0.6	1.1	Infiltration/Storage Trench	Streets			Delaware
		1281-24		01-Dec-20	Combined	3551	269	0.5	0.9	Infiltration/Storage Trench	Streets			Delaware
		1281-25		11-Dec-20	Combined	6744	269	0.7	1.3	Infiltration/Storage Trench	Streets			Delaware
		1281-26		21-May-21	Combined	3236	269	0.5	0.9	Infiltration/Storage Trench	Streets			Delaware
		1281-27		11-Dec-20	Combined	5019	269	0.7	1.4	Infiltration/Storage Trench	Streets			Delaware
		1281-28		11-Dec-20	Combined	3231	269	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware
		1281-29		11-Dec-20	Combined	4144	269	0.4	0.8	Swale	Streets			Delaware
		1281-3		28-Nov-18	Combined	1265	269	0.3	0.4	Tree Trench	Streets			Delaware
		1281-30		11-Dec-20	Combined	6167	269	0.8	1.7	Swale	Streets			Delaware
		1281-31		11-Dec-20	Combined	8133	269	0.9	1.8	Infiltration/Storage Trench, Swale	Streets			Delaware
		1281-32		11-Dec-20	Combined	3879	269	0.5	1.1	Infiltration/Storage Trench, Swale	Streets			Delaware
		1281-33		20-Apr-21	Combined	2375	269	0.3	0.7	Tree Trench	Streets			Delaware
		1281-34		20-Apr-21	Combined	6408	269	0.9	1.7	Tree Trench	Streets			Delaware
		1281-35		12-Dec-20	Combined	3366	269	0.5	0.9	Tree Trench	Streets			Delaware
		1281-36		12-Dec-20	Combined	5900	269	0.8	1.6	Bumpout, Tree Trench	Streets			Delaware
		1281-37		25-May-21	Combined	7784	269	1.0	2.1	Bumpout, Tree Trench	Streets			Delaware
		1281-38		12-Dec-20	Combined	4466	269	0.7	1.4	Infiltration/Storage Trench	Streets			Delaware
		1281-39		25-May-21	Combined	7947	269	1.0	2.1	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1281-4		05-Apr-21	Combined	3145	269	0.5	0.9	Infiltration/Storage Trench	Streets			Delaware
		1281-40		01-Dec-20	Combined	3191	269	0.4	0.9	Infiltration/Storage Trench	Streets			Delaware
		1281-41		20-Apr-21	Combined	4035	269	0.5	1.1	Tree Trench	Streets			Delaware
		1281-42		20-Apr-21	Combined	3661	269	0.5	1.0	Infiltration/Storage Trench	Streets			Delaware
		1281-5		12-Sep-18	Combined	1805	269	0.2	0.5	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1281-6		05-Sep-18	Combined	1778	269	0.2	0.5	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1281-7		28-Jun-19	Combined	5014	269	0.6	1.3	Tree Trench	Streets			Delaware
		1281-9		21-Apr-21	Combined	6479	269	0.9	1.8	Tree Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50177	1287	1287-1	Wayne and Manheim Streets	05-Nov-20	Combined	1603	21	0.2	0.4	Tree Trench	Streets	$1,776,000.00		Schuylkill,TTF
		1287-10		05-Nov-20	Combined	1128	21	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill,TTF
		1287-11		03-Dec-20	Combined	1985	21	0.3	0.6	Infiltration/Storage Trench	Streets			Schuylkill,TTF
		1287-12		10-Jun-20	Combined	1084	21	0.2	0.3	Tree Trench	Streets			Schuylkill,TTF
		1287-13		03-Dec-20	Combined	1301	21	0.2	0.4	Tree Trench	Streets			Schuylkill,TTF
		1287-2		05-Nov-20	Combined	2486	21	0.3	0.7	Tree Trench	Streets			Schuylkill,TTF
		1287-3		05-Nov-20	Combined	1555	21	0.2	0.5	Tree Trench	Streets			Schuylkill,TTF
		1287-4		10-Jun-20	Combined	1998	21	0.3	0.6	Tree Trench	Streets			Schuylkill,TTF
		1287-5		10-Jun-20	Combined	2058	21	0.3	0.6	Tree Trench	Streets			Schuylkill,TTF
		1287-6		10-Jun-20	Combined	1525	21	0.2	0.5	Tree Trench	Streets			Schuylkill,TTF
		1287-7		05-Nov-20	Combined	1911	21	0.5	0.6	Infiltration/Storage Trench	Streets			Schuylkill,TTF
		1287-8		05-Nov-20	Combined	1687	21	0.5	0.5	Infiltration/Storage Trench	Streets			Schuylkill,TTF
		1287-9		10-Jun-20	Combined	868	21	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill,TTF
50179	1288	1288-1	Berks & Sedgley Greening	05-Dec-18	Combined	1201	17	0.2	0.4	Infiltration/Storage Trench, Planter	Streets	$1,795,000.00		Schuylkill
		1288-10		09-Nov-18	Combined	2109	17	0.3	0.6	Infiltration/Storage Trench	Streets			Schuylkill
		1288-11		29-Oct-18	Combined	1483	17	0.3	0.6	Tree Trench	Streets			Schuylkill
		1288-2		05-Dec-18	Combined	807	17	0.1	0.2	Infiltration/Storage Trench	Streets			Schuylkill
		1288-3		20-Dec-18	Combined	862	17	0.2	0.3	Tree Trench	Streets			Schuylkill
		1288-4		05-Dec-18	Combined	1347	17	0.3	0.5	Infiltration/Storage Trench, Planter	Streets			Schuylkill
		1288-5		14-Feb-19	Combined	5680	17	1.2	1.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1288-6		28-Feb-19	Combined	2328	17	0.7	0.8	Infiltration/Storage Trench	Streets			Schuylkill
		1288-7		30-Oct-18	Combined	1260	17	0.2	0.5	Tree Trench	Streets			Schuylkill
		1288-8		25-Oct-18	Combined	2016	17	0.4	0.6	Infiltration/Storage Trench	Streets			Schuylkill
		1288-9		25-Oct-18	Combined	1049	17	0.2	0.4	Infiltration/Storage Trench	Streets			Schuylkill
50181	1290	1290-1	16th Police District Headquarters Improvements	13-Jul-23	Combined	824	2	0.2	0.3	Infiltration/Storage Trench	Streets	$1,624,000.00		Schuylkill
		1290-2		13-Jul-23	Combined	469	2	0.1	0.2	Infiltration/Storage Trench	Streets			Schuylkill
		1290-3		13-Jul-23	Combined	717	2	0.2	0.3	Tree Trench	Streets			Schuylkill
		1290-4		13-Jul-23	Combined	409	2	0.1	0.2	Infiltration/Storage Trench	Streets			Schuylkill
	1291	1291-1		13-Jul-23	Combined	1430	0	0.3	0.5	Infiltration/Storage Trench, Planter	Facilities			Schuylkill
		1291-2		13-Jul-23	Combined	12358	0	1.8	3.6	Infiltration/Storage Trench	Parking			Schuylkill
50182	1296	1296-1	Feltonville Plaza	08-Apr-22	Combined	1042	13	0.2	0.4	Infiltration/Storage Trench, Rain Garden	Streets	$1,295,000.00		TTF
		1296-10		17-Mar-22	Combined	2081	13	0.3	0.6	Tree Trench	Streets			TTF
		1296-11		18-Mar-22	Combined	2182	13	0.5	0.7	Infiltration/Storage Trench	Streets			TTF
		1296-2		24-Mar-22	Combined	1264	13	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1296-3		20-Apr-22	Combined	1097	13	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1296-4		20-Apr-22	Combined	1647	13	0.3	0.5	Infiltration/Storage Trench	Streets			TTF
		1296-5		04-Apr-22	Combined	1247	13	0.3	0.4	Infiltration/Storage Trench	Streets			TTF
		1296-6		20-Apr-22	Combined	3282	13	0.5	1.0	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1296-7		05-Apr-22	Combined	3315	13	0.5	0.9	Bumpout, Tree Trench	Streets			TTF
		1296-8		24-Mar-22	Combined	2008	13	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			TTF
		1296-9		18-Mar-22	Combined	1261	13	0.2	0.5	Infiltration/Storage Trench	Streets			TTF

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50184	1299	1299-1	Port Richmond Green Streets Improvements	07-Oct-20	Combined	1724	35	0.3	0.5	Tree Trench	Streets	$1,653,000.00		Delaware,TTF
		1299-10		07-Oct-20	Combined	1799	35	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1299-11		07-Oct-20	Combined	2955	35	0.5	0.9	Tree Trench	Streets			Delaware,TTF
		1299-12		07-Oct-20	Combined	1597	35	0.2	0.4	Tree Trench	Streets			Delaware,TTF
		1299-2		07-Oct-20	Combined	1775	35	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware,TTF
		1299-3		07-Oct-20	Combined	1034	35	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware,TTF
		1299-4		07-Oct-20	Combined	1262	35	0.2	0.4	Tree Trench	Streets			Delaware,TTF
		1299-5		07-Oct-20	Combined	2459	35	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware,TTF
		1299-6		07-Oct-20	Combined	2077	35	0.4	0.6	Tree Trench	Streets			Delaware,TTF
		1299-7		07-Oct-20	Combined	2187	35	0.3	0.6	Infiltration/Storage Trench	Streets			Delaware,TTF
		1299-8		07-Oct-20	Combined	2321	35	0.3	0.6	Tree Trench	Streets			Delaware,TTF
		1299-9		07-Oct-20	Combined	1420	35	0.3	0.4	Tree Trench	Streets			Delaware,TTF
50186	1301	1301-1	Jefferson Street Green Improvements	05-Mar-24	Combined	1505	20	0.3	0.5	Tree Trench	Streets	$2,408,000.00		Cobbs-Darby,Schuylkill
		1301-10		05-Mar-24	Combined	4774	20	0.9	1.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1301-11		04-Mar-24	Combined	3783	20	0.9	1.3	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1301-2		07-Mar-24	Combined	2694	20	0.7	1.0	Infiltration/Storage Trench, Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1301-3		01-Mar-24	Combined	1624	20	0.4	0.5	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1301-4		29-Feb-24	Combined	1787	20	0.3	0.6	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1301-5		07-Mar-24	Combined	1991	20	0.4	0.8	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1301-6		29-Feb-24	Combined	751	20	0.2	0.3	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1301-7		29-Feb-24	Combined	1072	20	0.2	0.4	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill
		1301-8		07-Mar-24	Combined	4122	20	1.1	1.4	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1301-9		07-Mar-24	Combined	4326	20	1.1	1.4	Infiltration/Storage Trench, Tree Trench	Streets			Cobbs-Darby,Schuylkill
50187	1302	1302-1	Palmer Park	22-Jan-21	Combined	2581	2	0.5	0.9	Infiltration/Storage Trench	Streets	$561,000.00	Philadelphia Department of Parks & Recreation	Delaware
	1303	1303-1		22-Jan-21	Combined	1721	3	0.3	0.6	Infiltration/Storage Trench, Planter	Streets			Delaware
		1303-2		22-Jan-21	Combined	629	3	0.2	0.2	Tree Trench	Streets			Delaware
50189	1307	1307-2	Newbold Green Street Improvements	04-Jun-20	Combined	2805	17	0.4	0.8	Tree Trench	Streets	$969,000.00		Schuylkill
		1307-3		16-Jun-20	Combined	1351	17	0.2	0.4	Tree Trench	Streets			Schuylkill
		1307-4		02-Jul-20	Combined	1384	17	0.3	0.5	Tree Trench	Streets			Schuylkill
		1307-5		31-Jul-20	Combined	1156	17	0.2	0.3	Tree Trench	Streets			Schuylkill
		1307-6		18-Aug-20	Combined	1156	17	0.3	0.4	Tree Trench	Streets			Schuylkill
		1307-7		25-Aug-20	Combined	2195	17	0.3	0.7	Tree Trench	Streets			Schuylkill
		1307-8		08-Sep-20	Combined	1594	17	0.3	0.5	Tree Trench	Streets			Schuylkill
50190	1308	1308-1	Clayborn & Lewis Streets GSI	12-Oct-20	Combined	6028	4	1.1	2.3	Tree Trench	Streets	$1,201,000.00		Schuylkill
		1308-3		10-Feb-22	Combined	3140	4	0.5	1.0	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1308-4		10-Feb-22	Combined	6376	4	0.9	1.7	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
50192	1311	1311-1	Heitzman Playground	11-Mar-23	Combined	37149	3	3.8	7.7	Infiltration/Storage Trench	Open Space	$2,726,000.00	Philadelphia Department of Parks & Recreation	Delaware
		1311-2		11-Mar-23	Combined	1290	3	0.2	0.4	Tree Trench	Streets			Delaware
		1311-3		11-Mar-23	Combined	1211	3	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50194	1315	1315-1	East Parkside Streets	26-Apr-22	Combined	2899	18	0.4	0.9	Bumpout, Tree Trench	Streets	$1,212,000.00		Schuylkill
		1315-2		29-Mar-22	Combined	1139	18	0.3	0.4	Tree Trench	Streets			Schuylkill
		1315-3		26-Apr-22	Combined	2534	18	0.4	0.7	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1315-4		31-Mar-22	Combined	1148	18	0.2	0.3	Tree Trench	Streets			Schuylkill
		1315-5		26-Apr-22	Combined	1842	18	0.3	0.6	Tree Trench	Streets			Schuylkill
		1315-6		07-Jun-22	Combined	5347	18	1.2	2.4	Tree Trench	Streets			Schuylkill
		1315-7		27-Apr-22	Combined	1463	18	0.4	0.5	Infiltration/Storage Trench	Streets			Schuylkill
50195	290	290-1	Windrim Avenue Green Street	06-Apr-19	Combined	3830	0	0.6	1.2	Bumpout, Infiltration/Storage Trench	Streets	$949,000.00	Philadelphia Planning Commission, Southeastern Transportation Authority, Nicetown Community Development Corporation	TTF
		290-2		06-Apr-19	Combined	1839	0	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets			TTF
		290-3		06-Apr-19	Combined	4782	0	0.6	1.2	Bumpout, Infiltration/Storage Trench	Streets			TTF
50201	1335	1335-1	229 E Logan Street Lot	16-Aug-23	Combined	15131	13	3.1	6.2	Infiltration/Storage Trench, Rain Garden	Vacant Land	$1,568,000.00		TTF
50202	1334	1334-1	Bringhurst Park Package	04-May-23	Combined	976	4	0.3	0.3	Infiltration/Storage Trench	Streets	$961,000.00		TTF
		1334-2		04-May-23	Combined	1028	4	0.2	0.3	Infiltration/Storage Trench	Streets			TTF
		1334-3		04-May-23	Combined	1624	4	0.3	0.5	Infiltration/Storage Trench	Streets			TTF
		1334-4		04-May-23	Combined	2585	4	0.5	0.8	Rain Garden, Tree Trench	Open Space			TTF
50203	1336 *	1336-1	Penrose Avenue	06-Sep-23	Combined	1322	12	0.2	0.4	Infiltration/Storage Trench	Streets	$1,463,000.00		Schuylkill
		1336-2		06-Sep-22	Combined	5362	12	1.0	1.7	Infiltration/Storage Trench, Rain Garden, Swale	Streets			Schuylkill
		1336-3		07-Nov-23	Combined	1935	12	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1336-5		04-May-23	Combined	3247	12	0.4	0.9	Infiltration/Storage Trench	Streets			Schuylkill
		1336-6		06-Sep-22	Combined	5689	12	0.9	1.7	Infiltration/Storage Trench	Streets			Schuylkill
		1336-7		04-May-23	Combined	4682	12	0.8	1.5	Infiltration/Storage Trench	Streets			Schuylkill
50204	1339	1339-1	Yorktown Courtyards Improvement Package	12-Jan-24	Combined	2386	14	0.4	0.7	Tree Trench	Streets	$1,491,000.00		Delaware
		1339-2		12-Jan-24	Combined	2223	14	0.5	0.7	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1339-3		12-Jan-24	Combined	2187	14	0.4	0.7	Infiltration/Storage Trench, Planter	Streets			Delaware
		1339-4		17-Nov-23	Combined	2289	14	0.5	0.7	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1339-5		17-Nov-23	Combined	2307	14	0.3	0.6	Tree Trench	Streets			Delaware
		1339-7		06-Nov-23	Combined	1268	14	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1339-8		06-Nov-23	Combined	1780	14	0.4	0.6	Tree Trench	Streets			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50205	1341	1341-1	Mantua Greenway Neighborhood Connections	07-Sep-23	Combined	742	25	0.2	0.3	Infiltration/Storage Trench	Streets	$1,954,000.00		Schuylkill
		1341-10		07-Sep-23	Combined	1450	25	0.4	0.5	Tree Trench	Streets			Schuylkill
		1341-11		07-Sep-23	Combined	1790	25	0.5	0.6	Tree Trench	Streets			Schuylkill
		1341-2		07-Sep-23	Combined	1767	25	0.4	0.6	Tree Trench	Streets			Schuylkill
		1341-3		07-Jul-23	Combined	1424	25	0.3	0.5	Infiltration/Storage Trench	Streets			Schuylkill
		1341-4		07-Sep-23	Combined	4702	25	1.2	1.4	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1341-5		07-Jul-23	Combined	1505	25	0.4	0.5	Tree Trench	Streets			Schuylkill
		1341-6		08-Sep-23	Combined	1143	25	0.3	0.4	Tree Trench	Streets			Schuylkill
		1341-7		07-Jul-23	Combined	1251	25	0.3	0.4	Tree Trench	Streets			Schuylkill
		1341-8		07-Jul-23	Combined	1710	25	0.3	0.6	Tree Trench	Streets			Schuylkill
		1341-9		21-Sep-23	Combined	1090	25	0.2	0.4	Tree Trench	Streets			Schuylkill
50207	1342	1342-1	Snyder Avenue Greening Improvements	22-May-23	Combined	1834	16	0.3	0.6	Tree Trench	Streets	$1,801,000.00		Schuylkill
		1342-10		30-Oct-23	Combined	708	16	0.2	0.3	Tree Trench	Streets			Schuylkill
		1342-11		30-Oct-23	Combined	889	16	0.2	0.3	Infiltration/Storage Trench	Streets			Schuylkill
		1342-12		30-Oct-23	Combined	931	16	0.2	0.4	Tree Trench	Streets			Schuylkill
		1342-2		22-May-23	Combined	1130	16	0.2	0.4	Infiltration/Storage Trench	Streets			Schuylkill
		1342-3		30-Oct-23	Combined	1319	16	0.3	0.4	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1342-4		06-Nov-23	Combined	1342	16	0.4	0.4	Infiltration/Storage Trench	Streets			Schuylkill
		1342-5		31-May-24	Combined	1173	16	0.2	0.3	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1342-6		30-Oct-23	Combined	756	16	0.2	0.3	Tree Trench	Streets			Schuylkill
		1342-7		30-Oct-23	Combined	606	16	0.2	0.2	Infiltration/Storage Trench	Streets			Schuylkill
		1342-8		30-Oct-23	Combined	912	16	0.3	0.3	Tree Trench	Streets			Schuylkill
		1342-9		31-May-24	Combined	1287	16	0.3	0.4	Tree Trench	Streets			Schuylkill
50210	1345 *	1345-1	24th Street Greening Improvements	27-Nov-23	Combined	2876	55	0.4	0.9	Infiltration/Storage Trench, Rain Garden	Streets	$2,560,000.00		Schuylkill
		1345-2		27-Nov-23	Combined	15450	55	1.9	3.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1345-3		27-Nov-23	Combined	3559	55	0.4	0.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1345-4		27-Nov-23	Combined	2105	55	0.3	0.5	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1345-5		27-Nov-23	Combined	9013	55	1.3	2.7	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1345-6		27-Nov-23	Combined	3372	55	0.4	0.9	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
		1345-7		27-Nov-23	Combined	5471	55	0.7	1.4	Infiltration/Storage Trench, Rain Garden	Streets			Schuylkill
50211	1347	1347-1	Mifflin Square	01-Aug-22	Combined	4183	13	0.6	1.3	Tree Trench	Open Space	$1,246,000.00		Delaware
		1347-2		23-May-22	Combined	6415	13	0.9	1.8	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
		1347-3		23-May-22	Combined	3780	13	0.7	1.2	Tree Trench	Open Space			Delaware
		1347-4		23-May-22	Combined	2883	13	0.4	0.8	Tree Trench	Open Space			Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50212	1348	1348-1	Fairmount Ave Greening Improvements	19-May-20	Combined	2179	16	0.5	0.7	Infiltration/Storage Trench	Streets	$1,175,000.00		Delaware,Schuylkill
		1348-2		04-Jun-20	Combined	1920	16	0.3	0.6	Tree Trench	Streets			Delaware,Schuylkill
		1348-3		25-Jun-20	Combined	1254	16	0.2	0.4	Tree Trench	Streets			Delaware,Schuylkill
		1348-4		07-Aug-20	Combined	1054	16	0.3	0.4	Infiltration/Storage Trench	Streets			Delaware,Schuylkill
		1348-5		17-Jun-20	Combined	2527	16	0.4	0.7	Tree Trench	Streets			Delaware,Schuylkill
		1348-6		07-Aug-20	Combined	2475	16	0.3	0.6	Tree Trench	Streets			Delaware,Schuylkill
		1348-7		07-Aug-20	Combined	5740	16	0.9	1.8	Infiltration/Storage Trench	Streets			Delaware,Schuylkill
		1348-8		07-Aug-20	Combined	1474	16	0.2	0.4	Tree Trench	Streets			Delaware,Schuylkill
		1348-9		07-Aug-20	Combined	1576	16	0.3	0.5	Tree Trench	Streets			Delaware,Schuylkill
50215	1354 *	1354-1	Fairmount Neighborhood Bumpouts	06-Apr-23	Combined	1421	27	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets	$1,750,000.00		Schuylkill
		1354-2		16-Feb-23	Combined	869	27	0.1	0.3	Tree Trench	Streets			Schuylkill
		1354-3		06-Apr-23	Combined	3099	27	0.6	1.0	Tree Trench	Streets			Schuylkill
		1354-4		06-Apr-23	Combined	4131	27	0.8	1.3	Tree Trench	Streets			Schuylkill
		1354-5		06-Apr-23	Combined	3078	27	0.9	1.0	Bumpout, Tree Trench	Streets			Schuylkill
		1354-6		06-Apr-23	Combined	1713	27	0.5	0.8	Tree Trench	Streets			Schuylkill
		1354-7		16-Feb-23	Combined	948	27	0.2	0.3	Tree Trench	Streets			Schuylkill
50217	1359	1359-1	Lawncrest Streets North	26-Oct-20	Combined	1855	10	0.5	0.6	Tree Trench	Streets	$1,699,000.00		Delaware,TTF
		1359-10		27-Jan-21	Combined	584	10	0.1	0.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-11		19-Apr-21	Combined	1421	10	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1359-12		04-Nov-20	Combined	1504	10	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1359-13		11-Nov-20	Combined	1743	10	0.4	0.5	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-14		11-Nov-20	Combined	1368	10	0.4	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-2		26-Oct-20	Combined	1062	10	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-3		26-Oct-20	Combined	1053	10	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-4		26-Oct-20	Combined	1732	10	0.5	0.6	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-5		17-Nov-20	Combined	1184	10	0.3	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-6		09-Nov-20	Combined	915	10	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-7		19-Apr-21	Combined	2673	10	0.7	0.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-8		07-Jan-21	Combined	833	10	0.1	0.2	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1359-9		07-Jan-21	Combined	1652	10	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50219	1360 *	1360-1	Shunk Street Greening Improvements	22-Mar-24	Combined	2841	8	0.4	0.8	Bumpout, Infiltration/Storage Trench	Streets	$2,776,000.00		Delaware
		1360-10		02-Feb-24	Combined	1965	8	0.4	0.6	Bumpout, Tree Trench	Streets			Delaware
		1360-11		24-Nov-23	Combined	1506	8	0.2	0.5	Infiltration/Storage Trench	Streets			Delaware
		1360-12		24-Nov-23	Combined	1584	8	0.3	0.7	Bumpout, Tree Trench	Streets			Delaware
		1360-2		02-Feb-24	Combined	1350	8	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1360-3		29-Dec-23	Combined	3029	8	0.4	0.8	Infiltration/Storage Trench	Streets			Delaware
		1360-4		03-Apr-24	Combined	2201	8	0.4	0.7	Bumpout, Tree Trench	Streets			Delaware
		1360-5		20-Dec-23	Combined	1297	8	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1360-6		20-Dec-23	Combined	1437	8	0.3	0.5	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1360-7		30-Nov-23	Combined	1640	8	0.3	0.6	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1360-8		22-Mar-24	Combined	1110	8	0.2	0.4	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1360-9		22-Mar-24	Combined	1998	8	0.4	0.8	Bumpout, Tree Trench	Streets			Delaware
50221	1363	1363-1	Lawndale Streets East	17-Nov-23	Combined	2614	14	0.5	0.8	Infiltration/Storage Trench	Streets	$2,095,000.00		Delaware,TTF
		1363-10		17-Nov-23	Combined	935	14	0.2	0.3	Infiltration/Storage Trench	Streets			Delaware,TTF
		1363-2		17-Nov-23	Combined	1837	14	0.3	0.6	Tree Trench	Streets			Delaware,TTF
		1363-3		17-Nov-23	Combined	2171	14	0.4	0.7	Infiltration/Storage Trench	Streets			Delaware,TTF
		1363-4		17-Nov-23	Combined	3711	14	0.6	1.1	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1363-5		17-Nov-23	Combined	2173	14	0.4	0.7	Tree Trench	Streets			Delaware,TTF
		1363-6		17-Nov-23	Combined	918	14	0.2	0.3	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1363-8		17-Nov-23	Combined	2005	14	0.4	0.6	Tree Trench	Streets			Delaware,TTF
		1363-9		17-Nov-23	Combined	4481	14	1.0	1.5	Bumpout, Tree Trench	Streets			Delaware,TTF
50222	1374	1374-1	48th & Warrington Green Streets Improvements	03-Oct-23	Combined	2008	11	0.5	0.6	Tree Trench	Streets	$1,029,000.00		Cobbs-Darby,Schuylkill
		1374-2		16-Oct-23	Combined	1670	11	0.4	0.6	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1374-3		06-Dec-23	Combined	1404	11	0.3	0.5	Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1374-4		14-Nov-23	Combined	2499	11	0.6	0.8	Infiltration/Storage Trench, Tree Trench	Streets			Cobbs-Darby,Schuylkill
		1374-5		13-Nov-23	Combined	907	11	0.2	0.3	Infiltration/Storage Trench	Streets			Cobbs-Darby,Schuylkill

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50226	1382	1382-1	Tabor Ave	15-May-24	Combined	1661	75	0.4	0.6	Infiltration/Storage Trench	Streets	$3,357,000.00		Delaware,TTF
		1382-11		15-May-24	Combined	3218	75	0.7	1.4	Tree Trench	Streets			Delaware,TTF
		1382-12		15-May-24	Combined	3052	75	0.6	1.3	Tree Trench	Streets			Delaware,TTF
		1382-13		15-May-24	Combined	8515	75	1.7	3.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1382-14		15-May-24	Combined	2599	75	0.6	1.1	Bumpout, Infiltration/Storage Trench	Streets			Delaware,TTF
		1382-15		15-May-24	Combined	5319	75	1.0	1.7	Tree Trench	Streets			Delaware,TTF
		1382-16		15-May-24	Combined	7134	75	1.3	2.5	Tree Trench	Streets			Delaware,TTF
		1382-17		15-May-24	Combined	4339	75	1.0	1.4	Tree Trench	Streets			Delaware,TTF
		1382-18		15-May-24	Combined	2769	75	0.5	0.9	Tree Trench	Streets			Delaware,TTF
		1382-19		17-Apr-24	Combined	2524	75	0.4	0.8	Tree Trench	Streets			Delaware,TTF
		1382-2		15-May-24	Combined	2398	75	0.5	0.9	Tree Trench	Streets			Delaware,TTF
		1382-3		15-May-24	Combined	1716	75	0.4	0.7	Infiltration/Storage Trench	Streets			Delaware,TTF
		1382-5		15-May-24	Combined	3023	75	0.7	1.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1382-7		15-May-24	Combined	2590	75	0.5	0.9	Tree Trench	Streets			Delaware,TTF
		1382-9		15-May-24	Combined	3220	75	0.7	1.4	Tree Trench	Streets			Delaware,TTF
50229	1383	1383-1	Columbia Field	11-Dec-20	Combined	10064	12	1.4	2.8	Infiltration/Storage Trench, Rain Garden	Open Space	$577,000.00		Delaware
50232	1387	1387-1	Waterloo Playground	10-Nov-21	Combined	2550	13	0.4	0.7	Tree Trench	Open Space	$320,000.00	Department of Public Property	Delaware
		1387-2		10-Nov-21	Combined	2096	13	0.5	0.9	Infiltration/Storage Trench, Rain Garden	Open Space			Delaware
50235	1392	1392-1	Heitzman Playground Streets	22-Oct-20	Combined	1614	7	0.3	0.5	Tree Trench	Streets	$1,097,000.00		Delaware,TTF
		1392-2		22-Oct-20	Combined	3460	7	0.7	1.1	Tree Trench	Streets			Delaware,TTF
		1392-3		22-Oct-20	Combined	1812	7	0.4	0.6	Infiltration/Storage Trench	Streets			Delaware,TTF
		1392-4		22-Oct-20	Combined	2005	7	0.5	0.7	Infiltration/Storage Trench	Streets			Delaware,TTF
		1392-5		22-Oct-20	Combined	1334	7	0.3	0.4	Tree Trench	Streets			Delaware,TTF
		1392-6		22-Oct-20	Combined	3076	7	0.6	1.1	Infiltration/Storage Trench	Streets			Delaware,TTF
		1392-7		22-Oct-20	Combined	1709	7	0.4	0.5	Infiltration/Storage Trench	Streets			Delaware,TTF
50236	1393	1393-1	Frankford Pause	13-Jul-22	Combined	1702	0	0.3	0.6	Infiltration/Storage Trench, Rain Garden	Open Space	$195,000.00	Frankford Community Development Corporation	TTF
50237	1394	1394-1	Frankford and Belgrade	30-Sep-21	Combined	980	0	0.3	0.4	Infiltration/Storage Trench	Streets	$122,000.00		Delaware
50241	1403	1403-1	Awbury GSI	25-Jul-23	Combined	5407	18	1.0	1.9	Infiltration/Storage Trench, Swale	Open Space	$1,354,000.00		TTF
		1403-2		25-Jul-23	Combined	4661	18	0.8	1.6	Infiltration/Storage Trench, Swale	Open Space			TTF
		1403-3		25-Jul-23	Combined	9128	18	1.2	2.5	Infiltration/Storage Trench, Rain Garden	Open Space			TTF
50245	1410	1410-1	Rivera Recreation Center	15-Mar-24	Combined	12214	0	1.2	2.3	Infiltration/Storage Trench	Open Space	$138,000.00	Councilwoman Sanchez, Department of Parks & Recreation (PPR)	Delaware

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50247	1413 *	1413-1	Lawndale Streets West	17-Nov-23	Combined	1468	10	0.3	0.5	Infiltration/Storage Trench	Streets	$1,426,000.00		Delaware,TTF
		1413-2		17-Nov-23	Combined	1315	10	0.3	0.4	Tree Trench	Streets			Delaware,TTF
		1413-3		17-Nov-23	Combined	1430	10	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1413-4		17-Nov-23	Combined	1247	10	0.2	0.4	Tree Trench	Streets			Delaware,TTF
		1413-5		17-Nov-23	Combined	1461	10	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware,TTF
		1413-6		17-Nov-23	Combined	1306	10	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1413-7		17-Nov-23	Combined	2009	10	0.5	0.6	Infiltration/Storage Trench	Streets			Delaware,TTF
		1413-8		17-Nov-23	Combined	1354	10	0.4	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
		1413-9		17-Nov-23	Combined	1295	10	0.3	0.4	Infiltration/Storage Trench	Streets			Delaware,TTF
50262	1436	1436-2	Callowhill Street West	11-Mar-24	Combined	1776	30	0.3	0.5	Tree Trench	Streets	$2,174,000.00		Cobbs-Darby
		1436-3		11-Mar-24	Combined	3489	30	0.9	1.5	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby
		1436-4		11-Mar-24	Combined	2497	30	0.6	0.8	Bumpout, Infiltration/Storage Trench	Streets			Cobbs-Darby
		1436-5		11-Mar-24	Combined	1418	30	0.3	0.5	Tree Trench	Streets			Cobbs-Darby
		1436-6		16-Oct-23	Combined	2577	30	0.7	0.8	Tree Trench	Streets			Cobbs-Darby
		1436-7		16-Oct-23	Combined	1223	30	0.3	0.4	Tree Trench	Streets			Cobbs-Darby
		1436-8		16-Oct-23	Combined	1246	30	0.3	0.4	Tree Trench	Streets			Cobbs-Darby
50264	1438	1438-1	Huntingdon Emerald Package	15-Feb-24	Combined	6467	8	0.9	1.9	Infiltration/Storage Trench, Rain Garden	Vacant Land	$568,000.00	Arcadia Commons, Neighborhood Gardens Trust (NGT)	Delaware
50267	1441 *	1441-1	Holmesburg Streets	30-Jan-23	Combined	1766	14	0.4	0.6	Tree Trench	Streets	$1,152,000.00		Pennypack
		1441-2		21-Feb-23	Combined	2572	14	0.7	0.8	Tree Trench	Streets			Pennypack
		1441-3		21-Feb-23	Combined	983	14	0.2	0.4	Infiltration/Storage Trench	Streets			Pennypack
		1441-4		21-Dec-22	Combined	1904	14	0.5	0.6	Tree Trench	Streets			Pennypack
		1441-5		05-Dec-22	Combined	2027	14	0.5	0.7	Infiltration/Storage Trench	Streets			Pennypack
		1441-6		11-Nov-22	Combined	1274	14	0.3	0.4	Tree Trench	Streets			Pennypack
		1441-7		03-Nov-22	Combined	1419	14	0.3	0.6	Tree Trench	Streets			Pennypack
50271	1446	1446-10	57th St from Woodbine Ave to Lebanon Ave	03-May-24	Combined	3854	19	1.0	1.3	Tree Trench	Streets	$2,970,000.00		Schuylkill
		1446-11		30-Jan-24	Combined	1550	19	0.4	0.5	Tree Trench	Streets			Schuylkill
		1446-2		30-Jan-24	Combined	2179	19	0.5	0.7	Infiltration/Storage Trench	Streets			Schuylkill
		1446-3		30-Jan-24	Combined	3491	19	0.7	1.1	Infiltration/Storage Trench	Streets			Schuylkill
		1446-4		30-Jan-24	Combined	2232	19	0.5	0.7	Infiltration/Storage Trench	Streets			Schuylkill
		1446-5		30-Jan-24	Combined	3654	19	0.8	1.2	Bumpout, Infiltration/Storage Trench	Streets			Schuylkill
		1446-6		30-Jan-24	Combined	1729	19	0.4	0.5	Infiltration/Storage Trench	Streets			Schuylkill
		1446-7		03-May-24	Combined	2629	19	0.6	0.9	Tree Trench	Streets			Schuylkill
		1446-8		03-May-24	Combined	2090	19	0.4	0.6	Tree Trench	Streets			Schuylkill
50272	1447	1447-1	East Poplar Green Streets	10-Jan-23	Combined	3008	10	0.7	1.0	Tree Trench	Streets	$1,143,000.00		Delaware
		1447-2		19-Jan-23	Combined	1683	10	0.4	0.5	Infiltration/Storage Trench, Planter	Streets			Delaware
		1447-3		10-Jan-23	Combined	1552	10	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1447-4		19-Jan-23	Combined	1159	10	0.2	0.4	Infiltration/Storage Trench, Rain Garden	Streets			Delaware
		1447-5		20-Jan-23	Combined	1375	10	0.3	0.4	Infiltration/Storage Trench	Streets			Delaware
		1447-6		29-Mar-23	Combined	2175	10	0.5	0.7	Bumpout, Infiltration/Storage Trench	Streets			Delaware
50279	1459	1459-1	Holman Field	26-Apr-23	Combined	9740	3	1.9	3.7	Tree Trench	Open Space	$994,000.00		TTF

Work Number	Project ID	System Number	Project Name	Construction Completion Date	Sewer Type	Storage Volume (cf)	New Trees	Drainage Area (acres)	Greened Acres (acre-inches)	SMP Type	Program	Green Construction Cost **	Partner(s)	Watershed
50290	1477	1477-1	Cottage and Jackson Streets	21-Mar-24	Combined	4183	17	1.0	1.3	Bumpout, Tree Trench	Streets	$3,403,000.00		Delaware
		1477-10		30-Aug-23	Combined	1395	17	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1477-11		30-Aug-23	Combined	1550	17	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1477-12		30-Aug-23	Combined	1107	17	0.3	0.5	Infiltration/Storage Trench	Streets			Delaware
		1477-2		21-Mar-24	Combined	3309	17	0.7	1.0	Bumpout, Tree Trench	Streets			Delaware
		1477-3		01-Mar-24	Combined	3528	17	0.8	1.1	Bumpout, Tree Trench	Streets			Delaware
		1477-4		01-Mar-24	Combined	3699	17	0.8	1.2	Bumpout, Tree Trench	Streets			Delaware
		1477-5		01-Mar-24	Combined	2617	17	0.5	0.8	Bumpout, Infiltration/Storage Trench	Streets			Delaware
		1477-6		05-Nov-23	Combined	2422	17	0.6	0.8	Tree Trench	Streets			Delaware
		1477-7		05-Nov-23	Combined	1423	17	0.2	0.4	Infiltration/Storage Trench	Streets			Delaware
		1477-8		05-Nov-23	Combined	2797	17	0.6	0.9	Infiltration/Storage Trench	Streets			Delaware
		1477-9		30-Aug-23	Combined	1352	17	0.3	0.7	Infiltration/Storage Trench	Streets			Delaware
50298	1491	1491-1	Hunting Park Cool Cover 1		Combined	2151	24	0.4	0.7	Tree Trench	Streets	$1,816,000.00		Delaware,TTF
		1491-2			Combined	1611	24	0.3	0.5	Tree Trench	Streets			Delaware,TTF
		1491-3			Combined	3302	24	0.8	1.1	Tree Trench	Streets			Delaware,TTF
		1491-4			Combined	2691	24	0.7	0.8	Tree Trench	Streets			Delaware,TTF
		1491-5			Combined	1631	24	0.4	0.5	Tree Trench	Streets			Delaware,TTF
		1491-6			Combined	1230	24	0.3	0.4	Tree Trench	Streets			Delaware,TTF
		1491-7			Combined	1246	24	0.3	0.4	Tree Trench	Streets			Delaware,TTF
		1491-8			Combined	1763	24	0.4	0.5	Tree Trench	Streets			Delaware,TTF
50299	1495	1495-1	51st St from Cedar to Walnut	01-Mar-24	Combined	3499	48	0.7	1.0	Bumpout, Infiltration/Storage Trench	Streets	$3,905,000.00		Cobbs-Darby,Schuylkill
50315	1524	1524-1	Lehigh & Sedgley Green Triangle	01-Nov-23	Combined	6149	20	0.9	1.8	Rain Garden, Tree Trench	Streets	$1,395,000.00		Delaware
		1524-2		01-Aug-23	Combined	2138	20	0.4	0.7	Tree Trench	Streets			Delaware
		1524-3		01-Aug-23	Combined	1157	20	0.2	0.4	Tree Trench	Streets			Delaware
		1524-4		01-Aug-23	Combined	1528	20	0.2	0.4	Tree Trench	Streets			Delaware
		1524-5		01-Aug-23	Combined	1878	20	0.4	0.6	Infiltration/Storage Trench	Streets			Delaware
		1524-6		13-Jan-23	Combined	2707	20	0.6	0.9	Tree Trench	Streets			Delaware
		1524-7		05-Jan-23	Combined	1057	20	0.2	0.3	Tree Trench	Streets			Delaware
50320	1544	1544-2	Small Sites & ROW Connections	02-Sep-22	Combined	4257	5	1.1	1.4	Rain Garden, Tree Trench	Vacant Land	$778,000.00		Delaware
50329	1560	1560-1	Ziehler Playground	05-Apr-24	Combined	10287	19	1.5	3.1	Infiltration/Storage Trench, Rain Garden	Open Space	$882,000.00	Rebuild	TTF
64056	564	564-1	Two (2) 30 Million Gallon Storage Capacity Tanks at East Park - GC	25-Feb-20	Combined	1637	0	0.5	0.6	Rain Garden	Open Space	Unknown	Southeastern Transportation Authority, Philadelphia Department of Parks & Recreation	Schuylkill
90055	1539	1539-1	Hydrant Relocation and Green Streets Buyback: 2035 E Lehigh Ave. & Frankford Ave.	23-Jul-21	Combined	3274	8	0.6	1.0	Tree Trench	Streets	$220,000.00	Riverwards LLC	Delaware
Total Greened Acres:									**1058**					

Appendix 2

Planned Public Green Stormwater Infrastructure Projects

Planned Public Green Infrastructure Reporting Metrics

The Public Planned Projects reporting format and metric definitions are described in Table 1 below.

Table 1: Public Reporting Metric Definitions

Metric	Definition
Work Number	Work Number is a unique assigned identifier from the CIPIT program. A CIPIT work number is attached to construction proposals, bids, work orders, contracts and invoices.
Project ID	This is a unique number, which is assigned automatically by the system when the project is created.
System Number	Unique identifier for system. Composed of the project ID and the System ID.
Completion Date Estimate	Estimated date of construction completion.
Status	Current project status. Statuses include: In Design, Contract Management (In Projects Control), and In Construction.
Greened Acres (acre-inch)	Greened Acres is a metric that accounts for the conversion of a highly impervious urban landscape through the implementation of projects that reduce storm water runoff. A Greened Acre is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage at least one inch of stormwater runoff. If storage is provided, systems can credit up to two inches of the storm water runoff from that acre. The best available Greened Acre value is pulled from the database for regulatory reporting.
Estimated SMP Type(s)	A Stormwater Management Practice (SMP) is a technique that controls the rate and volume of stormwater runoff and/or improves runoff water quality. Multiple SMP types can be grouped together in a larger GSI system. The SMP types were originally defined in Table 2-1 of the IAMP.
Program	Current public programs which a greened acre can be assigned to include: • Alleys/Driveways • Campuses • Facilities • Industry and Business • Open Space • Parking • Schools • Streets • Vacant Land
Estimated Construction Cost	Projects with a status of Construction Complete will have a finalized cost of construction provided. Prior to construction completion PWD provides the engineers estimate for construction cost.
Potential Partner(s)	External entities involved in a project.

Metric	Definition
Watershed	The City of Philadelphia watershed where the project is located. Four of the City's seven watersheds fall at least partially within the combined sewer area. These watersheds are: • Cobbs Creek Watershed • Delaware Direct Watershed • Tookany/Tacony-Frankford Creek Watershed • Schuylkill River Watersheds

Table 2: Planned Public Green Stormwater Infrastructure Projects

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
20417	1061	1061-1	Combined	Delaware	Streets	Design	Infiltration/Storage Trench		TBD	2027	$425,000.00
		1061-2	Combined	Delaware	Streets	Design	Infiltration/Storage Trench		TBD	2027	
		1061-3	Combined	Delaware	Streets	Design	Infiltration/Storage Trench		TBD	2027	
		1061-4	Combined	Delaware	Streets	Design	Infiltration/Storage Trench		TBD	2027	
		1061-5	Combined	Delaware	Streets	Design	Infiltration/Storage Trench		TBD	2027	
20437	1124	1124-1	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		1.1	2025	$175,000.00
		1124-2	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	
		1124-3	Combined	Delaware	Streets	Construction	Tree Trench		0.7	2025	
		1124-4	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1124-5	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.8	2025	
		1124-6	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1124-7	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
20464	1381	1381-1	Combined	TTF, Wissahickon	Streets	Construction	Infiltration/Storage Trench		0.8	2025	$329,000.00
		1381-2	Combined	TTF, Wissahickon	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
20472	1040	1040-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	$238,000.00
20474	1243	1243-1	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.6	2026	$1,282,000.00
		1243-2	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.6	2026	
		1243-4	Combined	Delaware, TTF	Streets	Contract Management	Infiltration/Storage Trench		0.2	2026	
		1243-5	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1243-6	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.3	2026	
		1243-7	Combined	Delaware, TTF	Streets	Contract Management	Infiltration/Storage Trench		0.7	2026	
		1243-8	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.4	2026	
20479	1451		Combined	Delaware, TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20485	1126	1126-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	$464,000.00
		1126-2	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.4	2026	
		1126-3	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.4	2026	
		1126-4	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.4	2026	
20486	1282	1282-1	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.3	2025	$280,000.00
		1282-2	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1282-3	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1282-4	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.2	2025	
20487	1133	1133-1	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.5	2026	$412,000.00
		1133-2	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.6	2026	
20496	1212	1212-1	Combined	Schuylkill	Streets	Design	Tree Trench		TBD	2027	TBD
20517	1418	1418-1	Combined	TTF	Streets	Contract Management	Tree Trench		0.7	2026	$524,000.00
		1418-2	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		1.0	2026	
		1418-3	Combined	TTF	Streets	Contract Management	Tree Trench		0.4	2026	
20536	1330	1330-1	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.7	2026	$1,064,000.00
		1330-2	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.3	2026	
		1330-3	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.7	2026	
		1330-4	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.8	2026	
		1330-5	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.8	2026	
20538	1611		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20545	1586		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
20552	1489	1489-1	Combined	Delaware	Streets	Contract Management	Tree Trench		1.2	2026	$1,011,000.00
		1489-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.9	2026	
		1489-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.4	2026	
		1489-4	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
20558	1376	1376-1	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.7	2026	$178,000.00
20559	1463	1463-1	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	$136,000.00
20562	1395	1395-1	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.5	2026	$310,000.00
		1395-2	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.3	2026	
20564	1419	1419-1	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.6	2026	$1,140,000.00
		1419-2	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.6	2026	
		1419-3	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.5	2026	
		1419-4	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		1.0	2026	
		1419-5	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.6	2026	
		1419-6	Combined	TTF	Vacant Land	Contract Management	Infiltration/Storage Trench		0.4	2026	
		1419-7	Combined	TTF	Industry & Business	Contract Management	Infiltration/Storage Trench		0.7	2026	
20573	1479	1479-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.8	2026	$195,000.00
20575	1465	1465-1	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.8	2026	$818,000.00
		1465-2	Combined	TTF	Streets	Contract Management	Tree Trench		1.1	2026	
		1465-3	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		1.0	2026	
		1465-4	Combined	TTF	Streets	Contract Management	Tree Trench		0.5	2026	
20578	1542	1542-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.8	2026	$300,000.00
20579	1466		Combined	Cobbs-Darby	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20583	1470	1470-1	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.3	2026	$948,000.00
		1470-2	Combined	TTF	Schools	Contract Management	Infiltration/Storage Trench		0.7	2026	
		1470-3	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.5	2026	
		1470-4	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.5	2026	
		1470-5	Combined	TTF	Facilities	Contract Management	Infiltration/Storage Trench		0.7	2026	
20587	1589	1589-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	$572,000.00
		1589-2	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.8	2026	
20588	1487	1487-2	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.8	2026	$294,000.00
		1487-3	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.6	2026	
20597	1543		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20599	1501	1501-1	Combined	Delaware	Streets	Construction	Tree Trench		0.7	2025	$516,000.00
		1501-2	Combined	Delaware	Streets	Construction	Tree Trench		0.8	2025	
20601	1464	1464-1	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	$290,000.00
20604	1610		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20609	1484	1484-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	$478,000.00
		1484-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	
		1484-3	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	
20614	1494	1494-1	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	$520,000.00
		1494-2	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.9	2026	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
20619	1485	1485-1	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.5	2026	$1,264,000.00
		1485-2	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.7	2026	
		1485-3	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.9	2026	
		1485-4	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
20622	1523		Combined	TTF	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20624	1530		Combined, Separate	Delaware, TTF	Streets	Contract Management	Stormwater TreeTrench		0.3	2026	$180,000.00
20625	1504	1504-1	Combined	TTF	Open Space	Contract Management	Tree Trench		0.7	2026	$155,000.00
20630	1547	1547-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	$576,000.00
		1547-2	Combined	Delaware	Streets	Contract Management	Tree Trench		1.6	2026	
20636	1559		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20639	1558		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20645	1576		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20651	1590		Combined, Separate	Delaware, Pennypack	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20653	1581		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20659	1617		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20662	1650		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20664	1624		Combined	TTF	Streets	Design	Stormwater TreeTrench	Streets Department	TBD	2027	TBD
20669	1657		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
20680	1668		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
20681	1667		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
40736	236	236-1	Combined	Delaware	Streets	Contract Management	Infiltration/Storage Trench, Planter		0.3	2026	$769,000.00
		236-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		236-3	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		236-4	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		236-5	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
40780	1496		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
40826	1063	1063-1	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	$290,000.00
		1063-2	Combined	Schuylkill	Streets	Construction	Tree Trench		1.1	2025	
40860	1443	1443-1	Combined	Schuylkill	Streets	Design	Tree Trench		TBD	2027	$148,000.00
40869	1289	1289-1	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.2	2025	$171,000.00
		1289-2	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.2	2025	
		1289-3	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.5	2025	
40875	1515	1515-1	Combined	Cobbs-Darby	Streets	Design	Tree Trench		TBD	2027	TBD
40880	1591	1591-1	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		1.0	2026	$126,000.00
40899	1219	1219-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	$173,000.00
40904	1134	1134-1	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	$282,000.00
		1134-2	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.5	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
40908	1370	1370-1	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	$460,000.00
		1370-2	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.3	2026	
		1370-3	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.4	2026	
		1370-4	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.3	2026	
		1370-5	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.3	2026	
40923	1244		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
40933	1521	1521-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	$529,000.00
		1521-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.9	2026	
40939	1331	1331-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	$325,000.00
		1331-3	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
40951	1280	1280-1	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.5	2026	$164,000.00
40965	1369	1369-1	Combined	Schuylkill	Streets	Contract Management	Infiltration/Storage Trench		0.4	2026	$141,000.00
40975	1377		Combined	Schuylkill	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
40985	1375	1375-1	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	$524,000.00
		1375-2	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
		1375-3	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	
		1375-4	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
40989	1340	1340-1	Combined	Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	$517,000.00
		1340-2	Combined	Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
		1340-3	Combined	Pennypack	Streets	Contract Management	Tree Trench		0.5	2026	
		1340-4	Combined	Pennypack	Streets	Contract Management	Tree Trench		0.5	2026	
		1340-5	Combined	Pennypack	Streets	Contract Management	Tree Trench		0.3	2026	
40990	1355	1355-1	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.3	2026	$555,000.00
		1355-2	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.5	2026	
		1355-3	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.5	2026	
41008	1402	1402-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	$95,000.00
41033	1505		Combined	Schuylkill	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
41049	1398	1398-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	$625,000.00
41064	1452		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41068	1407	1407-1	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.4	2026	$94,000.00
41070	1435	1435-1	Combined	Delaware, Schuylkill	Streets	Contract Management	Tree Trench	Delaware Valley Regional Planning Commission (DVRPC), Philadelphia Free Library	0.5	2026	$573,000.00
		1435-2	Combined	Delaware, Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	
		1435-3	Combined	Delaware, Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	
41071	1471	1471-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	$751,000.00
		1471-2	Combined	Schuylkill	Streets	Contract Management	Tree Trench		1.3	2026	
41072	1609		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41080	1506		Combined	Schuylkill	Streets	Contract Management	Infiltration Storage Trench,		0.8	2026	$339,000.00
41098	1518	1518-1	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.8	2026	$1,211,000.00
		1518-2	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.6	2026	
		1518-3	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.6	2026	
		1518-4	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.5	2026	
		1518-5	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.4	2026	
41103	1492		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41105	1497	1497-1	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.5	2026	$185,000.00

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
41116	1601		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41117	1551		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41122	1514		Combined	Delaware	Streets	Contract Management	Infiltration Storage Trench,		0.6	2026	$273,000.00
41124	1540		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41126	1549		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41135	1553	1553-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.7	2026	$513,000.00
		1553-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1553-3	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
41137	1588	1588-1	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.4	2026	$399,000.00
		1588-2	Combined	Cobbs-Darby	Streets	Contract Management	Tree Trench		0.5	2026	
41140	1643		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41144	1596		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41147	1623		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41148	1661		Combined	Delaware	Open Space, Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41149	1555	1555-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	$194,000.00
41153	1595		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41164	1653		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41166	1640		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
41167	1633		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41174	1678		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41179	1644		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41180	1614		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41181	1615		Combined	TTF	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
41183	1679		Combined	TTF	Streets	Design	Stormwater TreeTrench	Christ Baptist Church	TBD	2027	TBD
41187	1621		Combined	Delaware, Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
41189	1629		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41191	1637		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
41199	1646		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41201	1654		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
41203	1658		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41208	1666		Combined	Delaware	Streets	Design	Stormwater TreeTrench	Streets Department	TBD	2027	TBD
41211	1671		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41212	1677		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41220	1681		Combined	Schuylkill	Streets	Design	Infiltration Storage Trench,		TBD	2027	TBD
41221	1686		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41224	1691		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
41228	1696		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
41237	1711		Combined	Delaware	Streets	Design			TBD	2027	TBD
41240	1714		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50107	1052	1052-1	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Infiltration/Storage Trench		TBD	2027	$3,065,000.00
		1052-10	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-11	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-12	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-13	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-14	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1052-15	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Infiltration/Storage Trench, Planter		TBD	2027	
		1052-2	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1052-3	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-4	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-5	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-6	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-7	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-8	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1052-9	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
50126	1088	1088-1	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	$975,000.00
		1088-2	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.6	2025	
		1088-3	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1088-4	Combined	TTF	Streets	Construction	Infiltration/Storage Trench, Planter		1.2	2025	
	1262	1262-1	Combined	Delaware	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	
		1262-2	Combined	Delaware	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.7	2025	
		1262-3	Combined	Delaware	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.2	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50128	1090	1090-1	Combined	Delaware	Streets	Contract Management	Tree Trench	Philadelphia Department of Parks & Recreation	0.6	2026	$3,528,000.00
		1090-10	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-11	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-12	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		1090-13	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1090-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1090-3	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-4	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-5	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		1090-6	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		1090-7	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-8	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1090-9	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
	1107	1107-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1107-2	Combined	Delaware	Streets	Contract Management	Rain Garden, Tree Trench		0.8	2026	
	1269	1269-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1269-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
50139	1147	1147-1	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	$2,525,000.00
		1147-10	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.3	2026	
		1147-11	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.3	2026	
		1147-2	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Infiltration/Storage Trench, Rain Garden		4.8	2026	
		1147-3	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.4	2026	
		1147-4	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.3	2026	
		1147-8	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
		1147-9	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.4	2026	
50141	1150		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50168	1271	1271-1	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.3	2025	$1,583,000.00
		1271-2	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1271-3	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1271-4	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1271-5	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.3	2025	
		1271-6	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.4	2025	
		1271-7	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1271-8	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.3	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50169	1365		Combined	Schuylkill	Streets	Contract Management	Stormwater TreeTrench		47.9	2026	$12,782,000.00
50176	1283	1283-1	Combined	Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.5	2026	$3,490,000.00
		1283-10	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.7	2026	
		1283-11	Combined	Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.3	2026	
		1283-12	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	
		1283-13	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.2	2026	
		1283-14	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	
		1283-15	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	
		1283-16	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	
		1283-2	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
		1283-3	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
		1283-4	Combined	Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.5	2026	
		1283-5	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.7	2026	
		1283-6	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.4	2026	
		1283-7	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	
		1283-8	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	
		1283-9	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.3	2026	
50180	1285	1285-1	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	$1,573,000.00
		1285-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1285-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1285-4	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.5	2025	
		1285-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.8	2025	
		1285-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1285-7	Combined	Schuylkill	Streets	Construction	Tree Trench		0.9	2025	
		1285-8	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
50190	1308	1308-2	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.9	2025	$1,201,000.00

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50196	1318	1318-1	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.3	2025	$5,262,000.00
		1318-10	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.5	2025	
		1318-11	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.5	2025	
		1318-12	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1318-13	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.8	2025	
		1318-14	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1318-2	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1318-3	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.4	2025	
		1318-4	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1318-5	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.6	2025	
		1318-6	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1318-7	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.8	2025	
		1318-8	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.4	2025	
		1318-9	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		0.4	2025	
	1319	1319-1	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench, Rain Garden	Philadelphia Department of Parks & Recreation	1.9	2025	
		1319-2	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		1.2	2025	
		1319-3	Combined	Schuylkill, TTF	Streets	Construction	Infiltration/Storage Trench, Rain Garden		0.5	2025	
		1319-4	Combined	Schuylkill, TTF	Streets	Construction	Tree Trench		1.3	2025	
50198	1327	1327-1	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.8	2025	$3,110,000.00
		1327-2	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench, Planter		0.6	2025	
		1327-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1327-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1327-5	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench, Planter, Rain Garden		1.2	2025	
		1327-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1327-7	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench, Planter		0.3	2025	
		1327-8	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
50199	1328	1328-10	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	$2,273,000.00
		1328-11	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1328-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1328-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.8	2025	
		1328-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1328-5	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.0	2025	
		1328-6	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.6	2025	
		1328-7	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1328-8	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench, Planter		0.4	2025	
		1328-9	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50200	1329	1329-1	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	$1,899,000.00
		1329-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1329-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1329-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1329-5	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.2	2025	
		1329-6	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.7	2025	
		1329-7	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
50203	1336	1336-4	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.8	2025	$1,463,000.00
50206	1343	1343-1	Combined	Schuylkill	Streets	Construction	Tree Trench	Drexel University	0.8	2025	$2,462,000.00
		1343-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1343-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1343-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.8	2025	
		1343-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1343-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1343-7	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.6	2025	
		1343-8	Combined	Schuylkill	Streets	Construction	Tree Trench		1.0	2025	
50213	1351	1351-1	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	$1,102,000.00
		1351-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1351-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1351-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1351-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1351-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
50214	1353	1353-1	Combined	Pennypack	Streets	Construction	Tree Trench	Philadelphia Streets Department, Philadelphia Department of Parks & Recreation	0.9	2025	$276,000.00
50218	1357	1357-1	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.6	2025	$2,596,000.00
		1357-10	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1357-11	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.6	2025	
		1357-2	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.6	2025	
		1357-3	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		0.7	2025	
		1357-4	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.8	2025	
		1357-5	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		0.5	2025	
		1357-6	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		1.0	2025	
		1357-7	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		0.6	2025	
		1357-8	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		1.1	2025	
		1357-9	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		1.2	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50220	1361	1361-1	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.8	2025	$3,305,000.00
		1361-10	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench, Tree Trench		1.9	2025	
		1361-11	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		1.6	2025	
		1361-2	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.5	2025	
		1361-3	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.3	2025	
		1361-4	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1361-5	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.5	2025	
		1361-6	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.4	2025	
		1361-7	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	
		1361-8	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1361-9	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.5	2025	
50233	1389	1389-1	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench, Rain Garden, Swale		0.5	2025	$2,363,000.00
	1390	1390-2	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.4	2025	
		1390-3	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.4	2025	
		1390-4	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.5	2025	
		1390-5	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.3	2025	
		1390-6	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1390-7	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.3	2025	
		1390-8	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.9	2025	
50234	1388	1388-1	Combined	Delaware	Streets	Construction	Tree Trench	Impact Services CDC	0.3	2025	$1,250,000.00
		1388-2	Combined	Delaware	Streets	Construction	Tree Trench		0.8	2025	
		1388-3	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1388-4	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	
		1388-5	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1388-6	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1388-7	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
50238	1396	1396-1	Combined	Delaware	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.1	2025	$2,081,000.00
		1396-10	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1396-11	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1396-2	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.5	2025	
		1396-3	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1396-4	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1396-5	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.8	2025	
		1396-6	Combined	Delaware	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1396-7	Combined	Delaware	Streets	Construction	Tree Trench		1.1	2025	
		1396-8	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1396-9	Combined	Delaware	Streets	Construction	Tree Trench		1.0	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50240	1401	1401-1	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.0	2025	$1,950,000.00
		1401-2	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.5	2025	
		1401-3	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.5	2025	
		1401-4	Combined	Cobbs-Darby	Streets	Construction	Bumpout, Tree Trench		0.7	2025	
		1401-5	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.7	2025	
		1401-6	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.9	2025	
50242	1404		Combined, Separate	Schuylkill, TTF	Open Space, Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Rain Garden	PennDOT, Department of Parks & Recreation (PPR), Councilwoman Bass, Nicetown CDC, Philadelphia Redevelopment Authority (PRA)	TBD	2027	TBD
50243	1405	1405-1	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.8	2026	$2,648,000.00
		1405-10	Combined	Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.7	2026	
		1405-11	Combined	Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.4	2026	
		1405-12	Combined	Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.7	2026	
		1405-2	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.8	2026	
		1405-3	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.8	2026	
		1405-4	Combined	Schuylkill	Streets	Contract Management	Tree Trench		1.2	2026	
		1405-5	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.9	2026	
		1405-6	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.5	2026	
		1405-7	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.8	2026	
		1405-8	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.9	2026	
		1405-9	Combined	Schuylkill	Streets	Contract Management	Tree Trench		0.9	2026	
50246	1412	1412-1	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.9	2025	$3,689,000.00
		1412-10	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		1.0	2025	
		1412-11	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1412-12	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1412-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.9	2025	
		1412-3	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.7	2025	
		1412-4	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.6	2025	
		1412-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.9	2025	
		1412-6	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.2	2025	
		1412-7	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench, Tree Trench		0.9	2025	
		1412-8	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.3	2025	
		1412-9	Combined	Schuylkill	Streets	Construction	Tree Trench		1.1	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50248	1414	1414-1	Combined	Schuylkill	Streets	Design	Tree Trench		TBD	2027	TBD
		1414-2	Combined	Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1414-3	Combined	Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1414-4	Combined	Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1414-5	Combined	Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
50252	1420	1420-1	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.7	2025	$2,865,000.00
		1420-2	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.7	2025	
		1420-3	Combined	TTF	Streets	Construction	Infiltration/Storage Trench		0.9	2025	
		1420-4	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.3	2025	
		1420-5	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	
		1420-6	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.8	2025	
		1420-7	Combined	TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		2.3	2025	
50253	1421	1421-1	Combined	Delaware, Schuylkill	Streets	Design	Infiltration/Storage Trench	Philadelphia Redevelopment Authority (PRA)	TBD	2027	TBD
		1421-2	Combined	Delaware, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1421-3	Combined	Delaware, Schuylkill	Streets	Design	Rain Garden, Tree Trench		TBD	2027	
		1421-4	Combined	Delaware, Schuylkill	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	
		1421-5	Combined	Delaware, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1421-6	Combined	Delaware, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
50255	1425	1425-1	Combined	Cobbs-Darby	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	TBD
		1425-2	Combined	Cobbs-Darby	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	
		1425-3	Combined	Cobbs-Darby	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	
		1425-4	Combined	Cobbs-Darby	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	
		1425-5	Combined	Cobbs-Darby	Streets	Design	Infiltration/Storage Trench, Rain Garden		TBD	2027	
		1425-6	Combined	Cobbs-Darby	Streets	Design	Tree Trench		TBD	2027	
		1425-7	Combined	Cobbs-Darby	Streets	Design	Bumpout, Infiltration/Storage Trench		TBD	2027	
		1425-8	Combined	Cobbs-Darby	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1425-9	Combined	Cobbs-Darby	Streets	Design	Tree Trench		TBD	2027	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50258	1429	1429-1	Combined	Schuylkill	Streets	Construction	Tree Trench		1.3	2025	$2,104,000.00
		1429-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1429-3	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.8	2025	
		1429-4	Combined	Schuylkill	Streets	Construction	Tree Trench		1.3	2025	
		1429-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1429-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1429-7	Combined	Schuylkill	Streets	Construction	Tree Trench		1.0	2025	
		1429-8	Combined	Schuylkill	Streets	Construction	Tree Trench		0.9	2025	
50259	1431	1431-1	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench	Commerce Department, Streets Department	1.0	2026	$2,227,000.00
		1431-10	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		1.2	2026	
		1431-2	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		0.7	2026	
		1431-3	Combined	Delaware, Pennypack	Open Space	Contract Management	Tree Trench		1.4	2026	
		1431-4	Combined	Delaware, Pennypack	Open Space	Contract Management	Tree Trench		0.5	2026	
		1431-5	Combined	Delaware, Pennypack	Open Space	Contract Management	Tree Trench		0.7	2026	
		1431-6	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		1.3	2026	
		1431-7	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		0.8	2026	
		1431-8	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		0.7	2026	
		1431-9	Combined	Delaware, Pennypack	Open Space	Contract Management	Infiltration/Storage Trench		0.6	2026	
50260	1433	1433-1	Combined	Cobbs-Darby	Open Space	Construction	Infiltration/Storage Trench, Rain Garden		4.9	2025	$4,195,000.00
		1433-2	Combined	Cobbs-Darby	Open Space	Construction	Infiltration/Storage Trench, Rain Garden		3.3	2025	
		1433-3	Combined	Cobbs-Darby	Open Space	Construction	Infiltration/Storage Trench, Rain Garden		2.4	2025	
		1433-4	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		1.3	2025	
		1433-6	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.4	2025	
		1433-7	Combined	Cobbs-Darby	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1433-8	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.3	2025	
		1433-9	Combined	Cobbs-Darby	Streets	Construction	Tree Trench		0.5	2025	
50262	1436	1436-1	Combined	Cobbs-Darby	Open Space	Construction	Infiltration/Storage Trench, Rain Garden		4.8	2025	$2,174,000.00

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50263	1437	1437-1	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.4	2025	$5,775,000.00
		1437-10	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.7	2025	
		1437-11	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1437-12	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.7	2025	
		1437-13	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
		1437-14	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.7	2025	
		1437-15	Combined	Delaware, Pennypack	Streets	Construction	Infiltration/Storage Trench		0.7	2025	
		1437-2	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1437-3	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.7	2025	
		1437-4	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.5	2025	
		1437-5	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.4	2025	
		1437-6	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Infiltration/Storage Trench		1.4	2025	
		1437-7	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.8	2025	
		1437-8	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.8	2025	
		1437-9	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.5	2025	
50265	1439		Combined	Cobbs-Darby	Open Space, Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50266	1440	1440-1	Combined	TTF	Open Space	Construction	Infiltration/Storage Trench	Department of Parks & Recreation (PPR)	3.2	2025	$3,342,000.00
		1440-2	Combined	TTF	Open Space	Construction	Infiltration/Storage Trench		4.5	2025	
		1440-3	Combined	TTF	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1440-4	Combined	TTF	Streets	Construction	Bumpout, Tree Trench		1.2	2025	
50268	1442	1442-1	Combined	TTF	Streets	Construction	Inlet Disconnection	PennDOT	1.3	2025	TBD
		1442-10	Combined	TTF	Streets	Construction	Inlet Disconnection		0.3	2025	
		1442-11	Combined	TTF	Streets	Construction	Inlet Disconnection		0.1	2025	
		1442-12	Combined	TTF	Streets	Construction	Inlet Disconnection		0.7	2025	
		1442-13	Combined	TTF	Streets	Construction	Inlet Disconnection		0.5	2025	
		1442-2	Combined	TTF	Streets	Construction	Inlet Disconnection		1.1	2025	
		1442-3	Combined	TTF	Streets	Construction	Inlet Disconnection		0.7	2025	
		1442-4	Combined	TTF	Streets	Construction	Inlet Disconnection		0.5	2025	
		1442-5	Combined	TTF	Streets	Construction	Inlet Disconnection		0.2	2025	
		1442-6	Combined	TTF	Streets	Construction	Inlet Disconnection		0.5	2025	
		1442-7	Combined	TTF	Streets	Construction	Inlet Disconnection		0.2	2025	
		1442-8	Combined	TTF	Streets	Construction	Inlet Disconnection		0.6	2025	
		1442-9	Combined	TTF	Streets	Construction	Inlet Disconnection		0.7	2025	
50269	1444	1444-1	Combined	Delaware, Pennypack	Open Space	Construction	Infiltration/Storage Trench	Department of Parks & Recreation (PPR)	5.6	2025	$3,483,000.00
		1444-2	Combined	Delaware, Pennypack	Open Space	Construction	Infiltration/Storage Trench		3.9	2025	
50270	1445	1445-1	Combined	Delaware	Open Space	Design	Infiltration/Storage Trench, Rain Garden	Streets Department, Department of Public Property (DPP), Neighborhood Gardens Trust (NGT)	TBD	2027	$779,000.00
		1445-2	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1445-3	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1445-4	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50271	1446	1446-1	Combined	Schuylkill	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.9	2025	$2,970,000.00
		1446-9	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench		0.4	2025	
50274	1449	1449-1	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		1.3	2026	$4,411,000.00
		1449-10	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.7	2026	
		1449-11	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		1.0	2026	
		1449-12	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		1.3	2026	
		1449-13	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.4	2026	
		1449-2	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	
		1449-3	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	
		1449-4	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		1.2	2026	
		1449-5	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		1.0	2026	
		1449-6	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		1.2	2026	
		1449-7	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Tree Trench		0.6	2026	
		1449-8	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		1.2	2026	
		1449-9	Combined	Cobbs-Darby, Schuylkill	Streets	Contract Management	Bumpout, Tree Trench		0.8	2026	
50275	1450	1450-1	Combined	Pennypack	Streets	Construction	Tree Trench		0.8	2025	$1,477,000.00
		1450-2	Combined	Pennypack	Streets	Construction	Tree Trench		0.5	2025	
		1450-3	Combined	Pennypack	Streets	Construction	Tree Trench		2.1	2025	
		1450-4	Combined	Pennypack	Streets	Construction	Tree Trench		0.7	2025	
		1450-5	Combined	Pennypack	Streets	Construction	Infiltration/Storage Trench		0.6	2025	
		1450-6	Combined	Pennypack	Streets	Construction	Tree Trench		0.5	2025	
50276	1454	1454-1	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.7	2026	$1,296,000.00
		1454-2	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
		1454-3	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.3	2026	
		1454-4	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
		1454-5	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
		1454-6	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		0.4	2026	
50281	1461	1461-1	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.8	2025	$1,988,000.00
		1461-2	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.9	2025	
		1461-3	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1461-4	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.5	2025	
		1461-5	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1461-6	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		1.2	2025	
		1461-7	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.9	2025	
50283	1467	1467-1	Combined	TTF	Open Space	Contract Management	Infiltration/Storage Trench, Rain Garden	Department of Parks & Recreation (PPR)	11.2	2026	$3,313,000.00
		1467-2	Combined	TTF	Open Space	Contract Management	Bumpout, Infiltration/Storage Trench		1.1	2026	
		1467-3	Combined	TTF	Open Space	Contract Management	Tree Trench		1.4	2026	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50284	1469	1469-1	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.6	2026	$3,308,000.00
		1469-2	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		1.3	2026	
		1469-3	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		1.0	2026	
		1469-4	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Tree Trench		1.3	2026	
		1469-5	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Tree Trench		1.4	2026	
		1469-6	Combined	Delaware, Pennypack	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		1.0	2026	
		1469-7	Combined	Delaware, Pennypack	Streets	Contract Management	Tree Trench		1.5	2026	
50286	1473		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50287	1474		Combined	Schuylkill	Streets	Design	Rain Garden, Stormwater TreeTrench		TBD	2027	$2,116,000.00
50288	1475	1475-1	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		1.1	2025	$2,767,000.00
		1475-2	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.6	2025	
		1475-3	Combined	Delaware, Pennypack	Streets	Construction	Bumpout, Tree Trench		1.0	2025	
		1475-4	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.5	2025	
		1475-5	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.5	2025	
		1475-6	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.5	2025	
		1475-7	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.8	2025	
		1475-8	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.7	2025	
		1475-9	Combined	Delaware, Pennypack	Streets	Construction	Tree Trench		0.3	2025	
50292	1480		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	$4,477,000.00
50293	1481		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50294	1482		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater Bump-out, Swale, Stormwater TreeTrench		TBD	2027	TBD
50296	1486	1486-1	Combined	Schuylkill	Streets	Construction	Tree Trench		0.9	2025	$2,099,000.00
		1486-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1486-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1486-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1486-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1486-6	Combined	Schuylkill	Streets	Construction	Tree Trench		0.3	2025	
		1486-7	Combined	Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1486-8	Combined	Schuylkill	Streets	Construction	Tree Trench		0.8	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50297	1490	1490-1	Combined	Delaware	Streets	Construction	Bumpout, Infiltration/Storage Trench		3.0	2025	$4,888,000.00
		1490-10	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1490-11	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	
		1490-2	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		2.2	2025	
		1490-3	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		2.0	2025	
		1490-4	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		1.8	2025	
		1490-5	Combined	Delaware	Streets	Construction	Tree Trench		1.7	2025	
		1490-6	Combined	Delaware	Streets	Construction	Tree Trench		1.4	2025	
		1490-7	Combined	Delaware	Streets	Construction	Tree Trench		1.8	2025	
		1490-8	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		1.2	2025	
		1490-9	Combined	Delaware	Streets	Construction	Bumpout, Tree Trench		1.5	2025	
50299	1495	1495-10	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.6	2025	$3,905,000.00
		1495-11	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1495-12	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		1.0	2025	
		1495-2	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1495-3	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1495-4	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.7	2025	
		1495-5	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		1.2	2025	
		1495-6	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1495-7	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.6	2025	
		1495-8	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1495-9	Combined	Cobbs-Darby, Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
50300	1498		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50302	1500	1500-1	Combined	Delaware, TTF	Streets	Construction	Bumpout, Infiltration/Storage Trench		0.9	2025	$3,571,000.00
		1500-2	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.4	2025	
		1500-3	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.4	2025	
		1500-4	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.3	2025	
		1500-5	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.7	2025	
		1500-6	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.5	2025	
		1500-7	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.4	2025	
		1500-8	Combined	Delaware, TTF	Streets	Construction	Bumpout, Tree Trench		1.5	2025	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50303	1502		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench		TBD	2027	TBD
50304	1503	1503-1	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	$3,258,000.00
		1503-10	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-11	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1503-12	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1503-2	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-3	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-4	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-5	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-6	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-7	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-8	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
		1503-9	Combined	Cobbs-Darby, Schuylkill	Streets	Design	Tree Trench		TBD	2027	
50307	1509		Combined	Cobbs-Darby, Schuylkill	Open Space, Streets	Design	Rain Garden, Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50309	1512	1512-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	$3,091,000.00
		1512-10	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1512-2	Combined	Delaware	Streets	Contract Management	Tree Trench		1.3	2026	
		1512-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.1	2026	
		1512-4	Combined	Delaware	Streets	Contract Management	Tree Trench		1.4	2026	
		1512-5	Combined	Delaware	Streets	Contract Management	Tree Trench		0.7	2026	
		1512-6	Combined	Delaware	Streets	Contract Management	Infiltration/Storage Trench		0.8	2026	
		1512-7	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1512-8	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		1512-9	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
50310	1513		Combined	Schuylkill	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50312	1517	1517-1	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.8	2026	$4,602,000.00
		1517-10	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.6	2026	
		1517-11	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.4	2026	
		1517-12	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.8	2026	
		1517-13	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.3	2026	
		1517-14	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.3	2026	
		1517-2	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		1.2	2026	
		1517-3	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.9	2026	
		1517-4	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1517-5	Combined	Delaware, TTF	Streets	Contract Management	Infiltration/Storage Trench, Tree Trench		0.8	2026	
		1517-6	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.4	2026	
		1517-7	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1517-8	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1517-9	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.3	2026	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50313	1519	1519-1	Combined	Delaware	Streets	Design	Bumpout, Infiltration/Storage Trench		TBD	2027	$3,335,000.00
		1519-10	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1519-11	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1519-12	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1519-13	Combined	Delaware	Streets	Design	Tree Trench		TBD	2027	
		1519-2	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-3	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-4	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-5	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-6	Combined	Delaware	Streets	Design	Bumpout, Infiltration/Storage Trench		TBD	2027	
		1519-7	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-8	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
		1519-9	Combined	Delaware	Streets	Design	Bumpout, Tree Trench		TBD	2027	
50314	1522		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	$2,657,000.00
50316	1525	1525-1	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	$1,967,000.00
		1525-2	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1525-3	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1525-4	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1525-5	Combined	Delaware	Streets	Construction	Tree Trench		0.6	2025	
		1525-6	Combined	Delaware	Streets	Construction	Tree Trench		1.2	2025	
		1525-7	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1525-8	Combined	Delaware	Streets	Construction	Tree Trench		0.5	2025	
		1525-9	Combined	Delaware	Streets	Construction	Tree Trench		0.6	2025	
50317	1527	1527-1	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.5	2026	$2,828,000.00
		1527-2	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.6	2026	
		1527-3	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		0.6	2026	
		1527-4	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		1.7	2026	
		1527-5	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		1.0	2026	
		1527-6	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		2.3	2026	
		1527-7	Combined	Delaware, TTF	Streets	Contract Management	Tree Trench		1.1	2026	
50318	1528		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50319	1531		Combined	Cobbs-Darby	Facilities, Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50321	1537	1537-1	Combined	TTF	Streets	Contract Management	Tree Trench		0.4	2026	$1,429,000.00
		1537-2	Combined	TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1537-3	Combined	TTF	Streets	Contract Management	Tree Trench		0.4	2026	
		1537-4	Combined	TTF	Streets	Contract Management	Tree Trench		0.4	2026	
		1537-5	Combined	TTF	Streets	Contract Management	Tree Trench		0.5	2026	
		1537-6	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.5	2026	
		1537-7	Combined	TTF	Streets	Contract Management	Infiltration/Storage Trench		0.5	2026	

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50322	1538		Combined	TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50323	1541		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50324	1545		Combined	Delaware, TTF	Streets	Design	Stormwater Bump-out, Rain Garden, Stormwater Tree Trench		TBD	2027	TBD
50325	1546	1546-1	Combined	Schuylkill	Streets	Construction	Infiltration/Storage Trench, Rain Garden		0.8	2025	$2,782,000.00
		1546-10	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1546-11	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1546-2	Combined	Schuylkill	Streets	Construction	Tree Trench		0.4	2025	
		1546-3	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1546-4	Combined	Schuylkill	Streets	Construction	Tree Trench		0.5	2025	
		1546-5	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
		1546-6	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		1.2	2025	
		1546-7	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.5	2025	
		1546-8	Combined	Schuylkill	Streets	Construction	Bumpout, Tree Trench		0.8	2025	
		1546-9	Combined	Schuylkill	Streets	Construction	Tree Trench		0.6	2025	
50326	1548		Combined	Delaware, TTF	Open Space, Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Swale, Stormwater TreeTrench		TBD	2027	TBD
50327	1556	1556-1	Combined	TTF	Streets	Contract Management	Tree Trench		0.3	2026	$2,889,000.00
		1556-2	Combined	TTF	Streets	Contract Management	Tree Trench		0.7	2026	
		1556-3	Combined	TTF	Streets	Contract Management	Tree Trench		0.6	2026	
		1556-4	Combined	TTF	Streets	Contract Management	Tree Trench		1.7	2026	
		1556-5	Combined	TTF	Streets	Contract Management	Tree Trench		1.3	2026	
		1556-6	Combined	TTF	Streets	Contract Management	Tree Trench		1.5	2026	
		1556-7	Combined	TTF	Streets	Contract Management	Tree Trench		1.1	2026	
		1556-8	Combined	TTF	Streets	Contract Management	Tree Trench		0.6	2026	
50328	1557		Combined	TTF	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50330	1561	1561-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.8	2026	$3,287,000.00
		1561-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1561-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.0	2026	
		1561-4	Combined	Delaware	Streets	Contract Management	Tree Trench		0.8	2026	
		1561-5	Combined	Delaware	Streets	Contract Management	Tree Trench		0.8	2026	
		1561-6	Combined	Delaware	Streets	Contract Management	Tree Trench		1.0	2026	
		1561-7	Combined	Delaware	Streets	Contract Management	Tree Trench		0.9	2026	
		1561-8	Combined	Delaware	Streets	Contract Management	Tree Trench		0.3	2026	
		1561-9	Combined	Delaware	Streets	Contract Management	Tree Trench		1.3	2026	
50331	1564		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50332	1568		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50333	1571		Combined	Schuylkill	Open Space, Streets	Design	Infiltration Storage Trench, Rain Garden		TBD	2027	TBD
50334	1570		Combined	Delaware	Open Space	Design	Infiltration Storage Trench,	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50335	1573		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50336	1574		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50337	1575		Combined	Delaware	Open Space, Streets	Design	Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50338	1577		Combined, Separate	Delaware, Pennypack	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50339	1578		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50340	1579	1579-1	Combined	Delaware	Streets	Contract Management	Tree Trench		1.3	2026	$5,476,000.00
		1579-10	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		2.5	2026	
		1579-11	Combined	Delaware	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		0.9	2026	
		1579-12	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		1.9	2026	
		1579-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.7	2026	
		1579-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.4	2026	
		1579-4	Combined	Delaware	Streets	Contract Management	Tree Trench		2.7	2026	
		1579-5	Combined	Delaware	Streets	Contract Management	Tree Trench		2.9	2026	
		1579-6	Combined	Delaware	Streets	Contract Management	Tree Trench		2.2	2026	
		1579-7	Combined	Delaware	Streets	Contract Management	Bumpout, Infiltration/Storage Trench		1.1	2026	
		1579-8	Combined	Delaware	Streets	Contract Management	Bumpout, Infiltration/Storage Trench, Tree Trench		2.4	2026	
		1579-9	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		2.1	2026	
50341	1580		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50342	1583		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50344	1584		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50346	1587	1587-1	Combined	Delaware	Streets	Contract Management	Infiltration/Storage Trench	Department of Parks & Recreation (PPR)	1.6	2026	$599,000.00

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50347	1594	1594-1	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	$4,071,000.00
		1594-10	Combined	Delaware	Streets	Contract Management	Tree Trench		1.8	2026	
		1594-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.6	2026	
		1594-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.5	2026	
		1594-4	Combined	Delaware	Streets	Contract Management	Tree Trench		1.4	2026	
		1594-5	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1594-6	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		1.3	2026	
		1594-7	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		1.2	2026	
		1594-8	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		1.8	2026	
		1594-9	Combined	Delaware	Streets	Contract Management	Bumpout, Tree Trench		2.6	2026	
50349	1597		Combined, Non-Contributing	Cobbs-Darby	Streets, Vacant Land	Design	Infiltration Storage Trench, Rain Garden		TBD	2027	TBD
50350	1598		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50351	1599		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50352	1600		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50353	1602	1602-1	Combined	Delaware	Streets	Contract Management	Tree Trench		1.2	2026	$2,960,000.00
		1602-2	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1602-3	Combined	Delaware	Streets	Contract Management	Tree Trench		1.0	2026	
		1602-4	Combined	Delaware	Streets	Contract Management	Tree Trench		1.1	2026	
		1602-5	Combined	Delaware	Streets	Contract Management	Tree Trench		2.1	2026	
		1602-6	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1602-7	Combined	Delaware	Streets	Contract Management	Tree Trench		0.4	2026	
		1602-8	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
		1602-9	Combined	Delaware	Streets	Contract Management	Tree Trench		0.5	2026	
50355	1604		Combined, Storm Water Only	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50356	1605		Combined	Delaware	Open Space, Streets, Vacant Land	Design	Infiltration Storage Trench, Rain Garden, Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50357	1606		Combined, Separate	Delaware, Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50358	1607	1607-1	Combined	Delaware, Schuylkill, TTF	Streets	Construction	Tree Trench		0.8	2025	$880,000.00
		1607-2	Combined	Delaware, Schuylkill, TTF	Streets	Construction	Tree Trench		0.3	2025	
50359	1608		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50360	1612		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50361	1613		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50362	1616		Combined	Delaware, Schuylkill	Facilities, Streets	Design	Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50363	1618		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50364	1619		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50365	1620		Combined	Schuylkill	Open Space, Streets	Design	Stormwater Bump-out, Rain Garden, Stormwater Tree Trench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50366	1622		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50367	1626		Combined, Non-Contributing	Delaware, TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50368	1627		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50369	1628		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50370	1630		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50371	1632		Combined	Delaware, TTF	Streets	Design	Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50372	1634		Combined	Cobbs-Darby	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50373	1635		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50374	1636		Combined	Schuylkill	Open Space, Streets	Design	Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50375	1638		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50376	1639		Combined	Delaware	Open Space, Streets	Design	Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50377	1641		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50378	1642		Combined	Delaware	Facilities, Open Space, Streets	Design	Stormwater Planter, Rain Garden, Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50379	1645		Combined	Delaware, TTF	Open Space, Streets	Design	Infiltration Storage Trench,	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50380	1647		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50381	1648		Combined	Delaware	Streets	Design	Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50382	1649		Combined, Separate, Non-Contributing	Schuylkill	Open Space, Streets	Design	Infiltration Storage Trench, Rain Garden, Stormwater TreeTrench		TBD	2027	TBD
50384	1655		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50385	1656		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50386	1659		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50387	1660		Combined	TTF	Open Space, Streets	Design	Rain Garden	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50388	1662		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50389	1663		Combined, Separate	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50391	1665		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50392	1669		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50393	1670		Combined	Delaware, TTF	Streets	Design	Stormwater TreeTrench	Streets Department	TBD	2027	TBD
50396	1674		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50397	1675		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50398	1676		Combined	Schuylkill	Open Space	Design	Rain Garden		TBD	2027	TBD
50400	1682		Combined	Delaware	Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50401	1683		Combined	Delaware	Open Space, Streets	Design	Stormwater Bump-out, Infiltration Storage Trench, Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
50402	1684		Combined	Cobbs-Darby	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50404	1687		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50405	1688		Combined	Schuylkill	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50406	1689		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50407	1690		Combined, Separate	Delaware, Pennypack, TTF	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50408	1692		Combined	Cobbs-Darby, Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50409	1693		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench	School District of Philadelphia (SDP)	TBD	2027	TBD
50411	1694		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50412	1695		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50413	1697		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50414	1698		Combined	Cobbs-Darby	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50415	1701		Combined, Separate	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50416	1702		Combined	Delaware	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50417	1703		Combined	Schuylkill	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50418	1704		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50419	1705		Combined	Delaware	Streets	Design	Stormwater TreeTrench	PennDOT	TBD	2027	TBD

Work Number	Project ID	System Number	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acres (acre-inches)	Completion Date Estimate	Estimated Green Construction Cost
50422	1708		Combined	Schuylkill	Streets	Design	Rain Garden, Stormwater TreeTrench	Overbrook High School	TBD	2027	TBD
50423	1709		Combined	Delaware	Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50424	1710		Combined	Delaware	Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench		TBD	2027	TBD
50425	1712		Combined	Delaware	Open Space, Streets	Design	Stormwater TreeTrench		TBD	2027	TBD
50426	1713		Combined	Schuylkill	Streets	Design	Stormwater Bump-out, Stormwater TreeTrench		TBD	2027	TBD
50428	1718		Combined	Delaware	Open Space, Streets	Design	Infiltration Storage Trench, Stormwater TreeTrench	Department of Parks & Recreation (PPR)	TBD	2027	TBD
64084	1699	1699-1	Combined	Schuylkill	Facilities	Design	Infiltration/Storage Trench		TBD	2027	TBD
90188	1582	1582-1	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	TBD
		1582-2	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	
		1582-3	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1582-4	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1582-5	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1582-6	Combined	Delaware	Streets	Construction	Tree Trench		0.4	2025	
		1582-7	Combined	Delaware	Streets	Construction	Tree Trench		0.3	2025	
90357	1672		Combined	Delaware, Schuylkill	Streets	Design	Infiltration Storage Trench,		TBD	2027	TBD
Total Greened Acres:									**543**		

Appendix 3

Completed Private Development and Incentivized Green Stormwater Infrastructure Projects

Completed Private Development and Incentivized Green Stormwater Infrastructure Reporting Metrics

The reporting format and metric definitions are described in Table 1 below.

Table 1: Private/Incentives Reporting Metric Definitions

Metric	Definition
Tracking Number	Tracking Number is a unique assigned identifier from the Stormwater Plan Review Database.
Watershed	The City of Philadelphia watershed where the project is located. Six of the City's eight watersheds fall at least partially within the combined sewer area. These watersheds are: • Cobbs Creek Watershed • Darby Creek Watershed • Delaware Direct Watershed • Pennypack Creek Watershed • Tookany/Tacony-Frankford Creek Watershed • Schuylkill River Watershed
SMP Type(s)	A Stormwater Management Practice (SMP) is a technique that controls the rate and volume of stormwater runoff and/or improves runoff water quality. Multiple SMP types can be grouped together in a larger GSI system. The SMP types were originally defined in Table 2-1 of the IAMP.
Greened Acres (acre-inch)	Greened Acres is a metric that accounts for the conversion of a highly impervious urban landscape through the implementation of projects that reduce stormwater runoff. A Greened Acre is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage at least one inch of stormwater runoff. If storage is provided, systems can credit up to two inches of the stormwater runoff from that acre. The best available Greened Acre value is pulled from the database for regulatory reporting.

Table 2: Private/Incentives SMP Type Definitions

Private / Incentives SMP Type Definitions	
Basin	Includes surface basins or depressions that are vegetated with mowed grass and subsurface infiltration and detention basins. In both cases, the basins are designed to detain and release stormwater runoff and/or infiltrate where feasible.
Bioinfiltration / Bioretention	A bioinfiltration/bioretention basin is a vegetated basin or depression designed to either infiltrate or release stormwater runoff.
Blue Roof	A blue roof is a storage system designed into a roof surface such that the roof retains stormwater. Blue roofs are designed to reduce the rate of stormwater runoff.

Private / Incentives SMP Type Definitions	
Cistern	Storage tanks (located either above or below ground) that capture and store runoff and can thereby reduce runoff volume. Stored water may drain by gravity or be pumped to its ultimate end use for a variety of non-potable water needs.
Depave	Depaving projects remove existing impervious pavement and restore the surface with grass, other types of vegetation, or loose materials (stone, mulch, etc.) such that the area can thereafter be considered pervious area. Depaving projects remove contributing impervious area from the sewer system. Categorized as a Disconnection and logged in square feet.
Disconnections	Disconnected impervious area that discharges to a pervious area. These types could be any of the following: Pavement - Runoff is designed to be directed to a vegetated area that allows for infiltration, filtration, and an increased time of concentration. Planters - At or above grade planter area and number of planters that do not contribute to water quality. Rooftop Area - Rooftop drainage directed to a vegetated area that allows for infiltration, filtration, and increased time of concentration. Tree Credit - New or existing tree canopy from an approved species list that extends over or is in close proximity to impervious area.
Green Roof	Vegetated surface installed over a roof surface. Green roofs are effective in reducing the volume and rates of stormwater runoff.
Porous Pavement	Permeable surface commonly composed of concrete, asphalt, pavers, turf, or rubber play surface. Stormwater flows through the porous surface during a rain event, then drains into the subbase beneath the pavement, where it is stored until it infiltrates into the soil.
ROW Connection	Inlet or trench drain connections that manage stormwater runoff into an SMP. These entry points restrict the volume and rate of flow introduced to an SMP while ensuring that flow is delivered to the SMP without causing erosion.
WQ Treatment Device	Filter products that reduce pollutant levels by removing sediments, metals, hydrocarbons, and other pollutants from stormwater.

Table 3: Completed Private Development Green Stormwater Infrastructure Projects

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2005-0052-01	Combined	Verified	Lower Schuylkill River	19139	Basin (2)	3.6
2005-0099-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	38
2006-0017-01	Combined	Verified	Lower Schuylkill River	19142	Basin (1), Porous Pavement (1)	1.5
2006-0057-01	Combined	Verified	Delaware Direct	19123	Basin (1)	0
2006-0063-01	Combined	Verified	Delaware Direct	19122	Basin (1)	3.3
2006-0110-01	Combined	Verified	Delaware Direct	19140	Basin (2)	1
2006-30TH-236-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	0.6
2006-9349-349-01	Combined	Verified	Delaware Direct	19123	Basin (1)	0.1
2006-94-01	Combined	Verified	Delaware Direct	19148	Basin (3)	2.2
2006-ANGE-268-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2)	1.3
2006-BRID-200-01	Combined	Verified	Delaware Direct	19137	Basin (16), Disconnections (1)	0.7
2006-CINT-431-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	9.5
2006-COMM-328-01	Combined	Verified	Cobbs Creek	19139	Porous Pavement (2), Basin (1), Cistern (1)	0.9
2006-EDWI-215-01	Combined	Verified	Delaware Direct	19136	Disconnections (1), Basin (4)	0.8
2006-FEDE-409-01	Combined	Verified	Delaware Direct	19106	Basin (1), Green Roof (1), Disconnections (1)	0.3
2006-GENE-192-01	Combined	Verified	Delaware Direct	19123	Basin (2), Disconnections (1)	0.3
2006-HUNT-445-01	Combined	Verified	Delaware Direct	19133	Basin (48), Porous Pavement (48)	2
2006-LAWT-291-01	Combined	Verified	Delaware Direct	19135	Basin (1)	1.2
2006-LE22-460-01	Combined	Verified	Delaware Direct	19123	Basin (1), Disconnections (1), Porous Pavement (2)	1
2006-MARS-381-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	0.1
2006-MARS-407-01	Combined	Verified	Lower Schuylkill River		Basin (1)	0
2006-MICH-419-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (1)	0.7
2006-MOOR-320-01	Combined	Verified	Delaware Direct	19148	Basin (3)	0.5
2006-NATI-441-01	Combined	Verified	Delaware Direct	19106	Basin (1)	0.5
2006-PILG-444-01	Combined	Verified	Delaware Direct	19111	Basin (2)	1.4
2006-PLEA-297-01	Combined	Verified	Lower Schuylkill River	19131	Basin (3), Disconnections (1)	0
2006-PROG-400-01	Combined	Verified	Delaware Direct	19122	Basin (2)	5.5
2006-PROP-233-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1)	1.8
2006-SAFE-234-01	Combined	Verified	Delaware Direct	19134	Bio-infiltration/Bio-retention (1), Basin (1)	0.6

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2006-SAMU-440-01	Combined	Verified	Delaware Direct	19148	Basin (6)	0.9
2006-SOLI-300-01	Combined	Verified	Delaware Direct	19149	Basin (1), Bio-infiltration/Bio-retention (1)	2.7
2006-TACO-337-01	Combined	Verified	Delaware Direct	19149	Basin (1)	0.3
2006-TEMP-210-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1)	0.6
2006-TEMP-245-01	Combined	Verified	Delaware Direct	19122	Basin (2)	1.3
2006-VAUX-338-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1)	1.3
2006-VILL-194-01	Combined	Verified	Lower Schuylkill River	19145	Disconnections (1), Basin (13)	26.8
2007-4839-625-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	0.9
2007-AROU-626-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1)	0.6
2007-BENC-482-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Porous Pavement (1)	1.2
2007-CECI-556-01	Combined	Verified	Delaware Direct	19121	Basin (54)	1.1
2007-DREX-669-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Cistern (1), Porous Pavement (1)	0.8
2007-GAMB-624-01	Combined	Verified	Tacony-Frankford Creek	19124	Porous Pavement (1)	0.1
2007-GAMB-701-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration/Bio-retention (1), Disconnections (1), Porous Pavement (2)	1.7
2007-GUIO-721-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), Porous Pavement (1), Disconnections (1)	1.4
2007-HERR-690-01	Combined	Verified	Delaware Direct	19147	Disconnections (1), Porous Pavement (3)	0.6
2007-HOWI-498-01	Combined	Verified	Delaware Direct	19123	Basin (1), Disconnections (1)	0.3
2007-LASA-593-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (2), Disconnections (1), Porous Pavement (2)	12.2
2007-MCDO-558-01	Combined	Verified	Delaware Direct	19133	Basin (1)	0.5
2007-MCDO-560-01	Combined	Verified	Delaware Direct	19135	Basin (1)	0.1
2007-MTTA-480-01	Combined	Verified	Delaware Direct	19123	Porous Pavement (1), Green Roof (1)	0.3
2007-PASH-524-01	Combined	Verified	Cobbs Creek	19142	Basin (1)	0.8
2007-POWE-679-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1)	0.4
2007-SIMO-496-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (1), Porous Pavement (1)	0.9
2007-SOUT-557-01	Combined	Verified	Delaware Direct	19148	Basin (1)	0.1
2007-THEM-495-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2)	6.4
2007-UNIV-633-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Basin (1), Bio-infiltration/Bio-retention (1)	0.4
2007-WARN-646-01	Combined	Verified	Delaware Direct	19133	Basin (1)	2.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2007-WARN-651-01	Combined	Verified	Delaware Direct	19133	Basin (1)	2.7
2007-WEST-684-01	Combined	Verified	Cobbs Creek	19139	Basin (1), Disconnections (1)	0
2007-WILL-699-01	Combined	Verified	Delaware Direct	19134	Bio-infiltration/Bio-retention (9), Basin (1)	5
2008-1600-898-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (1)	0.5
2008-2116-992-01	Combined	Verified	Lower Schuylkill River	19103	Green Roof (2), Basin (3), Bio-infiltration/Bio-retention (2), Disconnections (1)	0.5
2008-2552-873-01	Combined	Verified	Delaware Direct	19134	Basin (1)	0.7
2008-4014-979-01	Combined	Verified	Delaware Direct	19123	Disconnections (1), Basin (1)	0.8
2008-BARN-986-01	Combined	Verified	Lower Schuylkill River	19130	Disconnections (1), Basin (2), Green Roof (2)	4.4
2008-CAST-875-01	Combined	Verified	Delaware Direct	19149	Basin (1)	0
2008-CLAS-765-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Porous Pavement (1), Basin (2), Green Roof (1)	0.5
2008-COMM-763-01	Combined	Verified	Lower Schuylkill River	19130	Basin (3), Green Roof (1), Porous Pavement (2), Disconnections (1)	2.6
2008-DREX-788-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Bio-infiltration/Bio-retention (2), Porous Pavement (1)	1.5
2008-DREX-950-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Green Roof (1), Disconnections (2)	0.2
2008-FRAN-921-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (2)	0.3
2008-FRAN-994-01	Combined	Verified	Delaware Direct	19130	Porous Pavement (1), Basin (7)	1.6
2008-MART-980-01	Combined	Verified	Delaware Direct	19147	Basin (1)	0.6
2008-NAVA-893-01	Combined	Verified	Lower Schuylkill River	19146	Basin (6)	9.7
2008-NEWK-958-01	Combined	Verified	Delaware Direct	19122	Green Roof (1), Porous Pavement (2), Basin (2), Bio-infiltration/Bio-retention (1)	5.2
2008-NEWL-839-01	Combined	Verified	Delaware Direct	19140	Basin (1)	0.5
2008-NORT-1012-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Basin (1)	0.5
2008-PROP-824-01	Combined	Verified	Lower Schuylkill River	19139	Basin (2), Disconnections (1), Porous Pavement (2)	6.2
2008-ROLA-813-01	Combined	Verified	Tacony-Frankford Creek	19141	Green Roof (2), Basin (1)	0.3
2008-ROTE-960-01	Combined	Verified	Delaware Direct	19148	Basin (1), Bio-infiltration/Bio-retention (1), Porous Pavement (2)	1.3
2008-SCHM-902-01	Combined	Verified	Delaware Direct	19123	Disconnections (1), Green Roof (1), Porous Pavement (1), Basin (2)	5.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2008-SHER-926-01	Combined	Verified	Delaware Direct	19122	Porous Pavement (1), Green Roof (1)	0.2
2008-STRA-799-01	Combined	Verified	Lower Schuylkill River	19121	Porous Pavement (1), Basin (6)	0.4
2008-STRA-802-01	Combined	Verified	Lower Schuylkill River	19121	Basin (4), Porous Pavement (4)	0.3
2008-THEC-806-01	Combined	Verified	Delaware Direct	19103	Green Roof (2), Basin (1)	0.2
2008-WALG-838-01	Combined	Verified	Delaware Direct	19146	Basin (1), Bio-infiltration/Bio-retention (1)	0.5
2008-WOOD-864-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (1)	0.5
2009-2007-1090-01	Combined	Verified	Delaware Direct	19148	Basin (1)	28.8
2009-7149-1186-01	Combined	Verified	Delaware Direct	19135	Disconnections (1), Basin (1)	0.8
2009-CANC-1145-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Disconnections (1), Bio-infiltration/Bio-retention (1)	6.2
2009-CONG-1210-01	Combined	Verified	Delaware Direct	19133	Basin (1), Disconnections (1), Porous Pavement (1)	2.8
2009-DORA-1041-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2), Porous Pavement (8)	0.7
2009-FRAN-1130-01	Combined	Verified	Delaware Direct	19137	Basin (3), Disconnections (1)	0.5
2009-GLOB-1016-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), Bio-infiltration/Bio-retention (4)	1.8
2009-HAWT-1102-01	Combined	Verified	Delaware Direct	19147	Disconnections (1), Porous Pavement (1)	0.3
2009-HELP-1138-01	Combined	Verified	Lower Schuylkill River	19153	Basin (2)	3.7
2009-IATS-1023-01	Combined	Verified	Delaware Direct	19148	Basin (1), Green Roof (1)	0.8
2009-JANN-1141-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Porous Pavement (2), Green Roof (1)	0.3
2009-LAWR-1044-01	Combined	Verified	Delaware Direct	19140	Basin (1), Porous Pavement (1)	2.9
2009-MANT-1033-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	4.6
2009-NEWH-1079-01	Combined	Verified	Lower Schuylkill River	19139	Basin (2), Disconnections (1)	0.7
2009-NEWP-1166-01	Combined	Verified	Delaware Direct	19140	Basin (1), Disconnections (1)	1.3
2009-NICE-1136-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1), Bio-infiltration/Bio-retention (3)	0.4
2009-PARK-1197-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Bio-infiltration/Bio-retention (1)	1.5
2009-PASC-1226-01	Combined	Verified	Cobbs Creek	19142	Basin (3), Porous Pavement (1)	4.7
2009-PECO-1133-01	Combined	Verified	Lower Schuylkill River	19146	Basin (2)	4
2009-PENN-1019-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Bio-infiltration/Bio-retention (7), Green Roof (1)	3.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2009-PENN-1144-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Basin (2), Porous Pavement (2), Green Roof (1)	0.4
2009-PHIL-1205-01	Combined	Verified	Delaware Direct	19148	Porous Pavement (1)	14.6
2009-PRES-1037-01	Combined	Verified	Tacony-Frankford Creek	19150	Basin (1), Porous Pavement (1), Bio-infiltration/Bio-retention (1), Disconnections (1)	1.9
2009-PRIN-1147-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1), Green Roof (1)	1.1
2009-RODI-1176-01	Combined	Verified	Lower Schuylkill River	19130	Basin (2)	0.3
2009-SCHU-1140-01	Combined	Verified	Lower Schuylkill River	19103	Disconnections (1)	0.7
2009-SIST-1062-01	Combined	Verified	Lower Schuylkill River	19103	Disconnections (1)	0.1
2009-SIST-1131-01	Combined	Verified	Lower Schuylkill River	19103	Disconnections (2), Green Roof (2), Basin (1)	0.4
2009-STRA-1050-01	Combined	Verified	Lower Schuylkill River	19121	Basin (4)	0.2
2009-STRA-1055-01	Combined	Verified	Lower Schuylkill River	19121	Basin (4)	0.3
2009-TDBA-1072-01	Combined	Verified	Delaware Direct	19149	Disconnections (1), Basin (2), Bio-infiltration/Bio-retention (1)	1.5
2009-TEMP-1077-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1), Bio-infiltration/Bio-retention (1)	0.9
2009-TEMP-1096-01	Combined	Verified	Delaware Direct	19122	Basin (1)	2.6
2009-THEC-1174-01	Combined	Verified	Delaware Direct	19135	Bio-infiltration/Bio-retention (2), Disconnections (1), Green Roof (1)	0.6
2009-THEM-1167-01	Combined	Verified	Delaware Direct	19121	Green Roof (1), Porous Pavement (1), Disconnections (1)	0.4
2009-THEP-1173-01	Combined	Verified	Lower Schuylkill River	19140	Green Roof (1)	0.1
2009-WALM-1045-01	MS4*	Verified	Delaware Direct	19148	Bioretention (3), WQ Treatment Device (1)	8
2009-WEST-1222-01	Combined	Verified	Lower Schuylkill River	19139	Disconnections (1), Porous Pavement (2), Green Roof (1)	1.4
2009-WOLC-1169-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (4), Basin (1), Disconnections (1)	1.7
2010-1800-1260-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Disconnections (1)	0.8
2010-1940-1435-01	Combined	Verified	Delaware Direct	19140	Basin (1), Disconnections (1), Porous Pavement (1)	1.1

*Combined Sewer Disconnection

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2010-3737-1331-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Basin (1)	0.3
2010-4109-1277-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Porous Pavement (1)	0.2
2010-411W-1300-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (3), Basin (1)	0.1
2010-4FRA-1464-01	Combined	Verified	Lower Schuylkill River	19103	Basin (3), Green Roof (1)	0.9
2010-5526-1348-01	Combined	Verified	Darby Creek	19139	Basin (1), Porous Pavement (2)	0.5
2010-8828-1321-01	Combined	Verified	Pennypack Creek	19136	Basin (2)	2
2010-AGIL-1461-01	Combined	Verified	Delaware Direct	19121	Disconnections (1), Basin (1)	2.3
2010-ARCH-1393-01	Combined	Verified	Delaware Direct	19122	Green Roof (1), Disconnections (1)	0.2
2010-BRID-1233-01	Combined	Verified	Delaware Direct	19137	Basin (1), Porous Pavement (1)	1.6
2010-BROA-1347-01	Combined	Verified	Tacony-Frankford Creek	19141	Basin (1)	1.5
2010-CHOP-1367-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Green Roof (1), Basin (2)	2.6
2010-CREA-1427-01	Combined	Verified	Delaware Direct	19125	Green Roof (14), Porous Pavement (15), Disconnections (1)	0.3
2010-DICK-1410-01	Combined	Verified	Delaware Direct	19148	Disconnections (1), Porous Pavement (2)	0.7
2010-DILW-1442-01	Combined	Verified	Lower Schuylkill River	19107	Basin (3), Disconnections (1)	0.7
2010-DREX-1399-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Basin (3)	1.5
2010-EARL-1460-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Disconnections (1)	0.7
2010-ESPE-1288-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1)	1.7
2010-GEST-1346-01	Combined	Verified	Lower Schuylkill River	19131	Basin (3)	1.1
2010-GRAN-1432-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof (1), Basin (3)	0.6
2010-HUNT-1351-01	Combined	Verified	Tacony-Frankford Creek	19140 -2107	Disconnections (1)	0.1
2010-MOYE-1306-01	Combined	Verified	Delaware Direct	19125	Green Roof (2), Porous Pavement (1)	0.6
2010-NORR-1475-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Basin (1), Porous Pavement (1)	2.9
2010-NORT-1449-01	Combined	Verified	Tacony-Frankford Creek	19124 -3024	Basin (2)	1.4
2010-PASC-1238-01	Combined	Verified	Cobbs Creek	19142	Basin (3), Disconnections (1), Porous Pavement (1)	2.2
2010-PHIL-1362-01	Combined	Verified	Delaware Direct	19148	Bio-infiltration/Bio-retention (2), Basin (1)	0.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2010-PHIL-1469-01	Combined	Verified	Delaware Direct	19148	Disconnections (1), Basin (2), Bio-infiltration/Bio-retention (1)	3.4
2010-PLEA-1444-01	Combined	Verified	Tacony-Frankford Creek	19119	Disconnections (1), Basin (1), Green Roof (1)	0.2
2010-PNKW-1360-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1), Porous Pavement (1)	4.2
2010-PROP-1376-01	Combined	Verified	Delaware Direct	19141	Bio-infiltration/Bio-retention (3), Basin (2)	2.9
2010-PSDC-1234-01	Combined	Verified	Delaware Direct	19147	Basin (1)	1.4
2010-PSPH-1353-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2), Green Roof (1)	8.4
2010-STJO-1239-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), Bio-infiltration/Bio-retention (1), Green Roof (1)	1.3
2010-TEMP-1302-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Basin (1), Cistern (1)	3.5
2010-THEF-1254-01	Combined	Verified	Lower Schuylkill River	19103	Disconnections (1), Basin (2), Bio-infiltration/Bio-retention (2)	0.4
2010-UNIV-1312-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Green Roof (1)	0.7
2010-UNIV-1385-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Bio-infiltration/Bio-retention (1), Basin (1)	1.5
2010-WIST-1397-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Basin (1)	0.4
2011-1900-1519-01	Combined	Verified	Lower Schuylkill River	19103	Green Roof (1), Cistern (1), Basin (1)	0.7
2011-3343-1653-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Porous Pavement (1)	0.8
2011-33RD-1697-01	Combined	Verified	Lower Schuylkill River	19132	Bio-infiltration/Bio-retention (1), Disconnections (1), Green Roof (1)	0.1
2011-4240-1543-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	1.1
2011-822N-1632-01	Combined	Verified	Delaware Direct	19123	Porous Pavement (2), Green Roof (1)	0.3
2011-8318-1655-01	Combined	Verified	Lower Schuylkill River	19121	Green Roof (1), Porous Pavement (1)	0.2
2011-BOTT-1646-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration/Bio-retention (1), Basin (2)	2.7
2011-CANC-1485-01	Combined	Verified	Tacony-Frankford Creek	19124	Green Roof (1)	0.3
2011-CCTD-1535-01	Combined	Verified	Lower Schuylkill River	19139	Basin (1)	1.8
2011-CHRI-1545-01	Combined	Verified	Delaware Direct	19147	Porous Pavement (1), Green Roof (1), Basin (3)	1
2011-CONV-1491-01	Combined	Verified	Lower Schuylkill River	19107	Green Roof (1), Disconnections (1), Basin (1)	0.3
2011-DIAM-1617-01	Combined	Verified	Delaware Direct	19140	Basin (1), Green Roof (1)	0.4

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2011-DOLL-1636-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1)	1.1
2011-DREX-1638-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration/Bio-retention (1), Green Roof (9), Disconnections (1)	0.8
2011-EAST-1687-01	Combined	Verified	Delaware Direct	19107	Green Roof (1), Porous Pavement (1), Basin (1)	0.2
2011-FAIR-1488-01	Combined	Verified	Delaware Direct	19130	Green Roof (1), Basin (1)	0.4
2011-GREE-1706-01	Combined	Verified	Tacony-Frankford Creek	19138	Basin (2), Porous Pavement (1)	2
2011-HAGE-1562-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (2)	2.1
2011-HAMI-1518-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Basin (2), Green Roof (2), Cistern (2)	2.1
2011-HOME-1571-01	Combined	Verified	Delaware Direct	19107	Green Roof (1), Bio-infiltration/Bio-retention (1), Basin (1)	0.2
2011-I95S-1699-01	Combined	Verified	Delaware Direct	19125	Bio-infiltration/Bio-retention (11), Basin (6)	8
2011-JWSD-1674-01	Combined	Verified	Delaware Direct	19122	Basin (1), Disconnections (1)	3.7
2011-KARA-1505-01	Combined	Verified	Lower Schuylkill River	19139	Disconnections (1), Porous Pavement (2), Basin (3)	4
2011-MONT-1516-01	Combined	Verified	Delaware Direct	19122	Basin (1)	3.6
2011-NEWB-1672-01	Combined	Verified	Lower Schuylkill River	19145	Green Roof (23), Porous Pavement (1)	0.4
2011-NEWN-1620-01	Combined	Verified	Delaware Direct	19123	Basin (1), Porous Pavement (1), Green Roof (1)	0.9
2011-NICE-1728-01	Combined	Verified	Tacony-Frankford Creek	19140	Porous Pavement (1), Basin (1)	0.4
2011-NICE-1729-01	Combined	Verified	Tacony-Frankford Creek	19140	Porous Pavement (1), Basin (1)	0.5
2011-NICE-1730-01	Combined	Verified	Tacony-Frankford Creek	19140	Porous Pavement (2), Basin (1)	1.3
2011-NORT-1700-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Porous Pavement (1)	0.9
2011-PENN-1664-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (1)	0.2
2011-PENN-1681-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1)	0.4
2011-PHIL-1596-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Porous Pavement (2), Basin (1), Bio-infiltration/Bio-retention (1)	3.5
2011-PROP-1483-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Porous Pavement (3)	1.6
2011-PROP-1662-01	Combined	Verified	Lower Schuylkill River	19130	Basin (3)	3.7
2011-SAMU-1569-01	Combined	Verified	Delaware Direct	19111	Porous Pavement (1)	0.4
2011-STMA-1508-01	Combined	Verified	Delaware Direct	19147	Basin (2), Green Roof (1), Porous Pavement (1)	0.5

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2011-TEMP-1622-01	Combined	Verified	Delaware Direct	19122	Green Roof (4), Blue Roof (4), Basin (2), Porous Pavement (1)	2.2
2011-TEMP-1739-01	Combined	Verified	Delaware Direct	19122	Basin (2), Bio-infiltration/Bio-retention (2), Cistern (1), Porous Pavement (1)	2.4
2011-THEB-1594-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (6), Disconnections (1), Bio-infiltration/Bio-retention (2)	1.6
2011-TOLL-1586-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Disconnections (1), Green Roof (1)	3.9
2012-1213-1925-01	Combined	Verified	Delaware Direct	19107	Basin (1), Green Roof (6), Cistern (1)	0.3
2012-1220-1913-01	Combined	Verified	Delaware Direct	19123	Green Roof (2), Porous Pavement (1)	0.4
2012-1426-1805-01	Combined	Verified	Lower Schuylkill River	19102	Green Roof (1), Blue Roof (1)	0.3
2012-1900-1754-01	Combined	Verified	Lower Schuylkill River	19145	Green Roof (1), Porous Pavement (1)	0.6
2012-1919-1929-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1), Green Roof (1), Disconnections (1)	1.2
2012-2549-1840-01	Combined	Verified	Delaware Direct	19125	Porous Pavement (1)	1
2012-3601-2053-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Bio-infiltration/Bio-retention (1)	0.4
2012-412N-1844-01	Combined	Verified	Delaware Direct	19123	Green Roof (2), Basin (1), Porous Pavement (1)	1.1
2012-600N-1963-01	Combined	Verified	Delaware Direct	19123	Green Roof (16), Porous Pavement (1)	0.4
2012-701W-2002-01	Combined	Verified	Delaware Direct	19133	Disconnections (1), Basin (2), Porous Pavement (2)	4.7
2012-810A-1974-01	Combined	Verified	Delaware Direct	19107	Basin (1), Bio-infiltration/Bio-retention (2)	0.2
2012-915N-1854-01	Combined	Verified	Delaware Direct	19123	Basin (1), Porous Pavement (1)	1.4
2012-AHMA-1831-01	Combined	Verified	Delaware Direct	19133	Basin (1), Disconnections (1)	2.1
2012-BUIL-1807-01	Combined	Verified	Tacony-Frankford Creek	19111	Disconnections (1)	0.1
2012-CANC-1770-01	Combined	Verified	Tacony-Frankford Creek	19124	Green Roof (1), Bio-infiltration/Bio-retention (1)	0.6
2012-CARP-1765-01	Combined	Verified	Delaware Direct	19146	Porous Pavement (1), Green Roof (2), Bio-infiltration/Bio-retention (2)	0.4
2012-CENT-1791-01	Combined	Verified	Delaware Direct	19122	Porous Pavement (3)	1.3
2012-CIRA-1937-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (2), Basin (1), Blue Roof (1)	2
2012-EPIS-1888-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Green Roof (2)	0.2
2012-ESPE-1947-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1), Porous Pavement (1), Disconnections (1)	3.7

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2012-GARY-1938-01	Combined	Verified	Lower Schuylkill River	19146	Disconnections (1), Bio-infiltration/Bio-retention (4), Basin (2)	1.4
2012-HUNT-1764-01	Combined	Verified	Tacony-Frankford Creek	19140-2107	Disconnections (1), Porous Pavement (2)	1.8
2012-INGE-1798-01	Combined	Verified	Delaware Direct	19121	Basin (1), Disconnections (1)	0.9
2012-INGL-1949-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2), Bio-infiltration/Bio-retention (1), Disconnections (1), Porous Pavement (1)	3.9
2012-LAWR-1945-01	Combined	Verified	Delaware Direct	19123	Porous Pavement (1), Green Roof (2)	0.4
2012-LINC-2012-01	Combined	Verified	Delaware Direct	19148	Porous Pavement (1), Bio-infiltration/Bio-retention (2)	1.8
2012-PENN-1774-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Bio-infiltration/Bio-retention (1)	1.1
2012-PENN-1946-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Green Roof (7), Porous Pavement (3), Basin (1), Bio-infiltration/Bio-retention (2), Cistern (1)	1
2012-PRES-1785-01	Combined	Verified	Lower Schuylkill River	19131-3348	Porous Pavement (1), Green Roof (1)	0.5
2012-PROP-1883-01	Combined	Verified	Tacony-Frankford Creek	19138	Basin (1)	2.3
2012-RIVE-2027-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (2), Disconnections (1)	3.3
2012-RODE-1835-01	Combined	Verified	Delaware Direct	19130	Basin (1)	1.3
2012-SCHU-2065-01	Combined	Verified	Lower Schuylkill River	19146	Basin (3), Bio-infiltration/Bio-retention (1), Disconnections (1)	3.3
2012-SENI-1900-01	Combined	Verified	Lower Schuylkill River	19145	Bio-infiltration/Bio-retention (1), Basin (1), Disconnections (1)	0.4
2012-SOUT-1782-01	Combined	Verified	Delaware Direct	19102	Green Roof (1), Basin (1)	0.8
2012-SPAR-1850-01	Combined	Verified	Delaware Direct	19148	Disconnections (1), Porous Pavement (2), Bio-infiltration/Bio-retention (1)	0.7
2012-SPRU-1813-01	Combined	Verified	Delaware Direct	19107	Basin (1), Green Roof (1), Disconnections (1)	0.1
2012-SR00-2026-01	Combined	Verified	Delaware Direct	19125	Bio-infiltration/Bio-retention (35)	2.9
2012-STFR-1986-01	Combined	Verified	Delaware Direct	19125	Bio-infiltration/Bio-retention (1), Basin (1), Disconnections (1)	0.3
2012-SYSC-1931-01	Combined	Verified	Delaware Direct	19148	Bio-infiltration/Bio-retention (1)	3.9
2012-TDBA-2047-01	Combined	Verified	Delaware Direct	19149	Basin (1), Bio-infiltration/Bio-retention (1), Disconnections (1)	1.1

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2012-THEM-1892-01	Combined	Verified	Delaware Direct	19106	Green Roof (1), Cistern (1), WQ Treatment Device (1), Disconnections (1)	0.8
2012-TOLL-1898-01	Combined	Verified	Delaware Direct	19147	Disconnections (1), Green Roof (2)	1.2
2012-UNIV-1848-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Porous Pavement (1), Green Roof (1), Bio-infiltration/Bio-retention (6), Basin (2)	1.6
2012-WISS-1891-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (2), Disconnections (1)	1.3
2013-1118-2248-01	Combined	Verified	Delaware Direct	19107	Green Roof (1), Basin (1), Porous Pavement (1)	0.8
2013-1300-2120-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (7), Basin (1), Porous Pavement (1)	3.2
2013-1323-2310-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1)	0.8
2013-1601-2261-01	Combined	Verified	Delaware Direct	19148	Basin (1), Disconnections (1)	1.5
2013-1900-2151-01	Combined	Verified	Lower Schuylkill River	19132	Basin (3), Bio-infiltration/Bio-retention (1)	2
2013-1901-2109-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Porous Pavement (1), Green Roof (1)	0.6
2013-2012-2072-01	Combined	Verified	Lower Schuylkill River	19121	Green Roof (1), Porous Pavement (2)	0.2
2013-2300-2240-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Bio-infiltration/Bio-retention (1)	0.9
2013-23RD-2272-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1), Disconnections (1)	0.6
2013-2413-2183-01	Combined	Verified	Delaware Direct	19132	Basin (1), Green Roof (1)	0.8
2013-3541-2376-01	Combined	Verified	Delaware Direct	19134	Basin (1), Disconnections (1)	1
2013-4783-2339-01	Combined	Verified	Pennypack Creek	19136	Disconnections (1), Basin (1), Porous Pavement (2)	1.8
2013-708N-2316-01	Combined	Verified	Delaware Direct	19123	Basin (1), Bio-infiltration/Bio-retention (1)	0.6
2013-8268-2116-01	Combined	Verified	Delaware Direct	19123	Basin (1)	0.8
2013-900S-2174-01	Combined	Verified	Delaware Direct	19147	Basin (1), Bio-infiltration/Bio-retention (1), Disconnections (1), Porous Pavement (1)	1.4
2013-9THS-2075-01	Combined	Verified	Delaware Direct	19123	Basin (1)	4.6
2013-ALDI-2287-01	Combined	Verified	Darby Creek	19151	Bio-infiltration/Bio-retention (4)	0.3
2013-CECI-2157-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1), Green Roof (1), Disconnections (1)	1.6
2013-CHOP-2288-01	Combined	Verified	Delaware Direct	19145	Porous Pavement (2), Basin (1), Bio-infiltration/Bio-retention (1)	1.2
2013-CIRA-2405-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Basin (1), Disconnections (1)	0.6

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2013-COBB-2080-01	Combined	Verified	Cobbs Creek	19143	Disconnections (1), Bio-infiltration/Bio-retention (2), Basin (1)	0.8
2013-DREX-2081-01	Combined	Verified	Lower Schuylkill River	19104	Basin (4)	1.3
2013-EDBE-2293-01	Combined	Verified	Delaware Direct	19122	Basin (1)	6.1
2013-FIRS-2202-01	Combined	Verified	Delaware Direct	19124	Bio-infiltration/Bio-retention (7), Disconnections (1)	6.2
2013-GRAC-2328-01	Combined	Verified	Delaware Direct	19134	Basin (1), Bio-infiltration/Bio-retention (2), Disconnections (1)	0.6
2013-HALP-2134-01	Combined	Verified	Lower Schuylkill River	19121	Basin (2), Disconnections (1)	1.6
2013-HELP-2241-01	Combined	Verified	Lower Schuylkill River	19153	Basin (1), Disconnections (1)	2
2013-LIBE-2255-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (6), Basin (3)	1
2013-MAST-2259-01	Combined	Verified	Lower Schuylkill River	19121	Disconnections (1)	0.6
2013-MUSE-2346-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), Porous Pavement (1), Disconnections (1)	4.5
2013-NEUR-2140-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration/Bio-retention (3), Green Roof (1), Disconnections (1), Porous Pavement (1)	0.4
2013-NEWC-2114-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Green Roof (1), Porous Pavement (2), Bio-infiltration/Bio-retention (1)	1.4
2013-ONER-2304-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1), Bio-infiltration/Bio-retention (1), Green Roof (1)	0.3
2013-PARK-2357-01	Combined	Verified	Lower Schuylkill River	19130	Bio-infiltration/Bio-retention (1), Disconnections (1)	1
2013-PHIL-2299-01	Combined	Verified	Delaware Direct	19102	Green Roof (2), Basin (1), Disconnections (1)	0.2
2013-PROP-2163-01	Combined	Verified	Tacony-Frankford Creek	19141	Basin (2)	1.2
2013-RESI-2173-01	Combined	Verified	Cobbs Creek	19143	Green Roof (1), Disconnections (1)	0.1
2013-SETT-2085-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (1), Basin (1), Porous Pavement (1), Disconnections (1), Green Roof (1), Row Connection (1)	2.4
2013-SHOP-2250-01	Combined	Verified	Delaware Direct	19124	Green Roof (6), Basin (7)	9.4
2013-STCH-2103-01	Combined	Verified	Delaware Direct	19134	Disconnections (1), Bio-infiltration/Bio-retention (3)	4.6
2013-STCH-2149-01	Combined	Verified	Delaware Direct	19134	Bio-infiltration/Bio-retention (6), Disconnections (1)	3.8

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2013-TACO-2197-01	Combined	Verified	Delaware Direct	19135	Bio-infiltration/Bio-retention (1), Basin (1), Disconnections (1)	2.1
2013-TAJD-2286-01	Combined	Verified	Delaware Direct	19122	Basin (2), Bio-infiltration/Bio-retention (1), Green Roof (1), Disconnections (1)	1.3
2013-TALL-2349-01	Combined	Verified	Delaware Direct	19133	Basin (1), Bio-infiltration/Bio-retention (1)	2.9
2013-TEMP-2178-01	Combined	Verified	Delaware Direct	19140	Bio-infiltration/Bio-retention (1), Basin (1)	1.1
2013-THES-2177-01	Combined	Verified	Delaware Direct	19123	Basin (2)	1.2
2013-THES-2392-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Blue Roof (1)	0.6
2013-UPEN-2280-01	Combined	Verified	Lower Schuylkill River	19104	Basin (3)	1.1
2014-1123-2645-01	Combined	Verified	Delaware Direct	19125	Basin (2)	0.7
2014-1325-2469-01	Combined	Verified	Delaware Direct	19121	Basin (1), Bio-infiltration/Bio-retention (1), Disconnections (1)	0.8
2014-1326-2422-01	Combined	Verified	Delaware Direct	19122	Basin (1)	0.9
2014-1350-2658-01	Combined	Verified	Delaware Direct	19122	Basin (1), Bio-infiltration/Bio-retention (2)	1.1
2014-1515-2746-01	Combined	Verified	Delaware Direct	19106	Basin (2), Porous Pavement (1)	0.8
2014-1601-2434-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1), Bio-infiltration/Bio-retention (2), Porous Pavement (1)	0.3
2014-1601-2440-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1), Bio-infiltration/Bio-retention (5), Green Roof (1), Disconnections (1)	0.7
2014-2013-2751-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (1)	0.5
2014-2201-2677-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1), WQ Treatment Device (1)	1.7
2014-2322-2715-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), Porous Pavement (1)	0.9
2014-250N-2565-01	Combined	Verified	Delaware Direct	19106	Porous Pavement (3), Green Roof (1)	1.2
2014-3600-2426-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Bio-infiltration/Bio-retention (1), Green Roof (1)	1.3
2014-420F-2574-01	Combined	Verified	Delaware Direct	19123	Basin (2), Disconnections (1)	1
2014-4525-2505-01	Combined	Verified	Lower Schuylkill River	19139	Green Roof (1)	0.3
2014-500W-2580-01	Combined	Verified	Delaware Direct	19106	Basin (1), Green Roof (1)	0.4
2014-5454-2552-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Bio-infiltration/Bio-retention (5), Porous Pavement (1)	0.9
2014-5800-2463-01	Combined	Verified	Lower Schuylkill River	19131	Disconnections (1), Basin (1)	1.2

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2014-63RD-2502-01	Combined	Verified	Cobbs Creek	19139	Basin (1)	1.9
2014-8365-2530-01	Combined	Verified	Delaware Direct	19123	Basin (1)	1.5
2014-ALLE-2455-01	Combined	Verified	Delaware Direct	19125	Green Roof (1), Porous Pavement (1), Disconnections (1)	0.4
2014-ALLE-2522-01	Combined	Verified	Delaware Direct	19133	Basin (1)	0.8
2014-BLUM-2711-01	Combined	Verified	Lower Schuylkill River	19121	Basin (2), Porous Pavement (1)	2.5
2014-CHIC-2755-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1)	0.8
2014-DOLL-2453-01	Combined	Verified	Delaware Direct	19135 -4408	Bio-infiltration/Bio-retention (1), Basin (1)	1.5
2014-DREX-2457-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (2), Disconnections (1)	2.5
2014-ENVI-2646-01	Combined	Verified	Delaware Direct	19148	Basin (5), Bio-infiltration/Bio-retention (1)	2
2014-GIRA-2478-01	Combined	Verified	Delaware Direct	19107	Basin (2), Green Roof (2), Disconnections (1)	1.2
2014-GSTR-2443-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Bio-infiltration/Bio-retention (1)	1.4
2014-HUNT-2525-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1), Bio-infiltration/Bio-retention (1)	0.9
2014-LASA-2425-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Bio-infiltration/Bio-retention (4), Porous Pavement (1)	2.2
2014-NORT-2603-01	Combined	Verified	Delaware Direct	19123	Bio-infiltration/Bio-retention (1), Basin (1)	0.4
2014-PAND-2762-01	Combined	Verified	Delaware Direct	19134	Basin (1)	0.5
2014-PERE-2472-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Disconnections (1)	0.6
2014-PHAG-2547-01	Combined	Verified	Lower Schuylkill River	19132	Bio-infiltration/Bio-retention (2), Basin (1)	0.3
2014-PHAM-2476-01	Combined	Verified	Lower Schuylkill River	19121	Basin (10), Bio-infiltration/Bio-retention (32)	1.6
2014-PHAO-2459-01	Combined	Verified	Lower Schuylkill River	19132	Basin (1), Bio-infiltration/Bio-retention (1), Porous Pavement (1)	0.4
2014-SEPT-2614-01	Combined	Verified	Delaware Direct	19124	Green Roof (1), Disconnections (1)	0.3
2014-STEN-2616-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1), Disconnections (1), Porous Pavement (1)	0.7
2014-STJO-2424-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Basin (3)	6.9
2014-TEMP-2699-01	Combined	Verified	Delaware Direct	19121	Porous Pavement (1)	0.4
2014-TRUE-2595-01	Combined	Verified	Delaware Direct	19123	Basin (1)	1.5
2014-UNIV-2747-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (1)	0.5
2014-VERN-2690-01	Combined	Verified	Tacony-Frankford Creek	19144	Disconnections (1), Porous Pavement (2)	0.5

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2014-VONC-2749-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), Disconnections (1)	0.5
2014-WEST-2612-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1), Porous Pavement (1), Disconnections (1)	1.9
2014-WISS-2641-01	Combined	Verified	Delaware Direct	19135	Disconnections (1), Porous Pavement (1)	0.4
2015-1002-2906-01	Combined	Verified	Delaware Direct	19123	Basin (1), Bio-infiltration/Bio-retention (3), Porous Pavement (1)	0.9
2015-2338-2915-01	Combined	Verified	Delaware Direct	19125	Basin (1)	0.8
2015-2517-2803-01	Combined	Verified	Delaware Direct	19134	Basin (1), Green Roof (1), Porous Pavement (2)	0.4
2015-3201-2786-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Bio-infiltration/Bio-retention (1), Green Roof (2), Disconnections (1)	0.3
2015-3675-2955-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Green Roof (1), Porous Pavement (1)	0.7
2015-4050-2828-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration/Bio-retention (1), Basin (1), Disconnections (1)	0.7
2015-40TH-2780-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Disconnections (1)	1.2
2015-7092-2945-01	Combined	Verified	Delaware Direct	19147	Porous Pavement (1), Disconnections (1), Basin (1)	0.7
2015-8385-2856-01	Combined	Verified	Delaware Direct	19123	Basin (2), Bio-infiltration/Bio-retention (1), Cistern (1)	1.8
2015-CAMD-2769-01	Combined	Verified	Delaware Direct	19134	Basin (1)	3.4
2015-DLAT-2926-01	Combined	Verified	Delaware Direct	19120	Bio-infiltration/Bio-retention (3), Basin (8), Disconnections (1), Green Roof (1), Porous Pavement (1)	8
2015-GAUD-2962-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1), Bio-infiltration/Bio-retention (1), Porous Pavement (3)	0.6
2015-GROC-2925-01	Combined	Verified	Delaware Direct	19137	Bio-infiltration/Bio-retention (2), Basin (1)	2.6
2015-JFKP-2951-01	Combined	Verified	Lower Schuylkill River	19102	Basin (2), Disconnections (1), Green Roof (1)	1.1
2015-LANI-2871-01	Combined	Verified	Lower Schuylkill River	19145	Porous Pavement (2), Disconnections (1)	0.3
2015-LASA-2848-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (2), Porous Pavement (1)	1.1
2015-PHIL-2919-01	Combined	Verified	Delaware Direct	19148	Porous Pavement (3), Bio-infiltration/Bio-retention (4), Basin (2), Green Roof (1), Disconnections (1)	7
2015-PHIL-2969-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), WQ Treatment Device (1), Cistern (1)	3.2
2015-PHIL-2982-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Green Roof (1), Basin (1)	0.3

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
2015-ROBE-2975-01	Combined	Verified	Tacony-Frankford Creek	19140	Bio-infiltration/Bio-retention (1), Basin (1)	0.5
2015-ROYA-2911-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (6), Disconnections (1)	4.4
2015-SOUT-2956-01	Combined	Verified	Lower Schuylkill River	19145	Basin (2), Bio-infiltration/Bio-retention (1)	5.1
2015-TEMP-2829-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1)	0.3
2015-TEMP-2964-01	Combined	Verified	Delaware Direct	19122	Basin (3), Porous Pavement (1)	12.3
2015-TULI-2824-01	Combined	Verified	Delaware Direct	19122	Basin (2), Green Roof (1), Disconnections (1), Porous Pavement (1), Row Connection (2)	3.3
2015-UCHS-2939-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Basin (2), Bio-infiltration/Bio-retention (1)	3.2
2015-WAYN-2771-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Porous Pavement (1), Disconnections (1)	1.2
2015-WYNN-2986-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), Disconnections (1), Porous Pavement (1)	0.7
FY16-ADAM-4220-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (1), Bio-infiltration/Bio-retention (1)	1.1
FY16-BARI-4074-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Disconnections (1)	0.8
FY16-BELM-4239-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (6), Basin (4), WQ Treatment Device (1), Porous Pavement (2)	6.6
FY16-BERN-4350-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1)	1.4
FY16-CENT-138-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), Disconnections (1), WQ Treatment Device (1)	0.5
FY16-COLU-4303-01	Combined	Verified	Delaware Direct	19147	Basin (1), Disconnections (1)	0.9
FY16-DREX-4244-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement (1), Disconnections (1)	1
FY16-EAST-4017-01	Combined	Verified	Delaware Direct	19125	Basin (1)	0.7
FY16-EAST-4179-01	Combined	Verified	Delaware Direct	19134	Bio-infiltration/Bio-retention (1), Disconnections (1)	0.5
FY16-FAIR-4011-01	Combined	Verified	Delaware Direct	19123	Basin (1)	1.4
FY16-FEDE-4201-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1)	0.9
FY16-FIVE-4029-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Bio-infiltration/Bio-retention (2)	1
FY16-FRAN-4076-01	Combined	Verified	Tacony-Frankford Creek	19124	Disconnections (1)	0
FY16-HANO-4040-01	Combined	Verified	Lower Schuylkill River	19107	Basin (2)	2.7
FY16-HELP-4027-01	Combined	Verified	Delaware Direct	19123	Basin (1), Disconnections (1)	0.3

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY16-JACK-4123-01	Combined	Verified	Delaware Direct	19124	Basin (2), Green Roof (1), Porous Pavement (2), Disconnections (1)	2.2
FY16-KENS-4216-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (3), Bio-infiltration/Bio-retention (1)	0.8
FY16-LAND-4251-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Green Roof (2), Porous Pavement (2), WQ Treatment Device (2)	0.5
FY16-LASA-4354-01	Combined	Verified	Tacony-Frankford Creek	19141	Porous Pavement (1), Disconnections (1)	0.2
FY16-LINC-4309-01	Combined	Verified	Delaware Direct	19146	Basin (1), Green Roof (1), Disconnections (1), Porous Pavement (1)	4.1
FY16-LOVE-4088-01	Combined	Verified	Tacony-Frankford Creek	19119	Bio-infiltration/Bio-retention (1), Disconnections (1), Green Roof (1)	0.3
FY16-LUCI-4053-01	Combined	Verified	Lower Schuylkill River	19139	Disconnections (1)	0.3
FY16-NATI-4211-01	Combined	Verified	Delaware Direct	19106	Basin (1)	1.6
FY16-NFRO-4270-01	Combined	Verified	Delaware Direct	19122	Basin (1)	1.2
FY16-PROJ-4329-01	Combined	Verified	Delaware Direct	19122	Basin (1), Green Roof (2), Porous Pavement (1), Disconnections (1)	0.4
FY16-PROP-4298-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1), Green Roof (1)	0.4
FY16-RACE-4127-01	Combined	Verified	Delaware Direct	19106	Porous Pavement (1), Basin (1), WQ Treatment Device (1), Disconnections (1)	2
FY16-SIMP-4337-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (2), Basin (1), Disconnections (1)	1.4
FY16-SMIT-4151-01	Combined	Verified	Lower Schuylkill River	19146	Porous Pavement (1), Disconnections (1)	4.3
FY16-STJO-4085-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1), Bio-infiltration/Bio-retention (1), Porous Pavement (1)	1.7
FY16-STRC-4364-01	Combined	Verified	Delaware Direct	19146	Basin (2), Bio-infiltration/Bio-retention (1)	0.7
FY16-TEMP-4178-01	Combined	Verified	Delaware Direct	19121	Bio-infiltration/Bio-retention (1), Basin (1), Porous Pavement (1)	4.2
FY16-TEMP-4277-01	Combined	Verified	Delaware Direct	19122	Porous Pavement (1)	0.4
FY16-THCH-4142-01	Combined	Verified	Lower Schuylkill River	19102	Basin (2), Green Roof (3), WQ Treatment Device (1), Blue Roof (6)	1.3
FY16-UCHS-4213-01	Combined	Verified	Lower Schuylkill River	19104		0
FY16-USCI-4261-01	Combined	Verified	Lower Schuylkill River	19143	Bio-infiltration/Bio-retention (5), Porous Pavement (2)	1.4

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY16-WASH-4360-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), Bio-infiltration/Bio-retention (1)	2.4
FY17-ABIG-4691-01	Combined	Verified	Delaware Direct	19148	Basin (2), Bio-infiltration/Bio-retention (2)	0.8
FY17-ALDI-4565-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration/Bio-retention (12), Basin (1), WQ Treatment Device (1), Disconnections (1)	3.7
FY17-AUTO-4659-01	Combined	Verified	Delaware Direct	19148	Basin (1), WQ Treatment Device (1)	1.2
FY17-BROA-4539-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), Disconnections (1)	1
FY17-CAMP-4378-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1), Disconnections (1)	0.9
FY17-CANT-4433-01	Combined	Verified	Delaware Direct	19148	Blue Roof (2), Porous Pavement (3), Disconnections (1)	0.9
FY17-CAPR-4725-01	Combined	Verified	Lower Schuylkill River	19147	Basin (1)	3.5
FY17-CARV-4503-01	Combined	Verified	Delaware Direct	19123	Basin (1), Disconnections (1)	1.7
FY17-EALL-4578-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (1)	0.9
FY17-EAST-4468-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1)	1.1
FY17-EAST-4640-01	Combined	Verified	Cobbs Creek	19139	Bio-infiltration/Bio-retention (5), Basin (2), Green Roof (1), Blue Roof (1), Disconnections (1), WQ Treatment Device (1)	2.3
FY17-EGIR-4646-01	Combined	Verified	Delaware Direct	19125	Green Roof (1), Porous Pavement (1)	0.5
FY17-GROC-4379-01	Combined	Verified	Delaware Direct	19148	Basin (2), WQ Treatment Device (2), Disconnections (1)	6.5
FY17-HAMP-4618-01	Combined	Verified	Delaware Direct	19111	Bio-infiltration/Bio-retention (2), Disconnections (1)	2.5
FY17-LEED-4633-01	Combined	Verified	Tacony-Frankford Creek	19150	Bio-infiltration/Bio-retention (7)	5.2
FY17-LUCI-4480-01	Combined	Verified	Lower Schuylkill River	19139	Basin (2), WQ Treatment Device (2), Disconnections (1), Porous Pavement (2)	1
FY17-MALB-4466-01	Combined	Verified	Delaware Direct	19125	Basin (1), Porous Pavement (1)	0.7
FY17-NBRO-4434-01	Combined	Verified	Delaware Direct	19121	Basin (1), Bio-infiltration/Bio-retention (1), Porous Pavement (1)	0.9
FY17-NORT-4607-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1)	1.2
FY17-NTHS-4495-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof (2), Basin (1)	0.9
FY17-NTHS-4672-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1), Row Connection (2)	3

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY17-PESS-4511-01	Combined	Verified	Lower Schuylkill River	19145	Basin (5)	9.6
FY17-PHAA-4543-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1), Porous Pavement (1)	0.7
FY17-PHAN-4699-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1), Disconnections (1), Row Connection (1)	2.5
FY17-PHIL-4417-01	Combined	Verified	Delaware Direct	19121	Basin (1), WQ Treatment Device (1)	2.4
FY17-POPL-4664-01	Combined	Verified	Delaware Direct	19123	Basin (1), WQ Treatment Device (1)	0.6
FY17-PRAT-4660-01	Combined	Verified	Delaware Direct	19124	Basin (1), Disconnections (2), Porous Pavement (1)	0.5
FY17-QUAK-4387-01	Combined	Verified	Lower Schuylkill River	19121	Basin (1)	5.1
FY17-REED-4474-01	Combined	Verified	Delaware Direct	19147	Basin (1), Disconnections (1)	1.5
FY17-RIDG-4764-01	Combined	Verified	Delaware Direct	19130	Basin (2), Bio-infiltration/Bio-retention (1), Green Roof (1), Porous Pavement (1)	5.1
FY17-ROWE-4634-01	Combined	Verified	Tacony-Frankford Creek	19126	Bio-infiltration/Bio-retention (1)	1.2
FY17-SENI-4411-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1), Disconnections (1), Porous Pavement (1), WQ Treatment Device (1)	1
FY17-SOUT-4486-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Green Roof (1)	0.6
FY17-SPRU-4443-01	Combined	Verified	Lower Schuylkill River	19139	Basin (1)	1.1
FY17-STHS-4755-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1)	1.2
FY17-STPI-4413-01	Combined	Verified	Cobbs Creek	19143	Bio-infiltration/Bio-retention (1), Disconnections (1)	0.5
FY17-TEMP-4573-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Porous Pavement (1)	0.2
FY17-THAN-4446-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), WQ Treatment Device (1)	1
FY17-VIEW-4457-01	Combined	Verified	Delaware Direct	19122	Basin (3), Bio-infiltration/Bio-retention (1), Green Roof (1), Porous Pavement (1), Disconnections (1), Row Connection (1)	4.1
FY17-WALM-4419-01	Combined	Verified	Tacony-Frankford Creek	19114	Basin (1), WQ Treatment Device (1)	15.7
FY17-WEND-4527-01	Combined	Verified	Cobbs Creek	19139	Basin (1)	1.3
FY17-WGOD-4567-01	Combined	Verified	Tacony-Frankford Creek	19141	Basin (1), Porous Pavement (1), Disconnections (1)	1.1
FY17-WHAR-4726-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1), Green Roof (1), Porous Pavement (1), Depave (1)	1.6

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY17-WIDE-4636-01	Combined	Verified	Tacony-Frankford Creek	19141	Bio-infiltration/Bio-retention (1)	4.5
FY17-WYNN-4704-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2), Disconnections (1)	0.8
FY17-XXXX-4458-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	2.2
FY18-ALBE-4973-01	Combined	Verified	Tacony-Frankford Creek	19141	Basin (1), Disconnections (1)	1.9
FY18-BART-5075-01	Combined	Verified	Lower Schuylkill River	19143	Basin (1)	6.1
FY18-BERK-4853-01	Combined	Verified	Delaware Direct	19122	Basin (1), Bio-infiltration/Bio-retention (1)	1.5
FY18-CENT-5008-01	Combined	Verified	Tacony-Frankford Creek	19141	Disconnections (1), Bio-infiltration/Bio-retention (6), Basin (3), Porous Pavement (3)	5.6
FY18-CHES-4832-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Porous Pavement (1)	0.2
FY18-CHES-4975-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Green Roof (1), Porous Pavement (1), Basin (1), Bio-infiltration/Bio-retention (1)	1.2
FY18-DEST-4909-01	Combined	Verified	Delaware Direct	19123	Basin (1)	5.9
FY18-ELEH-4835-01	Combined	Verified	Delaware Direct	19125	Basin (3), Porous Pavement (1)	6.6
FY18-ENOR-4838-01	Combined	Verified	Delaware Direct	19125	Bio-infiltration/Bio-retention (1), Porous Pavement (1)	0.9
FY18-ENOR-5080-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Green Roof (1), Porous Pavement (3)	0.4
FY18-GALA-5145-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (2), Basin (1)	0.6
FY18-GERM-4880-01	Combined	Verified	Tacony-Frankford Creek	19144	Green Roof (1), Porous Pavement (2)	0.3
FY18-HAMI-4900-01	Combined	Verified	Lower Schuylkill River	19130	Basin (1), Green Roof (1), WQ Treatment Device (1)	0.7
FY18-HSTX-5076-01	Combined	Verified	Delaware Direct	19134	Basin (1), WQ Treatment Device (1)	1.3
FY18-IRVI-4922-01	Combined	Verified	Cobbs Creek	19143	Porous Pavement (2)	0.8
FY18-LABO-5153-01	Combined	Verified	Delaware Direct	19122	Basin (1), Porous Pavement (1), WQ Treatment Device (1)	1.8
FY18-MERC-4857-01	Combined	Verified	Cobbs Creek	19143	Basin (1), Disconnections (1), WQ Treatment Device (1)	0.5
FY18-MIXE-4990-01	Combined	Verified	Delaware Direct	19123	Basin (1), WQ Treatment Device (1)	8.1
FY18-MOOR-5105-01	Combined	Verified	Delaware Direct	19148	Green Roof (1), Disconnections (1), Porous Pavement (1)	0.5

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY18-NCHW-5147-01	Combined	Verified	Lower Schuylkill River	19104	Disconnections (1), Porous Pavement (2), Green Roof (1), Basin (1), Bio-infiltration/Bio-retention (4)	2
FY18-NICO-5166-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (2), Disconnections (1), Row Connection (1)	2.6
FY18-NORT-4881-01	Combined	Verified	Delaware Direct	19122	Basin (1)	1
FY18-NRDS-4851-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1)	0.8
FY18-PARK-4775-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), WQ Treatment Device (1)	1.6
FY18-PARK-4896-01	Combined	Verified	Lower Schuylkill River	19131	Disconnections (1)	0.1
FY18-PEAB-4939-01	Combined	Verified	Delaware Direct	19122	Disconnections (1), Porous Pavement (1)	0.1
FY18-PERK-5001-01	Combined	Verified	Delaware Direct	19130	Green Roof (1), Porous Pavement (1), Disconnections (1)	0.3
FY18-PHAS-4886-01	Combined	Verified	Delaware Direct	19148	Bio-infiltration/Bio-retention (3), Disconnections (1)	2.5
FY18-PHIL-5038-01	Combined	Verified	Delaware Direct	19107	Basin (2), WQ Treatment Device (2)	1.6
FY18-PORT-4941-01	Combined	Verified	Delaware Direct	19125	Basin (1), WQ Treatment Device (1), Disconnections (1)	3.6
FY18-PROJ-4946-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (2)	8.4
FY18-PROV-5053-01	Combined	Verified	Pennypack Creek	19114	Disconnections (1), Bio-infiltration/Bio-retention (1), Basin (1)	2.8
FY18-QWEQ-5128-01	Combined	Verified	Lower Schuylkill River	19104	Basin (2), Disconnections (1)	1.6
FY18-RAND-5042-01	Combined	Verified	Delaware Direct	19122	Basin (1), WQ Treatment Device (1)	1.2
FY18-RENO-4879-01	Combined	Verified	Cobbs Creek	19143	Bio-infiltration/Bio-retention (1), Depave (1)	2.6
FY18-SOLI-4855-01	Combined	Verified	Delaware Direct	19149	Basin (3), Disconnections (1), WQ Treatment Device (2)	10.3
FY18-SUSQ-5052-01	Combined	Verified	Lower Schuylkill River	19132	Bio-infiltration/Bio-retention (1)	1.9
FY18-UHAU-5117-01	Combined	Verified	Delaware Direct	19125	Basin (1)	1.9
FY18-WALN-4820-01	Combined	Verified	Cobbs Creek	19139	Basin (1)	0.7
FY18-WEST-5167-01	Combined	Verified	Delaware Direct	19123	Bio-infiltration/Bio-retention (2)	0.6
FY18-WEST-5171-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1), WQ Treatment Device (1)	0.9
FY19-AUTO-5287-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1), WQ Treatment Device (1)	0.6
FY19-CASA-5240-01	Combined	Verified	Delaware Direct	19133	Basin (1)	0.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY19-CAST-5293-01	Combined	Verified	Delaware Direct	19111	Bio-infiltration/Bio-retention (1), Basin (1), Row Connection (4)	0.5
FY19-CENT-5325-01	Combined	Verified	Lower Schuylkill River	19130	Porous Pavement (1), Disconnections (1)	0.4
FY19-CHES-5484-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Bio-infiltration/Bio-retention (1)	0.9
FY19-CHOP-5421-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	2.5
FY19-DREX-5307-01	Combined	Verified	Lower Schuylkill River	19104	Basin (1)	0.5
FY19-GERM-5351-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (15), Green Roof (1), Porous Pavement (1), Disconnections (1)	0.3
FY19-LANC-5567-01	Combined	Verified	Lower Schuylkill River	19104	WQ Treatment Device (1), Basin (1), Bio-infiltration/Bio-retention (2), Green Roof (1), Disconnections (1)	3
FY19-MARK-5603-01	Combined	Verified	Lower Schuylkill River	19139	Green Roof (2), Bio-infiltration/Bio-retention (4)	6.4
FY19-MOOR-5381-01	Combined	Verified	Delaware Direct	19148	Green Roof (6), Porous Pavement (1)	0.5
FY19-NORT-5502-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (1), Basin (2), Porous Pavement (3)	3.6
FY19-NRDS-5400-01	Combined	Verified	Lower Schuylkill River	19151	Green Roof (7), Porous Pavement (2)	0.7
FY19-POPL-5344-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	0.7
FY19-SCHU-5429-01	Combined	Verified	Lower Schuylkill River	19104	Basin (3), Porous Pavement (2), Green Roof (2), WQ Treatment Device (2)	2
FY19-SUPR-5371-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (2)	4.4
FY19-TEMP-5500-01	Combined	Verified	Delaware Direct	19122	Green Roof (1)	0.3
FY19-THPO-5411-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof (1), Basin (1)	1.2
FY19-WHIT-5544-01	Combined	Verified	Cobbs Creek	19143	Porous Pavement (1), Green Roof (1)	0.2
FY20-ABLE-5713-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1)	1.6
FY20-BROA-5648-01	Combined	Verified	Lower Schuylkill River	19123	Basin (1), WQ Treatment Device (1)	1
FY20-EAST-5780-01	Combined	Verified	Delaware Direct	19107	Basin (2)	2.5
FY20-GREA-6054-01	Combined	Verified	Pennypack Creek	19149	Basin (2)	1.4
FY20-HELP-5666-01	Combined	Verified	Lower Schuylkill River	19121	Bio-infiltration/Bio-retention (1), Disconnections (1)	0.4

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s) and Count	Greened Acres
FY20-MARK-5754-01	Combined	Verified	Lower Schuylkill River	19103	Basin (1)	1
FY20-PHIL-6012-01	Combined	Verified	Cobbs Creek	19142	Basin (2), Porous Pavement (1), WQ Treatment Device (1)	0.8
FY20-ROMO-5984-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (1)	3.1
FY20-SPRI-5857-01	Combined	Verified	Delaware Direct	19123	Basin (2)	4.7
FY20-SUMM-5803-01	Combined	Verified	Delaware Direct	19124	Bio-infiltration/Bio-retention (4), Basin (1)	24
FY20-WECC-5809-01	Combined	Verified	Delaware Direct	19148	Basin (1), WQ Treatment Device (1)	2
FY20-WOOD-5724-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Porous Pavement (2)	0.6
FY21-AWFP-6317-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1)	1.2
FY21-CHES-6248-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Porous Pavement (1)	0.2
FY21-CVSP-6101-01	Combined	Verified	Delaware Direct	19134	Basin (1), WQ Treatment Device (1)	1
FY21-EERI-6375-01	Combined	Verified	Delaware Direct	19134	Basin (2), WQ Treatment Device (1)	16.5
FY21-ELMW-6094-01	Combined	Verified	Lower Schuylkill River	19142	Bio-infiltration/Bio-retention (1), Basin (1), WQ Treatment Device (1), Disconnections (1)	24.6
FY21-GRAY-6449-01	Combined	Verified	Lower Schuylkill River	19146	Basin (1), WQ Treatment Device (1)	1.2
FY21-MURP-6508-01	Combined	Verified	Delaware Direct	19148	Basin (2), WQ Treatment Device (1)	5.4
FY21-PROJ-6308-01	Combined	Verified	Delaware Direct	19122	Basin (1), Disconnections (1)	0.2
FY21-PROP-6250-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1)	1
FY21-RAMO-6289-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (1), WQ Treatment Device (1)	4.2
FY21-SAMU-6211-01	Combined	Verified	Delaware Direct	19134	Disconnections (1)	0
FY21-TEMP-6187-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (5)	1.8
FY21-TRIN-6159-01	Combined	Verified	Delaware Direct	19133	Green Roof (1), Porous Pavement (1)	0.6
FY21-WEST-6479-01	Combined	Verified	Lower Schuylkill River	19139	Basin (1), WQ Treatment Device (1)	2
Total Greened Acres:						**1077**

Table 4: Completed Incentivized Green Stormwater Infrastructure Projects

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s)	Greened Acres
2012-5818-1784-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (1)	0.2
2012-GSFS-2028-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (1), Depave (1)	1.1
2012-WOLF-1792-01	Combined	Verified	Delaware Direct	19137		11.7
2013-1148-2105-01	Combined	Verified	Delaware Direct	19147	Green Roof (1), Basin (3)	1
2013-CARD-2076-01	Combined	Verified	Delaware Direct	19124	Basin (2)	60.6
2013-CARD-2220-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (2)	18.6
2013-METH-2117-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (11)	1.2
2013-SITE-2387-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	7.2
2013-SITE-2401-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	5.8
2014-GLOB-2467-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (2)	0.8
2014-SITE-2501-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration/Bio-retention (1)	44.8
2014-SITE-2549-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1)	6
2014-SITE-2550-01	Combined	Verified	Delaware Direct	19135	Basin (1)	2.6
2014-SITE-2592-01	Combined	Verified	Lower Schuylkill River	19153	Basin (1)	9
2014-SITE-2665-01	Combined	Verified	Lower Schuylkill River	19145	Basin (2)	15.9
2014-SITE-2666-01	Combined	Verified	Lower Schuylkill River	19153	Basin (2)	4.9
2014-SITE-2682-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2)	9.4
2014-WARR-2757-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration/Bio-retention (4), Row Connection (3)	3
2014-WILL-2541-01	Combined	Verified	Delaware Direct	19140	Depave (1)	0.2
2015-3560-2776-01	Combined	Verified	Delaware Direct	19134	Basin (1)	1.3
2015-FRAN-2954-01	Combined	Verified	Delaware Direct	19130	Bio-infiltration/Bio-retention (3)	0.7
2015-LASA-2865-01	Combined	Verified	Tacony-Frankford Creek	19141	Basin (3)	9.3
2015-LEAE-2888-01	Combined	Verified	Lower Schuylkill River	19036	Bio-infiltration/Bio-retention (5), Porous Pavement (1), Basin (2), Row Connection (2)	2.5
2015-LIGH-2907-01	Combined	Verified	Delaware Direct	19140	Basin (1)	0.9
2015-LUTH-2836-01	Combined	Verified	Delaware Direct	19125	Depave (1)	0.4
2015-MART-2832-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (4), Basin (1), Row Connection (1)	5.2
2015-MAYF-2796-01	Combined	Verified	Delaware Direct	19149	Bio-infiltration/Bio-retention (3), Row Connection (2)	4.7

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s)	Greened Acres
2015-MINK-2844-01	Combined	Verified	Lower Schuylkill River	19145	Basin (2)	1
2015-NORT-2977-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (6), WQ Treatment Device (2)	22.2
2015-SITE-2809-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (2), Row Connection (3)	23
2015-SITE-2810-01	Combined	Verified	Lower Schuylkill River	19153	Basin (5)	17.6
2015-SITE-2812-01	Combined	Verified	Pennypack Creek	19136	Basin (2), Row Connection (1)	13.3
2015-STJA-2895-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (4)	0.6
2015-TAGG-2931-01	Combined	Verified	Delaware Direct	19148	Basin (1), Depave (1), Bio-infiltration/Bio-retention (1)	1
FY16-ADAI-4164-01	Combined	Verified	Delaware Direct	19125	Bio-infiltration/Bio-retention (1), Depave (1)	2.6
FY16-ADAM-4101-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Disconnections (1)	2.4
FY16-CHES-4233-01	Combined	Verified	Lower Schuylkill River	19146	Basin (2), Porous Pavement (1), Depave (1), Row Connection (2)	1.3
FY16-ESSI-4357-01	Combined	Verified	Lower Schuylkill River	19153	Basin (3), Row Connection (2)	10.2
FY16-GAUL-4273-01	Combined	Verified	Delaware Direct	19134	Basin (1)	1.5
FY16-ISTR-4292-01	Combined	Verified	Delaware Direct	19134	Blue Roof (3)	1.1
FY16-JMPA-4286-01	Combined	Verified	Lower Schuylkill River	19142	Bio-infiltration/Bio-retention (1), Depave (1)	0.8
FY16-JOMA-4143-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration/Bio-retention (1)	1.6
FY16-LASA-4274-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (5)	14.6
FY16-LIND-4086-01	Combined	Verified	Tacony-Frankford Creek	19141	Bio-infiltration/Bio-retention (1)	1.4
FY16-NAME-4323-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (2), Row Connection (1)	8.8
FY16-PHIL-4134-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof (1)	0.1
FY16-RICH-4302-01	Combined	Verified	Delaware Direct	19137	Disconnections (1)	12.2
FY16-SITE-4016-01	Combined	Verified	Lower Schuylkill River	19145	Basin (1)	7.6
FY16-SITE-4020-01	Combined	Verified	Delaware Direct	19136	Basin (2)	3
FY16-SITE-4025-01	Combined	Verified	Pennypack Creek	19136	Basin (1), Row Connection (3)	13.4
FY16-SITE-4039-01	Combined	Verified	Delaware Direct	19148	Basin (4), Row Connection (2)	6.9
FY16-SITE-4104-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (4), Row Connection (2)	12.8
FY16-SITE-4189-01	Combined	Verified	Tacony-Frankford Creek	19120	Basin (7), Row Connection (1)	15.8
FY16-STHS-4226-01	Combined	Verified	Lower Schuylkill River	19145	Bio-infiltration/Bio-retention (2), Basin (8)	5.2
FY16-WAKE-4282-01	Combined	Verified	Delaware Direct	19137	Basin (2), Row Connection (2)	8.7

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s)	Greened Acres
FY17-BAKE-4685-01	Combined	Verified	Delaware Direct	19134	Basin (1)	3.4
FY17-BSTR-4742-01	Combined	Verified	Delaware Direct	19134	Basin (4)	10.2
FY17-CAST-4743-01	Combined	Verified	Delaware Direct	19134	Basin (2), Row Connection (2)	7.9
FY17-EADO-4760-01	Combined	Verified	Delaware Direct	19137	Basin (2)	5.9
FY17-ECHE-4667-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Bio-infiltration/Bio-retention (1)	4.2
FY17-ECHE-4668-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Bio-infiltration/Bio-retention (1), Row Connection (2)	4.4
FY17-EDMU-4680-01	Combined	Verified	Pennypack Creek	19136	Basin (1)	5
FY17-EERI-4396-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1)	4.6
FY17-ELUZ-4412-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (3), Row Connection (2)	10.4
FY17-ESSI-4624-01	Combined	Verified	Lower Schuylkill River	19153	Basin (3), Row Connection (2)	13.1
FY17-ESSI-4628-01	Combined	Verified	Lower Schuylkill River	19153	Basin (2), Porous Pavement (2), WQ Treatment Device (1), Row Connection (1)	9.1
FY17-FRAN-4728-01	Combined	Verified	Delaware Direct	19125	Green Roof (1)	0.1
FY17-GRAY-4520-01	Combined	Verified	Lower Schuylkill River	19143	Basin (3), Row Connection (1)	16.3
FY17-HIST-4671-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1), Bio-infiltration/Bio-retention (1), Depave (1)	0.7
FY17-NDAN-4582-01	Combined	Verified	Tacony-Frankford Creek	19140	Basin (1), Row Connection (21)	31.8
FY17-NTHS-4620-01	Combined	Verified	Delaware Direct	19140	Basin (3), Row Connection (2)	15.9
FY17-OVER-4682-01	Combined	Verified	Lower Schuylkill River	19151	Bio-infiltration/Bio-retention (1), Basin (1)	2.4
FY17-PASC-4472-01	Combined	Verified	Lower Schuylkill River	19143	Basin (4), Row Connection (1)	9.2
FY17-POSE-4687-01	Combined	Verified	Pennypack Creek	19136	Basin (1)	5.7
FY17-STEN-4469-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (3), Row Connection (2)	4.5
FY17-STHS-4442-01	Combined	Verified	Lower Schuylkill River	19145	Basin (7)	15.9
FY17-STMA-4406-01	Combined	Verified	Delaware Direct	19122	Bio-infiltration/Bio-retention (1)	2.2
FY17-TACO-4444-01	Combined	Verified	Delaware Direct	19137	Basin (3)	12.6
FY17-WHEA-4544-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Disconnections (1), Row Connection (2)	14
FY18-ACAD-4999-01	Combined	Verified	Pennypack Creek	19114	Basin (1), Row Connection (2)	5.2
FY18-ADAM-5070-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (2), Row Connection (2)	4.8
FY18-BALA-5159-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	24.4
FY18-COML-4942-01	Combined	Verified	Delaware Direct	19135	Basin (1)	1.4
FY18-DEPA-4944-01	Combined	Verified	Tacony-Frankford Creek	19422	Basin (1)	11.9

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s)	Greened Acres
FY18-DREX-5120-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof (1), Disconnections (1)	1
FY18-EERI-4992-01	Combined	Verified	Delaware Direct	19124	Basin (4), Row Connection (2)	11.6
FY18-GRAY-4905-01	Combined	Verified	Lower Schuylkill River	19143	Basin (1), Row Connection (1)	2.3
FY18-LASA-4980-01	Combined	Verified	Tacony-Frankford Creek	19144	Basin (1)	3.3
FY18-NORT-4846-01	Combined	Verified	Lower Schuylkill River	19140	Basin (2), Row Connection (2)	4.1
FY18-OREG-5175-01	Combined	Verified	Delaware Direct	19148	Basin (4), Row Connection (2)	7
FY18-ORTH-5057-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (4), Row Connection (2)	7.8
FY18-PAUL-4979-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Row Connection (2)	2.1
FY18-PINN-4913-01	Combined	Verified	Lower Schuylkill River	19131	Basin (3)	2.9
FY18-PRES-4972-01	Combined	Verified	Delaware Direct	19124	Basin (2), Row Connection (7)	10.1
FY18-STOR-5156-01	Combined	Verified	Delaware Direct	19148	Basin (4), Row Connection (3)	67.4
FY18-TALM-4904-01	Combined	Verified	Lower Schuylkill River	19131	Basin (1)	1.2
FY18-TALM-4995-01	Combined	Verified	Lower Schuylkill River	19131	Basin (2)	1.7
FY18-WBUL-4819-01	Combined	Verified	Delaware Direct	19140	Basin (2), Row Connection (1)	7.1
FY18-WHIT-5066-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (2), Row Connection (1)	8
FY18-WHUN-4834-01	Combined	Verified	Lower Schuylkill River	19140	Basin (1), Row Connection (1)	2.6
FY19-ARDL-5323-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration/Bio-retention (2)	3.4
FY19-CAST-5414-01	Combined	Verified	Delaware Direct	19134	Basin (3), Row Connection (6)	9.8
FY19-DEPA-5339-01	Combined	Verified	Tacony-Frankford Creek	19031	Basin (1)	2.3
FY19-HOLM-5609-01	Combined	Verified	Pennypack Creek	19136	Basin (2), Depave (1), Row Connection (7)	2
FY19-LEON-5611-01	Combined	Verified	Delaware Direct	19122	Basin (2), Row Connection (2)	6.9
FY19-PATT-5479-01	Combined	Verified	Delaware Direct	19148	Basin (2), Bio-infiltration/Bio-retention (4), Disconnections (1)	61.2
FY19-PEER-5261-01	Combined	Verified	Lower Schuylkill River	19145	Basin (2), Row Connection (4)	3.2
FY19-PEER-5346-01	Combined	Verified	Lower Schuylkill River	19151	Basin (1), Bio-infiltration/Bio-retention (1), Row Connection (5)	3.3
FY19-SEPV-5417-01	Combined	Verified	Delaware Direct	19137	Basin (1)	1.8
FY19-STRA-5600-01	Combined	Verified	Lower Schuylkill River	19132	Basin (3), Row Connection (10)	13.1
FY19-WGLE-5241-01	Combined	Verified	Delaware Direct	19132	Basin (2), Row Connection (2)	3.2
FY19-WGLE-5243-01	Combined	Verified	Lower Schuylkill River	19132	Basin (2)	7.8

Tracking Number	Sewer Type	Category	Watershed	Zip	SMP Type(s)	Greened Acres
FY19-WLEH-5378-01	Combined	Verified	Lower Schuylkill River	19132	Basin (3), Bio-infiltration/Bio-retention (1), Row Connection (7)	8.7
FY19-WLEH-5466-01	Combined	Verified	Lower Schuylkill River	19132	Basin (3), Row Connection (4)	6.2
FY20-AWBU-5768-01	Combined	Verified	Tacony-Frankford Creek	19138	Basin (1), Row Connection (6)	3.9
FY20-IKEA-5894-01	Combined	Verified	Delaware Direct	19148	Basin (5), Row Connection (5)	20.5
FY20-PARK-5828-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof (1)	0.2
FY21-DEPA-6266-01	Combined	Verified	Tacony-Frankford Creek	19031	Basin (1)	3.2
FY21-EHUN-6402-01	Combined	Verified	Tacony-Frankford Creek	19124	Basin (1), Cistern (1)	1.4
FY21-TEOC-6512-01	Combined	Verified	Lower Schuylkill River	19123	Bio-infiltration/Bio-retention (1)	4.2
FY22-ESSI-6719-01	Combined	Verified	Lower Schuylkill River	19153	Basin (1), Row Connection (7)	5.5
FY22-STLU-6685-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration/Bio-retention (1)	0.4
Total Greened Acres:						**1009**

Appendix 4

Green Stormwater Infrastructure Monitoring Status Report

1.0 Introduction

During the reporting period of July 1, 2023 to June 30, 2024, the City's *Green City, Clean Waters* program addressed stormwater runoff reductions in urbanized areas using a combination of traditional infrastructure and green stormwater infrastructure (GSI). GSI systems vary in size, complexity, and interconnectedness to the existing drainage system, but the objective is to infiltrate, evapotranspire, reuse, and/or detain stormwater rather than to convey it directly to the sewer system. Monitoring and testing GSI systems is therefore essential to determine the effectiveness of various SMP types in managing stormwater and reducing combined sewer overflows.

The focus of the *Green City, Clean Waters* monitoring program has been post-construction performance monitoring and testing of public GSI systems but has expanded to test public GSI systems during construction beginning in FY19. Specifically, a liner testing pilot began in 2019 and has been successful in providing feedback for Construction and GSI Design to improve performance of fully lined systems. The performance testing of fully lined systems in construction is anticipated to increase in the coming years due to the success of the pilot and increased construction of GSI. In addition, post-construction private GSI monitoring and testing has been conducted since FY18.

The primary goal of GSI monitoring and testing is to assess the ability of GSI systems to reduce stormwater runoff volume. Project characteristics such as contributing drainage area, storage volume, inlet capture efficiency, and slow-release discharge parameters can be used to supplement data and observations from testing and monitoring, allowing for a more complete view of a system's functionality. Secondary goals include providing information for improvements to GSI design, construction, and maintenance and developing appropriate monitoring methods for the variety of GSI projects installed city-wide.

Proposed methods for performance monitoring and testing were outlined in both the draft Comprehensive Monitoring Plan submitted December 1, 2012 and in a response sent to PADEP and the EPA on July 31, 2013. A revised CMP was submitted on January 10th, 2014 and approved by PADEP on May 28, 2014. Since then, standard operating procedures (SOPs) continue to be refined for these methods. The latest monitoring and testing SOPs are available in the Appendices to the FY19 annual report.

2.0 Data Management

The data tracking mechanism for *Green City, Clean Waters* GSI monitoring data has evolved significantly since the inception of the program. Raw data are stored on an SMP-by-SMP basis in a filesystem directory tree. Derived data from quality assurance calculations are stored in spreadsheets and relational databases, to be used for various data analyses. The ongoing data management upgrades from FY23 have continued into FY24. In addition, new initiatives have expanded the scope and capabilities of our data management tools.

In FY24, MARS continued its modernization efforts via its virtual machine's software from the server-equivalent of Windows 8 to Windows 11. Furthermore, MARS's scripting environment has been dramatically restructured and brought into better alignment with best industry practices. Scripts are monitored via an execution dashboard that allows bugs to be detected and fixed in a timely manner. Data structures within the MARS Analysis database have continued to evolve in support of new and ongoing analysis projects. Additionally, logging tools have been incorporated into the data management scripts to increase MARS's visibility into the data management process. Further expansion of these logging tools will make future development easier and future analyses more effective.

3.0 Data Analysis

3.1 Sensor Drift Testing

A pilot program was launched in FY24 to test the pressure transducer sensors that are used for GSI monitoring. The goal of the testing program is to identify and address calibration drift and other performance issues in sensors in order to ensure the integrity of data collected in the future. In FY24 121 sensor tests were conducted under controlled circumstances. An additional 24 tests were conducted at field sites for comparison with and validation of the controlled tests. All sensors that did not perform acceptably during testing were retired from service or returned to the manufacturer for repair.

3.2 Trend Analyses

MARS undertook several data analysis projects throughout FY24. The objective of these efforts was to utilize monitoring data to address emerging engineering questions and provide insight within the unit. The green inlet monitoring project involved a comprehensive review and analysis of green inlet monitoring data collected over four years from eight systems. A significant correlation was identified between inlet overtopping events and the design of highway grate green inlets, with peak storm flows being recognized as a key predictor of overtopping. Factors such as the time since subsurface maintenance and flow through the distribution pipe were not found to be significant predictors. As a result, an extensive analysis was conducted into the impact of GSI design characteristics on green inlet performance.

The GSI infiltration trend analysis project was conducted to estimate the bottom infiltration service life of publicly owned subsurface GSI systems, focusing on sediment accumulation within the void space of the stone storage as a likely mode of failure. In Phase 1, long-term infiltration data from 24 systems were analyzed using the Mann-Kendall test to identify systems with decreasing infiltration trends.

Fifteen systems with negative trends advanced to Phase 2. Systems with positive trends were excluded due to artificial inflation of infiltration rates from unintended drainage pathways. Phase 2 involved forecasting the infiltration rates of these 15 systems using the Theil-Sen regression method. The projected bottom infiltration service life was estimated at 43.86 years (±19.32 years), with a median value of 28 years.

3.3 Site-Specific Performance Evaluations

Several site-specific performance evaluations were conducted on GSI systems to assess their performance during storm events. These investigations focused on evaluating the overall performance of the systems, understanding the impact of major developments and changes on system performance, and identifying areas of underperformance. The findings were used to provide insights and recommendations to the relevant groups within the Philadelphia Water Department (PWD). These performance evaluations included assessing the overall performance and the impact of major developments, such as a complete replacement of a distribution pipe to the infiltration basin at Dependable Distribution, pipe jetting and other maintenance to the underdrain pipes at the Cardone Industries basins, corrective maintenance on the basins at Northeast Tower, and determining the hydraulic restriction caused by a frequently clogged trash guard pretreatment devices at arch tank subsurface storage system at Ferko Playground.

4.0 Software Development

During FY24, significant advancements were made in software development to enhance data analysis and operational efficiency. Key initiatives and upgrades included creating more accurate infiltration rate metrics by correcting the assumed depth of observation well sumps across GSI systems. In order to do so, MARS has been reviewing as-built and design plans, survey documents, CWL monitoring data, and field notes to determine the correct sump depth for observation wells across all previously monitored systems. This process was simultaneously being applied to the assumed depth of underdrain orifices in slow-release systems.

Several new software solutions were developed to enhance the efficiency, accuracy, and integrity of water level data management. New web applications were developed to ensure that collected CWL monitoring data undergoes thorough quality assurance and quality control (QA/QC), record their QA/QC status, and ensure their time series are complete in the database. These applications streamline the process of managing the QA/QC process and ensure that recordkeeping is complete and accurate. Additionally, new QA/QC metrics were defined and automated using web applications, maintaining the overall integrity and completeness of the data within the database.

Further development included a web application designed to provide real-time insights into the status of data extraction, transformation, and loading (ETL) processes. This application communicates the success or failure of these workflows, enabling prompt troubleshooting and minimizing downtime. Finally, a new web application was developed to host the post-construction status of public monitoring systems. This new tool streamlines the process of assigning and/or updating post-construction statuses to GSI systems, saving the data in the database, and providing real-time statistics on the breakdown of the systems with various statuses. These innovations collectively contribute to more reliable data management and more efficient operational processes.

5.0 Public GSI Monitoring and Testing

Continuous water level (CWL) monitoring of GSI systems is the primary method the Water Department uses to evaluate performance. CWL monitoring is conducted at the stormwater management practice (SMP) level, where one or more SMPs make up a single GSI system. Multiple SMPs may be monitored to assess the overall performance of a single GSI system. In addition to CWL monitoring, the Water Department conducts testing of GSI, including capture efficiency testing (CET) of inlets, simulated runoff testing (SRT) of GSI systems, infiltration testing of porous pavement and permeable pavers, and groundwater monitoring (pre-construction and post-construction of GSI).

5.1 Continuous Water Level (CWL) Monitoring

During FY24, the Water Department completed sensor deployments (HOBO pressure transducers, Onset Computer Corp, Bourne, MA) for CWL monitoring of 134 public GSI systems, of which 17 systems were newly monitored this fiscal year (see **Table 5-1**). To-date (through FY24), sensor deployments have been completed for CWL monitoring of 471 public GSI systems. All public SMPs with post-construction CWL monitoring are shown in **Figure 5-1**. In addition, **Figure 5-1** shows the barometric pressure sensor and rain gauge locations that are utilized in the CWL monitoring process.

In selecting water level monitoring locations, the Water Department has attempted to roughly allocate monitoring effort according to the types of SMPs constructed for the *Green City, Clean Waters* program. **Table 5-2** is a breakdown by SMP type showing the number of public SMPs with CWL monitoring compared to the total number of SMPs of each type.

Table 5-1: Summary of Post-Construction CWL Monitoring of Public SMPs

	FY23	To-Date (through FY23)
Sensor Deployments	359	4191
Systems	134	471
Systems Newly Monitored	17	

Table 5-2: Post-Construction CWL Monitoring of Public SMPs Listed by Type

SMP Type	Monitored SMPs (before and during FY24)	Total Constructed Public SMPs
Tree Trench	281	604
Stormwater Tree	0	118
Planter	27	160
Bumpout	13	172
Rain Garden	65	191
Infiltration/Storage Trench	139	619
Permeable Pavement	2	13
Swale	3	49
Basin	1	8
Drainage Well	4	4
Green Roof	0	2
Total	**535**	**1940**

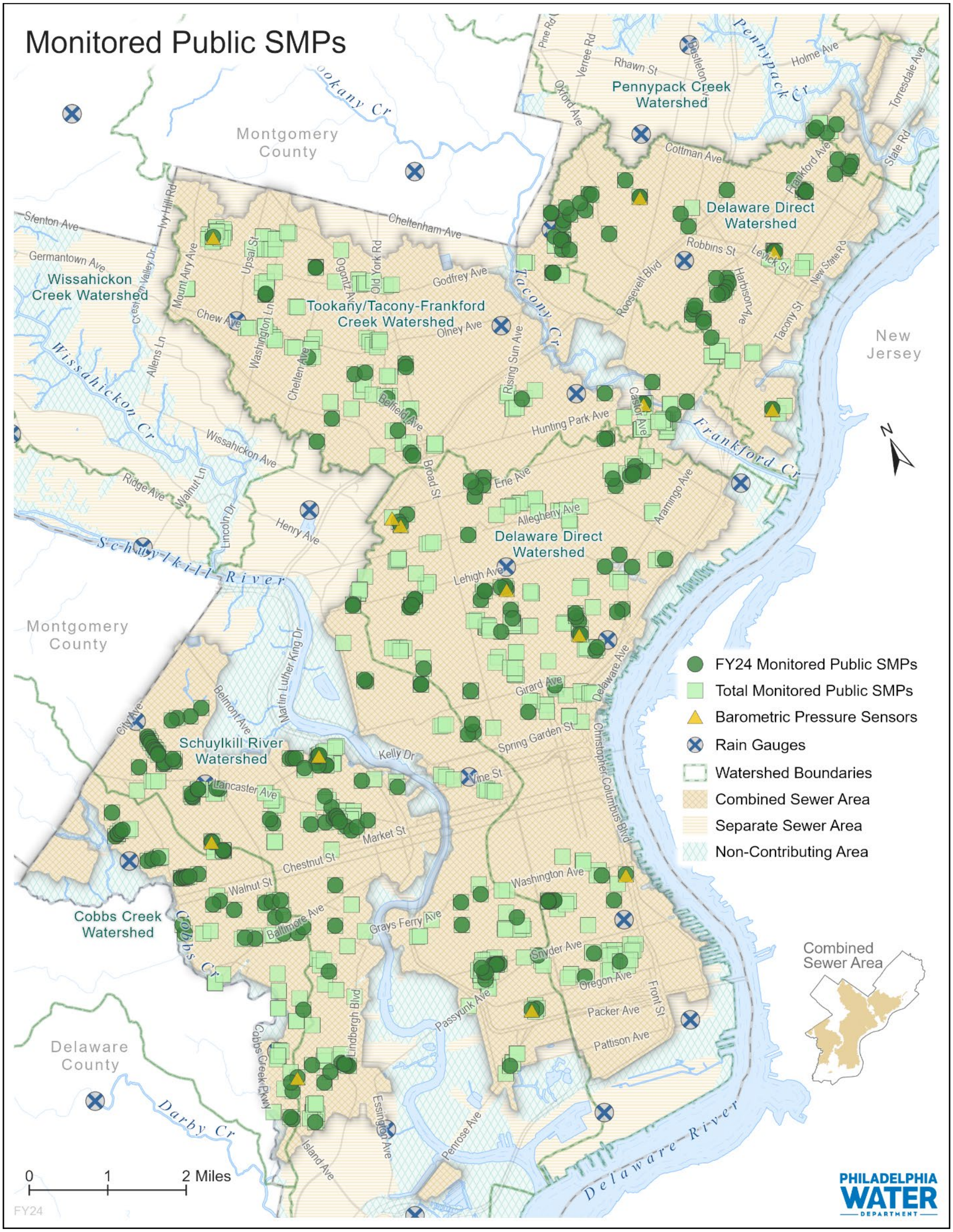


Figure 5-1: Location of Public SMPs with Post-Construction CWL Monitoring

5.2 Simulated Runoff Testing (SRT)

Systems that show abnormal water level response during CWL monitoring typically undergo simulated runoff testing (SRT) using water hydrant flow, dye testing, and/or CCTV to determine if there are performance issues. As described in **Table 5-3**, 38 pre-inspection SRTs were performed on public GSI systems between July 1, 2023 to June 30, 2024. To-date (through FY24), a total of 323 post-construction SRTs have been performed on public GSI systems. The breakdown of SRTs per SMP type is shown in **Table 5-4**. FY24 SRT locations are shown **Figure 5-2**.

Table 5-3: Post-Construction SRTs performed on Public Systems

SRT Type	FY24	To-Date (through FY24)
Pre-Inspection Dye Test	31	173
CCTV Dye Test	6	62
Performance SRT	1	88
Total	**38**	**323**

Table 5-4: Public Systems with Post-Construction SRTs Performed

System Type	FY24	To-Date (through FY24)
Bumpout	13	27
Drainage Well	0	3
Permeable Pavement	0	2
Planter	2	16
Rain Garden	2	20
Stormwater Tree	0	10
Swale	1	4
Tree Trench	20	93
Trench	11	53
Total	**49**	**228**

Note: A single GSI system may consist of one or more SMPs; therefore, the number of SMPs tested may be larger than the number of GSI systems tested.

SRTs are performed during construction to assess system performance before the Water Department accepts ownership. A geomembrane liner performance requirement for fully lined GSI systems constitutes the majority of testing and ensures fully lined systems meet watertightness standards. Beginning in FY23, an existing contract with AKRF Inc. was expanded to include geomembrane liner performance testing to augment PWD's ability to test fully lined GSI systems during the construction process. As described in **Table 5-5**, 148 performance SRTs were performed on public GSI systems between July 1, 2023, to June 30, 2024. To-date (through FY24), a total of 270 construction-phase SRTs have been performed on public GSI systems of which 41 SRTs were conducted with the support of AKRF

Inc. The breakdown of SRTs per SMP type is shown in **Table 5-6**. FY24 SRT locations are shown **Figure 5-2**.

Table 5-5: Construction-Phase SRTs Performed on Public Systems

SRT Type	FY24	To-Date (through FY24)
Pre-Inspection Dye Test	0	4
CCTV Dye Test	0	2
Performance SRT	148	264
Total	**148**	**270**

Table 5-6: Public Systems with Construction-Phase SRTs Performed

System Type	FY24	To-Date (through FY24)
Bumpout	17	24
Rain Garden	1	17
Tree Trench	60	91
Trench	33	77
Planter	1	2
Swale	0	2
Total	**112**	**213**

Note: A single GSI system may consist of one or more SMPs; therefore, the number of SMPs tested may be larger than the number of GSI systems tested.

5.3 Capture Efficiency Testing (CET)

Capture efficiency testing (CET) is performed on a GSI inlet or other inflow structure to assess how well the SMP is receiving flow. Typically, all inflow structures at a GSI system are tested to assess a GSI system's overall capture efficiency, which aids in understanding the system's overall performance. In FY24, 36 public GSI systems had capture efficiency testing (see **Table 5-7**). To-date (through FY24), 551 public GSI systems have had capture efficiency testing.

Table 5-7: Public Systems with CETs Administered

	FY24	To-date (through FY24)
No. of Systems with CETs Administered	36	551

5.4 Porous Pavement and Permeable Paver Surface Infiltration Rate Testing

The Water Department uses ASTM Standards (ASTM Committee D18, ASTM C1701/C1701M-09 Standard Test method for Infiltration Rate of In Place Pervious Concrete, 2009) (ASTM Committee C15, 2013), with minor modifications for porous pavement and permeable paver infiltration testing.

Development of these procedures was completed in FY13 and refinement of the methods is ongoing. Sections of schedule 60 PVC pipe are used as infiltration rings to perform multiple tests at a time. As described in **Table 5-8**, infiltration testing was performed on 3 public GSI systems in FY24 and 22 systems to-date (through FY24). **Figure 5-2** shows the public GSI systems where infiltration testing has been performed.

Table 5-8: Public Systems with Infiltration Testing Administered

	FY23	To-Date (through FY23)
No. of Systems with Infiltration Testing Administered	3	22

5.5 Leakage Testing

Public GSI structures, including green inlets, outlet structures, and weirs, are known to leak based on field observations during SRTs. Repair methods using injection foam and hydraulic cement have been piloted to address this issue. A leakage testing method was adopted in FY23 to measure leakage before and after repair work to determine the effectiveness of the repair. In FY24, 20 public GSI systems had leakage tests performed. Repair work is ongoing and leakage testing will be utilized to assess the near- and long-term effectiveness of the repair method.

Table 5-9: Public Systems with Inlet Leakage Tests Administered

	FY24	To-Date (through FY24)
No. of Systems with Leakage Testing Administered	13	29

5.6 Groundwater Level Monitoring for Public GSI

The Water Department installs sensors within groundwater monitoring wells near proposed SMP locations to characterize seasonal groundwater fluctuations and determine the feasibility of the site for GSI. As shown in **Table 5-10**, 3 sites were monitored in FY24 to assess the feasibility of the sites prior to GSI implementation. To date, 11 such sites have been monitored. The Water Department also installs sensors within groundwater monitoring wells near active SMPs to assess the effect of infiltrating SMPs on the water table. As shown in **Table 5-10**, groundwater monitoring was conducted at 8 systems in FY24, and a total of 15 GSI systems had post-construction groundwater monitoring to date.

Table 5-10: Groundwater Monitoring for Public GSI

Monitoring Phase	FY24	To-Date (through FY24)
Prior to Construction of GSI (Systems)	3	11
Post-Construction (Active GSI)	8	15

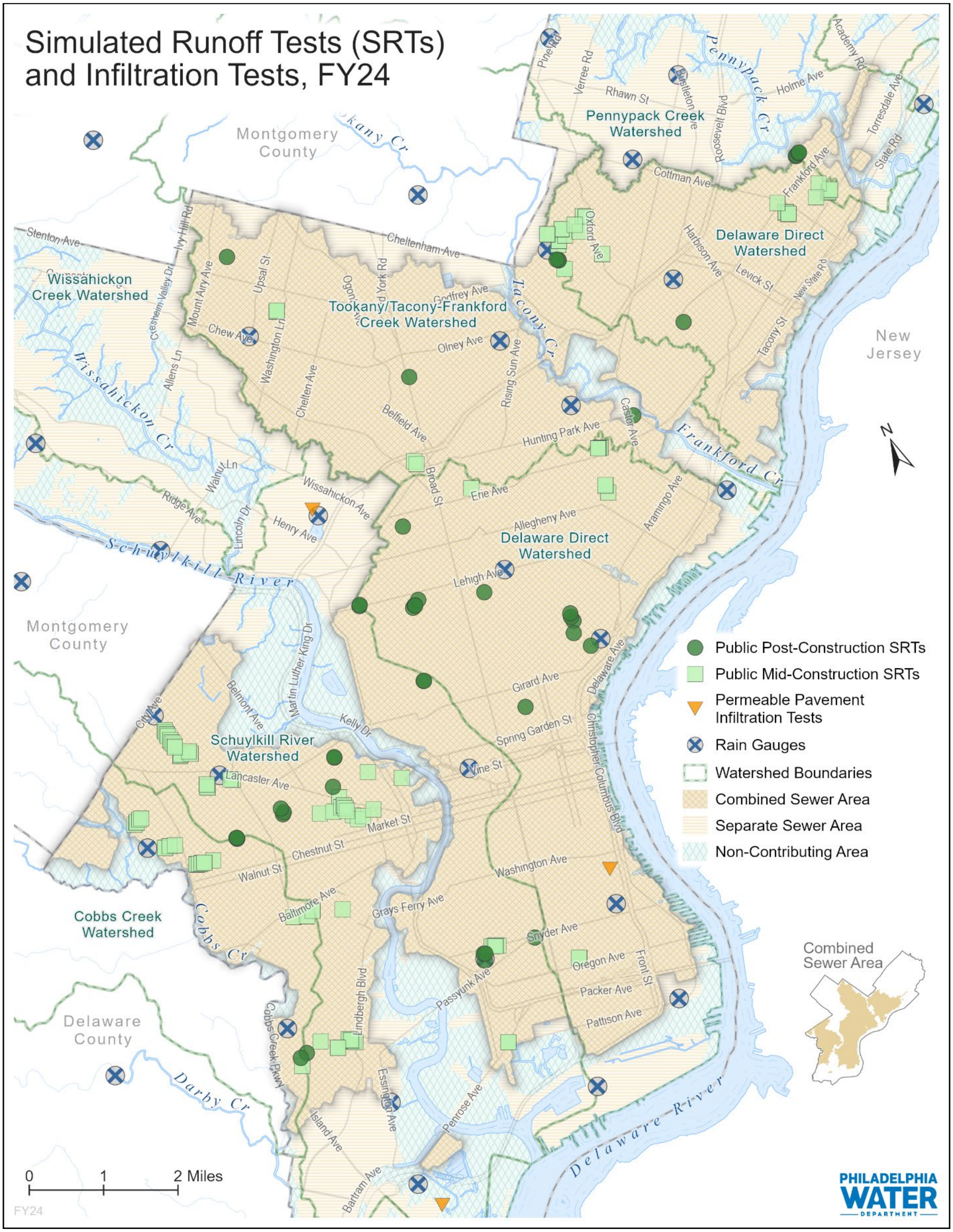


Figure 5-2: Simulated Runoff Tests and Porous Pavement Tests

6.0 Private GSI Monitoring and Testing

6.1 Continuous Water Level (CWL) Monitoring

During FY24, the Water Department completed 39 sensor deployments which were utilized for CWL monitoring of private GSI systems with 2 newly monitored systems this fiscal year (see **Table 6-1**). A monitoring plan was developed to focus on testing and monitoring of a select number of private regulated GSI systems, and initial monitoring of these systems began in FY24. To-date (through FY24), 491 sensor deployments have been completed for CWL monitoring of 10 private GSI systems. All private SMPs with post-construction CWL monitoring are shown in **Figure 6-1**. In addition, **Figure 6-1** shows the barometric pressure sensor and rain gauge locations that are utilized in the CWL monitoring process. **Table 6-2** is a breakdown by SMP type showing the number of private SMPs with CWL monitoring compared to the total number of SMPs of each type.

Table 6-1: Summary of Post-Construction CWL Monitoring of Private Systems

	FY24	To-Date (through FY24)
Sensor Deployments	39	491
Systems	10	28
Systems Newly Monitored	2	

Table 6-2: Post-Construction CWL-Monitoring of Private Systems Listed by Type

System Type	Monitored SMPs (before and during FY24)	Total Constructed Private SMPs
Basin	16	1787
Bioinfiltration/Bioretention	12	879
Porous Pavement	0	516
Cistern	0	20
Blue Roof	0	22
Total	**28**	**3224**

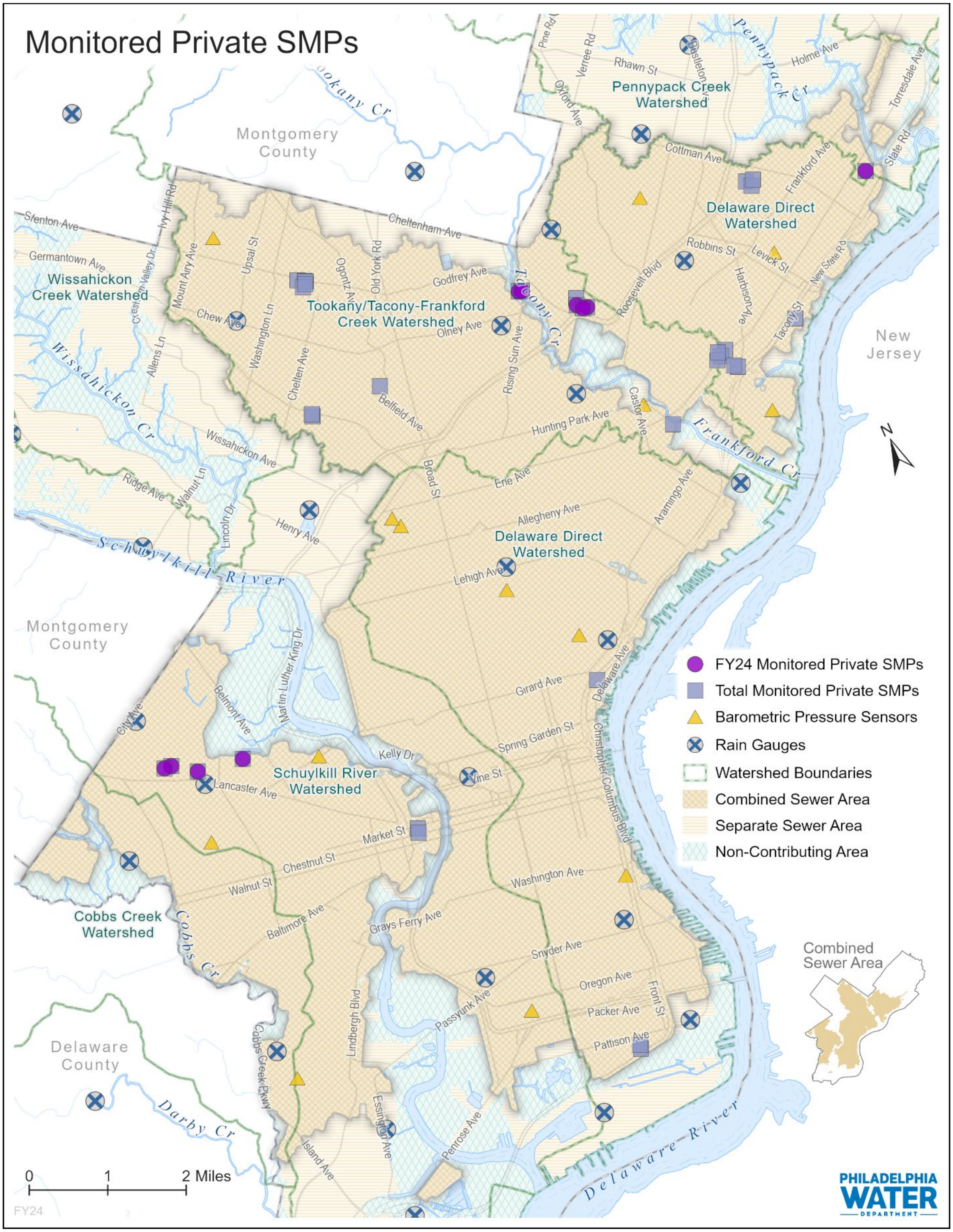


Figure 6-1: Location of Private SMPs with Post-Construction CWL Monitoring

6.2 Simulated Runoff Testing (SRT)

Systems that show abnormal water level response typically undergo simulated runoff testing (SRT) using water hydrant flow, dye testing, and/or CCTV to determine if there are performance issues. Additionally, MARS performs SRTs at private regulated GSI systems for a baseline understanding of system performance prior to CWL monitoring, with this initiative beginning in FY24. As described in **Table 6-3**, 4 pre-inspection SRTs and 0 performance SRTs were performed on private GSI systems between July 1, 2023 to June 30, 2024. To-date (through FY24), a total of 31 post-construction SRTs have been performed on private GSI systems. The breakdown of SRTs per SMP type is shown in **Table 6-4**. FY24 SRT locations are shown **Figure 6-1**.

Table 6-3: Post-Construction SRTs performed on Private Systems

SRT Type	FY24	To-Date (through FY24)
Pre-Inspection Dye Test	4	12
CCTV Dye Test	0	1
Performance SRT	0	18
Total	**0**	**31**

Table 6-4: Private SMPs with Post-Construction SRTs Performed

System Type	FY24	To-Date (through FY24)
Bioinfiltration/Bioretention	0	1
Basin	2	17
Total	**0**	**16**

Note: A single GSI system may consist of one or more SMPs; therefore, the number of SMPs tested may be larger than the number of GSI systems tested.

6.3 Capture Efficiency Testing (CET)

Capture efficiency testing (CET) is performed on a GSI inlet or other inflow structure to assess how well the SMP is receiving flow. Typically, all inflow structures at a GSI system are tested to assess a GSI system's overall capture efficiency, which aids in understanding the system's overall performance. In FY24, 1 private GSI system had capture efficiency testing (see **Table 6-5**). To-date (through FY24), 18 private GSI systems have had capture efficiency testing.

Table 6-5: Private Systems with CETs Administered

	FY24	To-Date (through FY24)
No. of Systems with CETs Administered	1	18

6.4 Leakage Testing

Older private GSI systems are known to have defective outlet structure weirs based on field observations. A retrofit of these weirs was implemented in FY23. A leakage testing method was adopted to measure leakage to determine the effectiveness of the retrofit. In FY24, 0 private GSI systems had leakage tests performed.

7.0 Other Monitoring Efforts

7.1 Sewer System Monitoring

The Water Department continues to perform sewer system monitoring per the methods outlined in the CMP. More information is available in **Appendix B**.

7.2 Meteorological Monitoring

The Water Department continues to perform meteorological monitoring, including operation and maintenance of a rain gauge network, as described in the CMP. More information is available in **Appendix B.**

8.0 CMP Implementation Successes and Challenges Encountered

The GSI monitoring team continues to provide monitoring assistance to Operations and GSI Implementation to collect data from systems where challenges have been observed and to interpret cause(s) and verify remediation measures. Most notably, the monitoring team developed a test method to measure leakage from GSI structures, including inlets, outlet structures and weirs. Leakage testing was performed on public GSI structures to assess the effectiveness of injection foam and the application of hydraulic cement as viable repair methods. The results from these testing activities provided meaningful data to inform retrofit and repair decision making.

The program has seen a continued demand for performing SRTs on fully lined GSI systems during construction. Due to the time-sensitive nature of construction, there is a quick turnaround time required for performing these SRTs and relaying findings to construction staff. The monitoring team has adapted their methods accordingly to deliver testing in an effective and timely fashion. Since FY23, the monitoring team has performed SRTs on fully lined GSI systems with the support of AKRF Inc., an effort that has allowed the monitoring team to dedicate more resources to other testing and monitoring activities, such as increasing the number of post-construction GSI systems that can be tested and monitored.

The GSI monitoring team has noticed occasional calibration issues with the pressure transducers used during testing and monitoring activities. As a result, beginning in FY24, the monitoring team performs drift testing on pressure transducers to identify any calibration drift or other performance issues in an effort to ensure integrity of the data collected. This is especially important for construction-phase SRTs performed on fully lined systems, where the data recorded by the pressure transducers is critical for determining if a system passes or fails the test.

In FY24, the GSI monitoring team began testing and monitoring private regulated GSI systems to gain a better understanding of the performance of these systems, as they encompass a large percentage of green infrastructure in Philadelphia and are significantly underrepresented in the monitoring team's efforts. Testing and monitoring of these systems involves some unique challenges, including increased coordination with other PWD units and communication with third parties, such as property owners and managers, to provide notification of testing and monitoring activities, and to ensure the monitoring team has sufficient access to the property.

Significant developments were made in FY24 to the software the GSI monitoring team uses, allowing for more efficient data management, as well as planning and documentation of fieldwork activities. This continued centralization of recordkeeping reduces the need for tracking fieldwork over multiple Office-based files and has improved the efficiency and turnaround time of fieldwork deliverables and the processing of monitoring data. Additionally, these software developments allow for more in-depth analyses of GSI performance. These performance analyses can be conducted on an individual system level, or to identify performance trends using data from several systems, such as with the infiltration and green inlet trend analyses.

Appendix B – Flow Monitoring

APPENDIX B –
FLOW MONITORING

Page

Table 1 - Summary of All Monitors

	# of Permanent Monitors	# of Temporary Monitors
Combined/Separate Sewer Monitors	469	71
Outlying Community Monitors	63	-
Pumping Stations	82	-
Rain Gages	37	1
Total	**651**	**72**

Table 2 - Listing of Monitored Outlying Community Connections

Site ID	Connection Type	Township	Measurement Name	Measurement Type
MA_1	STD	Abington	TEMPORARY	FLOW
MA_2	MTR	Abington	METERING CHAMBER FLOW	FLOW
MA_3	STD	Abington	TEMPORARY	FLOW
MA_4	STD	Abington	TEMPORARY	FLOW
MAx1	STD	Abington	TEMPORARY	FLOW
MB_1	MTR	Bucks Co.	METERING CHAMBER FLOW	FLOW
MBE_01	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_02	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_03	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_04	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_05	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_06	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_07	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_08	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_09	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_10	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_11	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_12	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_13	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_14	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_15		Bensalem	UNMONITORED	
MBE_16	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_17	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MC_1	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MC_2	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MC_3	MTR	Abington	METERING CHAMBER FLOW	FLOW
MCx_1	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_2	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_3	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_4	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_5	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_6	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_7	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MD_1	MTR	Delaware Co.	METERING CHAMBER FLOW	FLOW
ML_1	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_2	STD	Lower Merion	TEMPORARY	FLOW
ML_3	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_4	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW

Site ID	Connection Type	Township	Measurement Name	Measurement Type
ML_5	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_6	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_7	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
MLM_1	MTR	Lower Moreland	METERING CHAMBER FLOW	FLOW
MLM_2	MTR	Lower Moreland	METERING CHAMBER FLOW	FLOW
MLM_3	STD	Lower Moreland	TEMPORARY	FLOW
MLM_4	STD	Lower Moreland	TEMPORARY	FLOW
MLM_5	STD	Lower Moreland	TEMPORARY	FLOW
MLM_6	STD	Lower Moreland	TEMPORARY	UNKNOWN
MLM_7	STD	Lower Moreland	TEMPORARY	UNKNOWN
MS_1	STD	Springfield	TEMPORARY	FLOW
MS_2	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_3	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_4	STD	Springfield	TEMPORARY	FLOW
MS_5	STD	Springfield	TEMPORARY	FLOW
MS_6	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_7	STD	Springfield	TEMPORARY	UNKNOWN
MS_8	STD	Springfield	TEMPORARY	FLOW
MSH_1	MTR	Southampton	METERING CHAMBER FLOW	FLOW
MSH_2	STD	Southampton	TEMPORARY	FLOW
MSHX_1	STD	Southampton	TEMPORARY	FLOW
MSHX_2	STD	Southampton	TEMPORARY	FLOW
MUD_1N	MTR	Upper Darby	METERING CHAMBER FLOW	FLOW
MUD_1S	MTR	Upper Darby	METERING CHAMBER FLOW	FLOW
MUD_1O	MTR	Upper Darby	METERING CHAMBER FLOW	FLOW

*STD – temporary flow monitor

**MTR – Permanent monitor

Table 3 - Listing of Combined/Separate Sewer Monitors

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
C_01	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_01	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_02	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_02	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_04	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_04	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_05	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_05	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_06	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_06	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_07	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_07	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_09	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_09	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_10	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_10	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_11	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_11	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_12	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_12	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_14	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_14	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_15	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_15	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_17	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_17	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_18	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_18	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_19	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_19	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_20	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_20	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_21	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_21	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_22	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_22	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_23	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_23	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_24	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_24	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_26	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_26	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_28A	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
C_28A	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_29	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_29	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_30	Cobbs Creek Low Level	Cobbs Creek	SWO LEVEL	LEVEL
C_30	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_31	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_31	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_32	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_32	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_33	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_33	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_34	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_34	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_35	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_35	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_36	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_36	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
C_37	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
C_37	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
CSPS	Central Schuylkill	Schuylkill River	INTERCEPTOR LEVEL N	LEVEL
CSPS	Central Schuylkill	Schuylkill River	INTERCEPTOR LEVEL S	LEVEL
D_02	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_02	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_02	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_02	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_02	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_03	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_03	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_03	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_03	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_03	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_04	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_04	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_04	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_04	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_04	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_05	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_05	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_05	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_05	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_05	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_06	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_06	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_06	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_07	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
D_07	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_07	Upper Delaware Low Level	Delaware River	SWO GATE POSITION 1	POSITION
D_07	Upper Delaware Low Level	Delaware River	SWO GATE POSITION 2	POSITION
D_07	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_07	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_08	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_08	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_09	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_09	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_09	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_09	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_09	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_11	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_11	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_11	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_11	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_11	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_12	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_12	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_13	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_13	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_15	Upper Delaware Low Level	Delaware River	DWO GATE POSITION	POSITION
D_15	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL
D_15	Upper Delaware Low Level	Delaware River	SWO GATE POSITION	POSITION
D_15	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_15	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_17	Somerset	Delaware River	SWO LEVEL	LEVEL
D_17	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_18	Somerset	Delaware River	SWO LEVEL	LEVEL
D_18	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_19	Somerset	Delaware River	SWO LEVEL	LEVEL
D_19	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_20	Somerset	Delaware River	SWO LEVEL	LEVEL
D_20	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_21	Somerset	Delaware River	SWO LEVEL	LEVEL
D_21	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_22	Somerset	Delaware River	SWO LEVEL	LEVEL
D_22	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_23	Somerset	Delaware River	SWO LEVEL	LEVEL
D_23	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_24	Somerset	Delaware River	SWO LEVEL	LEVEL
D_24	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_25	Somerset	Delaware River	SWO LEVEL	LEVEL
D_25	Somerset	Delaware River	TRUNK LEVEL	LEVEL
D_37	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
D_37	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_38	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_38	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_39	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_39	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_40	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_40	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_41	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_41	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_42	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_42	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_43	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_43	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_47	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_47	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_48	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_48	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_49	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_49	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_50	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_50	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_51	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_51	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_51A	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_52	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_52	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_53	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_53	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_54	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_54	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_58	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_58	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_61	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_61	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_63	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_63	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_64	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_64	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_65	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_65	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_66	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_66	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_67	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_67	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_68	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
D_68	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_69	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_69	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_70	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_70	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_72	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_72	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
D_73	Lower Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
D_73	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
F_03	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_03	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_04	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_04	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_05	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_05	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_06	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_06	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_07	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_07	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_08	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_08	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_09	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_09	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_10	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_10	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_11	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_11	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_12	Lower Frankford Low Level	Frankford Creek	SWO LEVEL	LEVEL
F_12	Lower Frankford Low Level	Frankford Creek	TRUNK LEVEL	LEVEL
F_13	Lower Frankford Creek	Frankford Creek	DWO LEVEL	LEVEL
F_13	Lower Frankford Creek	Frankford Creek	SWO LEVEL	LEVEL
F_13	Lower Frankford Creek	Frankford Creek	TRUNK LEVEL	LEVEL
F_14	Lower Frankford Creek	Frankford Creek	SWO LEVEL	LEVEL
F_14	Lower Frankford Creek	Frankford Creek	TRUNK LEVEL	LEVEL
F_23	Lower Frankford Creek	Frankford Creek	SWO LEVEL	LEVEL
F_23	Lower Frankford Creek	Frankford Creek	TRUNK LEVEL	LEVEL
F_24	Lower Frankford Creek	Frankford Creek	SWO LEVEL	LEVEL
F_24	Lower Frankford Creek	Frankford Creek	TRUNK LEVEL	LEVEL
F_25	Lower Frankford Creek	Frankford Creek	DWO GATE POSITION	POSITION
F_25	Lower Frankford Creek	Frankford Creek	SWO GATE POSITION 1	POSITION
F_25	Lower Frankford Creek	Frankford Creek	SWO GATE POSITION 2	POSITION
F_25	Lower Frankford Creek	Frankford Creek	SWO LEVEL	LEVEL
F_25	Lower Frankford Creek	Frankford Creek	TRUNK LEVEL	LEVEL
H_29		Schuylkill River	DWO LEVEL	LEVEL
H_29		Schuylkill River	SWO LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
H_29		Schuylkill River	TRUNK LEVEL	LEVEL
H_35		Schuylkill River	BLOWER 1 RUN	EVENT
H_35		Schuylkill River	BLOWER 2 RUN	EVENT
H_35		Schuylkill River	DAM AIR PRESSURE	PSI
H_35		Schuylkill River	DWO GATE POSITION	POSITION
H_35		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
H_35		Schuylkill River	SWO GATE POSITION	POSITION
H_35		Schuylkill River	SWO LEVEL	LEVEL
H_35		Schuylkill River	TRUNK LEVEL	LEVEL
I_BYH09		Byberry Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC07	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC12	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC13	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC14	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC17	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC18	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLC34	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCHLH18	Cobbs Creek High Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLC19	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLC20	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLC22	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLC24	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLC26	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_CCLLH01	Cobbs Creek Low Level	Cobbs Creek	INTERCEPTOR LEVEL	LEVEL
I_COHOH16		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESH11	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESH15	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESS09	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESS14	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESS17	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSESS26	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CSSSH15	Central Schuylkill	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_CVBH08		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_FHLH03	Frankford High Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_FHLTT08	Frankford High Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_FHLTT15	Frankford High Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_FLLH03	Frankford Low Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_LDLLD43	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD45	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD47	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD53	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD62	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD69	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LDLLD70	Lower Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_LFCH07	Lower Frankford Creek	Frankford Creek	INTERCEPTOR LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
I_LFCH19	Lower Frankford Creek	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_LFLLF08	Lower Frankford Low Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_LFLLF10	Lower Frankford Low Level	Frankford Creek	INTERCEPTOR LEVEL	LEVEL
I_LSESH15	Lower Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_LSESS36	Lower Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_LSWSH01	Lower Schuylkill West Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_LSWSS33	Lower Schuylkill West Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_LSWSS38	Lower Schuylkill West Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_LSWSS45	Lower Schuylkill West Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_MRH21	Main Relief Sewer	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_OH12		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PASYH13		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PDRLH01		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PDRLH02		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PENRH02		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PH04	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PH05	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PH06	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PH10	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PMPFH03		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_PP02	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PP04	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PP05	Pennypack	Pennypack Creek	INTERCEPTOR LEVEL	LEVEL
I_PQH09	Poquessing	Poquessing Creek	INTERCEPTOR LEVEL	LEVEL
I_PRH10		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SD19	Somerset	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_SD21	Somerset	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_SD25	Somerset	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_SH03	Somerset	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_SRH05		Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGCHLH01	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGEHLH01	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGH17	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGH20	Southwest Main Gravity	Schuylkill River	C GATE POSITION	POSITION
I_SWMGH20	Southwest Main Gravity	Schuylkill River	E GATE POSITION	POSITION
I_SWMGH20	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGH20	Southwest Main Gravity	Schuylkill River	W GATE POSITION	POSITION
I_SWMGS28	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGS34	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGS43	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGS47	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_SWMGS50	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
I_SWMGWHLH01	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
I_UDLLD04	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_UDLLD08	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_UDLLH03	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_UDLLH04	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_UDLLH07	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_UDLLH14	Upper Delaware Low Level	Delaware River	INTERCEPTOR LEVEL	LEVEL
I_WBH06		Wissahickon Creek	INTERCEPTOR LEVEL	LEVEL
I_WHLH08	Wissahickon High Level	Wissahickon Creek	INTERCEPTOR LEVEL	LEVEL
I_WLLH11	Wissahickon Low Level	Wissahickon Creek	INTERCEPTOR LEVEL	LEVEL
P_01	Pennypack	Pennypack Creek	SWO LEVEL	LEVEL
P_01	Pennypack	Pennypack Creek	TRUNK LEVEL	LEVEL
P_02	Pennypack	Pennypack Creek	SWO LEVEL	LEVEL
P_02	Pennypack	Pennypack Creek	TRUNK LEVEL	LEVEL
P_03	Pennypack	Pennypack Creek	SWO LEVEL	LEVEL
P_03	Pennypack	Pennypack Creek	TRUNK LEVEL	LEVEL
P_04	Pennypack	Pennypack Creek	SWO LEVEL	LEVEL
P_04	Pennypack	Pennypack Creek	TRUNK LEVEL	LEVEL
P_05	Pennypack	Pennypack Creek	SWO LEVEL	LEVEL
P_05	Pennypack	Pennypack Creek	TRUNK LEVEL	LEVEL
R_06	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
R_06	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
R_07	Main Relief Sewer	Schuylkill River	SWO LEVEL	LEVEL
R_07	Main Relief Sewer	Schuylkill River	TRUNK LEVEL	LEVEL
R_12	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
R_12	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
R_13	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
R_13	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
R_14	Upper Delaware Low Level	Delaware River	SWO LEVEL	LEVEL
R_14	Upper Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL
R_15	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
R_15	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
R_18	Frankford High Level	Tacony Creek	INTERCEPTOR LEVEL	LEVEL
R_18	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
R_20	Central Schuylkill East Side	Schuylkill River	INTERCEPTOR LEVEL	LEVEL
R_20	Central Schuylkill East Side	Schuylkill River	STORMWATER LEVEL	LEVEL
R_24	Cobbs Creek High Level	Cobbs Creek	SWO LEVEL	LEVEL
R_24	Cobbs Creek High Level	Cobbs Creek	TRUNK LEVEL	LEVEL
S_01	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_01	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_03	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_03	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_04	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_04	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
S_05	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_05	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_06	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_06	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_07	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_07	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_08	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_08	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_09	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_09	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_10	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_10	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_11	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_11	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_12	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_12	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_12A	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_12A	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_13	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_13	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_15	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_15	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_17	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_17	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_18	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_18	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_19	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_19	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_22	Central Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_22	Central Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_23	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_23	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_25	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_25	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_26	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_26	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_27	Central Schuylkill East Side	Schuylkill River	DWO LEVEL	LEVEL
S_27	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_27	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_28	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_28	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_30	Southwest Main Gravity	Schuylkill River	SWO LEVEL	LEVEL
S_30	Southwest Main Gravity	Schuylkill River	TRUNK LEVEL	LEVEL
S_31	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_31	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
S_32	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_32	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_33	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_33	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_34	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_34	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_35	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_35	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_36	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_36	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_36A	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_36A	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_37	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_37	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_38	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_38	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_39	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_39	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_40	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_40	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_42	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_42	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_42A	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_42A	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_43	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_43	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_44	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_44	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_45	Lower Schuylkill West Side	Schuylkill River	DWO LEVEL	LEVEL
S_45	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_45	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_46	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_46	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_47	Lower Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_47	Lower Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL
S_50	Southwest Main Gravity	Schuylkill River	SWO LEVEL	LEVEL
S_50	Southwest Main Gravity	Schuylkill River	TRUNK LEVEL	LEVEL
S_51	Southwest Main Gravity	Schuylkill River	SWO LEVEL	LEVEL
S_51	Southwest Main Gravity	Schuylkill River	TRUNK LEVEL	LEVEL
T_01	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_01	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_03	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_03	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_04	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_04	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
T_05	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_05	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_06	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_06	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_07	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_07	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_08	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_08	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_09	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_09	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_10	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_10	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_11	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_11	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_12	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_12	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_13	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_13	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_14	Frankford High Level	Tacony Creek	DWO GATE 1	POSITION
T_14	Frankford High Level	Tacony Creek	DWO GATE 2	POSITION
T_14	Frankford High Level	Tacony Creek	SWO CREST GATE	POSITION
T_14	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_14	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL
T_15	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_15	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL

Table 4 - Listing of all Rain Gages (7/1/2023 - 6/30/2024)

Rain Gage	Location	Percent Working
RG_1	70th and Essington Ave	0.00%
RG_2	66th and Regent St	99.99%
RG_3	Fox Chase Rd. and Castor Ave	69.77%
RG_4	State Rd and Pennypack St	74.38%
RG_5	3rd and Mifflin St	63.85%
RG_6	Cardinal Ave and City Line Ave	83.38%
RG_7	G St. and E Annsbury St	91.04%
RG_8	N Water St. and E Clarkson Ave	97.77%
RG_9	54th and Lancaster Ave	96.61%
RG_10	Pine Rd and Susquehanna Rd	78.35%
RG_11	Rising Sun Ave and Lardner St	97.84%
RG_12	Pattison Ave and Columbus Blvd	92.11%
RG_13	Glendale Ave and Algon Ave	87.29%

RG_14	Delaware Ave and Lewis St	69.02%
RG_15	E Montgomery Ave and Thompson St	73.27%
RG_16	19th and Wood St	99.67%
RG_17	Saul St. and Benner St	99.99%
RG_18	Fox St. and Roosevelt Blvd	89.21%
RG_19	Chew Ave and Sharpnack St	97.05%
RG_20	Woodhaven Rd and Knights Rd	53.63%
RG_21	Shawmont Ave and Eva St	94.93%
RG_22	N 67th and Callowhill St	81.70%
RG_23	Penrose Ave and Mingo Ave	96.41%
RG_24	Lockart Rd and Lockart Ln	96.14%
RG_25	24th and Wolf St	68.55%
RG_26	621 Lehigh Ave	68.94%
RG_27	Grant Ave and Ashford Rd	75.45%
RG_28	1350 Southampton Rd	90.49%
RG_29	Springfield Way and PaperMill Rd	77.78%
RG_30	7609 Montgomery Ave	0.00%
RG_31	Valley Rd and Old Valley Rd	90.46%
RG_32	Rozel Ave and Crushmore Rd	80.53%
RG_33	Jackson St and E Broadway Ave	69.24%
RG_34	Lawrence Rd and Chester Ave	0.00%
RG_35	Hagysford Rd and Tower Lane	97.65%
RG_36	Schuylkill Canal and Lock St	52.88%
RG_37	S 13 St and Normandy Pl	98.87%

Table 5 - Listing of All Pumping Station Monitors

Monitor ID	Type of Pumping Station	Measurement Name	Measurement Type	Address
PS_26VA	Storm Water	PUMP 1 RUN	EVENT	26th and Vare Ave
PS_26VA	Storm Water	PUMP 2 RUN	EVENT	27th and Vare Ave
PS_26VA	Storm Water	WET WELL LEVEL	LEVEL	28th and Vare Ave
PS_42ST	Waste Water	PUMP 1 RUN	EVENT	761 S 43rd St
PS_42ST	Waste Water	PUMP 2 RUN	EVENT	762 S 43rd St
PS_42ST	Waste Water	PUMP 3 RUN	EVENT	763 S 43rd St
PS_42ST	Waste Water	WET WELL LEVEL	LEVEL	764 S 43rd St
PS_BANK	Waste Water	PUMP 1 RUN	EVENT	15 S Bank St (Bank & Elbow Ln)
PS_BANK	Waste Water	PUMP 2 RUN	EVENT	16 S Bank St (Bank & Elbow Ln)
PS_BANK	Waste Water	WET WELL LEVEL	LEVEL	17 S Bank St (Bank & Elbow Ln)
PS_BELD	Waste Water	PUMP 1 RUN	EVENT	751 S Manatawna St (Belfry & Steeple)
PS_BELD	Waste Water	PUMP 2 RUN	EVENT	752 S Manatawna St (Belfry & Steeple)
PS_BELD	Waste Water	WET WELL LEVEL	LEVEL	753 S Manatawna St (Belfry & Steeple)
PS_BLVD	Storm Water	PUMP 1 RUN	EVENT	4251 N Broad St (Broad & Roosevelt Blvd)
PS_BLVD	Storm Water	PUMP 2 RUN	EVENT	4252 N Broad St (Broad & Roosevelt Blvd)
PS_BLVD	Storm Water	PUMP 3 RUN	EVENT	4253 N Broad St (Broad & Roosevelt Blvd)
PS_BLVD	Storm Water	PUMP 4 RUN	EVENT	4254 N Broad St (Broad & Roosevelt Blvd)
PS_BLVD	Storm Water	WET WELL LEVEL	LEVEL	4255 N Broad St (Broad & Roosevelt Blvd)
PS_CSPS	Waste Water	N GATE POSITION	POSITION	600 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	N SIPHON LEVEL	LEVEL	601 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	N SIPHON LEVEL	LEVEL	602 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	N WET WELL LEVEL	LEVEL	603 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	PUMP 1 RUN	EVENT	604 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	PUMP 2 RUN	EVENT	605 University Ave (34th St Bridge & University)

Monitor ID	Type of Pumping Station	Measurement Name	Measurement Type	Address
PS_CSPS	Waste Water	PUMP 3 RUN	EVENT	606 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	PUMP 4 RUN	EVENT	607 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	PUMP 5 RUN	EVENT	608 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	PUMP 6 RUN	EVENT	609 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	S GATE POSITION	POSITION	610 University Ave (34th St Bridge & University)
PS_CSPS	Waste Water	S WET WELL LEVEL	LEVEL	611 University Ave (34th St Bridge & University)
PS_FORD	Waste Water	PUMP 1 RUN	EVENT	3800 Ford Rd (Across from West Park Hospital)
PS_FORD	Waste Water	PUMP 2 RUN	EVENT	3801 Ford Rd (Across from West Park Hospital)
PS_FORD	Waste Water	WET WELL LEVEL	LEVEL	3802 Ford Rd (Across from West Park Hospital)
PS_HOGI	Waste Water	PUMP 1 RUN	EVENT	3 Hog Island Rd (east of Airport control tower)
PS_HOGI	Waste Water	PUMP 2 RUN	EVENT	4 Hog Island Rd (east of Airport control tower)
PS_HOGI	Waste Water	WET WELL LEVEL	LEVEL	5 Hog Island Rd (east of Airport control tower)
PS_LIND	Waste Water	PUMP 1 RUN	EVENT	5200 Linden Ave (Linden & Milnor)
PS_LIND	Waste Water	PUMP 2 RUN	EVENT	5201 Linden Ave (Linden & Milnor)
PS_LIND	Waste Water	WET WELL LEVEL	LEVEL	5202 Linden Ave (Linden & Milnor)
PS_LOCK	Waste Water	PUMP 1 RUN	EVENT	10778 Lockart Rd (Lockart St & Locart Ln)
PS_LOCK	Waste Water	PUMP 2 RUN	EVENT	10779 Lockart Rd (Lockart St & Locart Ln)
PS_LOCK	Waste Water	WET WELL LEVEL	LEVEL	10780 Lockart Rd (Lockart St & Locart Ln)
PS_MILN	Waste Water	PUMP 1 RUN	EVENT	9647 Milnor St (between Grant Ave & Eden St)
PS_MILN	Waste Water	PUMP 2 RUN	EVENT	9648 Milnor St (between Grant Ave & Eden St)
PS_MILN	Waste Water	PUMP 3 RUN	EVENT	9649 Milnor St (between Grant Ave & Eden St)
PS_MILN	Waste Water	WET WELL LEVEL	LEVEL	9650 Milnor St (between Grant Ave & Eden St)
PS_MING	Storm Water	BASIN LEVEL	LEVEL	7000 Penrose Ave (Schuylkill River under Platt Bridge)
PS_MING	Storm Water	PUMP 1 RUN	EVENT	7001 Penrose Ave (Schuylkill River under Platt Bridge)
PS_MING	Storm Water	PUMP 2 RUN	EVENT	7002 Penrose Ave (Schuylkill River under Platt Bridge)
PS_MING	Storm Water	PUMP 3 RUN	EVENT	7003 Penrose Ave (Schuylkill River under Platt Bridge)

Monitor ID	Type of Pumping Station	Measurement Name	Measurement Type	Address
PS_MING	Storm Water	PUMP 4 RUN	EVENT	7004 Penrose Ave (Schuylkill River under Platt Bridge)
PS_MING	Storm Water	PUMP 5 RUN	EVENT	7005 Penrose Ave (Schuylkill River under Platt Bridge)
PS_MING	Storm Water	PUMP 6 RUN	EVENT	7006 Penrose Ave (Schuylkill River under Platt Bridge)
PS_NEIL	Waste Water	PUMP 1 RUN	EVENT	4000 Neill Dr (Neill Dr & Falls Rd)
PS_NEIL	Waste Water	PUMP 1 RUN	EVENT	4001 Neill Dr (Neill Dr & Falls Rd)
PS_NEIL	Waste Water	PUMP 3 RUN	EVENT	4002 Neill Dr (Neill Dr & Falls Rd)
PS_NEIL	Waste Water	WET WELL LEVEL	LEVEL	4003 Neill Dr (Neill Dr & Falls Rd)
PS_P603	Waste Water	PUMP 1 RUN	EVENT	2000 Langley Ave (PNBC)
PS_P603	Waste Water	PUMP 2 RUN	EVENT	2001 Langley Ave (PNBC)
PS_P603	Waste Water	WET WELL LEVEL	LEVEL	2002 Langley Ave (PNBC)
PS_P648	Waste Water	PUMP 1 RUN	EVENT	PNBC
PS_P648	Waste Water	PUMP 2 RUN	EVENT	PNBC
PS_P648	Waste Water	WET WELL LEVEL	LEVEL	PNBC
PS_P796	Waste Water	PUMP 1 RUN	EVENT	4801 S 13th St (PNBC)
PS_P796	Waste Water	PUMP 2 RUN	EVENT	4802 S 13th St (PNBC)
PS_P796	Waste Water	PUMP 3 RUN	EVENT	4803 S 13th St (PNBC)
PS_P796	Waste Water	WET WELL LEVEL	LEVEL	4804 S 13th St (PNBC)
PS_POLI	Waste Water	PUMP 1 RUN	EVENT	
PS_POLI	Waste Water	PUMP 2 RUN	EVENT	
PS_POLI	Waste Water	WET WELL LEVEL	LEVEL	
PS_RENN	Waste Water	PUMP 1 RUN	EVENT	11064 Rennard St (Philmont Shopping Center)
PS_RENN	Waste Water	PUMP 2 RUN	EVENT	11065 Rennard St (Philmont Shopping Center)
PS_RENN	Waste Water	WET WELL LEVEL	LEVEL	11066 Rennard St (Philmont Shopping Center)
PS_SPLA	Waste Water	PUMP 1 RUN	EVENT	9021 Buttonwood Pl (Spring Lane Meadows)
PS_SPLA	Waste Water	PUMP 2 RUN	EVENT	9022 Buttonwood Pl (Spring Lane Meadows)
PS_SPLA	Waste Water	WET WELL LEVEL	LEVEL	9023 Buttonwood Pl (Spring Lane Meadows)

Table 6 - Listing of all Temporary Flow Monitors Deployed by Projects

Site Name	Start	End	Project
S05-000012	3/30/2011	Present	CSO
S45-001110	10/13/2011	Present	CSO Long-term
D63-000035	10/14/2011	Present	CSO Long-term
BC-0055	11/30/2011	Present	I&I Long-term
IALL-B0355	12/12/2011	Present	I&I Long-term
C17-003360	12/13/2011	Present	CSO Long-term
T14-013875	1/30/2012	Present	CSO Long-term; SFR Support
M005-09-0140	9/27/2012	Present	Stormwater Long-term; SFR Support
PC-0040	1/21/2014	Present	I&I Long-term; SSO Support
D45-000015	5/8/2014	Present	CSO Long-term
UDLL-0045	5/29/2014	Present	CSO Long-term
SWMG-B0265	6/24/2014	Present	CSO Long-term
UDLL-0085	6/25/2014	Present	CSO Long-term
UDLL-0275	9/19/2014	Present	CSO Long-term
WLL-0675	3/13/2015	Present	I&I Long-term
THL-0085	4/14/2015	Present	CSO Long-term
UDLL-0120	7/29/2015	Present	I/I
S051-08-S0015	4/28/2016	Present	I&I Long-term; SSO Support
S051-08-S0180	4/29/2016	Present	I&I Long-term; SSO Support
S059-04-S0027	5/4/2016	Present	I&I Long-term; SSO Support
GSI DST-010-03	5/24/2017	Present	GSI Long-term
GSI DD RG	6/23/2017	Present	GSI Long-term
S50-011230	8/29/2017	Present	CSO Long-term
DD DST-010-01	11/7/2017	Present	GSI Long-term
THL-0045	11/23/2017	Present	CSO Long-term
CF-DST-4	4/27/2018	Present	GSI Long-term
T14-000252	12/6/2018	Present	CSO
T14-000140	1/10/2019	Present	CSO
T14-000115	1/10/2019	Present	CSO Long-term
C17-000865	3/8/2022	Present	CSO
CV-0145	5/20/2022	Present	I&I Long-term; SSO Support
CV-0130	5/20/2022	Present	I&I SSO Support
PC-1065 (MSHX-02)	6/30/2022	Present	I&I SSO Support
S31-000010	8/29/2022	Present	CSO

Site Name	Start	End	Project
S05-000012	3/30/2011	Present	CSO
S44-000015	8/29/2022	Present	CSO
S059-02-S0010	8/30/2022	Present	I&I SSO Support
P083-03-S0050	8/30/2022	Present	I&I SSO Support
USE-0400	8/31/2022	6/7/2023	CSO
WLL-0565	8/31/2022	Present	I&I SSO Support
WLL-0650	8/31/2022	Present	I&I SSO Support
S051-05-S0015	9/9/2022	Present	I&I Long-term; SSO Support
P108-17-S0010	9/21/2022	Present	I&I SSO Support
Q120-02-S0010	9/23/2022	Present	I&I SSO Support
CSE-0030	9/29/2022	Present	CSO
S20-000015	9/30/2022	Present	CSO
S20-000070	9/30/2022	Present	CSO
Q109-07-S0025	10/24/2022	Present	I&I SSO Support
F03-000055	10/25/2022	Present	CSO
LSW-0077	10/28/2022	Present	CSO
CCHL-0430	1/18/2023	6/17/2024	I&I SSO Support
CCHL-0570	1/18/2023	6/17/2024	CSO
T089-04-S0055	2/23/2023	Present	I&I SSO Support
T089-04-S0095	2/23/2023	Present	I&I SSO Support
T089-04-S0165	2/23/2023	Present	I&I SSO Support
THL-0225	3/21/2023	Present	CSO
BC-0453	8/8/2023	Present	I&I SSO Support
BC-B1575	8/8/2023	Present	I&I SSO Support
T089-04-0015	10/30/2023	Present	Stormwater; SFR Support
Q109-07-0015	10/30/2023	Present	Stormwater; SFR Support
P099-02-M0015	10/30/2023	Present	Stormwater; SFR Support
Q121-02-0017	12/12/2023	Present	Stormwater; SFR Support
P091-06-0020	12/12/2023	Present	Stormwater; SFR Support
P091-10-0010	12/27/2023	Present	Stormwater; SFR Support

Table 7 - Listing of Outlying Community Contract Limits

Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
MA1						
MA2						
MA3						
MA4						
MAx1						
Abington Total				9.542	6.168	4.453
MB1				74.26	47.996	33
Bucks Total						
MBE1						
MBE2						
MBE3						
MBE4						
MBE5						
MBE6						
MBE7						
MBE8						
MBE9						
MBE10						
MBE11						
MBE12						
MBE13						
MBE14						
MBE15						
MBE16						
Bensalem Total				11.74	7.588	6.133
MC1	2.75	1.777				
MC2	18	11.634				
MC3	0.480	0.31				
MCx1	8	5.171	Combined total for all the MCx#			
MCx2						
MCx3						
MCx4						
MCx5						
MCx6						

Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
MCx7						
Cheltenham Total				20.75	13.411	13.380
MD1	155	100.179	50	155	100	50
DELCORA Total				155	100	50
ML1			5.474			
ML2			1.48			
ML3						
ML4			10.264			
ML5			1.848			
ML6			0.252			
ML7			0.84			
Lower Merion Total				31.57	20.404	14.5
MLM1						
MLM2	3.71	2.4	1.8			
MLM3						
MLM4						
MLM5						
MLM6						
MLM7						
Lower Moreland Total				5.88	3.80	2.85
MS1						
MS2						
MS3						
MS4						
MS5						
MS6						
MS7						
MS8						
Springfield Total				8.58	5.55	4.2
MSH1						
MSH2						
MSHX_1						
MSHX_2						
Southampton Total				15.79	10.205	7.14
MUD-N						
MUD-S						

Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
MUD-O						
MUD-1						
Upper Darby Total				35	22.621	17

Appendix C – FY24 CSO Program Maintenance Annual Report

FLOW CONTROL UNIT

FY2024 ANNUAL REPORT

PHILADELPHIA WATER DEPARTMENT

Submitted By:
Michael D. Hengstler
Water Conveyance System Superintendent
PWD-Flow Control

FLOW CONTROL MISSION STATEMENT

The mission of the Flow Control Unit is to ensure environmental stewardship and public well-being in accordance with Federal and State laws, administrative rules, and operating permits by means of state-of-the-art technologies to monitor, inspect, operate, and maintain the Collector System's CSO Regulating System, Wastewater and Storm Water Pumping Stations, Wastewater Metering Sites and Storage Facilities, and the Sewer Assessment Program through CCTV inspections.

FLOW CONTROL UNIT-FY24
OPERATION and MAINTENANCE

The Collector System Flow Control Unit has four main areas of responsibility: Combined Sewer Overflow (CSO) Regulator Maintenance, Pumping Station Operation & Maintenance, Collector System Instrumentation, and CCTV Technical Inspections. The main office of the Wastewater Pumping Group is located at 5202 Pennypack Street in the Torresdale Raw Water Pumping Station. This facility includes a maintenance machine shop, storage garage, and workshop for maintenance assignments. The other three groups have maintenance shops and assemble at the 3257 Fox Street Headquarters Facility. The unit has experienced staff shortages, which have impacted some of the work. Despite these challenges, critical infrastructure is being managed to ensure that services continue without major failures or downtime.

CSO REGULATOR MAINTENANCE GROUP

The Philadelphia Water Department's Flow Control CSO Maintenance Group is responsible for inspecting and servicing the combined sewer overflow regulating and diversion chambers. There are nineteen personnel responsible for maintaining, inspecting, and cleaning 175 combined sewer-regulating chambers, 89 tide gate chambers, 26 storm relief chambers, 12 sanitary flow diversions, as well as several siphons and other related wastewater control devices throughout the collection system. The Flow Control Unit maintains ten types of CSO regulators and storage systems.

Brown & Brown (B&B) mechanical	Mechanical Sluice Gates
Computer-Controlled Sluice Gates	Side Overflow Weirs
Computer-Controlled B&B Shutter Gates	Inflatable Rubber Dam
Static Dams	Water Hydraulic Sluice Gates
Slot type regulators	Computer-Controlled Crest Gates

Regulators and tide gates can have mechanical or operational issues, leading to discharges during dry weather and increased stream and river inflow. These events can significantly impact the performance of wastewater and freshwater treatment plants, as well as the quality of stream water. They can also affect the recreational use of local waterways. Therefore, the combined sewer regulator systems are closely monitored for potential blockages, and any problems are promptly corrected once identified. The main responsibilities of this group include inspecting CSO chambers and clearing any regulator blockages before they cause a dry weather discharge, which are key areas in assessing the group's overall performance.

Tracking and analyzing Dry Weather Discharges continuously helps us identify whether new or modified maintenance procedures could help prevent them from occurring. Even though our established procedures have significantly reduced the number and duration of these discharges, the combined system picks up various trash and debris, leading to unpredictable flow disruptions. Despite best management practices such as trapping and cleaning all inlets, preventative maintenance schedules for sewer flushing, cleaning regulators, and CCTV inspection of DWO pipes, it is nearly impossible to eliminate all blockages before they occur.

In order to effectively manage and reduce dry weather overflows, the PWD Flow Control Unit utilizes advanced technology-based controls, including the Collector System Remote Monitoring Network. This network currently encompasses over 320 sites and has over 720 individual level and flow measurements. Training CSO maintenance personnel in the use of the system's computer programs for analyzing trend data has resulted in a thorough understanding of individual CSO sites and their flow patterns. This enables them to quickly identify abnormal conditions and take action before these conditions lead to blockages or discharges during dry weather.

In the fiscal year 2024, the CSO Maintenance Group performed 4424 inspections of regulating chambers. These inspections included regular visual checks of equipment and flow patterns to verify their proper functioning. Additionally, more extensive maintenance work, such as cleaning and lubricating mechanical equipment, was planned for periods of lower flow between rain events.

During FY24, the crews cleared 197 regulator blockages before they developed into a CSO dry weather discharge. There were 2 CSO dry weather discharges for this year, which were promptly stopped within 1 hour of discovery.

During the COVID-19 pandemic, we've seen a significant increase in blockages caused by high volumes of disposable wipes. These blockages, which can occur in the CSO regulator diversion or the dry weather outlet pipe, are hard to predict. To prevent them, it's crucial to conduct frequent inspections and closely monitor trend data. After moderate to heavy rain events, the CSO regulators can get clogged with debris such as grit, sticks, and rags. To address this, our maintenance crews perform quick inspections of the CSO sites throughout the city following these events to remove storm debris. After a few days, the work schedule returns to more comprehensive maintenance tasks like cleaning, lubricating, adjusting equipment, and making minor repairs to the mechanical regulators.

The CSO Regulator Group, with the help of Sewer maintenance and Mobile Dredging Vactoring Services, cleaned and removed approximately 35.84 tons of debris and grit from the D-25 regulating chamber, and 72.45 tons of debris and grit from the D-45 regulating chamber.

The CSO Regulator Group responded to numerous requests to check and close tide gates on the Southeast Water Treatment Plant’s Sewer districts and the Northeast Water Treatment Plant’s Sewer districts after rain events.

WASTEWATER PUMPING STATION MAINTENANCE GROUP

The Wastewater Pumping Station Maintenance Group consisting of 35 maintenance personnel are located at the 5202 Pennypack St. Maintenance Shop. They are responsible for the operations and maintenance of 17 wastewater-pumping stations, 3 stormwater pumping stations, 2 sodium hypochlorite dosing stations, 11 computer-controlled CSO storage regulators, and several in-line and offline wastewater-storage facilities among other duties.

Many of the pumping stations provide for only one running pump and one reserve pump. This arrangement means that pump breakdowns are responded to immediately and that overhauls need to be completed in a minimum amount of time. The main pump availability statistic is a good indicator of the Maintenance Group's performance in this area. The main pumping units were in service 98.17% of the time in FY24. The WWP Group completed 7 main wastewater pump overhauls at the stations. These overhauls consist of repair and replacement of the worn pump and motor components to bring the equipment's performance up to new operating conditions.

The Wastewater Pumping Station Maintenance Group had one main pump out of service during FY24 because of failures or breakdowns. The reason that pumps are not out of service is that during pump maintenance and overhauls the in-service pump is rotated out of activity and replaced by the spare pump for the station. This accomplishes two things; one the station always has its full complement of pumps available and the spare pump for the station gets used.

In addition to the pumping station maintenance, the group maintains a variety of other equipment throughout the Collector System. They are responsible for the operations and maintenance of the two sodium hypochlorite dosing stations. The stations are located next to the Queen Lane Raw Water pumping station, which injects sodium hypochlorite into the Upper Schuylkill East Interceptor, and at the Totem Rd. pumping station, which injects sodium hypochlorite into the Bucks County force main. The group is responsible for maintaining an adequate supply of the chemical, approximately 407,989 gallons in FY24, for monitoring the downstream hydrogen sulfide levels and adjusting the dosage levels in addition to the maintenance and repair of the equipment. The Ridge Avenue dosing station was put back online in August of 2023.

The group also fabricates and repairs bar screens, debris grills and other equipment for the Collector System and performs major maintenance of the CSO mechanical regulators such as installation of tide gates, overflow gates and servicing of the Brown & Brown regulators.

Flow diversions in the sewer system are also installed by this group. During the repairs and maintenance at the Southeast Water Treatment Plant, the crew installed diversions to limit flow to the plant and redirect it to the other treatment plants.

There are three betterment projects ongoing at the pumping stations. The Mingo Creek Storm Water Pumping Station, The Ford Road Pump Station, and the Linden Avenue Pump Station.

COLLECTOR SYSTEM INSTRUMENTATION MAINTENANCE GROUP

The fourteen Instrument and Electronic Technicians located at the Fox Street facility are primarily responsible for installing, calibrating, and maintaining the electronic and instrumentation equipment in the Collector System monitoring and control network. They also repair, calibrate, and certify the hazardous gas detection meters for the Department as well as install temporary flow and level monitors for various units in the Water Department.

One of the primary responsibilities of the CS Instrumentation Group is to maintain the network of level sensors, flow meters, and rain gauges and keep them up and running with a minimum of downtime while maintaining accurate and reliable data. The network currently consists of 258 level and flow monitoring locations in the NE, SE, and SW Drainage Districts, 35 gauges in the citywide rain gauge network, 56 Township flow-metering stations, and several additional monitors at various control sites. It is crucial that the remote site equipment communicates and downloads data to the server so that the information is available for trend chart viewing and analysis for the users. The CSO maintenance group relies heavily on these charts to monitor the performance of all the CSO regulators while paying special attention to the sites that have had a recent or a history of discharges. The monitoring data is used for a wide variety of other purposes such as calibrating the Collector System’s hydraulic model, generating township sewage flows for billing and for various Planning and Engineering studies.

The CS Instrumentation Maintenance group performed 1875 maintenance inspections in FY24. The data collection system used by Flow Control are TELOG units.

CCTV TECHNICAL INSPECTIONS GROUP

The CCTV Technical Inspections group consists of one Supervisor, two group leaders, and sixteen technicians who operate and maintain the seven closed-circuit TV camera trucks and Green Storm Infrastructure inspection cameras. The seven CCTV trucks and CCTV Contractor completed 2453 inspections and logged 66.78 miles of sewer inspections in FY24. The CCTV GSI Unit completed 1474 inspections logging 14.04 miles. These inspections consisted of Post Construction Inspections and Maintenance Inspections. A breakdown of the types of inspections completed and mileage for the types of inspections is located on the Sewer Assessment Program CCTV Sewer Inspection Report.

The CCTV group has several primary functions which include inspections of sewers turned in for sewer complaints, special inspection requests from the Water/ Sewer Design group and the post construction inspection program which involves videoing the sewer at the completion of all sewer construction work. Another function of the group is to work with the Defective Connection Program group and the Collector System Engineering group to identify the defective lateral connections. An ongoing project is identifying possible cross-connections in the MCX-2 sewer shed.

SERVICE LEVEL GOALS

The goal of the Flow Control Unit is to maintain and exceed the service level goals. One area that directly affects the service level of the Flow Control Unit is personnel vacancies.

MONTH	Main Pump Availability	CSO Dry Weather Discharges/100 Inspections	CCTV Inspections in Miles	%Metering Chambers Operational	%CSO Level Meters Operational
GOAL	**95% or Higher**	**0.00**	**2.8**	**95% or Higher**	**90% or Higher**
Jul-23	96.0%	0.00	9.11	97.7%	85.9%
Aug-23	98.0%	0.30	9.78	97.9%	85.9%
Sep-23	98.0%	0.00	9.49	97.5%	79.6%
Oct-23	98.0%	0.30	10.30	97.6%	87.3%
Nov-23	98.0%	0.00	10.05	97.3%	91.8%
Dec-23	98.0%	0.00	7.93	97.3%	94.0%
Jan-24	98.0%	0.00	3.99	94.8%	93.6%
Feb-24	98.0%	0.00	3.59	97.8%	94.1%
Mar-24	98.0%	0.00	4.50	98.8%	94.8%
Apr-24	98.0%	0.00	3.83	98.6%	96.6%
May-24	98.0%	0.00	4.81	99.2%	96.3%
Jun-24	98.0%	0.00	3.44	99.0%	95.4%
	AVE	**AVE**	**TOTAL**	**AVE**	**AVE**
FY24	**97.83%**	**0.05**	**80.82**	**97.79%**	**91.28%**

FLOW CONTROL PERSONNEL SUMMARY

The Flow Control Unit is working hard to fill all 97 approved positions to meet service-level goals. Currently, the unit has an 18.6% vacancy rate, with most of the vacancies in the Electronics and Mechanical fields. For the FY25 year, the unit has requested 2 new positions: one for an Electronic Technician and one for a Heavy Equipment Operator 2.

97 Flow Control Positions	Active	Vacant	Total
Clerk III	1	0	1
Custodial Worker	1	0	1
Data Services Support Clerk	1	0	1
Electrician 1	1	0	1
Electrician 2	2	0	2
Electronic Equipment Supervisor	2	0	2
Electronic Technician 1	4	8	12
Electronic Technician 2	15	1	16
Electronic Technician Grp. Leader	5	0	5
Electronic Technician Trainee	1	0	1
Ind. Process Mach. Mech. Grp. Leader	2	0	2
Industrial Electrician 1	2	0	2
Industrial Electrician 2	1	0	1
Industrial Electrician Group Leader	1	0	1
Industrial Process Mach. Mech.	7	2	9
Interceptor Service Worker I	6	0	6
Interceptor Service Worker II	6	0	6
Interceptor Services Supervisor	1	1	2
Mach. & Equipment Mech.1	1	4	5
Mach. & Equipment Mech.2	1	0	1
Office Clerk 2	2	0	2
Public Works Trainee	2	0	2
Sewer Maintenance Inspector	5	0	5
Trades Helper (P)	1	1	2
Water Conveyance Sys. Asst. Supt. (P)	2	0	2
Water Conveyance Sys. Supt.	1	0	1
Water Operations Repair Helper	5	1	6
Totals	**79**	**18**	**97**

FLOW CONTROL FY24 ANNUAL REPORT

SPREADSHEETS

PART 1
DRY WEATHER STATUS
REPORT

PHILADELPHIA WATER DEPARTMENT
WASTE AND STORM WATER COLLECTION
FLOW CONTROL UNIT

Section 1

July 2023 - June 2024

COLLECTOR	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Totals
UPPER PENNYPACK - 5 UNITS													
INSPECTIONS	7	12	7	10	10	5	5	9	9	10	17	5	106
DISCHARGES													
BLOCKS CLEARED		1		1	1			1					4
UPPER DELAWARE LOW LEVEL - 12 UNITS													
INSPECTIONS	28	26	20	24	24	37	27	16	20	43	36	25	326
DISCHARGES													
BLOCKS CLEARED	3	1	1	3	3	2			4	5	3	2	27
LOWER FRANKFORD CREEK - 6 UNITS													
INSPECTIONS	12	12	12	12	10	11	13	6	10	12	16	13	139
DISCHARGES													
BLOCKS CLEARED	1				3	3						1	8
LOWER FRANKFORD LOW LEVEL - 10 UNITS													
INSPECTIONS	19	20	20	24	20	15	22	14	22	20	23	16	235
DISCHARGES													
BLOCKS CLEARED	2	1			2		1	1	3		1	1	12
FRANKFORD HIGH LEVEL - 14 UNITS													
INSPECTIONS	30	38	23	21	16	10	34	18	19	31	38	32	310
DISCHARGES				1									1
BLOCKS CLEARED		1	1	3	1	1	1						8
SOMERSET - 9 UNITS													
INSPECTIONS	25	30	20	21	18	16	18	12	12	19	25	16	232
DISCHARGES													
BLOCKS CLEARED		3	3	2		1		1		1			11
LOWER DELAWARE LOW LEVEL - 33 UNITS													
INSPECTIONS	75	77	64	78	60	80	96	60	66	76	78	61	871
DISCHARGES													
BLOCKS CLEARED		3	1	5		1	1	4	5	4		3	27
CENTRAL SCHUYLKILL EAST - 18 UNITS													
INSPECTIONS	29	39	36	42	34	35	34	32	22	30	40	26	399
DISCHARGES	1												1
BLOCKS CLEARED	2	1	1	3	1	2	1	2	3	1		1	18
LOWER SCHUYLKILL EAST - 9 UNITS													
INSPECTIONS	25	29	15	16	16	23	22	15	16	20	22	20	239
DISCHARGES													
BLOCKS CLEARED	2	1	1			3		1	2	1	2	1	14
CENTRAL SCHUYLKILL WEST - 9 UNITS													
INSPECTIONS	11	17	9	16	16	15	17	14	14	13	21	14	177
DISCHARGES													
BLOCKS CLEARED									1		1	2	4
SOUTHWEST MAIN GRAVITY - 10 UNITS													
INSPECTIONS	28	27	21	21	19	19	28	15	21	28	27	20	274
DISCHARGES													
BLOCKS CLEARED	3	3	3	4	4	8	2	3	3		5	5	43
LOWER SCHUYLKILL WEST - 4 UNITS													
INSPECTIONS	11	14	9	9	6	7	8	5	5	8	8	8	98
DISCHARGES													
BLOCKS CLEARED	2							1				2	5
COBBS CREEK HIGH LEVEL - 24 UNITS													
INSPECTIONS	52	61	28	46	47	36	37	19	24	49	60	51	510
DISCHARGES													
BLOCKS CLEARED	2	3		1				2		1	2		11
COBBS CREEK LOW LEVEL - 13 UNITS													
INSPECTIONS	14	24	12	24	24	12	13	13	13	24	24	24	221
DISCHARGES													
BLOCKS CLEARED	3		1				1						5
RELIEF SEWERS - 26 UNITS													
INSPECTIONS	20	27	6	32	20	20	21	13	21	34	50	23	287
DISCHARGES													
BLOCKS CLEARED													
TOTALS / MONTH for 201 REGULATOR UNITS													**Totals**
TOTAL INSPECTIONS	386	453	302	396	340	341	395	261	294	417	485	354	4424
TOTAL DISCHARGES	1			1									2
TOTAL BLOCKS CLEARED	20	18	12	22	15	21	7	16	21	13	14	18	197
AVER. # of INSP. / BLOCKS CLEARED	19	25	25	18	23	16	56	16	14	32	35	20	25
DISC / 100 INSPECTIONS	0.26	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel 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 the 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 fine and imprisonment for Knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

PART 1
DRY WEATHER STATUS REPORT

PRECIPITATION FOR THE PERIOD: July 2023 - June 2024

Section 2

Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches	Date	Rain Inches
1-Jul		1-Aug		1-Sep		1-Oct		1-Nov	0.02	1-Dec	0.43	1-Jan	0.01	1-Feb		1-Mar		1-Apr	0.40	1-May		1-Jun	
2-Jul	0.03	2-Aug		2-Sep		2-Oct		2-Nov		2-Dec		2-Jan		2-Feb	0.14	2-Mar	1.34	2-Apr	1.09	2-May		2-Jun	
3-Jul	0.05	3-Aug		3-Sep		3-Oct		3-Nov		3-Dec	0.72	3-Jan		3-Feb		3-Mar	0.01	3-Apr	1.49	3-May		3-Jun	
4-Jul	0.01	4-Aug	0.02	4-Sep		4-Oct		4-Nov		4-Dec	0.01	4-Jan		4-Feb		4-Mar		4-Apr	0.14	4-May	0.27	4-Jun	
5-Jul		5-Aug		5-Sep		5-Oct		5-Nov		5-Dec		5-Jan		5-Feb		5-Mar	0.25	5-Apr		5-May	0.21	5-Jun	0.80
6-Jul		6-Aug	0.15	6-Sep		6-Oct		6-Nov		6-Dec		6-Jan	0.88	6-Feb		6-Mar	1.09	6-Apr		6-May	0.01	6-Jun	0.53
7-Jul		7-Aug	1.15	7-Sep	0.01	7-Oct	0.01	7-Nov		7-Dec		7-Jan	0.06	7-Feb		7-Mar	0.03	7-Apr		7-May		7-Jun	
8-Jul	0.83	8-Aug		8-Sep	0.04	8-Oct		8-Nov		8-Dec		8-Jan		8-Feb		8-Mar		8-Apr		8-May	0.07	8-Jun	
9-Jul	1.21	9-Aug		9-Sep	0.54	9-Oct	0.03	9-Nov		9-Dec		9-Jan	2.40	9-Feb		9-Mar	1.38	9-Apr		9-May	0.03	9-Jun	0.01
10-Jul	0.01	10-Aug	1.82	10-Sep	3.07	10-Oct		10-Nov	0.01	10-Dec	1.39	10-Jan	0.13	10-Feb		10-Mar	0.01	10-Apr		10-May	0.36	10-Jun	
11-Jul		11-Aug		11-Sep	0.17	11-Oct		11-Nov		11-Dec	0.49	11-Jan		11-Feb		11-Mar		11-Apr	0.12	11-May		11-Jun	
12-Jul		12-Aug		12-Sep		12-Oct		12-Nov		12-Dec		12-Jan	0.30	12-Feb		12-Mar		12-Apr	0.40	12-May	0.17	12-Jun	
13-Jul		13-Aug		13-Sep	0.17	13-Oct		13-Nov		13-Dec		13-Jan	0.48	13-Feb		13-Mar		13-Apr	0.03	13-May		13-Jun	
14-Jul	0.17	14-Aug	0.01	14-Sep		14-Oct	0.46	14-Nov		14-Dec		14-Jan		14-Feb		14-Mar		14-Apr	0.01	14-May	0.08	14-Jun	0.52
15-Jul		15-Aug	0.40	15-Sep		15-Oct	0.09	15-Nov		15-Dec		15-Jan		15-Feb		15-Mar		15-Apr	0.03	15-May	0.28	15-Jun	
16-Jul	1.10	16-Aug	0.26	16-Sep		16-Oct		16-Nov		16-Dec		16-Jan		16-Feb		16-Mar		16-Apr		16-May		16-Jun	
17-Jul	0.01	17-Aug		17-Sep	0.61	17-Oct		17-Nov		17-Dec	0.84	17-Jan		17-Feb		17-Mar		17-Apr	0.54	17-May		17-Jun	
18-Jul		18-Aug	0.07	18-Sep	0.69	18-Oct		18-Nov	0.01	18-Dec	2.30	18-Jan	0.08	18-Feb		18-Mar		18-Apr		18-May	0.16	18-Jun	
19-Jul	0.33	19-Aug		19-Sep		19-Oct		19-Nov		19-Dec		19-Jan	0.01	19-Feb		19-Mar		19-Apr		19-May		19-Jun	
20-Jul		20-Aug		20-Sep		20-Oct	0.15	20-Nov		20-Dec		20-Jan		20-Feb		20-Mar		20-Apr	0.16	20-May		20-Jun	
21-Jul	0.57	21-Aug		21-Sep		21-Oct	0.06	21-Nov	1.17	21-Dec		21-Jan	0.26	21-Feb		21-Mar		21-Apr		21-May		21-Jun	
22-Jul		22-Aug		22-Sep		22-Oct		22-Nov	0.99	22-Dec		22-Jan		22-Feb		22-Mar		22-Apr		22-May		22-Jun	0.30
23-Jul		23-Aug		23-Sep	0.87	23-Oct		23-Nov		23-Dec		23-Jan	0.12	23-Feb		23-Mar	3.09	23-Apr		23-May	0.17	23-Jun	0.23
24-Jul		24-Aug	0.10	24-Sep	2.20	24-Oct		24-Nov		24-Dec	0.01	24-Jan	0.03	24-Feb		24-Mar		24-Apr		24-May		24-Jun	
25-Jul	0.72	25-Aug	0.10	25-Sep	0.08	25-Oct		25-Nov		25-Dec		25-Jan	0.22	25-Feb		25-Mar		25-Apr		25-May		25-Jun	
26-Jul	0.01	26-Aug		26-Sep	0.03	26-Oct		26-Nov	0.98	26-Dec		26-Jan	0.25	26-Feb		26-Mar		26-Apr		26-May		26-Jun	0.66
27-Jul		27-Aug	0.10	27-Sep		27-Oct		27-Nov		27-Dec	1.08	27-Jan	0.01	27-Feb		27-Mar	0.47	27-Apr	0.01	27-May	0.78	27-Jun	0.07
28-Jul	0.35	28-Aug		28-Sep	0.18	28-Oct		28-Nov		28-Dec	0.45	28-Jan	0.79	28-Feb		28-Mar	0.08	28-Apr	0.06	28-May		28-Jun	
29-Jul	0.08	29-Aug		29-Sep	0.81	29-Oct	0.03	29-Nov		29-Dec		29-Jan	0.02	29-Feb	0.01	29-Mar		29-Apr		29-May	0.13	29-Jun	0.22
30-Jul		30-Aug	0.18	30-Sep	0.01	30-Oct	0.09	30-Nov		30-Dec		30-Jan				30-Mar	0.09	30-Apr	0.05	30-May		30-Jun	0.01
31-Jul		31-Aug				31-Oct	0.14			31-Dec		31-Jan				31-Mar	0.01			31-May			
Jul-23		**Aug-23**		**Sep-23**		**Oct-23**		**Nov-23**		**Dec-23**		**Jan-24**		**Feb-24**		**Mar-24**		**Apr-24**		**May-24**		**Jun-24**	
Total Rain		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**		**Total Rain**	
5.48		**4.36**		**9.48**		**1.06**		**3.18**		**7.72**		**6.05**		**0.15**		**7.85**		**4.53**		**2.72**		**3.35**	

Note: Rain Gauge RG-17 & RG-18 are being used for the Precipitation Report.

PART 1
DRY WEATHER STATUS
REPORT

Section 3

DRY WEATHER DISCHARGES FOR THE PERIOD: July 2023 - June 2024

Discharge Observed		Discharge Stopped		Last Inspection						
Date	Time	Date	Time	Date	Time	Site ID	Collector	Type Unit	Location	Comment
13-Jul-23	10:30:00 AM	13-Jul-23	1:50:00 PM	08-Jul-23	8:00:00 AM	S-12	CSES	SLOT	24th St. N of Chestnut St. Bridge	Slot Blocked with Debris. Little Floatables Slight Trickle over Dam
04-Oct-23	10:45:00 AM	04-Oct-23	11:08:00 AM	9/29/2023 0:00	1:35:11 PM	T-13	FHL	SLOT	250' S. OF T-12 ON WHITAKER AVE	Referred to Location Slot Blocked with debris

RELIEF SEWER MONTHLY INSPECTION

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R01	1	2	1	2	1	1	1	1	1	2	2	1	16
R02	1	2	1	2	1	1	1	1	1	2	2	1	16
R03	1	2	1	2	1	1	1	1	1	2	2	1	16
R04	1	2	1	2	1	1	1	1	1	2	2	1	16
R05	1	2	1	2	1	1	1	1	1	2	2	1	16
R06	1	2	1	1	1	1	1	1	1	2	2	1	15
MAIN RELIEF SEWER													
R07	1	1	0	2	1	1	1	0	1	1	2	1	12
R08	1	1	0	2	1	1	1	0	1	1	2	1	12
R09	1	1	0	2	1	1	1	0	1	1	2	1	12
R10	1	1	0	2	1	1	1	0	1	1	2	1	12
R11	1	1	0	2	1	1	1	0	1	1	2	1	12
R11A	1	1	0	1	1	1	1	0	1	1	1	1	10
R12	1	1	0	1	1	1	1	0	1	2	2	1	12
WAKLING RELIEF SEWER													
R13	1	1	0	1	1	1	1	1	1	2	3	1	14
R13A	1	1	0	1	1	1	1	1	1	2	3	1	
R14	1	1	0	1	1	1	1	1	1	2	3	1	14
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	1	1	0	1	1	1	1	1	1	2	2	1	13
OREGON AVE RELIEF SEWER													
R16	0	0	0	1	0	0	0	0	0	1	3	1	6
R17	0	0	0	0	0	0	0	0	0	0	2	1	3
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	1	1	0	1	1	0	1	1	1	1	2	1	11
32ND ST RELIEF SEWER													
R19	0	0	0	0	0	0	0	0	0	0	0	0	0
MAIN STREET RELIEF SEWER													
R20	0	1	0	1	0	1	1	1	1	2	2	1	11
SOMERSET SYSTEM DIVERSION CHAMBER													
R21													0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCH ST RELIEF SEWER													
R24	1	1	0	1	1	1	1	0	1	1	2	1	11
16TH & SNYDER													
R25	1	1	0	1	1	1	1	1	1	1	3	1	13
GRANT & STATE RD. RELIEF													
R26	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	27	6	32	20	20	21	13	21	34	50	23	273
AVER	0.7	1.0	0.2	1.2	0.7	0.7	0.8	0.5	0.8	1.3	1.9	0.9	1.0

RELIEF SEWER MONTHLY DISCHARGE

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R01													0
R02													0
R03													0
R04													0
R05													0
R06													0
MAIN RELIEF SEWER													
R07													0
R08													0
R09													0
R10													0
R11													0
R11A													0
R12													0
WAKLING RELIEF SEWER													
R13													0
R13A													
R14													0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15													0
OREGON AVE RELIEF SEWER													
R16													0
R17													0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18													0
32ND ST RELIEF SEWER													
R19													0
MAIN STREET RELIEF SEWER													
R20													0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21													0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23													0
ARCH ST RELIEF SEWER													
R24													0
16TH & SNYDER													
R25													0
GRANT & STATE RD. RELIEF													
R26													0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0
UNITS	0	0	0	0	0	0	0	0	0	0	0	0	

RELIEF SEWER MONTHLY BLOCKS CLEARED

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R01													0
R02													0
R03													0
R04													0
R05													0
R06													0
MAIN RELIEF SEWER													
R07													0
R08													0
R09													0
R10													0
R11													0
R11A													0
R12													0
WAKLING RELIEF SEWER													
R13													0
R13A													
R14													0
ROCK RUN STORM FLOOD RELIEF SEWER													
R15													0
OREGON AVE RELIEF SEWER													
R16													0
R17													0
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18													0
32ND ST RELIEF SEWER													
R19													0
MAIN STREET RELIEF SEWER													
R20													0
SOMERSET SYSTEM DIVERSION CHAMBER													
R21													0
TEMPORARY REGULATOR CHAMBER													
R22													0
R23													0
ARCH ST RELIEF SEWER													
R24													0
16TH & SNYDER													
R25													0
GRANT & STATE RD. RELIEF													
R26													0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0
AVER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CSO REGULATING CHAMBER MONTHLY INSPECTION

NEWPC & SEWPC PLANT REGULATORS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
UPPER PENNYPACK 5 NEWPC UNITS															
P01	1	2	1	2	2	1	1	2	2	2	3	1	20	1.7	18.2
P02	1	2	1	2	2	1	1	2	2	2	3	1	20	1.7	18.2
P03	2	2	2	2	2	1	1	2	2	2	4	1	23	1.9	15.9
P04	2	3	2	2	2	1	1	2	2	2	4	1	24	2.0	15.2
P05	1	3	1	2	2	1	1	1	1	2	3	1	19	1.6	19.2
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	3	3	3	2	2	3	2	2	2	3	4	2	31	2.6	11.8
D03	5	3	3	2	2	3	2	2	2	4	5	2	35	2.9	10.4
D04	2	2	2	2	2	3	2	2	1	5	3	3	29	2.4	12.6
D05	2	2	2	2	2	3	2	1	1	3	3	2	25	2.1	14.6
D06	5	2	2	2	2	3	2	1	2	6	3	2	32	2.7	11.4
D07	2	2	2	2	2	3	3	1	1	3	3	2	26	2.2	14.0
D08	1	2	1	2	2	3	3	1	2	4	3	2	26	2.2	14.0
D09	1	2	1	2	2	3	2	1	2	3	3	2	24	2.0	15.2
D11	1	2	1	2	2	3	2	1	1	3	2	2	22	1.8	16.6
D12	2	2	1	2	2	4	2	1	2	3	2	2	25	2.1	14.6
D13	1	2	1	2	2	3	2	1	1	3	2	2	22	1.8	16.6
D15	3	2	1	2	2	3	3	2	3	3	3	2	29	2.4	12.6
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	2	2	2	3	2	1	2	1	2	2	3	2	24	2.0	15.2
F14	2	2	2	3	2	1	2	1	2	2	3	2	24	2.0	15.2
F21	1	2	2	1	1	1	2	1	1	2	2	2	18	1.5	20.3
F23	3	2	2	2	2	4	3	1	2	2	3	3	29	2.4	12.6
F24	3	2	2	2	2	3	2	1	2	2	3	2	26	2.2	14.0
F25	1	2	2	1	1	1	2	1	1	2	2	2	18	1.5	20.3
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	2	2	2	2	2	2	2	1	1	2	2	2	22	1.8	16.6
F04	2	2	2	2	2	1	2	1	1	2	2	2	21	1.8	17.4
F05	2	2	2	2	2	2	2	1	2	2	2	1	22	1.8	16.6
F06	2	2	2	2	2	1	2	2	3	2	2	2	24	2.0	15.2
F07	2	2	2	2	2	1	2	2	3	2	2	1	23	1.9	15.9
F08	2	2	2	2	2	1	3	2	2	2	2	1	23	1.9	15.9
F09	2	2	2	3	2	3	3	2	4	2	4	2	31	2.6	11.8
F10	2	2	2	3	2	2	2	1	2	2	2	1	23	1.9	15.9
F11	1	2	2	3	2	1	2	1	2	2	3	2	23	1.9	15.9
F12	2	2	2	3	2	1	2	1	2	2	2	2	23	1.9	15.9
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	2	2	2	1	1	0	2	1	1	2	2	2	18	1.5	20.3
T03	3	2	2	1	1	0	2	2	2	2	2	3	22	1.8	16.6
T04	1	3	2	1	1	0	2	2	2	2	2	3	21	1.8	17.4
T05	1	3	2	1	1	1	3	2	2	2	3	2	23	1.9	15.9
T06	1	3	2	1	1	0	3	2	2	2	3	2	22	1.8	16.6
T07	2	3	2	1	1	0	3	2	2	2	3	2	23	1.9	15.9
T08	1	3	1	1	1	0	2	1	1	3	3	1	18	1.5	20.3
T09	1	4	1	1	1	0	3	1	1	2	4	2	21	1.8	17.4
T10	5	3	2	2	2	2	3	1	1	3	4	3	31	2.6	11.8
T11	3	3	2	2	1	2	3	1	1	2	3	3	26	2.2	14.0
T12	3	2	1	2	1	1	2	1	1	2	2	3	21	1.8	17.4
T13	4	3	3	3	2	2	2	1	1	3	3	3	30	2.5	12.2
T14	1	2	1	2	1	1	2	1	1	2	2	2	18	1.5	20.3
T15	2	2	0	2	1	1	2	0	1	2	2	1	16	1.3	22.8

1 TOTAL DISCHARGES FOR NE & SE DISTRICTS

0.1 AVERAGE DISCHARGES PER MONTH

15.5 AVER. DAYS BEFORE RETURNING TO SITE

3.0 AVER. INSPECTIONS PER DAY PER CREW

DTR = DAYS TO RETURN TO SITE

I/D/C = INSPECTIONS PER DAY PER CREW

I/D = INSPECTIONS PER DISCHARGE

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
SOMERSET LOW LEVEL 9 NEWPC UNITS															
D17	3	3	2	2	2	2	2	2	1	3	3	2	27	2.3	13.5
D18	3	3	2	2	2	2	2	1	1	2	3	2	25	2.1	14.6
D19	3	3	2	2	2	2	2	2	1	2	3	2	26	2.2	14.0
D20	3	3	2	2	2	2	2	2	1	2	3	2	26	2.2	14.0
D21	3	4	2	2	2	2	2	1	2	2	3	2	27	2.3	13.5
D22	3	3	2	3	2	2	2	1	1	2	3	2	26	2.2	14.0
D23	2	3	3	4	2	1	2	1	2	2	2	2	26	2.2	14.0
D24	2	3	2	2	2	1	2	1	2	2	2	1	22	1.8	16.6
D25	3	5	3	2	2	2	2	1	1	2	3	1	27	2.3	13.5
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	5	3	3	3	2	5	5	2	3	3	2	5	41	3.4	8.9
D38	2	3	2	3	2	5	4	1	2	3	2	3	32	2.7	11.4
D39	6	3	3	3	2	5	3	2	2	2	2	3	36	3.0	10.1
D40	2	3	2	3	2	2	2	1	1	3	2	3	26	2.2	14.0
D41	2	4	2	3	2	2	3	1	1	2	2	2	26	2.2	14.0
D42	2	4	2	2	2	2	2	2	1	2	3	2	26	2.2	14.0
D43	2	4	2	2	2	1	2	1	1	2	3	2	24	2.0	15.2
D44	1	3	2	2	2	1	2	2	2	3	3	2	25	2.1	14.6
D45	3	3	2	3	5	2	2	2	1	4	3	3	33	2.8	11.1
D46	1	3	2	2	2	2	2	1	1	3	3	2	24	2.0	15.2
D47	1	2	2	2	2	2	2	2	1	3	3	2	24	2.0	15.2
D48	1	2	2	2	2	3	2	2	1	2	3	1	23	1.9	15.9
D49	1	2	2	2	3	2	2	2	1	2	2	1	22	1.8	16.6
D50	1	2	2	2	2	2	2	2	1	2	2	1	21	1.8	17.4
D51	2	2	2	2	2	2	2	2	2	2	2	1	23	1.9	15.9
D51A	1	1	1	2	2	1	2	2	2	2	2	2	20	1.7	18.2
D52	1	2	1	2	2	1	3	2	2	2	2	1	21	1.8	17.4
D53	2	1	1	2	2	1	5	8	2	3	3	2	32	2.7	11.4
D54	1	2	1	2	0	0	3	3	2	1	3	1	19	1.6	19.2
D58	2	2	2	2	2	3	3	2	2	2	2	1	25	2.1	14.6
D61	2	2	1	2	2	2	2	2	2	2	2	1	22	1.8	16.6
D62	2	2	1	3	2	3	3	1	2	2	2	1	24	2.0	15.2
D63	2	2	2	2	2	2	3	1	2	2	2	1	23	1.9	15.9
D64	2	2	1	2	1	2	5	1	4	2	2	1	25	2.1	14.6
D65	2	2	1	2	1	2	3	1	2	2	2	2	22	1.8	16.6
D66	1	2	2	2	1	3	3	1	2	2	2	2	23	1.9	15.9
D67	1	2	2	3	1	3	4	1	2	2	2	2	25	2.1	14.6
D68	6	2	3	3	1	5	5	2	5	3	3	2	40	3.3	9.1
D69	6	2	3	3	1	5	4	2	4	2	3	2	37	3.1	9.9
D70	4	2	3	3	1	3	4	1	3	3	3	2	32	2.7	11.4
D71	6	2	3	3	2	4	3	2	3	2	2	2	34	2.8	10.7
D72	1	2	2	2	2	1	2	1	2	2	2	2	21	1.8	17.4
D73	1	2	2	2	1	1	2	2	2	2	2	1	20	1.7	18.2
TOTAL	196	215	166	190	158	174	215	135	158	211	233	168	2219		
I /D/C	3.2	3.5	2.7	3.1	2.6	2.9	3.5	2.2	2.6	3.5	3.8	2.8			
UP	7	12	7	10	10	5	5	9	9	10	17	5	106	1.8	17.3
UDLL	28	26	20	24	24	37	27	16	20	43	36	25	326	2.3	13.7
LFC	12	12	12	12	10	11	13	6	10	12	16	13	139	1.9	16.3
LFLL	19	20	20	24	20	15	22	14	22	20	23	16	235	2.0	15.7
FHL	30	38	23	21	16	10	34	18	19	31	38	32	310	1.8	17.0
SLL	25	30	20	21	18	16	18	12	12	19	25	16	232	2.1	14.2
LDLL	75	77	64	78	60	80	96	60	66	76	78	61	871	2.2	14.4

CSO REGULATING CHAMBER DISCHARGE

NEWPC & SEWPC PLANT REGULATORS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01													0
P02													0
P03													0
P04													0
P05													0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02													0
D03													0
D04													0
D05													0
D06													0
D07													0
D08													0
D09													0
D11													0
D12													0
D13													0
D15													0
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13													0
F14													0
F21													0
F23													0
F24													0
F25													0
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03													0
F04													0
F05													0
F06													0
F07													0
F08													0
F09													0
F10													0
F11													0
F12													0
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01													0
T03													0
T04													0
T05													0
T06													0
T07													0
T08													0
T09													0
T10													0
T11													0
T12													0
T13				1									1
T14													0
T15													0

	NO OF DISCHARGES IN DISTRICT												TOTAL
UP	0	0	0	0	0	0	0	0	0	0	0	0	0
UDLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LFC	0	0	0	0	0	0	0	0	0	0	0	0	0
LFLL	0	0	0	0	0	0	0	0	0	0	0	0	0
FHL	0	0	0	1	0	0	0	0	0	0	0	0	1
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17													0
D18													0
D19													0
D20													0
D21													0
D22													0
D23													0
D24													0
D25													0
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37													0
D38													0
D39													0
D40													0
D41													0
D42													0
D43													0
D44													0
D45													0
D46													0
D47													0
D48													0
D49													0
D50													0
D51													0
D51A													0
D52													0
D53													0
D54													0
D58													0
D61													0
D62													0
D63													0
D64													0
D65													0
D66													0
D67													0
D68													0
D69													0
D70													0
D71													0
D72													0
D73													0
D75													0
													TOTAL DISC
	0	0	0	1	0	0	0	0	0	0	0	0	1

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
UP	0	1	0	1	1	0	0	1	0	0	0	0	4
UDLL	3	1	1	3	3	2	0	0	4	5	3	2	27
LFC	1	0	0	0	3	3	0	0	0	0	0	1	8
LFLL	2	1	0	0	2	0	1	1	3	0	1	1	12
FHL	0	1	1	3	1	1	1	0	0	0	0	0	8
SLL	0	3	3	2	0	1	0	1	0	1	0	0	11
LDLL	0	3	1	5	0	1	1	4	5	4	0	3	27

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01													0
P02													0
P03		1		1	1			1					4
P04													0
P05													0
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02													0
D03											2		2
D04						1				1			2
D05													0
D06	1			1		1			1	1	1		6
D07										1			1
D08				1	2				1	1			5
D09													0
D11													0
D12					1					1			2
D13													0
D15	2	1	1	1					2			2	9
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13					1	1							2
F14	1				1	1							3
F21													0
F23						1						1	2
F24					1								1
F25													0
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03													0
F04													0
F05													0
F06									1				1
F07	1						1	1	1				4
F08													0
F09		1										1	2
F10	1								1				2
F11					2						1		3
F12													0
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01													0
T03													0
T04													0
T05			1			1							2
T06													0
T07													0
T08													0
T09													0
T10				1									1
T11													0
T12				1			1						2
T13		1		1	1								3
T14													0
T15													0

8.1 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
SOMERSET LOW LEVEL 9 NEWPC UNITS													
D17		1											1
D18			1										1
D19				1									1
D20		2											2
D21													0
D22													0
D23			2	1		1				1			5
D24								1					1
D25													0
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS													
D37									1	1		2	4
D38		1		1		1							3
D39								1					1
D40										1			1
D41		1							1				2
D42		1											1
D43													0
D44								1		1			2
D45													0
D46													0
D47													0
D48									1				1
D49				1			1						2
D50				1					1				2
D51				1				1	1				3
D51A													0
D52													0
D53								1				1	2
D54													0
D58				1									1
D61			1										1
D62													0
D63													0
D64													0
D65										1			1
D66													0
D67													0
D68													0
D69													0
D70													0
D71													0
D72													0
D73													0
D75													0
													TOTAL
	6	10	6	14	10	8	3	7	12	10	4	7	97
UP	0	1	0	1	1	0	0	1	0	0	0	0	4
UDLL	3	1	1	3	3	2	0	0	4	5	3	2	27
LFC	1	0	0	0	3	3	0	0	0	0	0	1	8
LFLL	2	1	0	0	2	0	1	1	3	0	1	1	12
FHL	0	1	1	3	1	1	1	0	0	0	0	0	8
SLL	0	3	3	2	0	1	0	1	0	1	0	0	11
LDLL	0	3	1	5	0	1	1	4	5	4	0	3	27

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS															
S05	2	2	2	2	2	2	2	2	2	1	2	1	22	1.8	16.6
S06	2	2	2	2	2	2	2	2	2	1	2	1	22	1.8	16.6
S07	2	1	2	2	2	2	2	2	1	1	2	1	20	1.7	18.2
S08	2	1	2	2	2	2	2	3	1	1	2	1	21	1.8	17.4
S09	2	2	5	4	2	3	2	3	1	1	2	1	28	2.3	13.0
S10	2	2	2	2	2	2	2	2	1	1	2	1	21	1.8	17.4
S12	3	3	3	3	2	2	2	2	1	2	3	1	27	2.3	13.5
S12A	1	3	4	3	2	2	2	2	1	2	3	1	26	2.2	14.0
S13	1	3	2	3	2	2	2	2	1	2	3	2	25	2.1	14.6
S15	1	3	2	2	2	2	2	2	1	2	3	2	24	2.0	15.2
S16	1	2	2	2	2	2	2	1	1	2	2	2	21	1.8	17.4
S17	1	2	1	2	2	2	2	1	1	2	2	2	20	1.7	18.2
S18	1	2	1	2	2	2	2	1	1	2	2	1	19	1.6	19.2
S19	1	2	2	3	2	2	2	1	1	2	2	1	21	1.8	17.4
S21	1	2	1	2	2	1	2	1	1	2	2	2	19	1.6	19.2
S23	2	3	1	2	2	2	2	1	1	2	2	2	22	1.8	16.6
S25	2	2	1	2	1	2	1	2	2	2	2	2	21	1.8	17.4
S26	2	2	1	2	1	1	1	2	2	2	2	2	20	1.7	18.2
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS															
S31	2	3	2	2	1	1	1	1	1	2	2	2	20	1.7	18.2
S35	3	3	2	2	1	1	1	1	1	2	2	2	21	1.8	17.4
S36	1	2	1	1	1	1	1	0	0	2	2	1	13	1.1	28.1
S36A	3	4	1	2	2	2	2	1	3	2	2	2	26	2.2	14.0
S37	1	2	1	1	1	1	1	1	0	2	2	2	15	1.3	24.3
S42	5	5	3	2	3	5	5	5	4	3	4	3	47	3.9	7.8
S42A	5	5	3	2	3	6	6	4	4	3	4	4	49	4.1	7.4
S44	2	2	0	1	1	1	1	0	0	2	2	2	14	1.2	26.1
S46	3	3	2	3	3	5	4	2	3	2	2	2	34	2.8	10.7
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS															
S01	1	2	1	2	2	2	1	2	2	1	2	1	19	1.6	19.2
S02	1	2	0	2	2	2	1	2	3	1	2	1	19	1.6	19.2
S03	1	2	0	2	2	2	2	2	2	1	2	1	19	1.6	19.2
S04	1	2	0	2	2	2	2	2	2	1	2	1	19	1.6	19.2
S11	1	1	3	3	2	2	2	2	1	2	4	2	25	2.1	14.6
S14	1	2	2	1	2	2	3	1	1	1	3	1	20	1.7	18.2
S20	1	2	1	1	2	1	2	1	1	2	2	2	18	1.5	20.3
S22	2	2	1	2	1	1	2	1	1	2	2	3	20	1.7	18.2
S24	2	2	1	1	1	1	2	1	1	2	2	2	18	1.5	20.3
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS															
S27	2	2	1	1	1	2	1	1	1	2	2	2	18	1.5	20.3
S28	1	2	1	1	1	1	1	1	1	2	2	2	16	1.3	22.8
S30	1	2	1	1	1	1	1	1	1	2	2	2	16	1.3	22.8
S34	2	2	1	2	1	1	2	1	2	2	2	2	20	1.7	18.2
S39	2	2	2	2	1	1	2	1	2	2	2	2	21	1.8	17.4
S40	2	2	1	2	1	1	1	1	1	2	2	1	17	1.4	21.5
S43	2	2	1	3	1	1	3	1	2	2	2	1	21	1.8	17.4
S47	3	2	2	3	3	1	4	2	2	2	2	1	27	2.3	13.5
S50	10	7	8	4	5	8	10	5	6	8	6	5	82	6.8	4.4
S51	3	4	3	2	4	2	3	1	3	4	5	2	36	3.0	10.1
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS															
S32	2	3	2	2	1	2	1	1	1	2	2	2	21	1.8	17.4
S33	2	3	2	2	1	2	1	1	1	2	2	2	21	1.8	17.4
S38	4	2	3	3	1	2	3	2	1	2	2	2	27	2.3	13.5
S45	3	6	2	2	3	1	3	1	2	2	2	2	29	2.4	12.6

1 TOTAL DISCHARGES IN SW DISTRICT DTR = DAYS TO RETURN TO SITE

0.1 AVERAGE DISCHARGES PER MONTH I/D/C = INSPECTIONS PER DAY PER CREW

17.5 AVER. DAYS BEFORE RETURNING TO SITE I/D = INSPECTIONS PER DISCHARGE

1.8 AVER. INSPECTIONS PER DAY PER CREW

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
COBBS CREEK HIGH LEVEL 24 SWWPC UNITS															
C01	3	3	1	2	2	2	2	1	1	2	2	2	23	1.9	15.9
C02	3	3	1	2	2	2	2	1	1	2	2	2	23	1.9	15.9
C04	3	3	1	2	2	2	2	1	1	2	2	2	23	1.9	15.9
C04A	3	3	1	2	2	2	2	1	1	2	2	2	23	1.9	15.9
C05	3	3	1	2	2	2	2	1	1	2	2	2	23	1.9	15.9
C06	3	4	2	2	2	2	2	1	1	3	3	3	28	2.3	13.0
C07	3	4	2	2	2	2	2	1	1	2	4	3	28	2.3	13.0
C09	3	3	2	2	2	2	2	1	1	2	3	3	26	2.2	14.0
C10	3	2	1	2	2	2	2	1	1	2	2	2	22	1.8	16.6
C11	4	3	2	2	2	2	2	1	1	2	4	3	28	2.3	13.0
C12	2	2	1	2	2	2	2	1	1	2	3	2	22	1.8	16.6
C13	2	2	1	2	2	2	2	1	1	2	2	2	21	1.8	17.4
C14	2	4	1	2	2	1	2	1	1	2	4	2	24	2.0	15.2
C15	2	2	1	2	2	1	1	1	1	2	2	3	20	1.7	18.2
C16	2	2	1	2	2	1	1	1	1	2	2	3	20	1.7	18.2
C17	2	2	1	2	2	1	1	1	1	2	2	2	19	1.6	19.2
C18	2	2	1	2	2	1	1	1	1	2	2	2	19	1.6	19.2
C31	1	2	1	2	3	1	1	1	1	2	3	2	20	1.7	18.2
C32	1	2	1	2	1	1	1	0	1	2	2	2	16	1.3	22.8
C33	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C34	1	2	1	2	2	1	1	0	1	2	3	2	18	1.5	20.3
C35	1	2	1	2	2	1	1	0	1	2	2	1	16	1.3	22.8
C36	1	2	1	1	2	1	1	0	1	2	2	1	15	1.3	24.3
C37	1	2	1	1	1	1	1	0	1	2	3	1	15	1.3	24.3
COBBS CREEK LOW LEVEL 12 SWWPC UNITS															
C19	2	2	1	2	2	1	1	1	1	2	2	2	19	1.6	19.2
C20	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C21	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C22	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C23	1	2	1	2	2	1	1	2	1	2	2	2	19	1.6	19.2
C24	1	2	1	1	2	1	1	1	1	2	2	2	17	1.4	21.5
C25	2	2	1	3	2	1	2	1	2	2	2	2	22	1.8	16.6
C26	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C27	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C28A	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C29	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
C30	1	2	1	2	2	1	1	1	1	2	2	2	18	1.5	20.3
TOTAL	170	211	130	174	162	147	159	113	115	172	202	163	1918		
I /D/C	1.9	2.3	1.4	1.9	1.8	1.6	1.7	1.2	1.3	1.9	2.2	1.8			
CSES	29	39	36	42	34	35	34	32	22	30	40	26	399	1.8	16.7
LSES	25	29	15	16	16	23	22	15	16	20	22	20	239	2.2	17.1
CSW	11	17	9	16	16	15	17	14	14	13	21	14	177	1.6	18.7
SWMG	28	27	21	21	19	19	28	15	21	28	27	20	274	2.3	16.8
LSW	11	14	9	9	6	7	8	5	5	8	8	8	98	2.0	15.2
CCHL	52	61	28	46	47	36	37	19	24	49	60	51	510	1.8	17.8
CCLL	14	24	12	24	24	12	13	13	13	24	24	24	221	1.5	19.9

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05													0
S06													0
S07													0
S08													0
S09													0
S10													0
S12	1												1
S12A													0
S13													0
S15													0
S16													0
S17													0
S18													0
S19													0
S21													0
S23													0
S25													0
S26													0
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31													0
S35													0
S36													0
S36A													0
S37													0
S42													0
S42A													0
S44													0
S46													0
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01													0
S02													0
S03													0
S04													0
S11													0
S14													0
S20													0
S22													0
S24													0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27													0
S28													0
S30													0
S34													0
S39													0
S40													0
S43													0
S47													0
S50													0
S51													0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32													0
S33													0
S38													0
S45													0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 24 SWWPC UNITS													
C01													0
C02													0
C04													0
C04A													0
C05													0
C06													0
C07													0
C09													0
C10													0
C11													0
C12													0
C13													0
C14													0
C15													0
C16													0
C17													0
C18													0
C31													0
C32													0
C33													0
C34													0
C35													0
C36													0
C37													0
COBBS CREEK LOW LEVEL 12 SWWPC UNITS													
C19													0
C20													0
C21													0
C22													0
C23													0
C24													0
C25													0
C26													0
C27													0
C28A													0
C29													0
C30													0
													TOTAL DISC
	1	0	0	0	0	0	0	0	0	0	0	0	1

	NO OF UNITS IN DISTRICT BLOCKED												TOTAL
CSE	2	1	1	3	1	2	1	2	3	1	0	1	18
LSE	2	1	1	0	0	3	0	1	2	1	2	1	14
CSW	0	0	0	0	0	0	0	0	1	0	1	2	4
SWG	3	3	3	4	4	8	2	3	3	0	5	5	43
LSW	2	0	0	0	0	0	0	1	0	0	0	2	5
CCHL	2	3	0	1	0	0	0	2	0	1	2	0	11
CCLL	3	0	1	0	0	0	1	0	0	0	0	0	5

	NO OF DISCHARGES IN DISTRICT												TOTAL
CSE	1	0	0	0	0	0	0	0	0	0	0	0	1
LSE	0	0	0	0	0	0	0	0	0	0	0	0	0
CSW	0	0	0	0	0	0	0	0	0	0	0	0	0
SWG	0	0	0	0	0	0	0	0	0	0	0	0	0
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	0	0	0	0	0	0	0	0	0	0	0	0
CCLL	0	0	0	0	0	0	0	0	0	0	0	0	0

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS													
S05													0
S06				1									1
S07									1				1
S08		1		1		1	1						4
S09			1						1				2
S10													0
S12	2							1		1			4
S12A									1				1
S13													0
S15													0
S16						1							1
S17													0
S18													0
S19								1				1	2
S21				1	1								2
S23													0
S25													0
S26													0
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31													0
S35													0
S36													0
S36A									2		1		3
S37													0
S42	2	1	1			1		1		1			7
S42A						2					1	1	4
S44													0
S46													0
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01											1		1
S02									1			1	2
S03													0
S04													0
S11													0
S14													0
S20												1	1
S22													0
S24													0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27												1	1
S28								1					1
S30									1			1	2
S34											1		1
S39				1							1	1	3
S40													0
S43					1	1							2
S47													0
S50	2	3	3	3	3	7	2	2	2		3	2	32
S51	1												1
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32	1							1					2
S33												1	1
S38	1											1	2
S45													0

8.3 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
COBBS CREEK HIGH LEVEL 24 SWWPC UNITS													
C01													0
C02	1												1
C04													0
C04A													0
C05													0
C06										1			1
C07		1						1					2
C09													0
C10													0
C11													0
C12													0
C13													0
C14	1	2											3
C15													0
C16													0
C17													0
C18				1									1
C31													0
C32													0
C33								1			1		2
C34													0
C35													0
C36													0
C37											1		1
COBBS CREEK LOW LEVEL 12 SWWPC UNITS													
C19	2						1						3
C20	1												1
C21													0
C22													0
C23													0
C24													0
C25			1										1
C26													0
C27													0
C28A													0
C29													0
C30													0
													TOTAL
	14	8	6	8	5	13	4	9	9	3	10	11	100
CSE	2	1	1	3	1	2	1	2	3	1	0	1	18
LSE	2	1	1	0	0	3	0	1	2	1	2	1	14
CSW	0	0	0	0	0	0	0	0	1	0	1	2	4
SWG	3	3	3	4	4	8	2	3	3	0	5	5	43
LSW	2	0	0	0	0	0	0	1	0	0	0	2	5
CCHL	2	3	0	1	0	0	0	2	0	1	2	0	11
CCLL	3	0	1	0	0	0	1	0	0	0	0	0	5

MISCELLANEOUS SITE INSPECTIONS

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
P-090-02-PFD-01		SANDY RUN CREEK DIVERSION REGULATOR											
	8	8	7	5	3	6	5	6	5	5	8	4	70
T-088-01-CFD-01		PLYMOUTH ST. WEST OF PITTVILLE											
	1	2	2	1	1	3	1	1	2	2	2	1	19
T-088-01-CFD-02		PITTVILLE ST. SOUTH OF PLYMOUTH ST.											
	1	2	2	1	1	2	2	1	2	2	2	1	19
T-088-01-CFD-03		ELSTON ST. E. OF BOUVIER ST.											
	1	2	1	2	1	1	2	1	1	2	2	1	17
T-088-01-CFD-04		ASHLEY ST. W. OF BOUVIER ST.											
	1	3	2	2	1	1	1	1	1	1	2	1	17
T-088-01-CFD-05		CHELTENHAM AVE. E. OF 19TH ST.											
	1	3	1	2	1	1	2	2	1	1	2	3	20
T-088-01-CFD-06		VERBENA ST. S. OF CHELTENHAM AVE.											
	2	3	1	3	1	2	1	2	1	1	3	3	23
W-060-01-MFD-01		JANNETTE ST. WEST OF MONASTERY AVE.											
	1	4	2	2	2	2	1	1	1	2	3	1	22
W-060-01-MFD-02		GREEN LANE NORTH OF LAWNTON ST.											
	1	3	1	2	2	2	1	1	1	2	3	1	20
T-089-04-CFD-01		FRANKLIN & HASBROOK											
	8	8	7	4	3	6	6	6	5	5	8	4	70
T-088-01-CFD-07		CHELTENHAM E. OF 7 TH ST.											
	6	8	4	5	1	6	5	6	4	5	8	3	61
T-088-01-CFD-08		7 TH ST. S. OF CHELTENHAM											
	6	8	4	5	1	6	4	6	3	5	8	3	59
Totals	37	54	34	34	18	38	31	34	27	33	51	26	417

MISCELLANEOUS SITE DISCHARGES

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
P-090-02-PFD-01		SANDY RUN CREEK DIVERSION REGULATOR											
													0
T-088-01-CFD-01		PLYMOUTH ST. WEST OF PITTVILLE											
													0
T-088-01-CFD-02		PITTVILLE ST. SOUTH OF PLYMOUTH ST.											
													0
T-088-01-CFD-03		ELSTON ST. E. OF BOUVIER ST.											
													0
T-088-01-CFD-04		ASHLEY ST. W. OF BOUVIER ST.											
													0
T-088-01-CFD-05		CHELTENHAM AVE. E. OF 19TH ST.											
													0
T-088-01-CFD-06		VERBENA ST. S. OF CHELTENHAM AVE.											
													0
W-060-01-MFD-01		JANNETTE ST. WEST OF MONASTERY AVE.											
													0
W-060-01-MFD-02		GREEN LANE NORTH OF LAWNTON ST.											
													0
T-089-04-CFD-01		FRANKLIN & HASBROOK											
							1						1
T-088-01-CFD-07		CHELTENHAM E. OF 7 TH ST.											
				1									1
T-088-01-CFD-08		7 TH ST. S. OF CHELTENHAM											
													0
Totals	0	0	0	1	0	0	1	0	0	0	0	0	2

MISCELLANEOUS SITE BLOCKAGES CLEARED

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
P-090-02-PFD-01		SANDY RUN CREEK DIVERSION REGULATOR											
	4	1	1		2		1	1					10
T-088-01-CFD-01		PLYMOUTH ST. WEST OF PITTVILLE											
													0
T-088-01-CFD-02		PITTVILLE ST. SOUTH OF PLYMOUTH ST.											
	1	1	1										3
T-088-01-CFD-03		ELSTON ST. E. OF BOUVIER ST.											
													0
T-088-01-CFD-04		ASHLEY ST. W. OF BOUVIER ST.											
													0
T-088-01-CFD-05		CHELTENHAM AVE. E. OF 19TH ST.											
												1	1
T-088-01-CFD-06		VERBENA ST. S. OF CHELTENHAM AVE.											
													0
W-060-01-MFD-01		JANNETTE ST. WEST OF MONASTERY AVE.											
				1									1
W-060-01-MFD-02		GREEN LANE NORTH OF LAWNTON ST.											
													0
T-089-04-CFD-01		FRANKLIN & HASBROOK											
	1		3		1		1			1	1		8
T-088-01-CFD-07		CHELTENHAM E. OF 7 TH ST.											
	1	1	1	2		1	2	1	1	1			11
T-088-01-CFD-08		7 TH ST. S. OF CHELTENHAM											
			1			1							2
Totals	7	3	7	3	3	2	4	2	1	2	1	1	36

Maintenance Fiscal Year 2024 End Report- July 2023 through June 2024

SOMERSET GRIT D-25 CHAMBER, D-45 CHAMBER, & DWO CLEANINGS

DATE	TONS	SITE
7/1/2023	9.43	D-45
7/15/2023	9	D-45
7/22/2023	9.49	D-45
10/7/2023	9.65	D-45
10/26/2023	4.56	D-45
10/27/2023	3.24	D-45
11/8/2023	3.98	D-45
11/9/2023	5.60	D-45
1/13/2024	9.54	D-45
6/15/2024	7.96	D-45
2/27/2024	6.68	D-25
3/1/2024	4.87	D-25
3/9/2024	4.67	D-25
5/25/2024	5.12	D-25
6/15/2024	14.50	D-25

CSPS SIPHON GRIT POCKET CLEANINGS

DATE	CU. YARDS
GRIT CLEANING NOT DONE DUE TO EQUIPMENT AVAILABILITY	

CSO B&B REGULATOR MAINTENANCE

DATE	SITE	DATE	SITE
8/3/2023	S-50	1/27/2024	S-42A
8/16/2023	S-50	2/17/2024	D-4
8/19/2023	P-1	2/17/2024	D-17
8/19/2023	P-2	2/17/2024	D-18
8/19/2023	P-4	2/17/2024	S-5
12/2/2023	S-9	2/17/2024	S-7
12/2/2023	S-18	2/17/2024	S-6
12/2/2023	S-36A	2/24/2024	S-8
12/9/2023	D-38	2/24/2024	S-9
12/9/2023	D-58	2/24/2024	S-15
12/9/2023	D-62	2/24/2024	D-19
12/19/2023	S-42	2/24/2024	D-20
12/19/2023	S-46	2/24/2024	D-37
12/21/2023	S-50	2/29/2024	S-50
12/27/2023	S-42A	3/4/2024	S-42A
1/6/2024	S-34	3/18/2024	S-42A
1/6/2024	S-47	3/20/2024	S-42A
1/6/2024	D-67	4/20/2024	S-50
1/6/2024	D-66	4/20/2024	S-46
1/6/2024	D-64	4/20/2024	S-38
1/20/2024	D-37	6/1/2024	S-22
1/20/2024	D-38	6/1/2024	S-24
1/20/2024	D-39	6/1/2024	S-23
1/20/2024	D-41	6/1/2024	S-25
1/23/2024	S-42A	6/15/2024	S-42a

CSO TIDE GATE MAINTENANCE

DATE	SITE	DATE	SITE	DATE	SITE
8/28/2024	D-11	10/5/2023	F-25	2/21/2024	D-3
9/15/2024	D-11	10/11/2023	D-2	2/21/2024	Rock Run
10/12/2024	D-11	10/11/2023	D-3	2/21/2024	T-14
11/6/2024	D-11	10/12/2023	D-9	2/26/2024	Fish Ladder
12/20/2014	D-11	10/13/2023	D-15	2/26/2024	F-25
7/7/2023	D-5	10/16/2023	Rock Run	3/6/2024	D-2
7/7/2023	D-7	10/19/2023	Fish Ladder	3/6/2024	D-3
7/7/2023	D-9	10/27/2023	D-7	3/7/2024	D-7
7/7/2023	D-15	11/3/2023	D-9	3/7/2024	D-9
7/10/2023	T-14	11/6/2023	D-15	3/8/2024	D-11
7/13/2023	Rock Run	11/8/2023	D-7	3/8/2024	D-15
7/14/2023	D-11	11/8/2023	F-25	3/15/2024	Rock Run
7/22/2023	S-44	11/15/2023	T-14	3/21/2024	F-25
7/22/2023	S-50	11/15/2023	Rock Run	3/21/2024	T-14
7/24/2023	F-25	12/1/2023	F-25	4/10/2024	D-2
7/25/2023	D-7	12/8/2023	D-2	4/10/2024	D-3
7/25/2023	D-11	12/8/2023	D-3	4/11/2024	D-7
7/25/2023	F-25	12/14/2023	D-7	4/11/2024	D-9
7/31/2023	D-3	12/14/2023	D-9	4/17/2024	F-25
7/31/2023	Fish Ladder	12/20/2023	D-15	4/17/2024	D-15
7/31/2023	T-14	12/21/2023	S-50	4/18/2024	Rock Run
8/3/2023	S-50	12/21/2023	T-14	4/19/2024	T-14
8/7/2023	D-2	12/21/2023	Rock Run	4/29/2024	D-11
8/10/2023	D-3	12/28/2023	D-5	5/3/2024	D-2
8/10/2023	D-3	1/11/2024	D-2	5/3/2024	D-7
8/11/2023	D-7	1/17/2024	D-3	5/4/2024	Rock Run
8/11/2023	D-9	1/17/2024	D-9	5/8/2024	D-3
8/15/2023	D-15	1/17/2024	D-11	5/8/2024	D-9
8/16/2023	S-50	1/17/2024	D-15	5/15/2024	T-14
8/25/2023	Rock Run	1/24/2024	D-7	5/22/2024	D-15
8/25/2023	T-14	1/24/2024	F-25	5/23/2024	D-11
8/28/2023	D-15	1/25/2024	T-14	5/31/2024	F-25
8/31/2023	Fish Ladder	1/25/2024	Rock Run	6/13/2024	D-2
9/6/2023	D-2	1/26/2024	D-5	6/13/2024	D-3
9/6/2023	D-3	1/26/2024	Fish Ladder	6/24/2024	Rock Run
9/7/2023	D-7	2/12/2024	D-2	6/24/2024	T-14
9/8/2023	Fish Ladder	2/12/2024	D-7	6/26/2024	D-15
9/14/2023	D-9	2/15/2024	D-9	6/26/2024	D-11
9/15/2023	D-15	2/15/2024	D-11	6/27/2024	D-7
10/5/2023	T-14	2/21/2024	D-15	6/27/2024	D-9
				6/29/2024	F-25

COMPUTER CONTROL CHAMBER PREVENTATIVE MAINTENANCE

DATE	SITE	DATE	SITE	DATE	SITE
7/7/2023	D-5	10/12/2023	D-9	2/21/2024	VENICE
7/7/2023	D-7	10/13/2023	D-15	2/21/2024	T-14
7/7/2023	D-9	10/16/2023	Rock Run	2/26/2024	Fish Ladder
7/7/2023	D-15	10/19/2023	Fish Ladder	2/26/2024	F-25
7/10/2023	T-14	10/19/2023	Venice	3/6/2024	D-2
7/13/2023	Rock Run	10/27/2023	D-7	3/6/2024	D-3
7/14/2023	D-11	11/3/2023	D-9	3/7/2024	D-7
7/20/2023	F-25	11/6/2023	D-11	3/7/2024	D-9
7/24/2023	State Road	11/6/2023	D-15	3/8/2024	D-11
7/24/2023	F-25	11/8/2023	D-7	3/8/2024	D-15
7/27/2023	Venice	11/8/2023	F-25	3/15/2024	Rock Run
7/31/2023	D-3	11/15/2023	T-14	3/21/2024	F-25
7/31/2023	Fish Ladder	11/15/2023	Rock Run	3/21/2024	T-14
7/31/2023	T-14	12/1/2023	F-25	3/26/2024	VENICE
8/7/2023	D-2	12/8/2023	D-2	4/10/2024	D-2
8/7/2023	D-5	12/8/2023	D-3	4/10/2024	D-3
8/10/2023	D-3	12/14/2023	D-7	4/11/2024	D-7
8/10/2023	D-5	12/14/2023	D-9	4/11/2024	D-9
8/11/2023	D-7	12/15/2023	Venice	4/17/2024	F-25
8/11/2023	D-9	12/20/2023	D-11	4/17/2024	D-15
8/15/2023	D-5	12/20/2023	D-15	4/18/2024	Rock Run
8/18/2023	D-5	12/21/2023	T-14	4/19/2024	T-14
8/24/2023	F-25	12/21/2023	Rock Run	4/29/2024	D-11
8/24/2023	State Road	12/28/2023	D-5	4/29/2024	VENICE
8/25/2023	D-5	12/28/2023	State Road	4/29/2024	state road
8/25/2023	Rock Run	1/11/2024	D-2	5/3/2024	D-2
8/25/2023	T-14	1/17/2024	D-3	5/3/2024	D-4
8/28/2023	D-11	1/17/2024	D-9	5/4/2024	D-5
8/28/2023	D-15	1/17/2024	D-11	5/8/2024	D-6
8/28/2023	Venice	1/17/2024	D-15	5/8/2024	D-7
8/31/2023	Fish Ladder	1/22/2024	VENICE	5/15/2024	D-8
9/6/2023	D-2	1/24/2024	D-7	5/15/2024	D-9
9/6/2023	D-3	1/24/2024	F-25	5/16/2024	D-10
9/7/2023	D-7	1/24/2024	state road	5/22/2024	D-11
9/8/2023	Fish Ladder	1/25/2024	T-14	5/23/2024	D-12
9/14/2023	D-9	1/25/2024	Rock Run	5/31/2024	D-13
9/15/2023	D-11	1/26/2024	D-5	6/13/2024	D-2
9/15/2023	D-15	1/26/2024	Fish Ladder	6/13/2024	D-3
9/25/2023	Venice	2/12/2024	D-2	6/24/2024	Rock Run
10/4/2023	State Road	2/12/2024	D-7	6/24/2024	T-14
10/5/2023	T-14	2/15/2024	D-9	6/26/2024	D-15
10/5/2023	F-25	2/15/2024	D-11	6/26/2024	VENICE
10/11/2023	D-2	2/21/2024	D-15	6/26/2024	D-11
10/11/2023	D-3	2/21/2024	D-3	6/27/2024	D-7
10/12/2023	D-11	2/21/2024	Rock Run	6/27/2024	D-9
				6/28/2024	state road
				6/29/2024	F-25

CSO OUTFALL - DEBRIS GRILL MAINTENANCE

DATE	SITE	DATE	SITE	DATE	SITE
7/7/2023	D-5	10/27/2023	D-7	2/26/2024	F-25
7/7/2023	D-7	11/3/2023	D-9	3/6/2024	D-2
7/7/2023	D-9	11/6/2023	D-11	3/6/2024	D-3
7/7/2023	D-15	11/6/2023	D-15	3/7/2024	D-7
7/13/2023	Rock Run	11/8/2023	D-7	3/7/2024	D-9
7/14/2023	D-11	11/8/2023	F-25	3/8/2024	D-11
7/24/2023	F-25	11/15/2023	T-14	3/8/2024	D-15
7/25/2023	D-11	11/15/2023	Rock Run	3/15/2024	Rock Run
7/25/2023	D-7	12/1/2023	F-25	3/21/2024	F-25
7/25/2023	F-25	12/8/2023	D-2	3/21/2024	T-14
7/31/2023	D-3	12/8/2023	D-3	4/10/2024	D-2
7/31/2023	Fish Ladder	12/14/2023	D-7	4/10/2024	D-3
7/31/2023	T-14	12/14/2023	D-9	4/11/2024	D-7
8/7/2023	D-2	12/20/2023	D-11	4/11/2024	D-9
8/10/2023	D-3	12/20/2023	D-15	4/17/2024	F-25
8/10/2023	D-5	12/21/2023	T-14	4/17/2024	D-15
8/11/2023	D-7	12/21/2023	Rock Run	4/18/2024	Rock Run
8/11/2023	D-9	12/28/2023	D-5	4/19/2024	T-14
8/25/2023	Rock Run	1/11/2024	D-2	4/29/2024	D-11
8/25/2023	T-14	1/17/2024	D-3	5/3/2024	D-2
8/28/2023	D-11	1/17/2024	D-9	5/3/2024	D-7
8/28/2023	D-15	1/17/2024	D-11	5/4/2024	Rock Run
8/31/2023	Fish Ladder	1/17/2024	D-15	5/8/2024	D-3
9/6/2023	D-2	1/24/2024	D-7	5/8/2024	D-9
9/6/2023	D-3	1/24/2024	F-25	5/15/2024	T-14
9/7/2023	D-7	1/25/2024	T-14	5/22/2024	D-15
9/8/2023	Fish Ladder	1/25/2024	Rock Run	5/23/2024	D-11
9/14/2023	D-9	1/26/2024	D-5	5/31/2024	F-25
9/15/2023	D-11	1/26/2024	Fish Ladder	6/13/2024	D-2
9/15/2023	D-15	2/12/2024	D-2	6/13/2024	D-3
10/5/2023	T-14	2/12/2024	D-7	6/24/2024	Rock Run
10/5/2023	F-25	2/15/2024	D-9	6/24/2024	T-14
10/11/2023	D-2	2/15/2024	D-11	6/26/2024	D-15
10/11/2023	D-3	2/21/2024	D-15	6/26/2024	D-11
10/12/2023	D-11	2/21/2024	D-3	6/27/2024	D-7
10/12/2023	D-9	2/21/2024	Rock Run	6/27/2024	D-9
10/13/2023	D-15	2/21/2024	Rock Run	6/27/2024	D-7
10/16/2023	Rock Run	2/21/2024	T-14	6/27/2024	D-9
10/19/2023	Fish Ladder	2/26/2024	Fish Ladder	6/29/2024	F-25

Sewer Assessment Program CCTV Sewer Inspection Report

Inspections	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	TOTAL
GSI CCTV Inspections	76	117	82	91	81	145	133	50	165	138	218	178	1474
Sewer CCTV Inspections	293	299	306	369	298	265	93	121	127	94	110	78	2453
Total CCTV Inspections	369	416	388	460	379	410	226	171	292	232	328	256	3927

Mileage	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	TOTAL
GSI CCTV Mileage	0.71	1.08	0.60	0.82	0.69	1.30	1.17	0.50	1.49	1.41	2.29	1.97	14.04
Sewer CCTV Mileage	8.40	8.70	8.89	9.48	9.36	6.63	2.82	3.09	3.01	2.41	2.53	1.47	66.78
Total CCTV Mileage	9.11	9.78	9.49	10.30	10.05	7.93	3.99	3.59	4.50	3.83	4.81	3.44	80.83

Appendix D – NPDES Annual CSO Report Status FY24

APPENDIX D –
NPDES ANNUAL CSO STATUS REPORT FY 2024

Page

Table 1 - Listing of all CSO permitted outfalls

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
NPDES Permit #0026689 - Northeast						
2	39d 58m 50s	75d 4m 58s	Castor Ave. and Balfour St.	Delaware River	Somerset	D_17
3	39d 58m 45s	75d 5m 6s	Venango St. NW of Casper St.	Delaware River	Somerset	D_18
4	39d 58m 41s	75d 5m 15s	Tioga St. NW of Casper St.	Delaware River	Somerset	D_19
5	39d 58m 43s	75d 5m 28s	Ontario St. NW of Casper St.	Delaware River	Somerset	D_20
6	39d 58m 44s	75d 5m 41s	Westmoreland St. NW of Balfour St.	Delaware River	Somerset	D_21
7	39d 58m 42s	75d 5m 53s	Allegheny Ave. SE of Bath St.	Delaware River	Somerset	D_22
8	39d 58m 38s	75d 6m 12s	Indiana Ave. SE of Allen St.	Delaware River	Somerset	D_23
10	39d 58m 38s	75d 6m 28s	Cambria St. E of Melvale St.	Delaware River	Somerset	D_25
11	40d 1m 18s	75d 1m 44s	Cottman St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_02
12	40d 1m 14s	75d 2m 0s	Princeton Ave SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_03
13	40d 1m 8s	75d 2m 13s	Disston St. SE of Wissinoming St.	Delaware River	Upper Delaware Low Level	D_04
14	40d 0m 58s	75d 2m 34s	Magee St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_05
15	40d 0m 53s	75d 2m 46s	Levick St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_06
16	40d 0m 44s	75d 3m 5s	Lardner St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_07
17	40d 0m 38s	75d 3m 13s	Comly St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_08
18	40d 0m 34s	75d 3m 18s	Dark Run La and Milnor St.	Delaware River	Upper Delaware Low Level	D_09
19	40d 0m 21s	75d 3m 28s	Sanger St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_11
20	40d 0m 2s	75d 3m 43s	Bridge St. Se of Garden St.	Delaware River	Upper Delaware Low Level	D_12
21	39d 59m 53s	75d 3m 47s	Kirkbride St. and Delaware Ave.	Delaware River	Upper Delaware Low Level	D_13
22	39d 59m 24s	75d 4m 4s	Orthodox St. and Delaware Ave.	Delaware River	Upper Delaware Low Level	D_15
23	40d 2m 36s	75d 1m 15s	Frankford Avenue & Ashburner Street	Pennypack Creek	Pennypack	P_01
24	40d 2m 36s	75d 1m 16s	Frankford Avenue & Holmesburg St.	Pennypack Creek	Pennypack	P_02
25	40d 2m 13s	75d 1m 19s	Torresdale Ave. NW of Pennypack Ck.	Pennypack Creek	Pennypack	P_03
26	40d 2m 23s	75d 1m 21s	Cottage Avenue & Holmesburg Avenue	Pennypack Creek	Pennypack	P_04
27	40d 2m 2s	75d 1m 21s	Holmesburg Ave SE of Hegerman St	Pennypack Creek	Pennypack	P_05
28	40d 4m 34s	75d 9m 44s	Williams Avenue SE of Sedgewick	Tacony Creek	Frankford High Level	T_01
29	40d 2m 28s	75d 6m 56s	Complost Ave West of Tacony Creek	Tacony Creek	Frankford High Level	T_03
30	40d 2m 11s	75d 6m 48s	Rising Sun Ave East of Tacony Creek	Tacony Creek	Frankford High Level	T_04

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
31	40d 2m 9s	75d 6m 48s	Rising Sun Ave West of Tacony Creek	Tacony Creek	Frankford High Level	T_05
32	40d 2m 3s	75d 6m 41s	Bingham Street East of Tacony Creek	Tacony Creek	Frankford High Level	T_06
33	40d 1m 51s	75d 6m 43s	Tabor Road West of Tacony Creek	Tacony Creek	Frankford High Level	T_07
34	40d 1m 42s	75d 6m 47s	Ashdale Street West of Tacony Creek	Tacony Creek	Frankford High Level	T_08
35	40d 1m 37s	75d 6m 48s	Roosevelt Blvd. West of Tacony Creek	Tacony Creek	Frankford High Level	T_09
36	40d 1m 37s	75d 6m 47s	Roosevelt Blvd. East of Tacony Creek	Tacony Creek	Frankford High Level	T_10
37	40d 1m 29s	75d 6m 43s	Ruscomb Street East of Tacony Creek	Tacony Creek	Frankford High Level	T_11
38	40d 1m 23s	75d 6m 41s	Whitaker Avenue East of Tacony Creek	Tacony Creek	Frankford High Level	T_12
39	40d 1m 22s	75d 6m 42s	Whitaker Avenue West of Tacony Ck	Tacony Creek	Frankford High Level	T_13
40	40d 0m 59s	75d 6m 28s	I Street & Ramona Ave.	Tacony Creek	Frankford High Level	T_14
41	40d 0m 57s	75d 6m 20s	J Street & Juniata Park	Tacony Creek	Frankford High Level	T_15
42	40d 0m 57s	75d 5m 51s	Castor Avenue at Unity Street Circle	Frankford Creek	Upper Frankford Low Level	F_03
43	40d 0m 52s	75d 5m 42s	Wingohocking St East of Adams Ave	Frankford Creek	Upper Frankford Low Level	F_04
44	40d 0m 41s	75d 5m 41s	Bristol Street West of Adams Avenue	Frankford Creek	Upper Frankford Low Level	F_05
45	40d 0m 25s	75d 5m 33s	Worrel Street East of Frankford Creek	Frankford Creek	Upper Frankford Low Level	F_06
46	40d 0m 26s	75d 5m 34s	Worrel Street West of Frankford Creek	Frankford Creek	Upper Frankford Low Level	F_07
47	40d 0m 21s	75d 5m 36s	Torresdale Ave & Hunting Park Ave	Frankford Creek	Upper Frankford Low Level	F_08
48	40d 0m 19s	75d 5m 34s	Frankford Ave North of Frankford Ck	Frankford Creek	Upper Frankford Low Level	F_09
49	40d 0m 19s	75d 5m 35s	Frankford Ave South of Frankford Ck	Frankford Creek	Upper Frankford Low Level	F_10
50	40d 0m 15s	75d 5m 26s	Orchard Street South of Vandyke Creek	Frankford Creek	Upper Frankford Low Level	F_11
51	39d 59m 56s	75d 5m 14s	Sepviva Street North of Butler Street	Frankford Creek	Upper Frankford Low Level	F_12
52	39d 59m 49s	75d 5m 3s	Duncan Street Under Delaware Exp.	Frankford Creek	Lower Frankford Low Level	F_13
54	40d 0m 16s	75d 4m 15s	Wakeling Street NW of Creek Basin	Frankford Creek	Lower Frankford Low Level	F_21
55	40d 0m 19s	75d 4m 5s	Bridge Street NW of Creek Basin	Frankford Creek	Lower Frankford Low Level	F_23
56	40d 0m 18s	75d 4m 5s	Bridge Street SE of Creek Basin	Frankford Creek	Lower Frankford Low Level	F_24
57	40d 0m 15s	75d 4m 15s	Ash Street West of Creek Basin	Frankford Creek	Lower Frankford Low Level	F_25
58	40d 0m 30s	75d 3m 20s	Levick St. & Everett Ave.	Delaware River	Wakling Relief Sewer	D_FRW
59	40d 2m 16s	75d 6m 53s	Nedro Ave & 7th St.	Tacony Creek	Rock Run Flood Relief Sewer	T_FRRR
60	40d 0m 36s	75d 5m 44s	Castor Ave. & East Hunting Park Ave.	Frankford Creek	Frankford High Level Relief Sewer	F_FRFG

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
NPDES Permit # 0026662 – Southeast						
2	39d 58m 9s	75d 7m 19s	Dyott Street & Delaware Ave.	Delaware River	Lower Delaware Low Level	D_38
3	39d 58m 7s	75d 7m 23s	Susquehanna Ave. East of Beach Street	Delaware River	Lower Delaware Low Level	D_39
4	39d 58m 5s	75d 7m 26s	Berks Street East of Beach Street	Delaware River	Lower Delaware Low Level	D_40
5	39d 58m 3s	75d 7m 37s	Palmer Street East of Beach Street	Delaware River	Lower Delaware Low Level	D_41
6	39d 57m 54s	75d 7m 42s	Columbia Avenue East of Beach Street	Delaware River	Lower Delaware Low Level	D_42
7	39d 57m 56s	75d 7m 48s	Marlborough Street & Delaware Ave	Delaware River	Lower Delaware Low Level	D_43
8	39d 57m 53s	75d 7m 54s	Shackamaxon St East of Delaware Ave	Delaware River	Lower Delaware Low Level	D_44
9	39d 57m 48s	75d 8m 0s	Laurel Street & Delaware Avenue	Delaware River	Lower Delaware Low Level	D_45
10	39d 57m 41s	75d 8m 11s	Penn Street & Delaware Avenue	Delaware River	Lower Delaware Low Level	D_46
11	39d 57m 37s	75d 8m 9s	Fairmont Ave West of Delaware Ave	Delaware River	Lower Delaware Low Level	D_47
12	39d 57m 28s	75d 8m 13s	Willow Street West of Delaware Ave	Delaware River	Lower Delaware Low Level	D_48
13	39d 57m 24s	75d 8m 20s	Callowhill Street & Delaware Avenue	Delaware River	Lower Delaware Low Level	D_49
14	39d 57m 21s	75d 8m 13s	Delaware Avenue North of Vine Street	Delaware River	Lower Delaware Low Level	D_50
15	39d 57m 11s	75d 8m 17s	Race Street West of Delaware Avenue	Delaware River	Lower Delaware Low Level	D_51
16	39d 57m 7s	75d 8m 25s	Delaware Avenue & Arch Street	Delaware River	Lower Delaware Low Level	D_52
17	39d 56m 57s	75d 8m 23s	Market Street & Front Street	Delaware River	Lower Delaware Low Level	D_53
20	39d 56m 50s	75d 8m 24s	Front Street South of Chestnut Street	Delaware River	Lower Delaware Low Level	D_54
21	39d 56m 26s	75d 8m 32s	South Street & Delaware Avenue	Delaware River	Lower Delaware Low Level	D_58
22	39d 56m 12s	75d 8m 33s	Catharine Street East of Swanson Street	Delaware River	Lower Delaware Low Level	D_61
23	39d 56m 10s	75d 8m 32s	Queen Street East of Swanson Street	Delaware River	Lower Delaware Low Level	D_62
24	39d 56m 5s	75d 8m 33s	Christian St West of Delaware Avenue	Delaware River	Lower Delaware Low Level	D_63
25	39d 55m 59s	75d 8m 35s	Washington Ave East of Delaware Ave	Delaware River	Lower Delaware Low Level	D_64
26	39d 55m 45s	75d 8m 29s	Reed Street East of Delaware Avenue	Delaware River	Lower Delaware Low Level	D_65
27	39d 55m 37s	75d 8m 28s	Tasker Street East of Delaware Avenue	Delaware River	Lower Delaware Low Level	D_66
28	39d 55m 26s	75d 8m 21s	Moore Street East of Delaware Avenue	Delaware River	Lower Delaware Low Level	D_67
33	39d 54m 6s	75d 8m 12s	Pattison Avenue & Swanson Street	Delaware River	Lower Delaware Low Level	D_73
36	39d 58m 21s	75d 6m 58s	Cumberland St East of Richmond St	Delaware River	Lower Delaware Low Level	D_37
37	39d 57m 12s	75d 8m 24s	Race Street West of Delaware Avenue, North of D-51	Delaware River	Lower Delaware Low Level	D_51A

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
29	39d 55m 13s	75d 8m 20s	Snyder Avenue & Delaware Avenue	Delaware River	Oregon	D_68
30	39d 54m 60s	75d 8m 13s	Delaware Ave North of Porter Street	Delaware River	Oregon	D_69
31	39d 54m 44s	75d 8m 15s	Oregon Avenue & Delaware Avenue	Delaware River	Oregon	D_70
32	39d 54m 33s	75d 7m 59s	Bigler Street & Delaware Avenue	Delaware River	Oregon	D_71
34	39d 54m 24s	75d 8m 8s	Packer Avenue East of Delaware Ave	Delaware River	Oregon	D_72
NPDES Permit # 0026671 - Southwest						
2	39d 56m 17s	75d 12m 17s	Reed Street & Schuylkill Avenue	Schuylkill River	Lower Schuylkill East Side	S_31
3	39d 55m 54s	75d 12m 28s	35th St. and Mifflin St.	Schuylkill River	Lower Schuylkill East Side	S_36A
4	39d 55m 41s	75d 12m 38s	Vare Avenue & 29th Street	Schuylkill River	Lower Schuylkill East Side	S_37
5	39d 55m 12s	75d 12m 5s	Passyunk Avenue & 29th Street	Schuylkill River	Lower Schuylkill East Side	S_42
6	39d 55m 12s	75d 12m 5s	Passyunk Avenue & 28th Street	Schuylkill River	Lower Schuylkill East Side	S_42A
7	39d 54m 57s	75d 12m 16s	26th Street 700' North of Hartranft St	Schuylkill River	Lower Schuylkill East Side	S_44
8	39d 53m 53s	75d 12m 39s	Penrose Avenue & 26th Street	Schuylkill River	Lower Schuylkill East Side	S_46
9	39d 57m 38s	75d 10m 50s	24th Street 155' South of Parktown Pl	Schuylkill River	Central Schuylkill East Side	S_05
10	39d 57m 39s	75d 10m 49s	24th Street 350' South of Parktown Pl	Schuylkill River	Central Schuylkill East Side	S_06
11	39d 57m 39s	75d 10m 50s	24th Street East of Schuylkill River	Schuylkill River	Central Schuylkill East Side	S_07
12	39d 57m 29s	75d 10m 43s	Race Street & Bonsall Street	Schuylkill River	Central Schuylkill East Side	S_08
13	39d 57m 30s	75d 10m 45s	Arch Street West of 23rd Street	Schuylkill River	Central Schuylkill East Side	S_09
14	39d 57m 16s	75d 10m 49s	Market Street 25' East of 24th Street	Schuylkill River	Central Schuylkill East Side	S_10
15	39d 57m 11s	75d 10m 51s	24th St. N of Chestnut St. Bridge	Schuylkill River	Central Schuylkill East Side	S_12A
16	39d 57m 7s	75d 10m 52s	Sansom Street West of 24th Street	Schuylkill River	Central Schuylkill East Side	S_13
17	39d 57m 5s	75d 10m 53s	Walnut Street West of 24th Street	Schuylkill River	Central Schuylkill East Side	S_15
18	39d 57m 1s	75d 10m 56s	Locust Street & 25th Street	Schuylkill River	Central Schuylkill East Side	S_16
19	39d 56m 57s	75d 11m 0s	Spruce Street & 25th Street	Schuylkill River	Central Schuylkill East Side	S_17
20	39d 56m 52s	75d 11m 5s	Pine Street West of Taney Street	Schuylkill River	Central Schuylkill East Side	S_18
21	39d 56m 49s	75d 11m 9s	Lombard Street West of 27th Street	Schuylkill River	Central Schuylkill East Side	S_19
22	39d 56m 47s	75d 11m 12s	South Street East of 27th Street	Schuylkill River	Central Schuylkill East Side	S_21
23	39d 56m 44s	75d 11m 18s	Schuylkill Avenue & Bainbridge Street	Schuylkill River	Central Schuylkill East Side	S_23
24	39d 56m 34s	75d 11m 28s	Schuylkill Avenue & Christian Street	Schuylkill River	Central Schuylkill East Side	S_25
25	39d 56m 29s	75d 11m 35s	Ellsworth St West of Schuylkill Avenue	Schuylkill River	Central Schuylkill East Side	S_26
26	39d 58m 1s	75d 11m 17s	Mantua Avenue & West River Drive	Schuylkill River	Central Schuylkill West Side	S_01

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
27	39d 57m 54s	75d 11m 7s	Haverford Avenue & West River Drive	Schuylkill River	Central Schuylkill West Side	S_02
28	39d 57m 51s	75d 11m 4s	Spring Garden St W of Schuylkill Expy	Schuylkill River	Central Schuylkill West Side	S_03
29	39d 57m 53s	75d 11m 4s	Powelton Ave W of Schuylkill Expy	Schuylkill River	Central Schuylkill West Side	S_04
30	39d 57m 16s	75d 10m 53s	Market St West of Schuylkill Expy	Schuylkill River	Central Schuylkill West Side	S_11
31	39d 57m 5s	75d 10m 58s	Schuylkill Expressway & Walnut Street	Schuylkill River	Central Schuylkill West Side	S_14
32	39d 56m 51s	75d 11m 14s	440’ Northwest of South Street	Schuylkill River	Central Schuylkill West Side	S_20
33	39d 56m 46s	75d 11m 22s	660’ South of South St E of Pennfield	Schuylkill River	Central Schuylkill West Side	S_22
34	39d 56m 43s	75d 11m 26s	1060’ South of South St E of Pennfield	Schuylkill River	Central Schuylkill West Side	S_24
35	39d 56m 32s	75d 12m 27s	46th Street & Paschall Avenue	Schuylkill River	Southwest Main Gravity	S_30
36	39d 56m 36s	75d 12m 18s	43rd St. and Locust St.	Schuylkill River	Southwest Main Gravity	S_50
37	39d 56m 13s	75d 12m 23s	49th Street South of Botanic Street	Schuylkill River	Lower Schuylkill West Side	S_32
38	39d 56m 8s	75d 12m 24s	51st Street South of Botanic Street	Schuylkill River	Lower Schuylkill West Side	S_33
39	39d 55m 43s	75d 12m 45s	56th Street East of P&R Railroad	Schuylkill River	Lower Schuylkill West Side	S_38
40	39d 54m 39s	75d 12m 55s	64th St. and Buist Ave.	Schuylkill River	Lower Schuylkill West Side	S_45
41	39d 56m 10s	75d 14m 6s	60th Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek High Level	C_18
51	39d 58m 51s	75d 16m 4s	City Line Avenue & 73rd Street	Cobbs Creek	Cobbs Creek High Level	C_01
52	39d 58m 51s	75d 16m 1s	City Line Ave 100’ South Side of Creek	Cobbs Creek	Cobbs Creek High Level	C_02
54	39d 58m 30s	75d 15m 26s	Lebanon Ave Southwest of 73rd Street	Cobbs Creek	Cobbs Creek High Level	C_05
55	39d 58m 31s	75d 15m 25s	Lebanon Avenue & 68th Street	Cobbs Creek	Cobbs Creek High Level	C_06
56	39d 58m 26s	75d 15m 26s	Lansdowne Avenue & 69th Street	Cobbs Creek	Cobbs Creek High Level	C_07
57	39d 57m 51s	75d 14m 56s	54th Street & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_09
58	39d 57m 50s	75d 14m 53s	Gross Street & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_10
59	39d 57m 43s	75d 14m 53s	Cobbs Creek Pky South of Market St	Cobbs Creek	Cobbs Creek High Level	C_11
60	39d 57m 27s	75d 14m 60s	Spruce Street & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_12
61	39d 56m 45s	75d 14m 58s	62nd Street & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_13
62	39d 56m 36s	75d 14m 50s	Baltimore Avenue & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_14
63	39d 56m 31s	75d 14m 26s	59th Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek High Level	C_15
64	39d 56m 26s	75d 14m 23s	Thomas Avenue & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_16
65	39d 56m 13s	75d 14m 6s	Beaumont Street & Cobbs Creek	Cobbs Creek	Cobbs Creek High Level	C_17
66	39d 58m 29s	75d 16m 48s	Cobbs Creek Pky S of City Line Ave	Cobbs Creek	Cobbs Creek High Level	C_31
67	39d 58m 12s	75d 15m 56s	Brockton Road & Farrington Road	Cobbs Creek	Cobbs Creek High Level	C_33

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
68	39d 58m 40s	75d 15m 44s	Woodcrest Avenue & Morris Park	Cobbs Creek	Cobbs Creek High Level	C_34
69	39d 58m 47s	75d 15m 54s	Morris Park West of 72nd Street & Sherwood Road	Cobbs Creek	Cobbs Creek High Level	C_35
70	39d 58m 49s	75d 15m 35s	Woodbine Ave South of Brentwood Rd	Cobbs Creek	Cobbs Creek High Level	C_36
71	39d 57m 55s	75d 15m 15s	Cobbs Creek Parkway South of 67th & Callowhill Streets	Cobbs Creek	Cobbs Creek High Level	C_37
72	39d 58m 22s	75d 16m 11s	Cobbs Creek Parkway & 77th Street	Cobbs Creek	Cobbs Creek High Level	C_32
82	39d 58m 38s	75d 15m 28s	Malvern Ave. and 68th St.	Cobbs Creek	Cobbs Creek High Level	C_04A
42	39d 55m 57s	75d 14m 19s	Mount Moriah Cemetary & 62nd Street	Cobbs Creek	Cobbs Creek Low Level	C_19
43	39d 55m 46s	75d 14m 39s	65th Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek Low Level	C_20
44	39d 55m 37s	75d 14m 40s	68th Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek Low Level	C_21
45	39d 55m 27s	75d 14m 46s	70th Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek Low Level	C_22
46	39d 55m 15s	75d 14m 52s	Upland Street & Cobbs Creek Parkway	Cobbs Creek	Cobbs Creek Low Level	C_23
47	39d 55m 1s	75d 14m 49s	Woodland Avenue East of Island Ave.	Cobbs Creek	Cobbs Creek Low Level	C_25
49	39d 54m 44s	75d 14m 56s	Claymont Street & Grays Avenue	Cobbs Creek	Cobbs Creek Low Level	C_29
50	39d 54m 34s	75d 15m 1s	77th Street West of Elmwood Avenue	Cobbs Creek	Cobbs Creek Low Level	C_30
78	39d 54m 49s	75d 14m 50s	Island Ave. Southeast of Glenmore Ave	Cobbs Creek	Cobbs Creek Low Level	C_28A
75	39d 57m 59s	75d 11m 3s	16th St. & Clearfield St.	Schuylkill River	Main Relief Sewer	S_FRM
83	39d 56m 31s	75d 14m 25s	56th St. & Locust	Cobbs Creek	Thomas Run Relief Sewer	C_FRTR
84	39d 57m 49s	75d 14m 53s	Arch Street & Cobbs Creek	Cobbs Creek	Arch Street Relief Sewer	C_FRA

Table 2 - Overflow Summary for 7/1/2023 – 6/30/2024

District	Permitted Outfall	Frequency	Duration (hours)	Volume (ft^3)
Northeast	D_FRW	51	190.75	40,255,740
Northeast	D02	22	73	10,988,480
Northeast	D03	30	72.75	3,023,035
Northeast	D04	24	40.25	567,582
Northeast	D05	47	215	81,549,829
Northeast	D06	21	23	558,709
Northeast	D07	53	200.5	33,390,144
Northeast	D08	19	20.5	248,743
Northeast	D09	14	9.75	184,064
Northeast	D11	18	33.5	3,631,941
Northeast	D12	50	119	378,032
Northeast	D13	8	7.5	152,814
Northeast	D15	21	47	1,879,675
Northeast	D17	47	175.25	13,130,341
Northeast	D18	39	126.25	7,066,486
Northeast	D19	49	203	7,845,538
Northeast	D20	32	79.5	3,817,231
Northeast	D21	49	172.5	11,867,181
Northeast	D22	73	373	34,792,520
Northeast	D23	37	64	277,079
Northeast	D25	61	338.5	133,710,873
Northeast	F_FRFG	1	0.25	46.98423314
Northeast	F03	23	27.75	1,424,081
Northeast	F04	52	202.5	7,813,023
Northeast	F05	50	171.25	996,518
Northeast	F06	25	35.5	1,082,691
Northeast	F07	38	86.5	2,814,603
Northeast	F08	34	73.5	2,037,276
Northeast	F09	62	222.25	1,826,280
Northeast	F10	20	39.75	1,455,472
Northeast	F11	63	298	16,395,636
Northeast	F12	33	45.75	538,865
Northeast	F13	48	125.25	1,759,883
Northeast	F21	65	397.25	134,370,659
Northeast	F23	42	146.25	1,925,881
Northeast	F24	53	131.5	1,138,868

District	Permitted Outfall	Frequency	Duration (hours)	Volume (ft^3)
Northeast	F25	16	33.25	3,715,752
Northeast	P01	19	20.25	405,083
Northeast	P02	56	150.75	4,531,687
Northeast	P03	34	68.75	894,615
Northeast	P04	16	64	3,688,714
Northeast	P05	30	101.5	7,223,330
Northeast	T_FRRR	36	216	46,264,030
Northeast	T01	69	341.5	11,743,421
Northeast	T03	52	178.25	4,325,070
Northeast	T04	47	136.25	2,204,304
Northeast	T05	43	88.5	1,568,080
Northeast	T06	35	74.25	7,187,241
Northeast	T07	17	12	153,382
Northeast	T08	56	223.75	44,852,328
Northeast	T09	37	59.25	893,030
Northeast	T10	57	241.25	4,462,148
Northeast	T11	44	113.75	1,045,643
Northeast	T12	8	4.75	35,475
Northeast	T13	40	142.75	4,820,780
Northeast	T14	39	285.75	255,817,987
Northeast	T15	52	160	7,430,401
Southeast	D37	47	233.5	18,799,481
Southeast	D38	38	154	20,317,173
Southeast	D39	47	208.75	34,777,943
Southeast	D40	51	209	1,503,013
Southeast	D41	36	122.75	1,368,482
Southeast	D42	12	10.75	61,779
Southeast	D43	17	22.5	85,321
Southeast	D44	26	62.75	3,005,165
Southeast	D45	36	132.25	68,973,866
Southeast	D46	28	67	875,752
Southeast	D47	56	221.5	8,403,191
Southeast	D48	35	99.75	13,935,491
Southeast	D49	6	4.25	18,730
Southeast	D50	10	9.5	82,046
Southeast	D51	49	166	1,503,308
Southeast	D51A	45	129.25	1,197,919

District	Permitted Outfall	Frequency	Duration (hours)	Volume (ft^3)
Southeast	D52	29	44	438,451
Southeast	D53	19	24.5	2,481,807
Southeast	D54	27	50.5	14,111,727
Southeast	D58	30	45.75	1,513,644
Southeast	D61	48	93.25	1,240,818
Southeast	D62	34	48	447,693
Southeast	D63	34	69.5	15,540,300
Southeast	D64	41	92.25	784,289
Southeast	D65	38	112	19,139,035
Southeast	D66	56	194.75	20,088,909
Southeast	D67	37	176.25	10,962,476
Southeast	D68	42	175.25	39,921,695
Southeast	D69	30	93.5	14,664,506
Southeast	D70	30	81.75	21,285,266
Southeast	D71	22	50	7,055,548
Southeast	D72	23	53.75	8,422,786
Southeast	D73	47	241.5	41,361,814
Southwest	C_FRA	12	11.5	711,571
Southwest	C_FRTR	80	480.5	24,989,337
Southwest	C01	26	25.5	274,845
Southwest	C02	1	0.5	1,268
Southwest	C04A	31	35.5	608,191
Southwest	C05	2	2	16,351
Southwest	C06	53	130.25	3,486,821
Southwest	C07	37	45.25	570,799
Southwest	C09	40	98	1,770,766
Southwest	C10	35	101	695,515
Southwest	C11	46	160.75	17,333,846
Southwest	C12	41	132.25	1,821,018
Southwest	C13	36	86.25	957,864
Southwest	C14	34	92	2,186,841
Southwest	C15	10	11	72,793
Southwest	C16	1	0.25	8.715713093
Southwest	C17	47	174.25	27,525,005
Southwest	C18	37	59.5	1,775,891
Southwest	C19	18	14.25	307,576
Southwest	C20	17	16.25	200,670

District	Permitted Outfall	Frequency	Duration (hours)	Volume (ft^3)
Southwest	C21	9	9.25	140,815
Southwest	C22	39	86.75	1,476,283
Southwest	C23	10	29	210,669
Southwest	C25	19	66.5	1,858,266
Southwest	C28A	38	59.25	275,733
Southwest	C29	31	124	2,144,163
Southwest	C30	22	93.5	589,890
Southwest	C31	44	118	1,139,824
Southwest	C32	51	108.25	1,324,782
Southwest	C33	34	34.25	332,417
Southwest	C34	13	12	145,521
Southwest	C35	6	3.5	16,130
Southwest	C36	5	3.25	17,028
Southwest	C37	22	18.25	59,588
Southwest	S_FRM	11	21.5	4,151,318
Southwest	S01	40	154.25	13,080,922
Southwest	S02	49	152	1,091,301
Southwest	S03	1	0.5	941
Southwest	S04	61	220.5	1,997,163
Southwest	S05	77	384	38,179,526
Southwest	S06	54	187.25	12,849,333
Southwest	S07	34	79.5	2,539,462
Southwest	S08	37	79.5	229,001
Southwest	S09	41	117.75	9,367,246
Southwest	S10	66	314	3,835,729
Southwest	S11	64	231	1,706,955
Southwest	S12A	50	129.25	1,269,010
Southwest	S13	23	22.5	260,348
Southwest	S14	53	281	1,977,927
Southwest	S15	33	49	301,732
Southwest	S16	57	173	1,169,368
Southwest	S17	33	51.25	649,771
Southwest	S18	56	186.75	7,706,042
Southwest	S19	34	47.25	318,394
Southwest	S20	73	331.75	19,630,610
Southwest	S21	35	58.5	169,354
Southwest	S22	52	159.75	3,094,641

District	Permitted Outfall	Frequency	Duration (hours)	Volume (ft^3)
Southwest	S23	61	227	2,289,373
Southwest	S24	25	42	250,311
Southwest	S25	47	141.75	2,609,597
Southwest	S26	65	273.75	17,297,292
Southwest	S30	7	5.75	48,529
Southwest	S31	42	117	2,181,946
Southwest	S32	18	16.75	124,888
Southwest	S33	52	315	14,280,026
Southwest	S36A	66	286.25	7,334,098
Southwest	S37	63	237	3,198,444
Southwest	S38	30	40.75	2,732,953
Southwest	S42	54	198.25	20,011,409
Southwest	S42A	69	390	20,140,201
Southwest	S44	40	147	9,710,283
Southwest	S45	32	78.25	15,734,047
Southwest	S46	20	46.75	1,129,569
Southwest	S50	62	373.75	157,719,161

Table 3 - Overflow Summary for Typical Year Precipitation (based on Year-10 EAP submission)

District	Permitted Outfall	Frequency	SWO Duration (hrs)	Overflow Volume (MG)
Northeast	D_FRW	50	172.5	160
Northeast	D02	14	39	48.6
Northeast	D03	18	38.5	12.4
Northeast	D04	12	27.75	2.8
Northeast	D05	48	212	377.3
Northeast	D06	11	15.75	3
Northeast	D07	51	191.25	133.1
Northeast	D08	8	10.25	1
Northeast	D09	7	5	1.1
Northeast	D11	6	17.75	14.3
Northeast	D12	48	101.75	2.2
Northeast	D13	7	8	1.1
Northeast	D15	14	35	11.3
Northeast	D17	45	156.5	65.4
Northeast	D18	41	108.75	37.4
Northeast	D19	52	207.75	41
Northeast	D20	27	56.75	19.8
Northeast	D21	48	164.5	63.2
Northeast	D22	70	427.75	212.1
Northeast	D23	42	77	2.7
Northeast	D25	62	374.75	858.7
Northeast	F_FRFG	0	0	0
Northeast	F03	12	17.25	5
Northeast	F04	55	192.5	32
Northeast	F05	51	158	4.3
Northeast	F06	18	27.75	4.9
Northeast	F07	38	68.25	12.5
Northeast	F08	33	55.75	9.4
Northeast	F09	61	223.75	9.2
Northeast	F10	15	31.5	6.8
Northeast	F11	60	314.5	81.6
Northeast	F12	24	37	3.3
Northeast	F13	43	100.5	9.2
Northeast	F21	58	429.5	688.5
Northeast	F23	39	119.25	8.2
Northeast	F24	50	109.25	5.1
Northeast	F25	11	21.5	18.4
Northeast	P01	10	13	3.7
Northeast	P02	43	111.5	17.4
Northeast	P03	22	41.5	3.7

District	Permitted Outfall	Frequency	SWO Duration (hrs)	Overflow Volume (MG)
Northeast	P04	10	33.75	13.8
Northeast	P05	19	60.75	31.4
Northeast	T_FRRR	33	169.75	195.9
Northeast	T01	62	330	53.4
Northeast	T03	58	164.5	18.7
Northeast	T04	46	108	8.6
Northeast	T05	42	64.75	6.5
Northeast	T06	23	46	27.2
Northeast	T07	8	6.5	0.8
Northeast	T08	60	219.5	196.9
Northeast	T09	32	39.5	3.6
Northeast	T10	61	245.75	20.8
Northeast	T11	47	81.25	4.2
Northeast	T12	7	4	0.1
Northeast	T13	38	119.5	18.4
Northeast	T14	35	165.75	1091.3
Northeast	T15	48	134	32.2
Southeast	D37	52	291.5	161.2
Southeast	D38	43	177.5	160.2
Southeast	D39	48	238	235.8
Southeast	D40	57	264.75	15.4
Southeast	D41	38	135	14.5
Southeast	D42	15	16.25	1.3
Southeast	D43	19	28.75	1.5
Southeast	D44	20	52	32.7
Southeast	D45	38	134	412.1
Southeast	D46	24	53.75	6.9
Southeast	D47	55	223.75	50.5
Southeast	D48	28	65	72.9
Southeast	D49	7	5	0.4
Southeast	D50	7	6.75	0.8
Southeast	D51	44	148.5	7.2
Southeast	D51A	39	102.5	7.4
Southeast	D52	22	33.5	2.6
Southeast	D53	9	15.75	14.8
Southeast	D54	19	30	63.2
Southeast	D58	19	29.75	6.8
Southeast	D61	37	70.5	5.2
Southeast	D62	19	28.25	1.9
Southeast	D63	22	42.25	61.9
Southeast	D64	34	64.5	3.3
Southeast	D65	31	83.5	75

District	Permitted Outfall	Frequency	SWO Duration (hrs)	Overflow Volume (MG)
Southeast	D66	50	179.5	85.6
Southeast	D67	36	159	45.8
Southeast	D68	40	161.5	167.9
Southeast	D69	23	62	54.2
Southeast	D70	21	52	78.3
Southeast	D71	12	25.75	26.5
Southeast	D72	13	27	32.8
Southeast	D73	47	234.75	189.1
Southwest	C_FRA	11	8	5.9
Southwest	C_FRTR	75	481.75	162.3
Southwest	C01	15	14.75	1.9
Southwest	C02	2	0.75	0.01
Southwest	C04A	17	19.5	3.6
Southwest	C05	1	0.75	0.1
Southwest	C06	41	80.5	19.3
Southwest	C07	20	22	3.6
Southwest	C09	30	54.75	10
Southwest	C10	25	53.25	3.4
Southwest	C11	38	99.5	91
Southwest	C12	32	78	9.7
Southwest	C13	22	46.75	5.6
Southwest	C14	23	55.75	12
Southwest	C15	7	6.75	0.4
Southwest	C16	1	0.25	0.0001
Southwest	C17	44	130	148.8
Southwest	C18	28	37	10.4
Southwest	C19	10	9.5	2.2
Southwest	C20	10	9.75	1.2
Southwest	C21	4	5.25	0.6
Southwest	C22	29	49.75	8.1
Southwest	C23	5	14.5	0.9
Southwest	C25	14	35.25	9
Southwest	C28A	30	41	1.7
Southwest	C29	22	82	11.5
Southwest	C30	18	58.75	3
Southwest	C31	33	67	6.3
Southwest	C32	36	64.5	7.7
Southwest	C33	19	18.5	2.2
Southwest	C34	11	7.5	1.1
Southwest	C35	6	3.5	0.2
Southwest	C36	4	2.5	0.2
Southwest	C37	13	11	0.5

District	Permitted Outfall	Frequency	SWO Duration (hrs)	Overflow Volume (MG)
Southwest	S_FRM	8	14	59.0
Southwest	S01	36	104.5	74.4
Southwest	S02	41	102.5	6.5
Southwest	S03	2	1	0.1
Southwest	S04	56	180.75	12.4
Southwest	S05	72	385	267.8
Southwest	S06	53	145.75	78.2
Southwest	S07	22	40.75	15.9
Southwest	S08	29	48.5	1.4
Southwest	S09	35	75.75	55.6
Southwest	S10	64	303	25.6
Southwest	S11	58	198.5	10.6
Southwest	S12A	43	90.25	7.7
Southwest	S13	16	13.25	2.3
Southwest	S14	51	236.5	12.2
Southwest	S15	21	30	2.1
Southwest	S16	56	137.25	7.3
Southwest	S17	21	32.25	4.3
Southwest	S18	50	153.5	47.7
Southwest	S19	25	29.5	2.1
Southwest	S20	63	313	128.2
Southwest	S21	27	35	1.4
Southwest	S22	46	114	18.7
Southwest	S23	54	196.5	14.8
Southwest	S24	13	22	1.8
Southwest	S25	43	106.5	16.4
Southwest	S26	59	264.75	110.7
Southwest	S30	6	4.5	0.5
Southwest	S31	42	80.75	14.6
Southwest	S32	11	10.5	1
Southwest	S33	53	310.75	96.2
Southwest	S36A	64	288	52.6
Southwest	S37	58	218	21.8
Southwest	S38	21	25.75	19.7
Southwest	S42	50	176	120.6
Southwest	S42A	61	386.75	142.1
Southwest	S44	39	123.5	62.1
Southwest	S45	24	46.5	95
Southwest	S46	13	24.75	8.2
Southwest	S50	62	349.25	1033.6

Table 4 - July 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
7/1/2023	0	0	0	0	0.07	0	0	0	0	0	0	0.037	0	0	0.002	0	0	0
7/2/2023	0.133	0.04	0	0.004	0.23	0.02	0.02	0.01	0.01	0	0.015	0.225	0.006	0.04	0.015	0.03	0.03	0.01
7/3/2023	0.144	0.12	0.01	0.02	0.08	0.03	0.02	0.02	0.05	0.07	0.021	0.127	0.021	0.05	0.047	0.09	0.02	0.02
7/4/2023	0.837	0.15	0.16	0.054	1.44	0.09	0.02	0.04	0.17	0.11	0.043	1.129	0.122	0.07	0.085	0.12	0.04	0.01
7/5/2023	0.223	0.03	0	0	0.08	0	0	0	0.01	0.01	0	0.544	0.001	0	0.006	0	0	0
7/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/7/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/8/2023	0.291	0.38	0.15	0.103	0.04	0.64	0.3	0.39	0.1	0.02	0.46	0.083	0.278	0.22	0.54	0.94	0.83	0.07
7/9/2023	0.944	1.04	0.91	0.96	1.12	1.73	0.95	0.83	1.24	1.52	0.959	1.068	1.042	1.1	1.129	1.02	1.21	0.41
7/10/2023	0	0	0	0.009	0	0	0.07	0	0	0	0.015	0.002	0.005	0.44	0.243	0	0.01	0
7/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/14/2023	0.227	0.02	0.04	0.078	0.16	0.1	0.08	0.05	0	0.47	0.087	0.098	0.11	0.1	0.17	0.07	0.13	0.17
7/15/2023	0	0	0	0.003	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/16/2023	1.711	1.07	0.9	1.024	1.42	1.14	0.79	0.95	1.37	0.88	0.906	1.467	0.889	0.94	0.65	1.12	0.84	1.1
7/17/2023	0.002	0.01	0	0.007	0	0	0	0	0.01	0.01	0.002	0	0.003	0	0	0	0.01	0
7/18/2023	0	0	0	0.018	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/19/2023	0.206	0.25	0.3	0.268	1.03	0.29	0.25	0.23	0.25	0.21	0.258	0.89	0.292	0.5	0.2	0.4	0.33	0.28
7/20/2023	0	0	0.29	0.412	0	0	0	0	0	0.02	0.011	0	0.19	0	0	0	0	0
7/21/2023	0.575	0.62	0.57	0.496	0.78	0.59	0.53	0.4	0.84	0.41	0.461	0.72	0.546	0.6	0.34	0.64	0.57	0.56
7/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/25/2023	0.777	1.13	0.31	0.357	0.43	0.81	0.59	0.64	0.69	0.89	0.586	0.55	0.49	0.83	0.4	0.75	0.54	0.72
7/26/2023	0.002	0.01	0.01	0.001	0	0.01	0	0	0.01	0.01	0	0	0	0	0	0.01	0	0.01
7/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/28/2023	0.295	0.33	0.2	0.173	0.21	0.22	0.31	0.23	0.19	0.23	0.232	0.28	0.19	0.27	0.08	0.2	0.26	0.35
7/29/2023	0.262	0.1	0.21	0.139	0.14	0.13	0.02	0.08	0.11	0.24	0.086	0.28	0.1	0.01	0.02	0.16	0.08	0.05
7/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5 - July 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
7/1/2023	0	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0	0	0	0
7/2/2023	0	0	0	0	0.15	0.02	0.167	0	0	0.04	0.02	0.009	0.005	0.021	0.038	0.013	0	0.007	0.23
7/3/2023	0.01	0	0	0.05	0.15	0.24	0.111	0.04	0.01	0.18	0.17	0.032	0.09	0.181	0.095	0.049	0.03	0.023	0.192
7/4/2023	0	0.11	0	0.53	0.99	0.02	0.903	0.03	0.02	0.02	0	0.049	0.091	0.034	0.29	0.283	0.08	0.062	0.812
7/5/2023	0	0	0	0	0.24	0	0.299	0	0	0	0.01	0.002	0.007	0.001	0.044	0.023	0.06	0.018	1.14
7/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/7/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/8/2023	0.27	0	0.16	0.25	0.28	0.02	0.247	0.57	0.02	0.01	0.64	0.314	0.063	0.045	0.339	0.355	0.54	0.363	0.118
7/9/2023	0.73	1.13	0.86	0.72	0.92	1.06	1.061	1.18	0.87	1.21	2.18	1.008	1.369	1.336	1.004	1.126	1.64	1.194	1.01
7/10/2023	0	0	0	0	0	0	0.003	0.3	0	0	0	0.014	0.002	0	0.002	0.004	0	0.004	0
7/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/14/2023	0.1	0.02	0	0	0.28	0.42	0.106	0.03	0.06	0.11	0	0.138	0.394	0.64	0.036	0.04	0.06	0.076	0.02
7/15/2023	0	0	0	0	0	0.12	0	0	0	0.05	0	0.001	0.019	0	0	0	0	0	0
7/16/2023	0.94	0.98	0.26	1.61	1.86	1.02	1.377	0.78	1.1	1.02	1.78	0.94	0.927	1.015	1.249	1.316	1.18	0.997	1.55
7/17/2023	0	0	0	0	0	0	0.001	0	0.01	0	0.01	0.003	0.007	0.001	0.007	0.002	0	0	0
7/18/2023	0	0.01	0	0	0	0	0	0	0.03	0	0	0	0.001	0.002	0	0	0	0	0
7/19/2023	0.21	0.22	0.04	0.63	0.17	0.06	0.719	0.24	0.27	0.18	0.14	0.233	0.194	0.126	0.338	0.389	0.18	0.207	0.78
7/20/2023	0	0.5	0	0	0	0.25	0	0	0.54	0.33	0	0.024	0.088	0.267	0	0.001	0	0	0
7/21/2023	0.48	0.39	0.19	0.68	0.56	0.42	0.697	0.43	0.5	0.43	0.57	0.453	0.433	0.435	0.635	0.635	0.58	0.517	0.66
7/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/25/2023	0.81	0.33	0.901	0.38	0.71	1.04	0.619	0.67	0.23	1.05	1.29	0.679	0.84	0.926	0.885	0.656	0.93	0.814	0.72
7/26/2023	0	0	0	0	0	0	0.002	0	0	0.01	0.01	0.001	0.007	0.003	0.007	0.003	0	0.005	0
7/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/28/2023	0.342	0.24	0.312	0.28	0.29	0.42	0.25	0.31	0.12	0.2	0.6	0.247	0.261	0.32	0.302	0.266	0.31	0.289	0.31
7/29/2023	0.116	0.07	0.181	0.12	0.3	0.13	0.175	0.03	0.15	0.15	0.36	0.118	0.203	0.12	0.12	0.133	0.19	0.131	0.23
7/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 6 – August 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
8/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/4/2023	0.002	0.01	0	0.001	0	0.03	0	0	0.05	0.01	0.003	0	0.01	0	0	0	0	0.02
8/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/6/2023	0.16	0.21	0.02	0.02	0.07	0.23	0.04	0.05	0.21	0.02	0.041	0.08	0.03	0.06	0.03	0.08	0.03	0.07
8/7/2023	1.309	1.34	1.38	1.282	1.47	1.17	0.99	1.03	1.59	1.41	1.09	1.25	1.16	1.2	0.75	1.46	1.1	1.23
8/8/2023	0.001	0	0	0	0.02	0.01	0	0	0	0	0	0.01	0	0.02	0	0.01	0	0
8/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/10/2023	0.782	0.71	1.26	1.222	0.88	0.97	1.24	1.53	0.94	1.53	1.553	0.94	1.62	0.88	0.45	0.78	1.82	1.16
8/11/2023	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
8/12/2023	0.027	0	0.05	0.037	0.08	0.01	0	0	0	0.13	0	0.14	0.01	0	0	0	0	0
8/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/14/2023	0.025	0.03	0.01	0.005	0	0.02	0.01	0.01	0.02	0.04	0.01	0	0.01	0	0	0.02	0.01	0.01
8/15/2023	0.003	0	0.36	0.328	0	0.07	0.25	0.51	0.03	0.16	0.5	0	0.41	0.02	0	0.01	0.4	0.1
8/16/2023	0.293	0.3	0.06	0.055	0.52	0.5	0.16	0.18	0.84	0.13	0.21	0.026	0.13	0.19	0.23	0.64	0.09	0.26
8/17/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/18/2023	0.019	0.02	0.07	0.071	0	0.03	0.1	0.08	0	0.07	0.12	0.006	0.09	0	0	0.11	0.07	0
8/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/24/2023	0.063	0.07	0.03	0.045	0.02	0.07	0.08	0.09	0	0.04	0.1	0.029	0.04	0.06	0.01	0.03	0.1	0.04
8/25/2023	0.031	0.03	0.1	0.093	0.01	0.05	0.06	0.13	0.01	0.1	0.1	0.028	0.08	0.02	0.01	0.02	0.1	0.04
8/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/27/2023	0	0	0	0.009	0	0	0.14	0.01	0	0	0.02	0	0	0.01	0	0	0.1	0
8/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30/2023	0.246	0.26	0.12	0.15	0.13	0.08	0.11	0.17	0.13	0.15	0.22	0.188	0.15	0.18	0.12	0.26	0.18	0.1
8/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 7 - August 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
8/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/4/2023	0.108	0	0.182	0.07	0	0	0.002	0.01	0	0	0	0.008	0	0	0.09	0.072	0	0.62	0
8/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/6/2023	0.091	0	0.221	0.34	0.15	0.01	0.099	0.06	0.02	0	0.09	0.042	0.02	0	0.41	0.288	0.28	0.14	0.09
8/7/2023	1.274	1.17	1.356	1.5	1.261	1.27	1.421	1	1.33	1.22	1.56	1.167	1.33	1.27	1.26	1.363	1.31	1.47	1.56
8/8/2023	0	0	0	0	0.006	0	0.012	0	0	0.01	0	0	0	0.01	0	0.001	0	0	0.01
8/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/10/2023	1.167	1.3	0.943	1.1	0.924	1.38	0.913	0.72	1.07	1.35	0.98	1.442	1.18	1.335	0.92	0.973	0.78	1.22	1.14
8/11/2023	0.001	0	0	0	0	0	0	0	0	0	0.01	0.002	0	0	0	0	0	0	0
8/12/2023	0.007	0.03	0.035	0	0.086	0.08	0.087	0	0.04	0.04	0	0.022	0.21	0	0	0.01	0.06	0	0.2
8/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0
8/14/2023	0.014	0	0.02	0.02	0.017	0.08	0.008	0.01	0	0.01	0.02	0.016	0.08	0.11	0.02	0.02	0.02	0.02	0.01
8/15/2023	0.171	0.21	0.047	0.01	0.004	0.07	0.005	0.25	0.36	0.25	0.08	0.405	0.08	0.26	0	0.028	0.02	0.08	0
8/16/2023	0.255	0.03	0.285	0.78	0.231	0.04	0.362	0.35	0.02	0.02	0.17	0.18	0.11	0.06	0.5	0.553	0.24	0.34	0.03
8/17/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/18/2023	0.073	0.09	0.127	0	0.017	0.08	0.021	0.09	0.06	0.24	0.18	0.096	0.07	0.07	0	0.029	0.14	0.13	0.01
8/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/24/2023	0.057	0.07	0.045	0.14	0.057	0.09	0.032	0.03	0.03	0.11	0.1	0.081	0.06	0.15	0.09	0.08	0.05	0.03	0.04
8/25/2023	0.104	0.19	0.212	0.04	0.037	0.14	0.024	0.07	0.07	0.12	0.22	0.105	0.18	0.134	0.02	0.062	0.27	0.15	0.05
8/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/27/2023	0.008	0	0	0	0	0	0	0	0	0	0	0.019	0	0	0	0	0	0	0
8/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30/2023	0.17	0.11	0.216	0.11	0.237	0.17	0.189	0.1	0.16	0.13	0.05	0.181	0.2	0.05	0.15	0.146	0.24	0.23	0.26
8/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 8 – September 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
9/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/7/2023	0	0	0.06	0.044	0	0	0.03	0	0	0	0	0	0.01	0.02	0.02	0	0.01	0.01
9/8/2023	0.198	0.09	0	0.013	0.49	0.24	0.09	0.07	0.07	0.01	0.06	0.466	0.03	0.08	0.15	0.34	0.04	0.04
9/9/2023	0.415	0.84	0.2	0.227	0.76	0.48	0.24	0.13	0.456	0.13	0.1	0.812	0.07	0.74	0.34	0.43	0.44	0.54
9/10/2023	1.461	0.91	2.13	2.118	2.89	0.44	2.6	1.91	0.518	2.71	1.99	2.643	2.289	2.1	1.57	1.76	3	0.47
9/11/2023	0.078	0.1	0.25	0.233	0.15	0.27	0.23	0.23	0.176	0.19	0.24	0.135	0.247	0.18	0.15	0.2	0.24	0.11
9/12/2023	0	0	0	0.001	0	0	0	0	0	0.01	0	0	0	0.1	0	0	0	0
9/13/2023	0.117	0.1	0.21	0.189	0.11	0.13	0.23	0.19	0.14	0.19	0.29	0.19	0.19	0.12	0.08	0.14	0.17	0.16
9/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/17/2023	0.647	0.51	0.46	0.307	0.42	0.51	0.45	0.58	0.49	0.53	0.55	0.469	0.44	0.6	0.33	0.462	0.45	0.57
9/18/2023	0.57	0.62	0.72	0.772	0.51	0.57	0.67	0.65	0.67	0.64	0.62	0.509	0.67	0.68	0.35	0.532	0.69	0.61
9/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2023	0.93	1.32	0.84	1.16	1.05	1.14	0.94	0.98	1.147	0.96	0.92	0.56	1.04	0.88	0.62	1.12	0.87	0.77
9/24/2023	0.841	0.87	0.99	0.98	1.22	1.99	1.16	1.31	1.857	1.18	1.18	1.06	1.13	0.83	1.21	1.75	0.92	2.2
9/25/2023	0.104	0.12	0.17	0.3	0.11	0.08	0.09	0.1	0.076	0.18	0.1	0.04	0.15	0.1	0.05	0.08	0.07	0.08
9/26/2023	0.014	0.07	0.02	0.06	0.05	0.01	0.02	0.02	0.013	0.03	0.02	0.01	0.03	0.04	0.02	0.04	0.03	0
9/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/28/2023	0.051	0.1	0.18	0.24	0.11	0.05	0.12	0.12	0.04	0.19	0.13	0.08	0.15	0.22	0.04	0.13	0.17	0.04
9/29/2023	0.199	0.22	0.45	0.78	0.3	0.36	0.49	0.36	0.304	0.42	0.52	0.38	0.46	0.72	0.21	0.31	0.82	0.37
9/30/2023	0.002	0.01	0.01	0.01	0	0.01	0.02	0.01	0	0.01	0.01	0	0.01	0	0	0.01	0.01	0

Table 9 - September 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
9/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/7/2023	0	0.01	0	0	0	0	0	0.02	0.06	0.13	0	0.004	0	0	0	0	0	0	0
9/8/2023	0.25	0	0.572	0.31	0.21	0	0.388	0.27	0	0	0.76	0.081	0	0.01	0.29	0.31	0.82	0.29	0.46
9/9/2023	0.56	0.28	0.822	0.39	0.31	0.02	0.705	0.23	0.22	0.22	0.54	0.179	0.1	0.04	0.28	0.481	0.81	1.06	0.91
9/10/2023	0.63	2.37	0.605	0.58	1.55	3.26	2.27	2.27	1.88	2.15	0.81	1.97	2.29	2.706	0.56	0.675	0.63	0.43	2.44
9/11/2023	0.06	0.24	0.159	0.19	0.07	0.3	0.147	0.21	0.22	0.35	0.41	0.235	0.72	0.34	0.27	0.208	0.19	0.08	0.12
9/12/2023	0	0	0	0	0	0	0	0	0	0	0.01	0.001	0	0	0	0	0	0	0
9/13/2023	0.17	0.22	0.157	0.11	0.12	0.2	0.128	0.12	0.18	0.21	0.22	0.227	0.18	0.197	0.14	0.129	0.16	0.14	0.14
9/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/17/2023	0.62	0.23	0.589	0.53	0.69	0.49	0.48	0.58	0.21	0.23	0.56	0.542	0.61	0.435	0.37	0.495	0.56	0.67	0.53
9/18/2023	0.55	0.93	0.498	0.6	0.56	0.64	0.529	0.67	0.81	0.84	0.48	0.629	0.55	0.685	0.56	0.575	0.46	0.53	0.51
9/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2023	0.88	0.92	1.04	1.18	0.84	0.67	1.019	1.21	0.81	1.03	0.93	0.938	0.908	0.808	1.26	1.164	1.17	1.05	1.1
9/24/2023	1.66	0.73	2.41	1.63	0.82	0.96	1.198	2.01	0.91	0.97	1.77	1.256	1.148	0.994	1.13	1.772	2.32	2.11	1.02
9/25/2023	0.06	0.22	0.06	0.08	0.1	0.11	0.102	0.09	0.22	0.31	0.08	0.105	0.159	0.167	0.103	0.079	0.08	0.05	0.15
9/26/2023	0.01	0.01	0	0.02	0	0.01	0.038	0.08	0.01	0.03	0.01	0.018	0.024	0.017	0.046	0.019	0.01	0	0.03
9/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/28/2023	0.04	0.12	0.04	0.02	0.04	0.03	0.097	0.08	0.1	0.12	0.06	0.126	0.148	0.076	0.077	0.047	0.06	0.06	0.09
9/29/2023	0.39	0.8	0.27	0.27	0.19	0.68	0.298	0.38	0.88	1.08	0.28	0.463	0.482	0.74	0.241	0.29	0.25	0.29	0.3
9/30/2023	0.01	0	0.01	0.01	0	0	0.004	0.01	0.01	0	0.01	0.01	0.002	0.002	0.008	0.008	0.01	0.01	0.01

Table 10 - October 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
10/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/3/2023	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
10/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/6/2023	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
10/7/2023	0	0	0.01	0.02	0	0.14	0.01	0.01	0.11	0.01	0.01	0.01	0.01	0.03	0	0.02	0.01	0.01
10/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/9/2023	0	0	0.01	0.01	0	0.05	0.03	0.02	0.038	0.05	0.02	0.01	0.01	0	0	0	0.02	0.03
10/10/2023	0	0	0.01	0.01	0	0	0	0	0.003	0.01	0	0	0.01	0	0	0	0	0
10/11/2023	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0
10/12/2023	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
10/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/14/2023	0.399	0.49	0.52	0.42	0.41	0.59	0.45	0.46	0.573	0.72	0.48	0.2	0.54	0.31	0.22	0.45	0.37	0.44
10/15/2023	0.038	0.07	0.12	0.15	0.08	0.09	0.12	0.1	0.086	0.08	0.1	0.05	0.12	0.14	0.07	0.11	0.11	0.09
10/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/2023	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/18/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/20/2023	0.077	0.13	0.16	0.12	0.14	0.03	0.18	0.15	0.033	0.21	0.19	0.16	0.16	0.16	0.08	0.15	0.15	0.11
10/21/2023	0.001	0	0.03	0.02	0.04	0	0.05	0.04	0.001	0.06	0.01	0.04	0.02	0.05	0.03	0.04	0.06	0.01
10/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/2023	0.002	0.01	0.07	0.03	0	0.03	0.02	0.031	0.02	0.08	0.05	0	0.07	0	0	0	0.01	0.03
10/30/2023	0.032	0.04	0.08	0.06	0.03	0.11	0.07	0.08	0.1	0.08	0.1	0.04	0.11	0.05	0.03	0.07	0.09	0.09
10/31/2023	0.1	0.15	0.1	0.09	0.07	0.12	0.1	0.108	0.123	0.13	0.12	0.06	0.09	0.07	0.05	0.14	0.09	0.13

Table 11 - October 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
10/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/3/2023	0	0	0	0	0	0	0	0	0	0	0	0.001	0	0	0	0	0	0	0
10/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/6/2023	0	0.05	0	0	0	0	0	0	0	0.01	0	0.001	0	0.004	0	0	0	0	0
10/7/2023	0.03	0	0	0.07	0	0.01	0	0.04	0	0.02	0	0.01	0	0.01	0.021	0.062	0.03	0.09	0.01
10/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/9/2023	0.06	0.01	0.06	0.02	0	0.03	0	0.02	0.02	0.03	0.06	0.026	0.06	0.031	0.007	0.036	0.1	0.04	0.02
10/10/2023	0.01	0	0	0.01	0	0	0	0	0	0.01	0.01	0.003	0.01	0.003	0.002	0.005	0	0.01	0
10/11/2023	0	0	0	0	0	0	0	0	0	0	0	0.004	0	0	0	0	0	0	0
10/12/2023	0	0	0	0	0	0	0	0	0	0	0	0.001	0	0	0	0	0	0	0
10/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/14/2023	0.66	0.46	0.69	0.54	0.38	0.6	0.405	0.48	0.46	0.75	0.83	0.522	0.67	0.624	0.5	0.592	0.84	0.71	0.43
10/15/2023	0.06	0.1	0.05	0.08	0.03	0.07	0.072	0.14	0.1	0.11	0.07	0.102	0.19	0.096	0.071	0.08	0.07	0.08	0.05
10/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/18/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/20/2023	0.06	0.11	0	0.03	0.06	0.13	0.14	0.13	0.15	0.15	0.02	0.161	0.17	0.14	0.099	0.047	0.02	0.04	0.17
10/21/2023	0.01	0	0	0	0	0	0.029	0.04	0.03	0	0	0.026	0.04	0.01	0.001	0.003	0.01	0	0.02
10/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/2023	0.1	0.04	0.11	0	0	0.07	0.001	0.01	0.06	0.12	0.13	0.06	0.13	0.083	0	0.028	0.14	0.08	0
10/30/2023	0.06	0.07	0.09	0.09	0.03	0.08	0.042	0.06	0.09	0.09	0.1	0.088	0.09	0.082	0.06	0.076	0.08	0.06	0.05
10/31/2023	0.12	0.07	0.06	0.13	0.09	0.07	0.087	0.14	0.1	0.12	0.08	0.115	0.12	0.09	0.13	0.119	0.09	0.11	0.07

Table 12 - November 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
11/1/2023	0.02	0.02	0.03	0.05	0.02	0.01	0.03	0.03	0.014	0.02	0.03	0.03	0.03	0.03	0.01	0.02	0.03	0.02
11/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/7/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/10/2023	0.042	0.05	0.01	0.01	0.04	0.01	0.01	0.014	0.01	0.01	0.02	0.05	0.01	0.01	0.01	0.03	0.01	0.01
11/11/2023	0.002	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/17/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/18/2023	0.004	0.02	0.01	0	0	0	0.01	0.01	0	0.01	0.01	0	0.01	0	0	0.01	0.01	0
11/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/21/2023	1.09	1.11	0.9	0.81	0.85	1.15	0.86	0.89	1.12	0.99	0.91	0.92	0.93	0.82	0.5	1.03	0.85	1.1
11/22/2023	0.817	0.78	1.09	1.17	0.88	1.08	0.97	0.997	1.08	1.15	1.02	0.82	1.11	1.02	0.54	1.05	1.03	0.98
11/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/26/2023	0.828	0.83	1.05	0.94	0.96	0.97	0.94	0.952	0.94	1.16	0.96	0.9	1.11	0.91	0.52	0.98	0.98	0.77
11/27/2023	0	0	0	0	0.01	0	0.01	0.005	0	0.01	0	0.01	0	0	0	0	0	0
11/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 13 - November 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
11/1/2023	0.01	0.05	0.01	0.02	0.02	0.03	0.025	0.03	0.04	0.03	0.01	0.027	0.02	0.03	0.01	0.014	0	0.01	0.04
11/2/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/3/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/7/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/10/2023	0.02	0	0.01	0.03	0.04	0	0.045	0.01	0	0.01	0.02	0.016	0.01	0.02	0.04	0.027	0.02	0.01	0.07
11/11/2023	0	0	0	0	0	0	0.001	0	0	0	0.01	0.001	0	0	0	0	0	0	0
11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/17/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/18/2023	0.01	0.01	0	0.01	0	0.01	0.003	0.01	0.02	0.01	0.03	0.009	0.02	0.02	0.01	0.006	0.01	0.01	0
11/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/21/2023	1.22	0.73	1.33	1.24	1.09	0.9	0.942	0.89	0.82	0.91	1.36	0.954	0.97	1.06	1.18	1.195	1.36	1.19	0.95
11/22/2023	1.18	1.09	1.22	1.01	0.82	1.11	0.881	1.02	1.14	1.18	1.18	1.075	1.41	1.23	0.85	1.01	1.24	1.19	0.84
11/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/24/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/26/2023	1.04	0.79	1.04	0.92	0.82	1.06	0.926	1.05	0.88	0.95	1.16	1.009	1.12	1.24	0.82	0.915	0.98	1.01	0.93
11/27/2023	0	0	0	0	0	0	0.005	0	0	0	0	0.002	0.02	0	0	0	0	0	0
11/28/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 14 – December 2023 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
12/1/2023	0.411	0.41	0.43	0.42	0.4	0.39	0.41	0.418	0.39	0.43	0.43	0.41	0.47	0.38	0.23	0.43	0.4	0.43
12/2/2023	0.002	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/3/2023	0.615	0.59	0.74	0.81	0.6	0.71	0.71	0.704	0.72	0.71	0.71	0.56	0.78	0.61	0.36	0.73	0.72	0.69
12/4/2023	0.002	0.01	0	0.01	0	0	0.01	0.009	0	0.01	0.01	0.01	0	0.01	0	0	0	0.01
12/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/7/2023	0.01	0.01	0	0	0.01	0	0	0	0	0.01	0.01	0.01	0.01	0	0	0.01	0	0
12/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/10/2023	1.533	1.44	1.32	1.31	1.59	1.36	1.29	1.39	1.5	1.41	1.367	1.63	1.36	1.42	0.88	1.54	1.37	1.2
12/11/2023	0.534	0.56	0.56	0.6	0.52	0.63	0.48	0.53	0.62	0.56	0.523	0.4	0.53	0.49	0.26	0.58	0.51	0.37
12/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/17/2023	0.847	0.97	0.78	0.88	0.71	1.09	0.76	0.85	1.01	0.81	0.823	0.58	0.84	0.75	0.48	0.92	0.77	0.82
12/18/2023	2.193	2.13	2.25	2.13	2.15	2.07	2.28	2.31	2.19	2.52	2.325	2.14	2.39	2.15	1.33	2.48	2.32	2.21
12/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/24/2023	0.004	0.02	0.01	0.01	0	0.02	0.02	0.01	0	0	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01
12/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/27/2023	1.271	1.49	0.92	1.01	1.12	1.42	0.92	0.96	1.39	1.01	0.966	0.72	1.03	0.93	0.62	1.4	0.91	1
12/28/2023	0.295	0.29	0.56	0.71	0.46	0.31	0.5	0.5	0.33	0.59	0.532	0.38	0.62	0.52	0.29	0.49	0.54	0.34
12/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 15 - December 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
12/1/2023	0.44	0.39	0.39	0.42	0.41	0.36	0.412	0.4	0.4	0.4	0.32	0.426	0.37	0.34	0.37	0.412	0.49	0.52	0.45
12/2/2023	0	0	0	0	0	0	0.001	0	0	0	0	0	0	0.01	0	0	0	0	0
12/3/2023	0.66	0.67	0.61	0.75	0.62	0.7	0.629	0.72	0.75	0.79	0.58	0.709	0.72	0.76	0.65	0.69	0.64	0.68	0.68
12/4/2023	0	0	0	0	0	0	0.004	0	0.01	0	0	0.006	0	0	0	0.001	0.01	0	0.01
12/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/6/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/7/2023	0	0	0	0	0.01	0	0.009	0	0	0	0	0.006	0.01	0	0.01	0.004	0.01	0	0.01
12/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/9/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/10/2023	1.36	1.26	1.75	1.47	1.55	1.35	1.589	1.47	1.38	1.37	1.74	1.381	1.395	1.44	1.458	1.504	1.78	1.55	1.77
12/11/2023	0.59	0.54	0.61	0.62	0.53	0.54	0.515	0.62	0.54	0.57	0.58	0.538	0.556	0.6	0.575	0.613	0.69	0.55	0.5
12/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/14/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/16/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/17/2023	1.08	0.72	1.17	1.09	0.82	0.81	0.781	0.97	0.8	0.82	1.19	0.877	0.96	0.86	1.07	1.063	1.19	1.08	0.8
12/18/2023	2.21	2.16	2.23	2.2	2.21	2.24	2.174	2.26	2.06	2.29	2.33	2.337	2.69	2.61	2	2.131	2.18	2.09	2.11
12/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/21/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/22/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/23/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/24/2023	0	0.01	0.01	0	0	0.02	0.006	0	0.01	0.01	0.01	0.007	0	0	0.02	0.009	0.01	0	0.01
12/25/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/26/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/27/2023	1.28	0.84	1.4	1.44	1.23	0.82	1.173	1.31	0.91	0.97	1.5	1.037	1.07	1.02	1.57	1.444	1.57	1.34	1.21
12/28/2023	0.42	0.61	0.37	0.29	0.29	0.52	0.415	0.52	0.54	0.63	0.48	0.512	0.58	0.68	0.24	0.304	0.34	0.34	0.41
12/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/31/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 16 - January 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
1/1/2024	0	0	0	0.01	0	0.01	0.02	0.01	0.01	0	0.01	0	0.01	0.01	0	0.01	0.01	0.01
1/2/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/6/2024	0.951	1.1	0.86	0.99	1.02	1	0.87	0.62	1.04	0.97	0.785	0.72	0.98	0.89	0.55	0.999	0.88	0.75
1/7/2024	0.08	0.08	0.08	0.11	0.08	0.09	0.06	0.08	0.09	0.1	0.075	0.05	0.09	0.07	0.03	0.068	0.06	0.05
1/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/9/2024	2.364	2.37	2.31	1.73	2.15	2.15	2.27	2.45	2.68	2.76	2.393	1.92	2.41	2.11	1.19	2.062	2.25	2.4
1/10/2024	0.001	0	0.15	0.45	0.05	0.01	0.03	0.04	0.01	0.03	0.064	0.13	0.07	0.15	0.02	0.029	0.13	0.03
1/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/12/2024	0.309	0.32	0.24	0.29	0.23	0.27	0.22	0.21	0.26	0.23	0.222	0.28	0.23	0.24	0.14	0.222	0.23	0.25
1/13/2024	0.444	0.47	0.59	0.59	0.43	0.5	0.49	0.53	0.45	0.65	0.539	0.53	0.58	0.53	0.27	0.419	0.53	0.53
1/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/15/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/23/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/24/2024	0.002	0.01	0.02	0.03	0	0.02	0.02	0.02	0.01	0.022	0.022	0.01	0.03	0.01	0.01	0.01	0.02	0.03
1/25/2024	0.227	0.22	0.22	0.23	0.22	0.2	0.2	0.2	0.2	0.19	0.21	0.23	0.25	0.2	0.11	0.18	0.19	0.2
1/26/2024	0.187	0.21	0.28	0.37	0.2	0.22	0.26	0.26	0.23	0.32	0.271	0.11	0.31	0.24	0.15	0.204	0.27	0.21
1/27/2024	0.008	0	0	0	0	0.01	0.01	0	0	0	0.001	0	0	0.01	0	0	0	0.01
1/28/2024	0.759	0.89	0.83	1	0.87	0.9	0.78	0.81	0.88	0.86	0.831	0.61	0.94	0.8	0.5	0.776	0.79	0.66
1/29/2024	0.01	0.01	0.02	0.01	0	0.03	0.01	0.02	0.03	0.03	0.017	0	0.02	0.01	0.01	0.012	0.01	0.02
1/30/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/31/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 17 - January 2024 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
1/1/2024	0	0	0	0.01	0	0	0.001	0.02	0	0	0	0.007	0	0	0.01	0.007	0	0	0
1/2/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/6/2024	0.96	0.72	1.01	1.07	0.92	0.78	0.976	1.16	0.79	0.89	1.05	0.834	0.98	0.9	0.98	1.025	1.06	1.1	0.97
1/7/2024	0.1	0.06	0.1	0.09	0.08	0.07	0.071	0.1	0.07	0.08	0.11	0.084	0.09	0.09	0.08	0.085	0.09	0.1	0.07
1/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/9/2024	2.5	2	2.95	2.63	2.38	2.4	2.133	2.56	2.13	2.42	3.24	2.507	3.03	3.02	2.37	2.519	2.9	2.67	1.99
1/10/2024	0.01	0.56	0.01	0	0	0.05	0.049	0.01	0.26	0.33	0	0.046	0	0.02	0.01	0.008	0	0.01	0.05
1/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/12/2024	0.27	0.2	0.29	0.28	0.31	0.23	0.257	0.24	0.26	0.26	0.3	0.232	0.25	0.25	0.26	0.272	0.29	0.27	0.26
1/13/2024	0.59	0.52	0.53	0.46	0.44	0.68	0.442	0.49	0.55	0.63	0.5	0.565	0.73	0.8	0.37	0.46	0.55	0.54	0.42
1/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/15/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/23/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/24/2024	0.01	0.01	0.01	0.02	0	0.02	0.004	0.02	0.02	0.01	0.02	0.019	0.03	0.02	0.02	0.017	0.02	0.01	0.01
1/25/2024	0.21	0.22	0.18	0.22	0.23	0.22	0.216	0.19	0.21	0.26	0.24	0.211	0.24	0.34	0.2	0.206	0.19	0.21	0.22
1/26/2024	0.25	0.28	0.26	0.22	0.18	0.26	0.184	0.28	0.35	0.29	0.25	0.275	0.29	0.33	0.22	0.223	0.23	0.26	0.16
1/27/2024	0.01	0.01	0	0	0.01	0	0.001	0	0.01	0.01	0.01	0.003	0.01	0	0.01	0.003	0	0	0
1/28/2024	0.87	0.77	0.88	0.92	0.73	0.81	0.815	1	0.81	0.86	0.868	0.845	0.95	0.97	0.82	0.875	0.87	0.92	0.81
1/29/2024	0.03	0.01	0.04	0.03	0.01	0.02	0.004	0.02	0.01	0.03	0.027	0.022	0.03	0.03	0.02	0.024	0.03	0.02	0.01
1/30/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/31/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 18 – February 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
2/1/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/2/2024	0.107	0.14	0.17	0.2	0.1	0.14	0.14	0.13	0.09	0.17	0.147	0.1	0.18	0.13	0.06	0.13	0.14	0.13
2/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/9/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/10/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/12/2024	0.085	0.07	0.01	0.03	0.08	0.04	0.03	0.02	0.01	0.03	0.019	0.08	0.01	0.03	0.04	0.07	0.017	0.03
2/13/2024	0.725	0.95	0.761	0.936	0.815	0.816	0.78	0.76	0.852	0.845	0.789	0.556	0.87	0.834	0.69	0.92	0.826	0.708
2/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/15/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/17/2024	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/22/2024	0.1	0.1	0.15	0.13	0.1	0.1	0.11	0.13	0.08	0.16	0.14	0.1	0.17	0.09	0.06	0.1	0.142	0.12
2/23/2024	0	0	0	0	0	0	0.01	0.01	0	0.01	0.009	0.01	0.01	0	0	0	0.008	0
2/24/2024	0.052	0.06	0.04	0.04	0.05	0.07	0.05	0.04	0.06	0.04	0.042	0.04	0.04	0.05	0.03	0.06	0.042	0.05
2/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/27/2024	0.13	0.13	0.12	0.11	0.1	0.09	0.12	0.12	0.1	0.09	0.1	0.11	0.13	0.12	0.09	0.14	0.116	0.09
2/28/2024	0.113	0.18	0.18	0.21	0.13	0.21	0.18	0.21	0.22	0.22	0.19	0.12	0.18	0.15	0.08	0.24	0.183	0.13

Table 19 - February 2024 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
2/1/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/2/2024	0.11	0.14	0.09	0.11	0.1	0.16	0.107	0.14	0.17	0.19	0.141	0.144	0.18	0.19	0.12	0.172	0.68	0.13	0.1
2/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/9/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/10/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/12/2024	0.02	0	0.032	0.03	0.09	0.02	0.075	0.04	0.01	0.01	0.024	0.02	0.02	0.01	0.05	0.037	0.03	0.04	0.08
2/13/2024	0.8	0.715	0.832	0.869	0.68	0.71	0.797	0.942	0.745	0.747	0.814	0.795	0.87	0.776	0.87	0.853	0.836	0.829	0.72
2/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/15/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/17/2024	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
2/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/22/2024	0.12	0.12	0.134	0.1	0.1	0.18	0.098	0.081	0.14	0.17	0.131	0.14	0.19	0.15	0.09	0.102	0.14	0.13	0.09
2/23/2024	0.01	0	0.004	0	0	0	0.003	0.002	0	0	0.007	0.008	0	0	0	0	0	0.01	0.01
2/24/2024	0.04	0.02	0.053	0.08	0.05	0.03	0.049	0.038	0.04	0.03	0.043	0.042	0.05	0.03	0.07	0.067	0.06	0.04	0.04
2/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/27/2024	0.06	0.1	0.077	0.14	0.13	0.07	0.11	0.099	0.12	0.11	0.07	0.102	0.09	0.1	0.14	0.117	0.07	0.09	0.11
2/28/2024	0.18	0.17	0.249	0.23	0.1	0.19	0.1	0.12	0.16	0.19	0.31	0.196	0.27	0.32	0.25	0.225	0.29	0.2	0.14

Table 20 – March 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
3/1/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2/2024	1.188	1.31	1.37	1.76	1.22	1.41	1.31	1.32	1.42	1.35	1.3	1.14	1.54	1.37	0.78	1.49	1.34	1.26
3/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5/2024	0.196	0.29	0.27	0.36	0.26	0.32	0.24	0.28	0.3	0.27	0.28	0.15	0.29	0.23	0.19	0.3	0.21	0.25
3/6/2024	0.938	1.05	1.07	1.43	1.09	0.98	0.99	1.01	0.97	1.04	1.02	0.91	1.2	1.2	0.61	1.13	1.08	0.86
3/7/2024	0.049	0.04	0.02	0.06	0.04	0.03	0.03	0.02	0.05	0.03	0.02	0.04	0.02	0.03	0.02	0.05	0.02	0.03
3/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9/2024	1.223	1.45	1.34	1.43	1.14	1.53	1.24	1.38	1.57	1.5	1.36	1.06	1.49	1.15	0.7	1.44	1.26	1.38
3/10/2024	0.009	0.01	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0	0.01	0	0.01	0	0.02	0.01	0.01
3/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/12/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/13/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/15/2024	0	0	0	0	0	0	0	0	0	0.01	0	0	0.01	0	0	0	0	0
3/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/23/2024	2.92	3.01	3.16	3.5	3.14	3.11	2.97	2.97	3.07	3.17	2.95	2.67	3.54	2.88	1.81	3.46	3.09	2.7
3/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/27/2024	0.346	0.4	0.32	0.36	0.28	0.43	0.35	0.36	0.43	0.36	0.35	0.28	0.36	0.27	0.18	0.38	0.33	0.47
3/28/2024	0.079	0.08	0.09	0.11	0.08	0.07	0.08	0.07	0.07	0.08	0.07	0.09	0.08	0.07	0.04	0.08	0.09	0.06
3/29/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/2024	0.052	0.07	0.05	0.06	0.07	0.1	0.08	0.08	0.08	0.06	0.08	0.05	0.07	0.02	0.04	0.09	0.08	0.09
3/31/2024	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0.01

Table 21 - March 2024 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
3/1/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2/2024	1.36	1.38	1.33	1.48	1.16	1.38	1.18	1.013	1.47	1.52	1.26	1.333	1.38	1.35	1.36	1.394	1.35	1.347	1.11
3/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5/2024	0.36	0.28	0.31	0.32	0.17	0.27	0.24	0.219	0.32	0.34	0.33	0.283	0.27	0.35	0.3	0.307	0.35	0.313	0.27
3/6/2024	0.93	1.15	0.95	0.98	0.9	0.97	1.08	0.78	1.15	1.26	0.94	1.024	1.05	1.09	0.95	0.973	0.97	0.945	1.07
3/7/2024	0.04	0.05	0.01	0.03	0.05	0.02	0.05	0.024	0.04	0.04	0.02	0.022	0.03	0.01	0.03	0.029	0.02	0.023	0.03
3/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9/2024	1.58	1.27	1.69	1.59	1.18	1.39	1.17	0.966	1.35	1.42	1.44	1.406	1.73	1.56	1.461	1.543	1.67	1.569	1.03
3/10/2024	0	0.01	0.01	0.01	0.01	0.01	0.01	0.004	0.01	0.02	0.04	0.005	0.01	0.01	0.009	0.008	0	0.007	0
3/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/12/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/13/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/14/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/15/2024	0	0	0	0	0	0	0	0	0	0	0.01	0.001	0	0.01	0	0	0	0	0
3/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/23/2024	2.95	2.87	3.11	3.21	2.88	2.79	3.12	2.317	2.95	3.33	2.89	3.02	3.12	3	3.059	3.135	3.26	3.068	3.05
3/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/27/2024	0.4	0.31	0.41	0.45	0.34	0.32	0.28	0.265	0.32	0.34	0.43	0.359	0.41	0.38	0.38	0.41	0.41	0.39	0.31
3/28/2024	0.06	0.08	0.06	0.08	0.08	0.08	0.07	0.054	0.09	0.09	0.06	0.072	0.07	0.07	0.1	0.077	0.06	0.07	0.08
3/29/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/2024	0.09	0.03	0.1	0.1	0.05	0.05	0.05	0.056	0.05	0.06	0.08	0.077	0.05	0.09	0.07	0.087	0.1	0.09	0.06
3/31/2024	0	0	0	0	0	0	0	0.002	0	0	0	0	0	0	0	0	0	0	0

Table 22 - April 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
4/1/2024	0.421	0.48	0.35	0.37	0.43	0.49	0.38	0.41	0.45	0.36	0.39	0.37	0.38	0.38	0.23	0.45	0.37	0.4
4/2/2024	1.255	1.24	1.09	1.2	1.27	1.25	1.04	1.09	1.23	1.09	1.09	1.16	1.18	1.1	0.66	1.35	1.09	1.08
4/3/2024	1.292	1.33	1.56	1.6	1.43	1.52	1.4	1.63	1.57	1.6	1.52	0.99	1.78	1.45	0.87	1.81	1.45	1.18
4/4/2024	0.07	0.11	0.14	0.11	0.06	0.21	0.11	0.11	0.26	0.15	0.12	0.04	0.13	0.09	0.05	0.15	0.15	0.15
4/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/9/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/10/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/11/2024	0.042	0.04	0.15	0.12	0.06	0.07	0.12	0.15	0.05	0.2	0.17	0.07	0.14	0.07	0.04	0.13	0.146	0.12
4/12/2024	0.406	0.45	0.55	0.74	0.39	0.41	0.46	0.67	0.42	0.85	0.62	0.3	0.482	0.39	0.34	0.44	0.546	0.4
4/13/2024	0	0	0.13	0.1	0	0.04	0.03	0.1	0.01	0.13	0.1	0	0.132	0.02	0.01	0.03	0.093	0.03
4/14/2024	0.014	0.03	0.03	0.01	0.01	0.02	0.01	0.03	0.03	0.04	0.04	0.02	0.03	0	0.01	0.03	0.03	0.01
4/15/2024	0.033	0.01	0.02	0.03	0.01	0.08	0.06	0.02	0.03	0.03	0.02	0.01	0.03	0.04	0.01	0.02	0.03	0.03
4/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/17/2024	0.155	0.07	0.1	0.04	0.09	0.13	0.06	0.08	0.05	0.14	0.07	0.11	0.06	0.061	0.04	0.1	0.06	0.08
4/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/20/2024	0.13	0.22	0.12	0.17	0.16	0.18	0.18	0.14	0.18	0.17	0.12	0.11	0.13	0.18	0.13	0.24	0.16	0.15
4/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/23/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/27/2024	0	0	0	0	0	0	0	0	0	0.01	0	0	0.01	0	0	0	0	0
4/28/2024	0.223	0.26	0.02	0.03	0.24	0.32	0.14	0.09	0.29	0.02	0.05	0.39	0.04	0.19	0.05	0.36	0.05	0.06
4/29/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/30/2024	0.017	0.05	0.01	0	0	0.04	0.01	0.04	0.01	0.02	0.04	0	0.02	0.01	0.02	0.05	0.01	0.05

Table 23 – April 2023 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
4/1/2024	0.41	0.29	0.426	0.51	0.41	0.32	0.44	0.303	0.31	0.34	0.39	0.39	0.37	0.34	0.471	0.469	0.42	0.44	0.44
4/2/2024	1.07	1	1.115	1.25	1.26	1.08	1.24	0.857	1.07	1.16	1.04	1.091	1.17	1.02	1.235	1.211	1.11	1.14	1.28
4/3/2024	1.65	1.55	1.495	1.64	1.26	1.46	1.51	1.123	1.55	1.8	1.69	1.582	1.87	1.79	1.424	1.55	1.55	1.47	1.53
4/4/2024	0.17	0.11	0.19	0.27	0.06	0.14	0.05	0.085	0.14	0.13	0.18	0.129	0.15	0.2	0.152	0.232	0.31	0.26	0.06
4/5/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/9/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/10/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/11/2024	0.12	0.1	0.1	0.06	0.04	0.1	0.05	0.073	0.16	0.17	0.19	0.158	0.22	0.24	0.048	0.068	0.08	0.08	0.1
4/12/2024	0.4	0.66	0.53	0.53	0.39	0.47	0.38	0.392	0.67	1.39	0.57	0.611	0.61	1.21	0.464	0.5	0.67	0.46	0.76
4/13/2024	0.12	0.04	0.09	0.03	0	0.06	0.004	0.022	0.07	0.04	0.12	0.101	0.08	0.04	0.009	0.037	0.08	0.05	0
4/14/2024	0.04	0.01	0.01	0.04	0.01	0.03	0.018	0.014	0.02	0.04	0.07	0.035	0.05	0.09	0.029	0.029	0.02	0.01	0.02
4/15/2024	0.02	0.02	0.03	0.03	0.04	0.03	0.011	0.021	0.02	0.02	0.02	0.024	0.03	0.03	0.017	0.037	0.04	0.04	0.03
4/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/17/2024	0.19	0.04	0.19	0.06	0.18	0.08	0.06	0.057	0.06	0.1	0.05	0.086	0.1	0.086	0.1	0.096	0.14	0.12	0.15
4/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/20/2024	0.15	0.13	0.07	0.2	0.11	0.12	0.16	0.147	0.16	0.15	0.03	0.133	0.1	0.04	0.16	0.17	0.13	0.13	0.11
4/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/23/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/26/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/27/2024	0.01	0	0	0	0	0	0	0	0	0	0.06	0.003	0.01	0.002	0	0	0	0	0
4/28/2024	0.19	0.018	0.07	0.43	0.2	0.01	0.43	0.099	0.02	0.01	0.084	0.068	0.02	0.019	0.16	0.277	0.23	0.13	0.3
4/29/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/30/2024	0.02	0.006	0.01	0.02	0.01	0	0.02	0.024	0	0.01	0.022	0.031	0.01	0.006	0.03	0.027	0.04	0.03	0

Table 24 – May 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
5/1/2024	0.042	0.01	0.01	0.06	0.04	0.01	0.01	0	0.01	0.01	0	0.03	0.01	0.02	0.01	0.01	0.01	0
5/2/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/4/2024	0.266	0.27	0.22	0.29	0.23	0.32	0.24	0.25	0.25	0.25	0.24	0.23	0.27	0.19	0.15	0.31	0.23	0.27
5/5/2024	0.136	0.18	0.12	0.13	0.1	0.23	0.14	0.16	0.22	0.19	0.13	0.1	0.14	0.1	0.07	0.17	0.11	0.21
5/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/8/2024	0.038	0.12	0.08	0.08	0.02	0.09	0.07	0.06	0.08	0.11	0.07	0.01	0.11	0.07	0.02	0.06	0.07	0.05
5/9/2024	0.01	0.01	0.04	0.02	0	0.02	0.03	0.04	0.01	0.041	0.04	0.01	0.04	0	0	0.01	0.03	0.03
5/10/2024	0.32	0.38	0.39	0.44	0.31	0.39	0.4	0.33	0.38	0.4	0.33	0.25	0.4	0.24	0.18	0.38	0.29	0.36
5/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/12/2024	0.105	0.13	0.18	0.17	0.09	0.09	0.13	0.17	0.08	0.19	0.19	0.1	0.22	0.06	0.06	0.12	0.17	0.09
5/13/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/14/2024	0.058	0.09	0.08	0.05	0.07	0.08	0.06	0.07	0.11	0.081	0.08	0.07	0.09	0.06	0.03	0.09	0.08	0.07
5/15/2024	0.245	0.24	0.33	0.5	0.27	0.24	0.27	0.27	0.18	0.301	0.27	0.21	0.3	0.34	0.21	0.26	0.28	0.19
5/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/18/2024	0.127	0.17	0.16	0.23	0.14	0.14	0.16	0.14	0.13	0.158	0.15	0.14	0.158	0.16	0.08	0.15	0.16	0.12
5/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/23/2024	0.13	0.24	0.35	0.23	0.16	0.05	0.08	0.079	0.03	0.249	0.086	0.12	0.275	0.072	0.03	0.09	0.07	0.17
5/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/26/2024	0.008	0.02	0	0	0.01	0	0	0	0	0.058	0	0	0	0	0.01	0.17	0	0
5/27/2024	0.412	0.48	0.48	0.32	0.36	0.59	0.37	0.39	0.46	0.637	0.419	0.2	0.462	0.35	0.2	0.46	0.41	0.78
5/28/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/29/2024	0.033	0.03	0.09	0.04	0.01	0.14	0.08	0	0.08	0.12	0.033	0.03	0.06	0.01	0.02	0	0.04	0.13
5/30/2024	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0
5/31/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 25 - May 2024 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
5/1/2024	0	0.017	0	0.01	0.05	0.01	0.04	0.008	0.01	0.02	0.002	0.002	0	0.011	0.01	0.01	0.01	0	0.04
5/2/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/4/2024	0.3	0.14	0.32	0.28	0.27	0.2	0.24	0.195	0.2	0.16	0.22	0.25	0.26	0.16	0.29	0.287	0.33	0.31	0.25
5/5/2024	0.22	0.12	0.26	0.23	0.13	0.2	0.11	0.107	0.13	0.13	0.12	0.152	0.28	0.28	0.182	0.217	0.24	0.21	0.1
5/6/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/8/2024	0.1	0.06	0.04	0.06	0.02	0.04	0.05	0.038	0.08	0.08	0.08	0.077	0.09	0.07	0.14	0.081	0.04	0.05	0.02
5/9/2024	0.04	0.02	0.05	0.01	0.01	0.041	0.01	0.01	0.03	0.04	0.07	0.037	0.05	0.06	0.02	0.019	0.04	0.03	0.02
5/10/2024	0.41	0.37	0.42	0.39	0.31	0.412	0.27	0.36	0.37	0.42	0.36	0.348	0.47	0.45	0.4	0.385	0.42	0.39	0.32
5/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/12/2024	0.12	0.11	0.09	0.1	0.1	0.161	0.09	0.1	0.17	0.13	0.19	0.173	0.19	0.2	0.12	0.106	0.14	0.1	0.11
5/13/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/14/2024	0.09	0.05	0.06	0.1	0.05	0.069	0.06	0.06	0.06	0.07	0.05	0.076	0.08	0.06	0.11	0.095	0.09	0.08	0.07
5/15/2024	0.2	0.31	0.19	0.22	0.24	0.298	0.3	0.26	0.34	0.31	0.26	0.26	0.27	0.24	0.11	0.189	0.18	0.21	0.25
5/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/18/2024	0.12	0.19	0.11	0.14	0.12	0.166	0.13	0.14	0.18	0.18	0.13	0.145	0.16	0.12	0.14	0.136	0.15	0.12	0.15
5/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.002	0	0	0
5/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/22/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/23/2024	0.11	0.1	0.12	0.04	0.11	0.14	0.12	0.07	0.21	0.08	0.1	0.11	0.12	0.16	0.05	0.082	0.22	0.16	0.16
5/24/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/26/2024	0	0.17	0	0	0	0.221	0.1	0.03	0.11	0.36	0	0.01	0.26	0.17	0.01	0.006	0	0	0.01
5/27/2024	0.79	0.39	0.67	0.46	0.4	0.607	0.36	0.41	0.35	0.53	0.67	0.621	1.08	0.783	0.469	0.526	0.69	0.63	0.35
5/28/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/29/2024	0.21	0.07	0.18	0.12	0.03	0.161	0.08	0.05	0.05	0.19	0.27	0.08	0.29	0.17	0.05	0.117	0.32	0.15	0.02
5/30/2024	0.01	0	0	0	0	0.002	0	0	0.01	0	0.01	0.001	0	0.01	0	0.001	0	0	0
5/31/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 26 - June 2024 PWD Rain Gage Records

Date/RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
6/1/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/2/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/3/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/4/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/5/2024	1.67	1.22	0.58	0.6	1.52	0.57	0.67	0.68	0.71	0.564	0.684	1.4	0.65	0.89	0.7	1.082	0.75	0.61
6/6/2024	0.034	0.01	0.077	0.07	0.02	0.01	0.07	0.069	0.01	0.087	0.08	0.03	0.1	0.08	0.05	0.034	0.07	0.03
6/7/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/8/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/9/2024	0	0	0.04	0	0	0	0	0.002	0	0	0.017	0	0.03	0	0	0	0.01	0.01
6/10/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/11/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/12/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/13/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/14/2024	0.022	0.03	0.47	0.17	0.02	0.062	0.15	0.216	0	1.87	0.423	0.03	0.24	0.253	0.059	0.063	0.52	0.28
6/15/2024	0	0	0	0	0	0	0.01	0.008	0	0	0.001	0	0	0	0	0	0	0
6/16/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/17/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/18/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/19/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/20/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/21/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/22/2024	0	0	0.03	0.33	0	0	0.6	0.508	0	0.1	0.253	0	0.15	0.02	0	0.013	0.3	0.11
6/23/2024	0.357	0.32	0	0.2	0.21	0.13	0.26	0.236	0.18	0.01	0.146	0.54	0.07	0.45	0.15	0.133	0.23	0.17
6/24/2024	0	0	0.01	0	0	0	0	0	0	0.04	0.002	0	0	0	0	0	0	0
6/25/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/26/2024	0.611	0.83	0.45	0.489	0.56	0.25	0.52	0.504	0.35	0.51	0.493	0.35	0.41	0	0.38	0.42	0.61	0.32
6/27/2024	0.05	0.05	0.15	0.184	0.05	0.06	0.12	0.117	0.06	0.14	0.126	0.07	0.14	0.02	0.04	0.053	0.12	0.08
6/28/2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/29/2024	0.372	0.26	0.18	0.165	0.13	0.23	0.16	0.16	0.22	0.15	0.158	0.24	0.16	0.02	0.09	0.157	0.15	0.2
6/30/2024	1.908	2.22	0.53	0.492	2.12	1.31	0.52	0.57	1.21	0.52	0.555	2.07	0.59	0.26	0.83	1.478	0.51	0.69

Table 27 - June 2024 PWD Rain Gage Records

Date/RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
6/1/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/2/2023	0	0.07	0.16	0.02	0	0	0.012	0.05	0.058	0.13	0.01	0.078	0	0	0.03	0.052	0.11	0.096	0
6/3/2023	0	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0	0	0.02
6/4/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/5/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/6/2023	0.01	0	0.01	0	0	0	0.006	0.01	0	0	0	0.001	0	0	0	0.026	0.2	0.07	0.02
6/7/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/8/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/9/2023	0.01	0.02	0	0	0	0.03	0	0	0.018	0.06	0.02	0.005	0.05	0.12	0	0	0	0	0
6/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/12/2023	1.33	0.92	1.821	1.359	0.6	1.27	0.711	0.97	1.079	1	1.38	1.12	1.257	1.21	0.929	1.469	1.97	1.618	0.55
6/13/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/14/2023	0.08	0.05	0.106	0.32	0.15	0.04	0.152	0.28	0.061	0.07	0.09	0.092	0.071	0.09	0.162	0.226	0.1	0.13	0.2
6/15/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/16/2023	0.51	0.94	0.579	0.98	1.14	1.01	1.045	1.18	1.27	1.1	0.41	1.257	1.295	1.085	1.182	0.9	0.54	0.684	1.02
6/17/2023	0	0	0	0	0	0.01	0	0	0.02	0	0	0	0.002	0.006	0	0	0	0	0
6/18/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/19/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/20/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/21/2023	0.02	0	0.064	0.12	0.17	0	0.161	0.07	0.01	0	0.02	0.035	0.012	0.004	0.161	0.116	0.07	0.073	0.22
6/22/2023	0	0	0.008	0	0	0	0.002	0	0.02	0	0.01	0.004	0.009	0.001	0.001	0.002	0.01	0.005	0.01
6/23/2023	0.82	1.01	1.552	1.91	0.58	1.66	0.771	0.43	1.27	1.7	1.74	1.119	1.165	1.574	1.247	1.627	1.68	1.395	0.666
6/24/2023	0.05	0.03	0.143	1.3	0.01	0.03	0.115	0.18	0.04	0.04	0.08	0.144	0.061	0.044	0.59	0.796	0.09	0.346	0.014
6/25/2023	0.14	0.4	0.178	1.13	0.07	1.33	0.516	0.25	1.03	0.7	0.84	1.729	2.341	1.29	0.377	0.712	0.08	0.274	0.184
6/26/2023	0.94	1.27	1.203	1.36	0.67	2.29	0.684	0.71	1.35	1.51	1.69	1.143	2.214	1.941	1.112	1.239	1.23	1.139	0.543
6/27/2023	1.25	1.9	0.824	1.51	1.04	2.16	1.218	1.44	1.7	2.42	1.42	1.34	1.869	2.109	1.355	1.283	0.65	1.117	1.11
6/28/2023	0	0.01	0	0	0	0	0.001	0	0.01	0	0	0	0	0	0.006	0.003	0	0.002	0
6/29/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/30/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 28 - Rain Gage records by year and month for FY24

Date/ RG	RG1	RG2	RG3	RG4	RG5	RG6	RG7	RG8	RG9	RG10	RG11	RG12	RG13	RG14	RG15	RG16	RG17	RG18
Jul23	6.629	5.3	4.06	4.126	7.23	5.8	3.95	3.87	5.05	5.1	4.142	7.5	4.285	5.17	3.927	5.55	4.9	3.76
Aug23	2.961	2.98	3.46	3.318	3.2	3.24	3.18	3.79	3.82	3.8	3.967	2.697	3.74	2.64	1.6	3.42	4	3.03
Sep23	5.627	5.88	6.69	7.434	8.17	6.28	7.38	6.66	5.957	7.38	6.73	7.354	6.916	7.41	5.14	7.304	7.93	5.97
Oct23	0.649	0.89	1.12	0.93	0.77	1.16	1.03	0.999	1.087	1.46	1.09	0.57	1.14	0.81	0.48	0.98	0.91	0.94
Nov23	2.803	2.82	3.09	2.98	2.76	3.22	2.83	2.898	3.164	3.36	2.95	2.73	3.2	2.79	1.58	3.12	2.91	2.88
Dec23	7.717	7.93	7.57	7.89	7.56	8	7.38	7.681	8.15	8.06	7.706	6.85	8.04	7.28	4.46	8.59	7.55	7.08
Jan24	5.342	5.68	5.6	5.81	5.25	5.41	5.24	5.25	5.89	6.162	5.44	4.59	5.92	5.27	2.98	4.991	5.37	5.15
Feb24	1.482	1.8	1.601	1.826	1.545	1.636	1.59	1.59	1.582	1.735	1.606	1.286	1.76	1.574	1.22	1.83	1.644	1.428
Mar24	7	7.71	7.72	9.09	7.33	7.99	7.31	7.5	7.97	7.89	7.43	6.4	8.6	7.23	4.37	8.44	7.51	7.12
Apr24	4.058	4.29	4.27	4.52	4.15	4.76	4	4.56	4.58	4.81	4.35	3.57	4.544	3.981	2.46	5.16	4.185	3.74
May24	1.93	2.37	2.53	2.56	1.81	2.4	2.04	1.959	2.02	2.795	2.038	1.5	2.535	1.672	1.07	2.28	1.95	2.47
Jun24	5.024	4.94	2.517	2.7	4.63	2.622	3.08	3.07	2.74	3.991	2.938	4.73	2.54	1.993	2.299	3.433	3.27	2.5
Total	**51.22**	**52.59**	**50.23**	**53.18**	**54.41**	**52.52**	**49.01**	**49.83**	**52.01**	**56.54**	**50.39**	**49.78**	**53.22**	**47.82**	**31.59**	**55.10**	**52.13**	**46.07**

Date/ RG	RG19	RG20	RG21	RG22	RG23	RG24	RG25	RG26	RG27	RG28	RG29	RG30	RG31	RG32	RG33	RG34	RG35	RG36	RG37
Jul23	4.008	4	2.904	5.25	6.9	5.24	6.767	4.61	3.93	4.99	7.78	4.265	5.001	5.473	5.391	5.294	5.78	4.707	7.772
Aug23	3.5	3.2	3.689	4.11	3.027	3.41	3.175	2.69	3.16	3.5	3.46	3.766	3.52	3.459	3.46	3.625	3.41	4.43	3.4
Sep23	5.89	7.08	7.232	5.92	5.5	7.37	7.403	8.23	6.52	7.67	6.93	6.784	7.321	7.217	5.335	6.252	7.53	6.77	7.81
Oct23	1.17	0.91	1.06	0.97	0.59	1.06	0.776	1.06	1.01	1.41	1.3	1.12	1.48	1.173	0.891	1.048	1.38	1.22	0.82
Nov23	3.48	2.67	3.61	3.23	2.79	3.11	2.828	3.01	2.9	3.09	3.77	3.093	3.57	3.6	2.91	3.167	3.61	3.42	2.83
Dec23	8.04	7.2	8.54	8.28	7.67	7.36	7.708	8.27	7.4	7.85	8.73	7.836	8.351	8.32	7.963	8.175	8.91	8.15	7.96
Jan24	5.81	5.36	6.26	5.95	5.29	5.54	5.153	6.09	5.47	6.07	6.615	5.65	6.63	6.77	5.37	5.724	6.23	6.11	4.97
Feb24	1.51	1.435	1.641	1.729	1.42	1.53	1.509	1.632	1.555	1.617	1.71	1.617	1.84	1.746	1.76	1.743	2.276	1.639	1.46
Mar24	7.77	7.43	7.98	8.25	6.82	7.28	7.25	5.7	7.75	8.42	7.5	7.602	8.12	7.92	7.719	7.963	8.19	7.822	7.01
Apr24	4.56	3.974	4.326	5.07	3.97	3.9	4.373	3.217	4.25	5.36	4.516	4.442	4.79	5.113	4.299	4.703	4.82	4.36	4.78
May24	2.72	2.117	2.51	2.16	1.84	2.728	1.96	1.838	2.3	2.7	2.532	2.342	3.6	2.944	2.111	2.259	2.87	2.44	1.87
Jun24	2.9	2.39	2.61	2.56	5.1	2.18	4.524	2.394	2.47	3.04	2.46	3.062	3.21	2.52	4.133	2.849	2.53	2.34	4.658
Total	**51.36**	**47.77**	**52.36**	**53.48**	**50.92**	**50.71**	**53.43**	**48.74**	**48.72**	**55.72**	**57.30**	**51.58**	**57.43**	**56.26**	**51.34**	**52.80**	**57.54**	**53.41**	**55.34**

Table 29 - SSO Statistics for Period July 1 2023 – June 30 2024

Main & Shurs					
Event No.	**Start of Overflow Date Time**	**End of Overflow Date Time**	**Event Duration (hours:mins)**	**Flow Volume (ft^3)**	**Flow Volume (Millions of gallons)**
0			0	0	0

PC-30					
Event No.	**Start of Overflow Date**	**End of Overflow Date**	**Event Duration (hours:mins)**	**Flow Volume (ft^3)**	**Flow Volume (Millions of gallons)**
1	12/18/23 5:12	12/18/23 5:42	0:30	5299	0.03964093
2	12/18/23 7:02	12/18/23 9:42	2:40	105261	0.787460169
3	1/9/24 22:12	1/10/24 2:45	4:32	228516	1.709525146
4	3/23/24 12:30	3/23/24 17:05	4:35	229844	1.719463002

Appendix E – PCB PMP 17th Annual Report

PHILADELPHIA WATER DEPARTMENT

PCB

Pollutant Minimization Plan

Seventeenth Annual Report
Calendar Year 2023

Table of Contents

1 PMP Achievement Executive Summary

The Philadelphia Water Department (PWD) submitted its PCB Pollutant Minimization Plan (PCB PMP) on September 30, 2005 and was issued a Completeness Determination letter on January 12, 2006. PWD initiated the actions called for in its PCB PMP on March 4, 2006.

PWD's PCB PMP set out the following approaches to achieving PCB minimization:

- ❖ Sample three Water Pollution Control Plants' effluent every two years and analyze using Method 1668A.
- ❖ Visit and inspect three hundred ninety-nine (399) sites listed by either EPA or other agencies as housing PCB-containing devices and report the number of devices that have been removed from each site, both prior to our inspection and subsequent to it.
- ❖ Visit and inspect thirty-one (31) sites listed by the Philadelphia Department of Public Health as having previously undergone some type of PCB remediation activity and report the number of sites removed from the list as posing no threat of PCB discharge to PWD's sewer system.
- ❖ Report any reductions in PCB concentrations in the wastestreams from our three Water Treatment Plants by measuring PCBs in the ferric chloride used in the treatment process as well as reductions of PCBs in the source water (Delaware River or Schuylkill River).
- ❖ Continue the sewershed PCB trackdown sampling program for each of our three Water Pollution Control Plants.

Revisions to the original PMP have been made over the years. Refer to the First through the Sixteenth Annual Reports for specific information on PMP efforts during Years 1 - 16. No changes to the PMP were made in Year 17 (2023). Year 17 efforts are detailed in the attached report.

During the seventeenth year of PWD's PCB PMP, the following tasks were performed:

- ❖ Wet-weather PCB sampling and analysis of the three Water Pollution Control Plants' (WPCPs') effluent was performed as required by PWD's NPDES permits. See Section 7, "Tabular Summary", for data.

- ❖ PWD inspected hundred thirty-eight (138) of the three hundred thirty-seven (337) sites remaining on the list by EPA or other agencies as housing PCB-containing devices. This exceeds the goal of 70 site inspections per year. These inspections identified locations where a total of 11 devices had been removed from 6 locations. Historical information for these sites will be retained, but they will be removed from the schedule for future inspection.

- ❖ PWD wet weather and dry weather WPCP effluent data have been entered into the DRBC PCB database.

- ❖ Significant reductions in WPCP effluent PCB loadings were seen over the course of the PMP (see "Tabular Summary"). However, there was an unusually high concentrations found at SWWPCP in April 2023.

Additionally, the following initiatives were undertaken:

- ❖ PWD's PCB database was developed in 2017 and is now being populated. The database was utilized to track and report the 2023 inspections. Currently, the database allows PWD to track "active" sites (where Liquid Cooled Electrical Equipment (LCEE) devices are still located on site) versus "inactive" sites (where LCEE devices were previously located but have been removed). Each location has been given a unique ID and has been geocoded in PWD's GIS database.

- ❖ In 2023, PWD continued to monitor outlying township connection points for PCBs using EPA Method 680. Six (6) township connections, two (2) in Cheltenham Township, Montgomery County, three (3) in Springfield Township, and one (1) in Upper Darby Township were sampled and the results were all below the method detection limits.

- In 2023, PWD received nineteen (19) groundwater discharge permit applications, and a total of eighteen (18) new groundwater discharge permits were issued. All permittees except one reported non-detectable PCBs by EPA Method 608. One of the permittees reported a detection of Arochlor 1424 above the method detection limit in the groundwater and/ or accumulated stormwater discharged to the City's sewer system during August 2023. The laboratory re-extracted a sample aliquot from the original sample volume, and the result of Arochlor 1424 was below the method's detection limit. This first detectable result was deemed a false positive under the original analysis. Additional sample results following this incident have been reported as non-detect by EPA Method 608.

2 Facility and Contact Information

Facility Name and Address:	Philadelphia Water Department 1101 Market Street Philadelphia, PA 19107
Water Pollution Control Plants:	Northeast WPCP 3899 Richmond St. Philadelphia, PA 19137
	Southeast WPCP 25 Pattison Ave. Philadelphia, PA 19148
	Southwest WPCP 8200 Enterprise Ave. Philadelphia, PA 19153
Contact Person:	Jennifer L. Moore Manager Industrial Waste & Backflow Compliance 1101 Market St., 6th Floor Philadelphia, PA 19107
	Phone: 215-685-6085 Fax: 215-685-6232 Email: jennifer.l.moore@phila.gov
Date of Submittal of PMP:	September 30, 2005
Date of Completeness Determination:	January 12, 2006
Date of Initiation of PMP:	March 4, 2006
Reporting Period:	Year 17 (Calendar Year 2023)

3 Revisions to PMP

During Year 17, no revisions were made to the PMP.

4 Material and Process Modifications

During Year 17 of the PMP, there were no material or process modifications made relevant to PCB minimization.

5 Measures to Address Known, Probable and Potential Sources

5.1 Known and Probable Sources

Two known sources of PCBs were identified in PWD's PCB PMP. These were the source water for PWD's Water Treatment Plants (Delaware and Schuylkill Rivers) and the ferric chloride supplied to PWD by DuPont and used in the water treatment process. A change of ferric chloride supplier in Year 5 resulted in a 95% reduction in PCB content of the product used by PWD in its water treatment process.

A probable source of PCBs identified in PWD's PCB PMP is sludge stored in lagoons at both NEWPCP and SWWPCP. Trackdown efforts conducted in the sewersheds of both NEWPCP and SWWPCP included sampling of the lagoons. The data are available in Attachment B of the Year 5 report.

5.2 Potential Sources

5.2.1 Historical Potential Sources:

Numerous potential sources of PCBs were identified in PWD's PCB PMP. These were identified from databases supplied by EPA, the Philadelphia Fire Department, the Philadelphia Department of Public Health, and others. The thirty-one (31) potential sources supplied by the Philadelphia Department of Public Health were identified as sites at which some form of prior PCB remediation had taken place. All thirty-one (31) of these sites were inspected during Year 1 of the PMP.

The remaining potential sources of PCBs, taken from information supplied by EPA and others, were identified as sites on which PCB devices were believed to be present. These sites were separated into three groups by sewershed (NEWPCP, SEWPCP or SWWPCP). Approximately one hundred sixty-seven (167), seventy-three (73) and one hundred fifty-seven (157) sites were listed for NEWPCP, SEWPCP and SWWPCP, respectively. During 2023 (Year 17 of the PMP), PWD's Industrial Waste group inspected forty-eight (48) of the NEWPCP-related sites, twenty-four (24) of the SEWPCP-related sites and sixty-six (66) of the SWWPCP-related sites.

Details of these inspections are summarized in the Tables, "Inspections of Potential Source Sites" in Attachment B of this report.

Inspections confirmed 11 devices have been removed from the 6 locations. Historical information for these sites will be retained, but the sites will be removed from the schedule for future inspection.

5.2.2 New Construction and Groundwater Remediation Sites:

In an effort to minimize the volume of PCBs entering the City's sewer system, PWD requires PCB monitoring in all Groundwater Discharge Permits. These permits are used to regulate specific pollutants of concern from groundwater discharges to the City's sewer system. Generally, these permits are for remediation sites with groundwater contaminated with petroleum products, such as former gasoline stations. However, all temporary discharges from construction activities are permitted under the Groundwater Discharge Permit Program. The Groundwater Discharge Permits require all contractors and/or subcontractors to monitor their discharges monthly for PCBs via sampling and to report their activities and results. All Groundwater Discharge Permits include PWD's regulatory PCB limit of "non-detectable by EPA Method 608" limitation. All PCB detections require additional monitoring by the contractor or subcontractor to show compliance with the permit limitation.

- In 2023, PWD received nineteen (19) groundwater discharge permit applications, and a total of eighteen (18) new groundwater discharge permits were issued. All permittees except one reported non-detectable PCBs by EPA Method 608. One of the permittees reported a detection of Arochlor 1424 above the method detection limit in the groundwater and/ or accumulated stormwater discharged to the City's sewer system during August 2023. The laboratory re-extracted a sample aliquot from the original sample volume, and the result of Arochlor 1424 was below the method's detection limit. This first detectable result was deemed a false positive under the original analysis. Additional sample results following this incident have been reported as non-detect by EPA Method 608.

5.2.3 Township Connections

PWD has agreements with the surrounding townships to convey and treat township wastewater, which is ultimately discharged at NEWPCP, SEWPCP and SWWPCP. Part of the agreement includes sampling the respective township's wastewater at the connection to the City's sewer system (i.e., near Philadelphia border).

In 2023, PWD sampled six (6) township connections, two (2) in Cheltenham Township, Montgomery County, three (3) in Springfield Township, and one (1) in Upper Darby Township. The township samples were analyzed using EPA Method 680 to determine if there are PCB loadings entering the City through the surrounding township connections. Results of these sampling events, presented in Attachment C, were all below the detection limits. PWD is preparing to monitor additional township connections in 2024.

5.2.4 Manholes

Utilities may obtain a manhole pumpout permit for permission to discharge wastewater from the underground infrastructure to the City's sanitary and combined sewers. The Manhole Permits require all utilities or subcontractors to monitor their discharges monthly for PCBs via sampling and to report their activities and results. All Manhole Permits include PWD's regulatory PCB limit of "non-detectable by EPA Method 608" limitation. All PCB detections require additional monitoring by the contractor or subcontractor to show compliance with the permit limitation.

- In 2023, eight (8) manhole pumpout permits were active. All discharging permittees reported non-detectable PCBs results.

6 Incremental and Cumulative Changes from the Baseline Loading

6.1 Loading Baseline

PWD's PCB PMP provides the following baseline loadings (see Section 7, "Tabular Summary):

WPCP	Baseline Loading (mg/day)
NEWPCP	11,510
SEWPCP	7,559
SWWPCP	10,970

These loadings differ from those found in the TMDL. This is because the data are from different sampling events, the PMP baseline loadings are weighted by wet versus dry weather results, the analyses are for different numbers of congeners and there is a difference in analytical methods.

6.2 Baseline Loading Reduction – Direct Measurement

During Year 17, wet-weather effluent sampling for PCBs was performed at each of PWD's three Water Pollution Control Plants (WPCPs), as required by PWD's NPDES permits. See Section 7 ("Tabular Summary") for data. The numerical data sets are presented in Section 7, Tables 7.1 through 7.4. This data is presented in graphical form in Appendix A, Figures A1 through A3.

Loadings for the NEWPCP for 2023 were generally comparable to those calculated in Year 7 (2013), Year 8 (2014), Year 9 (2015), Year 13 (2019), and Year 16 (2022). Results of the 2023 sampling for NEWPCP show substantial reductions of 77.6% from the baseline PCB loading levels.

Loadings for the SEWPCP for 2023 were generally comparable to those calculated in Year 4 (2010), Year 8 (2014), Year 10 (2016), Year 13 (2019), Year 14 (2020) and Year 15 (2021). Results of the 2023 sampling for SEWPCP show substantial reductions of 68-76% from the baseline PCB loadings.

Loadings for the SWWPCP for two (2) of the three (3) sample dates in 2023 were not comparable to those calculated in previous years. Following the wet weather sample results in September 2022 and December 2022 at SWWPCP that were unusually higher than any results previously reported, samples were taken in early 2023. Total PCB Homolog concentration data from the extreme anomalous result in December 2022 has been reported in the Table 7.4 but not compared in the 2023 graph shown in Figure A3. Reductions in the loading calculations were found in the first sample from February 2023. SWWPCP loadings from this February 2023 sample was comparable to Year 7 (2013), Year 10 (2016), Year 14 (2020), and Year 15 (2021). The April 2023 sample showed very high di, tri-, tetra-, penta-, hexa- and hepta- homologs. Additional sampling was conducted in September 2023 and the result shows the cumulative reductions on the loadings is 21% from the baseline. The loadings in the final sample from 2023 were decreased but they were not comparable to previous years reduction percentages for PCB result reported since the PMP was implemented in 2005. The September 2023 sample showed high di-, tri-, tetra-, penta-, hexa- and hepta- homologs. PWD continues to investigate the correlation between elevated total PCB concentration, errors in calculations, laboratory errors, and solids interference in the WPCP discharges as well as other potential sources that may have contributed to the high results.

PWD explored the PCB homolog contribution for wet and dry weather samples and the wet weather homolog contribution from 2012-2023 for all three plants are presented in Figure A4 through A6. The average percent contribution by homolog for both dry and wet weather samples collected between 2012 and 2023 was compared to that in 2023 for each plant. These homolog percentages are presented in Attachment A, Figures A7 through A9. For 2023, Northeast tends to have high contributions from di-, tri-, tetra-, penta- hexa-, and hepta-, homologs. The 2023 NEWPCP octa- homolog contribution was elevated in comparison to the last 4 years. Northeast also shows decreased contributions from nona- and deca- homologs. Southwest and Southeast tends to have increased contributions from tri-, tetra-, penta-, and hexa- homologs. Northeast and Southwest also tend to have similar patterns in wet and dry weather, whereas at the Southeast plant, the data showed consistency between samples. PWD plans to continue to explore these types of patterns in the 2024 data to see if the trends continue or if others emerge.

6.3 Baseline Loading Reduction – Other Measures of Progress

See Attachment B ("Potential Sources and Inspection Findings"). A report with results from 2023 inspections is shown in this section. This report was developed from the PCB database. PWD will continue to update and refine this report with the annual drainage maps associated with the inspections conducted in future reports.

Six (6) township connections, two (2) in Cheltenham Township, Montgomery County, three (3) in Springfield Township, and one (1) in Upper Darby Township were sampled in 2023 using EPA Method 680 and the results were all below the method detection limits. Cheltenham Township, Montgomery County drains to the NEWPCP and Springfield Township drains to the NEWPCP and SEWPCP, and Upper Darby goes to SWWPCP. The results have been provided in Table C1. In 2024, additional outlying township connections sampling is planned.

7 Tabular Summary

The subsequent pages provide a summary of the PCB loading calculations for NEWPCP, SEWPCP and SWWPCP, along with the total and penta-PCB concentration results for each of the treatment plant effluents in 2023. Also, included are the annual range and median concentrations for dry weather monitoring at the respective plants.

Table 7.1
Summary of PCB Loadings
Northeast Water Pollution Control Plant
NPDES # PA0026689

Year 2005 Baseline Loading (mg/day): 11,510

Date	Calculated Loading (mg/day)	Estimated Reduction From Baseline (mg/day)	Cumulative Reduction From Baseline (%)
12/3/07	8,594	2,916	25.3
3/27/09	5,846	5,664	49.2
10/16/09	6,571	4,939	42.9
4/21/10	5,490	6,020	52.3
12/13/10	4,615	6,895	59.9
9/6/11	6,224	5,286	45.9
11/17/11	3,745	7,765	67.5
6/13/12	11,189	321	2.8
10/16/12	2,542	8,968	77.9
4/20/13	2,849	8,661	75.2
10/8/13	2,349	9,161	79.6
4/16/14	2,315	9,195	79.9
9/25/14	1,552	9,958	86.5
5/28/15	3,157	8,353	72.6
10/10/15	2,291	9,219	80.1
5/14/16	1,755	9,755	84.8
10/23/16	1,479	10,031	87.1
5/6/17	1,749	9,761	84.8
10/9/17	972	10,538	91.6
3/2/18	17,293	-5,783	-50.2
10/12/18	4,219	7,291	63.3
5/6/19	2,856	8,654	75.2
10/17/19	3,067	8,443	73.4
4/13/2020	3,114	8,396	72.9
10/30/2020	5,570	5,940	51.6
3/19/2021	9,636	1,874	16.3
10/26/2021	52,351	-40,841	-354.8
9/6/2022	1,574	9,936	86.3
10/14/2022	2,223	9,287	80.7
2/28/2023	2,583	8,927	77.6
9/29/2023	2,579	8,931	77.6

Measure	**Date Initiated**	**Date Completed**
NEWPCP Phase 1 Trackdown	November 3, 2010	November 4, 2010
NEWPCP Phase 2 Trackdown	January 26, 2012	January 27, 2012

Table 7.2
Summary of PCB Loadings
Southeast Water Pollution Control Plant
NPDES # PA0026662

Year 2005 Baseline Loading (mg/day): 7,559

Date	Calculated Loading (mg/day)	Estimated Reduction From Baseline (mg/day)	Cumulative Reduction From Baseline (%)
12/3/07	4,595	2,964	39.2
3/27/09	3,435	4,124	54.6
10/16/09	4,287	3,272	43.3
4/21/10	2,155	5,404	71.5
12/2/10	2,736	4,823	63.8
9/6/11	4,135	3,424	45.3
11/17/11	1,368	6,191	81.9
6/13/12	5,659	1,900	25.1
10/16/12	1,296	6,263	82.9
4/20/13	2,803	4,756	62.9
11/27/13	2,599	4,960	65.6
4/16/14	6,370	1,189	15.7
9/25/14	1,827	5,732	75.8
5/28/15	2,744	4,815	63.7
10/10/15	2,795	4,764	63.0
5/14/16	1,525	6,034	79.8
10/28/16	1,058	6,501	86.0
5/6/17	2,762	4,797	63.5
10/9/17	1,212	6,347	84.0
4/16/18	21,681	-14,122	-186.8
10/12/18	9,543	-1,984	-26.2
4/6/19	828	6,731	89.0
10/28/19	2,386	5,173	68.4
5/1/2020	2,728	4,831	63.9
11/12/2020	6,059	1,500	19.8
3/19/2021*	7,219	340	4.5
7/2/2021	3,611	3,948	52.2
10/26/2021	1,811	5,748	76.0
9/6/2022	2,111	5,448	72.1
10/14/2022	1,481	6,078	80.4
2/28/2023	1,826	5,733	75.8
9/29/2023	2,455	5,104	67.5

Measure	Date Initiated	Date Completed
SEWPCP Phase 2 Trackdown	October 17, 2006	October 20, 2006

Table 7.3
Summary of PCB Loadings
Southwest Water Pollution Control Plant
NPDES # PA0026671

Year 2005 Baseline Loading (mg/day): 10,970

Date	Calculated Loading (mg/day)	Estimated Reduction From Baseline (mg/day)	Cumulative Reduction From Baseline (%)
12/3/07	6,369	4,601	41.9
3/27/09	7,334	3,636	33.1
10/16/09	5,690	5,280	48.1
4/21/10	2,948	8,022	73.1
12/2/10	5,027	5,943	54.2
9/6/11	10,270	700	6.4
11/17/11	4,280	6,690	61.0
6/13/12	5,766	5,204	47.4
10/16/12	2,663	8,307	75.7
4/20/13	3,673	7,297	66.5
10/8/13	3,040	7,930	72.3
4/16/14	2,939	8,031	73.2
9/25/14	2,882	8,088	73.7
8/12/15	4,265	6,705	61.1
10/10/15	3,610	7,360	67.1
5/14/16	3,662	7,308	66.6
10/23/16	1,416	9,554	87.1
5/6/17	3,273	7,697	70.2
10/9/17	3,294	7,676	70.0
3/2/18	6,015	4,955	45.2
4/16/18	7,183	3,787	34.5
10/12/18	4,870	6,100	55.6
4/6/19	2,596	8,374	76.3
10/17/19	26,869	-15,899	-144.9
5/1/2020	2,975	7,995	72.9
10/30/2020	3,474	7,496	68.3
3/19/2021	4,950	6,020	54.9
10/26/2021	3,674	7,296	66.5
9/6/2022	80,678	-69,708	-635.4
11/12/2022	5,769	5,201	47.4
12/7/2022	636,593	-625,623	-5703.0
2/28/2023	3,691	7,279	66.4
4/23/2023	27,679	-16,709	-152.3
9/29/2023	8,721	2,249	20.5

Measure	Date Initiated	Date Completed
SWWPCP Phase 1 Trackdown	October 12, 2011	October 13, 2011
SWWPCP Phase 2 Trackdown	February 23, 2012	February 24, 2012

Table 7.4
Summary of Water Pollution Control Plant Effluent PCB Concentration (pg/L)

NEWPCP			SEWPCP			SWWPCP		
Date	Total PCBs (pg/L)	Penta-PCBs (pg/L)	Date	Total PCBs (pg/L)	Penta-PCBs (pg/L)	Date	Total PCBs (pg/L)	Penta-PCBs (pg/L)
12/3/07	13,709	2340	12/3/07	13,580	2233	12/3/07	7,362	1,314
3/27/09	4,047	850	3/27/09	1,593	373	3/27/09	8,866	1,474
10/16/09	5,924	1,238	10/16/09	3,797	711	10/16/09	4,612	886
4/21/10	6,746	1,629	4/21/10	5,322	1,114	4/21/10	3,623	729
12/13/10	5,671	1,379	12/2/10	6,755	1,348	12/2/10	6,177	1,110
9/6/11	7,646	1,624	9/6/11	10,206	1,723	9/6/11	12,385	1,911
11/17/11	4,600	1,159	11/17/11	3,376	635	11/17/11	5,162	997
6/13/12	13,745	2,057	6/13/12	13,988	2,954	6/13/12	6,954	1,331
10/16/12	3,123	791	10/16/12	3,198	595	10/16/12	3,211	558
4/20/13	3,500	806	4/20/13	6,918	1,566	4/20/13	4,429	932
10/8/13	2,886	669	11/27/13	6,414	1,204	10/8/13	3,666	757
4/16/14	2,844	622	4/16/14	15,722	3,182	4/26/14	3,544	737
9/26/14	1,907	458	9/25/14	4,510	912	9/25/14	3,476	745
8/12/15	3,878	963	8/12/15	6,774	1,411	5/28/15	5,143	1,338
10/10/15	2,814	584	10/10/15	6,898	1,516	10/10/15	4,354	790
5/14/16	2,156	488	5/14/16	3,765	847	5/14/16	4,416	979
10/23/16	1,817	377	10/28/16	2,612	452	10/23/16	1,708	307
5/6/17	2,149	455	5/6/17	6,817	1,044	5/6/17	3,948	634
10/9/17	1,194	263	10/9/17	2,993	257	10/9/17	3,972	681
3/2/18	21,243	4,786	--	--	--	3/2/18	5,873	1,044
--	--	--	4/16/18	53,514	10,678	4/16/18	8,662	1,810
10/12/18	5,183	1,059	10/12/18	23,555	3,176	10/12/18	7,254	1,155
--	--	--	4/6/19	2,044	283	4/6/19	3,131	603
5/6/19	3508	857	--	--	--	--	--	--
10/17/19	3768	1113	--	--	--	10/17/19	32,404	7,997
--	--	--	10/28/19	5,889	1,146	--	--	--
4/13/20	3826	909	--	--	--	--	--	--
--	--	--	5/1/20	6,733	1,216	5/1/20	3,587	653
10/30/20	6,843	1,911	--	--	--	10/30/20	4189	714
--	--	--	11/12/20	14955	2927	--	--	--
3/19/21	11,837	2,936	3/19/2021*	17,818	3,842	3/19/21	5,970	1,134
--	--	--	7/2/21	8,913	1,586	--	--	--
10/26/21	64,308	6,048	10/26/21	4,470	816	10/26/21	4,431	664
9/6/22	1,934	481	9/6/22	5,211	1,045	9/6/22	97,294	24,869
10/14/22	2,731	537	10/14/22	3,656	1,131	--	--	--
--	--	--	--	--	--	11/12/22	6,958	1,363
--	--	--	--	--	--	12/7/22	767,708	148,867
2/28/23	3,173	710	2/28/23	4,507	739	2/28/23	4,451	750
--	--	--	--	--	--	4/23/23	33,380	8,047
9/29/23	3,168	483	9/29/23	6,059	2,199	9/29/23	10,517	2,796

Table 7.5
Range and Median PCB Concentration (pg/L)

Year	NE WPCP	SE WPCP	SW WPCP
2009	2,994-7,280 (4561)	1,364-9,375 (3667)	2,994-10,696 (7587)
2010	1,769-109,201 (6528)	1,399-6,755 (3474)	1,399-6,177 (4197)
2011	1,790-7,646 (3319)	1,493-10,206 (2672)	3,363-12,385 (4621)
2012	1,708-13,745 (2479)	1,493-13,988 (3369)	2,850-6,954 (3801)
2013	1,440-3,500 (2165)	2,229-6,918 (4741)	3,582-4,429 (3674)
2014	1,387-15,722 (1657)	1,392-4,510 (1752)	2,801-3,544 (3223)
2015	2,814-3,878 (2968)	2,103-6,898 (4472)	3,328-5,143 (4080)
2016	1,108-2,498 (1817)	1,390-3,765 (2103)	1,708-4,422 (3538)
2017	1,173-2,149 (1421)	1,065-6,817 (2414)	2,784-3,972 (3854)
2018	1,073-21,243 (5268)	3,836-53,514 (12934)	4,943-8,662 (5705)
2019	1,460-3,768 (2667)	2,044-6429 (4341)	3,131-32,404 (3191)
2020	1,469-3,760 (2615)	1,825-2,320 (2073)	2,100-2,438 (2269)
2021	807-48,630 (24718)	2,607-1,612 (2110)	2,992-5,727 (4359)
2022	1579-2078 (1828)	1719-6379 (4049)	3429-3837 (3633)
2023	2961-3318 (3140)	1571-4198 (2885)	2567-3275 (2921)
Note: Annual median is presented in parentheses.			

Attachment A

Data Graphs

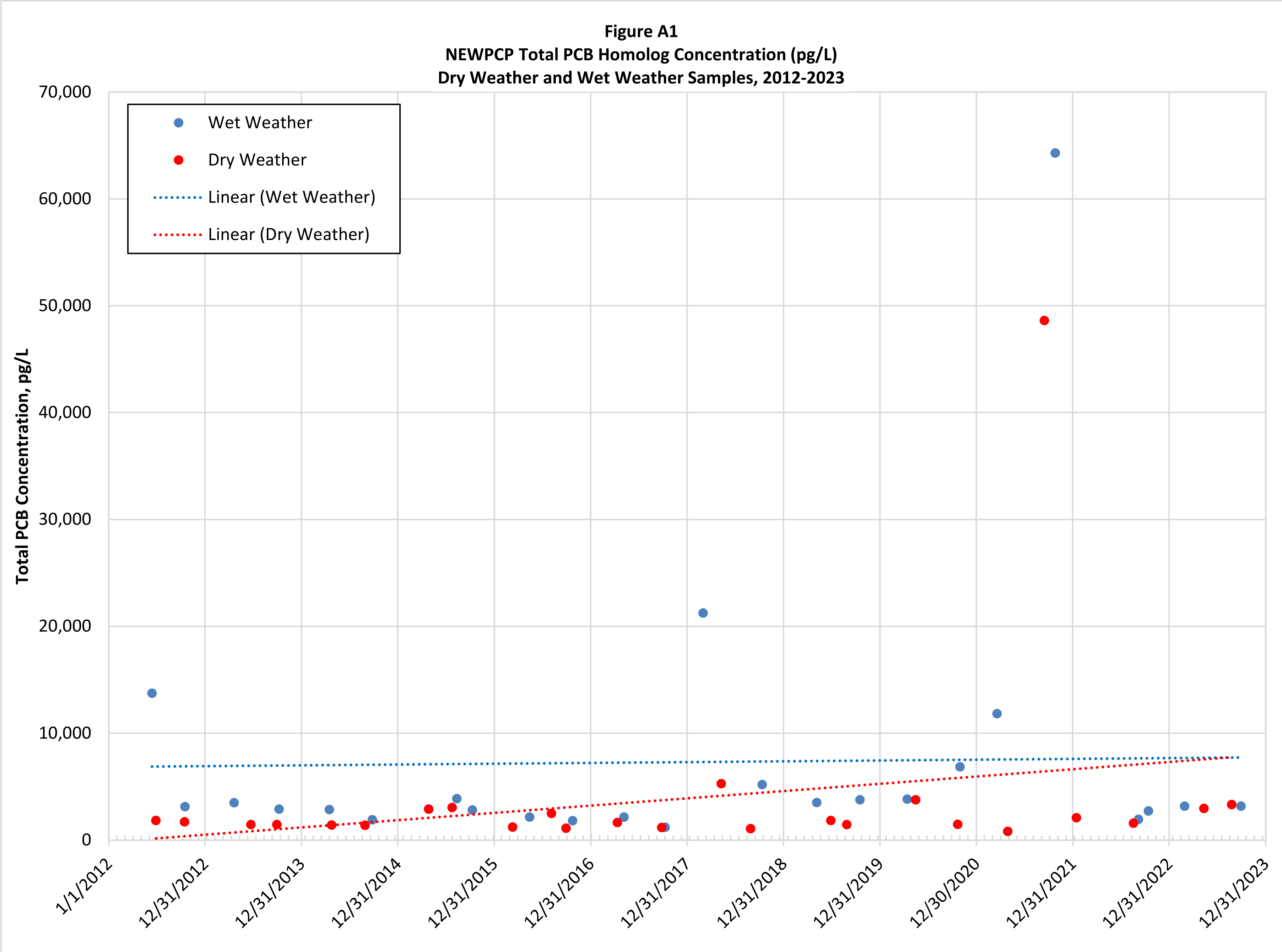
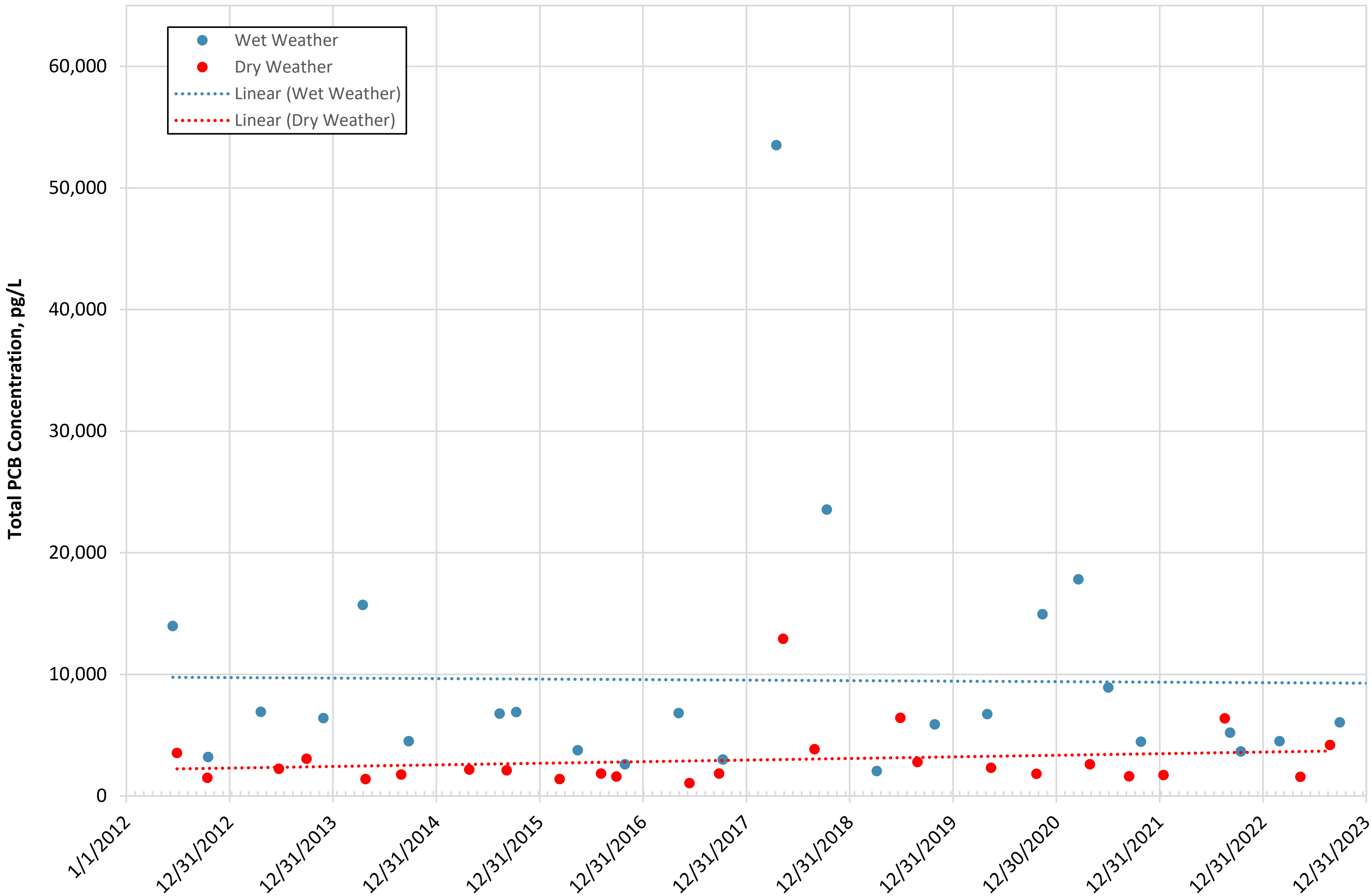


Figure A1
NEWPCP Total PCB Homolog Concentration (pg/L)
Dry Weather and Wet Weather Samples, 2012-2023
Wet Weather
Dry Weather
Linear (Wet Weather)
Linear (Dry Weather)
Total PCB Concentration, pg/L
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/31/2016
12/31/2017
12/31/2018
12/31/2019
12/30/2020
12/31/2021
12/31/2022
12/31/2023

Figure A2
SEWPCP Total PCB Homolog Concentration (pg/L)
Dry Weather and Wet Weather Samples, 2012-2023



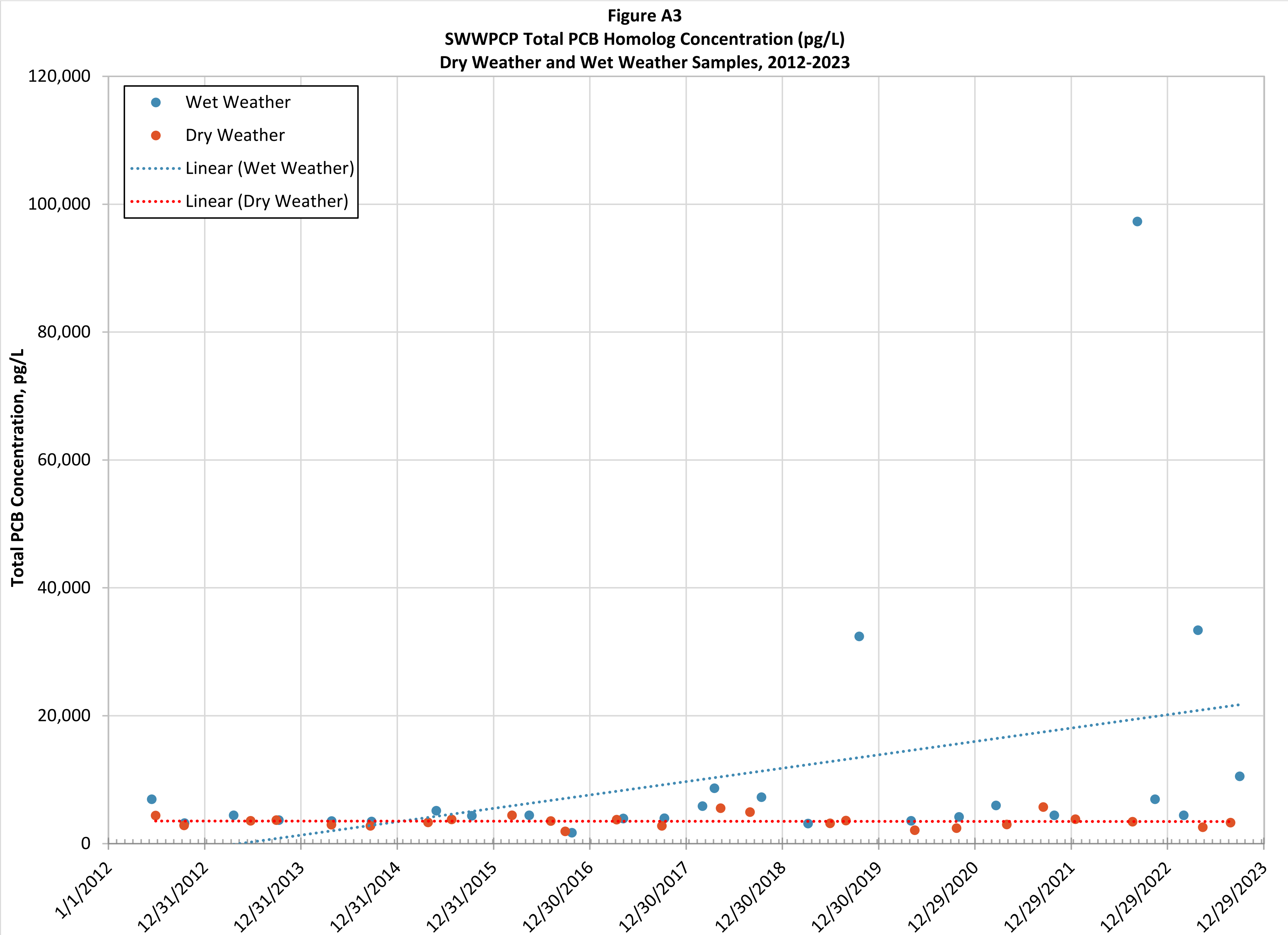


Figure A3
SWWPCP Total PCB Homolog Concentration (pg/L)
Dry Weather and Wet Weather Samples, 2012-2023
Wet Weather
Dry Weather
Linear (Wet Weather)
Linear (Dry Weather)
Total PCB Concentration, pg/L
120,000
100,000
80,000
60,000
40,000
20,000
0
1/1/2012
12/31/2012
12/31/2013
12/31/2014
12/31/2015
12/30/2016
12/30/2017
12/30/2018
12/30/2019
12/29/2020
12/29/2021
12/29/2022
12/29/2023

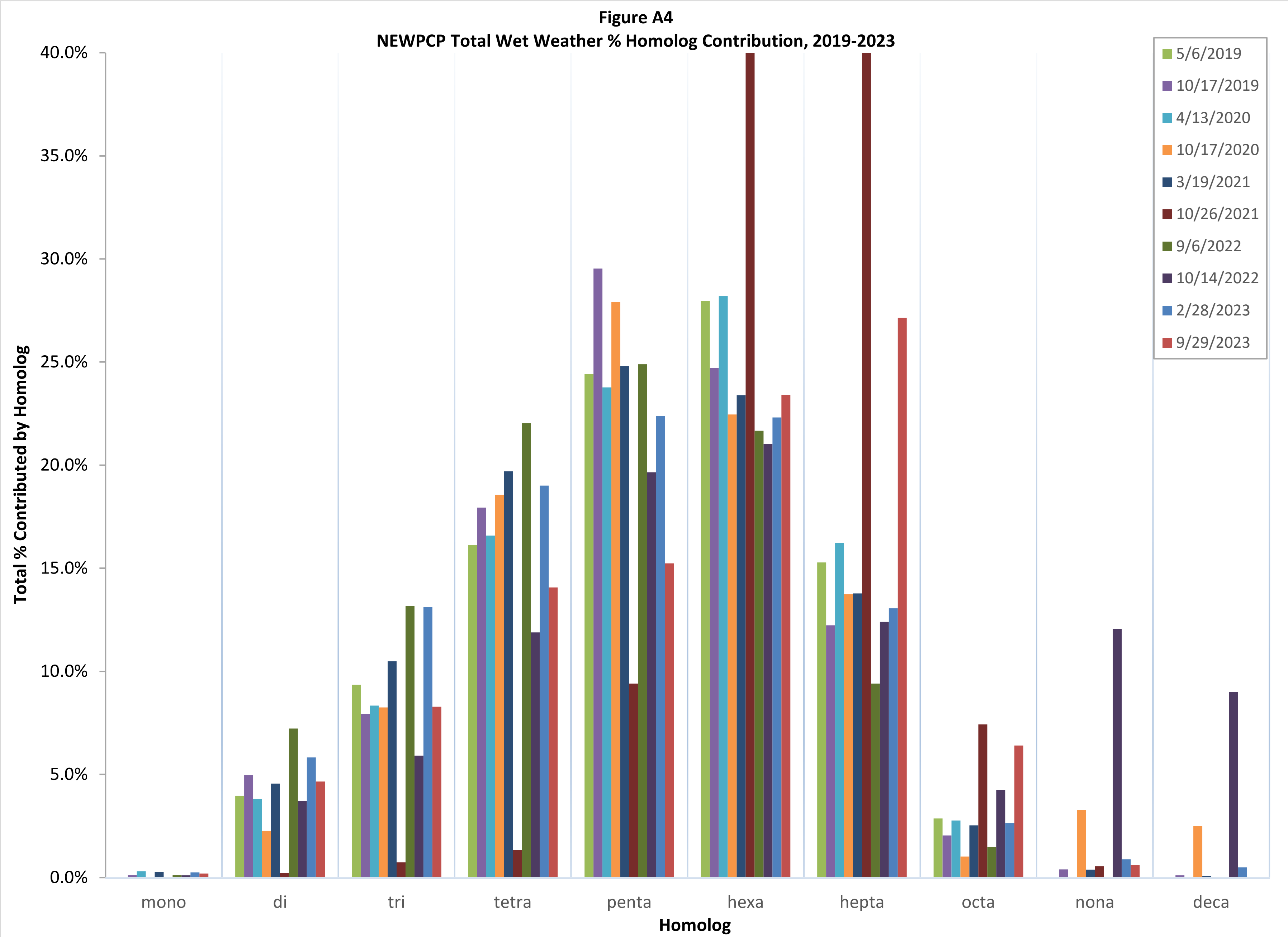


Figure A4
NEWPCP Total Wet Weather % Homolog Contribution, 2019-2023
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
Total % Contributed by Homolog
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
Homolog
5/6/2019
10/17/2019
4/13/2020
10/17/2020
3/19/2021
10/26/2021
9/6/2022
10/14/2022
2/28/2023
9/29/2023

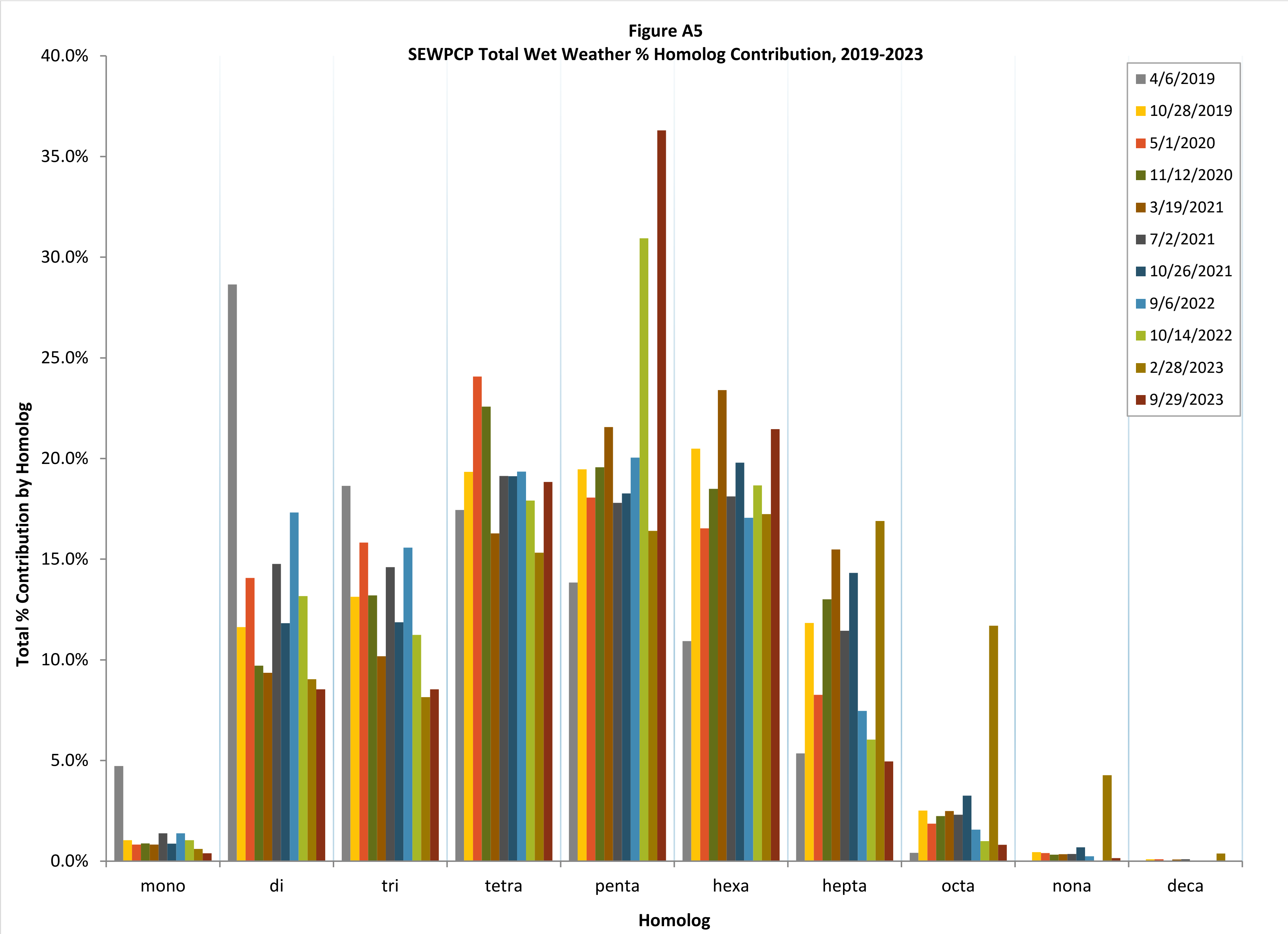


Figure A5
SEWPCP Total Wet Weather % Homolog Contribution, 2019-2023
Total % Contribution by Homolog
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
Homolog
4/6/2019
10/28/2019
5/1/2020
11/12/2020
3/19/2021
7/2/2021
10/26/2021
9/6/2022
10/14/2022
2/28/2023
9/29/2023

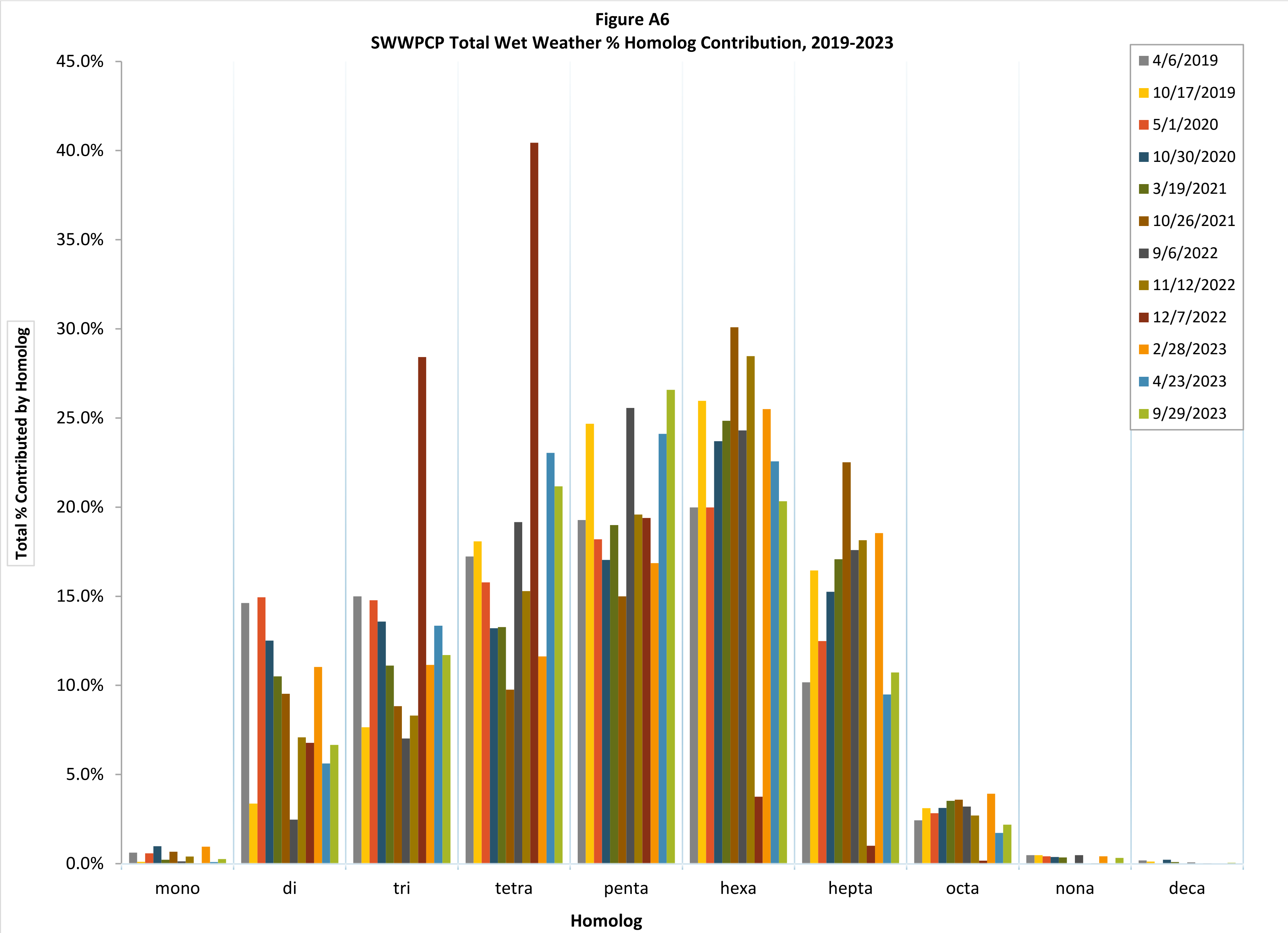


Figure A6
SWWPCP Total Wet Weather % Homolog Contribution, 2019-2023
Total % Contributed by Homolog
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
Homolog
4/6/2019
10/17/2019
5/1/2020
10/30/2020
3/19/2021
10/26/2021
9/6/2022
11/12/2022
12/7/2022
2/28/2023
4/23/2023
9/29/2023

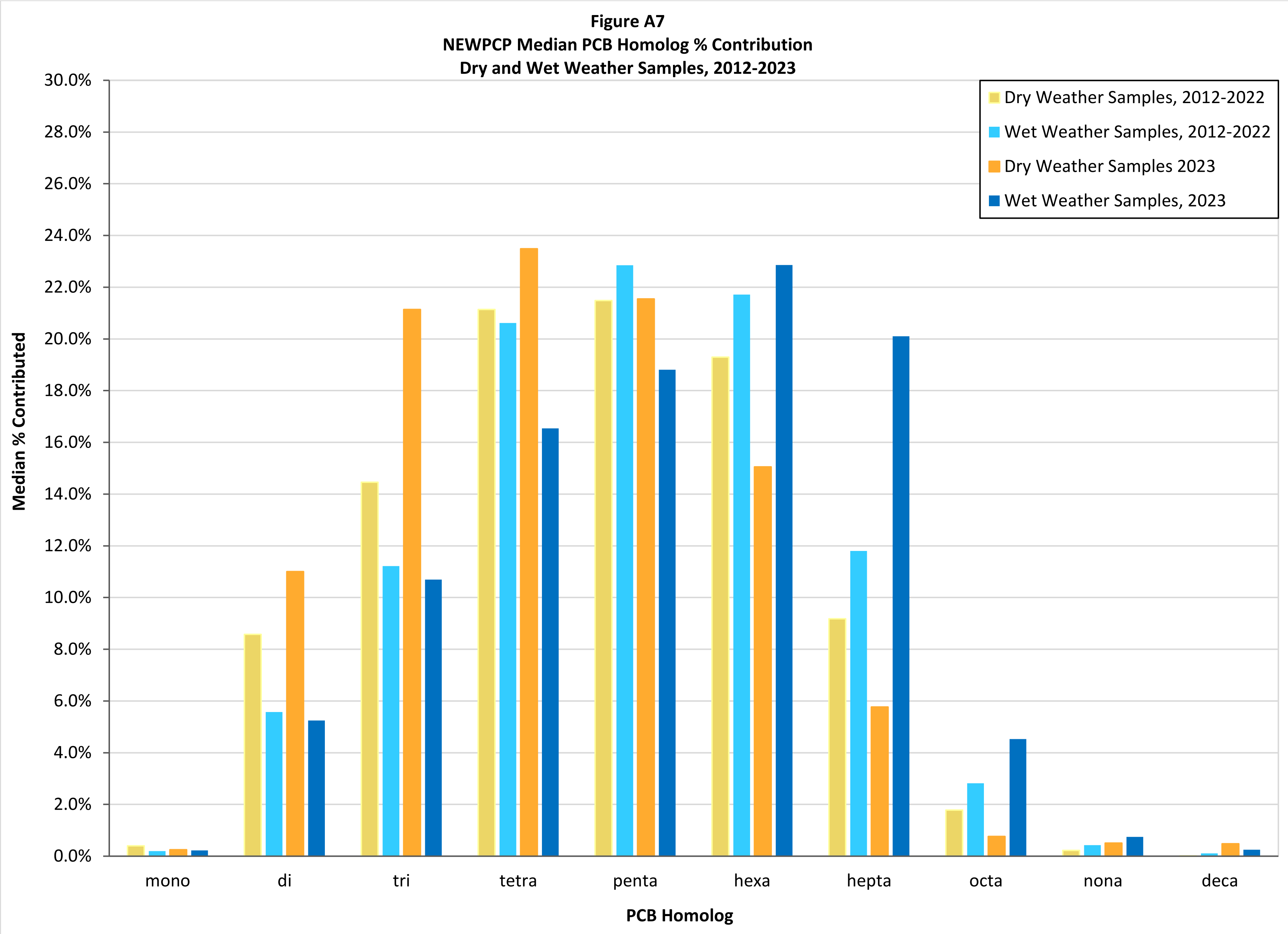


Figure A7
NEWPCP Median PCB Homolog % Contribution
Dry and Wet Weather Samples, 2012-2023
Median % Contributed
30.0%
28.0%
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Dry Weather Samples, 2012-2022
Wet Weather Samples, 2012-2022
Dry Weather Samples 2023
Wet Weather Samples, 2023
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
PCB Homolog

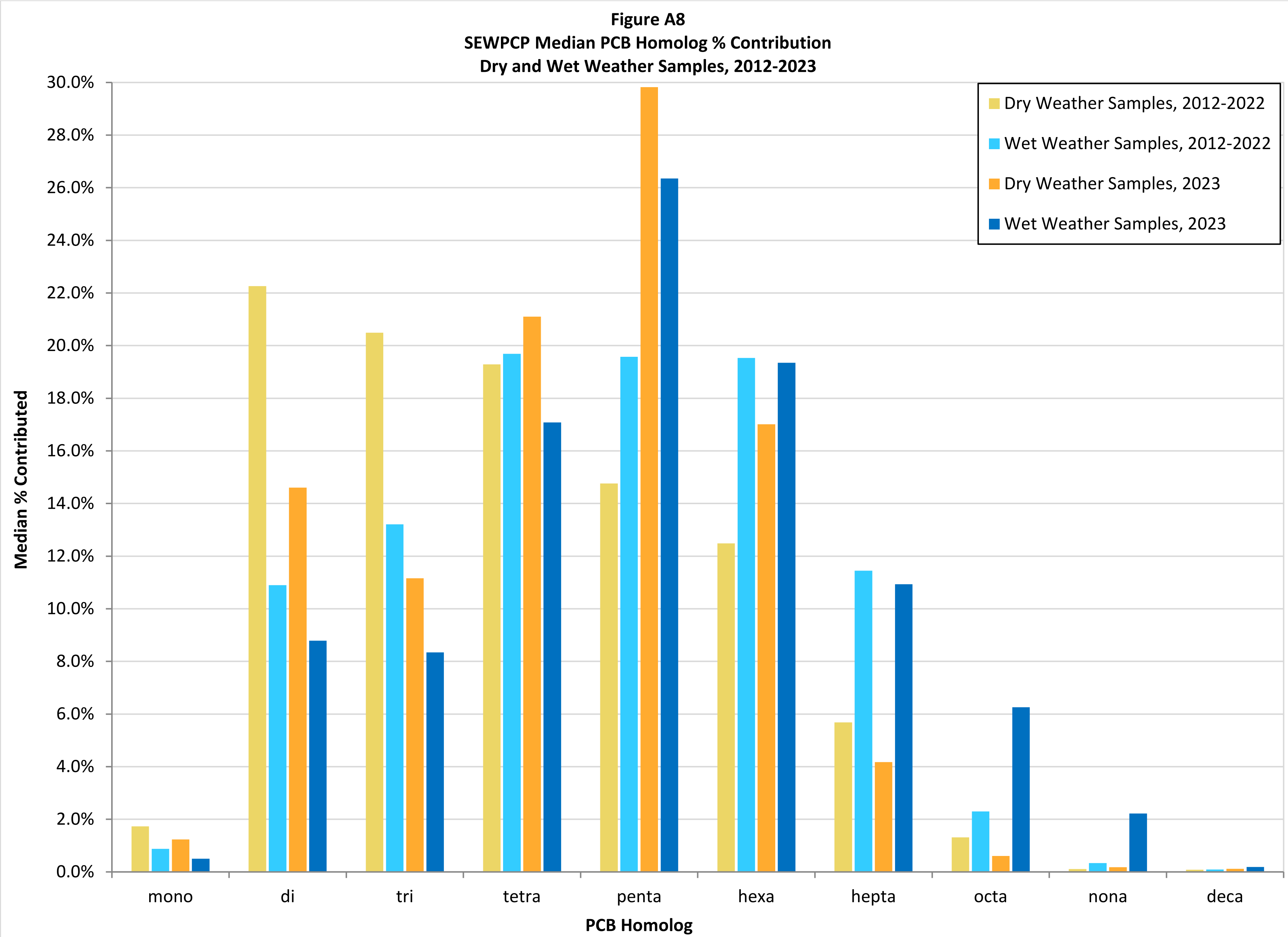


Figure A8
SEWPCP Median PCB Homolog % Contribution
Dry and Wet Weather Samples, 2012-2023
Median % Contributed
30.0%
28.0%
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
PCB Homolog
Dry Weather Samples, 2012-2022
Wet Weather Samples, 2012-2022
Dry Weather Samples, 2023
Wet Weather Samples, 2023

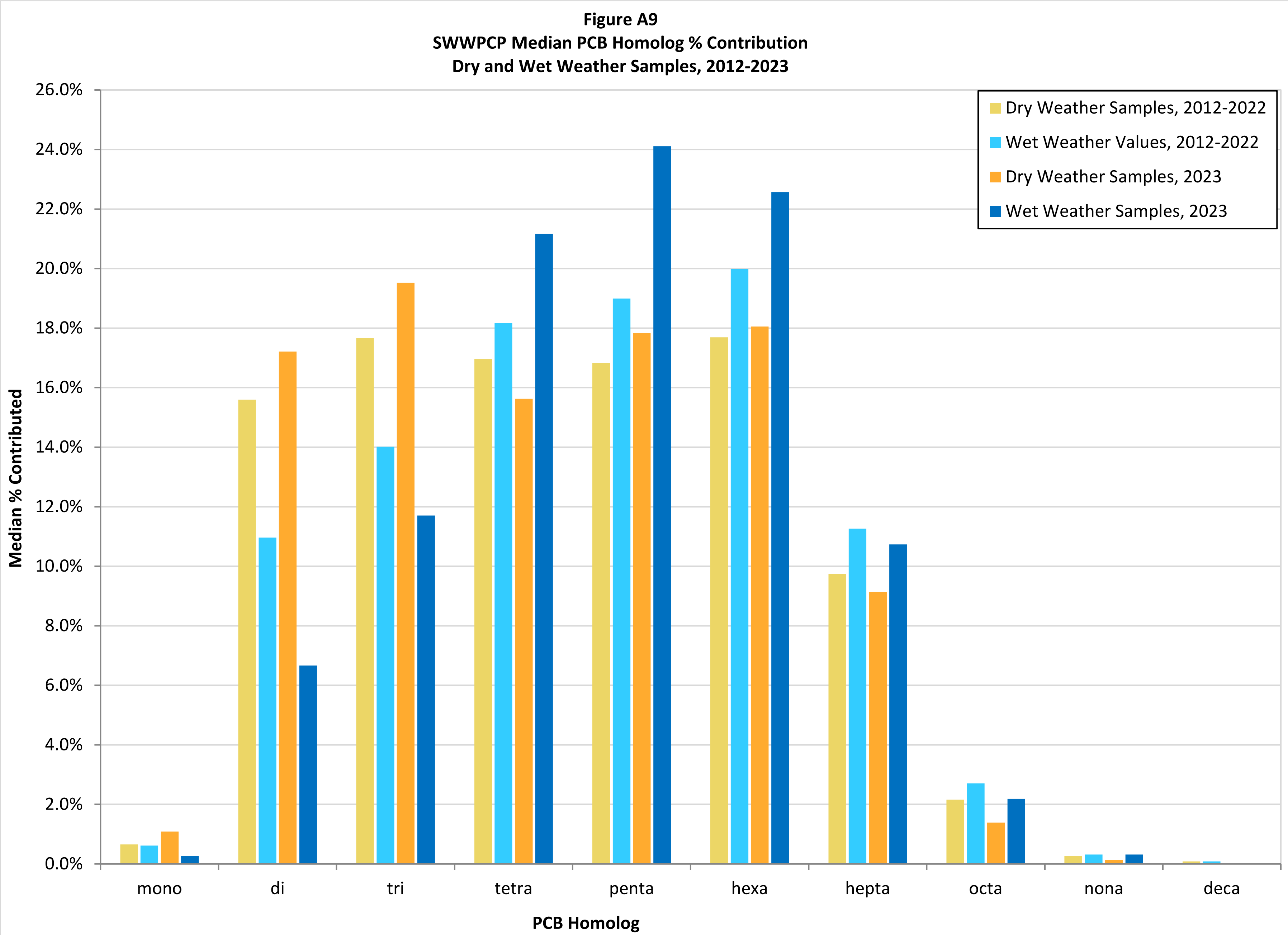


Figure A9
SWWPCP Median PCB Homolog % Contribution
Dry and Wet Weather Samples, 2012-2023
Median % Contributed
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
mono
di
tri
tetra
penta
hexa
hepta
octa
nona
deca
PCB Homolog
Dry Weather Samples, 2012-2022
Wet Weather Values, 2012-2022
Dry Weather Samples, 2023
Wet Weather Samples, 2023

Attachment B

Potential Sources and Inspection Findings

Table B1 - Known, Probable and Potential Sources and Measures to Address Sources

Source	Source Type: Known	Source Type: Probable	Source Type: Potential	Measure to Address Source
Water Supply (Delaware and Schuylkill Rivers)	X			PCB PMP and action by others
Ferric Chloride used in Water Treatment	X			Switched ferric chloride suppliers
Sludge Lagoons (NEWPCP and SWWPCP)		X		Trackdown for each WPCP calls for sampling and analysis
PCB Device sites in sewershed of each WPCP (see Attachment B, "Inspections of Potential Source Sites")			X	Site inspections, evaluation and followup
Significant Industrial Users			X	Modify permits as warranted
Electric Company (PECO) customers			X	Undetermined. PECO will not share customer information.
Township Connections			X	Sample points of connections for PCBs
Groundwater Discharges			X	Require PCB monitoring
Utility Manhole Pumpouts			X	Require PCB monitoring

Table B2

Philadelphia Water Department

Inspections by Treatment Plant

01/1/2023 - 12/31/2023

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: NEWPCP											
PCB-NE017	Septa	1410 W Loudon St 19141	Louden substation	Ronald Drake	Transformer	0	N/A	0	No	03/08/23	Removed From Site
PCB-NE072	Septa	Windrim & Germantown 19140	Maintenance bld	Ronald Drake	Transformer	1	N/A	N/A	No	03/30/23	Out of Use
PCB-NE214	Neatsfoot Oil Corporation	2925 E. Ontario St. 19134	Div of nupro industries	Ray Feverhammer	Transformer	1	N/A	N/A	No	11/16/23	In Use
PCB-NE260	Crown Bakeries, LLC	5698 Rising Sun Ave 19120	Electrical rm	Alex Hatza	Transformer	1	N/A	637	Staining	12/01/23	In Use
PCB-NE260a	Wayne Mills Corp	130 W Berkley St 19144	Basement	Doug Wiegand	Transformer	3	50	100	No	10/25/23	In Use
PCB-NE261	Dietz & Watson, Inc	5701 Tacony St 19135	Boiler rm	Wes Sweany	Transformer	3	N/A	N/A	No	07/20/23	In Use
PCB-NE262	Dietz & Watson, Inc	5701 Tacony St 19135	Electrical rm	Wes Sweany	Capacitor	5	N/A	N/A	No	07/20/23	In Use
PCB-NE276	James Abbott	2105-11 E Wishart St 19134	Outside	James Abbot	Transformer	1	N/A	N/A	No	04/05/23	Out of Use
PCB-NE278	J.P. Cerini Technologies, Inc	4600 N Fairhill St 19140	Electrical rm in bsmt	John Dietzel	Transformer	0	5.9	N/A	No	11/08/23	Removed From Site
PCB-NE290	Newman & Company, Inc	6101 Tacony St 19135	Between bld L & I	Mike Ferman	Transformer	2	<50	638	No	06/14/23	In Use
PCB-NE291	Newman & Company, Inc	6101 Tacony St 19135	Outside URSI	Mike Ferman	Transformer	1	<50	325	No	06/14/23	In Use
PCB-NE292	Newman & Company, Inc	6101 Tacony St 19135	Skid yard NE corner	Mike Ferman	Transformer	1	N/A	774	No	06/14/23	In Use
PCB-NE300	Original Philly Holdings - Hunting Park	520 E Hunting Park Ave 19124	Outside by grease trap	Tyler Muckle	Capacitor & Transformer	4	<1	308	No	02/02/23	In Use
PCB-NE303	Philadelphia Gas Works-Richmond	3100 E Venango St 19134	Outside	Chin So	Transformer	9	<2.0	450	No	03/29/23	In Use
PCB-NE304	Philadelphia Gas Works-Richmond	3100 E Venango St 19134	Inside	Chin So	Transformer	2	<20	765	No	03/29/23	In Use
PCB-NE305	Philadelphia Gas Works-Richmond	3100 E Venango St 19134	Inside	Chin So	Transformer	2	<2	252	Staining	03/29/23	In Use
PCB-NE311	Dietz & Watson, Inc	5701 Tacony St 19135	Truck Wash Area	Wes Sweany	Transformer	1	N/A	N/A	No	07/20/23	In Use

Receiving Plant: NEWPCP

Drainage Area: Combined **Total Number of Inspections completed: 17**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: NEWPCP											
PCB-NE045	Mutual Industries	707 W. Grange Ave 19120	Exterior front	John Paluba	Transformer	1	1898	305	No	11/21/23	In Use
PCB-NE062	Septa	8301 Castor Ave 19111	Substation	Ronald Drake	Transformer	1	N/A	N/A	No	03/09/23	In Use
PCB-NE163	PECO	1100 Ivy Hill Rd 19150	Cedarbrook substation	Bryan Dwyer	Transformer	6	<50	N/A	Yes	06/06/23	In Use
PCB-NE208	HP Hood, LLC	10975 Dutton Rd 19154	Outside cage	Travis Kurtz	Transformer	2	N/A	N/A	No	03/22/23	In Use
PCB-NE211	Delavau, LLC	10101 Roosevelt Blvd 19154	Bld rear	Kieth Crawford	Transformer	2	50	284	No	06/13/23	In Use
PCB-NE224	Pepsi Beverages Co	11701 Roosevelt Blvd 19154	Boiler rm	Kellie Della Penna	Transformer	1	N/A	N/A	No	03/16/23	In Use
PCB-NE225	Pepsi Beverages Co	11701 Roosevelt Blvd 19154	Outside	Kellie Della Penne	Transformer	3	0	N/A	No	03/16/23	In Use
PCB-NE271	I. Rice	11500D Roosevelt Blvd 19116	E side of building	Ashly Marchese	Transformer	1	N/A	N/A	No	02/16/23	In Use
PCB-NE272	Septa	9187 Frankford Ave 19114	Gregg St sub	Ronald Drake	Transformer	1	N/A	N/A	No	03/09/23	In Use
PCB-NE274	Stockwell Elastomerics, Inc	4749 Tolbut St 19136	Bld 749	Bob Walsh	Capacitor & Transformer	7	N/A	N/A	No	09/06/23	In Use
PCB-NE275	Premier Medical	10090 Sandmeyer Ln 19116	Bld rear	Domenick Grergory	Transformer	1	N/A	N/A	No	04/05/23	In Use
PCB-NE280	Agusta	3050-3076 Red Lion Rd 19114	IFO bld 3050	Hassan Riad	Transformer	1	N/A	315	No	03/30/23	In Use
PCB-NE281	Agusta	3076 Red Lion Rd 19114	IFO bld 3076	Hassan Riad	Transformer	2	N/A	375	No	03/30/23	In Use
PCB-NE283	Northeast Fence & Iron Works, Inc.	8451 Hegerman St 19136	Behind admin bld	William O'Sullivan	Transformer	1	N/A	N/A	No	06/14/23	In Use
PCB-NE288	Tastepoint	10801 Decatur Rd 19154	Boiler room	Stacey Demarco	Transformer	3	0	363	No	03/30/23	In Use
PCB-NE294	Agusta	3050-3076 Red Lion Rd 19114	Outside Training Bld	Hassan Riad	Transformer	1	N/A	386	No	03/30/23	In Use
PCB-NE302	Kinder Morgan Liquid Terminals	3300 N Delaware Ave 19134	Hurst boiler room	Joseph Sieber	Capacitor	2	>500	2.1	No	03/30/23	In Use
PCB-NE306	Agusta	3070 Red Lion Road 19114	3070 New Hangar	Hassan Riad	Transformer	1	N/A	N/A	No	03/30/23	In Use
PCB-NE307	II VI Aerospace & Defense	2710 Commerce Way 19154	Outside by cooling towers	Christopher Eckert	Transformer	2	N/A	N/A	No	03/09/23	In Use
PCB-NE314	Teletronics Technology Corporation	15 Terry Dr 18940	Building side.	Hector Maldonado	Transformer	1	<50	N/A	No	02/23/23	In Use

Receiving Plant: NEWPCP
Drainage Area: MS4 **Total Number of Inspections completed: 20**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: NEWPCP											
PCB-NE209	C. Lever Colors, Inc	736 Dunks Ferry Rd 19020	Outside	Scott Lever	Transformer	1	NA	NA	No	03/31/23	In Use
PCB-NE282	Gill	1384 Byberry Rd 19020	Telephone pole in parking lot	Kelli Gill	Transformer	1	N/A	N/A	No	12/13/23	In Use
PCB-NE295	Sigma Pharm Laboratories, LLC	3375 Progress Dr 19020	Loading docks	Nimin Kurien	Transformer	1	N/A	N/A	No	04/05/23	In Use
PCB-NE296	Sigma Pharm Laboratories, LLC	3375 Progress Dr 19020	Along Progress Dr	Nimin Kurien	Transformer	1	N/A	N/A	No	04/05/23	In Use
PCB-NE297	Sigma Pharm Laboratories, LLC	3399 Progress Dr 19020	Along Progress Dr	Nimin Kurien	Transformer	1	<50	N/A	No	04/05/23	In Use
PCB-NE301	Sigma Pharm Laboratories, LLC	3375 Progress Dr 19020	By loading docks	Nimin Kurien	Transformer	1	N/A	N/A	No	04/05/23	Out of Use
PCB-NE318	KVK Tech	110 Terry Dr 18940	Outside rear.	Chhotulal Patil	Transformer	1	<500	400	No	09/27/23	In Use

Receiving Plant: NEWPCP

Drainage Area: Township **Total Number of Inspections completed: 7**

Receiving Plant: NEWPCP **Total Number of Inspections completed: 44**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: SEWPCP											
PCB-SE001	Septa	816 Sansom St 19107	Sansom substation	Ronald Drake	Transformer	2	N/A	915	No	03/08/23	In Use
PCB-SE002	Septa	1327 Mount Vernon St 19123	Broad substation	Ronald Drake	Transformer	2	N/A	N/A	No	03/08/23	In Use
PCB-SE032	Zeigler and Sons	6215 Ardsleigh St 19138	Loading dock	Steven Zeigler	Transformer	0	N/A	N/A	No	11/20/23	Removed From Site
PCB-SE056	Septa	Broad & Manning Sts 19102	Room 1592	Ronald Drake	Transformer	0	N/A	N/A	No	05/02/23	Removed From Site
PCB-SE200	Septa	Front & Ellen Sts 19123	Ellen Sub	Ronald Drake	Transformer	4	N/A	1218	No	03/08/23	In Use
PCB-SE202	PECO Energy, Oregon Ave Shop	2610 S Christopher Columbus Blvd 19148	Parking lot	George Horvath	Transformer	50	<50	N/A	No	06/28/23	Out of Use
PCB-SE203	Simons Brothers Co.	2438 Sergeant St 19125	By front door	Susan Kaiser	Capacitor	1	N/A	N/A	No	07/12/23	In Use
PCB-SE205	INEOS Composites US, LLC	2801 Christopher Columbus Blvd 19148	By Nitrogen	Scott Wright	Transformer	1	<50	N/A	No	07/07/23	In Use
PCB-SE206	INEOS Composites US, LLC	2801 Christopher Columbus Blvd 19148	Front gate	Scott Wright	Transformer	1	<50	N/A	No	07/07/23	In Use
PCB-SE207	INEOS Composites US, LLC	2801 Christopher Columbus Blvd 19148	Roof of bld 10	Scott Wright	Transformer	1	<50	N/A	No	07/07/23	In Use
PCB-SE240	Septa	Market & 5th Sts 19106	5th St. pump rm	Ronald Drake	Transformer	0	N/A	N/A	No	03/30/23	Removed From Site
PCB-SE241	Septa	Filbert & 11th Sts 19107	Transformer rm	Ronald Drake	Transformer	0	N/A	N/A	Staining	05/02/23	Removed From Site
PCB-SE243	National Chemical Laboratories, Inc	401 N 10th St 19123	Transformer rm	Harry Pollack	Transformer	4	<50	410	No	02/03/23	In Use

Receiving Plant: SEWPCP

Drainage Area: Combined **Total Number of Inspections completed: 13**

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: SEWPCP											
PCB-SE231	PSNY (NFPC)	4747 S Broad St 19112	N Building 1029	Allison Starr	Transformer	2	N/A	N/A	No	10/11/23	In Use
PCB-SE244	Septa	7639 Germantown Ave 19118	Mermaid sub	Ronald Drake	Transformer	1	N/A	N/A	No	03/09/23	In Use
PCB-SE245	PECO	7735 Germantown Ave 19118	Chestnut Hill substation	Bryan Dwyer	Transformer	27	<50	N/A	Staining	06/06/23	In Use
PCB-SE246	PSNY (NFPC)	4747 S Broad St 19112	S Building 20	Allison Starr	Transformer	4	<50	N/A	No	10/11/23	In Use
PCB-SE247	PSNY (NFPC)	4747 S Broad St 19112	SW Building 20	Allison Starr	Transformer	5	<50	N/A	No	10/11/23	In Use
PCB-SE250	Tasty Baking	4300 S 26th St 19112	Building rear	Pat West	Transformer	2	<50	N/A	No	01/20/23	In Use
PCB-SE318	WuXi Advance Therapies	4751 League Island Blvd 19112	Loading dock	Shanna Grace	Transformer	2	N/A	N/A	No	09/19/23	In Use
PCB-SE319	WuXi Advance Therapies	400 Rouse Blvd 19112	Rear of facility	Shanna Grace	Transformer	2	N/A	N/A	No	09/19/23	In Use
PCB-SE320	WuXi Advance Therapies	4701 League Island Blvd 19112	Rear of bld	Shanna Grace	Transformer	3	N/A	N/A	No	09/19/23	In Use
PCB-SE321	WuXi Advance Therapies	4000 S 26th St 19112	Rear of bld	Shanna Grace	Transformer	3	N/A	N/A	No	09/19/23	Out of Use

Receiving Plant: SEWPCP

Drainage Area: MS4 **Total Number of Inspections completed: 10**

Receiving Plant: SEWPCP **Total Number of Inspections completed: 23**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS

Receiving Plant: SWWPCP

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
PCB-SW001	Septa	33rd & Market St 19104	Market substation	Ronald Drake	Transformer	3	N/A	757	No	03/09/23	In Use
PCB-SW004	Septa	2034 Ranstead St 19103	Ranstead substation	Ronald Drake	Transformer	2	N/A	915	No	03/09/23	In Use
PCB-SW132	Children's Hospital of Philadelphia	3600 Main Bld 19104	3401 Civic Center Blvd. main bld	Brandon Reyes	Transformer	3	N/A	450	No	01/17/23	In Use
PCB-SW201	Septa	5517 Market St 19139	Allison substation	Ronald Drake	Transformer	2	N/A	757	No	03/09/23	In Use
PCB-SW245	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	Overhead substation	Melody Hicks	Transformer	7	unknown	800	No	11/21/23	In Use
PCB-SW246	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	Near generator with day tank	Melody Hicks	Transformer	1	N/A	800	No	11/21/23	In Use
PCB-SW247	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	Car repair shop	Melody Hicks	Transformer	1	N/A	800	No	11/21/23	In Use
PCB-SW248	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	N of o/w separator	Melody Hicks	Transformer	1	>50	208	No	11/21/23	In Use
PCB-SW249	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	Further north of o/w separatpr	Melody Hicks	Transformer	1	>50	280	No	11/21/23	In Use
PCB-SW250	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	SE of bld #42	Melody Hicks	Transformer	1	N/A	280	No	11/21/23	In Use
PCB-SW251	National Railroad Passenger Corp	30th & Race Sts Amtrak Race St./Penn Coach Yard 19104	Engineering bld #43	Melody Hicks	Transformer	1	N/A	260	No	11/21/23	In Use
PCB-SW254	Veolia Energy Philadelphia	2600 Christian St 19146	Schuylkill River side of plant	Jessica Hartley	Transformer	4	N/A	N/A	Staining	10/12/23	In Use
PCB-SW255	Veolia Energy Philadelphia	2600 Christian St 19146	Middle of plant	Jessica Hartley	Transformer	2	N/A	N/A	Staining	10/12/23	In Use
PCB-SW256	Veolia Energy Philadelphia	2600 Christian St 19146	Christian St entrance	Jessica Hartley	Transformer	4	N/A	N/A	Staining	10/12/23	In Use
PCB-SW257	Philadelphia Zoo	3400 W Girard Ave 19104	Parking Garage	Matt Corcoran	Transformer	5	N/A	150	No	03/28/23	In Use
PCB-SW259	Philadelphia Zoo	3400 W Girard Ave 19107	Big Cat Falls	Matt Corcoran	Transformer	5	N/A	100	No	03/28/23	In Use
PCB-SW262	Philadelphia Zoo	3400 W Girard Ave 19107	Otters	Matt Corcoran	Transformer	1	N/A	100	Yes	03/28/23	In Use
PCB-SW263	Philadelphia Zoo	3400 W Girard Ave 19107	ISH #1- #2; North Gate Restroom Transformer	Matt Corcoran	Transformer	3	N/A	100	No	03/28/23	In Use

Receiving Plant: SWWPCP

Drainage Area: Combined **Total Number of Inspections completed: 18**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: SWWPCP											
PCB-SW158	Sun Chemical	3301 Hunting Park Ave 19132	Bld 1 Boiler vault	Frank Zappavigna	Capacitor & Transformer	7	<50	N/A	No	07/19/23	In Use
PCB-SW203	LSG Sky Chefs	8401 Escort Ave 19153	Adminstration bld	Jackline Kirmi	Transformer	1	N/A	N/A	No	03/23/23	In Use
PCB-SW231	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Anodizing room	David Shanks	Capacitor	2	<50	1.23	No	04/20/23	In Use
PCB-SW232	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Waste treatment area	David Shanks	Capacitor	2	<50	1.3	No	04/20/23	In Use
PCB-SW233	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Receiving/mail room	David Shanks	Capacitor	1	<50	1.03	No	04/20/23	In Use
PCB-SW234	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Light machine area	David Shanks	Capacitor	1	<50	1.39	No	04/20/23	In Use
PCB-SW235	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Basement electrical	David Shanks	Capacitor & Transformer	4	<50	70	No	04/20/23	In Use
PCB-SW236	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Outside fenced area	David Shanks	Transformer	3	<50	291	No	04/20/23	In Use
PCB-SW237	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	First floor transformer cage	David Shanks	Other	2	<50	64	No	04/20/23	In Use
PCB-SW238	Penn Fishing Tackle Mfg Co	3028 W Hunting Park Ave 19132	Basement electrical	David Shanks	Other	1	<50	64	No	04/20/23	In Use
PCB-SW244	PECO	2600 W Westmoreland St 19107	Westmoreland sub	Bryan Dwyer	Transformer	8	<50	N/A	No	06/06/23	In Use
PCB-SW265	LSG Sky Chefs	8401 Escort St 19153	Escort Ave	Jackline Kirmi	Transformer	1	N/A	N/A	No	03/23/23	In Use
PCB-SW267	PBF Logistics Products Terminals	3400 S. 67th St 19153	South by pumps	John Grisi	Transformer	2	N/A	470	No	04/27/23	In Use
PCB-SW268	PBF Logistics Products Terminals	3400 S. 67th St 19153	Near additive tanks	John Grisi	Transformer	1	<50	N/A	No	04/27/23	In Use
PCB-SW269	PBF Logistics Products Terminals	3400 S. 67th St 19153	North switch gate	John Grisi	Transformer	1	N/A	465	No	04/27/23	In Use
PCB-SW270	PBF Logistics Products Terminals	3400 S. 67th St 19153	Old north	John Grisi	Transformer	2	N/A	N/A	No	04/27/23	Out of Use
PCB-SW271	Philadelphia Gas Work-Passyunk	3100 Passyunk Ave 19145	Outside by sample point	Chin So	Transformer	16	<50	267	No	11/07/23	In Use

Receiving Plant: SWWPCP
Drainage Area: MS4 **Total Number of Inspections completed: 17**

Table B2

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: SWWPCP											
PCB-SW031	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	BA Sub 2300V N & S	Ron Rosendorn	Transformer	1	<50	55	No	03/31/23	In Use
PCB-SW032	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	Fire/safety bldg - main office annex	Ron Rosendorn	Transformer	1	<50	55	No	03/31/23	In Use
PCB-SW033	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	Shops bldg--2300V	George Toth	Transformer	1	<50	55	No	03/31/23	In Use
PCB-SW035	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	Complex BA sub 480 V N &S	George Toth	Transformer	1	<50	150	No	03/31/23	In Use
PCB-SW036	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	861 Unit 3C-1A	George Toth	Transformer	1	<50	150	No	03/31/23	In Use
PCB-SW037	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	#6 Post SW boiler feedwater	George Toth	Transformer	1	<50	150	No	03/31/23	In Use
PCB-SW038	Philadelphia Energy Solutions Refining and Marketing, LLC	3144 Passyunk Ave 19145	Belmont Terminal	George Toth	Transformer	1	<50	227	No	03/31/23	In Use
PCB-SW157	PECO	7200 Umbria St 19128	Roxborough station	Bryan Dwyer	Transformer	3	<50	N/A	Staining	06/06/23	In Use
PCB-SW218	Philadelphia Zoo	3400 W Girard Ave 19104	Picnic grove	Steve Carrick	Transformer	1	N/A	100	No	03/28/23	In Use
PCB-SW219	Philadelphia Zoo	3400 W Girard Ave 19104	KidZooU	Steve Carrick	Transformer	2	N/A	100	Yes	03/28/23	In Use
PCB-SW220	Philadelphia Zoo	3400 W Girard Ave 19104	Reptile House	Steve Carrick	Transformer	1	N/A	100	No	03/28/23	In Use
PCB-SW221	Philadelphia Zoo	3400 W Girard Ave 19104	Switch Gear 132	Steve Carrick	Transformer	1	N/A	N/A	No	03/28/23	In Use
PCB-SW222	Philadelphia Zoo	3400 W Girard Ave 19104	Solitude	Steve Carrick	Transformer	1	N/A	100	No	03/28/23	In Use
PCB-SW258	Philadelphia Zoo	3400 W Grard Ave 19104	Balloon Plaza	Matt Corcoran	Transformer	2	N/A	100	Yes	03/28/23	In Use
PCB-SW260	Philadelphia Zoo	3400 W. Girard Ave 19107	Pump Room-Bird Valley	Matt Corcoran	Transformer	1	N/A	100	No	03/28/23	In Use
PCB-SW261	Philadelphia Zoo	3400 W Girard Ave 19107	Treehouse #1- #2	Matt Corcoran	Transformer	2	N/A	100	No	03/28/23	In Use
PCB-SW264	Philadelphia Zoo	3400 W Girard Ave 19107	PECO Primate ANIMAL ; PECO PrimatePEOPLE	Matt Corcoran	Transformer	4	N/A	60	No	03/28/23	In Use

Receiving Plant: SWWPCP

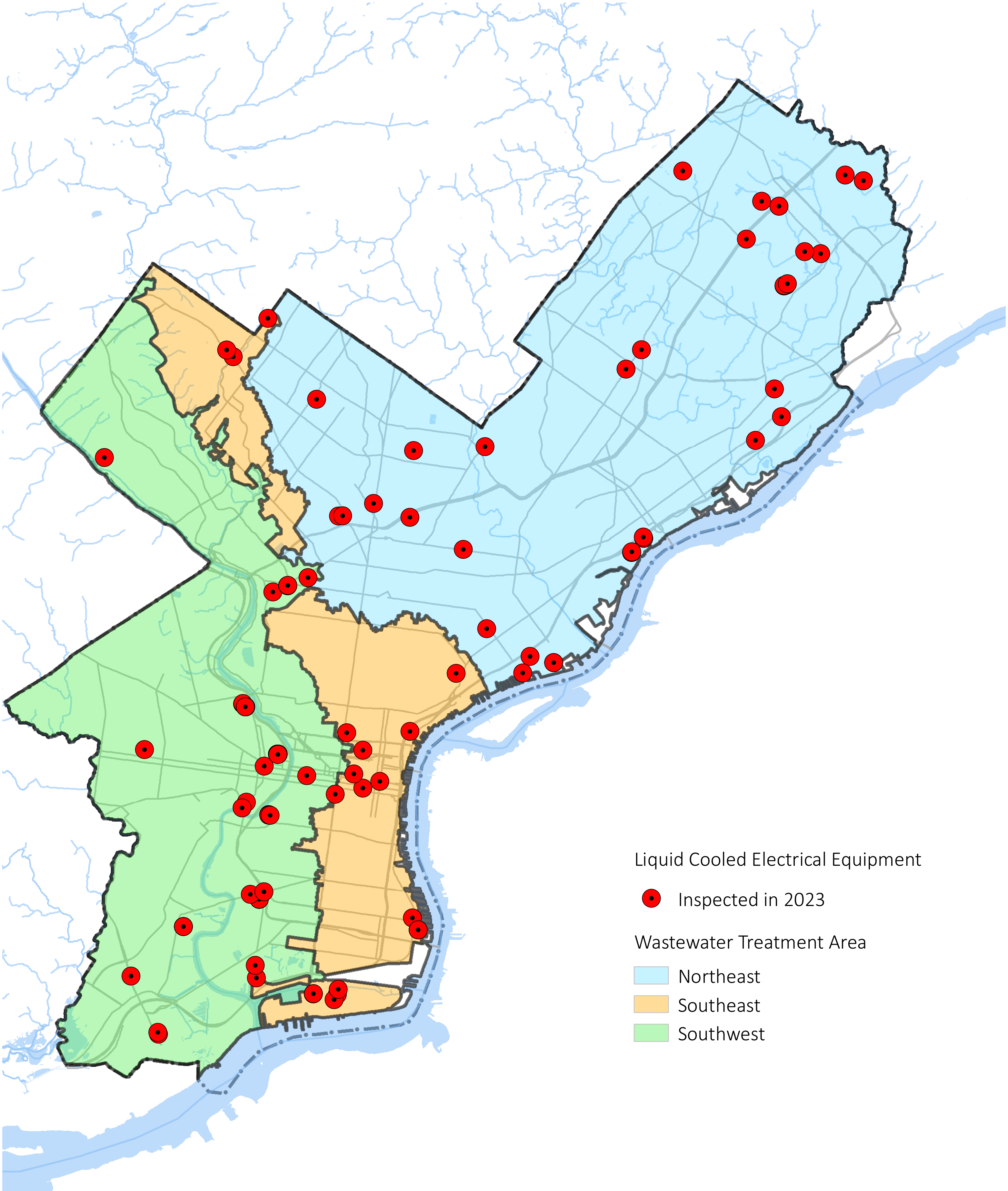
Drainage Area: Non-Contributing **Total Number of Inspections completed:** 17

LocID	NAME:	ADDRESS:	LOCATION	CONTACT	EQUIPMENT	NUMBER	CONC (PPM)	GALLONS	LEAKS?	INSP DATE	STATUS
Receiving Plant: SWWPCP											
PCB-SW206	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	Fire pump	Scott Kessler	Transformer	1	ND	1373	No	10/10/23	In Use
PCB-SW207	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	By child care center	Scott Kessler	Transformer	1	ND	221	No	10/10/23	In Use
PCB-SW208	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	WWTP	Scott Kessler	Transformer	1	ND	135	No	10/10/23	In Use
PCB-SW209	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	Adminstration B	Scott Kessler	Transformer	1	<50	125	No	10/10/23	In Use
PCB-SW210	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	WTP	Scott Kessler	Transformer	1	ND	1373	No	10/10/23	In Use
PCB-SW211	Johnson & Johnson Consumer Inc	7050 Camp Hill Rd 19034	Main B	Scott Kessler	Transformer	1	<50	165	No	10/10/23	In Use
PCB-SW213	Astra Foods, Inc	6430 Market St 19082	Boiler rm T1	Dimitri Poulimenos	Transformer	1	N/A	N/A	No	07/27/23	In Use
PCB-SW214	Astra Foods, Inc	6430 Market St 19082	S bld T4	Demitri Poulmentous	Transformer	1	N/A	N/A	No	07/27/23	In Use
PCB-SW215	Astra Foods, Inc	6430 Market St 19082	E bld T5	Demitri Poulmentous	Transformer	1	N/A	N/A	No	07/27/23	In Use
PCB-SW216	Astra Foods, Inc	6430 Market St 19082	Centrifudge bld west of T4	Demitri Poulmentous	Transformer	1	N/A	N/A	No	07/27/23	In Use

Receiving Plant: SWWPCP
Drainage Area: Township **Total Number of Inspections completed: 10**

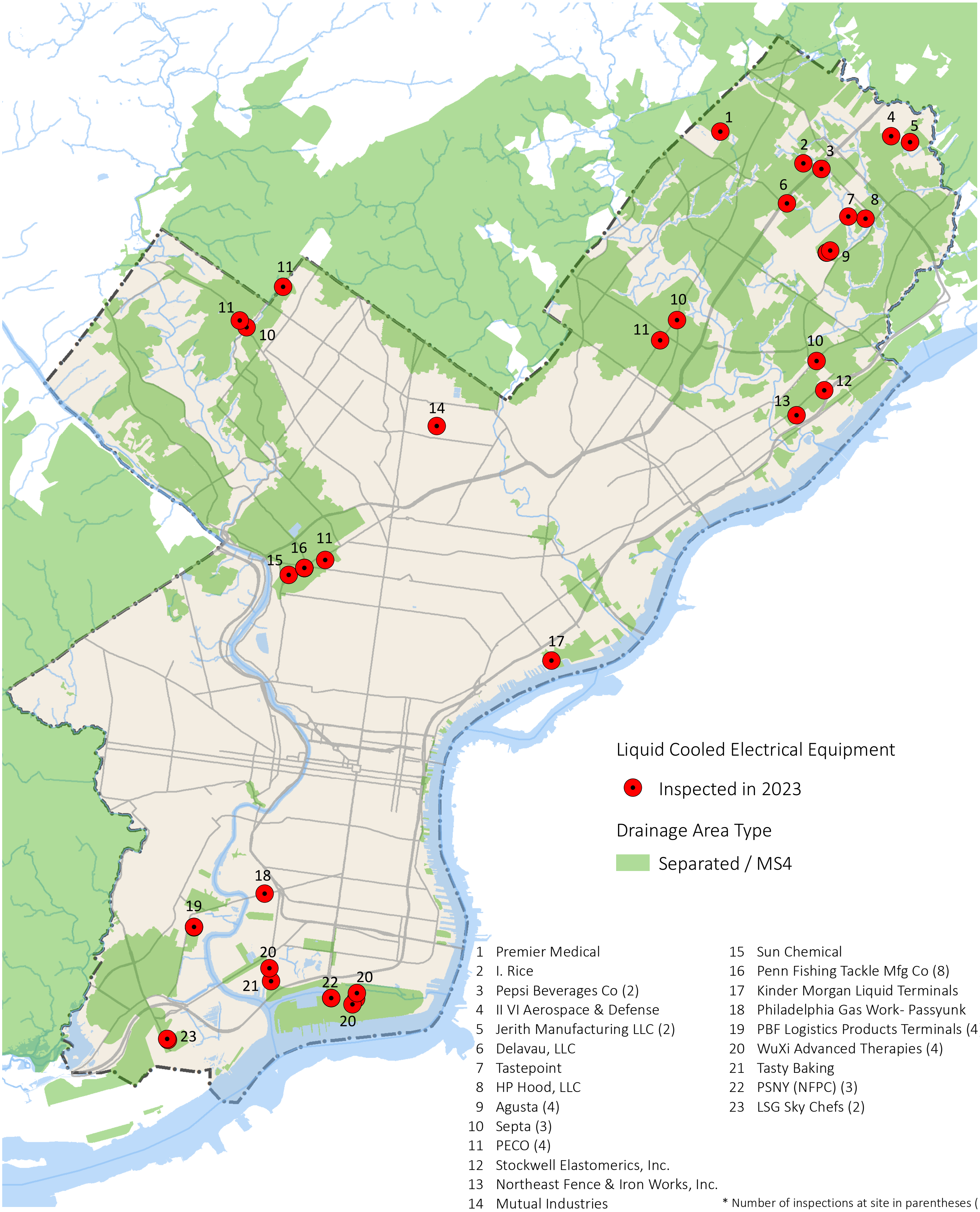
Receiving Plant: SWWPCP **Total Number of Inspections completed: 62**

Total Inspections: 129



Liquid Cooled Electrical Equipment Sites Inspected in 2023
By Wastewater Treatment Area, Philadelphia, PA

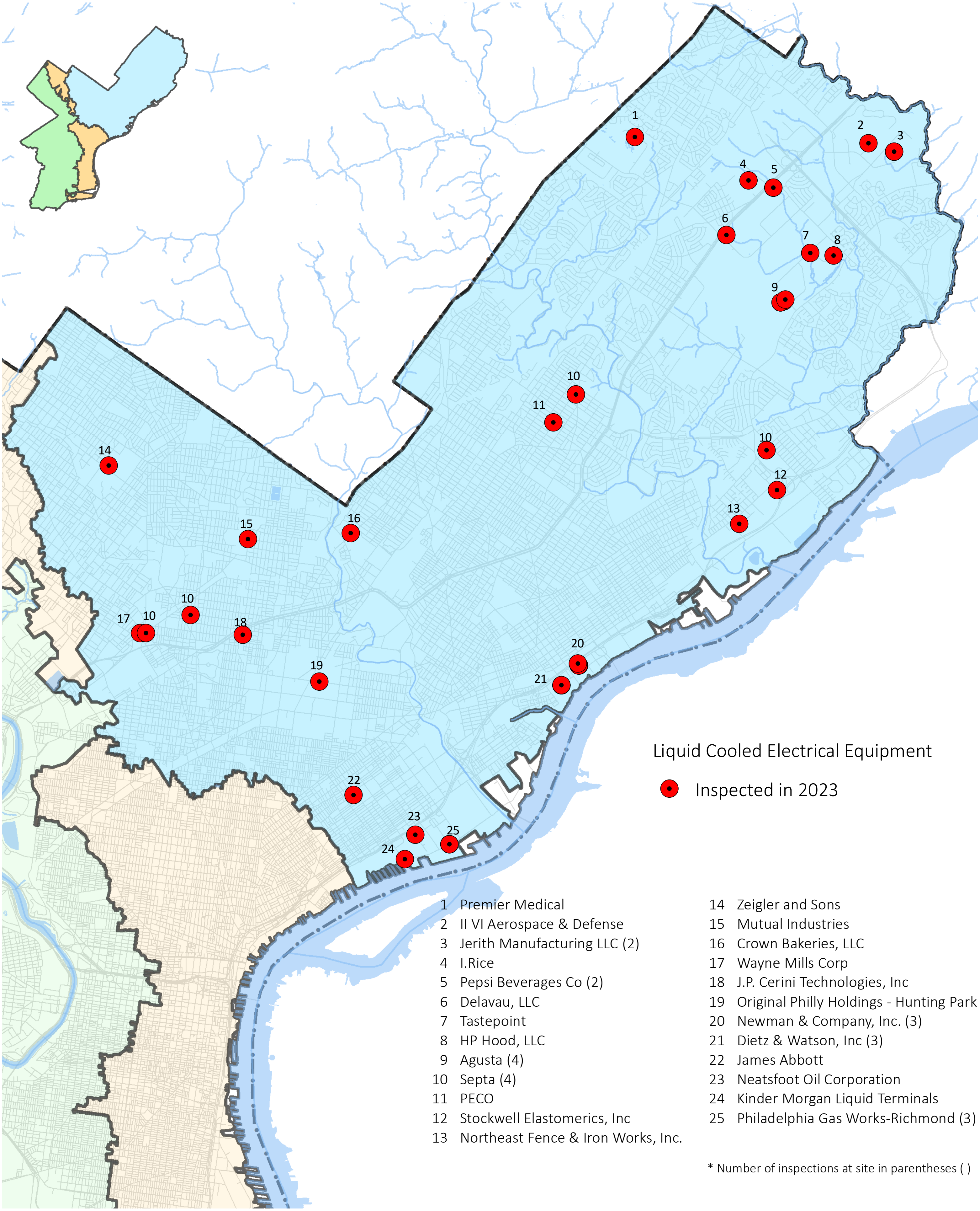
Source: Philadelphia Water Department, 2024
Created By: PWD GIS Unit, Feb 12, 2024



Liquid Cooled Electrical Equipment Sites Inspected in 2023

In MS4 Areas, Philadelphia, PA

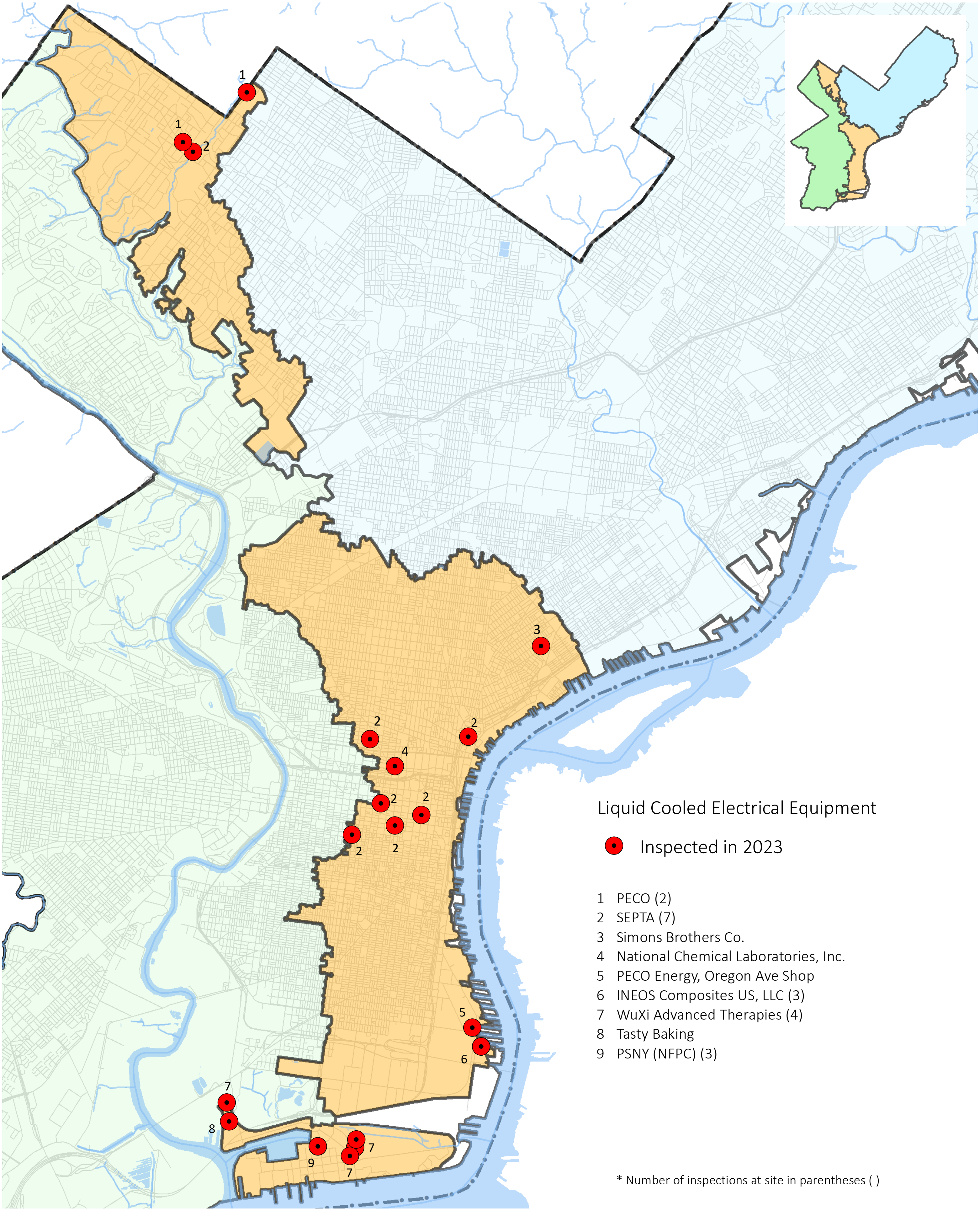
Source: Philadelphia Water Department, 2024
Created By: PWD GIS Unit, Feb 12, 2024



Liquid Cooled Electrical Equipment Sites Inspected in 2023

Northeast Treatment Area, Philadelphia, PA

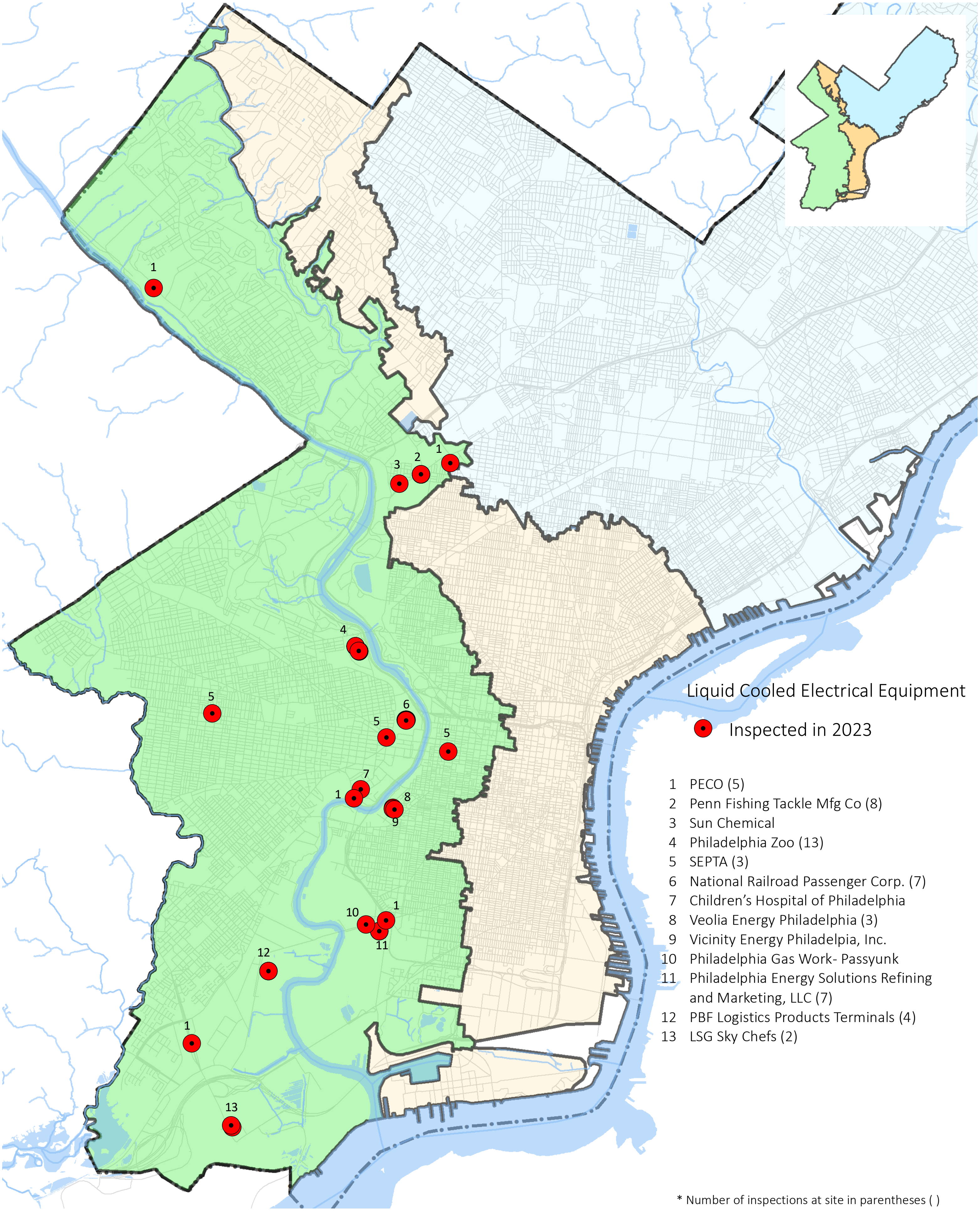
Source: Philadelphia Water Department, 2024
Created By: PWD GIS Unit, Feb 12, 2024



Liquid Cooled Electrical Equipment Sites Inspected in 2023

Southeast Treatment Area, Philadelphia, PA

Source: Philadelphia Water Department, 2024
Created By: PWD GIS Unit, Feb 12, 2024



Liquid Cooled Electrical Equipment Sites Inspected in 2023
Southwest Treatment Area, Philadelphia, PA

Source: Philadelphia Water Department, 2024
Created By: PWD GIS Unit, Feb 12, 2024

Attachment C

Township Connection PCB Summary

Table C1: 2023 Township PCB Summary
PCB Homolog Concentration (µg/L)

Township Location ID	Sample Date	Parameter	Method	"< >"	Data Value	Units	Collection Method	Permittee
MC1-Bouvier & Cheltenham	9/20/2023	Decachlorobiphenyls	EPA 680	<	0.48	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Dichlorobiphenyls	EPA 680	<	0.097	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Heptachlorobiphenyls	EPA 680	<	0.29	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Hexachlorobiphenyls	EPA 680	<	0.19	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Monochlorobiphenyls	EPA 680	<	0.097	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Nonachlorobiphenyls	EPA 680	<	0.48	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Octachlorobiphenyls	EPA 680	<	0.29	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Pentachlorobiphenyls	EPA 680	<	0.19	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Tetrachlorobiphenyls	EPA 680	<	0.19	ug/L	Composite -24hr	Cheltenham
MC1-Bouvier & Cheltenham	9/20/2023	Trichlorobiphenyls	EPA 680	<	0.097	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Decachlorobiphenyls	EPA 680	<	0.49	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Dichlorobiphenyls	EPA 680	<	0.098	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Heptachlorobiphenyls	EPA 680	<	0.29	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Hexachlorobiphenyls	EPA 680	<	0.2	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Monochlorobiphenyls	EPA 680	<	0.098	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Nonachlorobiphenyls	EPA 680	<	0.49	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Octachlorobiphenyls	EPA 680	<	0.29	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Pentachlorobiphenyls	EPA 680	<	0.2	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Tetrachlorobiphenyls	EPA 680	<	0.2	ug/L	Composite -24hr	Cheltenham
MC2-Tookany Creek & Cheltenham	9/21/2023	Trichlorobiphenyls	EPA 680	<	0.098	ug/L	Composite -24hr	Cheltenham
MS4-Mermaid La. & Stenton	1/17/2023	Decachlorobiphenyls	EPA 680	<	0.24	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Dichlorobiphenyls	EPA 680	<	0.024	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Heptachlorobiphenyls	EPA 680	<	0.047	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Hexachlorobiphenyls	EPA 680	<	0.035	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Monochlorobiphenyls	EPA 680	<	0.024	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Nonachlorobiphenyls	EPA 680	<	0.24	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Octachlorobiphenyls	EPA 680	<	0.059	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Pentachlorobiphenyls	EPA 680	<	0.035	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Tetrachlorobiphenyls	EPA 680	<	0.035	ug/L	Composite -24hr	Springfield
MS4-Mermaid La. & Stenton	1/17/2023	Trichlorobiphenyls	EPA 680	<	0.024	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Decachlorobiphenyls	EPA 680	<	0.21	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Dichlorobiphenyls	EPA 680	<	0.021	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Heptachlorobiphenyls	EPA 680	<	0.042	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Hexachlorobiphenyls	EPA 680	<	0.031	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Monochlorobiphenyls	EPA 680	<	0.021	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Nonachlorobiphenyls	EPA 680	<	0.21	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Octachlorobiphenyls	EPA 680	<	0.052	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Pentachlorobiphenyls	EPA 680	<	0.031	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Tetrachlorobiphenyls	EPA 680	<	0.031	ug/L	Composite -24hr	Springfield
MS5-Winston & Stenton	1/17/2023	Trichlorobiphenyls	EPA 680	<	0.021	ug/L	Composite -24hr	Springfield

Table C1: 2023 Township PCB Summary
PCB Homolog Concentration (µg/L)

MS6-Woodbrook & Stenton	1/17/2023	Decachlorobiphenyls	EPA 680	<	0.22	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Dichlorobiphenyls	EPA 680	<	0.022	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Heptachlorobiphenyls	EPA 680	<	0.044	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Hexachlorobiphenyls	EPA 680	<	0.033	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Monochlorobiphenyls	EPA 680	<	0.022	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Nonachlorobiphenyls	EPA 680	<	0.22	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Octachlorobiphenyls	EPA 680	<	0.056	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Tetrachlorobiphenyls	EPA 680	<	0.033	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Trichlorobiphenyls	EPA 680	<	0.022	ug/L	Composite -24hr	Springfield
MS6-Woodbrook & Stenton	1/17/2023	Pentachlorobiphenyls	EPA 680	<	0.033	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Decachlorobiphenyls	EPA 680	<	0.2	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Dichlorobiphenyls	EPA 680	<	0.02	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Heptachlorobiphenyls	EPA 680	<	0.039	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Hexachlorobiphenyls	EPA 680	<	0.029	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Monochlorobiphenyls	EPA 680	<	0.02	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Nonachlorobiphenyls	EPA 680	<	0.2	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Octachlorobiphenyls	EPA 680	<	0.049	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Pentachlorobiphenyls	EPA 680	<	0.029	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Tetrachlorobiphenyls	EPA 680	<	0.029	ug/L	Composite -24hr	Upper Darby
MUD1-N-60Th & Cobbs Creek	1/20/2023	Trichlorobiphenyls	EPA 680	<	0.02	ug/L	Composite -24hr	Upper Darby

Appendix F – PWD Quarterly Dry Weather Water Quality Monitoring Program

Background

In 2009, the Philadelphia Water Department (PWD) initiated a dry weather water quality sampling program designed to work in tandem with the continuous data collection efforts of the PWD/USGS Cooperative Continuous Water Quality Monitoring Program. Grab samples are collected from 10 sites covering all six of Philadelphia County's watersheds on a quarterly basis by the staff of PWD's Bureau of Laboratory Services (BLS). Data collected through this program are most pertinent to Target A (Dry Weather Water Quality & Aesthetics) of PWD's Integrated Watershed Management Plan (IWMP) Strategy, as outlined in the following section.

The IWMP Target Strategy

IWMPs are designed to meet the goals and objectives of numerous water resources-related regulations and programs. Each IWMP results in a series of implementation recommendations that utilize adaptive management approaches to achieve measurable, watershed-wide benefits. By working with stakeholder groups to prioritize goals and evaluate options, PWD has learned that stakeholder priorities can at times differ from those identified by the data-driven problem identification process. This can present challenges in development and approval of a management alternative for watershed implementation. PWD has developed an approach that addresses what often emerges as a set of high-priority stakeholder concerns while simultaneously addressing the scientifically defined priorities.

By defining three distinct targets to meet the overall plan objectives, priorities identified by stakeholders can be addressed simultaneously with those identified through scientific data. Two of the targets were defined so they could be fully met through implementation of a limited set of options, while the third target would be best addressed through an adaptive management approach. In addition to the three targets, a fourth category has been developed to capture the more programmatic implementation options related to planning, outreach, reporting and continuation of the Watershed Partnership.

Targets are defined here as groups of objectives that each focus on a different problem related to the urban stream system. They can be thought of as different parts of the ultimate goal of fishable and swimmable waters through improved water quality, more natural flow patterns and restored aquatic and riparian habitat. Targets are specifically designed to help focus plan implementation. By defining these targets and designing alternatives and an implementation plan to address the targets simultaneously, the plan will have a greater likelihood of success. It also achieves some of the objectives within a relatively short time frame, providing incentives to the communities and agencies involved in the restoration, as

3 Targets of the IWMP

- Aesthetically appealing, accessible streams during dry weather
- Improved stream habitat for fish and macroinvertebrates
- Wet weather water quality that meets fishable and swimmable criteria

well as immediate benefits to the people living in the watershed. PWD's IWMP planning targets are defined below:

Program Support

A number of implementation options deemed appropriate for a given watershed are "programmatic" in nature. While these options may support achievement of Targets A, B, and/or C, implementation of these options alone would not result in achievement of a particular target. These "Program Support" associated options include items such as monitoring, reporting, feasibility studies, outreach/education, and continuation of the Watershed Partnership.

Target A: Dry Weather Water Quality and Aesthetics

Streams should be aesthetically appealing (look and smell good), accessible to the public, and an amenity to the community. Target A was defined with a focus on eliminating sources of sewage discharge and other pollution during dry weather, along with trash removal and litter prevention. Access and interaction with the stream during dry weather has the highest priority, because dry weather flows occur about 60-65% of the time during the course of a year. These are also times when the public is most likely to be near or in contact with the stream. In dry weather, stream water quality should be similar to background concentrations in groundwater, particularly with respect to bacteria.

Target B: Healthy Living Resources

Improvements to the number, health, and diversity of benthic macroinvertebrate and fish species need to focus on habitat improvement and the creation of refuges for organisms to avoid high velocities during storms. Fluvial geomorphological studies, wetland and streambank restoration/creation projects, and stream modeling should be combined with continued biological monitoring to ensure that correct procedures are implemented to increase habitat heterogeneity within the aquatic ecosystem.

Figure 1. Eroded stream bank at Poquessing Creek

Improving the ability of an urban stream to support viable habitat and fish populations focuses primarily on the elimination or remediation of the more obvious impacts of urbanization on the stream. These include loss of riparian habitat, eroding and undercut banks, scoured streambed or excessive sediment deposits, channelized and armored stream sections, trash buildup, and invasive species. Thus, the primary tool to accomplish Target B is stream restoration.

Target C: Wet Weather Water Quality and Quantity

The third target is to restore water quality to meet fishable and swimmable criteria during wet weather. Improving water quality and flow conditions during and after storms is the most difficult target to meet in the urban environment. During wet weather, extreme increases in streamflow are common, accompanied by short-term changes in water quality. Where water quality and quantity problems exist, options may be identified that address both. Any stormwater management practice that increases infiltration or detains flow will help decrease the frequency of damaging floods; however, the size of such structures may need to be increased in areas where flooding is a major concern. (Reductions in the frequency of erosive flows and velocities will also help protect the investment in stream restoration made as part of Target B.)

Target C must be approached somewhat differently from Targets A and B. Full achievement of this target means meeting all water quality standards during wet weather, as well as elimination of flood-related issues. Meeting these goals will be difficult. It will be expensive and requires a long-term effort. A rational approach to achieve this target includes stepped implementation with interim goals for reducing wet weather pollutant loads and stormwater flows, along with monitoring for the efficacy of control measures.

Monitoring Locations

Water quality samples are taken at 10 USGS gage sites in the USGS/PWD Cooperative Monitoring Program (Figure 2). Site identification codes used by PWD's Bureau of Laboratory Services (BLS) and rivermile-based site ID codes are presented alongside USGS gage station numbers in Table 1. USGS stream gaging stations are ideal monitoring points as they allow discrete sample data to be coupled with continuous discharge data being collected year-round at these sites for loading estimate purposes. Furthermore, grab sample results and field meter readings taken at the time of grab sampling may be invaluable when evaluating continuous water quality data from these USGS gages.

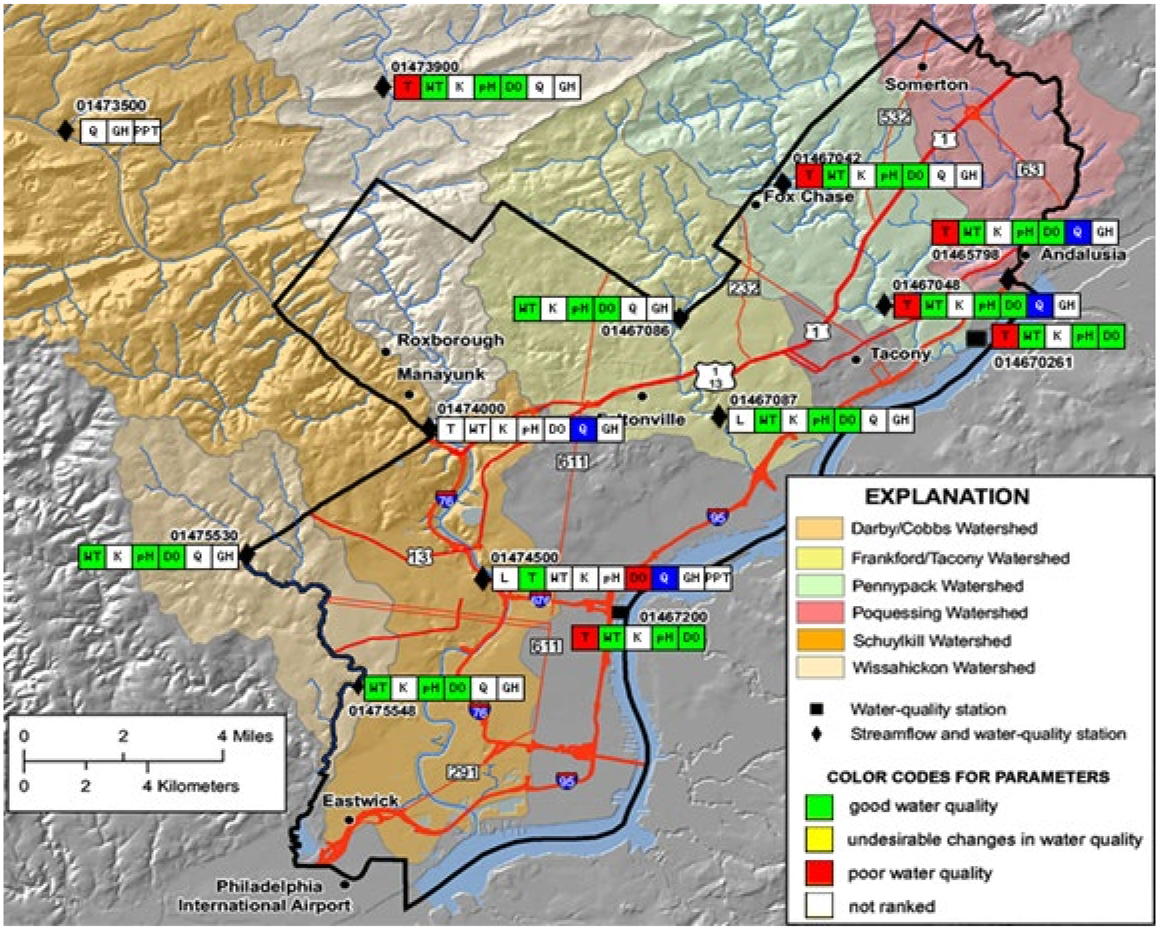


Figure 2. Philadelphia Water Quality Gage Stations as Viewed on Cooperative USGS-PWD Website (https://www.usgs.gov/centers/pa-water/science/philadelphia-water-resources-monitoring-program)

PWD is implementing a City-wide approach to dry weather water quality monitoring, rather than focusing on an individual watershed. Because a number of Green Stormwater Infrastructure (GSI) and other stormwater management projects are in the early stages of implementation, water quality benefits will only be observable over a period of several years.

Table 1. Monitoring Locations in the PWD/USGS Cooperative Program with Location IDs used by PWD Bureau of Laboratory Services and River Mile-Based Site IDs

Description	USGS Gage #	BLS Location ID	Site ID
Cobbs Creek at US Rte. 1 (City Line Ave.)	01475530	COBB700	DCC770
Cobbs Creek at Mt. Moriah Cemetery	01475548	COBB355	DCC251
Schuylkill River at Fairmount Dam	01474500	SCHU154	SC825
Wissahickon Creek at Ft Washington (Rte. 73)	01473900	WISS500	WS1075
Wissahickon Creek at Ridge Ave.	01474000	WISS130	WS076
Tacony Creek at Castor Ave.	01467087	TACO250	TF280
Tacony Creek at Adams Ave.	01467086	TACO435	TF597
Pennypack Creek at Pine Rd.	01467042	PENN407	PP993
Pennypack Creek at Rhawn St.	01467048	PENN175	PP340
Poquessing Creek at Grant Ave.	01465798	POQU150	PQ050

Gauging the success of such projects on a more immediate scale is best accomplished solely by hydrological analysis. Therefore, the strategic value of the widespread sampling approach is that as more GSI projects are completed over the coming years, the water quality data should gradually begin to reflect their positive environmental impacts.

Quarterly Dry Weather Monitoring July 2009 – June 2024

Sample Collection Dates

This report summarizes cumulative results from 58 sets of quarterly grab samples that were collected from June 2009 through June 2024. Samples were categorized by season (winter, spring, summer, fall) as well as according to PA DEP seasonal recreational use water quality criteria for interpretation of microbial sample results (Non-Swimming season or Swimming season) (Table 2).

Table 2. Quarterly Dry Weather Grab Sample Dates

Sample Date	Season	Recreational Use Season	Sample Date	Season	Recreational Use Season
30-Jun-09	summer	Swimming	22-Sep-16	fall	Swimming
02-Oct-09	fall	Non-Swimming	10-Jan-17	winter	Non-Swimming
17-Dec-09	winter	Non-Swimming	20-Apr-17	spring	Non-Swimming
11-Mar-10	spring	Non-Swimming	11-Jul-17	summer	Swimming
22-Jun-10	summer	Swimming	13/22-Sep-17	fall	Swimming
15-Sep-10	fall	Swimming	28-Feb-18	winter	Non-Swimming
20-Dec-10	winter	Non-Swimming	02-May-18	spring	Swimming
29-Mar-11	spring	Non-Swimming	10-Jul-18	summer	Swimming
27-Jun-11	summer	Swimming	24-Oct-18	fall	Non-Swimming
15-Sep-11	fall	Swimming	17-Jan-19	winter	Non-Swimming
13-Dec-11	winter	Non-Swimming	20-Mar-19	spring	Non-Swimming
20-Mar-12	spring	Non-Swimming	31-Jul-19	summer	Swimming
18-Jun-12	spring	Swimming	2-Oct-19	fall	Non-Swimming
26-Sep-12	fall	Swimming	29-Jan-20	winter	Non-Swimming
02-Jan-13	winter	Non-Swimming	17-Jun-20	summer	Swimming
04-Apr-13	spring	Non-Swimming	5-Oct-20	fall	Non-Swimming
17-Jul-13	summer	Swimming	10-Dec-20	winter	Non-Swimming
26-Sep-13	fall	Swimming	29-Apr-21	spring	Non-Swimming
17-Jan-14	winter	Non-Swimming	28-Jul-21	summer	Swimming
26-Mar-14	spring	Non-Swimming	4-Nov-21	fall	Non-Swimming
17-Jun-14	spring	Swimming	16-Dec-21	winter	Non-Swimming
23-Sep-14	fall	Swimming	25-Apr-22	spring	Non-Swimming
19-Dec-14	winter	Non-Swimming	14- Jul_22	summer	Swimming
18-Mar-15	spring	Non-Swimming	2-Feb-23	winter	Non-Swimming
23-Jun-15	summer	Swimming	4-Apr-23	spring	Non-Swimming
6-Oct-15	fall	Non-Swimming	20-Jun-23	spring	Swimming
6-Jan-16	winter	Non-Swimming	21-Sep-23	fall	Swimming
20-Apr-16	spring	Non-Swimming	1-Feb-24	winter	Non-Swimming
12-Jul-16	summer	Swimming	23-Apr-24	spring	Non-Swimming

Nutrient Analysis

The macronutrients phosphorus and nitrogen are essential to the growth and overall survival of all plants. However, when occurring in surplus they can be extremely detrimental to aquatic ecosystems, and in turn to the human population that utilizes these water bodies for drinking water and recreational activities such as fishing, boating, and swimming. Elevated nutrient concentrations in rivers and streams can most often be attributed to anthropogenic pollution sources. In these situations, the most common sources of both nutrients are runoff from fertilized lawns/farmland and wastewater discharge.

The most immediate result of excessive nutrient concentrations in any natural water body is excessive plant growth, seen in a variety of growth forms from suspended algae to aquatic macrophytes. As the first step in the process of eutrophication, this unnatural acceleration of aquatic plant growth can start a chain reaction leading to highly adverse effects to that ecosystem. For example, in small shallow streams, unnaturally high densities of algal periphyton can cause pronounced fluctuations in dissolved oxygen and pH and also adversely affect aquatic habitat by forming thick mats of filamentous algae or algal scums on stream substrates. Moreover, alteration of the algal community structure can lead to the proliferation of nuisance taxa, taste and odor problems in the drinking water supply, increased water treatment costs and, in rare cases, production of toxins (*e.g.*, from cyanobacteria blooms). As a result of these direct and indirect responses, streams and rivers can suffer severe impacts to both aquatic biodiversity and human recreational use.

It should be noted that several phosphorus-containing compounds, known as polyphosphates, can be found in the region's waterways, but they are naturally occurring and are present due to the geologic composition of the area. Furthermore, these polyphosphates pose little ecological threat as they are not present in a biologically available form. Only over long periods of time can these compounds be broken down into orthophosphates, which plants and algae can absorb and utilize for growth. Therefore, aside from the relatively minor contributions of the region's geology, the most significant source of orthophosphates in rivers and streams is human-generated pollution. It is for this reason that orthophosphates, along with nitrates, are included as components of this water quality monitoring program. These forms of N and P are readily available to stream producers.

Ammonia, present in surface waters as un-ionized ammonia gas (NH_3) or as ammonium ion (NH_4^+), is produced by deamination of organic nitrogen-containing compounds such as proteins, and also by hydrolysis of urea. In the presence of oxygen, ammonia is converted to nitrate (NO_3^-) by a pair of bacteria-mediated reactions, together known as the process of nitrification. Nitrification occurs quickly in oxygenated waters with sufficient densities of nitrifying bacteria, effectively reducing ammonia concentration, although at the expense of increased NO_3^- concentration. Ammonia is a primary form of nitrogen produced from excretory waste products and other organic material in sewage. Thus, presence of ammonia can be an indicator of sewage pollution. As ammonia is converted to nitrate in oxygenated streams, ammonia is a non-conservative pollution indicator that tends to decrease in concentration with increasing distance from the source of pollution. PA DEP water quality criteria for NH_3 reflect the relationship between stream pH, temperature, and ammonia dissociation. Ammonia toxicity is inversely related to hydrogen ion [H^+] concentration (*e.g.*, an increase in pH from 7 to 8 increases NH_3 toxicity by approximately an order of magnitude). At pH 9.5 and above, even background concentrations of NH_3 may be considered potentially toxic.

Ammonia may be introduced to streams through fertilizers, breakdown of natural organic material, stables and livestock operations, stormwater runoff, and in some cases from more serious anthropogenic sources of untreated sewage such as defective laterals, crossed/illicit connections, and sanitary sewer overflows (SSOs). PWD has established intensive field infrastructure trackdown, infrared photography, sewer camera monitoring, and dye testing programs to identify and correct these problems where and when they occur.

Nutrient Results

Nutrient data collected thus far at each of the sites are generally consistent with the data collected for Comprehensive Characterization Reports (CCRs) prepared for each of the respective watersheds. Five of 10 sites are not affected by treated wastewater discharges and usually had orthophosphate concentration less than the reporting limit. The reporting limit for the majority of samples was 0.028 mg/L, but limits of 0.1 mg/L, 0.05 mg/L, and 0.09 mg/L were also in effect at various times during the quarterly grab sampling program (Table 3). Conversely, Pennypack and Wissahickon creeks had multiple instances of elevated orthophosphate concentration, which is likely attributable to point source discharge of treated wastewater. Dilution effects were seen between upstream and downstream gages, particularly in the cases of Pennypack and Wissahickon creeks.

Though the Schuylkill River sampling station is downstream from several discharges of treated wastewater, nutrient concentrations are generally smaller than those observed from the Pennypack and Wissahickon creeks, perhaps reflecting the Schuylkill station's much larger overall watershed size and dilution capacity.

Table 3. Orthophosphate Summary Statistics and Assessments. (Concentrations in mg/L)

Gage	Mean	Median	Std. dev.	Min.	Max.	n	n, non-detects	Exceedances	Possible Exceedances	Assessment
01465798	0.05	0.05	0.03	0.009	0.164	59	41	10	39	Needs more evaluation
01467042	0.312	0.245	0.196	0.099	0.953	57	0	51	0	Non-attaining
01467048	0.22	0.172	0.149	0.053	0.852	59	0	54	0	Non-attaining
01467086	0.053	0.05	0.05	0	0.363	58	38	10	37	Needs more evaluation
01467087	0.058	0.05	0.035	0.006	0.201	59	33	15	33	Needs more evaluation
01473900	0.303	0.271	0.14	0.05	0.732	59	1	54	1	Non-attaining
01474000	0.171	0.16	0.068	0.05	0.457	59	3	51	3	Non-attaining
01474500	0.155	0.121	0.092	0.05	0.477	59	5	50	5	Non-attaining
01475530	0.05	0.05	0.031	0.007	0.165	59	39	9	39	Needs more evaluation

01475548	0.052	0.05	0.035	0	0.188	58	40	10	34	Needs more evaluation

Summary statistics for the orthophosphate samples, including results from the application of the PA DEP Chemistry Statistical Assessments protocol (PA DEP, 2007), are shown in Table 3. Exceedances were evaluated relative to the US EPA (2000) Subecoregion 64 guideline for orthophosphate of 0.02625 mg/L, *i.e.*, the median of the 25th percentile seasonal concentrations. Since the detection limit in past analyses has often been greater than the guideline, many non-detected samples were considered "possible exceedances." The nonparametric statistical assessment results show that the locations at Pennypack and Wissahickon creeks, and the Schuylkill River, failed to attain water quality consistent with this guideline. The other locations are classified as needing further evaluation due to the predominance of samples below the detection limit that are all possible exceedances. Figures 3-4 show the variability of orthophosphate results at each site.

Similar examples of wastewater discharge impacts and upstream/downstream dilution have also begun to emerge with regard to the nitrate data that have been collected. The data seem to indicate a trend toward decreased nitrate concentrations during warmer months, which would correspond to the increased uptake of nutrients by plant life during those growing seasons. The only exceptions are the Pennypack and Wissahickon Creek gage sites, which as previously stated are directly impacted by treated wastewater discharge.

Summary statistics for the nitrate samples, including results from application of the PA DEP Chemistry Statistical Assessment protocol (PA DEP, 2007), are shown in Table 4 and Figures 5-6. Exceedances were evaluated relative to a) the PA DEP water quality standard for nitrite and nitrate of 10 mg/L, and b) the US EPA (2000) subecoregion 64 guideline for nitrite and nitrate of 0.995 mg/L, *i.e.*, the median of the 25th percentile seasonal concentrations. The nonparametric statistical assessment results show that with respect to the PA DEP standard, all locations were in attainment except the upstream Wissahickon gage. Two exceedances have been observed at that site, and more data is needed to make an evaluation. All sites failed to attain water quality consistent with the US EPA subecoregion-based guideline.

Quarterly dry-weather analysis of ammonia began in the fall of 2011. PWD laboratory reporting limits for ammonia fluctuated based on the performance of lab analytical equipment with spiked and blank samples. Ammonia concentration detection limits were 0.5 mg/L for the fall 2011 sample set, and the subsequent sample set results usually had detection limits of 0.1 mg/L or 0.167 mg/L. The downstream Tacony site (01467087) most often exceeded the detection limit, where a maximum concentration of 0.4 mg/L was observed in both fall 2014 and summer 2015. Results are shown in Table 5 and Figures 7-8.

There were no observed violations of ammonia water quality criteria at any site during this period of dry-weather monitoring. With a majority of the sample results characterized as non-detects due to laboratory reporting limits, ammonia criteria were calculated with corresponding temperature and pH values to determine if possible exceedances existed (i.e., the criteria fell below the detection limit). None of the non-detect samples had the potential to violate water quality criteria.

Table 4. Nitrate Summary Statistics and Assessments. Concentrations are in mg/L.

Gage	Mean	Median	Std. dev.	Min.	Max.	n	n, non-detects	Exceedances, PADEP	Exceedances, Subecoregion	PADEP Assessment	EPA Subecoregion Assessment
01465798	1.72	1.68	0.53	0.76	3.75	57	0	0	55	Attaining	Non-attaining
01467042	4.52	4.18	0.94	3.14	7.94	55	0	0	54	Attaining	Non-attaining
01467048	3.63	3.50	0.95	1.21	6.33	57	0	0	56	Attaining	Non-attaining
01467086	2.46	2.31	1.09	1.43	9.74	56	0	0	55	Attaining	Non-attaining
01467087	1.81	1.81	0.68	0.51	3.37	58	0	0	56	Attaining	Non-attaining
01473900	6.04	5.64	1.97	2.69	12.04	56	0	2	55	Needs more evaluation	Non-attaining
01474000	3.98	3.93	0.90	1.29	6.18	58	0	0	57	Attaining	Non-attaining
01474500	2.97	2.91	0.45	2.14	4.16	58	0	0	57	Attaining	Non-attaining
01475530	2.96	2.96	0.42	2.12	4.45	58	0	0	57	Attaining	Non-attaining
01475548	2.48	2.44	0.54	1.40	3.50	57	0	0	56	Attaining	Non-attaining

Table 5. Ammonia Summary Statistics and Assessments. Concentrations are in mg/L.

Gage	Mean	Median	Std. dev.	Min.	Max.	n	n, non-detects	Exceedances
01465798	0.134	0.1	0.087	0.025	0.5	50	38	0
01467042	0.136	0.1	0.091	0.022	0.5	50	41	0
01467048	0.136	0.1	0.091	0.022	0.5	50	40	0
01467086	0.132	0.1	0.087	0.02	0.5	50	42	0
01467087	0.17	0.167	0.103	0.028	0.5	50	29	0
01473900	0.135	0.1	0.091	0.023	0.5	50	42	0
01474000	0.131	0.1	0.088	0.024	0.5	50	43	0
01474500	0.142	0.1	0.085	0.026	0.5	50	36	0
01475530	0.13	0.1	0.088	0.023	0.5	50	43	0
01475548	0.13	0.1	0.089	0.022	0.5	49	39	0

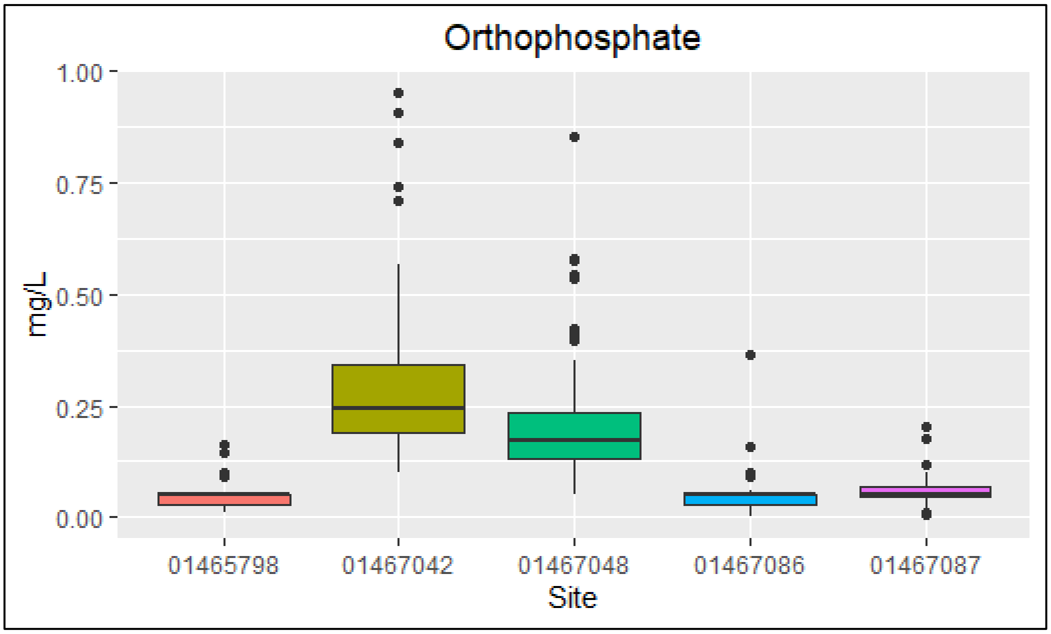


Figure 1. Orthophosphate concentration at 5 USGS gage stations, July 2009-June 2024

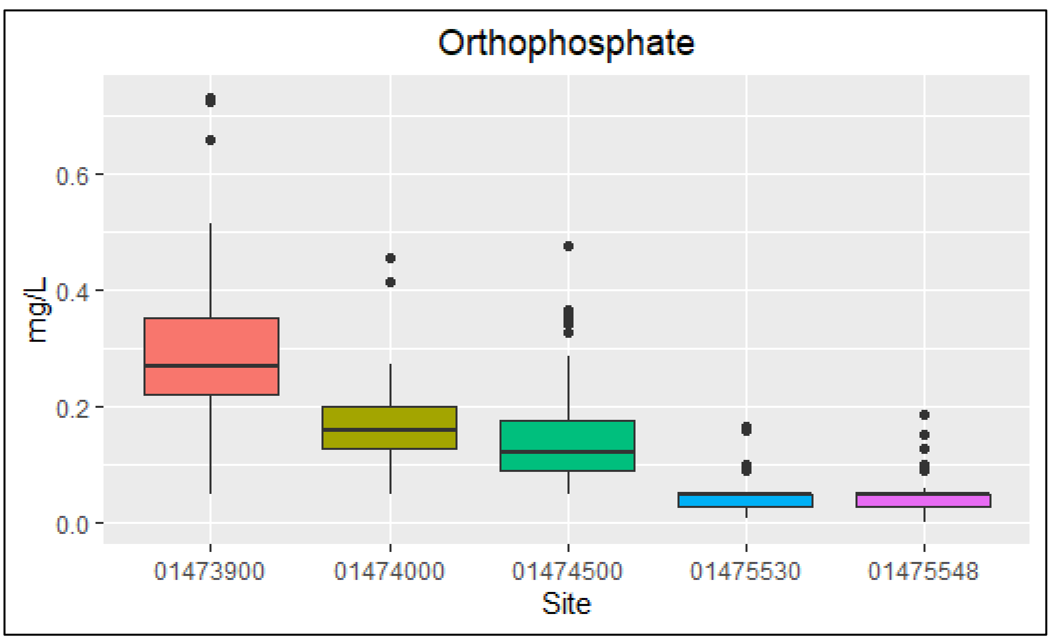


Figure 4. Orthophosphate concentration at 5 USGS gage stations, July 2009-June 2024

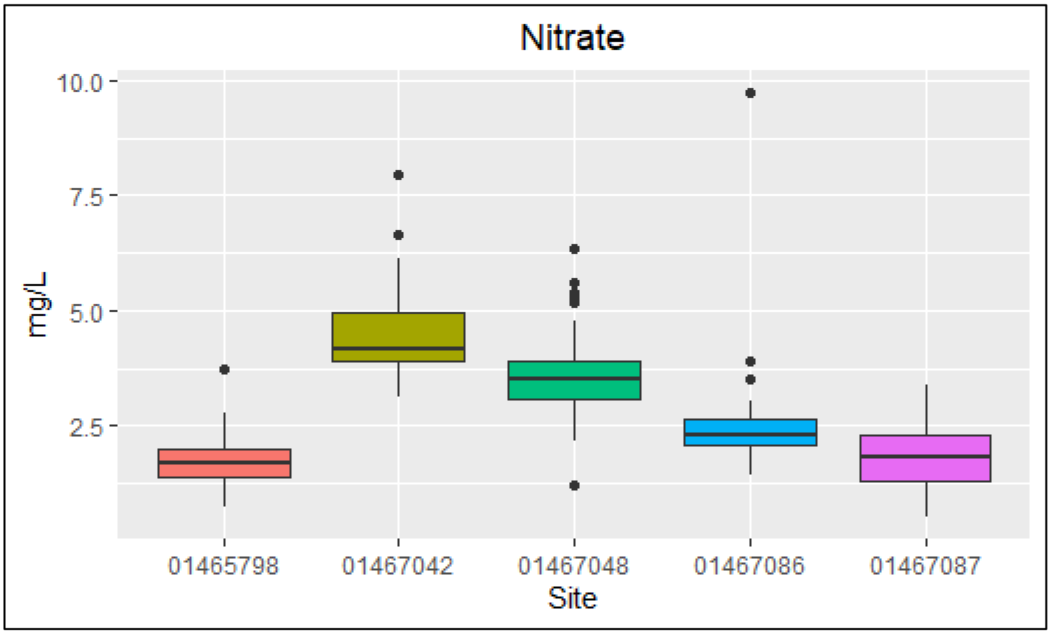


Figure 5. Nitrate concentration at 5 USGS gage stations, July 2009-June 2024

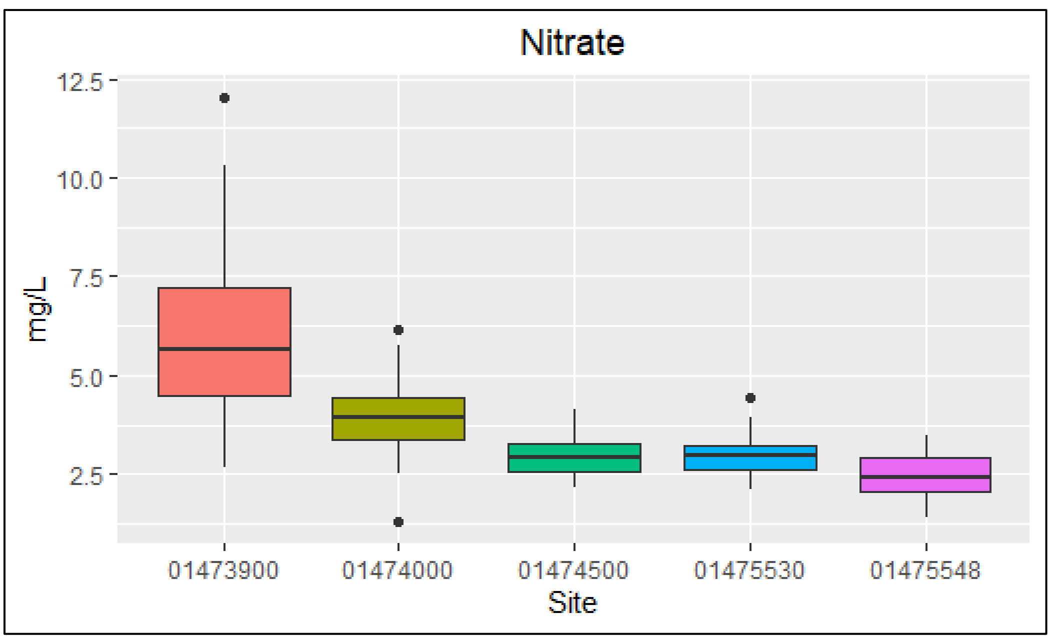


Figure 6. Nitrate concentration at 5 USGS gage stations, July 2009-June 2024

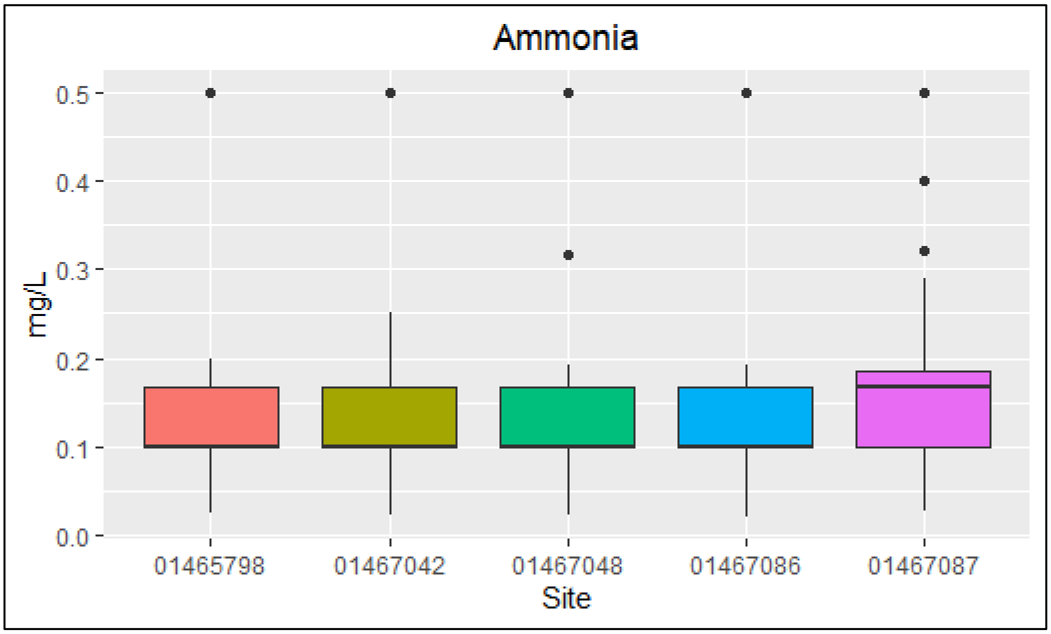


Figure 7. Ammonia concentration at 5 USGS gage stations, September 2011-June 2024

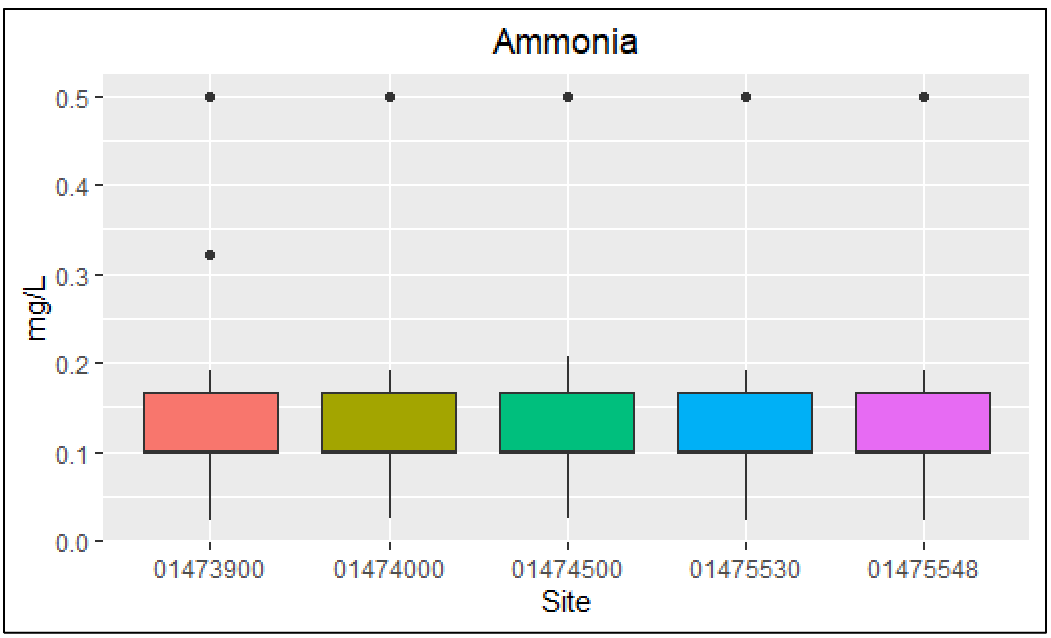


Figure 8. Ammonia concentration at 5 USGS gage stations, September 2011-June 2024

Microbial Analysis

Fecal indicator bacteria, found naturally in the gut of warm-blooded animals, can be used in the detection of human or animal waste contamination in a body of water. While these bacteria themselves are generally harmless to humans, they are considered to be very reliable indicators of the presence of other, more serious fecal-borne pathogens such as viruses, protozoa and other bacteria. The extent to which a water body is contaminated with fecal indicator bacteria can indicate the likelihood that the water has been contaminated by human or animal wastes. In urban environments, the most likely dry weather pollution sources are domestic animals, wildlife and untreated sewage from improperly connected or leaking sanitary sewers.

PWD performs fecal indicator bacteria tests for fecal coliform and *E. coli*. The fecal coliform test covers a relatively wide subgroup of fecal-specific bacteria; however, it does include some species that are not necessarily fecal in origin. *E. coli*, on the other hand, is a single coliform species that is noteworthy due to the fact that it occurs only in the fecal matter of humans and other warm-blooded animals. This qualifies *E. coli* as an excellent indicator of human waste.

Microbial Analysis Results

PA DEP has established seasonal bacteria water quality criteria that are more stringent in warmer months, or the "swimming season." For the period May 1 through September 30, water quality standards require that the geometric mean of a group of at least five samples collected on non-consecutive days over a 30-day period not exceed 126 *E. coli* CFU (colony forming unit) per 100mL. In addition, there should not be greater than a 10% excursion frequency of 410 CFU per 100 mL for the samples collected in the same 30-day interval. Although PWD does not typically collect five or more *E. coli* samples at USGS gage sites within a 30-day period, Table 6 calculates a geometric mean of quarterly grab samples for the swimming and non-swimming seasons. Results of microbial analyses from the swimming season samples generally indicate *E. coli* geometric means greater than 126 CFU/100mL (Table 6). The only exceptions were the downstream Wissahickon Creek and Schuylkill River gage sites, which each had *E. coli* geometric means less than 126 CFU/100mL. Figures 9-10 show the variability of *E. coli* results at each site.

During the non-swimming season, water quality criteria for fecal coliform apply. The maximum fecal coliform level during the non-swimming season is a geometric mean of 2,000 CFU per 100 mL. All sites achieved the less stringent standard for fecal coliform during the non-swimming season (Table 7). Figures 11-12 show the variability of fecal coliform results at each site.

Table 6. *E. coli* Geometric Mean Results and PA DEP Water Quality Recreational Use Criteria Achievement Status During Swimming Season

Gage	n	n, non-detects	Geometric mean (CFU/100 mL)	Season	Attaining Standard
01465798	34	1	219	non-swimming	NA
01465798	24	0	475	swimming	No
01467042	34	1	69	non-swimming	NA
01467042	24	0	342	swimming	No
01467048	34	0	363	non-swimming	NA
01467048	24	0	788	swimming	No
01467086	34	0	249	non-swimming	NA
01467086	24	0	762	swimming	No
01467087	33	0	384	non-swimming	NA
01467087	24	0	497	swimming	No
01473900	34	0	91	non-swimming	NA
01473900	24	0	299	swimming	No
01474000	34	1	54	non-swimming	NA
01474000	24	0	102	swimming	Yes
01474500	34	2	38	non-swimming	NA
01474500	24	2	41	swimming	Yes
01475530	34	1	84	non-swimming	NA
01475530	24	0	266	swimming	No
01475548	34	1	212	non-swimming	NA
01475548	23	0	632	swimming	No

Table 7. Fecal Coliform Geometric Mean Results and PA DEP Water Quality Recreational Use Criteria Achievement Status During Non-Swimming Season

Gage	n	n, non-detects	Geometric mean (CFU/100 mL)	Season	Attaining Standard
01465798	34	1	158	non-swimming	Yes
01465798	24	0	503	swimming	NA
01467042	34	1	59	non-swimming	Yes
01467042	24	0	335	swimming	NA
01467048	34	0	284	non-swimming	Yes
01467048	24	1	855	swimming	NA
01467086	34	0	195	non-swimming	Yes
01467086	24	0	1008	swimming	NA
01467087	33	0	350	non-swimming	Yes
01467087	24	0	602	swimming	NA
01473900	34	0	76	non-swimming	Yes
01473900	24	0	262	swimming	NA
01474000	34	1	47	non-swimming	Yes
01474000	24	0	116	swimming	NA
01474500	34	1	31	non-swimming	Yes
01474500	24	2	41	swimming	NA
01475530	34	1	74	non-swimming	Yes
01475530	24	0	295	swimming	NA
01475548	34	0	174	non-swimming	Yes
01475548	23	0	813	swimming	NA

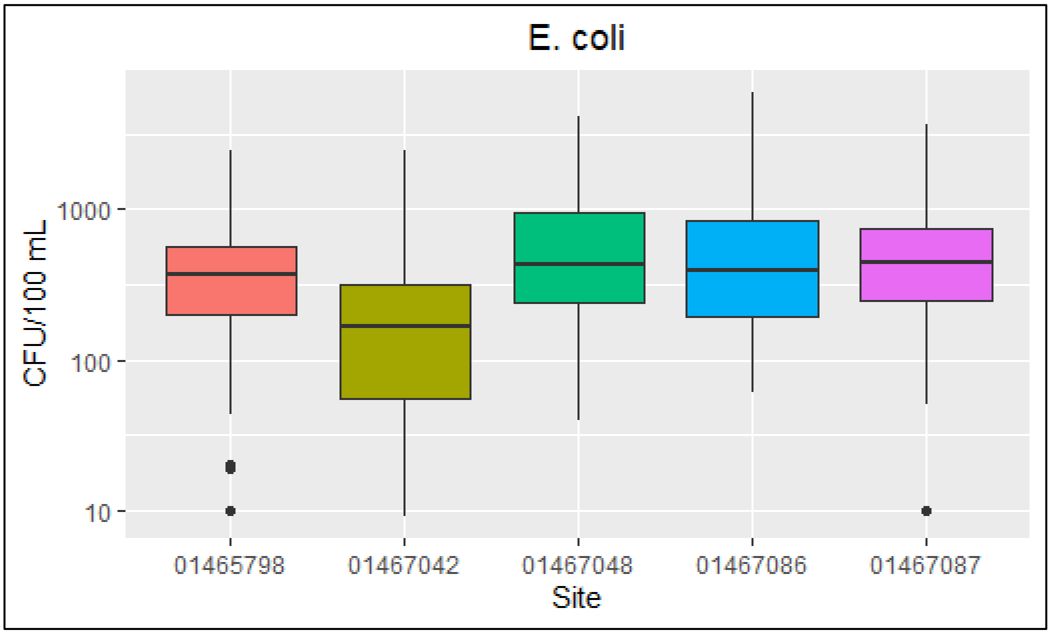


Figure 9. E. coli results at 5 USGS gage stations, July 2009-June 2024

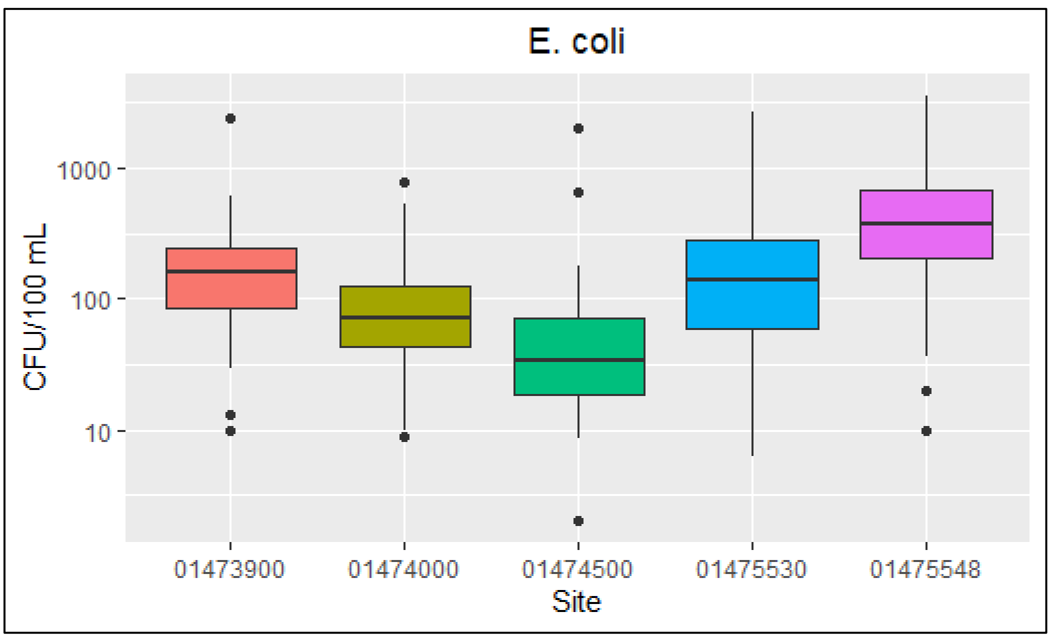


Figure 10. E. coli results at 5 USGS gage stations, July 2009-June 2024

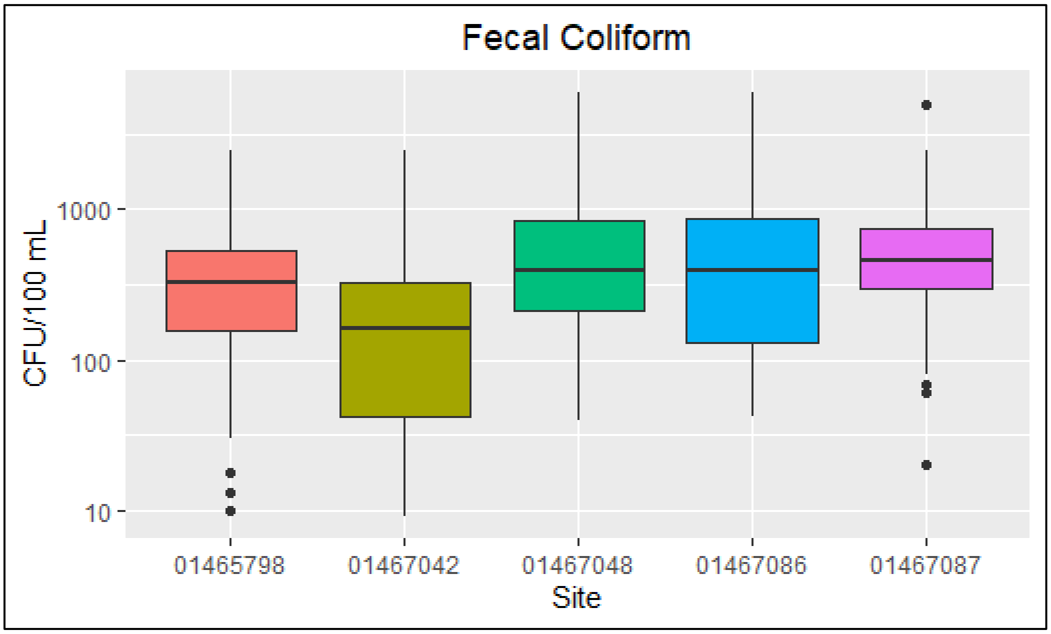


Figure 11. Fecal Coliform results at 5 USGS gage stations, July 2009-June 2024

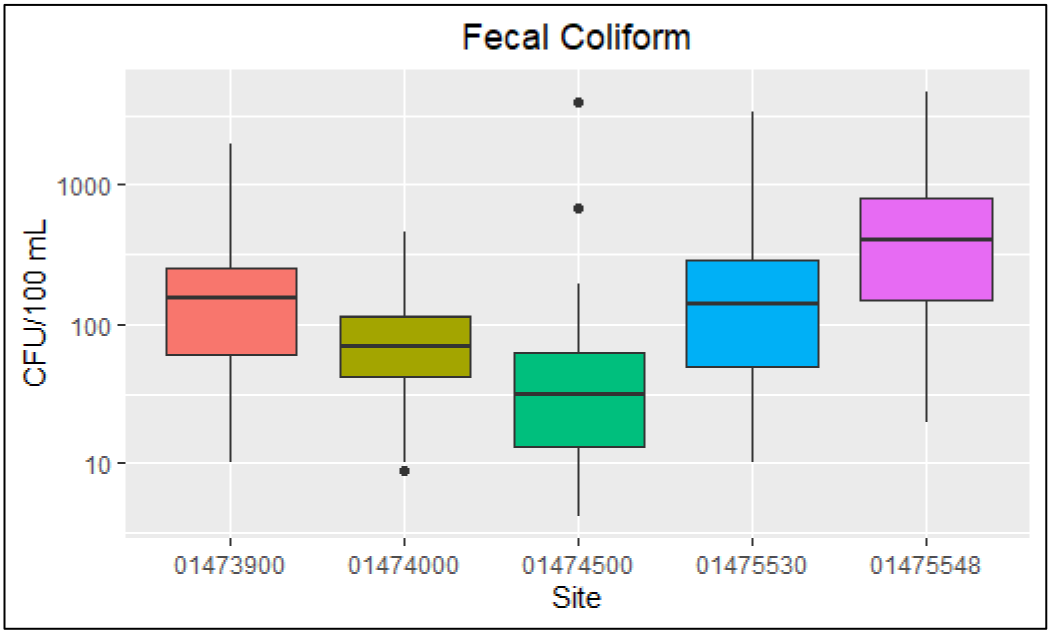


Figure 12. Fecal Coliform results at 5 USGS gage stations, July 2009-June 2024

Physicochemical Analysis

In addition to nutrient and microbial analyses, a basic set of physicochemical parameters were also monitored as part of the discrete quarterly sampling program. These parameters (dissolved oxygen, pH, temperature, and specific conductance) were specifically chosen to coincide with those being measured by the USGS continuous water quality monitoring gages. These data can then be utilized as valuable field checks when analyzing continuous water quality data from USGS gages. The physicochemical data are summarized by parameter in Figures 13-20.

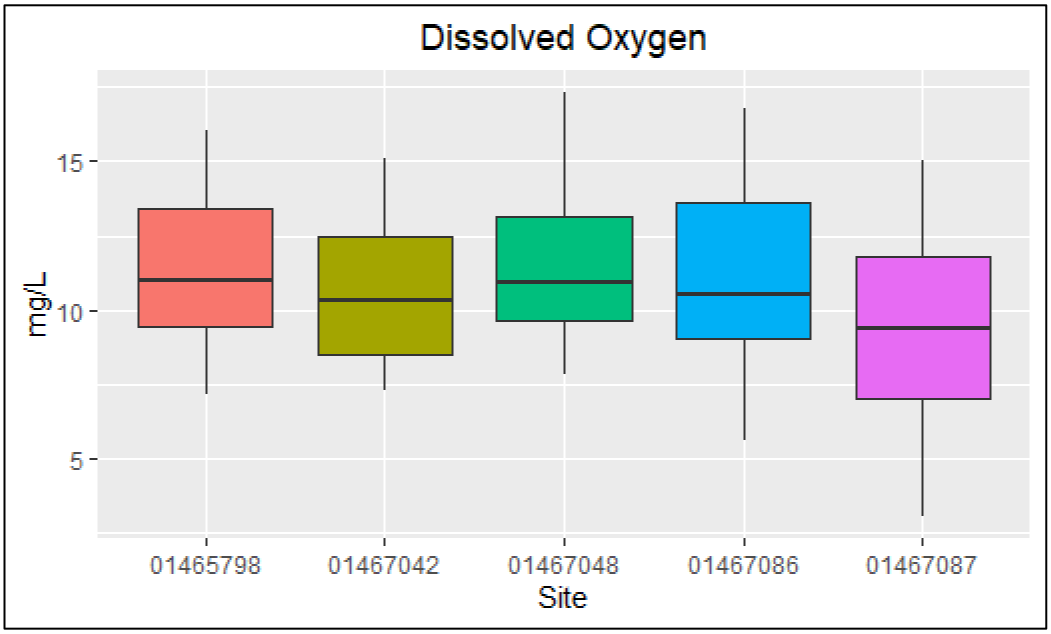


Figure 13. Dissolved oxygen results at 5 USGS gage stations, July 2009-June 2024

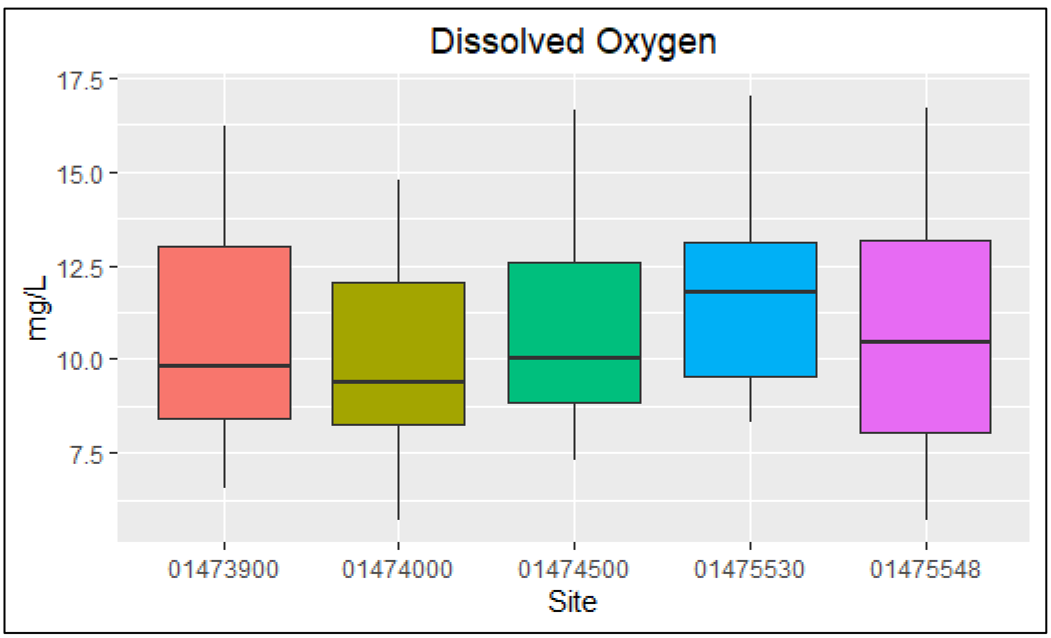


Figure 14. Dissolved oxygen results at 5 USGS gage stations, July 2009-June 2024

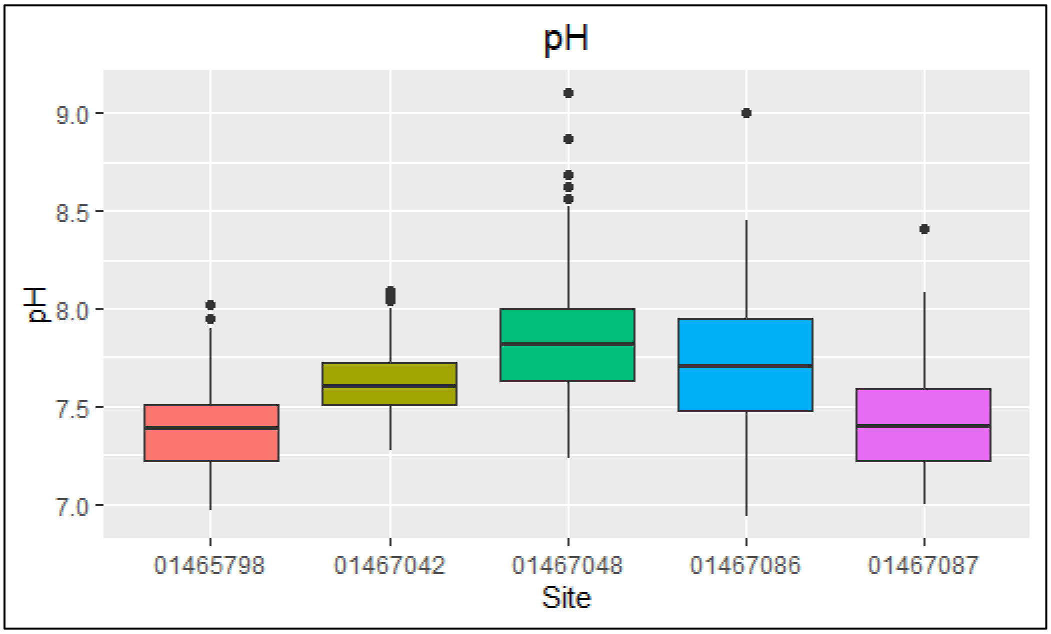


Figure 15. pH results at 5 USGS gage stations, July 2009-June 2024

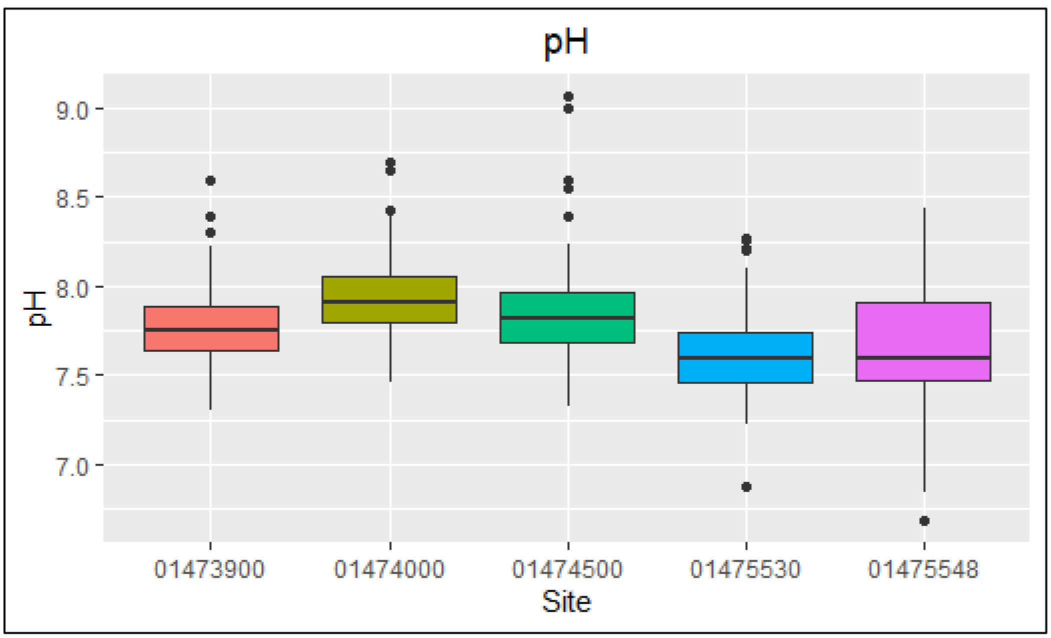


Figure 16. pH results at 5 USGS gage stations, July 2009-June 2024

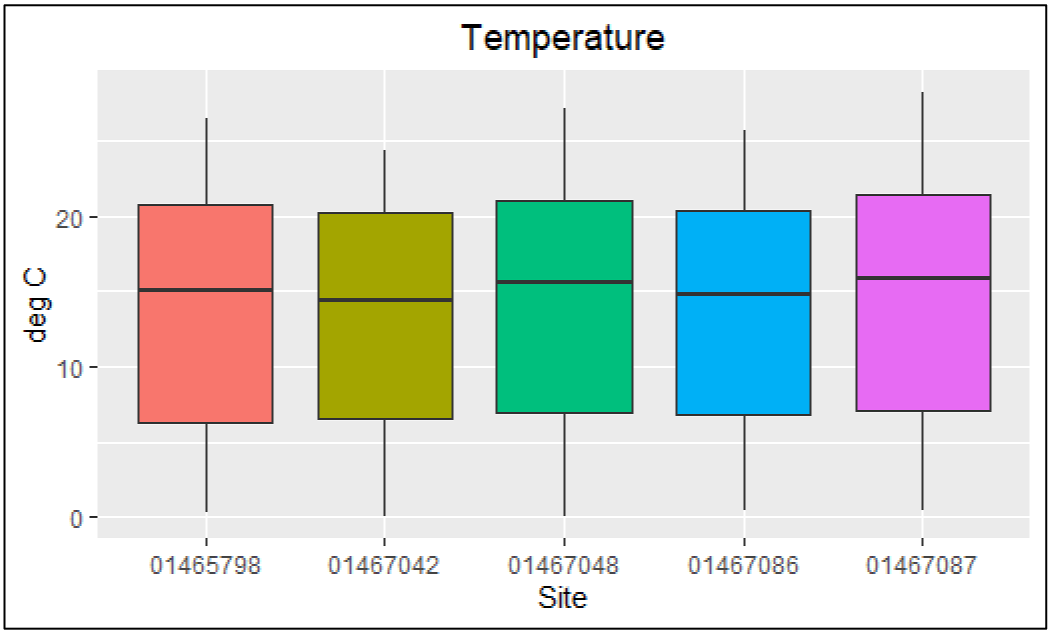


Figure 17. Temperature results at 5 USGS gage stations, July 2009-June 2024

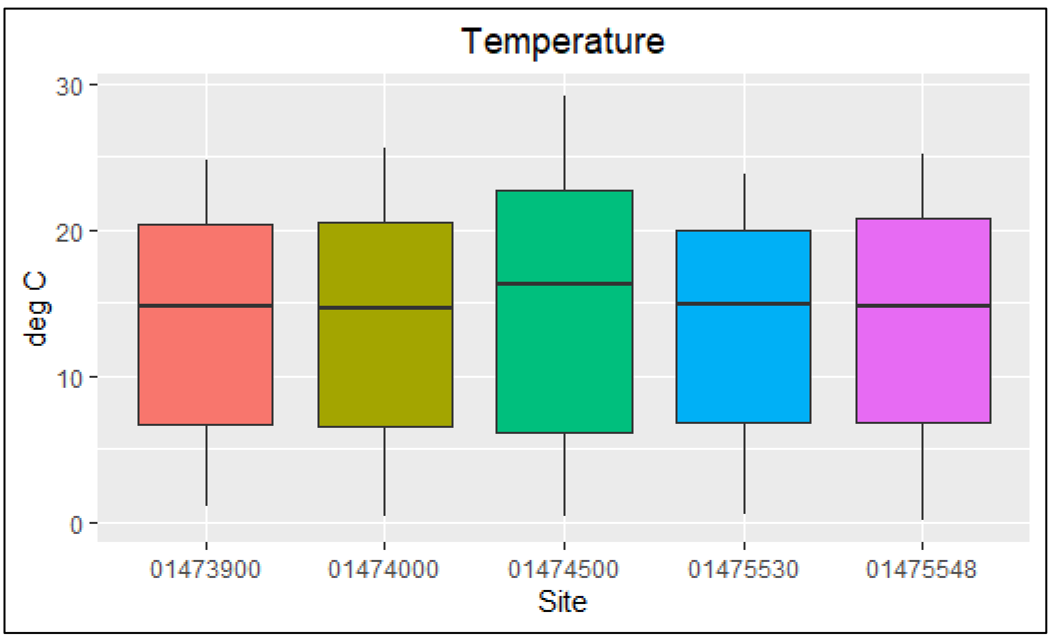


Figure 18. Temperature results at 5 USGS gage stations, July 2009-June 2024

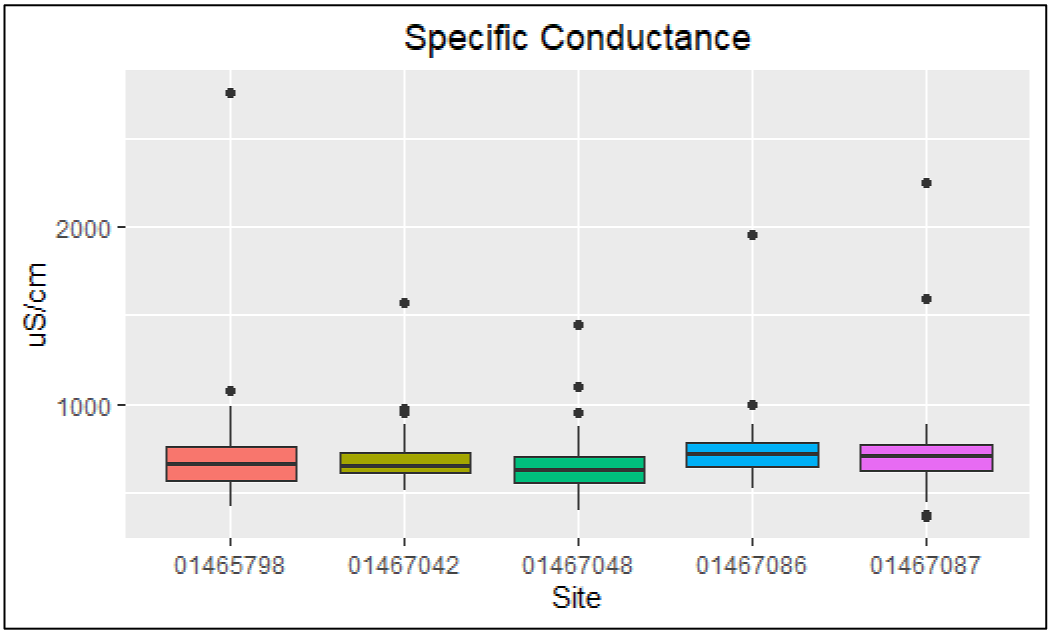


Figure 19. Specific conductance results at 5 USGS gage stations July 2009-June 2024

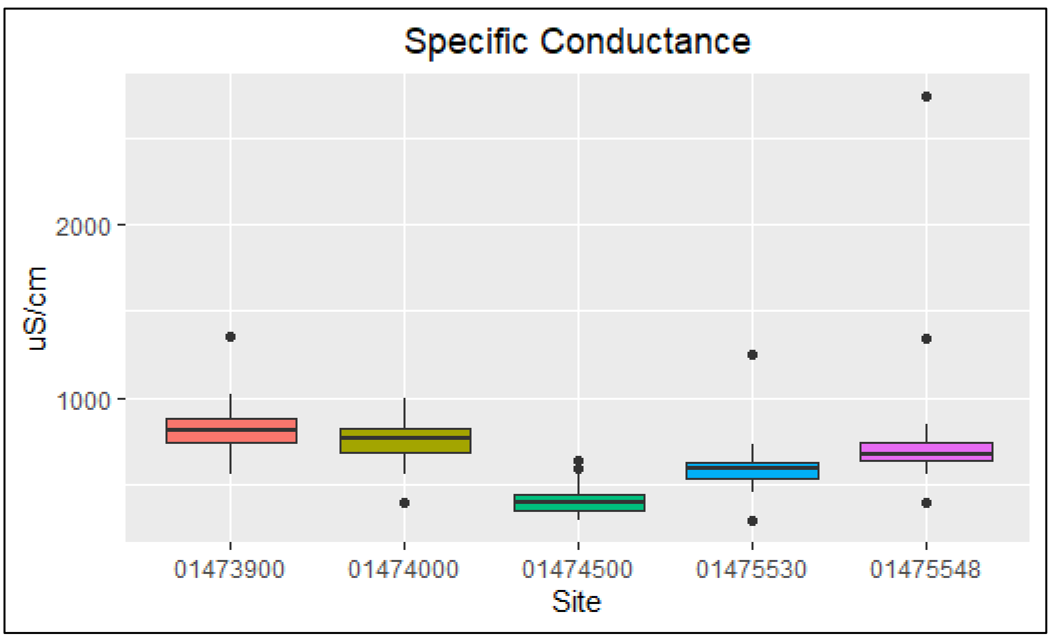


Figure 20. Specific conductance results at 5 USGS gage stations July 2009-June 2024

References

Pennsylvania Department of Environmental Protection (PA DEP). (2007). Chemistry Statistical Assessments. Harrisburg, PA. 17 p.

United States Environmental Protection Agency (US EPA). (1986). Quality Criteria for Water. EPA 440/5/86/001. Washington, D.C. 447 p.

United States Environmental Protection Agency (US EPA). (2000). Ambient Water Quality Criteria Recommendations: Rivers and Streams in Nutrient Ecoregion IX. EPA 822/B/00/019. Office of Water, U.S. Environmental Protection Agency, Washington D.C.

Appendix G – PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary

Background

PWD and the United States Geological Survey (USGS) have constructed and/or refurbished gaging stations in 10 locations throughout Philadelphia's watersheds. USGS staff is responsible for construction and maintenance of the gage structure, stream stage monitoring instruments, data communications, maintaining and verifying stage-discharge rating curves and pumping apparatus. PWD staff is responsible for installation and maintenance of continuous water quality instrumentation. Data collected through the PWD/USGS cooperative water quality monitoring program are disseminated through the USGS National Water Information System (NWIS) Web Interface (https://pa.water.usgs.gov/apps/pwd/), as well as a website specifically dedicated to Philadelphia's watersheds (Figure 1).

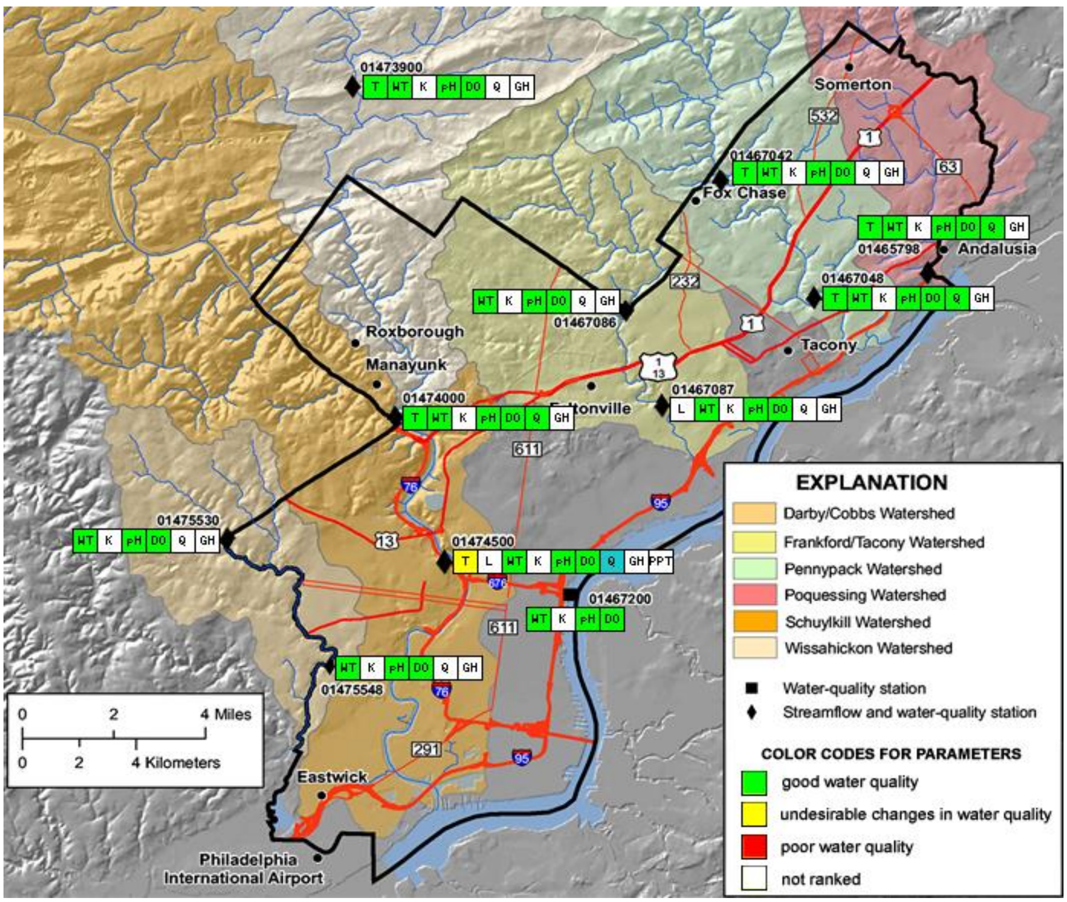


Figure 1. Philadelphia Water Quality Gauge Stations as Viewed on Cooperative USGS-PWD Website (https://usgs.gov/centers/pa-water/science/philadelphia-water-resources-monitoring-program).

Monitoring Locations

The PWD/USGS Cooperative Monitoring Program builds upon the widespread network of USGS gages that were formerly operated throughout Philadelphia. These gages are logically situated and/or have a continuous period of record, making them ideal for water quality monitoring purposes. Within a given watershed, downstream-most historic stations were chosen to represent water quality, as these streams flow through Philadelphia into the receiving waters (*i.e.*, the Schuylkill and Delaware rivers).

Regarding upstream stations, three gages (Pennypack Creek at Pine Rd, Tacony Creek at Adams Ave, and Cobbs Creek at US Rte. 1) are strategically located to monitor water quality of the streams as they enter Philadelphia (Figure 1). The upstream Wissahickon Creek monitoring station is located at Rte. 73 in Fort Washington, which is approximately 3.7 river miles upstream of the City. This location was chosen due to its extensive period of record (Table 1). Upstream water quality is not measured in the Poquessing-Byberry Creek Watershed. The Schuylkill River gage is in an ideal location to provide data related to the Schuylkill River Fairmount Dam Fish Ladder Renovation Project and was equipped with water quality monitoring instrumentation upon project completion in early 2009. In December 2020, the Delaware River gage at the Ben Franklin Bridge was relocated to a nearby downstream site at Penn's Landing.

This annual report summarizes water quality data from July 1, 2023 – June 30, 2024, excluding the period of December 2023 through February 2024, during which time monitoring probes were not deployed in order to protect the equipment from cold temperatures. Water quality data at the Delaware River gages 01467200 and 014670261 were collected year-round. Due to routine maintenance such as cleaning and calibration, gages are periodically taken offline, usually for no more than the span of two hours, and do not collect data. Significant gaps in data collection due to gage malfunction, repair, vandalism, etc. are noted in the Monthly Results section.

In order to summarize hydrologic conditions during the monitoring period, daily mean discharge was plotted along with the median of all daily flows for USGS gage 01474000 (Wissahickon Creek at Mouth.). The period of record for this gage is 59 years; approved daily mean discharge data for this gage was only available through February 21, 2024 at the time of this writing. The influence of storms can be observed as peaks in streamflow in Figure 2.

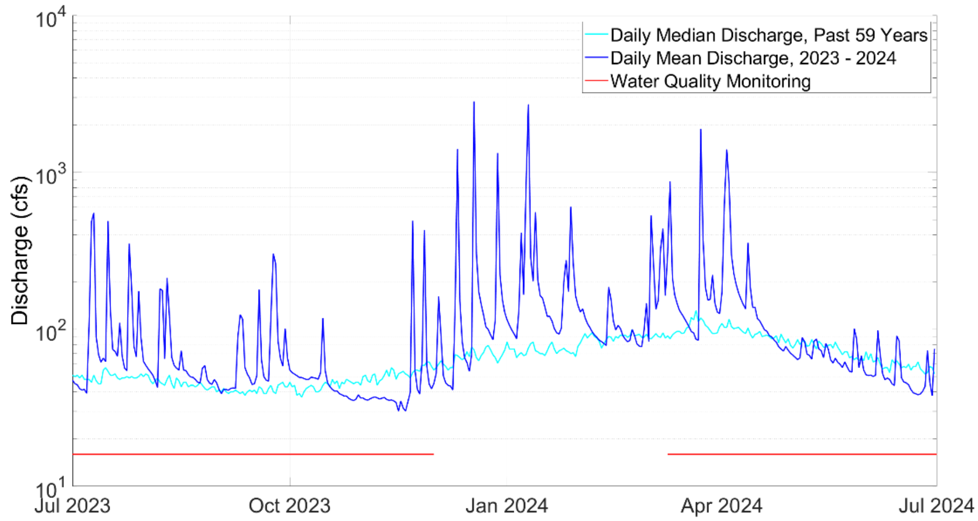


Figure 2. Daily mean flow July 1, 2023 – June 30, 2024 and daily median flow for 59 years of record at USGS gage 01474000 (Wissahickon Creek at Mouth).

Table 1. PWD/USGS Cooperative Water Quality Monitoring Program Gages

Gage Number	Gage name	Flow Data Record
01465798	Poquessing Creek at Grant Avenue, Philadelphia, PA	July 1965 to Present
01467042	Pennypack Creek at Pine Road, Philadelphia, PA	August 1964 to September 1974; September 2007 to Present
01467048	Pennypack Creek at Lower Rhawn St Br., Philadelphia, PA	June 1965 to Present
01467086	Tacony Creek at County Line, Philadelphia, PA	October 1965 to September 1986; September 2005 to Present
01467087	Frankford Creek at Castor Ave, Philadelphia, PA	July 1982 to Present
014670261	Delaware River near Pennypack Woods, PA	February 2011 to Present
01467200*	Delaware River at Ben Franklin Bridge/Penn's Landing, Philadelphia, PA	August 1949 to Present
01473900**	Wissahickon Creek at Ft. Washington, PA	September 1961 to September 1968; June 2000 to Present
01474000	Wissahickon Creek at Mouth, Philadelphia, PA	June 1897 to September 1903; January 1905 to July 1906; October 1965 to Present
01474500	Schuylkill River at Philadelphia, PA	October 1931 to Present
01475530	Cobbs Creek at U.S. Highway No. 1, Philadelphia, PA	October 1964 to September 1981; September 2004 to Present
01475548	Cobbs Creek at Mt. Moriah Cemetery, Philadelphia, PA	October 2005 to Present

*Funding for the operation of this gage is provided by USGS and the Delaware River Basin Commission (DRBC)
**Funding for the operation of this gage is provided by DRBC

USGS Gage Data Processing & Analysis Procedures

With 10 USGS gages collecting data for multiple water quality parameters at half-hour or 15-minute intervals, a large amount of data are produced. PWD Office of Watersheds (OOW) staff have developed procedures for the processing and analysis of these data using Microsoft Excel software, as well as MATLAB, a statistical programming language used for data analysis, cleaning, and visualization. Most aspects of the data processing and analysis have been automated with custom MATLAB code.

OOW independently maintains databases of water quality and streamflow via automated regular retrievals of these data from USGS NWIS. On a monthly basis, the databases are queried and results for each gage are imported into MS Excel workbooks. If available, any field data collected during that period (*e.g.*, hand meter readings from field maintenance checks, water quality grab samples, etc.) are also imported. Once all required data have been entered, separate plots are produced for each parameter (dissolved oxygen, turbidity, pH, specific conductance, and temperature) to enable a subjective review of data quality.

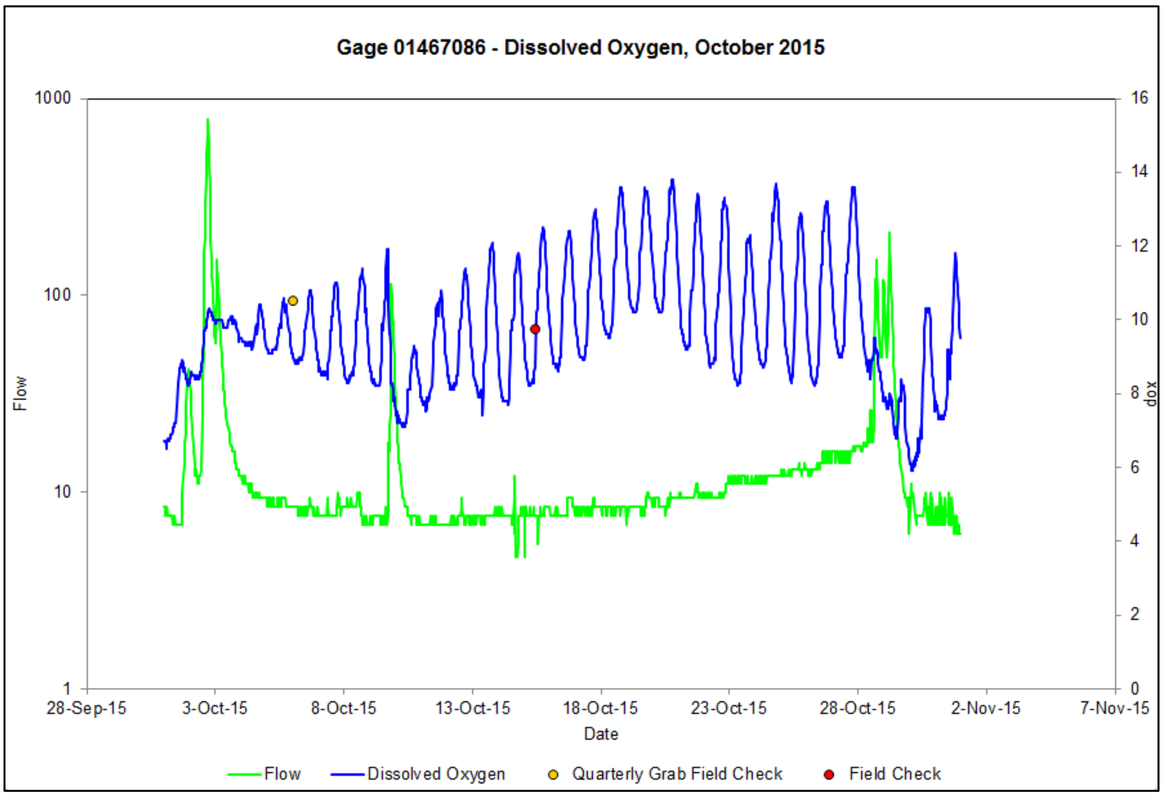


Figure 3. Example of an Excel-generated data processing/analysis plot; Gage 01467086, Dissolved Oxygen, October 2015.

These plots are examined and are the primary basis for the selection of good vs. questionable data for a given month. Intervals of questionable data are located and added to a table of “flagged” data for that particular parameter, which is then used to update the water quality database. Logs of field meter readings taken by PWD staff inform the flagging process, along with email records containing field notes and observations whenever water quality instrumentation is cleaned, calibrated, or otherwise maintained.

The final step of the procedure utilizes MATLAB, a statistical programming language and software environment. The MATLAB software code developed by OOW staff analyzes all water quality data contained within a database, as well as good and questionable data flags, and generates statistical and graphic results in a variety of forms. These include monthly plots for all data parameters for each site, showing accepted and questionable data, water quality criteria, grab sample data, and streamflow (Figure 4); assorted statistics including accepted and questionable data comparisons, monthly attainment percentages, and comparisons of wet and dry weather periods; and additional plots, including average dissolved oxygen (DO), percent DO saturation, and pH/percent DO saturation.

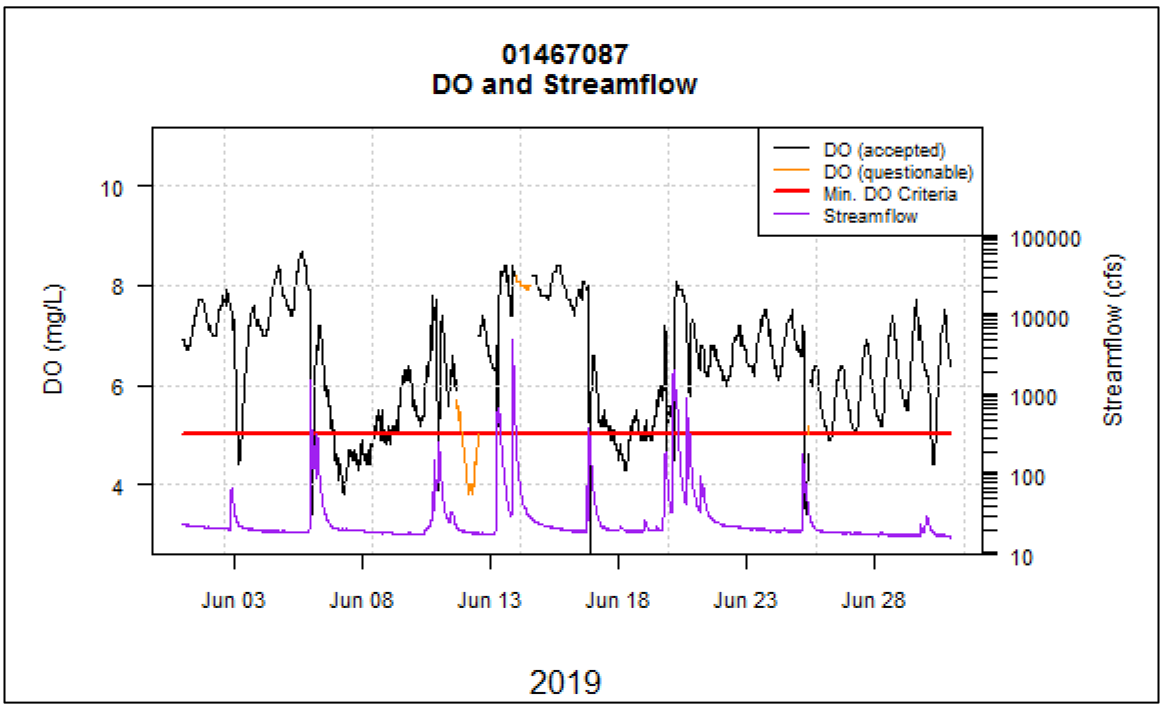


Figure 4. Example of an R-generated plot showing accepted and questionable data, and minimum water quality criteria; Gage 01467087, Dissolved Oxygen, June 2019.

Continuous Water Quality Monitoring Results Annual Summary, July 2023 - June 2024

Dissolved Oxygen

Background

Dissolved oxygen concentrations are a concern in several of Philadelphia's watersheds. Dissolved oxygen concentration is suppressed by high temperatures, respiratory activity of stream organisms, and nitrification and other oxidation reactions. Streams generally develop problems with dissolved oxygen due to water column BOD, sediment oxygen demand (SOD) and eutrophication due to increased nutrient concentration. These processes are inter-related, and physical conditions can also affect dissolved oxygen concentrations.

Designated Uses

Streams in the Philadelphia region are affected by ambient temperatures, which can be quite warm in the spring and summer months. For this reason, these streams cannot support natural self-sustaining populations of cold water fish. Different water quality criteria for dissolved oxygen and temperature are applied to different stream segments. Of the sites that were instrumented for water quality, the Wissahickon and Pennypack Creek gages (*i.e*., 01473900, 01474000, 01467042, and 01467048) are each designated as a Trout Stocking Fishery (TSF) with conditions appropriate for maintenance of stocked trout over the period February 15 to July 31. Water quality criteria for dissolved oxygen are more stringent for these sites, with a daily instantaneous minimum criterion of 5 mg/L and a 7-day average of 6 mg/L from February 15 to July 31 and 5.5 mg/L the remainder of the year. Dissolved oxygen criteria for Warm Water Fisheries (WWF) are an instantaneous minimum of 5 mg/L and a 7-day average of 5.5 mg/L.

The 7-day average criteria were introduced in 2014 by PA DEP. Prior to 2014, DEP specified daily average criteria for dissolved oxygen (5.0 mg/L for WWF waters; 6.0 mg/L for TSF waters from February 15 to July 31, 5.0 mg/L the remainder of the year). It is also noted that the instantaneous minimum DO criterion for WWF waters became more stringent in 2014; it was previously 4.0 mg/L.

The Delaware River gage 01467200 dissolved oxygen criteria are defined by the Delaware River Basin Commission (DRBC) criteria for Zone 3 (DRBC, 2007) with a daily mean of 3.5 mg/L and a seasonal mean (April 1 to June 15, and September 16 to December 31) of 6.5 mg/L. The same seasonal criteria apply to Delaware River gage 014670261 (Zone 2), but there is a more stringent daily mean guideline of 5.0 mg/L (Table 2).

Table 2. PADEP Dissolved Oxygen Water Quality Criteria

Gage number	Designated Use	Minimum Criterion	7-Day Average Criterion	Daily Average Criterion
01465798	WWF	5.0 mg/L	5.5 mg/L	None
014670261	DRBC**	None	None	5.0 mg/L
01467042	TSF*	5.0 mg/L	6.0 mg/L	None
01467048	TSF*	5.0 mg/L	6.0 mg/L	None
01467086	WWF	5.0 mg/L	5.5 mg/L	None
01467087	WWF	5.0 mg/L	5.5 mg/L	None
01467200	DRBC**	None	None	3.5 mg/L
01473900	TSF*	5.0 mg/L	6.0 mg/L	None
01474000	TSF*	5.0 mg/L	6.0 mg/L	None
01474500	WWF	5.0 mg/L	5.5 mg/L	None
01475530	WWF	5.0 mg/L	5.5 mg/L	None
01475548	WWF	5.0 mg/L	5.5 mg/L	None

*TSF criteria for DO only apply from February 15 - July 31. WWF criteria are applicable from August 1 – January 31.
**A seasonal mean criterion of 6.5 mg/L also applies from April 1 - June 15 and September 16 - December 31.

Results

Results were processed as follows for Table 3. The “percent accepted data” are the total number of observations that were not flagged. The remainder of the table lists the percent of data that was flagged, and the percentages of accepted data that attained or failed to attain water quality standards were calculated.

Results were processed as follows for Tables 4 and 5. If more than 25% of the data in the 7-day window was flagged as questionable, the data point was considered questionable. The 7-day average was calculated as a two-sided moving average. During data processing and analysis, output files are split by calendar year; thus, statistics for 2023 and 2024 appear in separate tables.

Water quality at the downstream Tacony Creek site (gage 01467087) was most likely to exceed DO minimum and 7-day average criteria. A more in-depth discussion of potential causes of DO problems at gage 01467087 is presented in the Monthly Results section. A notable portion of flagged data at 01467087 and other sites is related to the fouling of sonde pipes due to sediment and debris that inhibit data collection. The DO probes are particularly susceptible to the effects of trapped sediment; when routine cleaning of the sonde pipes show that low DO readings were affected by fouling, the questionable data prior to cleaning is flagged.

Table 3. USGS Gage July 2023 - June 2024 Dissolved Oxygen Minimum Criterion Summary Results

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% non-attaining	% attaining
1465798	WWF	25253	100	0	1.7	98.3
14670261*	DRBC	34721	100	0	NA	NA
1467042	TSF	25212	100	0	0	100
1467048	TSF	25186	100	0	0.1	99.9
1467086	WWF	12221	99.9	0.1	1.1	98.9
1467087	WWF	19586	99.9	0.1	18.5	81.5
1467200*	DRBC	33246	100	0	NA	NA
1473900	TSF	14827	100	0	2.1	97.9
1474000	TSF	12593	100	0	0	100
1474500	WWF	12586	100	0	0	100
1475530	WWF	25300	100	0	0	100
1475548	WWF	25091	100	0	4.8	95.2

*No minimum DO criterion applies at gages 01467200 and 014670261

Table 4. USGS Gage July 2023 - November 2023 Dissolved Oxygen 7-Day Average Criterion Summary Results

Gage number	Designated Use	Total hours accepted data	% hours flagged data	% hours non-attaining	% hours attaining
1465798	WWF	3672	0.75	0	100
14670261*	DRBC	NA	NA	NA	NA
1467042	TSF	3672	0.5	0	100
1467048	TSF	3672	1.75	0	100
1467086	WWF	3592	4	0	100
1467087	WWF	2532	2.5	34.7	65.3
1467200*	DRBC	NA	NA	NA	NA
1473900	TSF	3303	0	0	100
1474000	TSF	3672	0	0	100
1474500	WWF	3672	0.5	0	100
1475530	WWF	3672	0.5	0	100
1475548	WWF	3672	0	0	100

*No minimum DO criterion applies at gages 01467200 and 014670261

Table 5. USGS Gage March 2024 - June 2024 Dissolved Oxygen 7-Day Average Criterion Summary Results

Gage number	Designated Use	Total hours accepted data	% hours flagged data	% hours non-attaining	% hours attaining
1465798	WWF	2664	0	0	100
14670261*	DRBC	NA	NA	NA	NA
1467042	TSF	2664	0	0	100
1467048	TSF	2664	0	0	100
1467086	WWF	2663	1	0	100
1467087	WWF	2658	0.25	27.8	72.2
1467200*	DRBC	NA	NA	NA	NA
1473900	TSF	2664	1.75	0	100
1474000	TSF	2664	0	0	100
1474500	WWF	2664	0	0	100
1475530	WWF	2664	0	0	100
1475548	WWF	2664	0	7.1	92.9

*No minimum DO criterion applies at gages 01467200 and 014670261

Table 6. USGS Gage 01467200 and 014670261 Dissolved Oxygen Seasonal Mean Criterion Summary Result

Gage number	Designated Use	Days, n	Minimum Daily Average	Maximum Daily Average	Seasonal mean	Attaining Standard?
1467200	DRBC	68	4.8	11.5	8.2	Yes
14670261	DRBC	77	7.0	11.4	8.9	Yes

pH

Background

pH has been identified as a parameter of potential concern for some of Philadelphia's watersheds, primarily because of algal effects on the dissolved inorganic carbon (DIC) composition of stream water. Algae take up CO_2 during photosynthesis and shift the composition of DIC toward the alkaline carbonates, resulting in occasional failure to attain maximum pH criteria at some sites (Table 7). pH fluctuations are typically observed concomitant with pronounced dissolved oxygen fluctuations, as detailed in the Monthly Results section.

At gages 01467200 and 014670261, pH criteria (regulated by DRBC) are bounded by 6.5 and 8.5. At all other gages, pH criteria are bounded by daily minima and maxima of 6.0 and 9.0, respectively, as defined by PA DEP water quality standards.

Results

Results were processed as follows for Table 7. The "percent accepted data" are the percentage of observations that were not flagged. The remainder of the table lists the percentage of data that was flagged, the percentages of accepted observations that attained or failed to attain criteria, and the percentages of daily minima and maxima that attained or failed to attain criteria.

Minimum pH criteria were attained at all gages for the reporting time frame. Algal blooms may be responsible for daily maximum pH criterion exceedance at several sites during March and April.

Table 7. USGS Gage July 2023 - June 2024 pH Criteria Summary Results

Gage number	Observations, n	% accepted data	% flagged data	% min. non-attaining	% max. non-attaining	% min. attaining	% max. attaining	% attaining
1465798	25252	100	0	0	0	100	100	100
14670261	34698	100	0	0	0	100	100	100
1467042	25026	100	0	0	0	100	100	100
1467048	25261	100	0	0	0	100	100	100
1467086	12229	100	0	0	0.4	100	99.6	99.6
1467087	20277	100	0	0	0	100	100	100
1467200	33251	100	0	0	0	100	100	100
1473900	14897	100	0	0	0.5	100	99.5	99.5
1474000	12595	100	0	0	0.9	100	99.1	99.1
1474500	12585	100	0	0	0	100	100	100
1475530	25300	100	0	0	0	100	100	100
1475548	25192	100	0	0	0.2	100	99.8	99.8

Turbidity

Background

Turbidity in Philadelphia's streams increases with increased flow as inorganic sediment and additional constituents of stormwater runoff are introduced to the stream or scoured/eroded from the stream channel. There are no numeric PA DEP water quality criteria for turbidity, so PWD watershed management plans used a reference value for turbidity that was derived from EPA Guidance document EPA 822-B-00-023 (*i.e.*, 2.825 NTU). This value is surpassed more often in wet weather than in dry weather (Tables 72-73). Turbidity data has also been used to help investigate sediment loading and transport in the Wissahickon Creek Watershed for the Wissahickon Creek Sediment TMDL.

Results

Results were processed as follows for Table 8. The "percent accepted data" are the percentage of observations that were not flagged. The remainder of the table lists the percentage of observations that were flagged, and the percentages of accepted data that either surpassed or fell below the maximum guideline.

Among the tributary sites, the maximum guideline was most frequently surpassed at the Schuylkill gage, and least frequently surpassed at the downstream Wissahickon Creek gage.

Table 8. USGS Gage July 2023 - June 2024 Turbidity Summary Results

Gage number	Observations, n	% accepted data	% flagged data	% hrs. above max. guideline	% hrs. below max. guideline
1465798	25046	100	0	23.5	76.5
14670261	33575	100	0	93.6	6.4
1467042	25205	100	0	21.1	78.9
1467048	24877	100	0	27.3	72.7
1467086*	0	NA	NA	NA	NA
1467087*	0	NA	NA	NA	NA
1467200	33160	100	0	98.3	1.7
1473900	8420	100	0	46.3	53.7
1474000	12672	100	0	12.1	87.9
1474500	12248	100	0	32.4	67.6
1475530*	0	NA	NA	NA	NA
1475548*	0	NA	NA	NA	NA

*Turbidity is not continuously monitored at these locations

Specific Conductance

Background

Specific conductance is a measure of the ability of water to conduct electricity over a given distance, expressed as microsiemens/cm (corrected to 25ºC). Conductivity in Philadelphia streams is extremely sensitive to changes in flow, as stormwater (diluent) usually contains smaller concentrations of dissolved ions than stream baseflow. Stormwater runoff typically lowers conductivity in streams; an exception sometimes occurs in winter and early spring, when road salt applied prior to snowstorms enters the stream in runoff or during snowmelt. Data collected in the report timeframe were generally consistent with earlier observations. When significant changes in conductivity are observed during dry weather, it can be an indicator of anthropogenic influence or pollution in the stream; stations receiving inputs of treated wastewater generally had greater conductivity.

Results

There is no water quality standard for specific conductance. Table 9 merely illustrates the number of observations that were not flagged and considered "accepted" and the percentage of observations that were flagged. More detailed results at each site are described in the Monthly Results section.

Table 9. USGS Gage July 2023 - June 2024 Specific Conductance Summary Results

Gage number	Observations, n	% accepted data	% flagged data
1465798	25244	100	0
14670261	34722	100	0
1467042	25191	100	0
1467048	25228	100	0
1467086	12219	100	0
1467087	20611	100	0
1467200	33246	100	0
1473900	14622	100	0
1474000	12587	100	0
1474500	12581	100	0
1475530	25296	100	0
1475548	24946	100	0

Temperature

Background

Streams in the Philadelphia region are designated Warm Water Fisheries (WWF) or Trout Stocking Fisheries (TSF), with separate corresponding temperature criteria (Table 10). These criteria are "stepped" (remaining constant for 15- or 30-day intervals), while streams tend to warm up and cool down more gradually due primarily to changes in ambient temperature. (Gages 01467200 and 014670261 are the exceptions and are subject to a DRBC criterion of 30°C maximum). Stream temperatures were observed to exceed these criteria, somewhat frequently in springtime. These exceedances are generally natural, as there are no major sources of heated wastes. It is possible that baseflow diminution is partially responsible for a lack of buffering against temperature increases.

Table 10. PA DEP Temperature Water Quality Criteria

Date range start	Date range end	WWF maximum (°C)	WWF maximum (°F)	TSF maximum (°C)	TSF maximum (°F)
1/1	1/31	4	40	4	40
2/1	2/29	4	40	4	40
3/1	3/31	8	46	8	46
4/1	4/15	11	52	11	52
4/16	4/30	14	58	14	58
5/1	5/15	18	64	18	64
5/16	5/31	22	72	20	68
6/1	6/15	27	80	21	70
6/16	6/30	29	84	22	72
7/1	7/31	31	87	23	74
8/1	8/15	31	87	27	80
8/16	8/30	31	87	31	87
9/1	9/15	29	84	29	84
9/16	9/30	26	78	26	78
10/1	10/15	22	72	22	72
10/16	10/31	19	66	19	66
11/1	11/15	14	58	14	58
11/16	11/30	10	50	10	50
12/1	12/31	6	42	6	42

Results

Results were processed in the same manner as the parameters described above. The highest exceedance rate occurred at the downstream Pennypack Creek gage. The six gages designated as WWF have less stringent criteria.

Table 11. USGS Gage July 2023 - June 2024 Temperature Maximum Criteria Summary Results

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% exceedance	% attaining
1465798	WWF	25253	100	0	17.1	82.9
14670261	DRBC	34736	100	0	0	100
1467042	TSF	25214	100	0	35.5	64.5
1467048	TSF	25271	100	0	39.8	60.2
1467086	WWF	12226	100	0	16.3	83.7
1467087	WWF	20637	100	0	23.5	76.5
1467200	DRBC	33245	100	0	0	100
1473900	TSF	14897	100	0	38.7	61.3
1474000	TSF	12470	100	0	35.4	64.6
1474500	WWF	12584	100	0	22.9	77.1
1475530	WWF	25298	100	0	14.9	85.1
1475548	WWF	25191	100	0	17.9	82.1

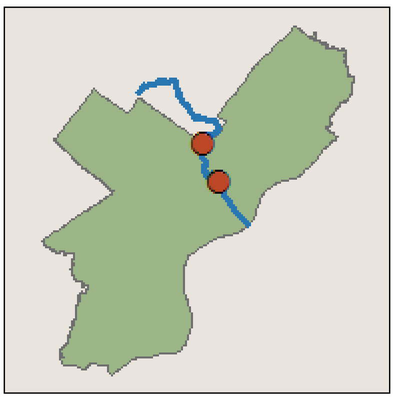
Monthly Results, July 2023 - June 2024

This section summarizes results at the monthly time scale. Results were processed in the same manner as in the previous section. Gages are grouped according to the type of sewer system that impacts water quality at the site.

Gages in Combined Sewer System Watersheds

The combined sewer system serves more than three-quarters of Philadelphia's residents and covers the oldest and densest parts of the city. Combined sewer outfalls affect the Tookany/Tacony-Frankford and Darby-Cobbs watersheds. (The Delaware and Schuylkill rivers also contain combined sewer outfalls but are detailed in a later section focused on large watersheds.) The gages in this section are subject to the deleterious effects of periodic combined sewer overflows during wet weather and snowmelt.

Tookany/Tacony-Frankford Creek (Gages 01467086 and 01467087)



Dissolved oxygen and pH

Dissolved oxygen concentrations were markedly worse between the upstream and downstream Tacony Creek gages. The monthly minima, percentage of observations the minimum criterion was not attained, and exceedance of the 7-day average guideline were typically much worse at the downstream gage (Tables 12-13, Figures 5-8). For example, DO was poor at the downstream Tacony Creek gage during September 2023 (Figure 10). However, the minimum criterion was almost always attained at gage 01467086 during that same month (Figure 9). This difference likely reflects the additional stormwater runoff and sewage overflows that entered the creek between the two gages.

The lowest DO concentrations are typically seen in the period after storm events, reflecting both the immediate and lingering, oxygen-depleting effects of stormwater runoff and biochemical oxygen demand (BOD) entering the stream. Diel DO fluctuations are suppressed for a few days following a storm event because the event either scours away algae or temporarily inhibits their growth. As dry weather continues, the algae recover and diel DO and pH fluctuations typically increase, sometimes resulting in higher daily peaks in pH, as observed at the upstream gage in March 2023 (Figure 11). Percent DO saturation of more than 150% in daylight were also observed at gage 01467086 in March 2023, indicating high levels of algal activity (Figure 12; PAR is defined as photosynthetically active radiation). Diel DO fluctuations tended to increase with prolonged periods of sunlight, further indicating high levels of algal activity.

A lower monthly mean pH was usually observed at gage 01467087, along with generally less pronounced diel pH fluctuations, probably due to an increased buffering capacity at the downstream gage and a lesser degree of algal growth (Tables 14-15). The Tacony-Frankford Creek gage is missing data in July because it was vandalized and had to be removed from the site. It was later replaced in mid-August.

Table 12. Gage 01467086 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	1438	3.4	12.3	7.1	99.9	0.1	2.4	97.6
Aug-23	WWF	1436	3.5	12.0	7.3	100	0	3.6	96.4
Sep-23	WWF	1387	4.4	11.6	7.7	100	0	1.2	98.8
Oct-23	WWF	1415	6.2	14.4	9.7	100	0	0	100
Nov-23	WWF	1232	7.8	15.6	11.2	99.5	0.5	0	100
Mar-24	WWF	909	9.0	17.0	11.8	100	0	0	100
Apr-24	WWF	1319	6.9	16.8	10.8	100	0	0	100
May-24	WWF	1407	5.3	12.4	8.2	99.9	0.1	0	100
Jun-24	WWF	1357	4.1	12.8	7.3	100	0	2.4	97.6

Table 13. Gage 01467087 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	NA	NA	NA	NA	NA	NA	NA	NA
Aug-23	WWF	1296	2.2	8.2	5.6	99.8	0.2	29.3	70.7
Sep-23	WWF	2667	0.1	9.1	5.2	99.9	0.1	38.1	61.9
Oct-23	WWF	2871	0.1	9.7	6.9	99.9	0.1	14.9	85.1
Nov-23	WWF	2729	5.9	11.4	9.2	100	0	0	100
Mar-24	WWF	1822	9.1	13.8	11.2	100	0	0	100
Apr-24	WWF	2757	6.1	13.9	9.7	100	0	0	100
May-24	WWF	2685	1.7	10.2	7.0	100	0	13.0	87.0
Jun-24	WWF	2119	0.6	8.0	4.7	100	0	52.2	47.8

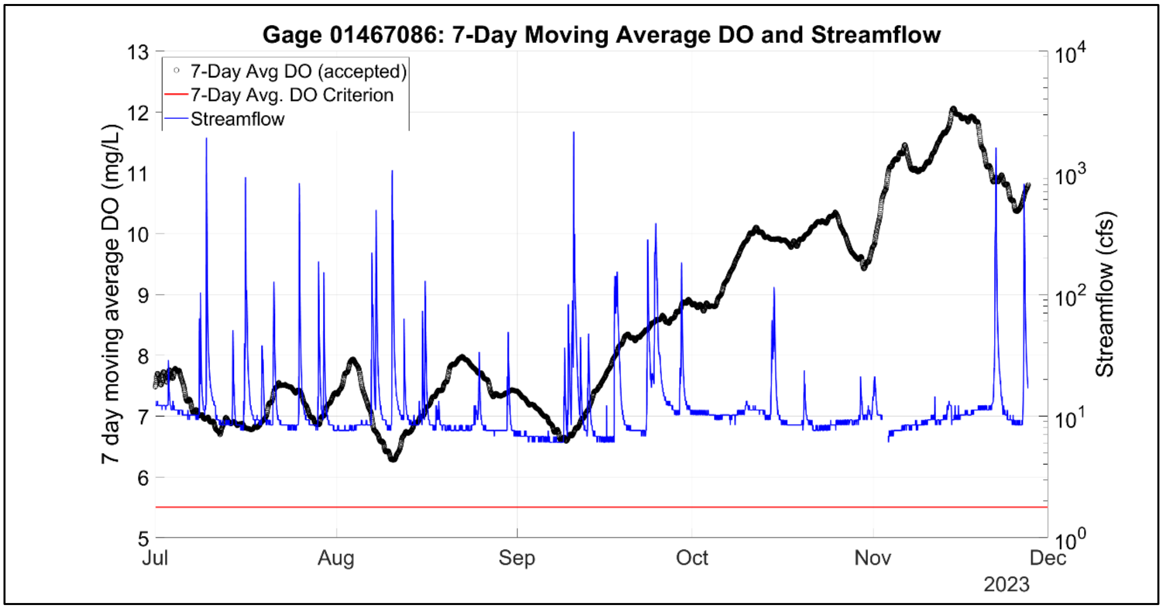


Figure 5. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

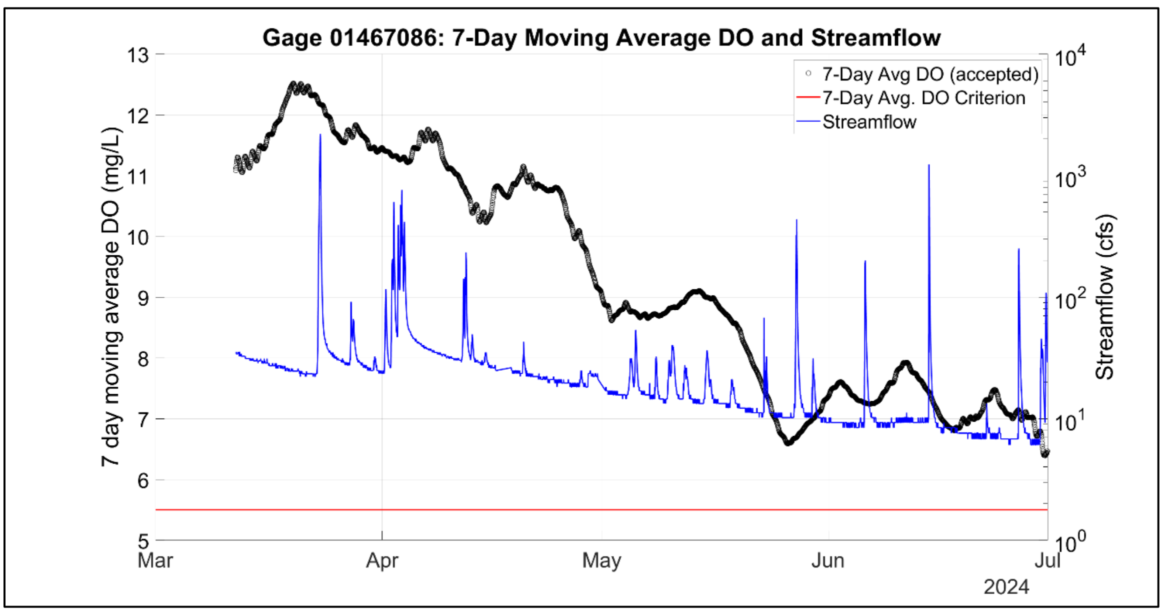


Figure 6. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

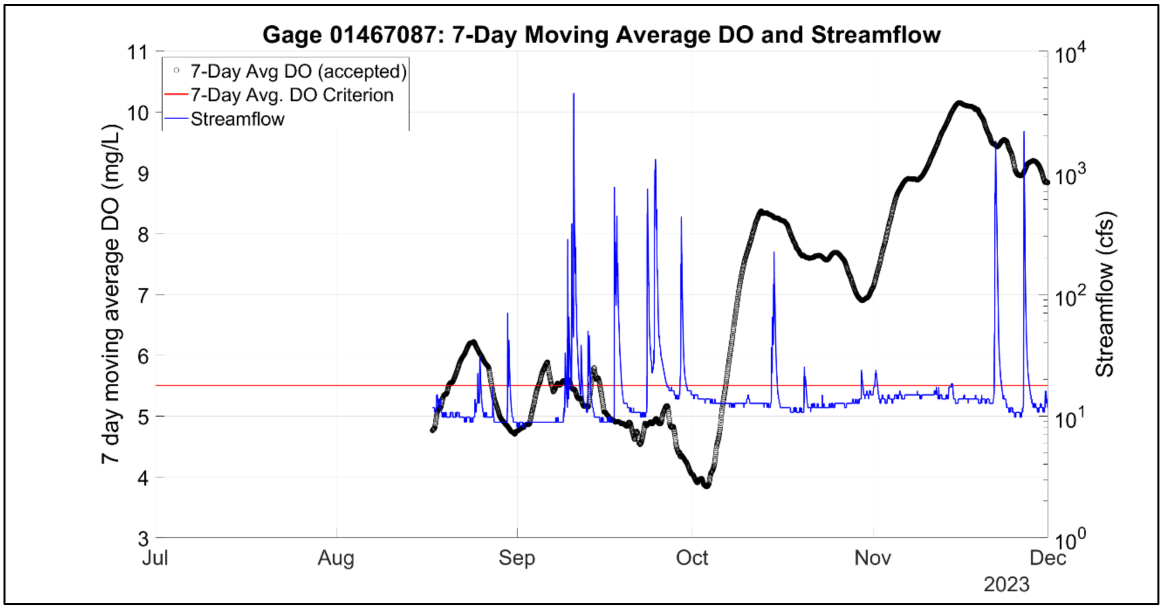


Figure 7. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

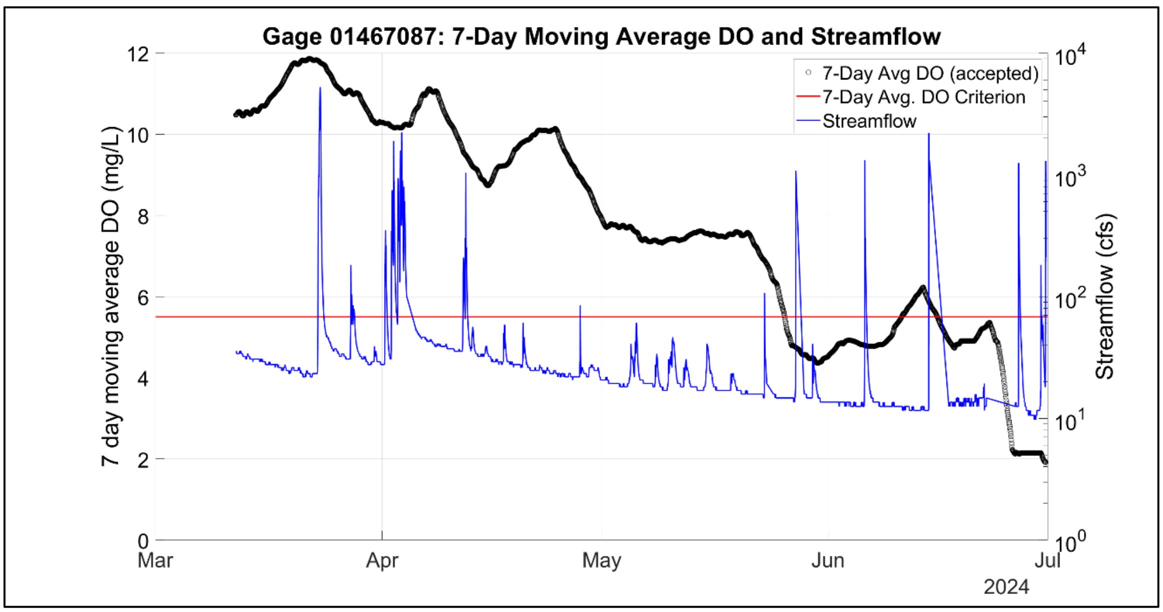


Figure 8. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

Table 14. Gage 01467086 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	1437	6.9	8.6	7.5	100	0	0	0	100	100
Aug-23	1437	6.8	8.6	7.5	100	0	0	0	100	100
Sep-23	1389	6.9	8.3	7.4	100	0	0	0	100	100
Oct-23	1422	7.2	8.5	7.6	100	0	0	0	100	100
Nov-23	1226	6.3	8.5	7.6	100	0	0	0	100	100
Mar-24	909	7.2	9.2	7.9	100	0	0	2.0	100	98.0
Apr-24	1319	7.3	9.3	7.9	100	0	0	1.6	100	98.4
May-24	1411	7.0	8.1	7.5	100	0	0	0	100	100
Jun-24	1358	7.1	9.1	7.7	100	0	0	0.1	100	99.9

Table 15. Gage 01467087 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug-23	1297	7.1	7.6	7.4	100	0	0	0	100	100
Sep-23	2781	6.6	7.7	7.2	99.9	0.1	0	0	100	100
Oct-23	2878	6.8	7.5	7.3	100	0	0	0	100	100
Nov-23	2779	6.9	7.5	7.3	100	0	0	0	100	100
Mar-24	1822	6.9	8.3	7.7	100	0	0	0	100	100
Apr-24	2755	7.0	8.7	7.6	100	0	0	0	100	100
May-24	2789	6.6	7.9	7.3	100	0	0	0	100	100
Jun-24	2511	6.6	7.6	7.2	100	0	0	0	100	100

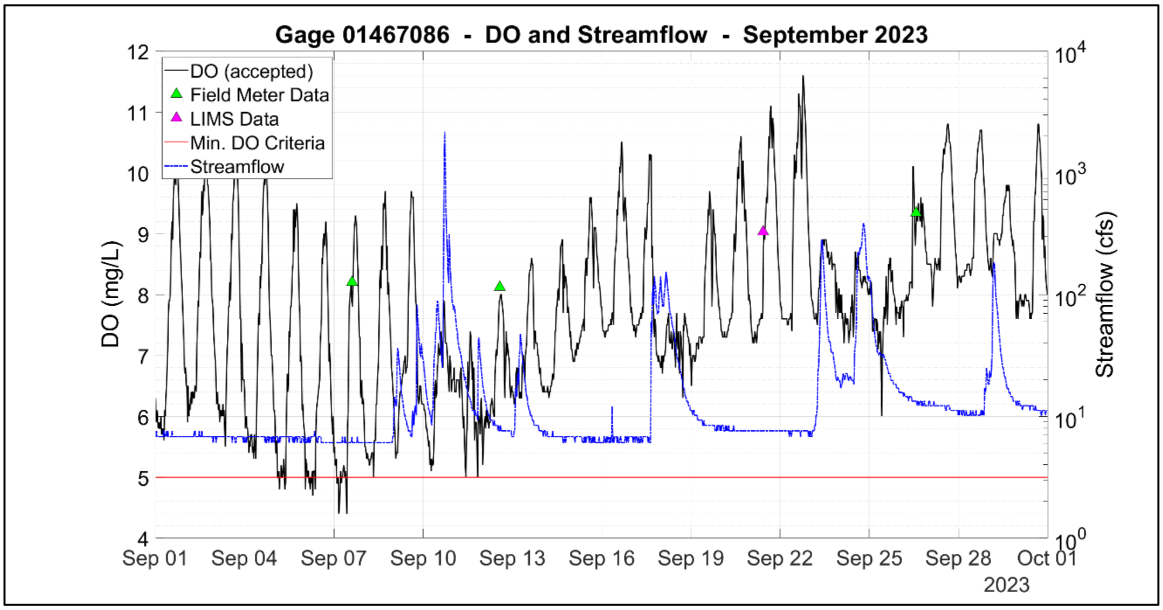


Figure 9. Gage 01467086, Dissolved Oxygen and Streamflow, September 2023.

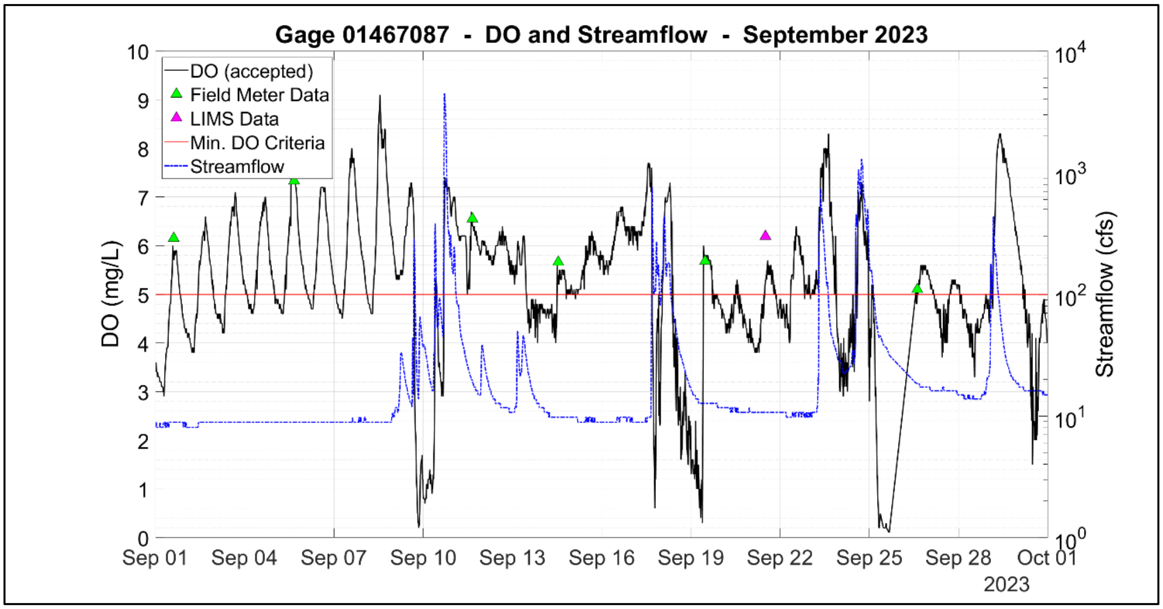


Figure 10. Gage 01467087, Dissolved Oxygen and Streamflow, September 2023.

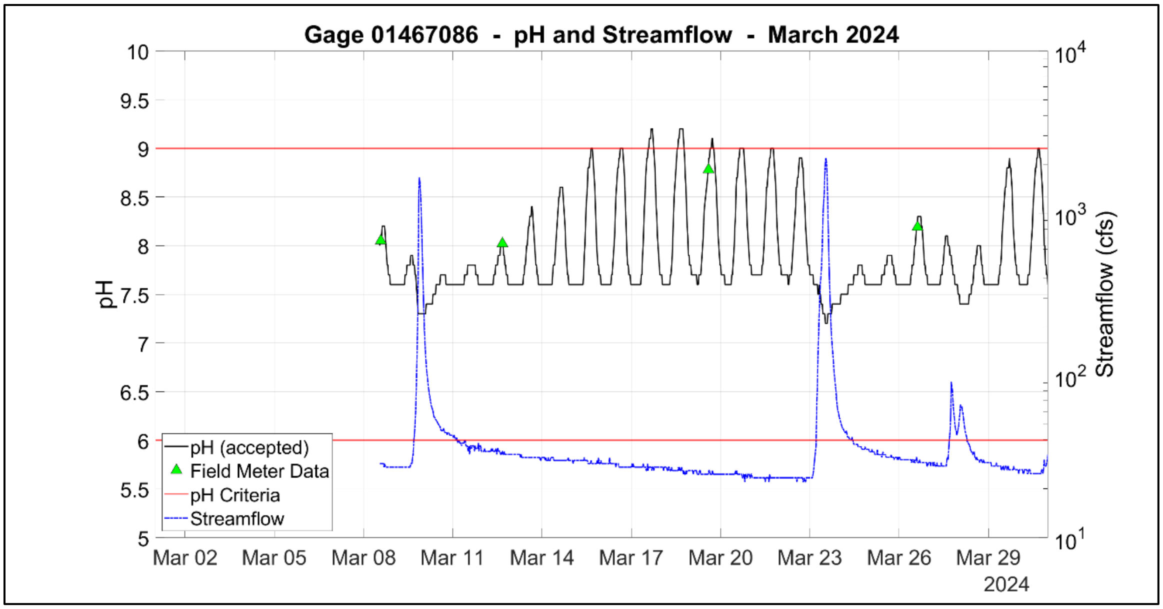


Figure 11. Gage 01467086, pH and Streamflow, March 2024.

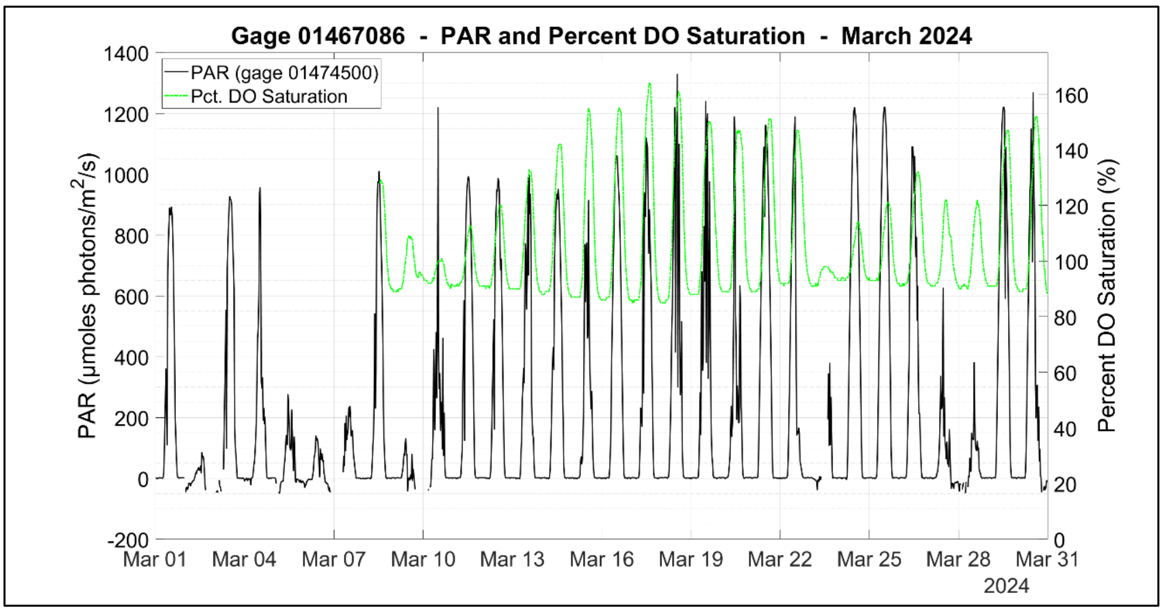


Figure 12. Gage 01467086, PAR and Percent Dissolved Oxygen Saturation, March 2024.

Figure 13. Gage 01467086, Tacony Creek at Adams Ave.

Figure 14. Gage 01467087, Frankford Creek at Castor Ave., looking downstream

Specific Conductance

Specific conductance observations were usually consistent between the two gage sites (Tables 16-17). Elevated levels of specific conductance observed in late fall and early spring months are likely due to the effects of road salt entering the stream.

Table 16. Gage 01467086 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	1436	69	715	534.2	100	0
Aug-23	1436	87	734	590.1	100	0
Sep-23	1385	61	794	532.2	100	0
Oct-23	1422	239	739	669.1	100	0
Nov-23	1224	62	740	654.7	100	0
Mar-24	909	67	636	576.9	100	0
Apr-24	1318	123	637	546.0	100	0
May-24	1410	146	664	581.1	100	0
Jun-24	1358	137	730	605.8	100	0

Table 17. Gage 01467087 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	NA	NA	NA	NA	NA	NA
Aug-23	1293	397	728	640.1	100	0
Sep-23	2775	75	753	476.7	100	0
Oct-23	2874	316	735	644.0	100	0
Nov-23	2778	86	748	611.8	100	0
Mar-24	1822	69	688	590.4	100	0
Apr-24	2755	115	719	581.8	100	0
May-24	2874	229	733	592.6	100	0
Jun-24	2775	173	718	569.3	100	0

Temperature

Monthly mean temperatures observed at the downstream gage were usually higher than at the upstream gage. Consequently, a higher rate of temperature criteria exceedance was typically observed at the downstream gage (Tables 18-19).

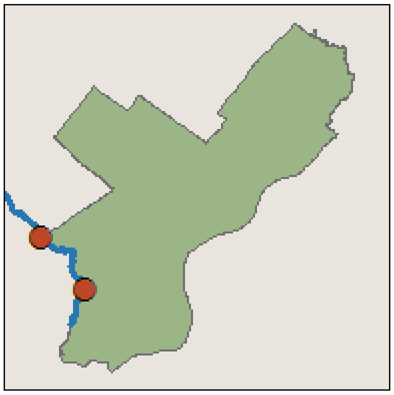
Table 18. Gage 01467086 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	0	100	0	100	20.9	28.6	24.3
WWF	1-Aug	15-Aug	0	100	0	100	19.6	26.2	22.8
WWF	16-Aug	31-Aug	0	100	0	100	19.6	26.2	22.8
WWF	1-Sep	15-Sep	0	100	0	100	18.2	27.2	23.2
WWF	16-Sep	30-Sep	0	100	0	100	15.3	20.8	17.8
WWF	1-Oct	15-Oct	0	100	0	100	12.6	20.7	16.5
WWF	16-Oct	31-Oct	0	100	0	100	10.2	17.4	13.9
WWF	1-Nov	15-Nov	0	100	0	100	5.7	12.4	9.5
WWF	16-Nov	30-Nov	8.6	91.4	0	100	4.3	11.6	8.1
WWF	1-Mar	31-Mar	54.7	45.3	0	100	5.5	16.0	10.4
WWF	1-Apr	15-Apr	46.4	53.6	0	100	7.6	17.5	12.3
WWF	16-Apr	30-Apr	39.4	60.6	0	100	9.1	20.7	14.0
WWF	1-May	15-May	30.0	70.0	0	100	11.7	24.8	16.1
WWF	16-May	31-May	21.8	78.2	0	100	15.3	23.8	19.5
WWF	1-Jun	15-Jun	13.1	86.9	0	100	16.6	24.6	21.0
WWF	16-Jun	30-Jun	13.1	86.9	0	100	19.0	28.1	24.2

Table 19. Gage 01467087 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	NA	NA	NA	NA	NA	NA	NA
WWF	1-Aug	15-Aug	NA	NA	NA	NA	NA	NA	NA
WWF	16-Aug	31-Aug	0	100	0	100	21.6	26.5	23.8
WWF	1-Sep	15-Sep	0	100	0	100	20.7	27.8	24.2
WWF	16-Sep	30-Sep	0	100	0	100	16.5	21.9	18.5
WWF	1-Oct	15-Oct	0	100	0	100	13.3	20.8	17.2
WWF	16-Oct	31-Oct	0	100	0	100	11.3	16.5	13.9
WWF	1-Nov	15-Nov	0	100	0	100	6.5	13.4	9.4
WWF	16-Nov	30-Nov	12.8	87.2	0	100	3.8	11.2	7.8
WWF	1-Mar	31-Mar	90.1	9.9	0	100	6.3	14.8	10.5
WWF	1-Apr	15-Apr	82.5	17.5	0	100	7.8	16.5	12.7
WWF	16-Apr	30-Apr	69.1	30.9	0	100	11.0	19.9	14.7
WWF	1-May	15-May	56.0	44.0	0	100	12.7	21.4	16.9
WWF	16-May	31-May	48.6	51.4	0	100	16.0	24.6	20.4
WWF	1-Jun	15-Jun	21.0	79.0	0	100	19.2	25.0	22.3
WWF	16-Jun	30-Jun	21.1	78.9	0	100	21.5	29.0	25.6

Cobbs Creek (Gages 01475530 and 01475548)



Dissolved oxygen and pH

The upstream Cobbs Creek site (01475530) almost always met the minimum dissolved oxygen criterion and never exceeded the 7-day average guideline (Table 20, Figures 15, 16, 19). Dissolved oxygen at the downstream site (01475548) did not always attain the minimum, particularly during the warmer months. The downstream site always attained the 7-day average guideline, except during the end of June 2024.

The pattern of dissolved oxygen and pH values between the upstream and downstream Cobbs Creek gages is likely due to greater algal activity at the downstream gage. During the spring—key months for algal growth—pH exceeded the maximum guideline at the downstream gage site (Tables 22-23). Algae remove CO_2 during photosynthesis, raising pH by shifting the dissolved inorganic carbon (DIC) balance toward alkaline carbonates. The diel fluctuations in DO were pronounced at both gages during these months (Figures 19-20).

A third indicator of increased algal activity in Cobbs Creek is the supersaturation of oxygen caused by photosynthesis. During April, the downstream gage recorded peak DO saturation levels near 150% during the day in dry weather conditions (Figures 21-22).

Table 20. Gage 01475530 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	2871	5.4	10.6	7.8	99.9	0.1	0	100
Aug-23	WWF	2875	6.2	11.2	8.0	100	0	0	100
Sep-23	WWF	2781	5.7	11.7	8.2	100	0	0	100
Oct-23	WWF	2871	7.3	12.3	9.3	100	0	0	100
Nov-23	WWF	2780	8.7	13.2	10.7	100	0	0	100
Mar-24	WWF	1825	9.2	13.7	11.0	100	0	0	100
Apr-24	WWF	2875	7.3	13.2	10.2	100	0	0	100
May-24	WWF	2881	7.0	11.6	8.7	100	0	0	100
Jun-24	WWF	2781	4.8	10.2	7.9	100	0	0.3	99.7

Table 21. Gage 01475548 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	2793	2.4	11.6	6.9	100	0	11.0	89.0
Aug-23	WWF	2870	3.5	11.7	7.5	100	0	1.3	98.7
Sep-23	WWF	2778	4.4	10.3	7.3	100	0	3.3	96.7
Oct-23	WWF	2869	6.8	12.5	9.5	100	0	0	100
Nov-23	WWF	2779	6.6	14.5	11.3	100	0	0	100
Mar-24	WWF	1825	8.8	16.0	11.4	100	0	0	100
Apr-24	WWF	2870	5.4	15.1	10.0	100	0	0	100
May-24	WWF	2772	5.0	10.4	7.7	100	0	0	100
Jun-24	WWF	2775	1.8	9.5	6.1	100	0	23.2	76.8

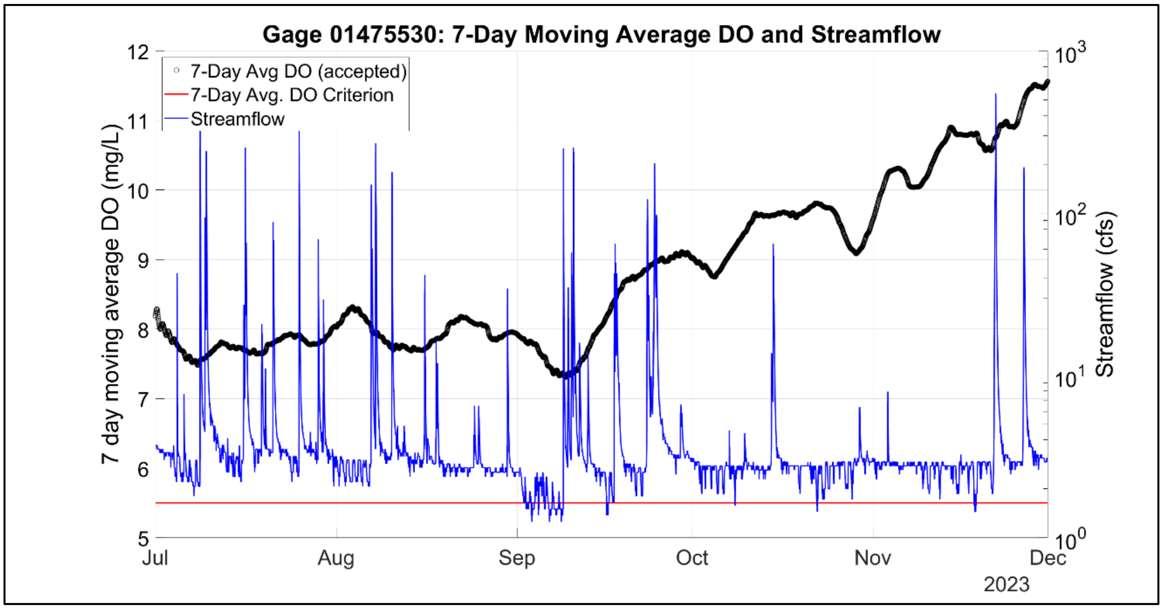


Figure 15. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

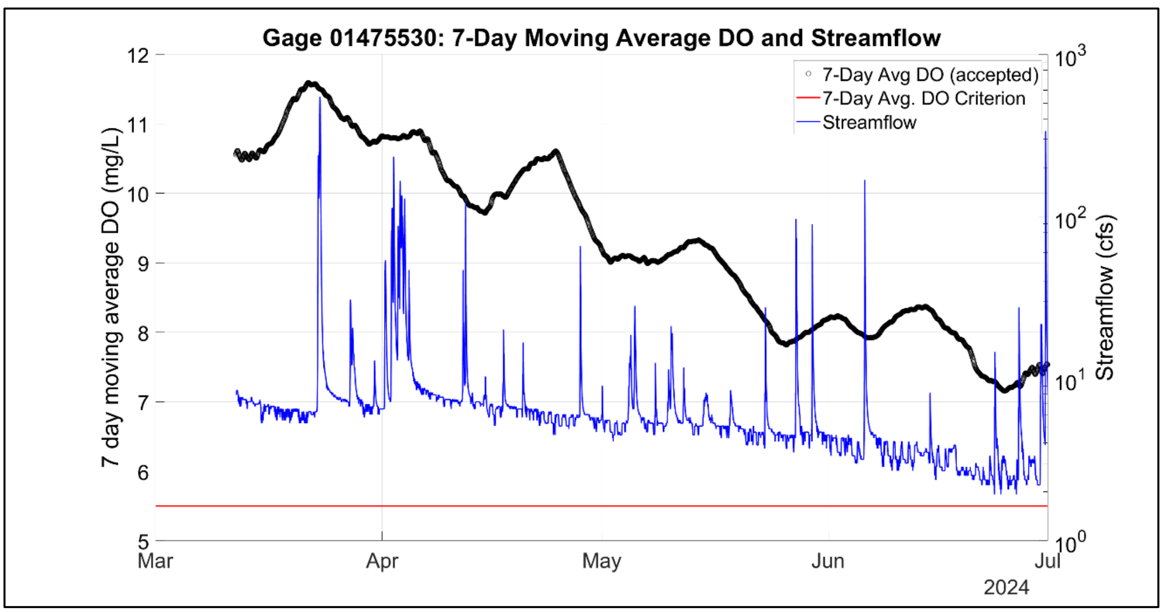


Figure 16. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

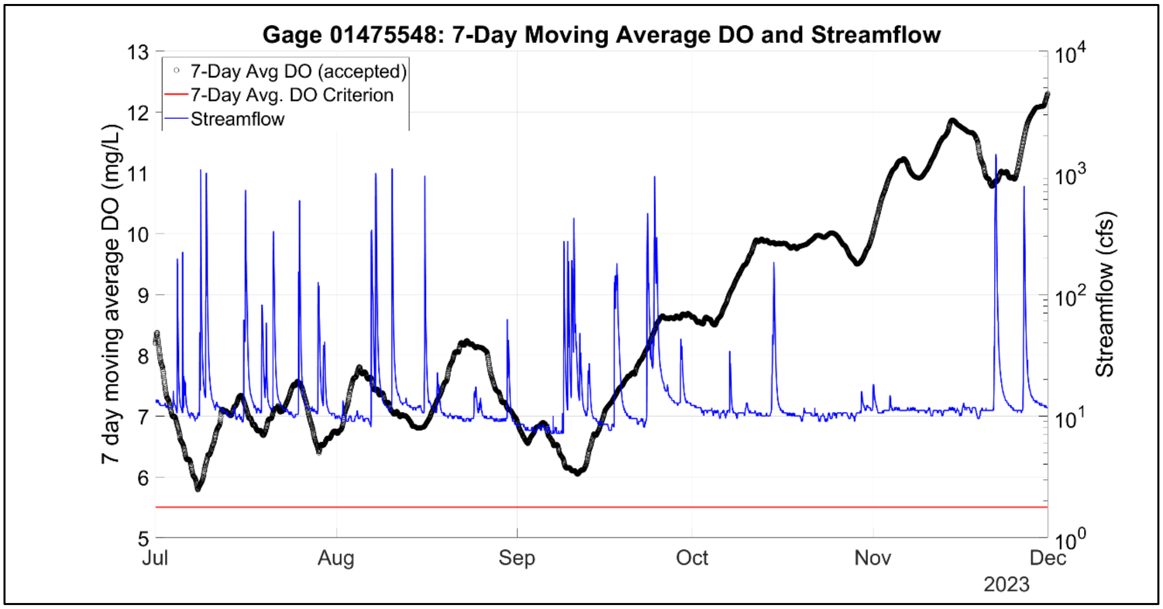


Figure 17. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

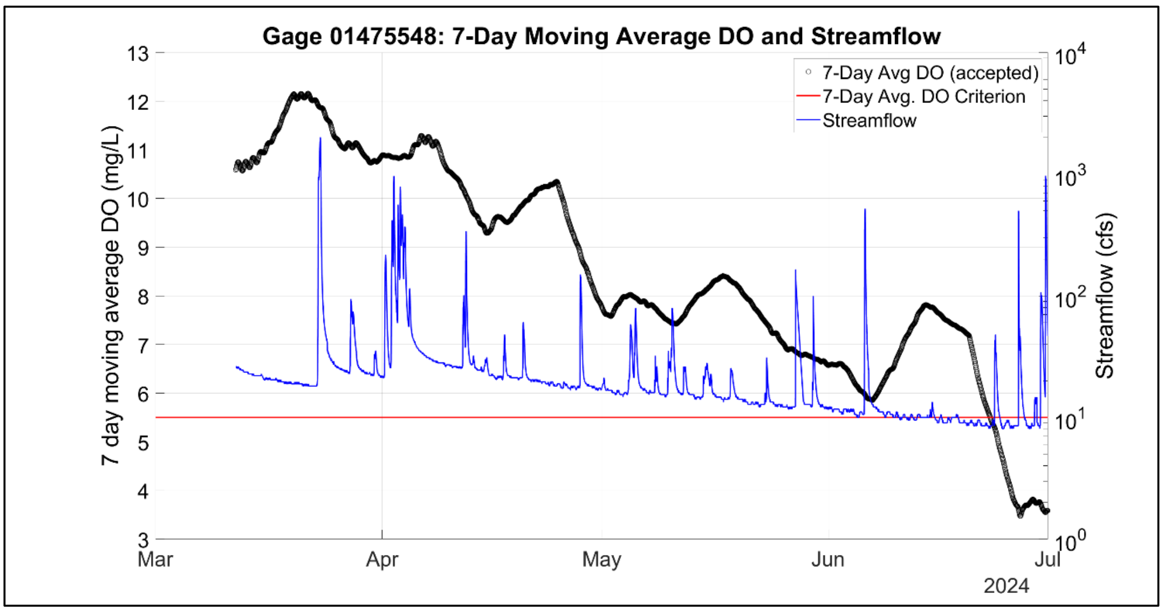


Figure 18. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

Table 22. Gage 01475530 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2871	7.0	8.1	7.4	100	0	0	0	100	100
Aug-23	2875	6.9	8.3	7.4	100	0	0	0	100	100
Sep-23	2781	7.0	8.2	7.4	100	0	0	0	100	100
Oct-23	2871	7.2	8.2	7.4	100	0	0	0	100	100
Nov-23	2780	7.1	7.7	7.4	100	0	0	0	100	100
Mar-24	1825	7.1	8.2	7.6	100	0	0	0	100	100
Apr-24	2875	7.0	8.6	7.5	100	0	0	0	100	100
May-24	2881	7.2	8.2	7.4	100	0	0	0	100	100
Jun-24	2781	7.1	8.0	7.5	100	0	0	0	100	100

Table 23. Gage 01475548 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2793	6.8	8.8	7.5	100	0	0	0	100	100
Aug-23	2870	7.0	8.8	7.7	100	0	0	0	100	100
Sep-23	2778	6.8	8.2	7.5	100	0	0	0	100	100
Oct-23	2869	7.4	8.7	7.9	100	0	0	0	100	100
Nov-23	2779	7.1	8.6	7.8	100	0	0	0	100	100
Mar-24	1825	7.1	9.2	7.9	100	0	0	1.8	100	98.2
Apr-24	2870	7.1	9.2	7.8	100	0	0	1.0	100	99
May-24	2873	7.1	8.2	7.5	100	0	0	0	100	100
Jun-24	2775	7.0	8.2	7.6	100	0	0	0	100	100

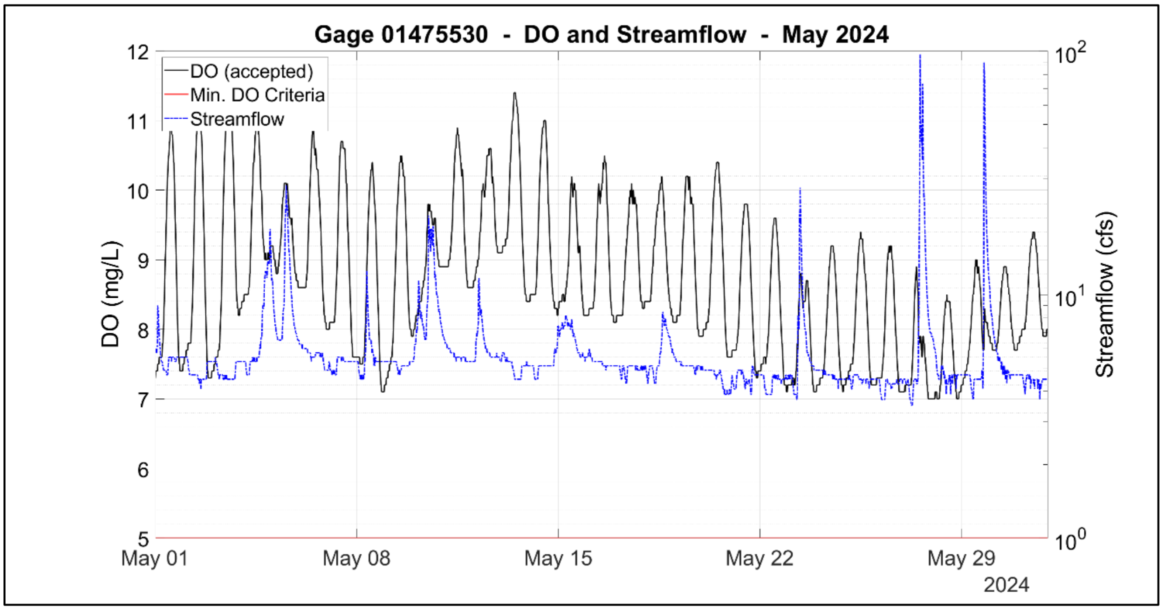


Figure 19. Gage 01475530, Dissolved Oxygen and Streamflow, April 2024.

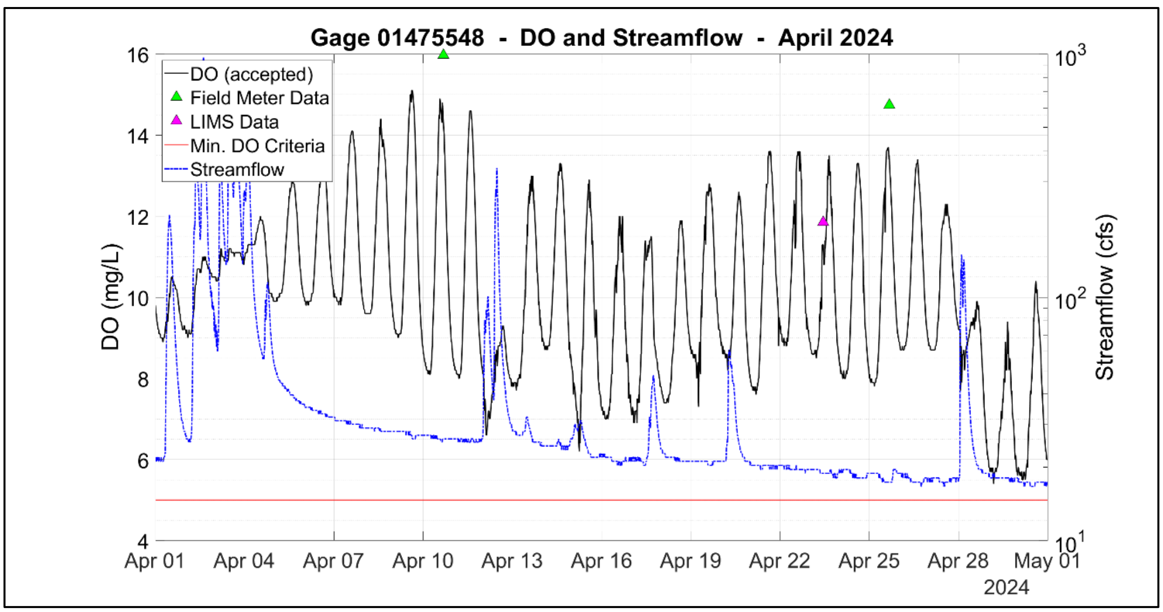


Figure 20. Gage 01475548, Dissolved Oxygen and Streamflow, April 2024.

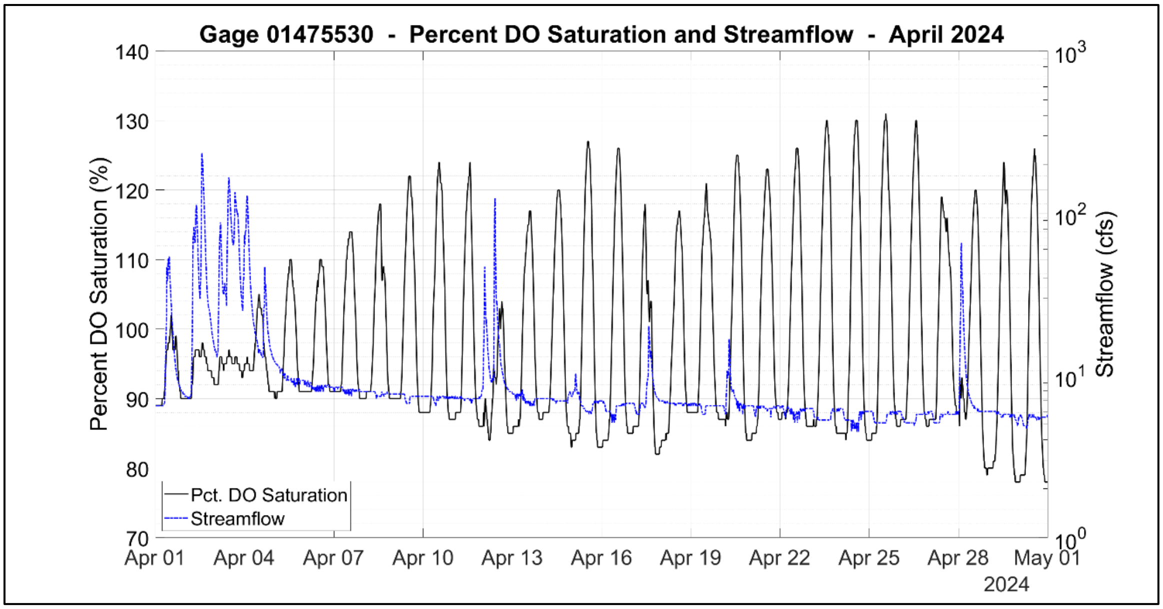


Figure 21. Gage 01475530, Percent DO Saturation and Streamflow, April 2024.

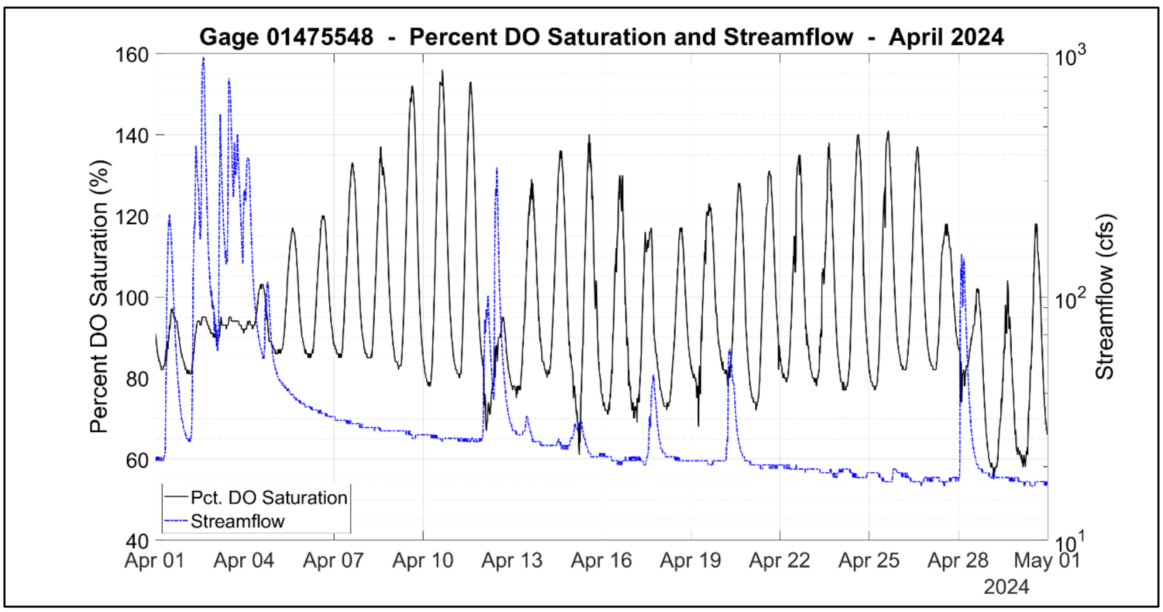


Figure 22. Gage 01475548, Percent DO Saturation and Streamflow, April 2024.

Figure 23. Gage 01475530, Cobbs Creek at Rte. 1, looking upstream

Figure 24. Gage 01475548, Cobbs Creek at Mt. Moriah Cemetery

Specific Conductance

Specific conductance observations were similar to those observed in Tacony Creek (Tables 24-25). During a typical winter, road salt may have some impact on conductance at both gages. However, the typical pattern of stormwater lowering conductance levels in the stream is well-observed during the storms that occurred in April (Figures 25-26).

Table 24. Gage 01475530 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2869	65	593	473.7	100	0
Aug-23	2874	72	590	515.5	100	0
Sep-23	2781	65	627	486.8	100	0
Oct-23	2871	150	613	567.2	100	0
Nov-23	2780	79	632	553.2	100	0
Mar-24	1825	76	573	520.2	100	0
Apr-24	2874	106	570	500.3	100	0
May-24	2881	160	676	501.5	100	0
Jun-24	2781	107	599	553.1	100	0

Table 25. Gage 01475548 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2792	115	691	470.6	100	0
Aug-23	2870	125	706	516.9	100	0
Sep-23	2541	130	738	505.4	100	0
Oct-23	2867	282	736	652.5	100	0
Nov-23	2778	106	728	620.0	100	0
Mar-24	1825	89	621	531.2	100	0
Apr-24	2869	139	653	535.6	100	0
May-24	2873	227	690	587.3	100	0
Jun-24	2775	132	709	625.8	100	0

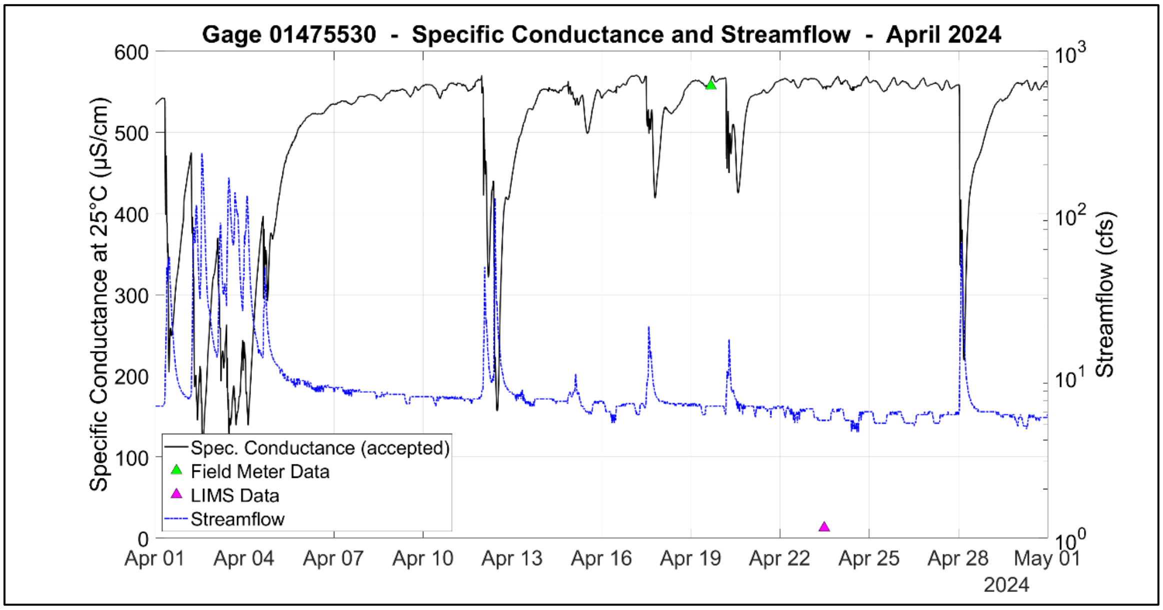


Figure 25. Gage 01475530, Specific Conductance and Streamflow, April 2024.

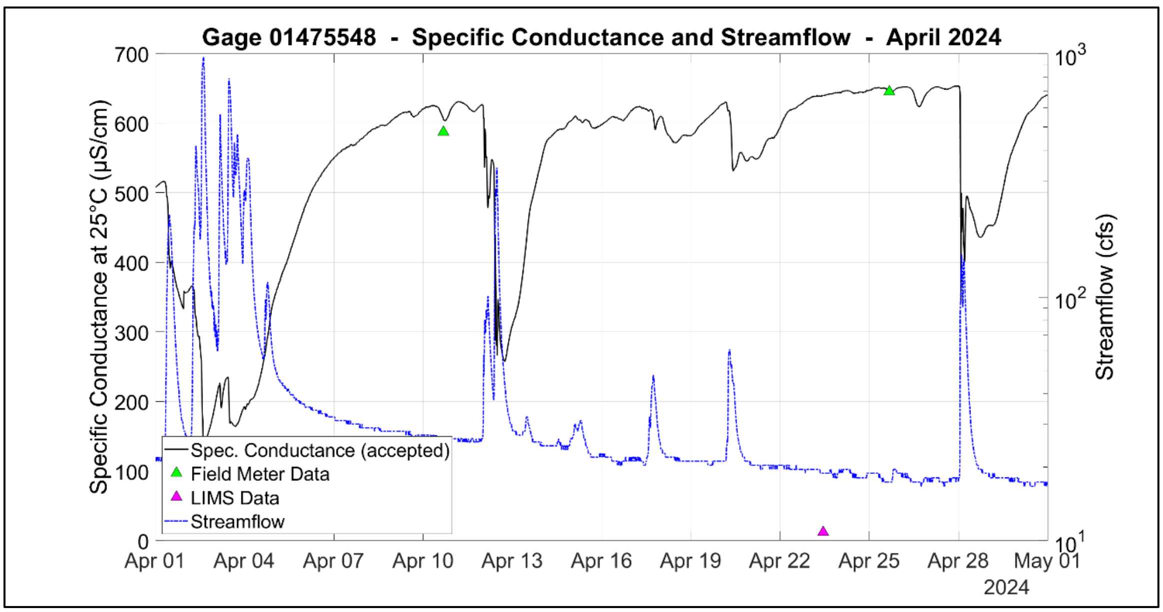


Figure 26. Gage 01475548, Specific Conductance and Streamflow, April 2024.

Temperature

Both Cobbs Creek gages showed that most exceedances of temperature maximum criteria occur during the spring and summer seasons, when temperature criteria are more stringent (Tables 26-27).

Table 26. Gage 01475530 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	0	100	0	100	20	29.5	23.2
WWF	1-Aug	15-Aug	0	100	0	100	18.8	25.2	21.9
WWF	16-Aug	30-Aug	0	100	0	100	18.7	25.5	21.8
WWF	1-Sep	15-Sep	0	100	0	100	17.5	25.9	22.3
WWF	16-Sep	30-Sep	0	100	0	100	15	21.5	17.4
WWF	1-Oct	15-Oct	0	100	0	100	12.7	20.4	16.2
WWF	16-Oct	31-Oct	0	100	0	100	10.3	17.5	13.8
WWF	1-Nov	15-Nov	0	100	0	100	6.5	12.5	9.8
WWF	16-Nov	30-Nov	9.3	90.7	0	100	3.1	11.3	7.9
WWF	1-Mar	31-Mar	53.3	46.7	0	100	5.6	15.6	10.3
WWF	1-Apr	15-Apr	44.7	55.3	0	100	7.2	17.6	12.1
WWF	16-Apr	30-Apr	35.9	64.1	0	100	9.1	20.6	13.9
WWF	1-May	15-May	24.7	75.3	0	100	11.9	21.5	15.8
WWF	16-May	31-May	16.2	83.8	0	100	14.8	23.4	18.6
WWF	1-Jun	15-Jun	13.1	86.9	0	100	15.7	23.6	19.9
WWF	16-Jun	30-Jun	13.1	86.9	0	100	17.9	27.5	22.8

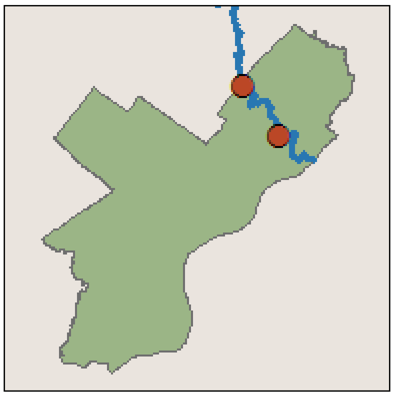
Table 27. Gage 01475548 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	0	100	0	100	21.4	28.2	24.5
WWF	1-Aug	15-Aug	0	100	0	100	20.5	25.9	23.0
WWF	16-Aug	30-Aug	0	100	0	100	20.1	26	22.9
WWF	1-Sep	15-Sep	0	100	0	100	18.6	26.7	23.1
WWF	16-Sep	30-Sep	0	100	0	100	15.6	21.7	17.8
WWF	1-Oct	15-Oct	0	100	0	100	13	20.7	16.6
WWF	16-Oct	31-Oct	0	100	0	100	10.4	17	13.7
WWF	1-Nov	15-Nov	0	100	0	100	6	12.3	9.3
WWF	16-Nov	30-Nov	6.1	93.9	0	100	2.8	10.9	7.5
WWF	1-Mar	31-Mar	57.7	42.3	0	100	6.1	15.6	10.4
WWF	1-Apr	15-Apr	48.6	51.4	0	100	7.6	18.1	12.5
WWF	16-Apr	30-Apr	43.8	56.2	0	100	10	20.8	14.5
WWF	1-May	15-May	36.0	64.0	0	100	12.4	22.4	16.8
WWF	16-May	31-May	24.7	75.3	0	100	15.7	24.7	19.8
WWF	1-Jun	15-Jun	13.7	86.3	0	100	17.3	24.7	21.4
WWF	16-Jun	30-Jun	13.7	86.3	0	100	19.9	28.1	24.5

Gages in Separate Sewer System Watersheds

Gages in the Pennypack, Wissahickon and Poquessing watersheds are situated in the separate sewer system areas of Philadelphia. Although these sites are not affected by combined sewer overflows, discharge of untreated stormwater runoff from stormwater outfalls can negatively affect water quality.

Pennypack Creek (Gages 01467042 and 01467048)



Dissolved oxygen and pH

Both the upstream (01467042) and downstream (01467048) gages of Pennypack Creek showed pronounced diel fluctuations in dissolved oxygen and pH as a result of algal activity. These patterns are most evident during dry weather periods, when algal growth is able to excel because of abundant sunshine and a lack of storm events that might otherwise scour the algal population.

At both upstream and downstream Pennypack Creek gages, periods of dry weather in warm months are conducive to excessive algal growth. During these periods, algal populations seemed to flourish, with large daily DO amplitudes during April (Figures 31-32).

In April, daily pH fluctuations of more than 1 unit were observed during dry weather (Figures 33-34). Maximum pH criteria were attained at both gages in the spring. It would be reasonable to conclude that if not for periodic interruptions of algal activity due to rainfall, these fluctuations and chronic pH criteria exceedance would likely occur through the entire season.

Algal communities in the area of both gages recover quickly after storm events, as seen in Figures 33-34. Prior to a series of small storms occurring in April 2024, both DO and pH showed the typical pronounced fluctuations indicative of strong algal activity. This pattern diminished with the storms, when much of the algae was likely scoured away and overcast conditions likely inhibited further growth, as indicated by the PAR data at

01467048 for April 2024 (Figure 35). However, within 2-3 days of the conclusion of the rainfall and the return of sunny conditions, fluctuations of DO and pH resumed, indicative of high algal density. This not only demonstrates the resilience of the algal population in this ecosystem, but also a likely abundance of nutrients that allows regrowth to occur so quickly.

Table 28. Gage 01467042 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	TSF	2874	5.5	13.1	7.9	100	0	0	100
Aug-23	TSF	2877	4.8	12.5	7.8	100	0	0.1	99.9
Sep-23	TSF	2777	5.2	11.9	8.3	99.9	0.1	0	100
Oct-23	TSF	2789	6.6	13.1	9.5	100	0	0	100
Nov-23	TSF	2783	8.1	13.6	10.7	100	0	0	100
Mar-24	TSF	1823	9.2	16.9	11.5	100	0	0	100
Apr-24	TSF	2871	6.6	14.3	10.3	100	0	0	100
May-24	TSF	2877	5.8	11.5	8.4	100	0	0	100
Jun-24	TSF	2781	5.0	11.4	7.8	100	0	0	100

Table 29. Gage 01467048 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	TSF	2868	5.6	14.0	8.1	99.9	0.1	0	100
Aug-23	TSF	2874	6.4	13.4	8.2	100	0	0	100
Sep-23	TSF	2771	5.0	12.0	8.5	99.9	0	0	100
Oct-23	TSF	2789	7.5	15.6	10.0	99.9	0.1	0	100
Nov-23	TSF	2777	8.5	15.7	11.6	99.9	0.1	0	100
Mar-24	TSF	1819	9.7	17.6	11.9	100	0	0	100
Apr-24	TSF	2870	6.6	17.4	10.8	100	0	0	100
May-24	TSF	2876	5.4	13.9	8.7	100	0	0	100
Jun-24	TSF	2782	4.6	12.0	8.0	100	0	0.8	99.2

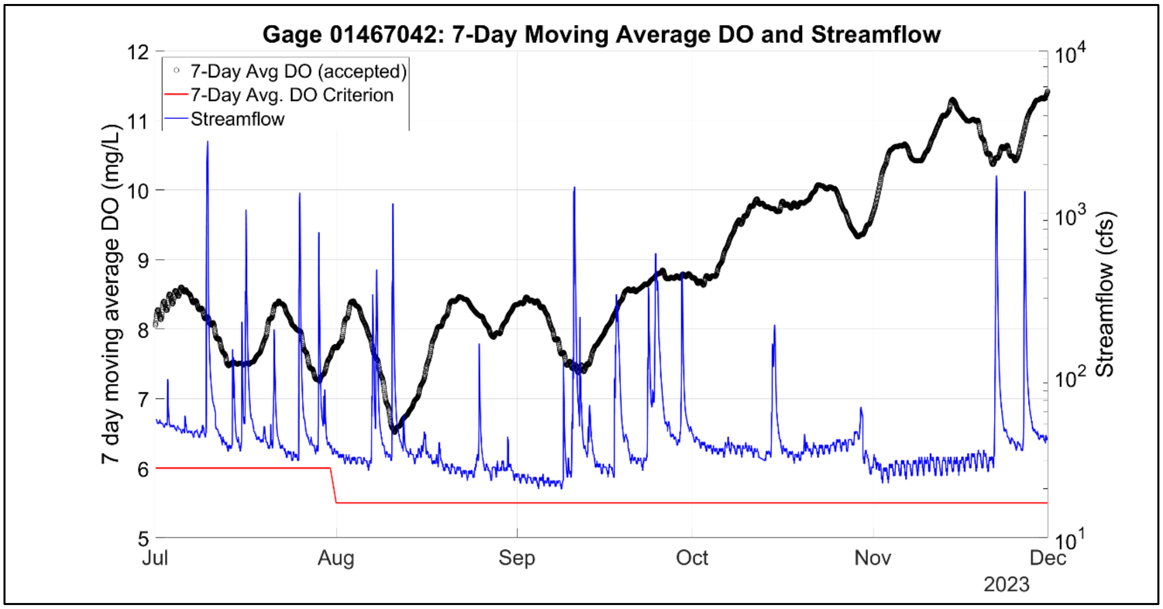


Figure 27. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

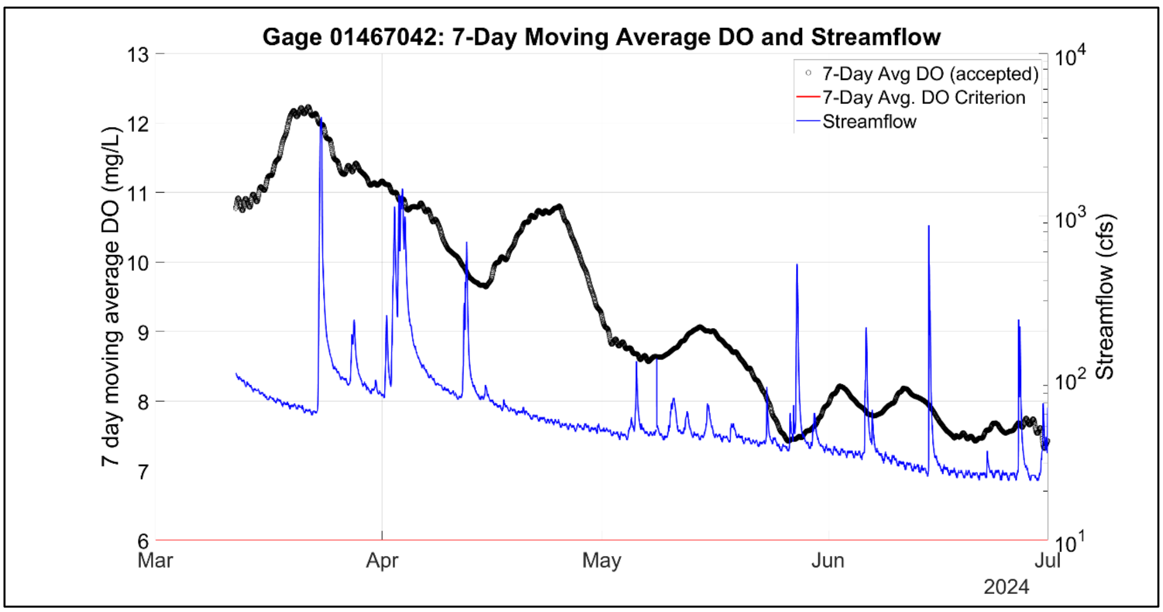


Figure 28. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

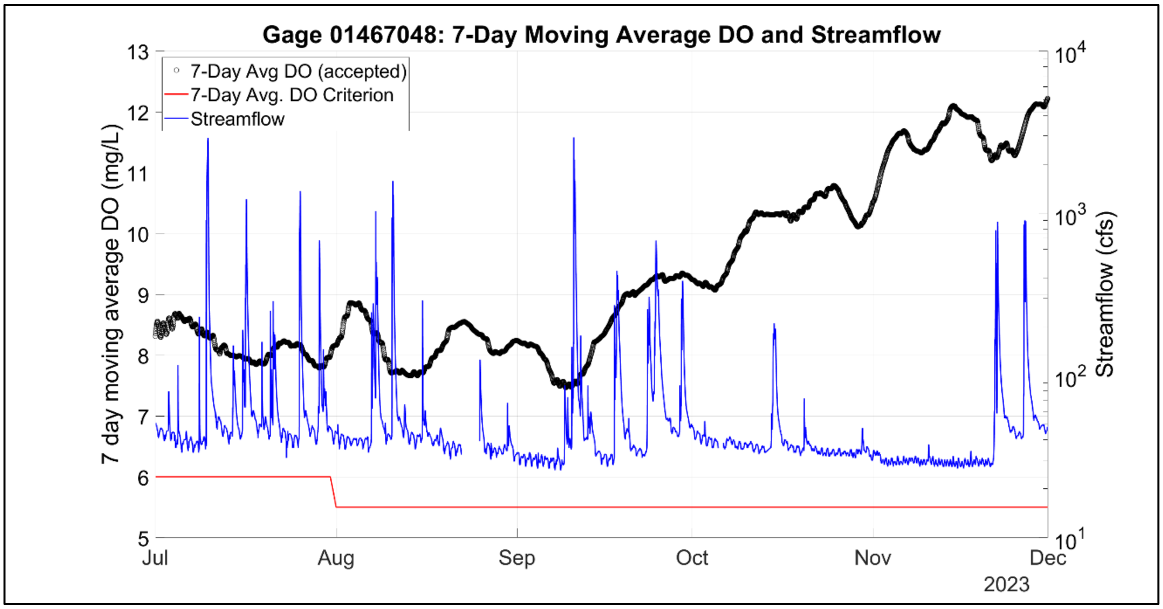


Figure 29. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

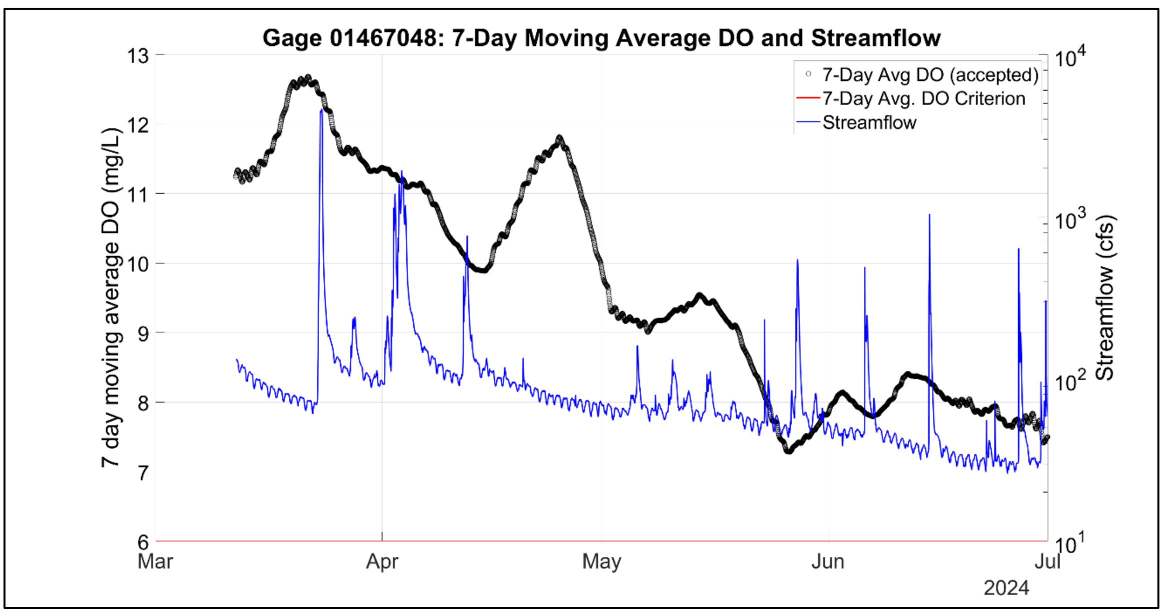


Figure 30. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

Table 30. Gage 01467042 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2875	6.9	8.8	7.6	100	0	0	0	100	100
Aug-23	2875	7	8.4	7.5	100	0	0	0	100	100
Sep-23	2777	6.9	8.4	7.5	100	0	0	0	100	100
Oct-23	2786	7.3	8.5	7.7	100	0	0	0	100	100
Nov-23	2783	7.1	8.0	7.5	100	0	0	0	100	100
Mar-24	1823	7.1	8.8	7.8	100	0	0	0	100	100
Apr-24	2873	7.1	8.3	7.5	100	0	0	0	100	100
May-24	2876	7.1	7.9	7.4	100	0	0	0	100	100
Jun-24	2598	7.1	8.5	7.5	100	0	0	0	100	100

Table 31. Gage 01467048 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2868	6.8	9.0	7.6	100	0.1	0	0	100	100
Aug-23	2874	7	8.9	7.7	100	0	0	0	100	100
Sep-23	2768	7.1	8.5	7.7	100	0	0	0	100	100
Oct-23	2868	7.3	8.9	7.9	100	0.1	0	0	100	100
Nov-23	2775	7.1	8.8	7.8	100	0	0	0	100	100
Mar-24	1819	7	8.9	7.8	100	0	0	0	100	100
Apr-24	2871	7.2	9.1	7.8	100	0	0	0.3	100	99.7
May-24	2876	7	8.7	7.6	100	0	0	0	100	100
Jun-24	2782	7.1	9.0	7.7	100	0.2	0	0	100	100

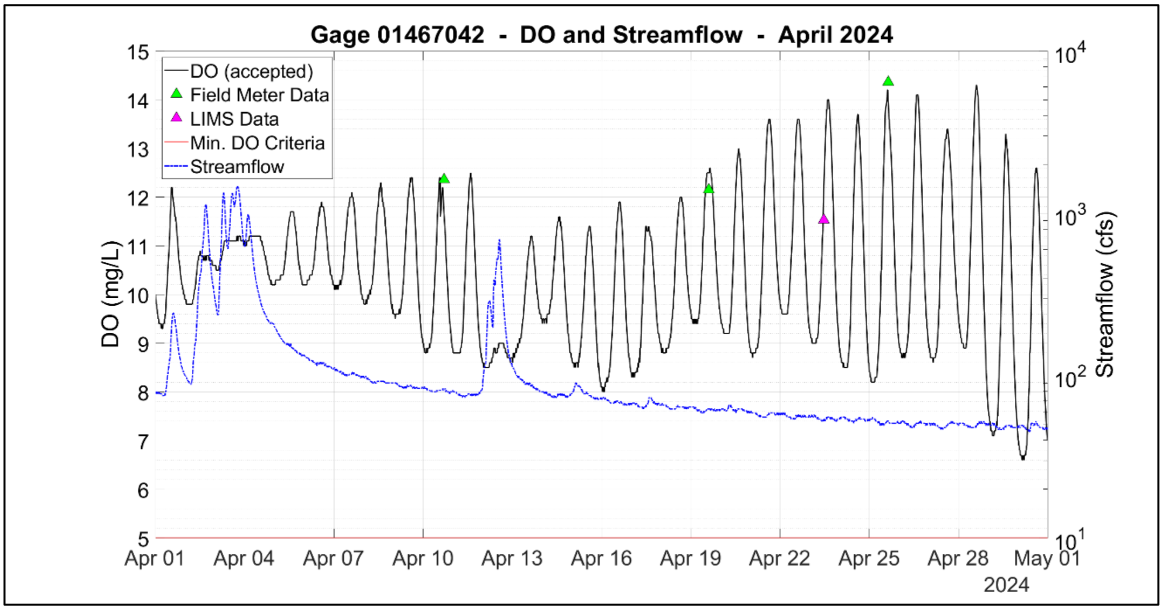


Figure 31. Gage 01467042, Dissolved Oxygen and Streamflow, April 2024.

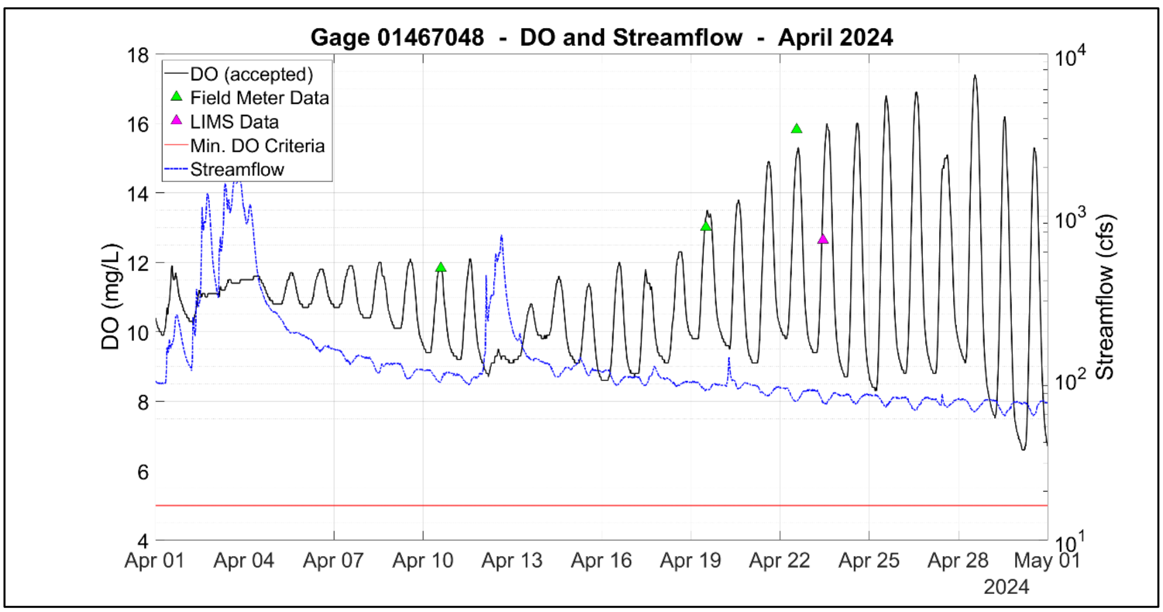


Figure 32. Gage 01467048, Dissolved Oxygen and Streamflow, April 2024.

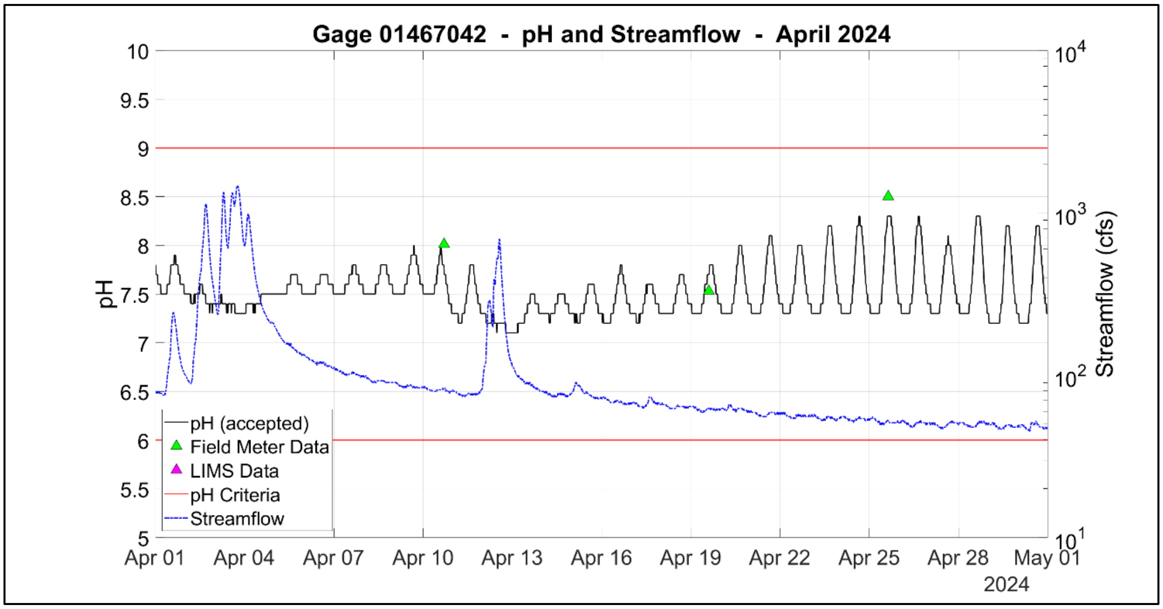


Figure 33. Gage 01467042, pH and Streamflow, April 2024.

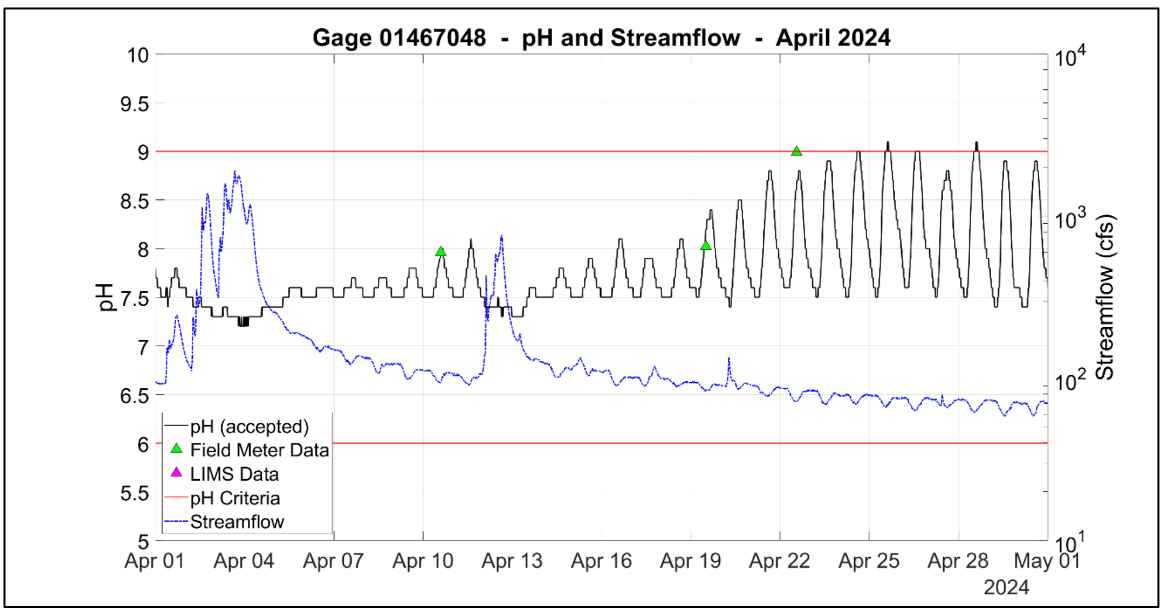


Figure 34. Gage 01467048, pH and Streamflow, April 2024.

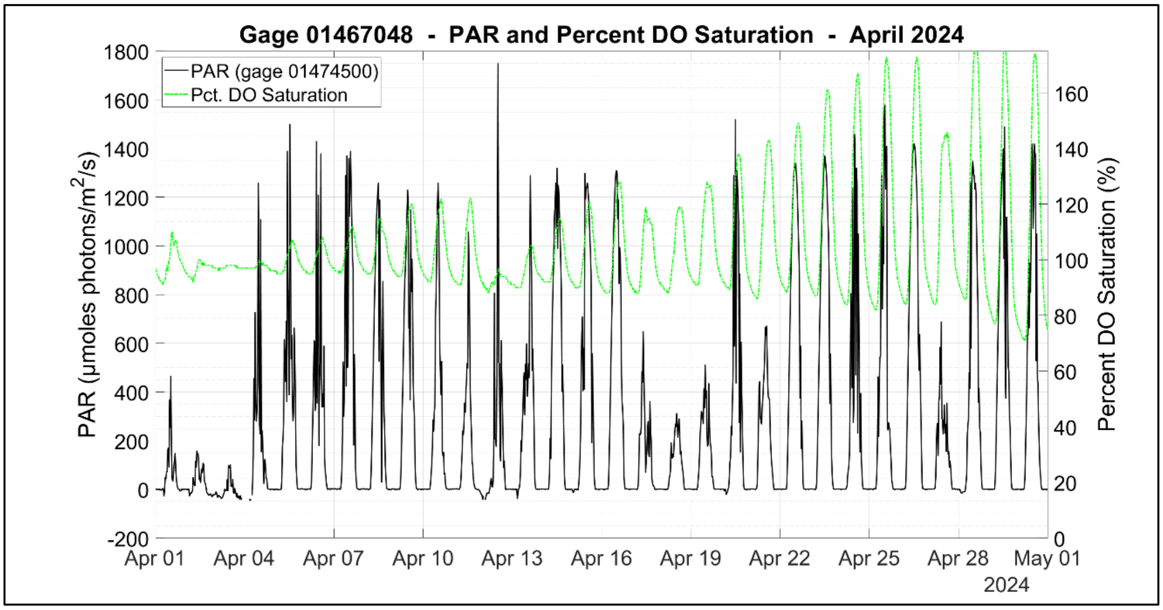


Figure 35. Gage 01467048, PAR and Percent Dissolved Oxygen Saturation, April 2024.

Figure 36. Gage 01467042, Pennypack Creek at Pine Rd., looking upstream

Figure 37. Gage 01467048, Pennypack Creek at Lower Rhawn St. Bridge, looking upstream

Turbidity

Turbidity data at the Pennypack Creek gages tend to reflect streamflow conditions. When there is high flow (*i.e.*, during and after storms), increases in turbidity are common and expected, as sediment in the creek bed is resuspended and particles present in runoff enter the stream (Figure 38). The downstream gage generally exhibited similar turbidity values throughout the year (Tables 32-33).

Flagged data are often due to periods during the month when sondes report high turbidity values that were corrected after the instrumentation was cleaned. After a storm, optical sensors such as those used to detect dissolved oxygen and turbidity can return inaccurate readings due to the sonde pipe becoming clogged with sediment and other debris. When turbidity readings come down after a cleaning, it is typical procedure to flag data back to the end of a storm, when the sonde pipe likely became clogged and did not reflect actual conditions in the stream.

Table 32. Gage 01467042, Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	2877	0.3	908	16.4	100	0	22.3	77.7
Aug-23	2876	0.3	114	2.2	100	0	16.7	83.3
Sep-23	2777	0.3	296	4.7	100	0	30.7	69.3
Oct-23	2786	0.3	9.2	1.1	100	0	4.0	96.0
Nov-23	2784	0.7	172	4.5	100	0	26.9	73.1
Mar-24	1823	1.4	124	5.2	100	0	27.8	72.2
Apr-24	2870	0.7	108	6.5	100	0	38.2	61.8
May-24	2871	0.3	87.3	2.1	100	0	11.5	88.5
Jun-24	2781	0.3	216	5.7	100	0	18.0	82.0

Table 33. Gage 01467048, Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	2868	0.3	260	8.9	100	0	46.8	53.2
Aug-23	2875	0.3	170	4.4	100	0	29.7	70.3
Sep-23	2447	0.3	1300	14.7	100	0	55.8	44.2
Oct-23	2794	0.3	132	4.6	100	0	13.2	86.8
Nov-23	2778	0.4	1300	7.6	100	0	21.2	78.8
Mar-24	1824	0.5	151	5.5	100	0	20.6	79.4
Apr-24	2871	0.4	112	6.4	100	0	23.9	76.1
May-24	2878	0.5	260	2.7	100	0	12.3	87.7
Jun-24	2782	0.5	218	4.5	100	0	24.3	75.7

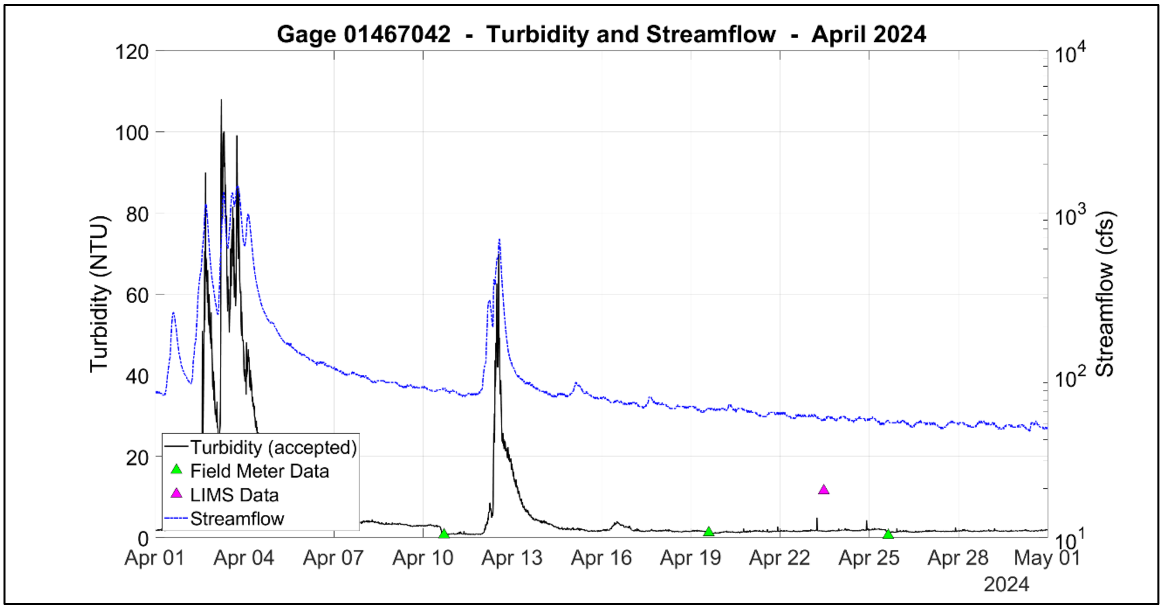


Figure 38. Gage 01467042, Turbidity and Streamflow, April 2024.

Specific Conductance

Specific conductance data were similar to other Philadelphia area streams. Elevated mean and maximum conductance values at both gages may be evidence of the effects of stormwater runoff and snowmelt containing road salt during a typical year.

Table 34. Gage 01467042 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2874	111	710	491.8	100	0
Aug-23	2875	199	744	574.4	100	0
Sep-23	2773	137	842	533.1	100	0
Oct-23	2786	256	683	547.0	100	0
Nov-23	2783	91	528	424.4	100	0
Mar-24	1823	91	597	537.2	100	0
Apr-24	2870	145	592	496.3	100	0
May-24	2874	273	686	567.1	100	0
Jun-24	2773	148	727	592.4	100	0

Table 35. Gage 01467048 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2866	92	676	446.3	100	0
Aug-23	2874	107	717	543.4	100	0
Sep-23	2761	112	772	490.6	100	0
Oct-23	2863	343	695	595.7	100	0
Nov-23	2775	125	717	580.6	100	0
Mar-24	1812	93	585	511.5	100	0
Apr-24	2870	138	579	481.8	100	0
May-24	2872	280	671	547.1	100	0
Jun-24	2775	166	691	564.9	100	0

Temperature

Temperature data showed variable attainment of maximum temperature criteria (Tables 36-37). Spring and early summer months are always subject to major air temperature fluctuations, and reliably predicting average stream temperatures during these periods is difficult at best. Maximum criteria for the summer months, for example, do not take into account natural summer temperature peaks. Above normal air temperatures are the likely cause of stream temperature exceedance rates in Spring 2024 (Figures 40-41).

Table 36. Gage 01467042 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
TSF	1-Jul	31-Jul	74	25.8	0	100	20.2	27.2	23.8
TSF	1-Aug	15-Aug	42	58.5	0	100	19.9	25.3	22.5
TSF	16-Aug	30-Aug	38	61.7	0	100	19.9	25.5	22.5
TSF	1-Sep	15-Sep	38	61.7	0	100	18.7	25.8	22.9
TSF	16-Sep	30-Sep	38	61.7	0	100	15.5	20.0	17.7
TSF	1-Oct	15-Oct	38	61.7	0.2	99.8	12.9	20.6	16.8
TSF	16-Oct	31-Oct	38	61.7	0	100	10.9	16.8	14.0
TSF	1-Nov	15-Nov	38	61.7	0	100	6.3	12.6	9.4
TSF	16-Nov	30-Nov	45	54.5	0	100	3.4	10.8	7.7
TSF	1-Mar	31-Mar	81	19.4	0	100	6.0	15.1	10.2
TSF	1-Apr	15-Apr	72	28.2	0	100	7.5	16.3	12.0
TSF	16-Apr	30-Apr	65	35.2	0	100	9.8	20.8	14.1
TSF	1-May	15-May	57	43.5	0	100	12.2	21.6	16.3
TSF	16-May	31-May	66	33.9	0	100	15.5	23.6	19.6
TSF	1-Jun	15-Jun	65	35.2	0	100	17.1	23.8	20.9
TSF	16-Jun	30-Jun	83	17.4	0	100	19.5	27.3	24.2

Table 37. Gage 01467048, Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
TSF	1-Jul	31-Jul	90	9.9	0	100	21.2	28.6	24.7
TSF	1-Aug	15-Aug	51	49.4	0	100	21.2	26.1	23.2
TSF	16-Aug	30-Aug	47	52.6	0	100	21.0	26.6	23.4
TSF	1-Sep	15-Sep	47	52.6	0	100	19.2	28.1	23.7
TSF	16-Sep	30-Sep	47	52.6	0	100	16.0	22.2	18.0
TSF	1-Oct	15-Oct	47	52.6	0	100	13.0	20.8	16.8
TSF	16-Oct	31-Oct	47	52.6	0	100	10.9	17.1	13.8
TSF	1-Nov	15-Nov	47	52.6	0	100	5.8	12.6	9.2
TSF	16-Nov	30-Nov	51	48.7	0.1	99.9	3.4	17.0	7.5
TSF	1-Mar	31-Mar	88	12.1	0	100	6.2	14.9	10.2
TSF	1-Apr	15-Apr	81	19.3	0	100	7.7	16.4	12.2
TSF	16-Apr	30-Apr	76	24.2	0	100	10.4	20.8	14.5
TSF	1-May	15-May	69	31.2	0	100	12.5	22.7	16.8
TSF	16-May	31-May	79	21.0	0	100	15.9	25.5	20.3
TSF	1-Jun	15-Jun	83	17.2	0	100	18.5	25.4	21.9
TSF	16-Jun	30-Jun	94	6.3	0	100	20.6	29.7	25.3

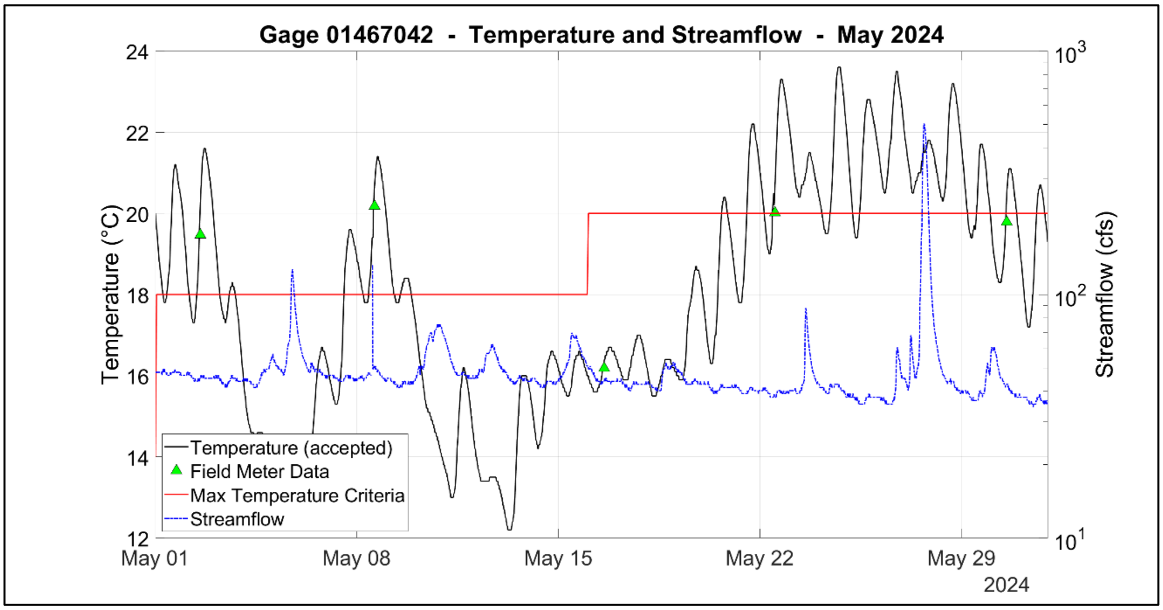


Figure 39. Gage 01467042, Temperature and Streamflow, May 2024.

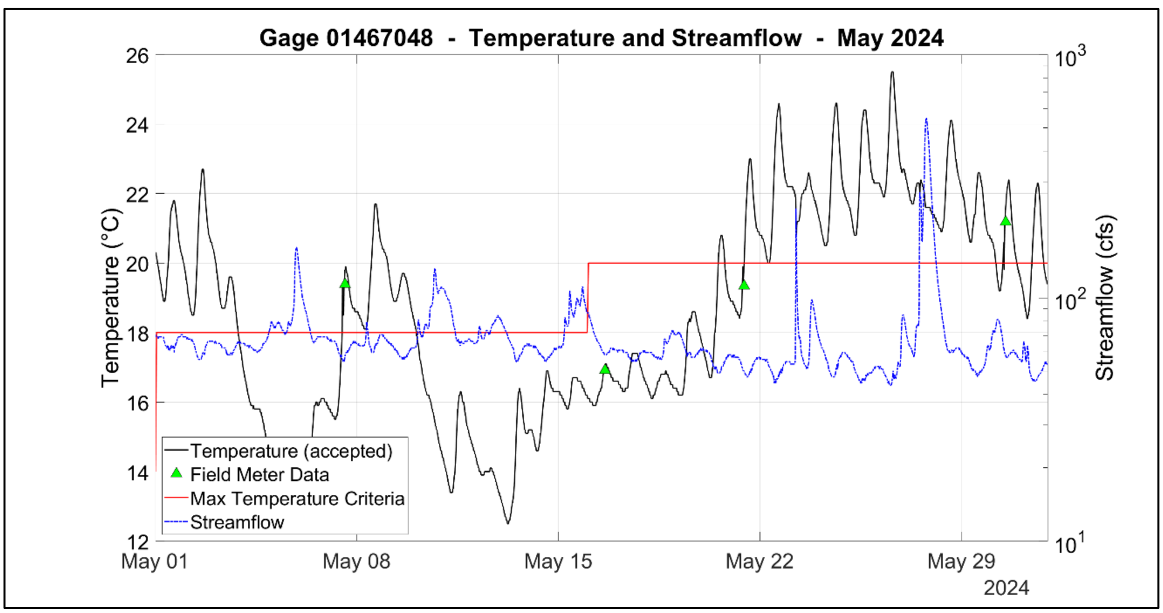
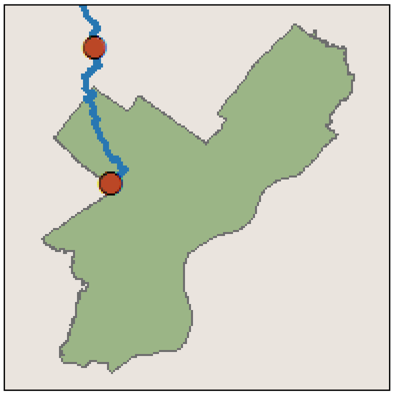


Figure 40. Gage 01467048, Temperature and Streamflow, May 2024.

Wissahickon Creek (Gages 01473900 and 01474000)



Dissolved oxygen and pH

Dissolved oxygen and pH data collected from the Wissahickon Creek gages also show signs of strong algal activity in the form of diel fluctuations. Although these two sites never exceeded the 7-day average guideline for dissolved oxygen, the upper gage (01473900) exhibits some of the most dramatic diel fluctuations of any of the Philadelphia USGS gage sites. In March 2024, dissolved oxygen can be observed to fluctuate by approximately 12 mg/L in a single day/night period (Figure 45), with pH experiencing significant swings at the same time (Figure 46). The pH maxima were exceeded in spring, a direct result of algal activity (Table 40).

Table 38. Gage 01473900 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	TSF	829	4.4	13.8	7.6	100	0	4.1	95.9
Aug-23	TSF	1413	5.2	12.7	7.9	100	0	0	100
Sep-23	TSF	1379	4.8	14.0	8.3	100	0	0.4	99.6
Oct-23	TSF	1435	5.4	14.8	9.2	100	0	0	100
Nov-23	TSF	689	6.6	15.2	10.3	100	0	0	100
Mar-24	TSF	912	8.0	21.9	12.1	99.5	0.5	0	100
Apr-24	TSF	2220	4.4	17.3	9.8	100	0	0.4	99.6
May-24	TSF	2794	3.7	11.4	7.6	100	0	3.3	96.7
Jun-24	TSF	2778	3.0	14.2	7.8	100	0	6.1	93.9

Table 39. Gage 01474000 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	TSF	1396	6.5	11.9	8.4	100	0	0	100
Aug-23	TSF	1434	7.0	12.4	8.7	100	0	0	100
Sep-23	TSF	1390	6.6	12.8	8.9	100	0	0	100
Oct-23	TSF	1436	7.8	13.1	10.0	100	0	0	100
Nov-23	TSF	1389	9.0	14.5	11.6	100	0	0	100
Mar-24	TSF	913	9.7	17.0	12.0	100	0	0	100
Apr-24	TSF	1435	8.0	14.5	10.6	100	0	0	100
May-24	TSF	1437	7.2	12.1	9.2	100	0	0	100
Jun-24	TSF	1389	5.9	12.9	8.8	100	0	0	100

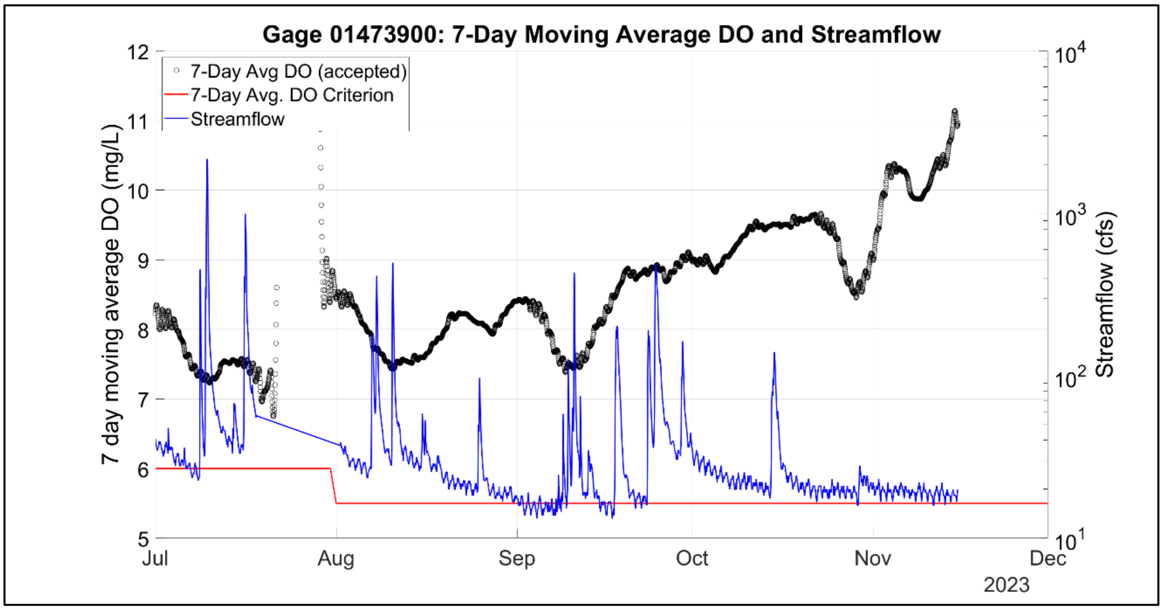


Figure 41. Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

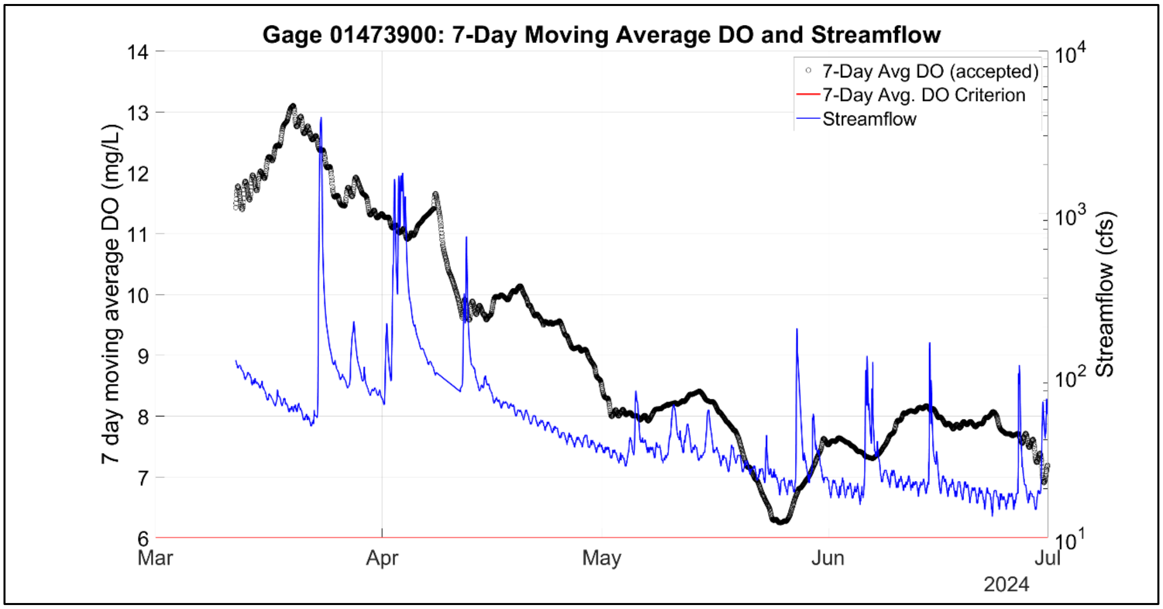


Figure 42. Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

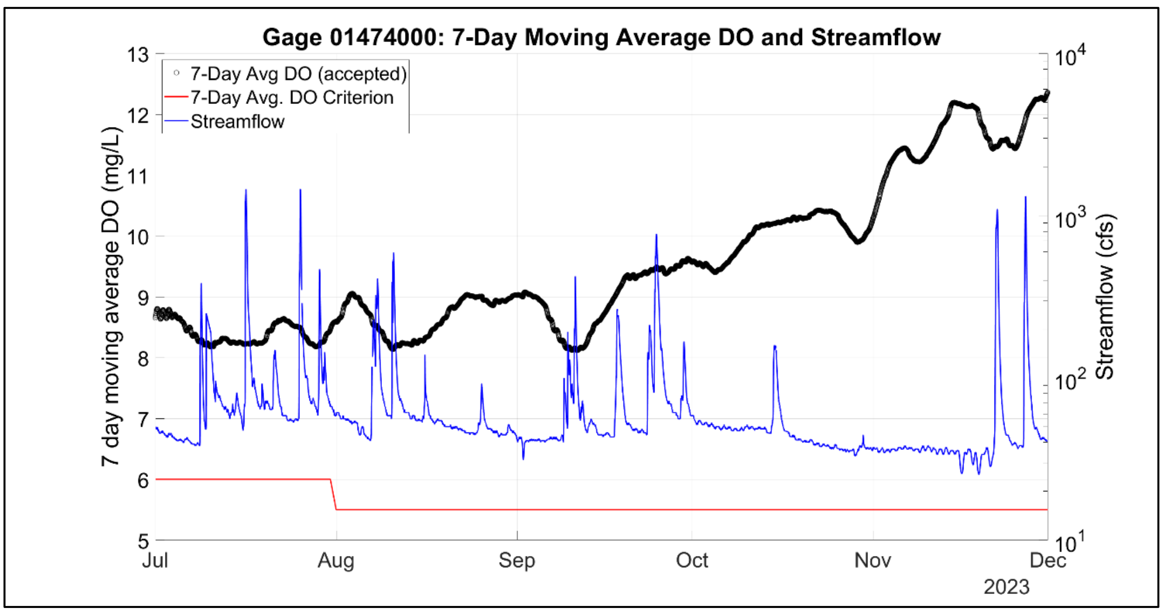


Figure 43. Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

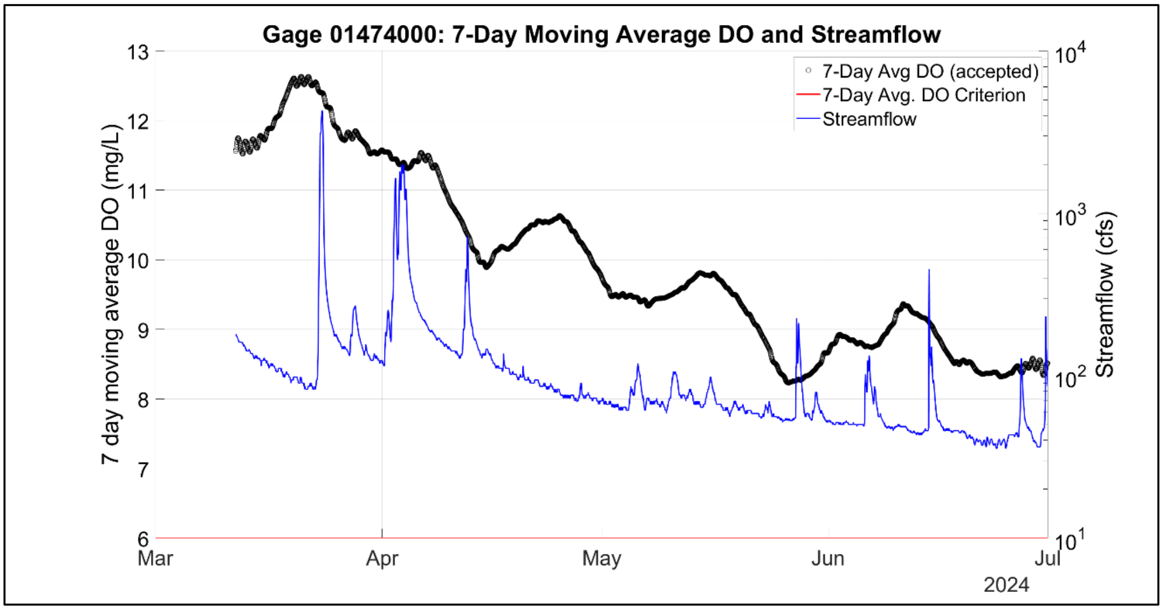


Figure 44. Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

Table 40. Gage 01473900 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	829	7.1	8.7	7.8	100	0	0	0	100	100
Aug-23	1413	7.5	8.6	7.9	100	0	0	0	100	100
Sep-23	1377	7.4	8.7	8.0	100	0	0	0	100	100
Oct-23	1435	7.6	8.8	8.0	100	0	0	0	100	100
Nov-23	689	7.6	8.5	7.9	100	0	0	0	100	100
Mar-24	911	7.2	9.4	8.1	99.6	0.4	0	7.7	100	92.3
Apr-24	2220	7.3	9.0	7.8	100	0	0	0	100	100
May-24	2871	7.3	8.1	7.6	99.9	0.1	0	0	100	100
Jun-24	2774	7.3	8.8	7.8	100	0	0	0	100	100

Table 41. Gage 01474000 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	1396	7.5	8.9	8.2	100	0	0	0	100	100
Aug-23	1463	7.7	8.8	8.3	100	0	0	0	100	100
Sep-23	1390	7.7	8.8	8.2	100	0	0	0	100	100
Oct-23	1436	8	8.8	8.4	100	0	0	0	100	100
Nov-23	1389	7.7	8.7	8.3	100	0	0	0	100	100
Mar-24	913	7.4	9.3	8.5	100	0	0	11.3	100	88.7
Apr-24	1435	7.6	9.0	8.2	100	0	0	0	100	100
May-24	1457	7.8	8.7	8.1	100	0	0	0	100	100
Jun-24	1389	7.6	8.8	8.3	100	0	0	0	100	100

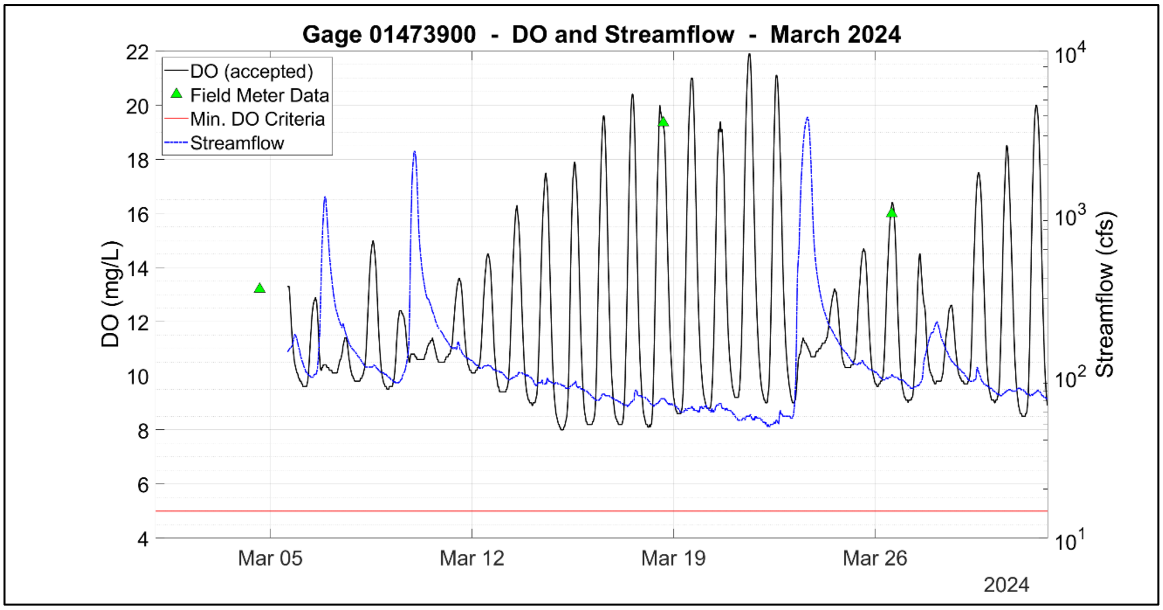


Figure 45. Gage 01473900, Dissolved Oxygen and Streamflow, March 2024.

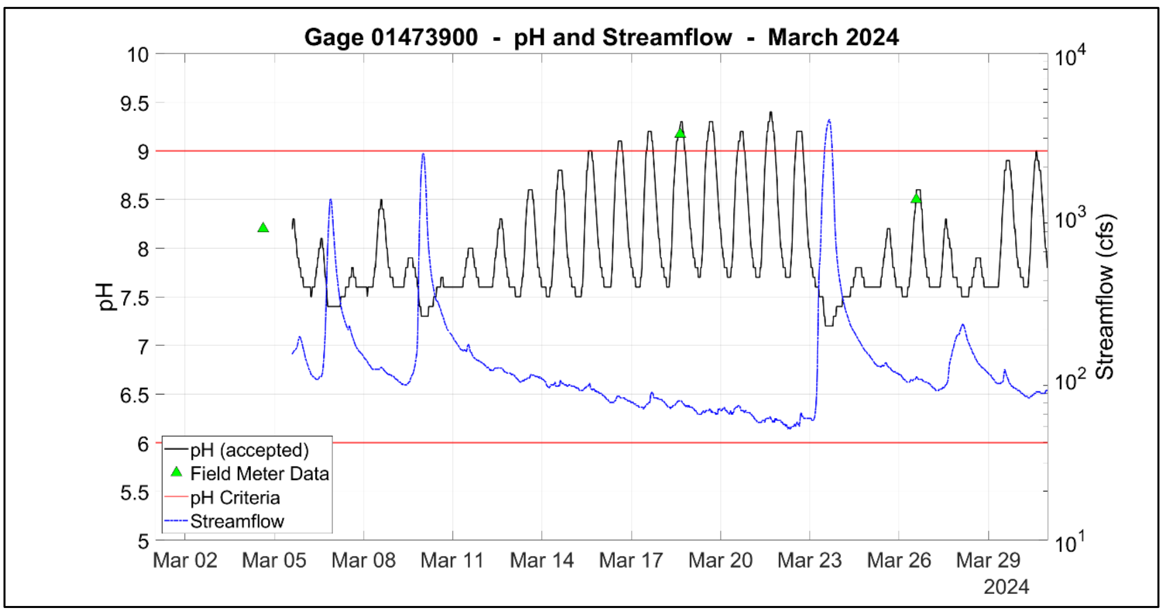


Figure 46. Gage 01473900, pH and Streamflow, March 2024.

Figure 47. Gage 01473900, Wissahickon Creek at Ft. Washington, looking downstream

Figure 48. Gage 01474000, Wissahickon Creek at mouth, looking downstream

Turbidity

Turbidity in the Wissahickon, as with most of Philadelphia's streams, increases drastically with increased flow from rainfall (Tables 42-43, Figure 49). It is possible that these spikes represent a temporarily fouled sensor (i.e., sediment or debris obscures the optical probe for turbidity), but the general rule in QAQC procedures is not to flag turbidity spikes that recede to normal levels on their own. If the sensor remains fouled after a storm or a field check confirms aberrant values, the data is flagged. Gage 01473900 did not record turbidity values during 2023 due to a hardware malfunction. This issue was fixed when it was redeployed in March 2024.

Table 42. Gage 01473900 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	NA	NA	NA	NA	NA	NA	NA	NA
Aug-23	NA	NA	NA	NA	NA	NA	NA	NA
Sep-23	NA	NA	NA	NA	NA	NA	NA	NA
Oct-23	NA	NA	NA	NA	NA	NA	NA	NA
Nov-23	NA	NA	NA	NA	NA	NA	NA	NA
Mar-24	912	0.8	94.5	4.7	99.6	0	22	78.2
Apr-24	1887	0.3	105	6.4	99.9	0	41	59.5
May-24	2606	0.7	63.6	4.3	100	0	47	53.2
Jun-24	2778	0.5	56.5	4.0	100	0	57	43.1

Table 43. Gage 01474000 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	1447	0.3	119	4.4	100	0	23.5	76.5
Aug-23	1440	0.3	73.3	1.7	100	0	10.3	89.7
Sep-23	1399	0.3	58.4	2.1	100	0	16.2	83.8
Oct-23	1449	0.3	6.6	0.7	100	0	0.3	99.7
Nov-23	1389	0.3	112	4.6	100	0	21	79
Mar-24	913	0.6	100	4.8	100	0	13	87
Apr-24	1435	0.5	93.0	5.7	100	0	18.9	81.1
May-24	1434	0.4	32.1	1.0	100	0	2.4	97.6
Jun-24	1392	0.3	62.2	1.0	100	0	3.7	96.3

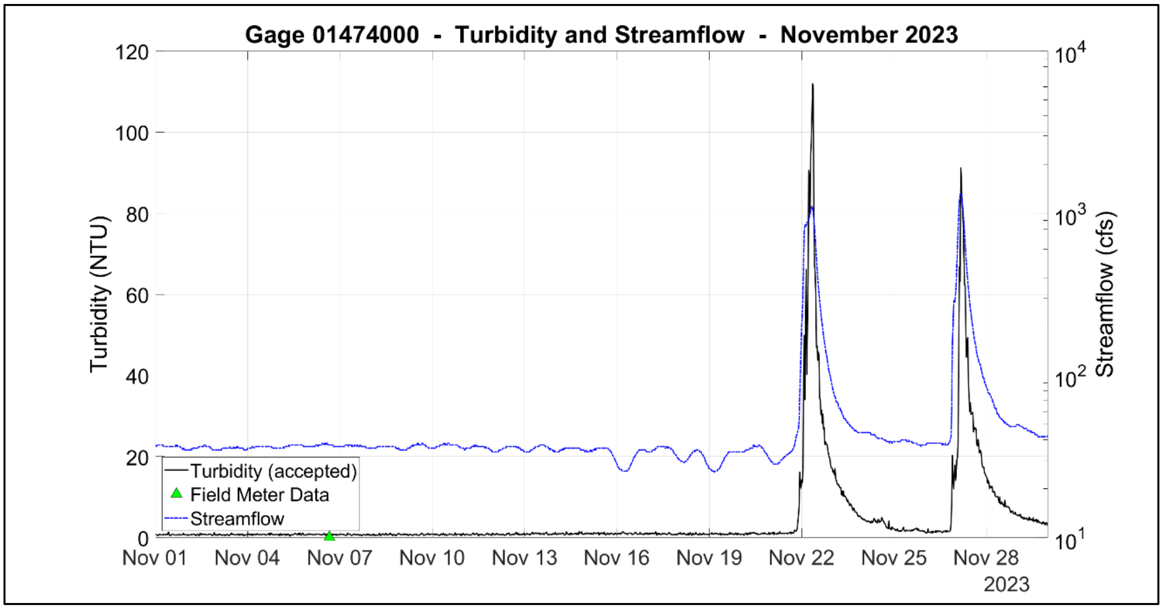


Figure 49. Gage 01474000, Turbidity and Streamflow, November 2023.

Specific Conductance

Specific conductance data at the Wissahickon Creek gage sites generally follow the established pattern in other Philadelphia streams: Runoff from rain events dilutes the stream and decreases conductivity (Figure 50). However, a reversal in this trend sometimes occurs during winter storms and during snowmelt, when it is presumed that the application of road salt (sodium chloride) prior to the storm washes into Wissahickon Creek and causes conductivity to increase in conjunction with streamflow.

Table 44. Gage 01473900 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	573	107	831	573.3	100	0
Aug-23	1413	248	974	707.7	100	0
Sep-23	1377	231	1000	731.2	100	0
Oct-23	1435	547	904	803.2	100	0
Nov-23	689	837	970	895.5	100	0
Mar-24	906	94	714	596.9	100	0
Apr-24	2218	164	743	582.2	100	0
May-24	2859	558	882	751.6	100	0
Jun-24	2774	523	1030	836.2	100	0

Table 45. Gage 01474000 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	1394	185	813	582.5	100	0
Aug-23	1434	261	875	699.4	100	0
Sep-23	1390	250	877	656.9	100	0
Oct-23	1434	553	881	748.9	100	0
Nov-23	1389	185	899	676.0	100	0
Mar-24	913	109	689	572.3	100	0
Apr-24	1435	167	705	563.0	100	0
May-24	1435	512	805	712.1	100	0
Jun-24	1389	259	848	754.8	100	0

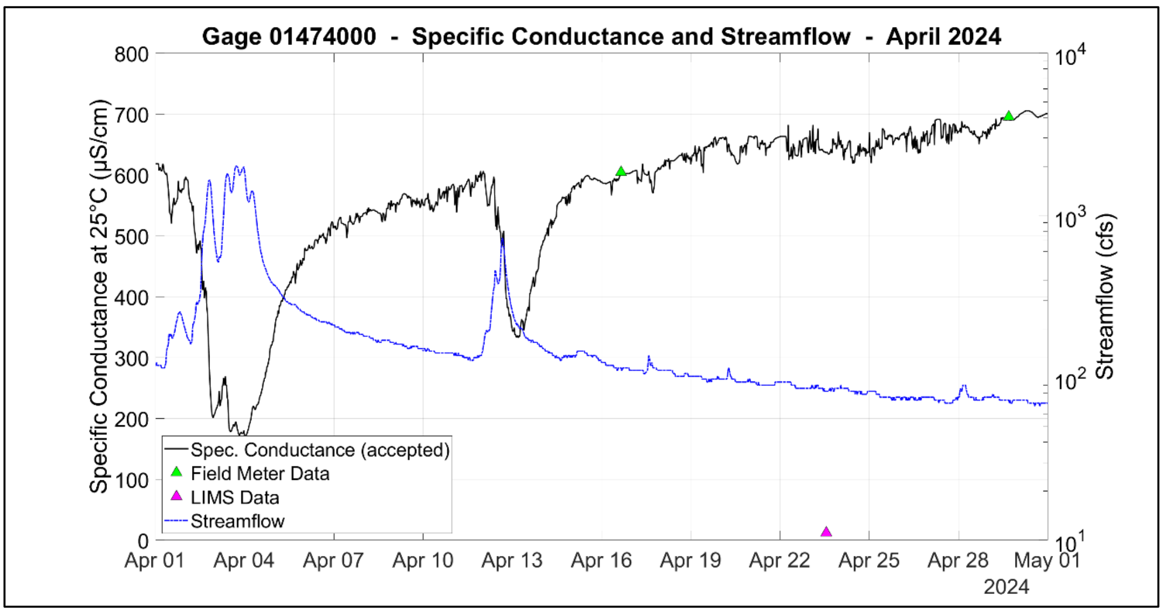


Figure 50. Gage 01474000, Specific Conductance and Streamflow, April 2024.

Temperature

Temperature trends and exceedance rates in Wissahickon Creek Watershed were similar to those observed in Pennypack Creek, with frequent exceedances during the spring in conjunction with higher ambient air temperatures (Tables 46-47, Figures 51-52).

Table 46. Gage 01473900 Temperature Summary Results by Month by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
TSF	1-Jul	31-Jul	67.7	32.3	0	100	20.7	27.8	23.6
TSF	1-Aug	15-Aug	18.2	81.8	0	100	19.3	25.0	22.2
TSF	16-Aug	30-Aug	9.5	90.5	0	100	19.4	25.8	22.4
TSF	1-Sep	15-Sep	9.5	90.5	0	100	18.4	26.6	22.9
TSF	16-Sep	30-Sep	9.5	90.5	0	100	15.7	20.2	17.8
TSF	1-Oct	15-Oct	9.5	90.5	0	100	13.2	20.9	16.9
TSF	16-Oct	31-Oct	9.5	90.5	0	100	11	17.8	14.5
TSF	1-Nov	15-Nov	9.5	90.5	0	100	6.8	12.9	10.1
TSF	16-Nov	30-Nov	NA	NA	NA	NA	NA	NA	NA
TSF	1-Mar	31-Mar	84.8	15.2	0	99.5	5.9	14.9	10.2
TSF	1-Apr	15-Apr	70.6	29.4	0	100	7.4	16.0	12.0
TSF	16-Apr	30-Apr	48.2	51.8	0	100	9.9	21.1	14.3
TSF	1-May	15-May	33.7	66.3	0	100	12.4	22.2	16.5
TSF	16-May	31-May	50.6	49.4	0	100	15.7	24.1	19.6
TSF	1-Jun	15-Jun	46.5	53.5	0	100	16.7	24.4	20.7
TSF	16-Jun	30-Jun	80.9	19.1	0	100	19.3	27.4	23.9

Table 47. Gage 01474000 Temperature Summary Results by Month by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
TSF	1-Jul	31-Jul	79.8	20.2	0	100	21.2	27.3	24.0
TSF	1-Aug	15-Aug	41.8	58.2	0	100	20.4	24.6	22.5
TSF	16-Aug	30-Aug	39.0	61.0	0	100	20.3	25.6	22.5
TSF	1-Sep	15-Sep	39.0	61.0	0	100	19.2	25.3	22.7
TSF	16-Sep	30-Sep	39.0	61.0	0	100	15.5	20.2	17.6
TSF	1-Oct	15-Oct	39.0	61.0	0	100	13.0	19.6	16.4
TSF	16-Oct	31-Oct	39.0	61.0	0	100	11.1	15.6	13.5
TSF	1-Nov	15-Nov	39.0	61.0	0	100	6.4	13.0	9.3
TSF	16-Nov	30-Nov	39.2	60.8	0	100	4.1	10.0	7.5
TSF	1-Mar	31-Mar	79.8	20.2	0	100	6.2	14.4	10.0
TSF	1-Apr	15-Apr	70.9	29.1	0	100	7.6	16.0	11.9
TSF	16-Apr	30-Apr	67.3	32.7	0	100	10.9	18.9	14.2
TSF	1-May	15-May	59.0	41.0	0	100	13.0	21.5	16.6
TSF	16-May	31-May	67.9	32.1	0	100	15.7	23.4	19.5
TSF	1-Jun	15-Jun	64.3	35.7	0	100	17.6	23.6	20.8
TSF	16-Jun	30-Jun	85.3	14.7	0	100	19.9	27.0	24.1

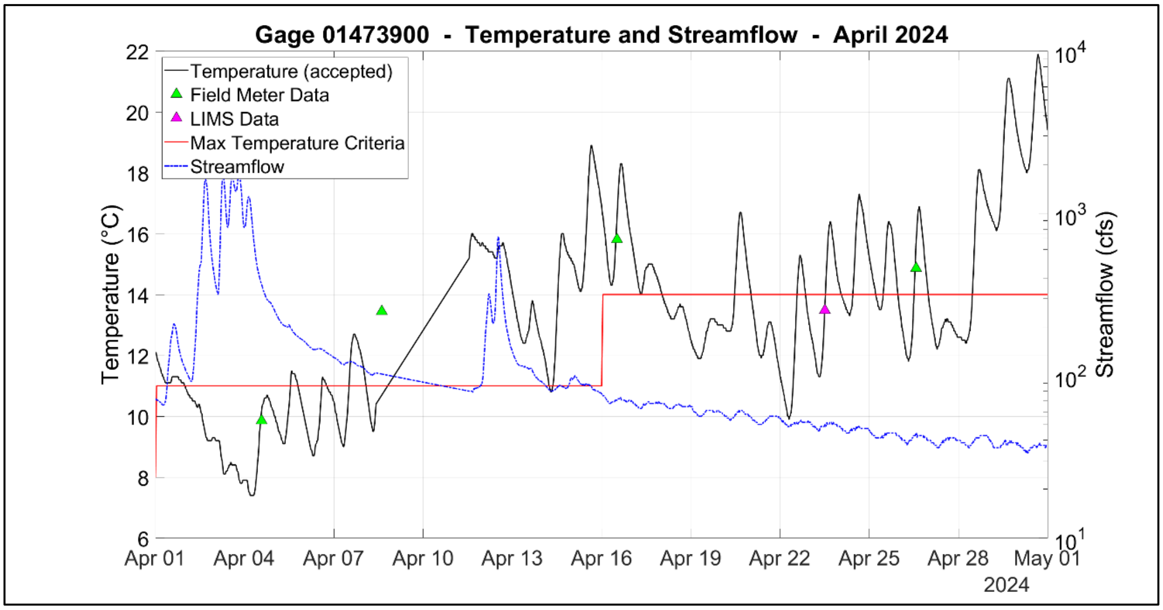


Figure 51. Gage 01473900, Temperature and Streamflow, April 2024.

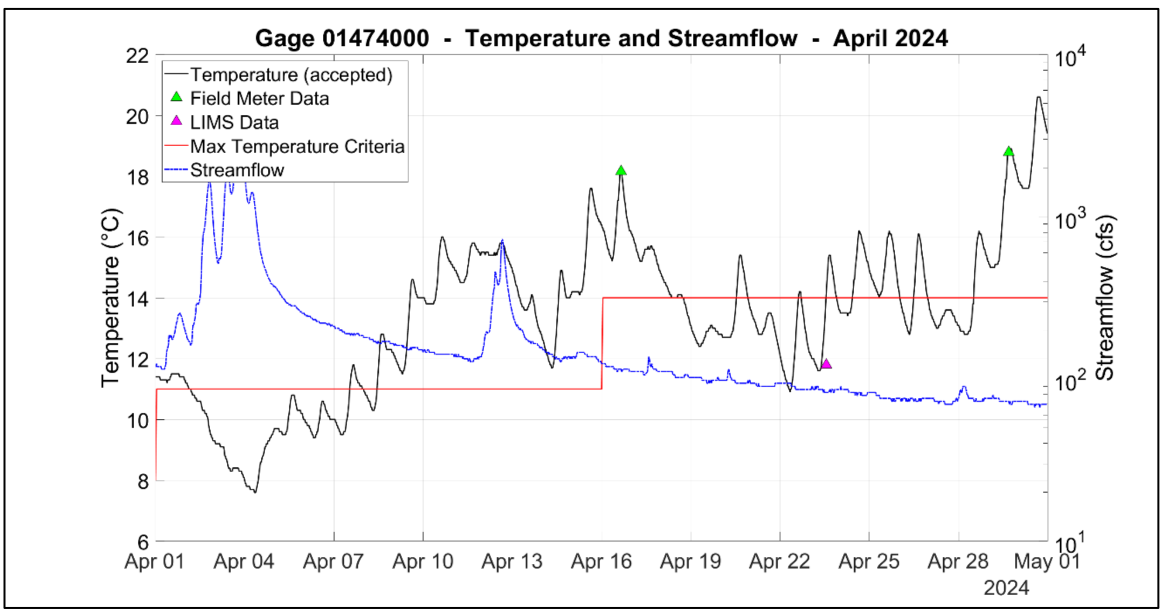
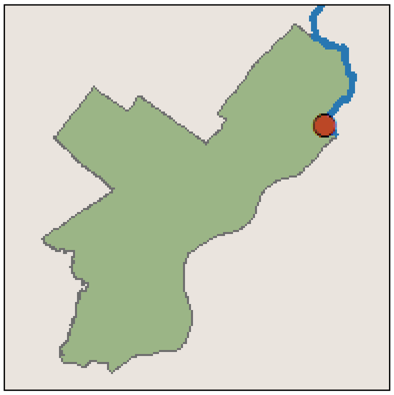


Figure 52. Gage 01474000, Temperature and Streamflow, April 2024.

Poquessing Creek (Gage 01465798)



Dissolved oxygen and pH

Dissolved oxygen and pH at this gage site were usually within acceptable ranges and only occasionally fell below the minimum DO criterion. The site rarely exceeded the pH maximum criterion (Tables 48-49, Figures 53-54). Data collected from Poquessing Creek did exhibit classic signs of algal activity, as indicated by diel fluctuations in both DO and pH.

As seen with previous sites, the algal activity and related diel fluctuations in DO and pH are only suppressed by storm events. These suppressions, however, are only very temporary. Given an adequate period of uninterrupted algal growth, such as occurred in April 2024 (Figures 55-56), one can expect increased DO and pH fluctuations.

Table 48. Gage 01465798 Dissolved Oxygen Min. Criteria Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	2871	2.0	14.0	7.7	100	0	4.6	95.4
Aug-23	WWF	2875	3.7	14.0	7.9	100	0.1	0.2	99.8
Sep-23	WWF	2770	1.1	13.0	7.8	100	0	3.4	96.6
Oct-23	WWF	2875	4.0	14.6	9.3	100	0	0.3	99.7
Nov-23	WWF	2757	5.1	15.3	10.2	100	0	0	100
Mar-24	WWF	1825	9.2	17.6	11.6	100	0	0	100
Apr-24	WWF	2868	6.4	16.6	10.7	100	0	0	100
May-24	WWF	2877	4.1	12.1	7.9	100	0	1.1	98.9
Jun-24	WWF	2781	3.3	11.2	7.0	100	0	5.9	94.1

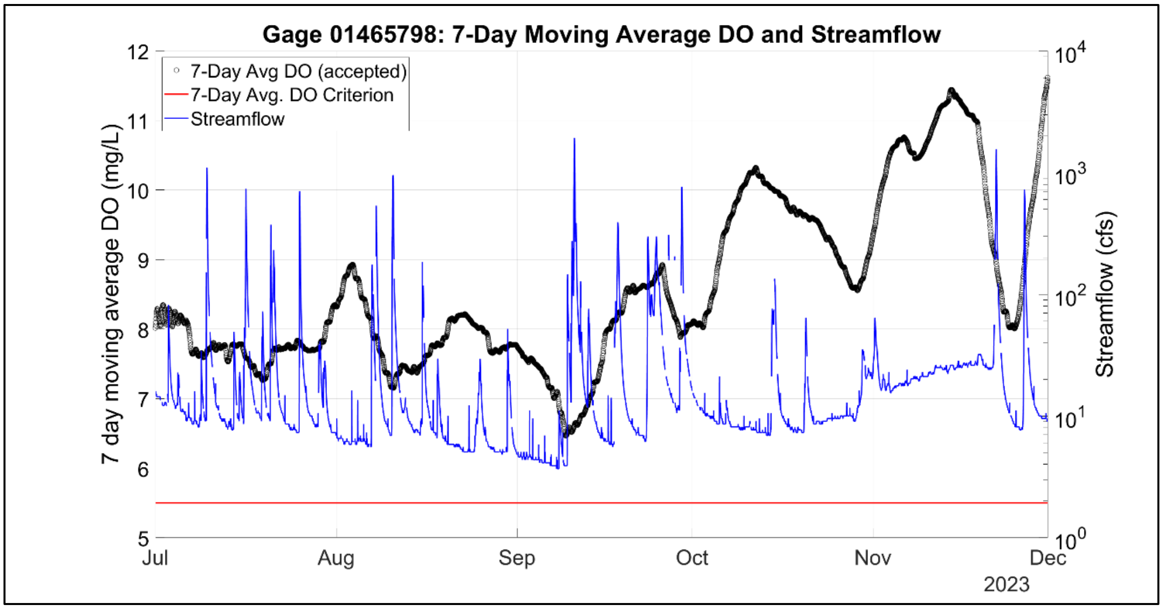


Figure 53. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

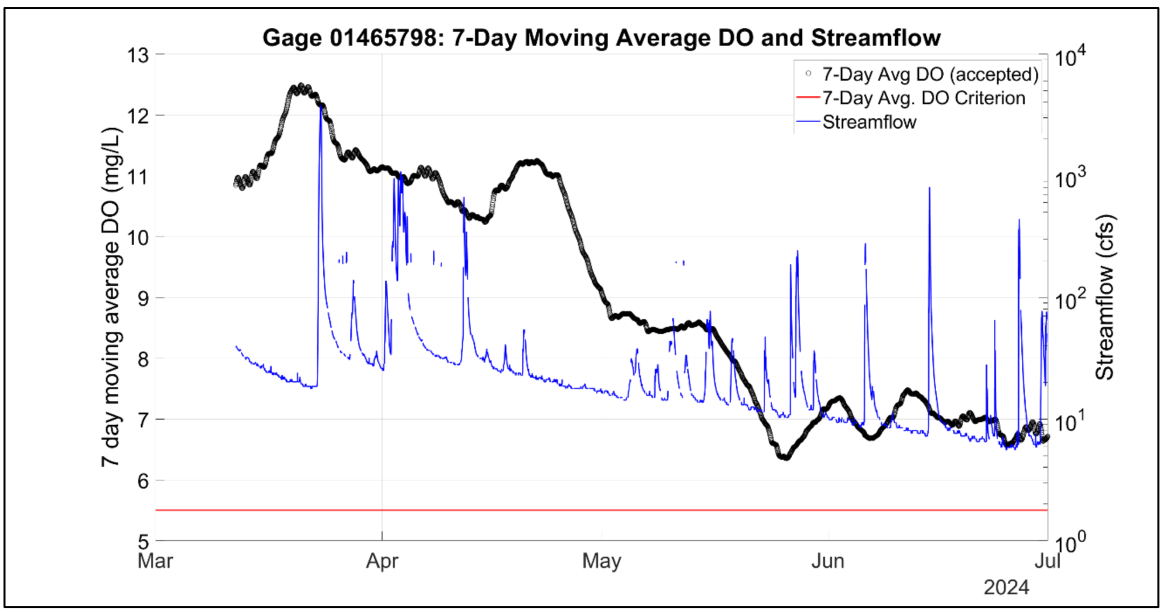


Figure 54. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

Table 49. Gage 01465798 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2871	6.6	9.0	7.3	100	0	0	0	100	100
Aug-23	2875	6.8	8.9	7.4	100	0	0	0	100	100
Sep-23	2769	6.7	8.3	7.2	100	0	0	0	100	100
Oct-23	2875	6.9	8.6	7.3	100	0	0	0	100	100
Nov-23	2757	6.9	7.8	7.2	100	0	0	0	100	100
Mar-24	1825	6.6	8.6	7.4	100	0	0	0	100	100
Apr-24	2868	7.0	9.0	7.4	100	0	0	0	100	100
May-24	2877	6.9	7.9	7.3	100	0	0	0	100	100
Jun-24	2781	6.8	8.2	7.3	100	0	0	0	100	100

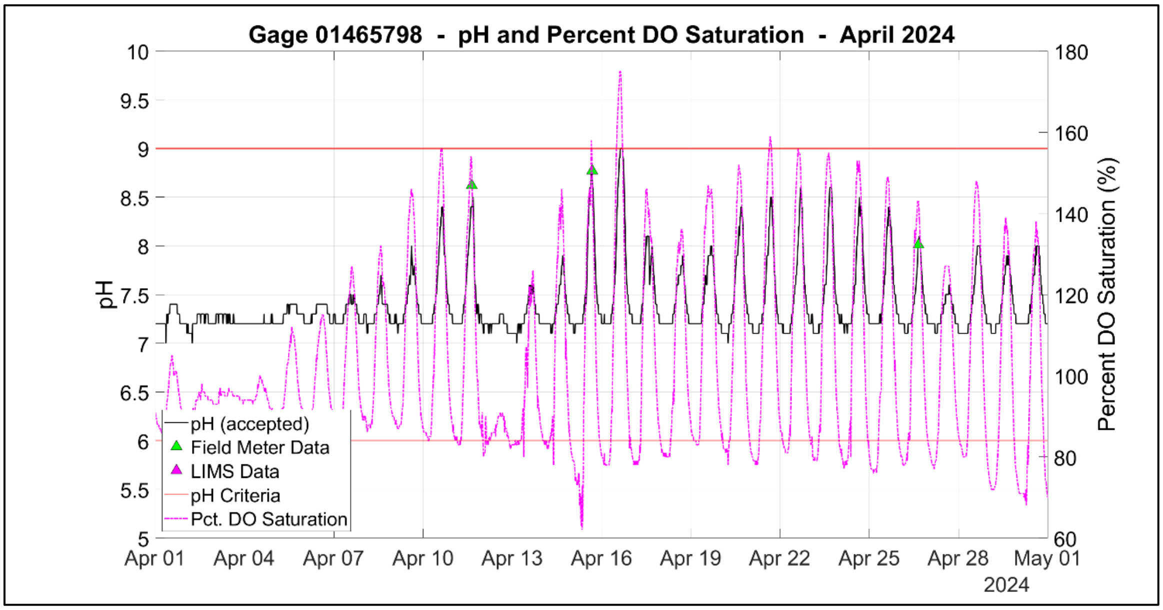


Figure 55. Gage 01465798, pH and Percent DO Saturation, April 2024.

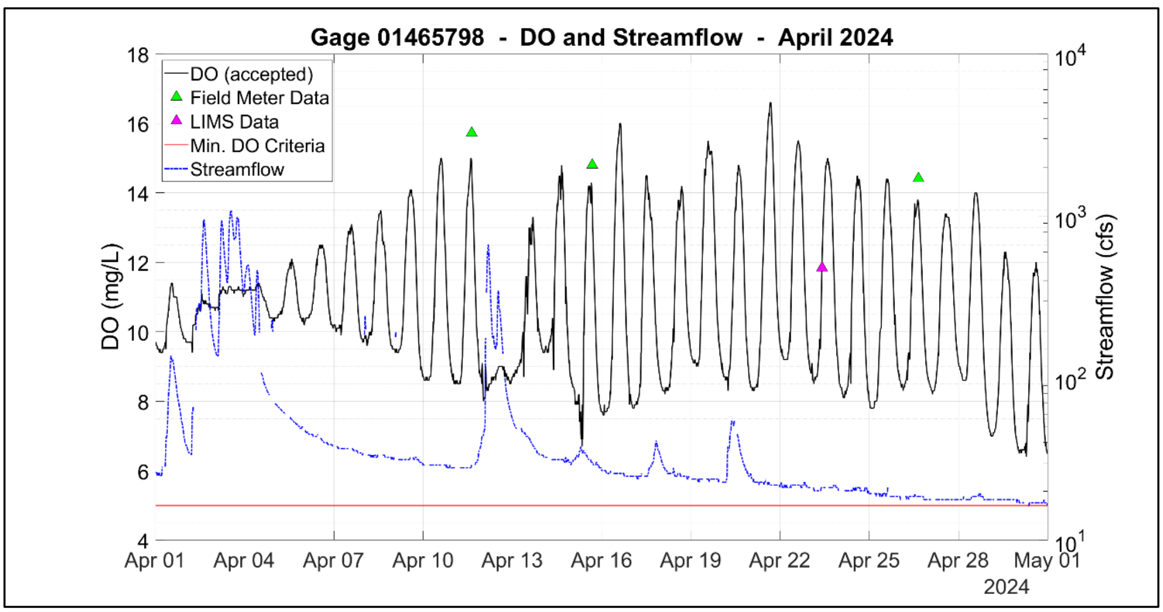


Figure 56. Gage 01465798, DO and Streamflow, April 2024.

Figure 57. Gage 01465798, Poquessing Creek at Grant Ave., looking upstream

Turbidity

As in other Philadelphia streams, high turbidity levels accompanied storm events and increased streamflow.

Table 50. Gage 01465798 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	2866	0.8	1300	22.6	100	0	26.8	73.2
Aug-23	2841	0.4	481	4.8	100	0	15.5	84.5
Sep-23	2745	0.5	1300	12.8	100	0	36.6	63.4
Oct-23	2749	0.3	742	1.6	100	0	10.7	89.3
Nov-23	2757	0.3	129	2.8	100	0	15.0	85.0
Mar-24	1823	0.6	132	6.4	100	0	34.6	65.4
Apr-24	2864	0.5	1300	8.5	100	0	36.4	63.6
May-24	2876	0.4	79.4	2.4	100	0	12.8	87.2
Jun-24	2778	0.5	229	4.5	100	0	27.0	73.0

Specific Conductance

Specific conductance data was similar to other Philadelphia streams.

Table 51. Gage 01465798 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2871	100	694	444.7	100	0
Aug-23	2873	64	714	506.8	100	0
Sep-23	2767	55	764	439.9	100	0
Oct-23	2874	231	693	593.3	100	0
Nov-23	2757	89	697	566.1	100	0
Mar-24	1824	83	666	575.4	100	0
Apr-24	2868	115	651	529.9	100	0
May-24	2875	177	664	539.2	100	0
Jun-24	2781	123	682	540.7	100	0

Temperature

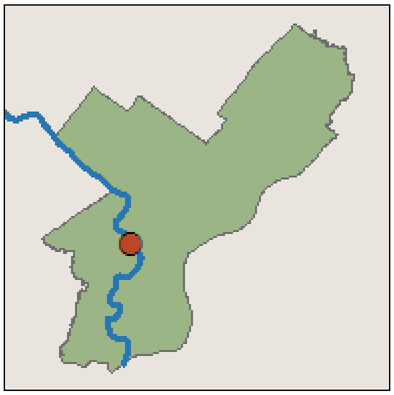
Temperature exceedance rates observed in Poquessing Creek were similar to those in other WWF designated-use creeks (*e.g.*, Tacony and Cobbs Creeks).

Table 52. Gage 01465798 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	0	100	0	100	21.2	29.7	24.9
WWF	1-Aug	15-Aug	0	100	0	100	20.1	27.5	23.3
WWF	16-Aug	30-Aug	0	100	0	100	20.2	26.7	23.3
WWF	1-Sep	15-Sep	0	100	0	100	18.6	28.4	23.6
WWF	16-Sep	30-Sep	0	100	0	100	15.7	22.0	18.1
WWF	1-Oct	15-Oct	0	100	0	100	13.0	21.5	16.8
WWF	16-Oct	31-Oct	0	100	0	100	10.5	17.9	14.0
WWF	1-Nov	15-Nov	0	100	0	100	5.7	12.1	9.4
WWF	16-Nov	30-Nov	9.3	90.7	0	100	2.4	11.2	7.7
WWF	1-Mar	31-Mar	52.3	47.7	0	100	5.3	15.7	10.2
WWF	1-Apr	15-Apr	45.2	54.8	0	100	7.4	17.4	12.2
WWF	16-Apr	30-Apr	38.6	61.4	0	100	9.4	21.7	14.3
WWF	1-May	15-May	31.1	68.9	0	100	12.0	22.8	16.4
WWF	16-May	31-May	25.7	74.3	0	100	15.7	26.0	20.1
WWF	1-Jun	15-Jun	14.0	86.0	0	100	17.3	25.8	21.6
WWF	16-Jun	30-Jun	14.8	85.2	0	100	19.6	29.3	24.7

Gages in Large Watersheds

Schuylkill River (Gage 01474500)



Dissolved oxygen and pH

DO water quality criteria were not exceeded at this location (Table 53, Figures 58-59), and pH criteria were also attained (Table 54). The Schuylkill gage usually attained pH criteria, even during stretches of spring when algal activity is usually greatest (Figure 60).

Table 53. Gage 01474500 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	WWF	1439	6.2	8.4	7.3	100	0	0	100
Aug-23	WWF	1433	6.7	8.8	7.5	100	0.1	0	100
Sep-23	WWF	1391	6.2	9.7	8.4	100	0	0	100
Oct-23	WWF	1437	8.0	11.5	9.6	100	0	0	100
Nov-23	WWF	1390	9.0	12.8	11.2	100	0	0	100
Mar-24	WWF	861	10.3	12.4	11.5	100	0	0	100
Apr-24	WWF	1437	9.4	11.8	10.6	100	0	0	100
May-24	WWF	1434	7.4	11.2	8.9	100	0	0	100
Jun-24	WWF	1388	7.0	18.4	9.8	100	0	0	100

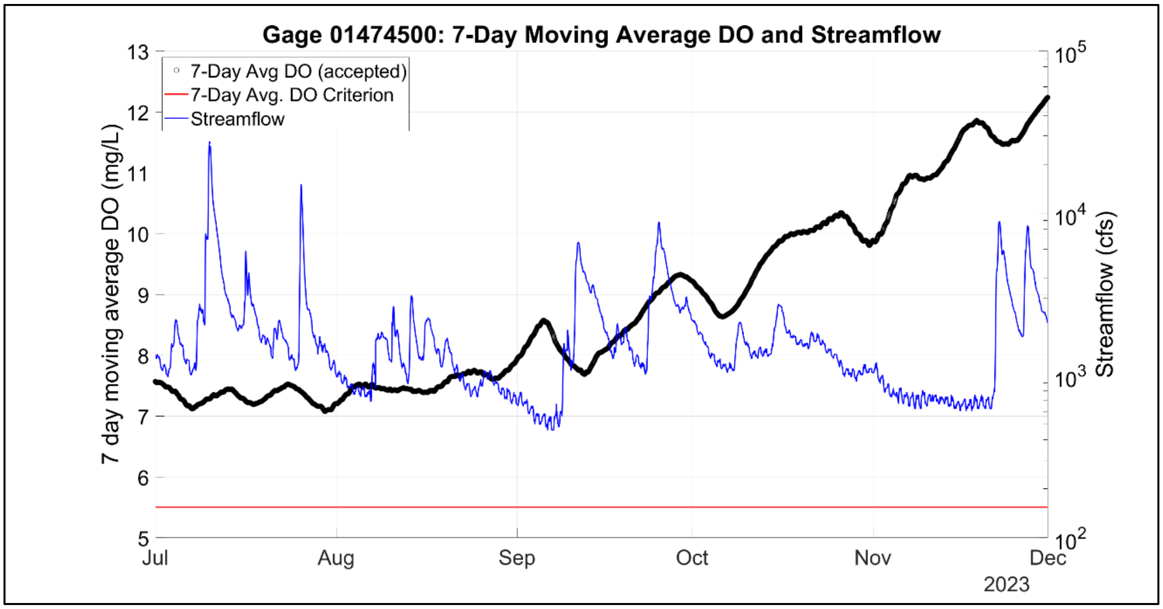


Figure 58. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Nov 2023.

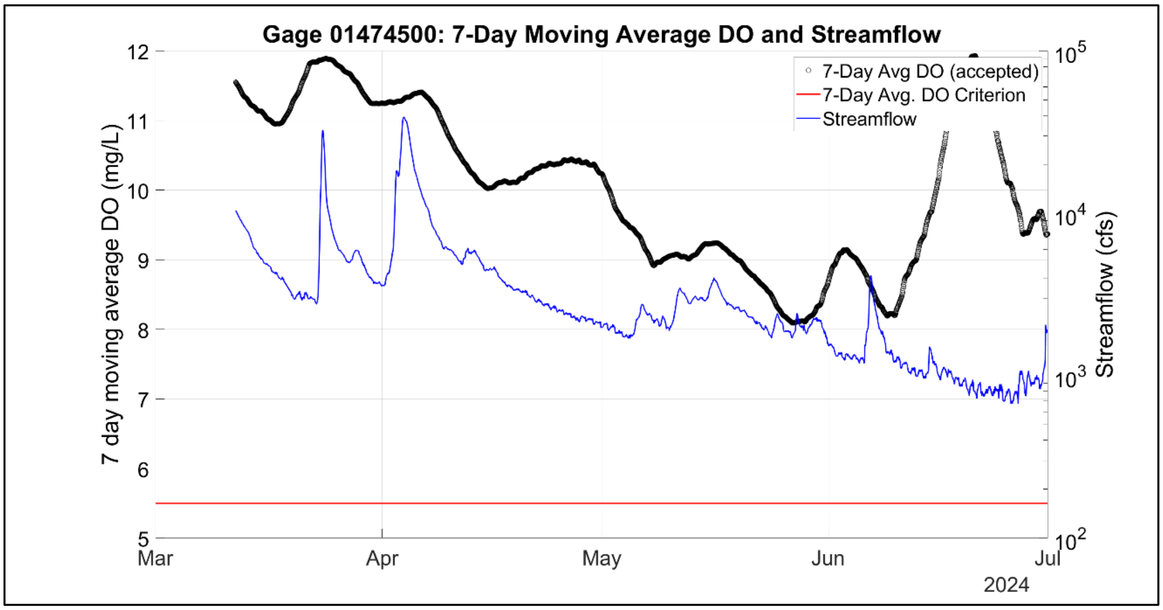


Figure 59. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2024.

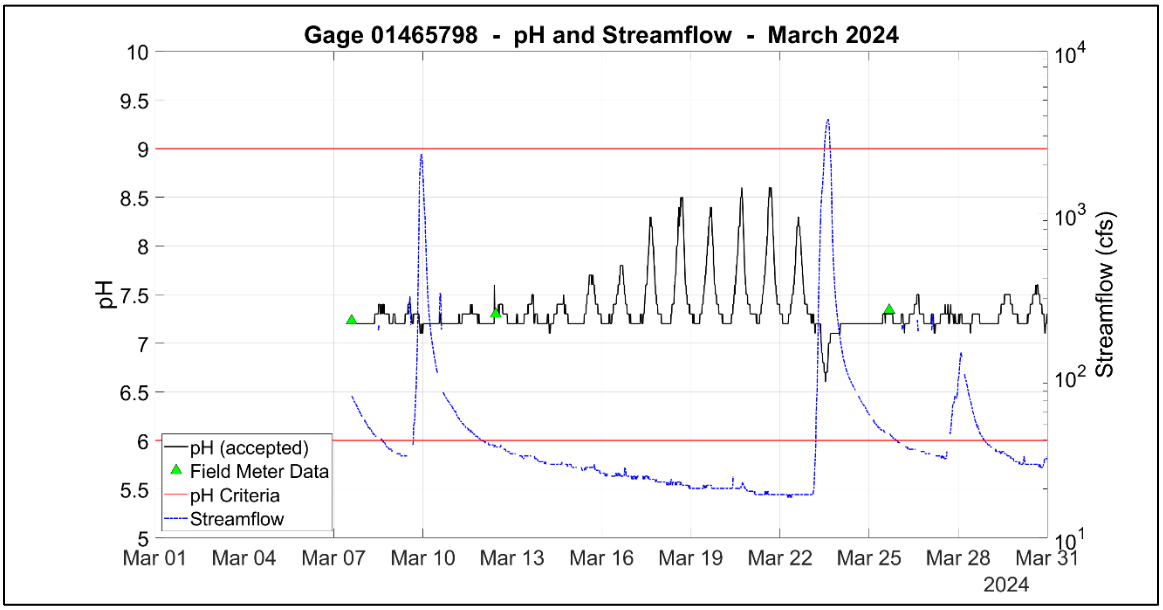


Figure 60. Gage 01474500, pH and Streamflow, March 2024

Table 54. Gage 01474500 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	1439	7.1	8.1	7.7	100	0	0	0	100	100
Aug-23	1432	7.6	8.3	7.9	100	0	0	0	100	100
Sep-23	1391	7.4	8.4	7.9	100	0	0	0	100	100
Oct-23	1437	7.7	8.7	8.1	100	0	0	0	100	100
Nov-23	1390	7.7	8.5	8.1	100	0	0	0	100	100
Mar-24	861	7.5	8.1	7.9	100	0	0	0	100	100
Apr-24	1437	7.5	8.4	7.9	100	0	0	0	100	100
May-24	1434	7.6	8.8	7.9	100	0	0	0	100	100
Jun-24	1388	7.5	9.1	8.2	100	0	0	0.2	100	99.8

Temperature

Table 55. Gage 01474500 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% exceedance	% attaining	% flagged data	% accepted data	Min	Max	Mean
WWF	1-Jul	31-Jul	0	100	0	100	22.4	30.3	26.6
WWF	1-Aug	15-Aug	0	100	0	100	24.9	27.9	25.9
WWF	16-Aug	30-Aug	0	100	0	100	24.4	27.8	26.0
WWF	1-Sep	15-Sep	0	100	0	100	23.7	28.7	25.9
WWF	16-Sep	30-Sep	0	100	0	100	16.8	22.8	19.5
WWF	1-Oct	15-Oct	0	100	0	100	15.1	21.9	18.7
WWF	16-Oct	31-Oct	0	100	0	100	13.5	16.1	14.6
WWF	1-Nov	15-Nov	3.5	96.5	0	100	9.4	15.0	11.4
WWF	16-Nov	30-Nov	0	100	0	100	4.9	9.6	8.1
WWF	1-Mar	31-Mar	52.1	47.9	0	100	6.5	12.7	9.6
WWF	1-Apr	15-Apr	38.8	61.2	0	100	8.1	15.4	11.5
WWF	16-Apr	30-Apr	55.9	44.1	0	100	13.5	18.4	15.2
WWF	1-May	15-May	41.9	58.1	0	100	15.3	22.4	18.7
WWF	16-May	31-May	37.8	62.2	0	100	16.9	26.1	21.7
WWF	1-Jun	15-Jun	13.3	86.7	0	100	22.4	26.1	24.1
WWF	16-Jun	30-Jun	20.3	79.7	0	100	24.2	30.0	27.5

Figure 61. Gage 01474500, Schuylkill River at the Fairmount Dam, looking upstream

Turbidity

Turbidity levels at the Schuylkill gage were less susceptible to extreme peaks due to storms and increased flow.

Table 56. Gage 01474500 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% above max. guideline	% below max. guideline
Jul-23	1439	0.6	129	8.3	100	0	42.6	57.4
Aug-23	1433	0.4	6.5	1.9	100	0	8.7	91.3
Sep-23	1391	0.5	11.3	2.9	100	0	43.5	56.5
Oct-23	1437	0.9	9.6	2.1	100	0	7.9	92.1
Nov-23	1390	0.6	19.6	3.4	100	0	24.7	75.3
Mar-24	860	2.6	93.3	9.8	100	0	98.8	1.2
Apr-24	1102	1.3	104	11.5	100	0	71.8	28.2
May-24	1434	1.2	4.5	2.2	100	0	19.0	81.0
Jun-24	1386	1.1	8.9	2.1	100	0	8.2	91.8

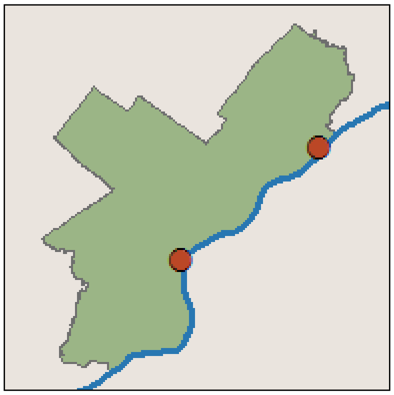
Specific Conductance

The Schuylkill River generally exhibits intermediate conductance, lower than the small Philadelphia tributary streams described elsewhere in this report, but greater than that observed in the Delaware River. Observed differences are likely due to geology and preponderance of anthropogenic sources in the respective watersheds.

Table 57. Gage 01474500 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	1439	160	477	377.6	100	0
Aug-23	1432	382	552	479.3	100	0
Sep-23	1390	277	622	434.7	100	0
Oct-23	1437	346	478	422.9	100	0
Nov-23	1390	265	598	485.5	100	0
Mar-24	861	183	392	317.1	100	0
Apr-24	1436	161	424	324.7	100	0
May-24	1434	361	464	417.8	100	0
Jun-24	1386	389	609	489.8	100	0

Delaware River (Gages 01467200 and 014670261)



Dissolved oxygen and pH

The DRBC DO daily mean and pH criteria for Zone 3 was attained at Gage 01467200 for the entire reporting period (Tables 58 and 60). The Zone 2 DO daily mean and pH criteria were also attained at Gage 014670261 (Tables 59 and 61). Data is collected year-round at both gages.

Figure 62. Delaware River at Ben Franklin Bridge, near Gage 01467200

Table 58. Gage 01467200 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Days	Daily Avg. Min	Daily Avg. Max	Daily Avg. Mean	% non-attaining	% attaining
Jul-23	DRBC	31	3.8	6.5	5.3	0	100
Aug-23	DRBC	31	4.4	6.8	5.5	0	100
Sep-23	DRBC	30	4.0	8.5	5.8	0	100
Oct-23	DRBC	31	6.9	8.7	7.7	0	100
Nov-23	DRBC	30	7.3	10.8	9.0	0	100
Dec-24	DRBC	31	10.4	12.5	11.5	0	100
Jan-23	DRBC	31	10.8	13.8	12.4	0	100
Feb-23	DRBC	29	11.6	12.5	12.0	0	100
Mar-24	DRBC	28	10.3	12.0	11.1	0	100
Apr-24	DRBC	24	9.0	11.6	10.3	0	100
May-24	DRBC	28	6.6	9.5	7.7	0	100
Jun-24	DRBC	30	4.5	7.1	5.4	0	100

Table 59. Gage 014670261 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Days	Daily Avg. Min	Daily Avg. Max	Daily Avg. Mean	% non-attaining	% attaining
Jul-23	DRBC	31	5.1	7.2	6.2	0	100
Aug-23	DRBC	31	6.0	7.4	6.6	0	100
Sep-23	DRBC	30	5.6	8.7	6.9	0	100
Oct-23	DRBC	31	7.5	9.6	8.5	0	100
Nov-23	DRBC	30	8.7	11.6	10.2	0	100
Dec-24	DRBC	29	11.1	12.8	11.9	0	100
Jan-23	DRBC	31	11.3	14.2	12.8	0	100
Feb-23	DRBC	29	11.9	12.9	12.5	0	100
Mar-24	DRBC	31	10.6	12.4	11.4	0	100
Apr-24	DRBC	30	9.1	11.5	10.4	0	100
May-24	DRBC	31	6.9	10.3	8.1	0	100
Jun-24	DRBC	30	6.0	8.5	7.2	0	100

Table 60. Gage 01467200 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2858	6.9	7.4	7.1	100	0	0	0	100	100
Aug-23	2866	6.8	7.4	7.1	100	0	0	0	100	100
Sep-23	2760	6.8	7.4	7.0	100	0	0	0	100	100
Oct-23	2863	6.9	7.5	7.1	100	0	0	0	100	100
Nov-23	2758	7.1	7.4	7.3	100	0	0	0	100	100
Dec-24	2844	6.9	7.4	7.2	100	0	0	0	100	100
Jan-23	2853	7.1	7.5	7.3	100	0	0	0	100	100
Feb-23	2676	7.3	7.5	7.4	100	0	0	0	100	100
Mar-24	2453	6.8	7.6	7.3	100	0	0	0	100	100
Apr-24	2115	6.9	7.3	7.1	100	0	0	0	100	100
May-24	2412	7.0	7.5	7.2	100	0	0	0	100	100
Jun-24	2752	6.9	7.3	7.1	100	0	0	0	100	100

Table 61. Gage 014670261 pH Criteria Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% min non-attaining	% max non-attaining	% min attaining	% max attaining
Jul-23	2856	7.0	7.4	7.2	100	0	0	0	100	100
Aug-23	2875	7.1	7.5	7.3	100	0	0	0	100	100
Sep-23	2771	7.1	7.6	7.3	100	0	0	0	100	100
Oct-23	2870	7.0	7.6	7.4	100	0	0	0	100	100
Nov-23	2773	7.4	7.8	7.6	100	0	0	0	100	100
Dec-24	2595	7.3	7.6	7.5	100	0	0	0	100	100
Jan-23	2874	7.3	7.7	7.5	100	0	0	0	100	100
Feb-23	2680	7.4	7.9	7.7	100	0	0	0	100	100
Mar-24	2874	7.1	7.9	7.5	100	0	0	0	100	100
Apr-24	2852	7.3	7.6	7.4	100	0	0	0	100	100
May-24	2867	7.2	7.9	7.4	100	0	0	0	100	100

Jun-24	2770	7.2	7.6	7.4	100	0	0	0	100	100

Temperature

Temperature criteria for the Delaware River were not exceeded at either gage.

Table 62. Gage 01467200 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
DRBC	1-Jul	31-Jul	2858	23.5	27.6	25.8	99.9	0	0	100
DRBC	1-Aug	30-Aug	2769	23.9	26.5	25.5	100	0	0	100
DRBC	1-Sep	30-Sep	2757	16.7	25.8	23.4	100	0	0	100
DRBC	1-Oct	31-Oct	2866	14.4	18.7	16.7	100	0	0	100
DRBC	1-Nov	30-Nov	2756	6.4	15.1	11.3	100	0	0	100
DRBC	1-Dec	31-Dec	2842	4.6	8.2	5.8	100	0	0	100
DRBC	1-Jan	31-Jan	2853	0.6	7.5	3.9	100	0	0	100
DRBC	1-Feb	29-Feb	2675	4.3	5.6	5.0	100	0	0	100
DRBC	1-Mar	31-Mar	2454	0.0	10.4	8.2	100	0	0	100
DRBC	1-Apr	30-Apr	2022	8.0	14.5	11.9	100	0	0	100
DRBC	1-May	31-May	2413	15.0	23.3	18.4	100	0	0	100
DRBC	1-Jun	30-Jun	2753	22.4	26.8	24.7	100	0	0	100

Table 63. Gage 014670261 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
DRBC	1-Jul	31-Jul	2860	23.5	27.7	25.6	100	0	0	100
DRBC	1-Aug	30-Aug	2779	23.0	26.8	24.9	99.9	0	0	100
DRBC	1-Sep	30-Sep	2773	16.2	26.3	22.6	99.9	0	0	100
DRBC	1-Oct	31-Oct	2869	13.4	19.5	16.2	99.9	0	0	100
DRBC	1-Nov	30-Nov	2777	5.3	14.2	9.9	100	0	0	100
DRBC	1-Dec	31-Dec	2599	4.3	8.3	5.5	100	0	0	100
DRBC	1-Jan	31-Jan	2874	0.2	7.2	3.7	100	0	0	100
DRBC	1-Feb	29-Feb	2680	3.5	6.6	4.7	99.9	0	0	100
DRBC	1-Mar	31-Mar	2874	5.6	11.0	8.2	100	0	0	100
DRBC	1-Apr	30-Apr	2776	7.6	15.6	11.5	100	0	0	100
DRBC	1-May	31-May	2868	15.7	24.6	18.8	100	0	0	100
DRBC	1-Jun	30-Jun	2774	22.7	27.9	24.9	100	0	0	100

Specific Conductance

The Delaware River exhibits much lower conductivity than the small Philadelphia tributary streams described elsewhere in this report. This is likely caused by differences in geology and proportionally fewer anthropogenic sources in the less-developed Delaware River watershed.

Table 64. Gage 01467200 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2856	169	274	220.4	100	0
Aug-23	2864	163	262	224.0	100	0
Sep-23	2758	168	233	211.0	100	0
Oct-23	2864	150	251	208.2	100	0
Nov-23	2757	225	288	250.8	100	0
Dec-24	2843	101	233	166.8	100	0
Jan-23	2853	132	276	192.4	100	0
Feb-23	2676	176	307	241.2	100	0
Mar-24	2453	129	293	189.5	100	0
Apr-24	2115	145	204	175.4	100	0
May-24	2413	199	254	228.4	100	0
Jun-24	2753	216	284	244.8	100	0

Table 65. Gage 014670261 Specific Conductance Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data
Jul-23	2860	160	271	209.8	100	0
Aug-23	2872	144	264	207.4	100	0
Sep-23	2775	136	238	199.2	100	0
Oct-23	2868	147	254	198.5	100	0
Nov-23	2777	180	284	224.1	100	0
Dec-24	2595	103	261	166.1	100	0
Jan-23	2875	122	434	210.1	100	0
Feb-23	2678	175	383	253.7	100	0
Mar-24	2874	127	342	195.3	100	0
Apr-24	2870	140	271	179.9	100	0
May-24	2863	198	265	221.3	100	0
Jun-24	2774	193	278	232.9	100	0

Turbidity

Turbidity guidelines at both gages were almost always exceeded throughout the year.

Table 66. Gage 01467200 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	2753	2.0	63.0	9.1	100	0	97.5	2.5
Aug-23	2867	2.9	43.4	9.9	100	0	100	0
Sep-23	2762	2.2	15.0	5.9	100	0	97.6	2.4
Oct-23	2869	2.3	26.5	6.1	100	0	98.8	1.2
Nov-23	2757	1.9	29.2	6.3	100	0	98.8	1.2
Dec-24	2843	4.2	76.0	15.8	100	0	100	0
Jan-23	2853	3.7	71.8	12.4	100	0	100	0
Feb-23	2676	3.0	11.8	5.5	100	0	100	0
Mar-24	2453	3.6	61.1	8.4	100	0	100	0
Apr-24	2115	3.6	38.4	7.1	100	0	100	0
May-24	2418	1.4	15.2	5.0	100	0	87.7	12.3
Jun-24	2753	2.3	24.0	6.1	100	0	97.8	2.2

Table 67. Gage 014670261 Turbidity Summary Results by Month

Month	Observations, n	Min	Max	Mean	% accepted data	% flagged data	% non-attaining	% attaining
Jul-23	2855	2.3	63.9	9.3	100	0	99.2	0.8
Aug-23	2875	1.6	18.1	4.9	100	0	93.6	6.4
Sep-23	2773	1.7	28.4	4.8	100	0	90.1	9.9
Oct-23	2870	1.7	24.3	5.0	100	0	87.5	12.5
Nov-23	2777	1.6	42.8	5.4	100	0	78.4	21.6
Dec-24	2592	2.9	89.0	11.9	100	0	100	0
Jan-23	2874	3.7	74.3	12.5	100	0	100	0
Feb-23	2680	3.0	19.9	5.8	100	0	100	0
Mar-24	2865	2.6	91.5	10.9	100	0	99.9	0.1
Apr-24	1732	2.1	34.0	5.6	100	0	94.4	5.6
May-24	2866	1.5	39.2	5.3	100	0	85.8	14.2
Jun-24	2775	1.9	22.0	5.5	100	0	94.4	5.6

Wet Weather and Dry Weather Results

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Water quality data was also categorized as wet or dry for the purpose of evaluating weather effects on water quality, and specifically the incidence of non-attainment of water quality criteria. A wet weather condition was defined as rainfall greater than 0.05 inches in the preceding 72 hours, as measured at the nearest PWD rain gage.

In general, more frequent non-attainment of DO criteria was observed in wet weather due to the tendency of storm events to decrease DO via the introduction of stormwater runoff and BOD (Tables 68-69). The turbidity maximum guideline was also usually more frequently surpassed in wet weather (Tables 72-73). The pH maximum criterion was exceeded in both wet and dry weather (Tables 70-71). Temperature criteria were more likely to be exceeded at Trout Stocking Fishery (TSF) gages due to more stringent seasonal criteria (Tables 76-77).

Table 68. USGS Gage July 2023 - June 2024 Dissolved Oxygen Minimum Criterion Summary Results During Wet Weather

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% non-attaining	% attaining
1465798	WWF	15189	100	0	2.3	97.7
14670261*	DRBC	20863	100	0	NA	NA
1467042	TSF	15496	100	0	0	100
1467048	TSF	15185	100	0	0.1	99.9
1467086	WWF	7362	99.9	0.1	1.6	98.4
1467087	WWF	10917	99.9	0.1	24.7	75.3
1467200*	DRBC	19438	100	0	NA	NA
1473900	TSF	8778	100	0	1.9	98.1
1474000	TSF	7229	100	0	0	100
1474500	WWF	7368	100	0	0	100
1475530	WWF	14271	100	0	0.1	99.9
1475548	WWF	14784	100	0	7.9	92.1

*No minimum DO criterion applies at these locations.

Table 69. USGS Gage July 2023 - June 2024 Dissolved Oxygen Minimum Criterion Summary Results During Dry Weather

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% non-attaining	% attaining
1465798	WWF	10064	100	0	0.9	99.1
1467026*	DRBC	13858	100	0	NA	NA
1467042	TSF	9716	100	0	0	100
1467048	TSF	10001	100	0	0	100
1467086	WWF	4859	100	0	0.3	99.7
1467087	WWF	8669	100	0	10.6	89.4
1467200*	DRBC	13808	100	0	NA	NA
1473900	TSF	6049	99.9	0.1	2.4	97.6
1474000	TSF	5364	100	0	0	100
1474500	WWF	5218	100	0	0	100
1475530	WWF	11029	100	0	0	100
1475548	WWF	10307	100	0	0.3	99.7

*No minimum DO criterion applies at these locations.

Table 70. USGS Gage July 2023 - June 2024 pH Criteria Summary Results During Wet Weather

Gage number	Observations, n	% accepted data	% flagged data	% min. non-attaining	% max. non-attaining	% min. attaining	% max attaining	% attaining
1465798	15189	100	0	0	0	100	100	100
14670261	20852	100	0	0	0	100	100	100
1467042	15310	100	0	0	0	100	100	100
1467048	15183	100	0	0	0	100	100	100
1467086	7358	100	0	0	0.1	100	99.9	99.9
1467087	11613	100	0	0	0	100	100	100
1467200	19445	100	0	0	0	100	100	100
1473900	8853	100	0	0	0.1	100	99.9	99.9
1474000	7229	100	0	0	0.1	100	99.9	99.9
1474500	7368	100	0	0	0	100	100	100
1475530	14271	100	0	0	0	100	100	100
1475548	14885	100	0	0	0	100	100	100

Table 71. USGS Gage July 2023 - June 2024 pH Criteria Summary Results During Dry Weather

Gage number	Observations, n	% accepted data	% flagged data	% min. non-attaining	% max. non-attaining	% min. attaining	% max attaining	% attaining
1465798	10063	100	0	0	0	100	100	100
14670261	13846	100	0	0	0	100	100	100
1467042	9716	100	0	0	0	100	100	100
1467048	10078	100	0.1	0	0.1	100	99.9	99.9
1467086	4871	100	0	0	0.8	100	99.2	99.2
1467087	8664	100	0	0	0	100	100	100
1467200	13806	100	0	0	0	100	100	100
1473900	6044	100	0.1	0	1.2	100	98.8	98.8
1474000	5366	100	0	0	1.9	100	98.1	98.1
1474500	5217	100	0	0	0.1	100	99.9	99.9
1475530	11029	100	0	0	0	100	100	100
1475548	10307	100	0	0	0.6	100	99.4	99.4

Table 72. USGS Gage July 2023 - June 2024 Turbidity Summary Results During Wet Weather

Gage number	Observations, n	% accepted data	% flagged data	% above max. guideline	% below max. guideline
01465798	15129	100	0	33	66.7
014670261	20131	100	0	94	5.6
01467042	15492	100	0	31	68.6
01467048	15096	100	0	41	59.4
01467086*	0	NA	NA	NA	NA
01467087*	0	NA	NA	NA	NA
01467200*	19347	100	0	98	2.0
01473900	5434	100	0	47	52.6
01474000	7233	100	0	21	79.5
01474500	7096	100	0	41	58.6
01475530*	0	NA	NA	NA	NA
01475548*	0	NA	NA	NA	NA

*Turbidity not continuously monitored at this location

Table 73. USGS Gage July 2023 - June 2024 Turbidity Summary Results During Dry Weather

Gage number	Observations, n	%accepted data	% flagged data	% above max. guideline	% below max. guideline
01465798	9917	100	0	9	91.4
014670261	13444	100	0	92	7.8
01467042	9713	100	0	5	95.2
01467048	9781	100	0	7	93.3
01467086*	0	NA	NA	NA	NA
01467087*	0	NA	NA	NA	NA
01467200*	13813	100	0	99	1.3
01473900	2986	100	0	44	55.7
01474000	5439	100	0	1	99.1
01474500	5152	100	0	20	80.1
01475530*	0	NA	NA	NA	NA
01475548*	0	NA	NA	NA	NA

*Turbidity not continuously monitored at this location

Table 74. USGS Gage July 2023 - June 2024 Specific Conductance Summary Results During Wet Weather

Gage number	Observations, n	% accepted data	% flagged data
01465798	15182	100	0
014670261	20862	100	0
01467042	15483	100	0
01467048	15168	100	0
01467086	7350	100	0
01467087	11943	100	0
01467200	19439	100	0
01473900	8840	100	0
01474000	7225	100	0
01474500	7364	100	0
01475530	14268	100	0
01475548	14789	100	0

Table 75. USGS Gage July 2022 - June 2023 Specific Conductance Summary Results During Dry Weather

Gage number	Observations, n	% accepted data	% flagged data
01465798	10062	100	0
014670261	13860	100	0
01467042	9708	100	0
01467048	10060	100	0
01467086	4869	100	0
01467087	8668	100	0
01467200	13807	100	0
01473900	5782	100	0
01474000	5362	100	0
01474500	5217	100	0
01475530	11028	100	0
01475548	10157	100	0

Table 76. USGS Gage July 2023 - June 2024 Temperature Maximum Criteria Summary Results During Wet Weather

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% exceedance	% attaining
01465798	WWF	15188	100	0	15.8	84.2
014670261	DRBC	20878	100	0	0	100
01467042	TSF	15495	100	0	37.1	62.9
01467048	TSF	15185	100	0	42.2	57.8
01467086	WWF	7356	100	0	15.2	84.8
01467087	WWF	11965	100	0	25.0	75.0
01467200	DRBC	19441	100	0	0	100
01473900	TSF	8852	100	0	36.7	63.3
01474000	TSF	7160	100	0	38.7	61.3
01474500	WWF	7367	100	0	25.3	74.7
01475530	WWF	14270	100	0	14.9	85.1
01475548	WWF	14884	100	0	19.1	80.9

Table 77. USGS Gage July 2023 - June 2024 Temperature Maximum Criteria Summary Results During Dry Weather

Gage number	Designated Use	Observations, n	% accepted data	% flagged data	% exceedance	% attaining
01465798	WWF	10065	100	0	19.0	81.0
014670261	DRBC	13858	100	0	0	100
01467042	TSF	9719	100	0	32.9	67.1
01467048	TSF	10086	100	0	36.0	64.0
01467086	WWF	4870	100	0	17.9	82.1
01467087	WWF	8672	100	0	21.4	78.6
01467200	DRBC	13804	100	0	0	100
01473900	TSF	6045	100	0	41.8	58.2
01474000	TSF	5310	100	0	31.1	68.9
01474500	WWF	5217	100	0	19.6	80.4
01475530	WWF	11028	100	0	15.0	85.0
01475548	WWF	10307	100	0	16.0	84.0

References

Delaware River Basin Commission, 2007. Delaware River Basin Water Code: 18 CFR Part 410 (With Amendments Through September 27, 2006). West Trenton, NJ.

Appendix H – PWD/USGS Groundwater Monitoring Program

Background

The basis of PWD's CSO LTCPU wet weather source control strategy is the "capture" and infiltration of as much rainwater as possible with green stormwater infrastructure (GSI). The direct benefits of such an effort are a reduction of stormwater discharged directly to streams, as well as the increased recharge of stormwater to supplement groundwater resources. Increased infiltration, though advantageous in several respects, must be carefully planned and closely monitored to avoid unwanted impacts. Increasing groundwater levels in areas where the depth to water is shallow could result in the saturation of soils close to the surface, potentially causing basement flooding. In addition, building foundations could be impacted by rising groundwater levels.

The adaptive management approach being employed for the LTCPU is an iterative process strongly dependent on monitoring. In order to quantify the impact of this long-term effort on groundwater resources, it is necessary to monitor groundwater levels in Philadelphia. PWD has partnered with USGS to increase the geographic scope and frequency of groundwater monitoring in the Philadelphia region. A City-wide groundwater level monitoring network will provide long-term monthly data documenting current water levels and trends in groundwater elevations throughout the City, helping to track the impacts of widespread implementation of stormwater management practices (SMPs) and global climate change.

Data from the groundwater monitoring network will also be used to calibrate a Philadelphia groundwater model and update the USGS groundwater contour map of Philadelphia (Paulachok 1984). In addition to this City-wide, long term groundwater monitoring program, PWD is conducting site-scale monitoring to address the effectiveness of individual SMPs. The City-wide groundwater monitoring network and site-scale monitoring at GSI facilities provide complementary information regarding the effects of stormwater management practices at different spatial and temporal scales.

Methods

PWD and USGS identified existing wells that would be suitable for the network and obtained permission for site access. Once wells were identified and accessible, well condition and suitability for inclusion in the monitoring network were investigated by continuous water level monitoring and remote video camera inspection when accessible. Wells that met acceptance criteria were added to the monitoring network. After examining readily available information about existing wells, PWD elected to drill additional wells in order to provide better spatial distribution of wells in the monitoring network. USGS staff conduct groundwater observations monthly and upload water level data to the NWIS web server. PWD staff periodically download water level data from NWIS and summarize these data annually.

Well Network Establishment

Existing wells in the Philadelphia area were identified by USGS and PWD through digital and paper archives as well as through contacting representatives of other City agencies and large institutional landowners (*e.g.*, Philadelphia Fire Department, Philadelphia Department of Parks and Recreation, Philadelphia Gas Works, Southeastern Pennsylvania Transportation Authority, etc.). Priority was given to wells on publicly-owned or large institutional land uses in order to help ensure that wells would remain accessible in the future. The primary goal was to develop a network of wells with a spatial distribution and density sufficient to assess groundwater levels throughout the City of Philadelphia. Other criteria for establishment of the well network were:

- Sufficient density of wells in critical areas with a shallow water table
- No bias given to combined-sewered or separate-sewered areas
- Denser distribution of monitoring wells in the Northern Piedmont Ecoregion to reflect its more varied groundwater contours.

Wells that met acceptance criteria were assigned USGS location codes and added to the USGS well monitoring network and National Water Information System (NWIS) database. The well monitoring network contains 29 active sites that are monitored monthly. Additional sites are expected to be added once landowner access agreements are finalized or new wells are drilled.

Video Camera Inspection

The availability of well attribute information varied from well to well and in most cases the physical characteristics and condition of candidate wells to be added to the network was unknown. USGS staff perform remote video camera inspection, when possible, to determine physical characteristics such as screened intervals, total depth, depth to bottom of casing, and the location of potential water-bearing zones within the bore hole. Wells narrower than 4” diameter and wells with pumps or other plumbing could not accommodate the camera equipment and were not inspected with this method.

Continuous Water Level Monitoring

Monthly measurements are appropriate for monitoring long term trends in groundwater levels. However, it is important to verify that these monthly observations are representative of the unconfined aquifer and not influenced by anthropogenic activity or other conditions. USGS staff used data logging pressure transducers (LevelTroll model 500, In-Situ, Inc.) to conduct continuous water level monitoring in candidate wells. These sensors are vented to the surface of the well to provide atmospheric pressure correction. Continuous monitoring was carried out across all wells in the network to identify any aberrant trends, such as those that might be caused by local pumping operations. Sensors were deployed for three-month periods on a rotating schedule with five wells actively monitored at a time. Wells that appear to be influenced by permanent pumping operations will be removed from the monitoring network (*e.g.*, permanent wells dewatering the stadiums). Wells that are temporarily affected by local, dewatering operations (*e.g.*, a short term construction site), will remain in the system, but data collected during the period when dewatering operations affected the well will not be used in estimates of current water levels and water level trends.

Routine Groundwater Observations

USGS staff conduct groundwater observations monthly at each well using a water sensor and graduated tape. Equipment is sterilized in 10% bleach solution prior to and after measurements are taken in order to prevent introducing or transferring contamination between wells. Well level measurements are converted to elevation above the North American Vertical Datum of 1988 (NAVD88) based upon the known elevation correction factor for each well. Water level data are recorded on site in field notebooks along with any pertinent field notes and then uploaded to the NWIS web server. PWD periodically downloads data from NWIS and summarizes these data annually.

Monitoring Well Locations

Currently the well monitoring network contains 29 active sites that are monitored monthly. (Table 1, Figure 1). Of the 29 active wells, 11 are located within the Middle Atlantic Coastal Plain Ecoregion, while the remaining 18 wells are located in the Northern Piedmont (Omernik 1987). As stated above, higher well density is required in the latter region to reflect the more complex geology and interactions with groundwater.

Table 1. PWD-USGS Groundwater Monitoring Well Network Locations.

Site ID	Site Name	Lat.	Long.	Established
USGS-395342075102101	PH 12	39.895	-75.172	10/22/1978
USGS-395353075151501	PH 1052	39.898	-75.254	3/7/2011
USGS-395408075104001	PH 63	39.902	-75.177	9/14/1954
USGS-395416075150301	PH 1053	39.904	-75.251	4/24/2003
USGS-395459075140501	PH 797	39.916	-75.259	10/15/1980
USGS-395516075113901	PH 1051	39.921	-75.194	--
USGS-395611075091301	PH 1059	39.936	-75.154	8/14/2014
USGS-395656075100401	PH 136	39.949	-75.167	12/6/1978
USGS-395656075104401	PH 1064	39.948	-75.178	6/5/2015
USGS-395705075135901	PH 1061	39.951	-75.232	6/5/2015
USGS-395849075134201	PH 1063	39.98	-75.228	6/5/2015
USGS-395859075085401	PH 1042	39.983	-75.148	2/14/2011
USGS-395942075144301	MG 2164	39.995	-75.245	2/14/2011
USGS-400001075040301	PH 1057	40	-75.068	8/14/2014
USGS-400016075102801	PH 1062	40.004	-75.174	6/5/2015
USGS-400038075094601	PH 1058	40.011	-75.163	8/14/2014
USGS-400055075122501	PH 1060	40.015	-75.206	6/5/2015
USGS-400132075031001	PH 1056	40.026	-75.053	8/14/2014
USGS-400211075093701	PH 1050	40.036	-75.16	--
USGS-400217075142101	PH 540	40.038	-75.239	3/29/1948
USGS-400229075104601	PH 1043*	40.041	-75.179	2/14/2011
USGS-400308074592201	PH 397	40.052	-74.989	1/4/1979
USGS-400311075101301	PH 1040	40.053	-75.17	2/17/2011
USGS-400327075152201	PH 1044	40.057	-75.256	3/16/2011
USGS-400424075104901	PH 550	40.073	-75.18	--/--/1906
USGS-400512075033401	PH 1045	40.087	-75.059	7/18/2011
USGS-400516075033201	PH 1046	40.088	-75.059	7/18/2011
USGS-400524075042601	MG 2195	40.09	-75.074	--
USGS-400527075042801	MG 2193	40.091	-75.074	--
USGS-400527075042802	MG 2194	40.091	-75.074	--
USGS-400644074590801	PH 1041	40.112	-74.986	2/17/2011

* Philadelphia County observation well

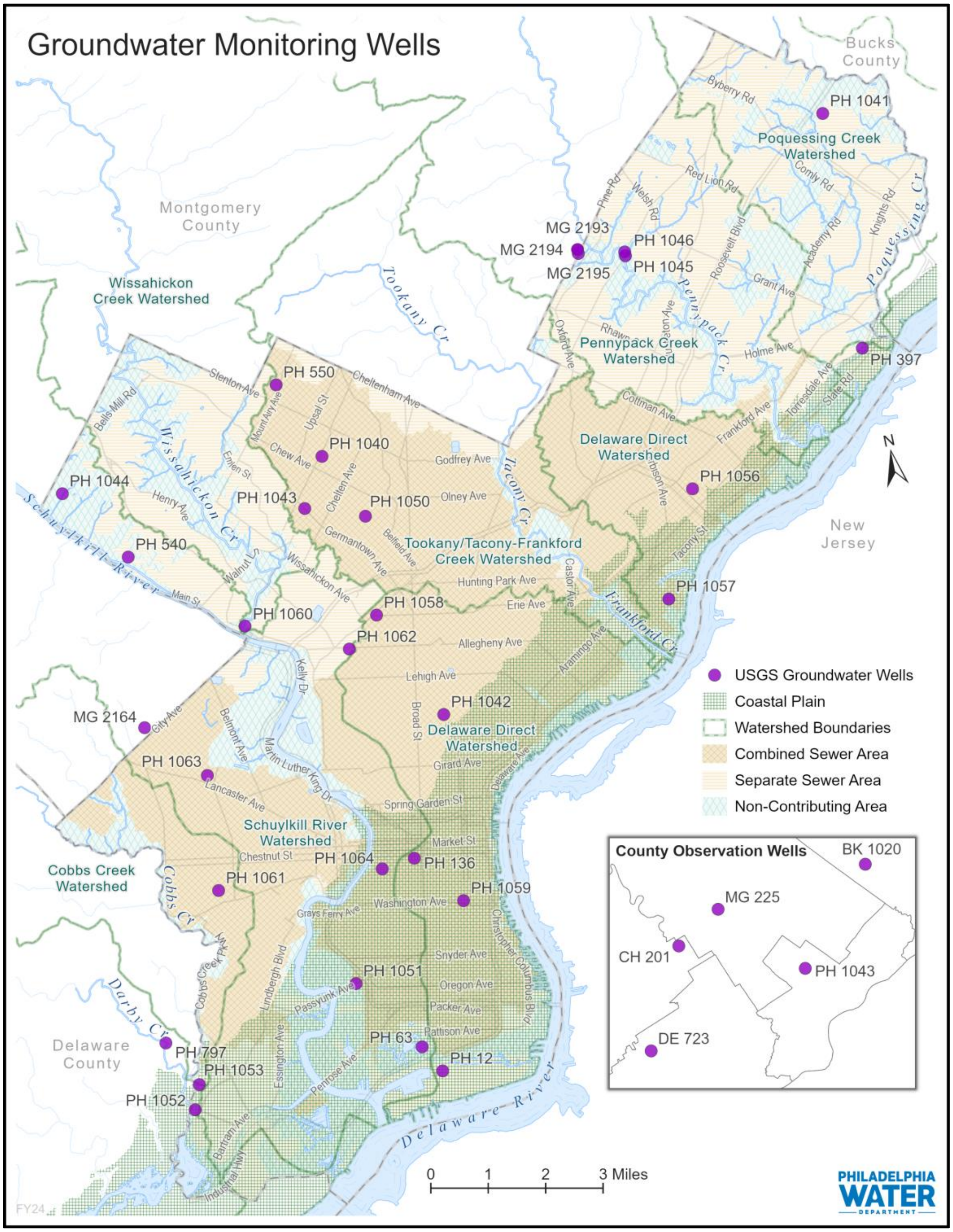

Figure 1. PWD-USGS Groundwater Monitoring Well Network Locations and (inset) County Reference Well Locations.

Wells were also classified according to predominant underlying geology and type of sewer system, *i.e.*, CSO or separate-sewered (Table 2, Figure 1). Another consideration for siting new wells was the potential influence of buried utilities and historic creek beds. During the period of rapid expansion of Philadelphia's grid-like network of streets, historic streams were encased in large brick sewers and buried in order to level and prepare land for development. Recent groundwater mapping and modeling work suggests that these brick sewers strongly influence local groundwater elevations (Paulachok 1991, Maimone et al. 2011).

Table 2. PWD-USGS Groundwater Well Geology and Sewer System Type Classification.

Site ID	Site Name	Sewer Type	Geology
USGS-395353075151501	PH 1052	Separate	Trenton Gravel
USGS-395408075104001	PH 63	Separate	Trenton Gravel
USGS-395416075150301	PH 1053	Separate	Trenton Gravel
USGS-395516075113901	PH 1051	CSO	Magothy Raritan Potomac
USGS-395656075100401	PH 136	CSO	Trenton Gravel
USGS-395859075085401	PH 1042	CSO	Pennsauken and Bridgeton Formation
USGS-395942075144301	MG 2164	Separate	Granitic Gneiss and Granite
USGS-400211075093701	PH 1050	CSO	Wissahickon Formation
USGS-400217075142101	PH 540	Separate	Wissahickon Formation
USGS-400229075104601	PH 1043	CSO	Wissahickon Formation
USGS-400308074592201	PH 397	Separate	Trenton Gravel
USGS-400311075101301	PH 1040	CSO	Wissahickon Formation
USGS-400327075152201	PH 1044	Separate	Wissahickon Formation
USGS-400424075104901	PH 550	CSO	Wissahickon Formation
USGS-400512075033401	PH 1045	Separate	Granitic Gneiss and Granite
USGS-400516075033201	PH 1046	Separate	Granitic Gneiss and Granite
USGS-400527075042801	MG 2193	Separate	Wissahickon Formation
USGS-400527075042802	MG 2194	Separate	Wissahickon Formation
USGS-400644074590801	PH 1041	Separate	Wissahickon Formation
USGS-400132075031001	PH 1056	CSO	Wissahickon Formation
USGS-400001075040301	PH 1057	CSO	Trenton Gravel
USGS-400038075094601	PH 1058	CSO	Pennsauken Formation
USGS-395611075091301	PH 1059	CSO	Trenton Gravel
USGS-395459075140501	PH 797	CSO	Trenton Gravel
USGS-395656075104401	PH 1064	CSO	Trenton Gravel
USGS-395705075135901	PH 1061	CSO	Wissahickon Formation
USGS-395849075134201	PH 1063	CSO	Wissahickon Formation
USGS-400016075102801	PH 1062	Separate	Pennsauken Formation
USGS-400055075122501	PH 1060	Separate	Wissahickon Formation

USGS maintains at least one reference well in most Pennsylvania counties. Reference wells located in neighboring counties (Figure 1, Table 3) may be used as regional reference wells for data analyses. Continuous hourly data are collected at well DE 723 in Delaware County. Reference wells in Chester, Bucks and Montgomery counties are not monitored continuously.

Site ID	Site Name	Lat.	Long.	Established
USGS-400453075255601	CH 201 Chester County Observation Well	40.136	-75.351	06/19/1978
USGS-400808075210401	MG 225 Montgomery County Observation Well	40.199	-75.052	08/15/1956
USGS-401157075032001	BK 1020 Bucks County Observation Well	40.081	-75.432	04/13/1968
USGS-395512075293701	DE 723 Delaware County Observation Well	39.920	-75.493	1983

Data Analysis

USEPA (2009) published detailed guidance on statistical analysis of groundwater contaminant concentrations. In many of the examples, the same logic and techniques could apply to analysis of groundwater levels. In the case of the Philadelphia groundwater monitoring network, the goal is to understand if groundwater levels are changing over time, at either a single well or group of wells. The main statistical tests to be utilized are a) Seasonal Kendall Test, and b) ANOVA. The tests are briefly described below.

The Seasonal Kendall test performs the Mann-Kendall (MK) trend test for individual seasons of the year, where season is defined by the user. It then combines the individual results into one overall test for whether the dependent variable (*i.e.*, groundwater level) changes in a consistent direction (monotonic trend) over time. The magnitude (*i.e.*, slope) of the trend is also determined. The test is nonparametric, therefore non-normal data can be analyzed (Helsel *et al.* 2006). USEPA (2009) advises that at least 10-12 measurements are needed, whereas Helsel and Hirsch (2002) recommends that the product of number of years and number of seasons be greater than 25. Helsel *et al.* (2006) further caution that with more than 10 years of data, adjusted p-values should be calculated to account for the possibility of serial correlation. The Seasonal Kendall test can be applied to data from a single well, not multiple wells. To examine seasonal trends across multiple wells, the Covariance-Sum test is used (Lettenmaier 1988), which is essentially the execution of multiple seasonal Kendall tests and calculation of the covariances between them. To analyze regional trends over time from a group of wells, the Regional Kendall test can be applied. The Regional Kendall test essentially functions the same way as the Seasonal Kendall test, except the data is categorized by region rather than season.

An alternate method to analyze temporal trends on either a single well or group of wells is the analysis of variance (ANOVA). For a single well or group of wells with data subdivided by season, a one-way ANOVA would examine the significance of seasonality as a statistical factor. A two-way ANOVA would be applied to include location or region as a statistical factor. Either form of ANOVA assumes that the datasets are normally distributed with constant variance. Group residuals should be tested for normality and for equality of variance. If the data cannot be transformed to a normal distribution, the nonparametric Kruskal-Wallis test can be used instead to detect significance of the specified statistical factor (USEPA 2009).

Well Monitoring Data Summary

Well monitoring data were summarized from July 2023 to June 2024 (Tables 4-5). These data are presented as an update of the program status. Additional data analysis will be completed as part of the groundwater model calibration and groundwater map update reports. Groundwater trends will be analyzed further once a sufficient amount of data has been collected (See Data Analysis section).

Table 4. PWD-USGS Groundwater Monitoring Well Data 7/2023-6/2024, Depth to Water Level (Feet below Land Surface).

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
395353075151501	15.48	16.23	15.92	15.97	16.2	15.6	14.8	14.88	13.76	16.37	13.46	14.86
395408075104001	4.39	3.76	3.99	4.18	4.55	5.01	4.47	4.72	4.08	4.36	4.66	3.89
395416075150301	9.32	9.74	10.34	10.95	11.4	11.07	9.45	9.47	8.66	8.82	8.8	9.47
395459075140501	13.46	13.68	13.73	13.77	13.81	13.57	13.54	13.81	13.59	13.74	13.69	13.73
395516075113901												
395611075091301	26.67	26.42	26.39	26.28	26.37	26.53	26.63	26.02	25.83	25.65	25.61	25.81
395656075100401												
395656075104401	5.15	3.19	2.42	12.7	15.85	2.01	7.61	12.77	2.07	10.47	14.75	3.03
395705075135901	14.36	14.83	15.23	15.11	15.46	13.84	13.26	13.96	13.17	13.64	14.38	14.74
395849075134201	12.83	13.01	13.23	13.28	13.49	12.69	12.52	12.86	11.3	12.49	13.01	12.21
395859075085401												
395942075144301	13.87					15.29	12.89		12.14	13.8	14.21	12.9
400001075040301	15.68	15.74	15.82	15.79	15.03	15.19	15.36	15.03	14.34	14.29	14.98	15.24
400016075102801	10.75	10.87	10.91	10.89	10.71	10.51	10.67	10.81	10.61	10.92	11.18	10.98
400038075094601	19.38	19.57	19.86	19.69	19.82	19.31	19.2	19.34	18.96	19.5	20.11	19.92
400055075122501	13.01	12.97	13	12.68	12.71	10.5	10.91	10.86	10.45	10.6	10.61	10.89
400132075031001	20.17	20.62	20.88	20.74	20.92	20.97	21.53	19.7	18.88	18.47	19.59	19.73
400211075093701	13.82	13.88	13.92							13.49		
400217075142101	30.11	30.09	30.55	30.52	30.85	30.31	27.71	26.82	25.71	21.83	20.61	21.58
400229075104601	15.85	16.13	16.36	15.9	16.19	13.26	13.92	14.82	13.88	14.88	15.7	16.09
400308074592201	6.91	8.53	8.93	8.37	8.98	7.46	4.91	4.01	2.79	2.89	3.33	3.86
400311075101301	11.89	11.13	11.22	10.1	9.12	8.05	8.12	8.69	7.86	8.71	8.08	7.52
400327075152201	65.6	65.76	70.95	73.57	72.01	59.47	58.77	59.47	57.15	58.58	61.51	63.82
400424075104901	18.8	19.11	18.62	16.45	16.32	12.41	15.38			14.75	14.8	14.94
400512075033401	34.85	35.09	35.71	35.45	35.95	32.46	33.44	34.21	32.45	33.6	35.05	33.57
400516075033201	27.4	29.09	29.72	30.31	30.61	30.43	26.3	26.07	25.15	27.32	26.02	27.81
400527075042801	20.15	20.81	21.23	21.62	22.03	18.9	18.84	19.59	18.81	19.24	20.16	20.65
400527075042802	19.75	21.59	22.94	23.25	23.94	14.92	14.53	15.94	14.41	15.27	17.73	23.43
400644074590801	17.24	17.4	17.63	17.64	17.9	16.93	15.96	16.19	15.49	15.76	16.53	15.97

Table 5. Regional County Observation Well Data 7/2023 - 6/2024.

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
400453075255601	20.93	21.43	23.04	23.17	23.92	15.33	17.36	18.84	17.79	18.17	20.2	22.04
400808075210401		12.56		13.79		10.89		9.34		10.46		14.56
401157075032001		31.23		32.32		30.64	24.8	26.43		26.2		
395512075293701	7.12			7.69		5.5			4.6			6.68

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Appendix I – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

Background

Since 1999, the Philadelphia Water Department (PWD) has been using benthic macroinvertebrate sampling and instream physical habitat assessments in order to characterize watershed conditions and track trends in watershed health. Assessments are performed by the staff of PWD's Bureau of Laboratory Services (BLS) using PADEP Instream Comprehensive Evaluation (ICE) methods. As benthic invertebrates may be exposed to both short and long-duration stressors, data collected through this program are pertinent to all targets of PWD's Integrated Watershed Management Plan (IWMP) Strategy.

Common Acronyms Used in This Report

IBI - Index of Biotic Integrity, a biological assessment tool to indicate the capability of a stream to support a healthy aquatic community.
ICE - Instream Comprehensive Evaluation, a protocol to survey and evaluate wadeable streams.
PTV - Pollution Tolerance Values, a numeric measure of an organism's ability to withstand environmental degradation.
EPT - Ephemeroptera + Plecoptera + Trichoptera, the common names for pollution-sensitive mayflies, stoneflies and caddisflies.

Assessment Study Design

In recent years, agencies tasked with evaluating water quality have attempted to incorporate statistical sampling designs, or a "probabilistic" approach, to selecting sampling sites (Paulsen 2008, Borsuk *et al*. 2001) rather than relying on fixed sites. Statistical sampling design is particularly important when the goal of monitoring is to make an estimate of the percentage of waters affected by pollution. Another advantage of probabilistic study design is that the assessment units are distributed over a larger geographic area. When monitoring efforts are directed at individual watersheds on a rotating basis, as has been the case with PWD programs, the possibility arises that larger scale patterns may be missed. For example, the effects of floods or drought conditions are widespread, but only the watershed that is being monitored within the same time period will have data reflecting these effects. Disadvantages of a probabilistic approach include the technical demands of establishing and randomly selecting from geographic data sets containing all possible sampling locations as well as additional field reconnaissance work when conduct the actual monitoring.

The current PWD monitoring strategy is intended to be a compromise, recognizing the benefits of collecting data from randomly selected sites but also the importance of maintaining a consistent monitoring effort at selected locations over time. This plan is based on a similar monitoring program implemented by USGS in Chester County (Reif 2002, Reif 2004). The plan also reflects the manpower constraints of collecting and processing samples with the PADEP ICE protocol. It is hoped that this compromise approach (Table 1) will achieve some of the benefits of a randomized approach, while providing periodic re-evaluation of our watersheds required to inform the watershed planning process and comply with environmental mandates.

Stream Conditions

This report summarizes results from samples that were collected between April 18 and May 31, 2023. PWD is not aware of any spills, discharges or unusual conditions that would tend to cause misleading results.

Table 1. PWD Wadeable Streams Assessments Schedule

Period	Monitoring Activity (number of samples)
2011	USGS gage samples (8); Randomly selected sites (16)
2012	Cobbs Creek Assessment (6*); USGS gage samples (9); Random (10)
2013	Tookany/Tacony Creek (10*); USGS gage samples (8); Random (7)
2014	Wissahickon Creek Tributaries (11); USGS gage samples (9); Random (5)
2015	Wissahickon Creek (12*); USGS gage samples (8); Random (2)
2016	Pennypack Creek Tributaries (11); USGS gage samples (9); Random (5)
2017	Pennypack Creek (12*); USGS gage samples (9); Random (4)
2018	Poquessing Creek (12*); USGS gage samples (9); Random (4)
2019	Schuylkill River Tributaries (3); USGS gage samples (8); Random (3)
2020	USGS gage samples (6); Random (2)
2021	Cobbs Creek (6*); USGS gage samples (9); Random (7)
2022	Tookany/Tacony Creek (10*); USGS gage samples (9); Random (6)
2023	Wissahickon Creek Tributaries (12); USGS gage samples (9); Random (1)
2024	Wissahickon Creek (12*); USGS gage samples (7)

* Number of monitoring sites excludes USGS gage sites in target watershed

Methods

Benthic Macroinvertebrate Sample Collection

Using the PADEP Instream Comprehensive Evaluation (ICE) protocol (PADEP 2009), macroinvertebrate samples were collected by placing a handheld D-frame net (500µm) at the downstream portion of a riffle. Stream substrate directly upstream of the D-frame net was then disturbed for approximately one minute to a depth of approximately 10 cm as substrate allowed. This procedure was repeated at other riffle locations of variable flow within the 100-m reach such that the sample at each station was a composite of six riffle samples. Composited samples from each biological monitoring location were then preserved in 95% ETOH (ethyl alcohol) and returned to the laboratory in polyethylene containers.

Benthic Macroinvertebrate Laboratory Procedures

Benthic macroinvertebrate samples were processed according to PADEP ICE protocols (PADEP 2009). Each composited sample was placed into an 18 x 12 x 3.5-inch pan marked with 28 four-square-inch grids. Four grids were randomly selected by drawing numbers. All material was extracted from the selected grids using a four-square-inch circular "cookie cutter," and placed into another identical empty pan. From this second pan, organisms were picked from randomly selected grids or “plugs” until a minimum of 200, but not more than 240, individuals were subsampled. This procedure was a misinterpretation of the actual technique, which stipulates a count of 200 (+/- 20%) individuals. When picking either the four initial “plugs” or additional plugs results in subsampling more than 240 individuals, the PADEP ICE protocol outlines a procedure for redistributing the subsample into a clean, gridded pan and “back counting” grids until a subsample consisting of 200 (+/-20%) is obtained. Invertebrates were identified under magnification, with taxonomic classification following PADEP 2009 guidelines.

Habitat Assessment

After collecting benthic invertebrates, biologists surveyed habitat features within the monitoring station and recorded scores for 12 habitat attributes according to the PADEP ICE protocol (Table 2). Biologists completed the survey independently and then discussed the interpretation of individual habitat attribute scores, averaging individual scores when necessary.

Table 2. PA DEP ICE Protocol Habitat Metrics

Habitat Parameter	Description
Instream Cover (Fish)	Mix of boulder, cobble or other stable habitat
Epifaunal Substrate	Length/width of riffles; characterization of boulders, gravel, cobble
Embeddedness	Presence/absence of fine sediment around boulders, gravel, cobble
Velocity/Depth Regimes	Presence/absence of four velocity/depth regimes
Channel Alteration	Degree of channelization or dredging
Sediment Deposition	Measure of sediment deposits, degree of change at the bottom
Frequency of Riffles	Occurrence of riffles and distance between riffles
Channel Flow Status	Degree to which water fills the available channel
Condition of Banks	Stability of streambanks and presence of erosion or bank failure
Bank Vegetative Protection	Percentage of streambank surface covered by vegetation
Grazing or Other Disruptive Pressure	Degree to which vegetation disrupted by grazing or mowing
Riparian Vegetative Zone Width	Width of riparian zone and determination of impact on vegetation by human activities

Data Analysis

Benthic macroinvertebrate and habitat data were compiled in a Microsoft Access database and queries were used to calculate scoring metrics. Individual metric standardized scores and the PADEP Index of Biotic Integrity (IBI) were calculated using the ICE protocol (Table 3).

Table 3. PADEP ICE Protocol Metrics and Metric Standardization Values

Metric	Standardization Value

Total Taxa Richness	33
EPT Taxa Richness (PTV 0-4)	19
Beck's Index, version 3	38
Hilsenhoff Biotic Index	1.89
Shannon Diversity	2.86
Percent Sensitive Individuals (PTV 0-3)	84.5

Monitoring Locations

Assessments were performed at 7 USGS gage sites and 12 tributary sites in the targeted Wissahickon Creek watershed from PWD's watershed assessment site network between 4/18/2023 and 5/31/2023. (Figure 1, Tables 4-5). USGS stream gaging stations are used as long-term monitoring points at which streamflow and continuous water chemistry data are collected (refer to PWD-USGS Cooperative Water Quality Monitoring appendix). Water chemistry grab sampling for nutrient and bacterial parameters is also conducted at these USGS gage stations on a quarterly basis (refer to PWD Quarterly Dry Weather Water Quality Monitoring appendix). Combining different forms of monitoring at the same station allows for better integration of information and may enable more sophisticated analyses in the future. In some cases, when USGS gage sites are not appropriate or accessible for bioassessment activities, a nearby upstream or downstream location is used to collect macroinvertebrates and assess habitat conditions.

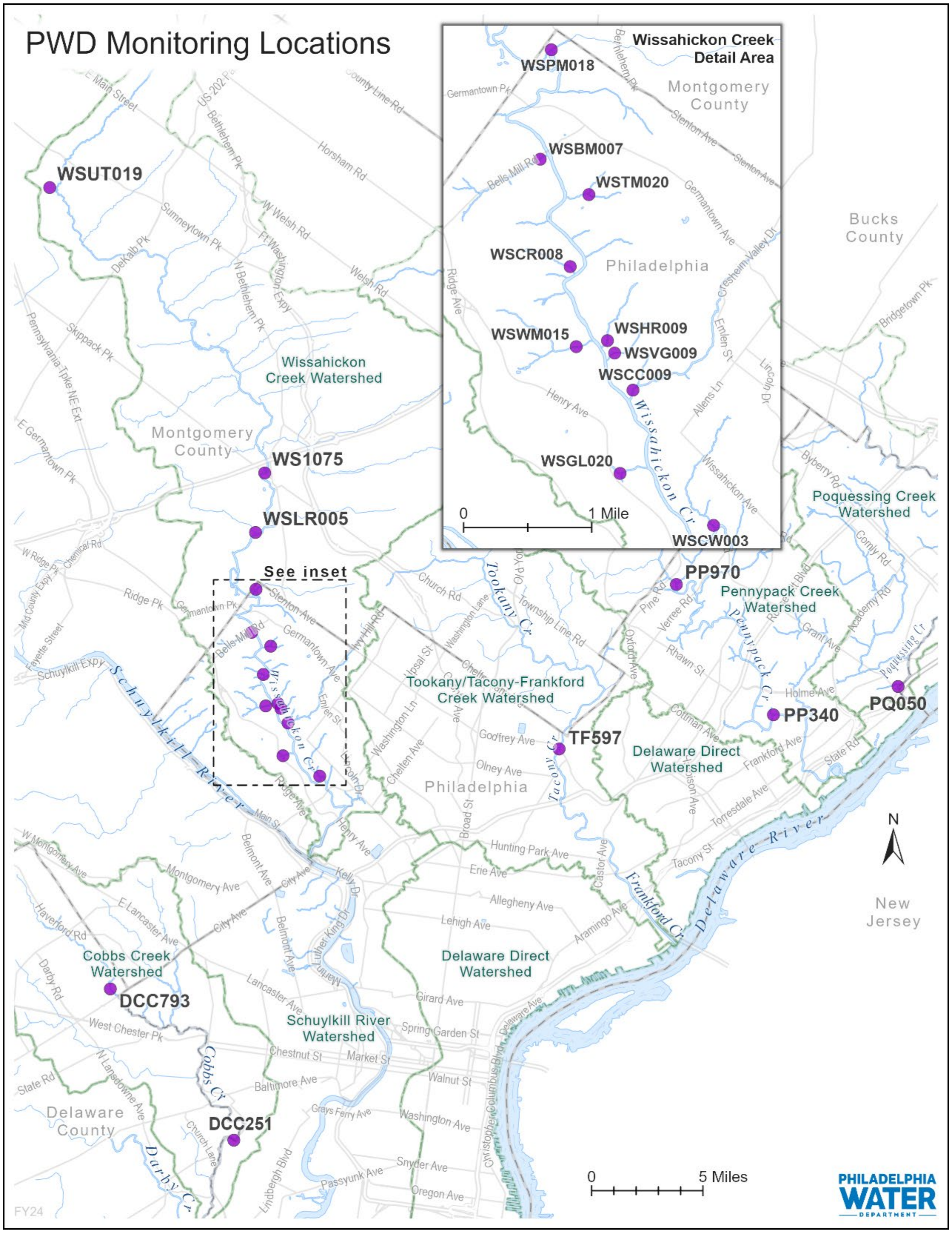


Figure 1. PWD Wadeable Streams Assessment Locations - Spring 2023

Table 4. PWD-USGS Cooperative Monitoring Program Sites

Site ID	USGS Gage	Site Description	Drainage Area (mi^2)
DCC253	01475548	Cobbs Creek at Mount Moriah Cemetery	19.78
DCC793	01475530	Behind Grange Estate, off private road (Myrtle Street)	4.60
PP340	01467048	Pennypack Creek at Lower Rhawn St bridge	49.84
PP970	01467042	Pennypack Creek at Pine Rd.	39.34
PQ053	01465798	Poquessing Creek at Holy Family College	21.67
TF324	01467087	Frankford Creek at Castor Ave.	29.69
TF597	01467086	Tacony Creek below Adams Ave. Bridge	16.25
WS076	01474000	Wissahickon Creek at Ridge Ave.	63.22
WS1075	01473900	Wissahickon Creek at Ft. Washington	40.44

Table 5. Targeted Sites in the Wissahickon Creek Watershed

Site ID	Site Description	Drainage Area (mi^2)
WSBM007	400 ft US of Wissahickon mainstem confluence	0.48
WSCC009	500 ft US of Wissahickon confluence	2.33
WSCR008	400 ft US of Wissahickon confluence	0.23
WSCW003	200 ft US of Wissahickon confluence	0.37
WSGL020	500 ft DS of Henry Rd bridge	0.69
WSHR009	450 ft US of Wissahickon confluence	0.19
WSLR005	Valley Green Rd bridge	2.05
WSPM018	900 ft DS of Stenton Ave bridge	2.32
WSTM020	1200 ft US of WIssahickon confluence	9.06
WSUT019	West Point Pike, behind Merck compound, DS side	N/A
WSVG009	500 ft US of Wissahickon confluence	0.19
WSWM015	750 ft US of Wissahickon confluence	0.66

Benthic Macroinvertebrate Monitoring Results - Spring 2023

This report presents macroinvertebrate monitoring results from 19 sites sampled in spring 2023. A total of 4,138 benthic macroinvertebrates from 43 taxa were collected from the 19 sampling sites. When compared to PADEP ICE protocol metric reference conditions, all assessment sites were classified as impaired and fell below 50% comparability, meaning that they are not meeting the Aquatic Life Use (ALU) designation (Figure 2). Percent comparability with the standard reference IBI score ranged from 19.5% to 39.9%. All sites were characterized by low taxa richness, low or absent modified EPT taxa, and elevated Hilsenhoff Biotic Index scores (Table 6, Figure 2).

Table 6. PADEP ICE Metric Scores

Site ID	Taxa Richness	EPT richness (PTV 0-4)	Beck's Index	HBI	Shannon Index	% Sensitive individuals	IBI score
DCC251	13	0	0	6.23	1.28	0.97	21.9
DCC793	13	1	0	5.91	1.25	0.87	23.3
PP340	20	2	2	5.78	1.88	2.58	32.8
PP970	16	2	0	5.75	2.09	1.80	31.1
PQ054	16	1	1	5.63	1.76	1.84	29.0
TF597	11	1	3	5.76	1.36	8.09	26.0
WS1075	11	0	0	6.22	1.68	1.87	23.5
WSTM020	12	4	9	4.29	1.20	11.16	34.4
WSBM007	10	2	6	4.56	1.66	27.14	35.6
WSUT005	11	2	6	4.50	1.60	26.70	35.9
WSWM015	12	2	3	5.86	1.39	2.89	26.3
WSCC009	11	3	6	5.62	1.61	7.62	30.7
WSPM018	9	1	0	5.94	0.96	0.49	19.5
WSCW003	11	2	6	4.65	1.80	24.27	36.2
WSGL020	8	0	0	6.25	1.40	0	19.9
WSHR009	10	2	6	3.71	1.67	39.61	39.9
WSLR005	11	0	0	5.22	1.60	0	24.7
WSVG009	10	3	6	5.11	1.63	16.82	33.2
WSCR008	12	2	6	6.17	1.36	4.74	27.2

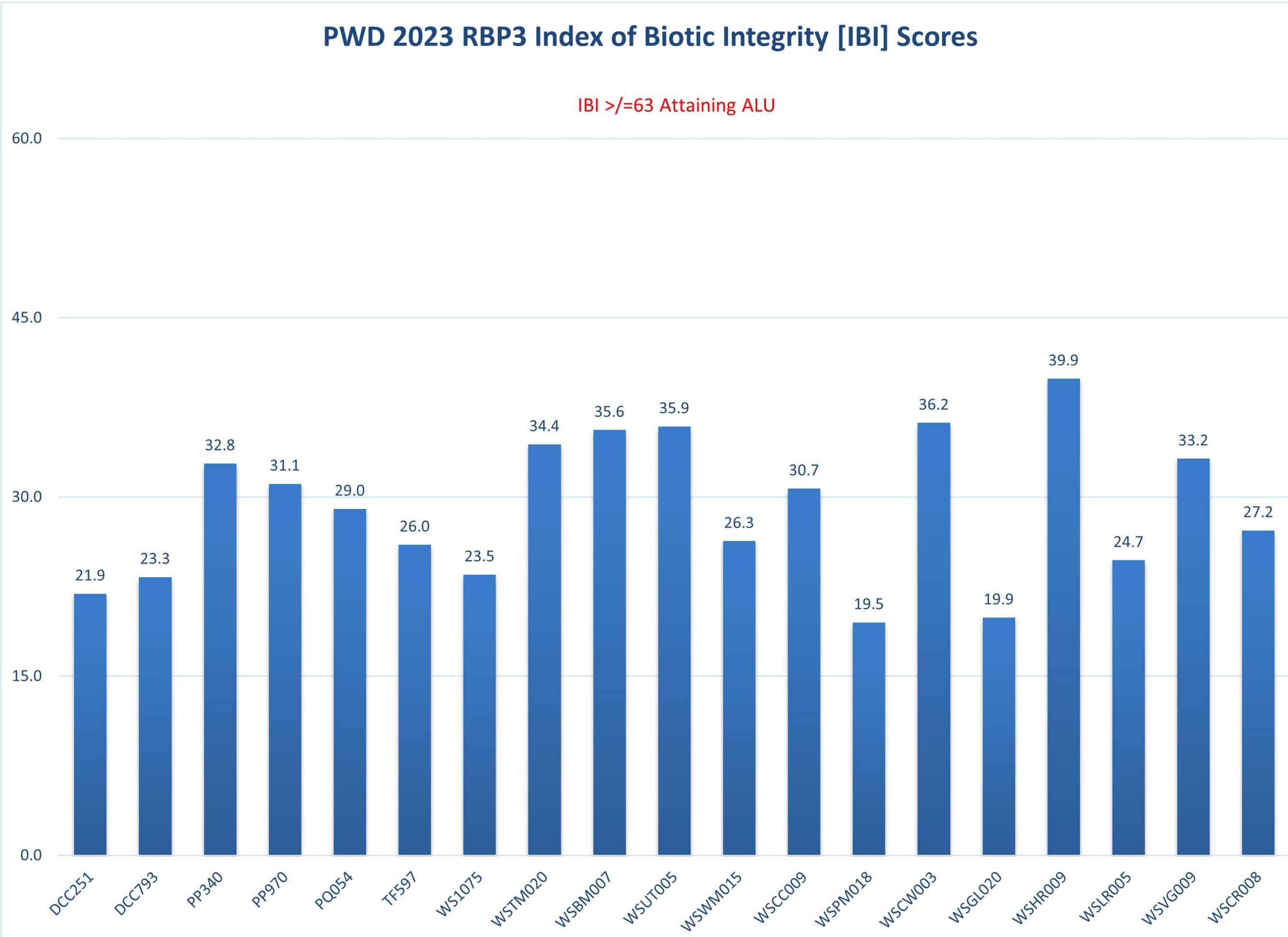


Figure 2. Spring 2023 Macroinvertebrate IBI Scores

Very sensitive taxa (pollution tolerance value ≤ 2) were present at 12 of the 19 sites assessed in spring 2023. All sites fell below the PADEP reference standard for Percent Intolerant Taxa metric (PTV = 0 to 3) of 84.5%.

Overall diversity was low among all sites. The Shannon Diversity Index scores for all sites ranged from 0.96 to 2.09, compared to the reference metric value of 2.86. The site with the greatest diversity was the Pennypack Creek site at Pine Rd. (SDI=2.09), with a taxa richness (n=16), EPT taxa richness (n=2), and HBI (31.1).

The Hilsenhoff Biotic Index (HBI) is a metric used to determine the overall pollution tolerance of a site's benthic macroinvertebrate community. This community composition and tolerance metric generally increases with increasing ecosystem stress, resulting in increasing dominance of pollution-tolerant organisms. Oriented toward the detection of organic pollution, HBI scores can range from 0 (very sensitive) to 10 (very tolerant). The average HBI for all sites was 5.43, and scores at the 12 assessment sites ranged from 3.71 to 6.25.

Tolerance/intolerance measures are intended to be representative of relative sensitivity to perturbation and may include numbers of pollution tolerant and intolerant taxa or percent composition (Barbour *et al*., 1999). The proportion of moderately tolerant individuals at all sites ranged from 11.59% to 97.06%. The site with the greatest proportion of moderately tolerant taxa was WSPM018, with 97.06% dominance directly related to a high number of black flies *Simulium* (n=141) found within the sorted sample (n=204). Chironomids (Figure 3) were the dominant taxon at all assessment locations. The proportional dominance of Chironomids is evidence of increasingly homogenous community assemblages within the selected monitoring sites. Chironomids and other pollution-tolerant, generalist species increase in proportional dominance with increased disturbance due to the loss of optimal habitat conditions for less tolerant, more specialized species.

Figure 3. Chironomid, or non-biting midge
Photo: Simon Johnston

The proportion of tolerant taxa at each monitoring site ranged from 0.49% to 12.8%. Intolerant taxa were similarly represented. The proportion of intolerant taxa at each site ranged from 0% to 83.26%. The Wissahickon Creek tributary site at Thomas Mill (WSTM020) had the highest proportion of intolerant taxa.

Sensitive taxa (pollution tolerance values ≤ 3) were collected at 10 of the 19 sites (Table 7). However, the rarity of sensitive taxa at suggests a response to watershed-wide perturbation, such as water quality degradation. Other potential explanations for the rarity of sensitive taxa are habitat degradation caused by fine sediment delivered to the stream channel via bank erosion or stormwater runoff and changes in seasonal base flow and temperature that tend to accompany urbanization. *Antocha* (Diptera; Tipulidae, pollution tolerance value =3) were the most commonly collected sensitive taxa.

Table 7. Sensitive Taxa Collected

Site	Order	Family	Genus	HBI
DCC251	Diptera	Tipulidae	*Antocha*	3
DCC793	Diptera	Tipulidae	*Antocha*	3
PP340	Diptera	Tipulidae	*Antocha*	3
PP340	Trichoptera	Leptoceridae	*Ceraclea*	3
PP340	Coleoptera	Elmidae	*Macronychus*	2
PP340	Coleoptera	Elmidae	*Ancryonyx*	2
PP970	Diptera	Tipulidae	*Antocha*	3
PP970	Trichoptera	Leptoceridae	*Ceraclea*	3
PQ054	Diptera	Tipulidae	*Antocha*	3
PQ054	Coleoptera	Elmidae	*Ancryonyx*	2
TF597	Diptera	Tipulidae	*Antocha*	3
TF597	Trichoptera	Glossomatidae	*Glossosoma*	0
WS1075	Diptera	Tipulidae	*Antocha*	3
WSTM020	Trichoptera	Hydropsychidae	*Diplectrona*	0
WSTM020	Trichoptera	Glossosomatidae	*Glossosoma*	0
WSTM020	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSTM020	Plecoptera	Nemouridae	*Amphinemura*	3
WSBM007	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSBM007	Trichoptera	Glossosomatidae	*Glossosoma*	0
WSBM007	Diptera	Tipulidae	*Antocha*	3
WSUT005	Trichoptera	Hydropsychidae	*Diplectrona*	0
WSUT005	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSWM015	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSCC009	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSCC009	Trichoptera	Glossosomtidae	*Glossosoma*	0
WSPM018	Diptera	Tipulidae	*Antocha*	3
WSCW003	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSCW003	Trichoptera	Glossosomatidae	*Glossosoma*	0
WSHR009	Trichoptera	Hydropsychidae	*Diplectrona*	0
WSHR009	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSVG009	Trichoptera	Hydropsychidae	*Diplectrona*	0
WSVG009	Trichoptera	Philopotamidae	*Dolophilodes*	0
WSVG009	Plecoptera	Nemouridae	*Amphinemura*	3
WSCR008	Trichoptera	Hydropsychidae	*Diplectrona*	0
WSCR008	Trichoptera	Philopotamidae	*Dolophilodes*	0

Table 8. 2023 Benthic Macroinvertebrate Taxa List

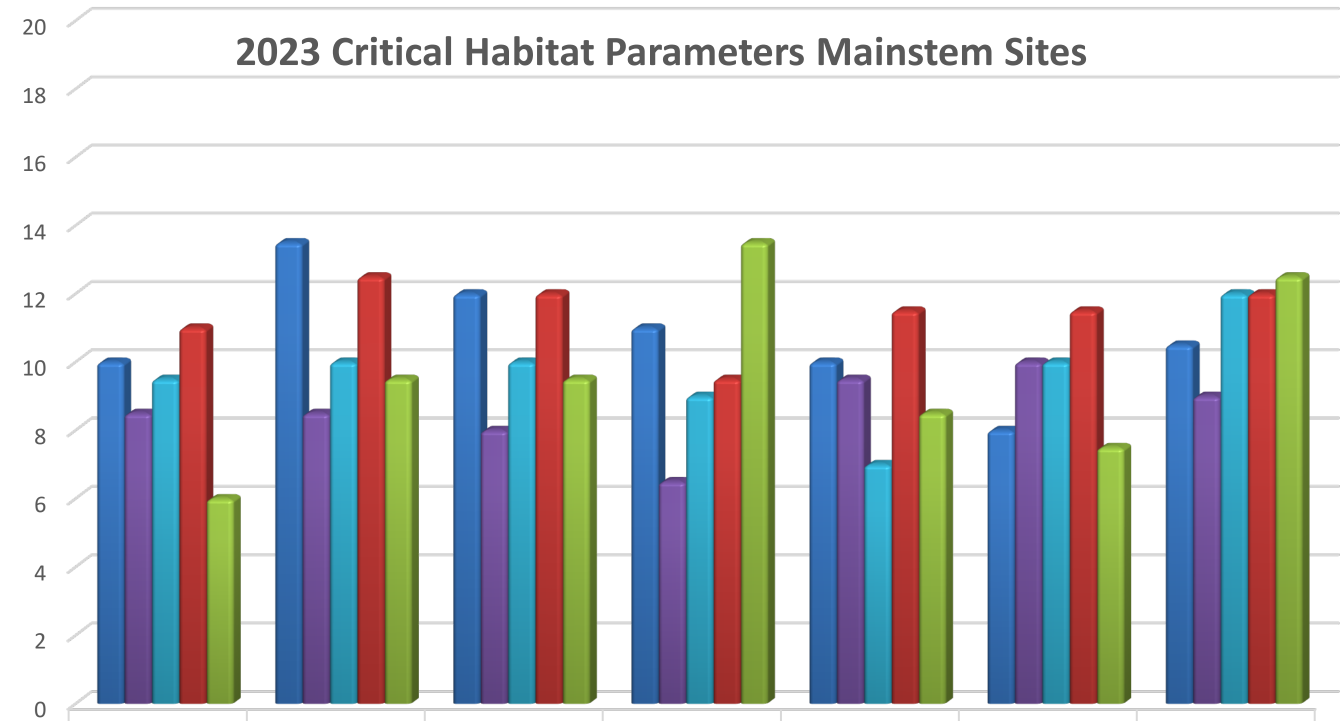
Order	Family	Genus
Coleoptera	Dytiscidae	*Agabus*
Plecoptera	Nemouridae	*Amphinemura*
Coleoptera	Elmidae	*Ancyronyx*
Diptera	Tipulidae	*Antocha*
Ephemeroptera	Baetidae	*Baetis*
Coleoptera	Hydrophilidae	*Berosus*
Isopoda	Asellidae	*Caecidotea*
Trichoptera	Leptoceridae	*Ceraclea*
Trichoptera	Hydropsychidae	*Cheumatopsyche*
Trichoptera	Philopotamidae	*Chimarra*
Diptera	Chironomidae	*spp*
Bivalvia	Corbiculidae	*Corbicula*
Amphipoda	Crangonyctidae	*Crangonyx*
Trichoptera	Hydropsychidae	*Diplectrona*
Trichoptera	Philopotamidae	*Dolophilodes*
Coleoptera	Psephenidae	*Ectopria*
Amphipoda	Gammaridae	*Gammarus*
Trichoptera	Glossomatidae	*Glossosoma*
Hirudinea		
Hydracarina		
Trichoptera	Hydropsychidae	*Hydropsyche*
Trichoptera	Hydroptilidae	*Hydroptila*
Gastropoda	Lymnaeidae	
Coleoptera	Elmidae	*Macronychus*
Turbellaria	Nemertea	*sp*
Trichoptera	Leptoceridae	*Oecetis*
Oligochaeta		
Coleoptera	Elmidae	*Optioservus*
Gastropoda	Physidae	*sp*
Turbellaria	Planariidae	*sp*
Trichoptera	Polycentropidae	*Polycentropus*
Coleoptera	Psephenidae	*Psephenus*
Diptera	Psychodidae	*Psychoda*
Diptera	Simuliidae	*Simulium*
Coleoptera	Elmidae	*Stenelmis*
Diptera	Tipulidae	*Tipula*

Physical Habitat Monitoring Results - Spring 2023

Habitat impairments such as hydrologic extremes (*i.e.,* low base flow and accentuated flow during storm events), physical obstructions, and sedimentation/siltation appear to be the major environmental stressors on the aquatic ecosystem. Accumulation of sediment in the interstitial spaces of riffles has been shown to limit available habitat and possibly smother benthic invertebrate life stages (Runde and Hellenthal, 2000). Nearly all sites received suboptimal total scores for habitat (Table 9). The site at Thomas Mill Run (WSTM020) achieved the highest total score. The Wissahickon tributary site at Valley Green Bridge on Lorraine Run, a tributary to the Wissahickon (WSLR005), had the lowest total habitat score of all sites (Table 9, Figures 4 and 5).

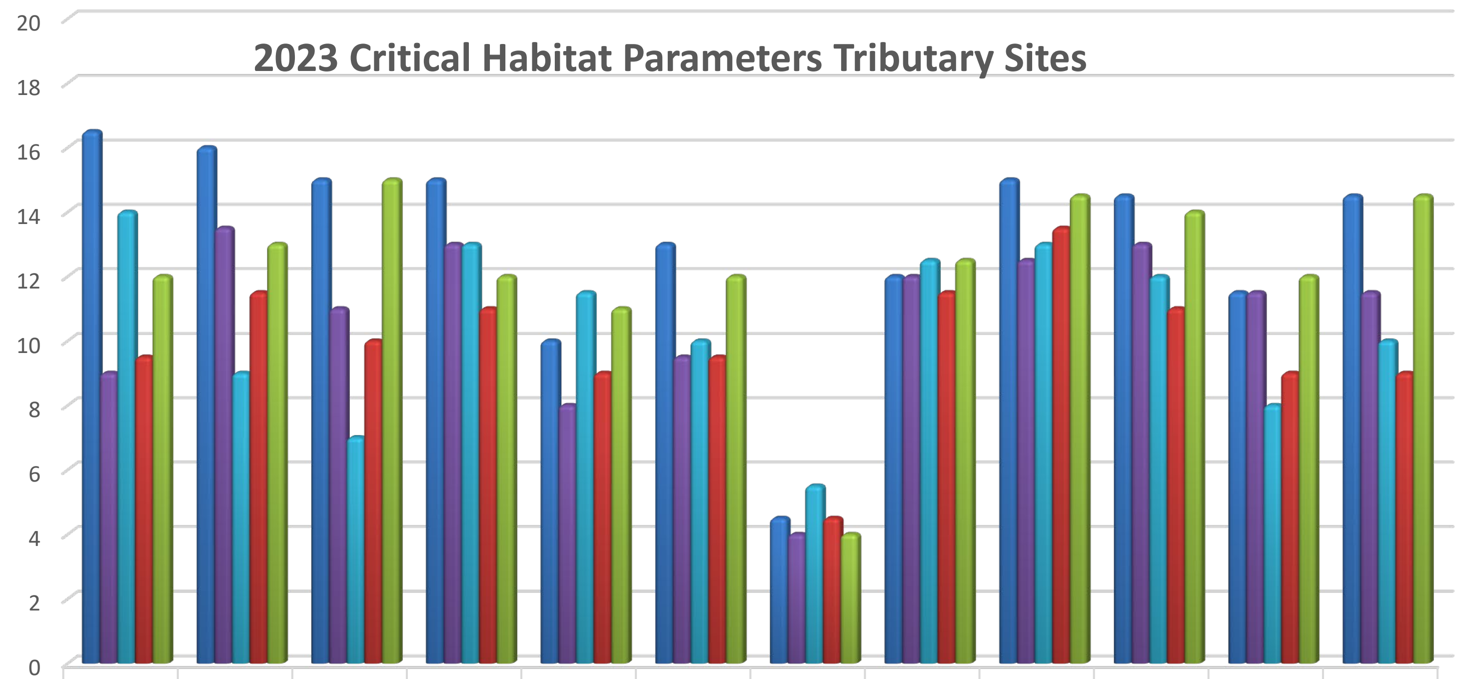
Table 9. Physical Habitat Scores at All Monitoring Sites - Spring 2023

Site ID	Instream	Epifaunal	Embed	Veldep	Chanalt	Seddep	Riffreq	Chanflo	Bankcond	Vegpro	Graze	Ripveg	Total Score
DCC251	10	11	6	11.5	13	8.5	11.5	12.5	9.5	16.5	16	15	141
DCC793	13.5	12.5	9.5	14	15.5	8.5	13.5	9	10	17	17	17	157
PP340	12	12	9.5	16	16	8	13	13	10	16	16.5	17.5	159.5
PP970	11	9.5	13.5	16	17.5	6.5	11	7.5	9	15	14.5	14.5	145.5
PQ054	10	11.5	8.5	13.5	16	9.5	11.5	12	7	16	16.5	13.5	145.5
TF597	8	11.5	7.5	11.5	12.5	10	8.5	10.5	10	16	15	14.5	135.5
WS1075	10.5	12	12.5	16	15	9	8	14	12	16	18.5	18.5	162
WSBM007	16.5	9.5	12	17	14.5	9	16.5	7.5	14	16.5	17	13	163
WSCC009	16	11.5	13	16.5	17.5	13.5	14	9.5	9	16	18	18	172.5
WSCR008	15	10	15	15	16	11	15	9	7	16	19	19	167
WSCW003	15	11	12	16	17	13	14	13.5	13	18.5	18.5	17.5	179
WSGL020	10	9	11	12.5	7.5	8	9.5	8	11.5	15.5	17	14.5	134
WSHR009	13	9.5	12	14	15	9.5	16	8	10	14.5	18	13.5	153
WSLR005	4.5	4.5	4	11.5	13	4	3.5	16	5.5	14.5	12.5	5.5	99
WSPM018	12	11.5	12.5	13.5	13.5	12	12	12.5	12.5	18	15	14	159
WSTM020	15	13.5	14.5	14.5	18	12.5	17	14	13	19	18	18	187
WSUT005	14.5	11	14	14	15.5	13	16	10	12	16	17.5	15.5	169
WSVG009	11.5	9	12	12	13	11.5	15.5	9.5	8	17	16.5	13.5	149
WSWM015	14.5	9	14.5	14.5	10	11.5	14.5	9	10	17	17.5	9.5	151.5



	DCC251	DCC793	PP340	PP970	PQ054	TF597	WS1075
Instream Cover	10	13.5	12	11	10	8	10.5
Sediment Deposition	8.5	8.5	8	6.5	9.5	10	9
Condition of Banks	9.5	10	10	9	7	10	12
Epifaunal substrate	11	12.5	12	9.5	11.5	11.5	12
Embeddedness	6	9.5	9.5	13.5	8.5	7.5	12.5

Figure 4. Mainstem Site Critical Habitat Scores, Spring 2023



	WSBM007	WSCC009	WSCR008	WSCW003	WSGL020	WSHR009	WSLR005	WSPM018	WSTM020	WSUT005	WSVG009	WSWM015
Instream Cover	16.5	16	15	15	10	13	4.5	12	15	14.5	11.5	14.5
Sediment Deposition	9	13.5	11	13	8	9.5	4	12	12.5	13	11.5	11.5
Condition of Banks	14	9	7	13	11.5	10	5.5	12.5	13	12	8	10
Epifaunal substrate	9.5	11.5	10	11	9	9.5	4.5	11.5	13.5	11	9	9
Embeddedness	12	13	15	12	11	12	4	12.5	14.5	14	12	14.5

Figure 5. Wissahickon Tributary Site Critical Habitat Scores, Spring 2023

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Appendix J – NPDES Industrial Stormwater Permitted Sites – Philadelphia County

Authority ID	Authority Type	Site Name	Address	City	State	Zip Code
918510	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	L3HARRIS MARITIME POWER & ENERGY SOLUTIONS INC	13500 ROOSEVELT BLVD	PHILADELPHIA	PA	19116-4201
1428247	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ZENTIS NORTH AMERICA	1741 TOMLINSON RD	PHILADELPHIA	PA	19116
1428323	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	RICHARDSAPEX MAIN ST FAC	4202-24 MAIN ST	PHILADELPHIA	PA	19127
1431003	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	WASTE MGMT BLEIGH AVE FAC	5109 BLEIGH AVE	PHILADELPHIA	PA	19136
1431377	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	WASTE MGMT OF PA GRAYS FERRY AVE FAC	3605 GREYS FERRY AVE	PHILADELPHIA	PA	19146
1431718	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ORTHODOX AUTO UNRUH AVE FAC	5247 UNRUH AVE	PHILADELPHIA	PA	19135
1431848	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA GAS WORKS PASSYUNK AVE PLT	3100 PASSYUNK AVE	PHILADELPHIA	PA	19145
1431887	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NORTHEAST PHILADELPHIA AIRPORT (PNE)	9800 ASHTON RD	PHILADELPHIA	PA	19114
1431890	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CLEAN EARTH OF PHILA FAC	3201 S 61ST ST	PHILADELPHIA	PA	19153-3502
1431924	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PEPSI BOTTLING ROOSEVELT BLVD PLT	11701 ROOSEVELT BLVD	PHILADELPHIA	PA	19154-2108
1431938	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	LKQ VENICE AUTO PARTS	3350 SOUTH 61ST STREET	PHILADELPHIA	PA	19153
1432452	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	S D RICHMAN SONS WHEATSHEAF LN FAC	2435 WHEATSHEAF LANE	PHILADELPHIA	PA	19137
1433289	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ALLEGHENY IRON & METAL TACONY ST FAC	TACONY ST & ADAMS AVE	PHILADELPHIA	PA	19124
1433315	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ADVANSIX RESINS AND CHEMICALS LLC FRANKFORD PLT	MARGARET & BERMUDA STS	PHILADELPHIA	PA	19137-1193
1433495	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BWC TERMINALS-PHILADELPHIA	2900 E ALLEGHENY AVE	PHILADELPHIA	PA	19134-6302
1433799	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ABF FREIGHT SYSTEM RICHMOND ST FACILITY	4000 RICHMOND ST	PHILADELPHIA	PA	19137
1434116	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CSX INTERMODAL CHRISTOPHER COLUMBUS AVE FAC	3400 S CHRISTOPHER COLUMBUS BLVD	PHILA	PA	19148
1434128	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TJ COPE NORCOM RD FAC	11500 NORCOM RD	PHILA	PA	19154
1434268	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	UNITED METAL TRADERS COMLY ST FAC	5240 COMLY ST	PHILADELPHIA	PA	19135-4315
1435103	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	REPUBLIC SVC OF PA PHILADELPHIA HAULING FAC	3000 E HEDLEY ST	PHILADELPHIA	PA	19137
1435115	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SEPTA ROBERTS AVE FAC	2705 ROBERTS AVE	PHILA	PA	19129
1435301	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	VANE LINE BUNKERING FT MIFLIN RD FAC	4925 FT MIFLIN RD	PHILA	PA	19153
1435425	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PACKER AVE MARINE TERMINAL	3301 S COLUMBUS BLVD	PHILA	PA	19148
1436473	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	REPUBLIC SVC QUICKWAY TRANSFER STATION	2960 ORTHODOX ST	PHILADELPHIA	PA	19137
1436694	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	US POSTAL SVC LINDBERGH BLVD FAC	7500 LINDBERGH BLVD	PHILADELPHIA	PA	19176-9998
1438285	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SUN CHEM HUNTING PARK AVE PLT	3301 HUNTING PARK AVE	PHILADELPHIA	PA	19132
1482556	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ATLANTIC USED AUTO PARTS ESSINGTON AVE FAC	6544 ESSINGTON AVE	PHILA	PA	19153
1036930	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NDV SCRAP METAL INC	3630 N 2ND ST	PHILADELPHIA	PA	19140-4605
1219023	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BRITTON IND INC	8901 TORRESDALE AVE	NA	NA	NA
1229352	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JT'S USED AUTO PARTS S 61ST ST FAC	3505 S 61ST ST	PHILADELPHIA	PA	19153
21593	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	METRO MACH OF PA SHIP REPAIR FAC	FOOT OF MORTON AVE	NA	NA	NA
326466	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG SOUTHAMPTON FAC	2734 SOUTHAMPTON RD	PHILADELPHIA	PA	19154
326472	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG OGONTZ OMS 14A	5350 OGONTZ AVE	PHILADELPHIA	PA	19141
326557	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG FT MIFFLIN FAC	BLDG 56 FORT MIFFLIN	PHILADELPHIA	PA	19153
383091	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FEDEX GREYS FERRY AVE FAC	3600 GRAYS FERRY AVE	PHILADELPHIA	PA	19146
459790	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT SE WPCP	25 PATTISON AVE	PHILADELPHIA	PA	19148-5607
459812	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT SW WPCP	8200 ENTERPRISE AVE	PHILADELPHIA	PA	19153-3813
459823	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT NE WPCP	3895 RICHMOND ST	PHILADELPHIA	PA	19137-1418
577993	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DHL EXPRESS COLUMBUS BLVD FAC	1101 N CHRISTOPHER COLUMBUS BLVD	PHILADELPHIA	PA	19125
701610	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SMALL TIME OPERATOR AUTO PARTS JAMES ST FAC	7342 JAMES ST	NA	NA	NA
1020028	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DAVE'S DELAWARE VALLEY TOWING PASSYUNK AVE FAC	6159 PASSYUNK AVE	PHILA	PA	19153
1033629	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JIM'S AUTO RECYCLING W PASSYUNK AVE FAC	6299 W PASSYUNK AVE	PHILA	PA	19153
1039992	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BIG HEAD AUTO SALVAGE CORP	3511 S 61ST ST	PHILADELPHIA	PA	19153
1041802	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	B & L AUTO PARTS 61ST STREET FAC	3404 S 61ST ST	PHILADELPHIA	PA	19153
1044986	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	STEVE'S AUTO PARTS II S 61ST ST FAC	3331 S 61ST ST	PHILA	PA	NA
1047066	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JACK'S AUTO PARTS S 61ST ST FAC	3517-3555 S 61ST ST	PHILA	PA	19153
1056063	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	KANCO METALS INC	4601 BATH ST	PHILADELPHIA	PA	19137-2216
1086796	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ECO ENERGY PHILLY	3400 S CHRISTOPHER COLUMBUS BLVD	PHILADELPHIA	PA	19148-5110
1137392	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CARTEL AUTO PARTS W PASSYUNK AVE FAC	6330 W PASSYUNK AVE	PHILA	PA	19153
1223833	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	RECLEIM PA LLC PHILA PLT	4301 N DELAWARE AVE	PHILADELPHIA	PA	19137
1428081	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	KINGSBURY	10385 DRUMMOND RD	PHILADELPHIA	PA	19154
1429658	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DUFFEY OIL TERM	2700 ROBERTS AVE	PHILADELPHIA	PA	19129
1431928	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NAVAL FOUNDRY AND PROPELLER CTR	1701 KITTY HAWK AVE	PHILADELPHIA	PA	19112-5087

Authority ID	Authority Type	Site Name	Address	City	State	Zip Code
1432373	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	MARINE LUBRICANTS, INC-PHILLY	4700 BASIN BRIDGE RD	PHILADELPHIA	PA	19112
1432752	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMAZON.COM SERVICES LLC-DDP1	2900 GRANT AVE	PHILADELPHIA	PA	19114-2310
1433049	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	RHOADS BUILDING 1028	4703 BASIN BRIDGE ROAD	PHILADELPHIA	PA	19112
1433194	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ARDEX LAB	2050 BYBERRY RD	PHILADELPHIA	PA	19116
1433318	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TASTYKAKE	2801 HUNTING PARK AVE	PHILADELPHIA	PA	19129
1433457	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CONRAIL - FRANKFORD JUNCTION YARD	2110 E BUTLER ST	PHILADELPHIA	PA	19124
1433473	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CONRAIL - SOUTH PHILLY YARD	11TH ST & TERMINAL RD	PHILADELPHIA	PA	19112
1433494	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CONRAIL - ANN STREET YARD	2801 E ANN STREET	PHILADELPHIA	PA	19134
1435081	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMAZON.COM SERVICES LLC DDP9	3025 MEETING HOUSE RD	PHILADELPHIA	PA	19154
1435091	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMAZON.COM SERVICES LLC - DPH8	7575 BREWSTER AVE	PHILADELPHIA	PA	19153-3206
1440891	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DURHAM SCH SRVS CSC - 4091	4101 N DELAWARE AVE	PHILADELPHIA	PA	19137-1939
1459739	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMAZON.COM SVC LLC DDP9 PKG PHILADELPH5	2703 BLACK LAKE PL	PHILADELPHIA	PA	19154
1459776	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMAZON.COM SVC LLC DPH8 PKG PHILADELPH4	6729-6733 ESSINGTON AVE	PHILADELPHIA	PA	19153
1472255	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	MAOLA PHILADELPHIA FACILITY	10975 DUTTON RD	PHILADELPHIA	PA	19154-3203
1484214	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ESSINGTON AVE USED AUTO PARTS FAC	6746 ESSINGTON AVE	PHILA	PA	19153
1487879	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ATLANTIC AVIATION ENTERPRISE AVE FAC	8375 ENTERPRISE AVE	PHILADELPHIA	PA	19153
1489490	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FEDEX TOWNSEND RD FAC	14300 TOWNSEND RD	PHILA	PA	19154
882940	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA ENERGY SOLUTIONS REFINING & MKTG LLC	3144 W PASSYUNK AVE	PHILADELPHIA	PA	19145-5208
18834	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	SEPTA VICTORY AVE TERM	110 & 103 VICTORY AVE	UPPER DARBY	PA	19082
901759	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILLY SHIPYARD INC	2100 KITTY HAWK AVE	PHILADELPHIA	PA	19112-1808
1223639	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	ROHM & HAAS PHILADELPHIA PLT	5000 RICHMOND ST	PHILADELPHIA	PA	19137
1312193	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PBF LOGISTICS PRODUCTS TERMINALS LLC	6850 ESSINGTON AVE	PHILADELPHIA	PA	19153-3413
1329374	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	ENERGY TRANSFER MKT & TERM LP FT MIFFLIN TERM	4 HOG ISLAND RD	PHILADELPHIA	PA	19153-3809
1374567	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	JDM MATERIALS GRANT AVE PLT	2750 GRANT AVE	PHILA	PA	19114
1374574	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	JDM MATERIALS CO BARTRAM BATCH PLT	PENROSE FERRY RD	PHILADELPHIA	PA	19153
1411890	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA INTL AIRPORT	DIV AVIATION/INTL AIRPORT	PHILADELPHIA	PA	19153
1424715	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	AMTRAK 30TH STREET STATION	2955 MARKET ST	PHILADELPHIA	PA	19104-2828
1455318	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	METRO READY MIX & SUPPLY CASTOR AVE PLT	4455-65 CASTOR AVENUE	PHILADELPHIA	PA	19124
1481695	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILLY G STREET TERMINAL	4210 G ST	PHILADELPHIA	PA	19124
910907	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	US POSTAL SVC LINDBERGH BLVD FAC	7500 LINDBERGH BLVD	PHILADELPHIA	PA	19176-9998
1015651	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	FRONTIDA BIOPHARM LLC ORTHODOX	1100 ORTHODOX ST	PHILADELPHIA	PA	19124-3168
1023588	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SANDMEYER STEEL	10060 SANDMEYER LN	PHILADELPHIA	PA	19116
1027710	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	VEOLIA ES TECH SOLUTIONS LLC	3100 HEDLEY ST	PHILADELPHIA	PA	19137-1934
1098226	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	FIBREFLEX PACKING & MFG UMBRIA ST FAC	5101 UMBRIA ST	PHILADELPHIA	PA	19128-4345
1107824	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	TASTYKAKE	2801 HUNTING PARK AVE	PHILADELPHIA	PA	19129
1108530	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	COILPLUS BLEIGH AVE FAC	5135 BLEIGH AVE	PHILA	PA	19136
1144434	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SMITH EDWARDS DUNLAP	2867 E ALLEGHENY AVE	PHILADELPHIA	PA	19134-5994
1303744	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PCI PHARMACEUTICAL SERVICES	3001 RED LION RD	PHILADELPHIA	PA	19114
1305858	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	USPS VEHICLE MAINTENANCE FAC	1902 BYBERRY RD	PHILADELPHIA	PA	19116-9997
1335508	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	MEDIMMUNE LLC	NA	NA	NA	NA
591838	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PEARL PRESSMAN LIBERTY	7625 SUFFOLK AVE	PHILADELPHIA	PA	19153-3020
711143	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	VICINITY ENERGY SCHUYLKILL GEN STA	2800 CHRISTIAN ST	PHILADELPHIA	PA	19146
874849	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SPECTRUM MICROWAVE PHILADELPHIA OPERATIONS	2707 BLACK LAKE PLACE	PHILADELPHIA	PA	19154-1008
1256809	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	DIETZ & WATSON	5701 TACONY ST	PHILADELPHIA	PA	19135-4311
1257040	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	ARCA RECYCLING INC	2000 BENNETT RD	PHILADELPHIA	PA	19116
1311981	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	USPS PHILA VEHICLE MAINTENANCE FACILITY	3201 SOUTH 74TH ST	PHILADELPHIA	PA	19153-9996
1327059	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	FEDEX EXPRESS MUVA	3600 GRAYS FERRY AVE	PHILADELPHIA	PA	19146-3207
1335502	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	ASTRAZENECA PLP	3001 RED LION RD	PHILADELPHIA	PA	19114-1123
1337031	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	HONOR FOODS INC	5501 TACONY ST	PHILADELPHIA	PA	19122
1391236	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	THE BATTERY	1325 N BEACH ST	PHILADELPHIA	PA	19125-4310
1396546	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	API TECH CORP - PHILA OPS	2707 BLACK LAKE PLACE	PHILADELPHIA	PA	19154-1008
1413054	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SEPTA DECATUR DISTRIBUTION CENTER	10551 DECATUR RD	PHILADELPHIA	PA	19154-3800
1417892	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	IOVANCE BIOTHERAPEUTICS	300 ROUSE BLVD	PHILADELPHIA	PA	19112-1905

Authority ID	Authority Type	Site Name	Address	City	State	Zip Code
1424152	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI ADV THERAPIES 4701 LEAGUE ISLAND BLVD	4701 LEAGUE ISLAND BLVD	PHILADELPHIA	PA	19112-1220
1424168	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI ADV THERAPIES 4000 S 26TH ST	4000 S 26TH ST	PHILADELPHIA	PA	19112-1613
1424174	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI ADV THERAPIES 400 ROUSE BLVD	400 ROUSE BLVD	PHILADELPHIA	PA	19112-1904
1424195	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI ADV THERAPIES 4751 LEAGUE ISLAND BLVD	4751 LEAGUE ISLAND BLVD	PHILADELPHIA	PA	19112-1220
1442879	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	HILLOCK ANODIZING MFG FAC	5101 COMLY ST	PHILADELPHIA	PA	19135
1444285	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PURE FISHING	3028 W HUNTING PARK AVE	PHILADELPHIA	PA	19132
1450553	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	RR DONNELLEY PHILADELPHIA DBA BAUM PRINTING	9985 GANTRY RD	PHILADELPHIA	PA	19115
1450840	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	JOWITT & RODGERS STATE RD FAC	9400 STATE RD	PHILADELPHIA	PA	19114
1456071	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SENNECA HOLDINGS	8825 TORRESDALE AVE	PHILADELPHIA	PA	19136-1542
1460776	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	L3HARRIS MARITIME POWER & ENERGY SOLUTIONS INC	13500 ROOSEVELT BLVD	PHILADELPHIA	PA	19116-4201
1473890	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	DUNGAN ROAD	7722 DUNGAN RD	PHILADELPHIA	PA	19111-2733

Appendix K – Defective Connections Group FY24 Report

Sewer Maintenance Unit

Defective Connections Group

Fiscal Year 2024 Annual Report

I. BACKGROUND INFORMATION

A. Phase I Stormwater Regulations

In 1990, the Environmental Protection Agency (EPA) promulgated Stormwater Regulations that required National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges from large (populations in excess of 250,000) and medium-sized (populations between 100,000 and 250,000) municipalities with separate storm sewer systems, (MS4)[1]. The City of Philadelphia with a 1990 population of 1.4 million was one of two NPDES Stormwater Phase I permittees in Pennsylvania. The other permittee was the City of Allentown.

B. NPDES Permit for Stormwater

The City of Philadelphia received its first NPDES Stormwater Permit under the 1990 Federal Regulations as issued by the Pennsylvania Department of Environmental Protection (PA DEP) in September 29, 1995. This permit had a 5-year term. Among other requirements, the permit required the city to reduce stormwater based pollution of local streams, creeks and rivers, from (1) residential and commercial areas, (2) construction sites, (3) industrial sites and (4) defective lateral connections.

The renewal of the NPDES Stormwater Permit that expired in September 2000 was approved by the PA DEP on September 30, 2005. The new permit provides for the same scope and requirements for the Defective Laterals Detection and Abatement Program as the previous permit and incorporates some provisions from the Consent Order and Agreement (COA) of July 1998 although the COA was successfully completed on March 18, 2004.

With the Water Department's internal reorganization and creation of the Office of Watersheds (OOW) in January 1999, the responsibilities numbered (1) through (3) above, along with the periodic reporting thereon was transferred to the OOW. The Defective Connections group (DCG) continues to pursue the 4th objective of NPDES Permit, namely the detection of defective laterals that cause sanitary wastewater to be carried to the local streams and rivers.

DCG field investigations began in March 1994.

II. DEFECTIVE LATERALS DETECTION AND ABATEMENT PROGRAM

A. Scope of Investigations

The MS4 impacts the areas of the city where there are two separate sewers in the street. The sanitary sewer system, which consists of a network of pipes of smaller diameter, carries domestic wastewater to the City's three Water Pollution Control Plants located in the Northeast, Southeast and Southwest sections. The storm sewer system consists of pipes of larger diameter but significantly shorter lengths and transports the stormwater to the nearest natural waterways. In general, the relatively newer sections of the city in the northeast, northwest and southwest are served by a MS4.

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[1] Municipal Separate Storm Sewer System

Due to problems generally attributed to improper installation or lack of oversight during construction, sanitary wastewater from some properties can be transported into the storm sewers and from there, to the streams and rivers. This intrusion of sanitary wastewater causes pollution of the streams and rivers, which are the source of city's water supply. The polluted streams and rivers also endanger the physical health and safety of residents and users of the streams. The NPDES Permit requires the city to identify and abate the plumbing connections (defective laterals) that cause the sanitary wastewater to drain into the streams.

The **investigations** of stream pollution are triggered by the presence of a dry weather discharge from the storm sewer outfalls into the streams. There are over 400 stormwater outfalls in city's MS4 system of which some 220 have exhibited some dry weather flow.

It should be mentioned however, that not all dry weather discharge from an outfall comes from sanitary wastewater incursion; some may come from underground natural streams or from groundwater inflow. Additional testing of chemical and biochemical composition of samples collected from the outfalls determines whether or not stream pollution may be caused by defective laterals.

B. Outfall Inspections and Sampling

A systematic sampling of the quality of dry weather flow from the 200 plus wet outfalls was performed in 1991 as part of the initial NPDES permit application process. This program attempted to document the amount of flow (gph) and in many cases, fecal coliform count (number of fecal colonies per ml of water). The outfall sampling results were updated in 1998 when additional observations of fluoride levels (mg/l) were included to provide some indication of the origin of water seen in the outfalls. This is based on the fact that the natural water coming from streams or ground water seepage does not contain any significant fluorides, but the City water contains 0.7 mg/l of fluorides.

The more likely outcomes of fluoride and fecal count analyses are interpreted as follows:

i. **High fluoride level with high fecal count:** possible intrusion of sanitary wastewater into the storm sewer
ii. **Low fluoride level with high fecal count:** possible transport of surface contamination in the non-domestic discharge
iii. **High fluoride with low fecal count**: possible drinking water source

As a part of the MS4 permit, all stormwater outfalls are to be inspected once every five years. If there is dry-weather flow present then the outfall is to be sampled and tested for fecal presence and fluoride levels. In addition, the priority outfalls of the watersheds are to be sampled on a quarterly basis. Outfall inspections and sampling are handled by the Industrial Waste unit. Laboratory analysis is completed by the Bureau of Laboratory Services.

During FY2024, 41 outfall inspections were conducted, and 31 samples were taken due to observed dry-weather flow as part of the Priority Outfall Sampling program. During FY2024, 46 outfall inspections were conducted, and 19 samples were taken due to observed dry-weather flow as part of the Permit Inspection program.

C. Field Screening

The object of **field screening** is to identify the areas in a sewershed that are suspected of contributing to stream pollution through defective laterals. The field screening begins systematically at an outfall that shows a dry weather flow[2].

Proceeding upstream from the outfall, the storm sewer manholes are successively opened and observed for the presence of flow. The term "**flow**" has been widened to include "**wet**" stormwater manholes on the assumption that the wetness was caused by earlier active flow. These observations are continued upstream along a specified sewer line and stop when a stormwater manhole no longer exhibits any flow or wetness. The field screening is then continued along another tributary sewer and eventually through the entire sewershed of the outfall.

D. Identification of Defective Laterals

1) Dye Tests

Dye testing is a process by which a cross-connected lateral at a property that carries sanitary wastewater to a storm sewer is identified.

(a) Initial Dye Test

Before a test is conducted, the fresh air inlets (FAIs) located at the curbside of the property are identified as being the sanitary or storm FAIs. In Philadelphia, the sanitary lateral is located downstream of the stormwater lateral in relation to the flow of the main sewer[3]. The dye test protocol adopted by the City requires the presence of two properly functioning FAIs for successful initial tests. If one or no FAI is seen at a property or one or both of the FAIs are clogged or damaged, the initial dye test is aborted with a notation "**Inconclusive**".

During the initial dye test, a water-soluble fluorescent dye is placed in the fresh air inlets (FAIs). The dye is then washed down with water.

In the case of a ***"Camera Assisted Dye Test"*** the emergence of the dye is observed in the **storm sewer** by a closed circuit television camera positioned in the storm sewer in front of the stormwater lateral connection of the property. Possible observations include:

(i) Green dye placed in storm FAI is seen in the storm sewer
(ii) Green dye paced in storm FAI is not seen in the storm sewer
(iii) Red dye placed in the sanitary FAI is seen in the storm sewer
(iv) Red dye placed in the sanitary FAI is not seen in the storm sewer.

The above observations are interpreted as follows:

1) Combination of (i) and (iv): **Proper Connection**
2) Combination of (i) and (iii): **Probable Cross Connection**
3) Combination of (ii) and (iv): **Inconclusive**
4) Combination of (ii) and (iii): **Probable Cross Connection**

[2] A dry weather flow is defined as one that is detected after an elapse of 72 hours of a continuous dry spell from the previous rainfall event.
[3] As discussed in Section D. House Lateral Design, pages 5-3 and 5-4, in the PWD Water and Sewer Design Manual (2nd Edition) 2011.

In certain cases, the use of the closed circuit television camera is not possible. In such cases, the initial tests are conducted with a **"Manual Dye Test"**. Possible observations include:

In a **"Manual Dye Test"**, a green dye is placed in the storm FAI and observed in the **storm sewer**. At the same time, a red dye is placed in the sanitary FAI and observed in the **sanitary sewer**. If the red dye appears in the sanitary sewer, whether or not the green dye appears in the storm sewer, the conclusion arrived at is "**Proper Connection**".

If the red dye is not seen in the sanitary sewer, the test is repeated by placing more red dye in the sanitary FAI and observed in the **storm sewer**. If the red dye appears in the storm sewer, this result signifies the presence of a "**Probable Cross Connection**".

If dye is not seen in the sanitary and storm sewers the observation is "**Inconclusive**".

The initial dye tests, whether conducted manually or by a camera are intended to be least intrusive to the water customers. During these initial tests, no entry into the home is involved. In order to provide water for dye tests at the FAIs, field crews use portable water equipment. The Defective Connections group has two vehicles each retrofitted with water supply tanks.

(b) Confirmation Dye Test

A confirmation dye test is conducted in case of an Inconclusive test or a Probable cross connection. This test is conducted after a second notification to the customer has been sent. This test is **intrusive**; admission inside the home is required to conduct the testing.

The confirmation dye test is conducted **manually** by placing and flushing the fluorescent dye in household plumbing fixtures, such as a toilet[4]. The emergence of the dye is then observed in the **sanitary sewer**.

If the dye does appear only in the sanitary sewer, it is concluded that the property tested has a "**Proper Connection**." If the dye from the household plumbing does not appear in the sanitary sewer, then observation is made in the storm sewer. The presence of the dye in the storm sewer confirms the existence of a "**Cross Connection.**"

(c) Notification of Defective Lateral

When a confirmation dye test indicates that there exists a cross connection at the subject property, the property owner is advised that if the property qualifies as a residential property (with no more than 4 units in one of which the owner has his/her residence), the city will make repairs to the defective lateral(s) at no cost to the property owner. If later on it is discovered that the property does not fall within this category, the customer is informed by a follow up notice of his responsibility to repair the defect at their cost.

The Plumbing Repair Programs unit handles customer communications and is responsible for the abatement of these defects.

2) Customer Notifications

[4] This step was modified in CY2001 to conduct the tests from all plumbing fixtures, including any in the basement in order to identify the existence of an internal cross connection, where all fixtures but one are properly connected to the sanitary sewer, with one offending connection to the storm sewer.

(a) Initial Notification

The identification of the defective laterals begins after delineating the parts of a sewershed suspected of contributing dry weather flow to the MS4 system, after field screening. All property holders in the specified area receive an initial notification letter, generated through the Oracle-based DLS computer program. The notification provides an introduction of the program and requests the customer's cooperation in enabling **dye tests** at their property. A dye test is conducted after an initial notification is sent out to a customer. There are three possible outcomes of a dye test:

(i) A test is conducted and no cross connection is found. In this case, a result of "No Cross Connection" is entered in the database and the case is closed.

(ii) A test is conducted and it is concluded that there might exist a cross connection that results in the transport of sanitary wastewater into the storm sewer. This condition requires additional tests to confirm the existence of a cross connection.

(iii) A test cannot be conducted due to any of a variety of reasons, such as FAIs were not conclusively identified, were clogged, etc. This situation also warrants additional tests to conclude whether or not a cross connection exists.

(b) Confirmation Notification

In either of case (ii) or (iii) above, a follow up notification is sent out to the customer, informing them of the results of the previous attempt and requesting them to be available at a specified date for additional "Confirmation" tests at their property. Of course, if the date provided by the City is not suitable to the customer, they can schedule an alternative appointment that suits them.

Dye tests are then conducted at the property from within the customer's premises as described earlier. The results of the tests, (a) a Proper Connection or (b) a Cross Connection, are entered in the DLS computer program.

(c) Water Shutoff Notification

Not all dye tests are completed as a result of confirmation notifications. Some customers ignore the scheduled date and fail to make an alternative appointment. In such cases an informatory note is left at the property and a follow up attempt for tests is made. If this also results in no test, another notification is sent out informing the customer that if they do not make a firm appointment by a specified date (usually within two calendar weeks of the notification date), their water service would be scheduled to be turned off by the Customer Service unit. Of course if the customers do respond and make an appointment for dye tests, the service shutoff is withdrawn and tests are completed as soon as possible.

(d) Miscellaneous Closures

In some cases, where there was no response to dye test requests or water service shutoff notifications due to properties being vacant or abandoned, the cases were closed with a notation "**Miscellaneous Closure**". A miscellaneous closure is activated because of any of the following reasons:

- No active water service to the premises
- Property abandoned, empty or unoccupied
- No billing to the property per Revenue Department
- No sewer connection

From time to time, the miscellaneously closed accounts are revisited. If we find that the reason that caused the account to be originally closed is no longer valid, a dye test is conducted and the property is then re-classified according to the test results.

III. PRIORITY SCORE LIST OUTFALLS

The emphasis of the Defective Laterals Detection and Abatement program is on outfalls on the Priority Score List. The Priority Score List ranks all outfalls sampled with dry-weather flow based on a preset formula that includes the fecal coliform results, the estimated volume of flow, whether the outfall discharges to a drinking water source water, and a complaint factor. The Priority Score List is periodically updated based on the results of the (Permit) Outfall Inspection and Sampling Program described earlier. This list was updated in July 2013.

IV. SUMMARY OF DYE TESTS AND ABATEMENTS

Table 1 provides a summary of the work performed in detecting and abating defective laterals. It shows the cumulative numbers since the inception of the project in 1994, and the progress that was attained during FY2024.

Table 1.
Updated Progress on Dye Tests in Philadelphia MS4 Area

	Since Inception of the Program	**During Fiscal 2024**
Dye Tests Initiated	65,926	(100)
No Cross Connections Found	63,080	(55)
Cross Connections Identified	1,879	31
Completed Tests	64,959	(24)
Abatements Completed	1,745	30

Of the 30 abatements done in FY2024, 28 were residential properties, and the cost for these abatements was $265,341.70. Additionally, 1 commercial property was abated at a cost of $10,894.50, and 1 internal cross connection property was abated with no cost.

V. MISCELLANEOUS

Estimates of Pollution Removed

The following data provides a rough measure of the effectiveness of the Defective Connections group's positive contribution to improving the local environment:

- Number of Cross Connections Abated

Since Inception of the Program	1,745
During FY2024	30

- Estimated gallons of Polluted Water Prevented from entering the stormwater outfalls[5]

Since Inception of the Program	243.52 million gallons per year
During FY2024	4.22 million gallons per year

VI. STAFF LEVELS

Because of the high priority assigned to the Defective Connections group, the availability of manpower is extremely important. The sanctioned personnel for the unit are as follows:

One **Water Conveyance Supervisor**

Two **Field Representative Supervisors**

Four **SM Crew Chief Is / Science Technicians**

Eight **Utility Representatives**
Two positions vacant

One **Data Services Support Clerk**

The above field and office staffs are organized under the Water Conveyance Supervisor. This position is responsible for all aspects of the unit. The two Field Representative Supervisors are each responsible for two field crews, four crews in all. Each crew is led by a SM Crew Chief I / Science Technician and has two Utility Representatives.

In addition to the field staff, the Defective Connections group has the following position which provides general support:

Data Services Support Clerk: The DSSC handles the intricacies of the DLS database, creation of various correspondences related to dye tests, and follows-up with the field staff.

The DSSC also handles a variety of communications with the customers, makes appointments, and follows-up with delinquent customers. They also maintain the record of water shutoff warnings and miscellaneous closures.

At the end of FY2024, 10 of the 16 approved positions in the Defective Connections group were filled.

[5] Based on an average use of 110 gallons per capita per day, over a family size of 3.5 persons.

Appendix L – Sanitary Infiltration Events

Report Date	Report Time	Problem Location	Spill Notes	Affected Outfall	Abatement Date	Abatement Time	Abatement
7/19/2023	9:30:00 AM	7942-46 Germantown Ave	Choked sewer on unit block W Willow Grove Ave.		7/19/2023	11:00:00 AM	Choked sewer relieved. Sewer cleaned and vacuumed.
8/15/2023	8:00:00 AM	300 block of Leverington	Choked sewer caused sewage overflow into storm system. Discharge from manhole.	S-059-04	8/15/2023	10:00:00 AM	Choked sewer relieved. Sewer cleaned and vacuumed
8/18/2023	4:00:00 PM	300 block of Leverington	Not discharging. Found evidence of sewage in storm system.	S-059-04	8/18/2023	4:00:00 PM	Choked sewer relieved. Sewer cleaned and vacuumed
9/8/2023	11:34:00 PM	Belfry Drive Pumping Station 709 Manatawana Avenue, PA 19128	Power outage- Backup Generator is Out of service.	S-075-03	9/9/2023	12:53:00 AM	PWD is repairing Backup Generator.
9/25/2023	4:00:00 PM	2800 Ruth St.	No active discharge observed at the time of examination.	D-25	9/25/2023		Choked sewer relieved. Sewer cleaned and vacuumed.
11/9/2023	12:30:00 PM	5800 Wissahickon Ave.	Upon inspection, toilet paper was found at Saylor Grove outfall to Retention Pond.	N/A	11/9/2023	1:00:00 PM	WRT will be on location first thing in the morning (11/10/23) for flush and clean once sewer maintenance is done with their investigation.
11/15/2023	1:00:00 PM	7950 Henry Ave.	Upon inspection, found sewage & toilet paper coming from an unknown lateral into storm sewer system.	W-076-13	11/15/2023	12:00:00 AM	Referred for further investigation.
11/17/2023	2:30:00 PM	500 W Mermaid Ln	No active discharge at the time of investigation.	W-076-122	11/17/2024	12:00:00 AM	Choked sewer relieved. Sewer cleaned and vacuumed.
11/20/2023	8:00:00 AM	465 Shurs Ln	No active discharge at time of investigation, choked sewer resulted in discharge into basement of 465 Shurs Ln.	S-051-08	11/20/2023	11:30:00 AM	Choked sewer relieved. Sewer cleaned and vacuumed.
12/1/2023	11:59:00 AM	Surrey Rd. & Alton St.	Foul odor at intersection, found choked sanitary sewer discharging (approx. 5 gpm) into storm sewer.	P-108-13	12/1/2023	12:30:00 PM	Flushed sanitary and storm sewers. A crew will return to clean.

Report Date	Report Time	Problem Location	Spill Notes	Affected Outfall	Abatement Date	Abatement Time	Abatement
12/5/2023	11:30:00 AM	100 S. 16th St.	No active discharge at time of investigation.	S-18	12/6/2023	12:30:00 PM	Choked sewer relieved. Sewer cleaned an vacuumed.
12/6/2023	3:30:00 PM	1010 Arch St.	No active discharge at the time of investigation.	D-53	12/6/2023	4:30:00 PM	Choked sewer relieved. Sewer was cleaned and vacuumed.
12/15/2023	4:00:00 PM	"Yellow Trail" in Fairmount Park	Active discharge.	W-060-01	12/15/2023	10:00:00 PM	Choked sewer relieved. Sewer cleaned and vacuumed.
12/19/2023	1:00:00 PM	Rittenhouse St. and Wissahickon Ave.	Upon investigation, toilet paper was found around the outfall at Saylor Grove Retention Pond.	N/A	12/19/2023	1:20:00 PM	WRT Sewer Maintenance cleaned up the outfall and creek
12/29/2023	1:00:00 PM	3516 Grant Ave.	Found choked sewer discharging into storm sewer, unable to relieve choked sewer with flusher. Set up bypass pumping. Returned on 12/30 to relieve choke and clean sewer.	Q-101-05 & Q-101-25	12/29/2023	4:45:00 PM	Flushed storm sewer with dechlorination tabs and water.
1/4/2024	3:30:00 PM	Scotchbrook Dr. and Banes St.	Sanitary sewage discharging into storm inlet. 2 & 1/2 buckets of rags and towels removed from sanitary sewer. Storm sewer flushed with dichlorination tabs and fresh water.	P-105-06	1/5/2024	3:00:00 PM	Choked sewer relieved. Sewer cleaned and vacuumed.
1/9/2024	10:12:00 PM	MH PC-0030 behind 4701 Grant Ave	Investigated by sewer maintenance WRT at 8:48 am. No signs of discharge were observed.	PC-0030	1/10/2024	2:47:00 AM	Site was inspected by sewer maintenance-WRT unit and no cleanup was necessary.
1/30/2024	11:10:00 AM	1 Crescent Dr.	Blockage was caused by grease. Slight overflow and ponding in the street.	D-73	1/30/2024	3:30:00 PM	Area was cleaned with disinfectant and hydro cleaned by flusher.
2/6/2024	3:05:00 PM	3910 Stevenson St.	Found choked sewer at 3910 Stevenson St. discharging into creek at approximately 2 gal/minute.	Q-101-13 & Q-101-16	2/6/2024	6:30:00 PM	Flushed and cleaned storm water sewer with chlorine tablets.

Report Date	Report Time	Problem Location	Spill Notes	Affected Outfall	Abatement Date	Abatement Time	Abatement
2/16/2024	1:00:00 PM	4952 Hawthorne St	Sanitary sewer choked, discharging in plumbers ditch.	P-11 & F-11	2/16/2024	10:00:00 PM	Referred to CCTV pre-inspection.
2/21/2024	12:45:00 PM	8817 ROOSEVELT BLVD	Found choke sewer/Relieved choked sewer found discharge in storm sewer approx. 1 gallon a minute. Sewer choked, discharged in storm sewer.	P-100-03	2/21/2024	3:00:00 PM	Flushed storm sewer with dechlor tabs.
2/28/2024	11:00:00 AM	2607 WELSH RD	Sewage discharge into storm sewer. Found choke sewer at 2607 Welsh Rd.	P-100-08	2/28/2024	12:45:00 PM	Flushed and cleaned sewer with chlorine tablets. Storm Sewer.
3/26/2024	9:30:00 AM	42nd St. Pump Station	The SSO came from the cave-in, onto street level where street stormwater inlets then picked up the flow. The flow then went out the nearby outfall and into the Schuylkill River. The 42nd St. Pump Stations force main developed a circular crack which caused the main break and leak to occur. Bypass pumping operations were set up.	S-50 & S-51	4/1/2024		Road way and nearby inlets had sewage on them. Flushing truck vacuum was used to clean up most of the mess, heavy rain during the break washed away the rest.
3/26/2024	9:40:00 AM	12060 Abby Rd.	Found choked sewer at 12060 Abby Rd.	Q-110-11	3/26/2024	5:15:00 PM	Flushed and cleaned sewer with vactor. Flushed storm sewer with water and de-chloride tabs.
4/19/2024	10:30:00 AM	Roxborough and Boone (Stairway)	Found discharge from defective sewer pipe, temporarily stopped, in preperation for permanent repair.	S-051-03	4/22/2024		Sewer referred for lining to prevent any future discharge.
6/5/2024	12:00:00 PM	9600 Convent Ave.	Blockage was cause by grease no overflow on street no property was affected.	Q-101-20	6/5/2024	3:45:00 PM	Clean up is being done by Sewer Maintenance (WRT).

Appendix M – Pollution Migration / Infiltration

Date Reported	Date Completed	Who Called	Location	Pollutant	Pollutant Type Desc	Drainage Area	Incident Type	Destination	Observations	Vulnerability Assessment	Vulnerability Assessment Comment
08/03/2023 12:00 PM	04/11/2024 10:51 AM	Citizen	P-100-08	Sewage		Ms4 - P-100-08	Choke	Direct To Receiving Stream	Choked sewer caused sewage discharge at P-100-08.	Minor Impact On Department Operation Or Structure	
08/15/2023 21:08 PM	08/16/2023 08:00 AM	Other Pwd Department	4701 Grant Ave	Water	Highly Chlorinated Water (Most Likely Pool Water)	Ms4 - Q-101-09	Discharge At Outfall	Drain To Sewer,Overland To Inlet	2.20+ mg/L Cl2 residual at Q-101-09 and Q-101-11. Strong Cl odor in creek. Dead minnow observed at outfalls confluence to the Poquessing.	Major Impact - Fish Kill	
08/16/2023 19:18 PM	05/17/2024 09:00 AM	Citizen	Endicott St & Poquessing Creek Dr	Suspect Paint		Ms4 - Q-121-04	Discharge At Outfall	Direct To Receiving Stream	Some white accumulation at the bottom of the plunge pool of the outfall. No dead fish observed. White paint like material found in storm. Referred to SM.	Major Impact - Fish Kill	Citizen reported dead fish. Not verified by PWD in the field.
08/18/2023 14:59 PM	08/18/2023 12:00 PM	Citizen	7901 Ridgeway St	Water	Pool Water With High Concentration Of Chlorine	Ms4 - P-90-02	Spill | Slug Discharge	Overland To Inlet	The rec center was draining pool and unused chlorine. the Drain was overflowing into the street.	Minor Impact On Department Operation Or Structure	
08/24/2023 13:30 PM		Citizen	4349 Ridge Ave	Petroleum (Oil | Fuel)	Diesel Fuel	Ms4 - S-052-03	Spill | Slug Discharge	Overland To Inlet	Diesel spill from a garbage truck onto the side work, on the street, and into City inlet.	No Impact On Department Operation Or Structure	Calls were made to the Belmont and Queens Lane Water plants.
09/06/2023 17:20 PM	09/07/2023 14:30 PM	Citizen	3647 Bellaire Pl	White Cement/Concrete Waste Was Discharged Onto The Street, Impacting The Inlet At The Corner Of Bellaire Pl. And Nanton Dr.		Ms4 - Q-115-12	Illegal Discharge | Dumping	Overland To Inlet	White Concrete stains observed on the walls of the inlet and down the street from Bellaire Pl. unto the Nanton Dr.	No Impact On Department Operation Or Structure	
09/19/2023 14:09 PM	09/19/2023 13:00 PM	Other City Department	10400 E Roosevelt Blvd	Water	Mixture	Ms4 - Q-109-07	Illegal Discharge | Dumping	Overland To Inlet	Basement of facility was filled with water (about 2 -3ft). Water was being pumped into the nearby inlet.	No Impact On Department Operation Or Structure	
09/19/2023 15:41 PM	09/20/2023 09:30 AM	Citizen	3882 Linden Ave	Petroleum (Oil | Fuel)	Oil	Ms4 - Q-101-09	Spill | Slug Discharge	Spill To Ground Only	Van in the rear of property is leaking oil but it is contained in a bucket and covered with absorbent.	No Impact On Department Operation Or Structure	
10/02/2023 16:30 PM		Fire Communications	3107 S 61St St	Fire Run-Off From A Construction Recycling Plant		Ms4 - S-014-01, S-019-01	Spill | Slug Discharge	Overland To Inlet,Direct To Receiving Stream	Fire Run-Off from a Retention basin discharging into the Schuylkill River.	No Impact On Department Operation Or Structure	
10/17/2023 12:05 PM	10/17/2023 12:50 PM	Other Pwd Department	Deerpath Ln & Parkdale Rd			Ms4 - Q-107-02	Discharge At Outfall	Other	No discharge was observed at the of arrival. Sample taken in pool. Clear, no color or sheen and no odor.	No Impact On Department Operation Or Structure	
10/26/2023 18:34 PM	10/26/2023 18:00 PM	Other Pwd Department	654 Gorgas Ln	Sewage		Ms4 - W-67-01	Discharge At Outfall	Other	Plunge pool was grey ish. Fecal results were high. No choke was found in sewer.	Minor Impact On Department Operation Or Structure	
11/14/2023 09:06 AM		Citizen	8500 Frontenac St	Petroleum (Oil | Fuel)	Oil	Ms4 - P-099-03	Spill | Slug Discharge	Spill To Ground Only	Complain of automotive fluids flowing into a stormwater inlet	No Impact On Department Operation Or Structure	
12/18/2023 12:58 PM		Other Pwd Department	Henry Ave & Wendover St			Ms4 - W-60-03	Spill | Slug Discharge	Overland To Inlet	Inlet has some staining on apron. Some chunky material was floating on trash. Cleaning not needed inlet apprears to be operating normally. Grease trap looks clean.	No Impact On Department Operation Or Structure	
01/05/2024 15:03 PM		Other Pwd Department	9301 Banes St	Sewage		Ms4 - P-105-06	Choke	Overland To Inlet	There was some rags in the nearby inlet. Looked like C-fold napkins. A sample was also taken of nearby flowing water. CL2 was 0.00	Major Impact - Caused Pass Through Or Interference	
01/10/2024 00:05 AM	01/10/2024 09:30 AM	Other	S 77Th St & Este Ave	Transformer Oil		Ms4 - M-005-03	Spill | Slug Discharge	Overland To Inlet	Very small area of oil in inlet. Most likely caused by runoff after the inlet was cleaned.	No Impact On Department Operation Or Structure	
02/08/2024 14:30 PM	02/12/2024 13:59 PM	Other	Conshohocken State Rd & Montgomery Ave	Sewage		Ms4 - S046-01	Spill | Slug Discharge	Spill To Ground Only	Unknown quantity of SSO spilled into an excavated area during a road construction project. [Lower Merion Township]	No Impact On Department Operation Or Structure	
02/15/2024 15:11 PM	02/15/2024 15:00 PM	Citizen	1011 W Upsal St	Rock Salt		Ms4 - W-68-04	Spill | Slug Discharge	Overland To Inlet	Outfall appeared norm. Salt was packed down into street.	No Impact On Department Operation Or Structure	
02/21/2024 13:33 PM	02/21/2024 20:00 PM	Other	7937-45 Bustleton Ave	Petroleum (Oil | Fuel)	Gasoline	Ms4 - P-090-02	Spill | Slug Discharge	Other	No odor or sheen observed in the storm. Downstream of Outfall P-90-02 was free of odor or sheen on 2/19/24.	No Impact On Department Operation Or Structure	
02/29/2024 10:00 AM	04/11/2024 10:56 AM	Other	1651 Grant Ave			Ms4 - P-105-06	Illegal Discharge | Dumping	Overland To Inlet	Uncovered rock salt pile leaching to nearby storm drain.	No Impact On Department Operation Or Structure	
03/01/2024 09:00 AM	04/11/2024 11:19 AM	Other	3100 Grant Ave	Sewage		Ms4 - Private	Discharge At Outfall	Direct To Receiving Stream	Private outfall behind Grant Meadows Apartments is discharging sewage.	Potential Illicit Discharge	
03/11/2024 17:15 PM	04/11/2024 11:33 AM	Other	4921 S Broad St	Chemical	Chemical Not Listed.	Ms4 - Pnbc-10	Spill | Slug Discharge	Drain To Sewer	No impact to Delaware river.	No Impact On Department Operation Or Structure	Plant manager report no impact to operation
03/22/2024 17:01 PM	03/22/2024 15:30 PM	Fire Communications	8500 Essington Ave	Petroleum (Oil | Fuel)	Jet Fuel	Ms4 - M-005-01, 02, 03, 04	Spill | Slug Discharge	Other	Mingo outfalls were discharging clear water at time of inspection. There was some sheen present but it was typcal to the outfall.	No Impact On Department Operation Or Structure	
04/18/2024 12:30 PM		Other	Southampton Rd & E Roosevelt Blvd	Water	Construction Site Run Off	Ms4 - Direct To Stream	Illegal Discharge | Dumping	Direct To Receiving Stream	Contractor is discharging to Byberry Creek.	Major Impact - Caused Npdes Violation	
04/19/2024 14:00 PM		Other City Department	Boone St & Roxborough Ave	Water	Potable	Ms4 - S-051-03	Other -	Other	Possible main break contributing high, chlorinated flow in storm sewer.	No Impact On Department Operation Or Structure	
05/25/2024 17:47 PM	05/25/2024 19:00 PM	Citizen	Lincoln Dr & Morris St	Sewage		Ms4 - W-068-05	Discharge At Outfall	Other	Outfall appeared normal, no sewage odor, no unusual solids	No Impact On Department Operation Or Structure	