

PHILADELPHIA'S WET WEATHER MANAGEMENT PROGRAMS

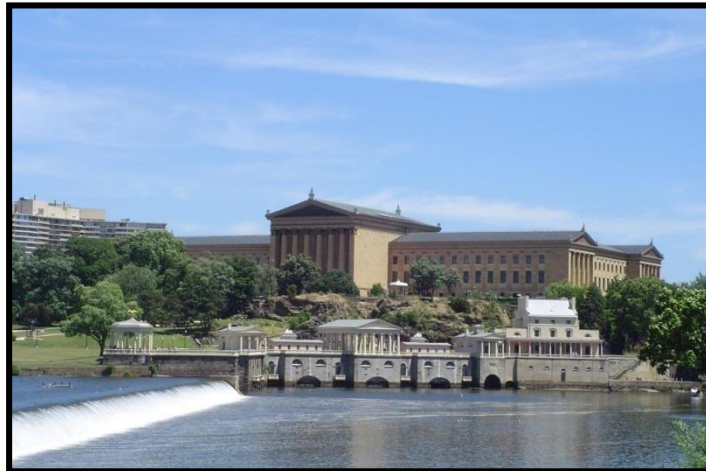
COMBINED SEWER MANAGEMENT PROGRAM ANNUAL REPORT

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 2015 to June 30th 2016



Submitted to:

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Water Quality Management

And

ENVIRONMENTAL PROTECTION AGENCY – REGION III
Water Protection Division

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List of Abbreviations

AMD	Acid Mine Drainages
BCWSA	Bucks County Water & Sewer Authority
BFE	Base Flood Elevation
BLS	Bureau of Laboratory Services
BMP	Best Management Practice
BOD	Biological Oxygen Demand
CAP	Credit Administration Program
CCD	Center City District
CCHL	Cobbs Creek High Level
CCR	Comprehensive Characterization Report
CCTV	Closed Circuit Television
CIP	Capital Improvement Project
CMP	Comprehensive Monitoring Plan
COA	Consent Order and Agreement
CPUE	Catch-Per-Unit Effort
CSO	Combined Sewer Overflow
CSPS	Central Schuylkill Pump Station
CVN	Code Violation Notice
DELCORA	Delaware County Regional Water Quality Control Authority
DMR	Discharge Monitoring Report
DRBC	Delaware River Basin Commission
DWO	Dry Weather Pipe
E&S	Erosion and Sedimentation
ECHO	Enforcement and Compliance History Online
EWS	Early Warning System
FPC	Fairmount Park Commission
FGM	Fluvial Geomorphology
FWW	Fairmount Water Works
FY	Fiscal year
GIS	Geographic Information System
GSI	Green Stormwater Infrastructure
H&H	Hydrology and Hydraulic
HHW	Household Hazardous Waste
HSI	Habitat Suitability Index
I/I	Inflow/Infiltration
ICE	Instream Comprehensive Evaluation
ICIS	Integrated Compliance Information System
ILF	In-lieu Fee
IPM	Integrated Pest Management
IWMP	Integrated Watershed Management Plan
IWU	Industrial Waste Unit
L&I	Licenses and Inspections
LID	Low Impact Development
LSWS	Lower Schuylkill West Side
LTCPU	Long Term Control Plan

MGD	Million Gallons per Day
MRP	Modified Regulator Plan
MS4	Municipal Separate Storm Sewer System
NE	Northeast
NEDD	Northeast Drainage District
NHL	National Hockey League
NMCs	Nine Minimum Controls
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSCD	Natural Stream Channel Design
O&M	Operations and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PAR	Photosynthetic Active Radiation
PCB	Polychlorinated Biphenyl
PCPC	Philadelphia City Planning Commission
PCSMP	Post Construction Stormwater Management Plan
PEC	Pennsylvania Environmental Council
PennDOT	Pennsylvania Department of Transportation
PESD	Planning and Environmental Services Division
PFD	Philadelphia Fire Department
PHL	Philadelphia International Airport
PHS	Pennsylvania Horticulture Society
PIDC	Philadelphia Industrial Development Corporation
PLEPC	Philadelphia Local emergency Planning Committee
PMBC	Philadelphia More Beautiful Committee
PMP	Pollutant Minimization Plan
POTW	Publicly Owned Treatment Works
PPR	Philadelphia Department of Parks and Recreations
PWD	Philadelphia Water Department
Q&A	Question and Answer
QA/QC	Quality Assurance/Quality Control
RBP	Rapid Bioassessment Protocol
RCP	River Conservation Plan
RTC	Real Time Control
SAN	Schuylkill Action Network
SAP	Sewer Assessment Program
SARA	Superfund Amendments and Reauthorization Act
SEPTA	Southeastern Pennsylvania Transportation Authority
SFR	Storm Flood Relief
SHC	System Hydraulic Characterization
SIU	Significant Industrial User
SMP	Stormwater Management Program
SOP	Standard Operating Protocol
SPILL	Sewage Pollution Incident and Location Log
SS	Sanitary Sewer
SSO	Sanitary Sewer Overflow
SW	Southwest
SWDD	Southwest Drainage District

SWEEP	Streets and Walkways Education and Enforcement Program
SWMM	Stormwater Management Model
SYTF	Scrap Yard Task Force
TBD	To Be Decided
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
TTF	Tookany/Tacony-Frankford
UCD	University City District
USACE	United States Army Corps Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Services
USGS	United States Geologic Survey
WMR	Watershed Mitigation Registry
WPAC	Watershed Planning Advisory Committee
WPCP	Water Pollution Control Plant
WQ	Water Quality
WRB	Water Revenue Bureau
WRT	Waterways Restoration Team

Combined Sewer Management Program Annual Report

**National Pollutant Discharge Elimination System (NPDES) Permits
Nos. PA0026689, PA0026662, PA0026671
Reporting Period July 1, 2015 to June 30, 2016**

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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, during Fiscal Year 2016 (FY16), which encompasses the time period of July 1st, 2015 through June 30th, 2016, to manage and reduce the combined sewer overflows (CSOs) permitted to discharge to waters of the Commonwealth of Pennsylvania.

II. Implementation of the Nine Minimum Controls

In the first phase of PWD's CSO strategy, and in accordance with its NPDES permits, the "CSO Documentation: Implementation of Nine Minimum Controls" was submitted to the Department on September 27, 1995. 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 on a daily basis. PWD utilizes the GIS coverages as the foundation for many of their operations including maintenance management, capital improvements, and hydraulic modeling. During FY16, GIS layers have continued to be 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). The SAP is used to guide the capital improvement program to ensure that the existing sewer systems are adequately maintained, rehabilitated, and reconstructed. The SAP is mainly conducted through PWD's Collector Systems Unit, although many other PWD units such as design and construction make requests to have CCTV inspections conducted on their projects before, during and after their project have been completed.

For the period of July 2015 – June 2016, the Collector Systems inspected 41.65 miles in length of sewer via CCTV, averaging about 3.47 miles a month as shown in **Table II.A.2-1 Monthly TV Inspections**.

Table II.A.2-1 Monthly TV Inspections

Date	Collector Systems (Miles Inspected)
Jul-15	3.70
Aug-15	3.33
Sep-15	2.49
Oct-15	4.00
Nov-15	3.33
Dec-15	3.95
Jan-16	2.81
Feb-16	3.43
Mar-16	3.43
Apr-16	2.94
May-16	4.53
Jun-16	3.71
Average	3.47
Total	41.65

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 continues to maintain 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 EPA SWMM 5 models will continue to be updated as needed to ensure they can best depict existing sewer system conditions.

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 and 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

FY16, the Collector System Monitoring Network is connected to over 320 sites at various locations including CSO Regulators, Rain Gauges, Pump Stations, Interceptors, Chemical Feed Tanks and Hydraulic Control Points which collect over 710 individual measurements with over an eighty percent operational status. All monitoring devices deployed throughout the PWD Collector 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 FY16, PWD monitored 102 sites for the purposes of model calibration, I/I identification and design support. 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 hydrologic and hydraulic models have been developed in support of the Long Term CSO 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 FY 2008 to support the LTCPU. Since 2008 EPA SWMM models have been converted to be executed using SWMM 5. PWD continues to update the EPA SWMM 5 models as needed to ensure they can best depict existing sewer system conditions.

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 III.B.2-1** on page 33.

Storm Flood Relief

Throughout its history, PWD has sustained a storm flood relief program to analyze and reduce property damage from flooding and basement backups. Aspects of this program include sewer system inspection and maintenance, property data collection, implementing individual property solutions when appropriate, and sewer system hydraulic and hydrologic (H&H) analysis to understand flood prone areas.

Flood Relief Project Summary

More recently, the focus of storm flood relief effort includes: South Philadelphia, Northern Liberties, Germantown, and Eastwick. The goal of these efforts has been 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. Through the Storm Flood Relief program, PWD continues to refine and optimize mitigation solutions to minimize negative impacts to the communities.

South Philadelphia

During FY16, PWD decided that future capital planning efforts would be dedicated to a smaller number of sewersheds where Cost-Benefit analysis has demonstrated higher potential for structural mitigation due to multiple identified constraints related to the feasibility of a holistic structural solution.

Northern Liberties

SFR sewer projects continue to move forward for Northern Liberties which also impact combined sewer neighborhoods in Fishtown, Port Richmond and Lower Kensington. **Table II.B.3-1** demonstrates the status of the Northern Liberties SFR program:

Table II.B.3-1 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	Under Construction
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.	Under Construction
Northern Liberties Phase 5	Germantown Ave. from Wildey St. to Girard Ave.	Design Complete
Northern Liberties Phase 6	Germantown Ave. & Thompson St. to Master & Randolph Sts.	In Design

Germantown

The East Germantown section of Philadelphia was impacted by flooding from intense rainstorms, such as Hurricane Irene (8/27/11) and Tropical Storm Lee (9/7/11). PWD’s SWMM model was expanded for greater accuracy and many preliminary solution options are currently under review and planning. In order to effectively identify flood mitigation alternatives, both qualitative and quantitative criteria will be evaluated in greater detail. During FY16, PWD completed the alternatives identification phase of our capital planning process. To complete the alternatives analysis and recommendation phase, an RFP was advertised and a qualified vendor was selected

Eastwick

Despite a formal support letter for the Eastwick Flood Evaluation from Congressman Brady in 2015, no work was completed in FY16 because federal funds were not appropriated through the 205 program.

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 FY 2010 Annual Report. For details regarding the current operational statuses of the City's Tacony Creek Park computer controlled CSO regulator (T-14) and Rock Run Relief CSO regulator (R-15) see **Section II.B.5** below.

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

Main Relief

The Main Relief Inflatable Dam storage project was completed in May of 2007. Following a major storm in October of 2011, the inflatable dam became torn limiting its effectiveness. The inflatable dam product was no longer supported by the manufacturer and was therefore eliminated at the location. In its place, a 7.5-foot static dam currently exists as the volume storage and overflow control. With the current configuration, this relief system is designed to achieve an overflow reduction of approximately 30 MG annually. During FY16, flexible flap tide gates were installed, tested and repaired. While still experiencing some leakage, the gates do prevent tidal inflow from overtopping the static dam preventing inflow entering the collection system at this location.

Construction and Implementation of Tacony Creek Park (T-14)

The T-14 storage sewer system is currently operating under automated real time control and storing wastewater during wet weather events. As of January 2016, T-14 is operating at the full design capacity.

Construction and Implementation of 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 a majority of wet weather events. As of January 2016, the Rock Run storage facility is operating under automated real time controls at the full design capacity.

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 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's Industrial Waste Unit (IWU) currently regulates 126 SIUs that discharge to the sanitary system. During FY16, only 116 SIU inspections were conducted, and the remainder of the 126 SIUs were inspected during FY 2015. IWU conducts SIU program and inspections on a calendar year cycle.

IWU also maintains a website to inform the public and industries of permitting regulations, requirements and other information that may benefit or impact industrial users. The IWU website is located at the following web address: <http://www.phila.gov/water/IWU.html>.

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

A revised version of the Philadelphia Stormwater Management Guidance Manual was released on July 1, 2015 as a web-based resource. The manual assists developers in meeting the requirements of the Stormwater Regulations, and can be updated when necessary to incorporate new information. The current version of the manual is available at <http://www.pwdplanreview.org/manual-info/guidance-manual>.

Please refer to the MS4 Annual Report Section F.5.g - Stormwater BMP Handbook and Construction Site BMP Sediment & Erosion Control Checklist 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

During FY16, the SYTF held 10 meetings and inspected 43 facilities. Violation notices of varying types from different agencies were issued to several sites, mainly consisting of minor L&I infractions such as improper labeling. The large majority of sites inspected in FY16 were in compliance with Clean Water and Stormwater regulations. Several sites were discovered to be no longer active scrapyards or automotive recycle facilities, but the SYTF team will continue to monitor these sites as these areas often reestablish as new scrapyards as they change hands. Two sites were further investigated by PWD's Industrial Waste Unit for potential discharges into the department infrastructure. One site was turned over to the PADEP's Clean Water Division for potential direct discharges to adjacent waterway. The second site was determined to have no impact on the PWD sewer system. During FY16, the SYTF team coordinated with the Philadelphia Health Department to report sites with significant improperly stored tires which can be a fire hazard and breeding ground for mosquitos from standing water in tires, especially given the concerns with the Zika virus. The SYTF team also coordinated with Philadelphia County Councilman Mark Squilla to strengthen existing scrapyard facility regulations, which are currently under review for approval.

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 WPCPs more frequently and enable greater pollutant removals. The projected flow increase associated with the MRP was completely 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://phillywatersheds.org/doc/Updated%20NMC%20Report.pdf>

Maximization of Wet Weather Treatment in the LTCPU

Facility Concept Plans for each of the WPCPs were developed and submitted to PADEP and the US EPA on June 1, 2013. The Facility Concept Plans describe specific engineering and construction activities proposed to increase the maximum wet weather flow rates to or through the plants, thereby increasing the capture rate of combined sewage. The Northeast Facility Concept Plan (NE FCP) was revised based on comments from PADEP and re-submitted on December 31, 2013. PWD completed and submitted a comprehensive Wet Weather Facility Plan on June 1, 2016, which provides details including schedule, cost and anticipated performance for each project presented in and supersedes the FCPs. More details on these plans can be accessed at the following link:

http://phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan

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. In FY16, there were no significant updates to the Wholesale Wastewater Customer contracts. The list of outlying community contracts can be found below in **Table II.D.2-1: Listing of Wholesale Wastewater Customer Contracts and Capacities.**

Table II.D.2-1 Listing of Wholesale Wastewater Customer Contracts and Capacities

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712
FY16 Combined Sewer and Stormwater Annual Reports

Customers	Average Annual Daily Flow Maximum (MGD)	Maximum Daily Flow (MGD)	Instantaneous Maximum Rate (Cubic ft./sec)	Maximum Annual BOD Loadings (000's lbs.)	Maximum Annual SS Loadings (000's lbs.)
Northeast Plant					
Abington		4.45	9.54	2,102	2,481
Bensalem	6.13		11.74	5,340	3,734
Bucks	21.33	33.00	74.26	13,400	13,400
Cheltenham			26		
Lower Moreland	1.90	2.85	5.88	729	966
Lower Southampton	7.14	9.28	15.79	5,500	6,000
Southwest Plant					
DELCORA	50.00	75.00	155.00	21,771	19,487
Lower Merion	14.50		31.57	6,871	7,250
Springfield (Erdenheim)	3.20		6.65	3100	3300
Upper Darby	17.00		35.00	6,831	7,348
Southeast Plant					
Springfield (Wyndmoor)	1.00		1.93	300	400

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

The U.S. EPA's SWMM was used to develop the watershed-scale model for the combined and separate 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 flow monitors are installed at 110 connections and 1 connection is unmonitored at this time. **Appendix B – Flow Monitoring: Table 2** contains the list of all known connections, their location and whether the connection is permanently monitored.

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

I.I.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 a remote monitoring network system daily 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. Annual summaries of the comprehensive and preventative maintenance activities completed in the combined sewer system over the past year are detailed in **Appendix D -FY2016 NPDES Annual CSO Status Report** and any changes are discussed below.

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 FY16, Flow Control crews completed 6,003 inspections on 201 CSO regulator sites and storm relief diversion chambers. The crews cleared 198 CSO regulator blockages to prevent possible discharges from developing. There were 20 dry weather discharges during this fiscal year. Details of the inspections during the past fiscal year can be found beginning on page 11 of **Appendix C – 2016 CSO Maintenance Program Annual Report**.

Tide Gate Inspection and Maintenance Program

Eighty-nine (89) 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 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 FY16, CSO tide gate preventative maintenance was completed at three of the tidally-affected CSO regulator sites. Summaries of the tide gate inspection and maintenance completed during the past fiscal year are on page 22 of **Appendix C – 2016 CSO Maintenance Program Annual Report**, which documents the locations of tide gate preventative maintenance performed in FY16.

Somerset Grit Chamber Cleaning

During FY14, the Somerset grit chamber was removed from service because the upstream regulator was being relocated. This relocation project was completed during FY16. A plan to evaluate the grit accumulation patterns in the Somerset intercepting sewer has been put into place to determine the necessity of a new grit chamber. During FY16 grit level surveys and sonar inspection of the downstream intercepting sewer were conducted as part of grit evaluation plan.

Central Schuylkill Pumping Station Grit Pocket Cleaning

During FY16, the two grit pockets at the CSPA siphon were cleaned four times, and a total of 80 cubic yards of grit with an approximate weight of 133 tons were removed to ensure proper functionality of the site. Additional information on the CSPA cleaning activities conducted in FY16 is available on page 22 of **Appendix C – FY16 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 is responsible for inspecting and cleaning approximately 72,000 active stormwater inlets within the City. There are thirty-three 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. Other duties include inspection of inlet conditions and referral of structural defects to the Sewer Maintenance Unit for repair to ensure proper function. Furthermore, dedicated 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 FY16, PWD performed 129,218 inlet inspections and cleaned 98,147 inlets. The average amount of debris removed from each cleaned inlet was 192 pounds. Inlet inspection and cleaning frequencies have significantly increased since the implementation of the Work Order Management system, Cityworks. Additional statistics and information pertaining to Inlet Cleaning from FY16 can be found in **Table II.F.1-1**.

Table II.F.1-1: Inlet Cleaning Statistics

	FY16
Total Inlet Inspections	129,218
Total Inlets Cleaned	98,147
Total Covers Replaced	64*
Total Covers Retrieved	23*
Total Covers Chained	6,180
Debris Removed (tons)	9,407
Avg. Lbs./ Inlet	192

* The number of inlet covers replaced and retrieved has reduced significantly following PWD's increased focus on chaining and locking inlet covers.

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 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.

In FY16, WRT conducted 378 stream examinations and removed a total of 1130 tons of debris from the City’s waterways (**Table II.F.2-1**). Of the total debris removed, a majority 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 II.F.2-1 Waterways Restoration Team – Annual Activity Summary FY 2008-2015

Activity	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY16
Total Tons Removed	326	657	1438	750	741	1416	710	918	1130
Cars Removed	80	15	12	11	14	4	4	9	2
Tires Removed	861	924	1062	1392	1256	4756	1428	427	1069
Shopping Carts Removed	72	268	102	89	50	27	20	67	38
# of Stream Site Cleanups	178	375	335	459	434	467	686	645	721
# of Stream Site Exams	*	*	*	*	*	*	438	369	378

*This metric was not available until FY2014

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

The skimming vessel is used as a control measure, capable of managing debris at various locations in open water after the debris and floatables have bypassed static control methods (e.g., debris screens). Also, these traditionally large vessels provide increased public awareness and education of floatables impacts to Philadelphia receiving waterways. The PWD currently has three (3) skimming vessels; a large marine vessel, the R.E. Roy, a smaller pontoon vessel, and a small general workboat.

Large Floatables Skimming Vessel – R.E. Roy

The 39-foot skimmer vessel is operated for approximately five days per week, for about 7 months out of the year, or more as appropriate conditions allows (i.e. weather). The vessel’s main purpose is to perform general debris collection and removal on both these rivers, while also serving as a mechanism for public relations events. During the 160 days of on-water operation in FY16, a total of 16 tons (250 cubic yards) of debris and floatables material were removed from the Delaware and Schuylkill Rivers (**Table II.F.3-1**). Also during the FY16 season, the R.E. Roy continued sorting and separating recyclable material, which equated to 63 cubic yards or approximately 6,854 lbs. This recycling procedure on the R.E. Roy was significantly optimized during FY16 resulting in a nearly 4-fold improvement in amount collected in comparison to the previous year (**Figure II.F.3-1**). In addition, the R.E. Roy initiated a partnership with Bridgestone through their Tires4Ward Program to recycle the tires collected from skimming operations to be reused for rubberized asphalt, construction materials, landscaping mulch, consumer products and as tire-derived fuel for energy. At the end of the reporting period, the R.E. Roy has recycled 79 tires through the Bridgestone Tires4Ward Program.

Table II.F.3-1 Debris Collected and Days of Operation by R.E. Roy Skimming Vessel

Date	Total Tons Removed*	Cubic Yards Collected	Recyclables Collected (lbs.)	Days in Operation	Days on Schuylkill	Days on Delaware
July 2015	2.28	40	518	22	11	11
August 2015	0.19	20	384	16	8	8
September 2015	2.08	25	768	19	13	6
October 2015	2.42	35	768	19	13	6
November 2015	2.54	30	928	18	14	4
December 2015	1.40	10	352	10	2	8
January 2016	RE Roy Out of Service (Dry-docked & Winterized) for Winter Season					
February 2016						
March 2016						
April 2016	0.50	40	992	15	10	5
May 2016	2.50	30	1216	20	11	9
June 2016	2.11	20	928	21	15	6
FY16 Total	16.0	250 yd³	6854 lbs.	160 days	97 days	63 days

* *Tons removed* is not a monthly metric and is only calculated when floatables/debris are removed from the shipyard and transported to the weigh station at the trash collection facility.

Small Skimming Vessels

PWD also operates and maintains a small pontoon skimming vessel and recently added a small general workboat that are used along the Schuylkill and Delaware River within Philadelphia to retrieve floating trash and debris from the waterways. The smaller skimming vessels are effective because they can be utilized in tight spaces found in marinas, among piers, and in near shore (shallow) areas. With the addition of the general workboat in May 2016, PWD has begun to deploy skimming operations and other activities in the tidal portions of the Delaware and Schuylkill rivers, specifically in areas not desirable or accessible by PWD’s other skimming vessels. In both vessels, the marine flotsam and floatables are hand netted from the water surface by employees standing on the vessel deck. The nets are emptied into ten 44-gallon debris containers on the deck and the containers are then offloaded.

In FY16, the small skimming vessels were operational from July – October 2015 and April- June 2016, equating to 35 deployments which is over 2x the number of deployments as the previous year (**Figure II.F.3-2**). During this period, the small skimming vessels removed a total of 30.1 cubic yards of material, comprised of 14.2 cubic yards of recyclable material including bottles, plastic, paper; 15.9 cubic yards of mixed trash and 20 tires (**Table II.F.3-2**). The small skimming vessel was in active operation for a total of 148 hours in FY2016, which equated to an operational cost of \$25,143 including labor cost, overhead and vessel usage approximations (e.g., gas, preventative maintenance, etc.).

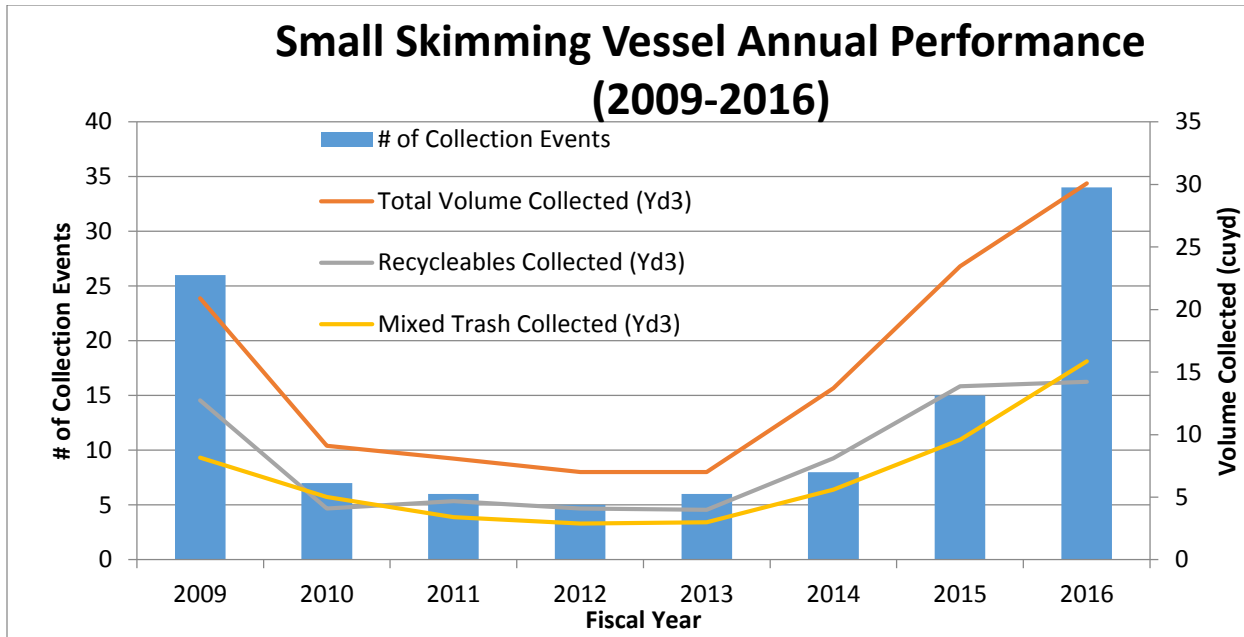


Figure II.F.3-1 Small Skimming Vessel Annual Performance (2009-2016)

Table II.F.3-2 FY2016 Small Skimming Vessel Collection Metrics

Date	# of Collections Events	Total Volume Collected (gal)	Total Weight Collected (lbs.)	Total Volume of Recyclables (gal)	Total Volume of Mixed Trash (gal)	Tires Collected
July 2015	6	1000.8	683.5	561.5	439.3	4
August 2015	5	1063	1108.6	535	528	2
September 2015	5	1134	1802.1	550	584	3
October 2015	5	760	813.4	408	352	7
November 2015	Skimming Vessel Dry-Docked for Winterization Period					
December 2015						
January 2016						
February 2016						
March 2016						
April 2016	4	522	697.2	225	297	0
May 2016	6	1112	1980.9	396	716	3
June 2016*	3	484	378.6	198	286	1
Total	35	6,075.8	7,464.3	2,873.5	3,202.3	20 Tires
Total Yd³/Tons	35 Events	30.1 Yds ³	3.7 tons	14.2 Yds ³	15.9 Yds ³	~420 lbs.

* Mechanical failures in June 2016 resulted to decreased effort during that month

II.F.4 Other Initiatives

Repair, Rehabilitation, and Expansion of Outfall Debris Grills

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. During FY16, 1 new debris grill was added to the outfall of the C-11 CSO regulator and 2 debris grill maintenance events were completed. The list of the debris grill preventative maintenance activities is available on page 22 of **Appendix C – 2016 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 FY16 for the *Green City, Clean Waters* program has been provided in **Section 6.0 - Public Outreach and Participation** starting on page 33 of **Appendix A – Green City, Clean Waters FY16 Annual Report** and **Section II.G.3 Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications** on page 19 of this report.

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

Phillywatersheds.org

Phillywatersheds.org is an important website which acts as a hub for all watershed-based programs and partnership information. The website provides information to the public on issues that are currently problematic for the City's watersheds, what PWD is doing to address these issues, and what residents of Philadelphia can do to help improve watershed health. It also includes educational tools, public meeting materials, maps and reports generated by PWD or partners. Daily activity on the site has increased compared to the previous year, according to Google Analytics, from 170,221 visitors in FY15 to 185,874 in FY16.

The website features interactive mapping for green stormwater infrastructure projects, traditional infrastructure projects, waterways restoration projects, and community partnership projects. There are also maps for each of the seven major watersheds within Philadelphia. One of the main uses of the mapping system is the Combined Sewer Overflow Public Notification System, known as CSOcast. CSOcast shows CSO outfall overflow information retrieved from PWD's sewer monitoring network. More information on CSOcast is described in further detail in **Section II.H.2** of this report on page 25.

The website also hosts information for various PWD initiatives and programs related to Green Stormwater Infrastructure (GSI). The pages for the Soak it Up GSI Adoption Program, for example, allow

Registered Community Organizations (RCO) to check if their organization is eligible to participate, complete the program applications, and schedule training. Additionally, once groups are active in the program they can report issues and log their adoption activities.

Watersheds Blog

The website continues to host a blog that is updated regularly with posts on a wide variety of topics including current programs and events, relevant partner initiatives, and programs that support GSI, the City's waterways, parks and the urban landscape. During FY16, there were 134 posts and the blog was viewed at least 5308 times. This number does not fully represent the blog's reach as it does not account for the number of views and shares across platforms such as Facebook and Twitter.

RiverCast

Philly RiverCast (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 Schuylkill River 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. Ultimately, RiverCast will help ensure continued safe recreational use of the Schuylkill River, while promoting public awareness of water quality concerns and indirectly engaging support for source water protection measures. More than 875,000 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 real water quality improvement in the Schuylkill River watershed. The SAN is organized into a number of 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 others groups throughout the 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 ultimate goal is to prevent or maximize reduction of stormwater runoff pollution. During its 13 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 the last calendar year are documented in the following table (**Table II.G.2-1**):

Table II.G.2-1: 2016 Schuylkill Action Network Project Progress

Agriculture	Abandoned Mine Drainage (AMD)	Stormwater
<ul style="list-style-type: none"> • Developed 56 conservation plans for 2,184 acres in Berks County • Hosted five outreach workshops for farmers teaching them what they can do on their farms to promote stream health • Received over \$1.5 million from the Natural Resource Conservation Service to fund farm projects • Implemented 12 Comprehensive Nutrient Management Plans • Constructed 12 manure storage facilities • Completed 10 barnyard repairs completed • Installed 2 stream crossings 	<ul style="list-style-type: none"> • Installed an interpretive trail at one existing AMD treatment system • Continued to improve water quality at four treatment system sites 	<ul style="list-style-type: none"> • Hosted a tour of stormwater projects in the watershed • Received funding for 3 schools in the watershed to manage stormwater on their campuses by installing rain gardens, and planting meadows, riparian buffers, and trees • Completed 3 land transaction assistant projects, preserving over 160 acres of high priority watershed protection land

In order to communicate to SAN stakeholders, the accomplishments of the SAN Stormwater workgroup, as well as other workgroups in the partnership, the SAN routinely updates their website with input from PWD, the SAN Planning Committee and Education and Outreach workgroup. The website, www.schuylkillwaters.org, includes an internal component that allows for improved communication among SAN workgroup members and facilitates on-the-ground work. The SAN website, together with Phillywatersheds.org, provides 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 monitoring network is comprised of nearly 90 online water quality data stations throughout the watershed. Access to this real-time data allows EWS users to identify changes in water quality associated with both natural and accidental contamination events. The user can also access historical data from these stations with the data query wizard. 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 3 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.

During FY16, a total of 20 unique water quality events were reported to the EWS. Additional outreach events throughout FY16 expanded the EWS user base, which is currently comprised of more than 300 individual users from 50 organizations.

Other PWD Related Websites and Social Media

PWD Main Web Site

www.phila.gov/water

The official website for PWD continued to be improved to provide more user friendly and comprehensive resources relating to the CSO LTCPU to help our average customer understand the importance of stormwater management. The page at www.phila.gov/water/wu/stormwater clocked over 25,000 active visitors during FY16, and visitors spent an average of one and a half (1.5) minutes on the page, with many going on to visit other pages on both the phila.gov/water and phillywatersheds.org websites.

The stormwater parcel viewer (www.phila.gov/water/swmap) continues to be one of the most visited stormwater resources. There were over 16,000 unique users of the application over 85,000 sessions in FY16. This map based application shows the stormwater charges for every property in Philadelphia and links to helpful documents and forms regarding the stormwater fees. Customers are encouraged to explore and get more information about their stormwater charges and about PWD's Appeals, Credits or Credit Assistance Program (CAP). This information can help property owners reduce the amount of storm water entering the sewer system and lower their stormwater bill. For more information on the stormwater billing program please refer to **Section III.C.1.5 – Parcel-based Stormwater Billing** on page 35.

Development Review Program Website

In July 2015, PWD released a redeveloped website (www.PWDPlanReview.org) to promote user-friendly resources, a streamlined project initiation form and to provide access to critical implementation tools, most notably a revised Philadelphia Stormwater Management Guidance Manual. The updated website

was designed to be responsive across multiple devices, allowing for full functionality and optimized display.

In addition to the manual, a significant focus of the redesign was the implementation of a “smart” project initiation form, which leverages regulatory logic to streamline data inputs for applicants. As a result, users can clearly identify required fields and plan submissions based on the regulatory characteristics of their project. In order to facilitate the tracking of application submissions and review statuses for applications, user log-in functionality was incorporated into the design. This new feature allows users to work on several new applications while also checking the review statuses of project submissions. 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 Storm Water from Construction Activities on page 26.

PWD Department on Social Media

Social Media has become an essential tool for disseminating departmental messaging about stormwater management, pollution prevention and programs, which improves the City’s water resources. Additionally, social media has expanded the reach of partner programming and strengthened PWD’s connections with other institutions around the City. The sections below describe the City’s social media:

Facebook

PWD maintains two Facebook pages to keep residents informed on any news and events at or hosted by the Water Department. These pages can be accessed at: <http://www.facebook.com/PhillyH2O> and <http://www.facebook.com/phillywatersheds>.

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/28309557520>. Between these three Facebook pages, the department reaches over 3300 fans.

Twitter

Twitter is a valuable communications channel for resolving customer complaints, providing customer information, and delivering news concerning the Department, education and water in general. Both PWD and the FWW have Twitter accounts and their feeds can be found at: <https://twitter.com/PhillyH2O> and <http://www.twitter.com/FairmountWW> and one can follow the accounts at @PhillyH2O and @FairmountWW. The @PhillyH2O account activity has again increased, averaging 96 tweets per month, up from 75 tweets per month in FY15. In addition, @PhillyH2O now has 5741 followers, up from 3876 in 2015. Including the @FairmountWW followers, PWD has over 7700 followers.

PWD Department Videos

PWD hosts videos on Vimeo and YouTube which provide information and news on its programs and vision for Philadelphia. The videos can be accessed at the following links:

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

Between the two platforms, the videos have been viewed over 7000 times between July 1, 2015 and June 30, 2016. This is up from 5000 views in FY15.

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 FY16:

Billstuffers

Be Sure Before You Open the Door – August 2015

The PWD Department collaborated with PECO, PGW and the Police Department to create a billstuffer that provides Philadelphia residents with safety tips to use for people that try to gain illegal access to their home.

1815 – 2015 Fairmount Water Works Celebrates 200 Years of History! – September 2015

A billstuffer was distributed to celebrate the Fairmount Water Works' 200-year history, from 1815 – 2015, and also highlighted the Center's current educational programs.

What you need to know when there's a water emergency – November 2015

A billstuffer was distributed that provided customers with information about their responsibilities with regard to their home's plumbing system as well as how PWD responds to water emergencies.

Act Now to Prevent Frozen Pipes – December 2015

A billstuffer was distributed that provided tips for customers to prevent frozen pipes and steps to take in case their pipes were already frozen.

Keep your water service flowing! – March 2016

A billstuffer was distributed to alert customers that the moratorium (or suspension) for water shutoffs ends on April 1, 2016; the different methods of payment, locations of approved WRB payment centers and customer's rights and responsibilities as water customers.

Art in the Open – April 13 – May 13, 2016

A billstuffer was distributed to highlight featured artists and their relationships with the Schuylkill River, one of the sources of Philadelphia's drinking water.

Help Make PWD Better! – June 2016

A billstuffer was distributed to get feedback from Philadelphia residents on PWD and the services it provides.

Publications

2016 Water Quality Report (with 2015 Data) – April 2016

Annual consumer confidence report mandated by the federal Safe Drinking Water Act to be published each year to PWD wholesale and retail account customers, and other consumers of the city's water.

PWD now makes this report available electronically at www.phila.gov/2016waterquality.

Media Advisories

August 3, 2015 – High School Students Recognized for Completion of green Stormwater Infrastructure and WorkReady Training at the Overbrook Environmental Education Center

October 5, 2015 – Heston Lot and Baker Playground Ground Breaking, Organizations Working Together to Transform Philadelphia – One Neighborhood at a Time!

October 7, 2015 – Living Wall Ribbon Cutting, Stunning Green Infrastructure is Showcased in a “Solar-Powered Billboard”

October 21, 2015 – Philly “Chooses to Reuse” with Free Reusable Water Bottle Giveaway, City of Philadelphia Partners with Head of the Schuylkill Regatta to Battle Bottles on (and in!) the Schuylkill River

November 17, 2015 – City of Philadelphia Names South Philadelphia Business a Stormwater Pioneer, Co-owner of Popi's Italian Restaurant Honored for Innovation in Stormwater Management

May 18, 2016 – Fill Up Here Philly! City of Philadelphia Partners with 90th Stotesbury Cup Regatta to Unveil New, Eye-Catching Public Water Stations on Kelly Drive

Press releases

July 1, 2015 – PWD Wins Water Research Foundation's 2015 Outstanding Award for Applied Research, Honorees were Recognized for Significant Contributions to Water Research at ACE15

October 2, 2015 – PWD Partnership Transforms Vacant Lot into Green Stormwater Tool

October 6, 2015 – PWD Joins Imagine a Day Without Water, National Effort to Raise Awareness and Educate the Public about Challenges Facing Water Infrastructure and Water Resources, and Need for Investment

October 8, 2015 – Living Wall: A Billboard for Green Tools, PWD and NPS Partnership

October 20, 2015 – PWD and Head of the Schuylkill Regatta Take on Plastic Bottle Litter

November 17, 2015 – The Fairmount Water Works’ “Schuylkill Soundings” Presents: City in a Park, A History of Philadelphia’s Fairmount Park System

November 19, 2015 – PWD Supports Water Affordability Legislation, Conservation Education for Low-Income Customers

January 5, 2016 – Mayor Kenney Names McCarty to Lead PWD

January 13, 2016 – PWD Requests Rate Change to Replace Water Mains, Sewers, Aging Infrastructure

February 17, 2016 – PWD Joins Water Rate Board to Host Five Public Input Hearings on Requested 2016 Rate Change

March 29, 2016 – PWD and Water Rate Board Announce Public Input Hearing in City Council Chambers on Requested 2016 Rate Change

April 7, 2016 – Army Corps & PWD Department to hold public meeting on proposed Cobbs Creek dam removal

May 9, 2016 – Art in the Open Philadelphia “Family Day” Features Free Activities for All Ages & Highlights Philadelphia’s Schuylkill River and Urban Environment.

May 19, 2016 – PWD and Stotesbury Cup Regatta Take on Plastic Bottle Litter

June 6, 2016 – PWD Challenge Seeks Innovative Approach to Streamlining Green Infrastructure Projects

June 21, 2016 – City of Philadelphia Exceeds Five Year Targets for Green Infrastructure Investments, Pollution Reduction

Events

Imagine a Day Without Water

October 6 – 8, 2015 - PWD participated in the national advocacy and educational event, *Imagine a Day Without Water*, where almost all of Philadelphia’s City Council members signed a Resolution to be sent to Congress. In addition, former Water Commissioner Howard Neukrug and former Philadelphia Mayor and Building America’s Future Co-Chair Edward G. Rendell penned an op-ed that appeared in the Philadelphia Inquirer to bring the need for federal water infrastructure investment to the forefront. PWD also participated in a social media “thunder-clap”, where all participating agencies sent out *Imagine a Day Without Water* social media posts at the same time.

[Heston Lot and Baker Playground Ground Breaking](#)

October 7, 2015 - As part of the city's *Green City, Clean Waters Program*, the PWD Department teamed up with Councilman Jones' office, Philadelphia Parks & Recreation, the Department of Public Property, the Philadelphia City Mural Arts Program and the Pennsylvania Horticultural Society to transform its first vacant land site and held a groundbreaking ceremony.

[Living Wall Ribbon Cutting](#)

October 9, 2015 – DEP Southeast Regional Office Director, Cosmo Servidio, the National Park Service, St. Mary's Elementary School students and PWD held a ribbon cutting ceremony to unveil a breathtaking new "living wall" installation at 3rd and Walnut Streets that will manage stormwater and inspire others to use innovative green tools.

["Philly Chooses to Reuse on the Schuylkill", Reusable Bottle Giveaway Project](#)

October 23, 2015 - Mayor Michael Nutter, Councilman Curtis Jones Jr., Deputy Mayor Michael DiBerardinis and PWD joined the Head of the Schuylkill Regatta and the Schuylkill Navy in an event to give away more than 12,000 reusable water bottles, with the goal of inspiring the rowing community—and all Philadelphians—to drop wasteful, disposable bottles once and for all. PWD also announced the installation of four new, eye-catching water bottle refilling stations/water fountains along Kelly Drive that is scheduled to occur in the spring of 2016.

[City of Philadelphia Names a Stormwater Pioneer- Popi's Italian Restaurant](#)

November 17, 2015 – Mayor Nutter, Councilman Kenyatta Johnson and the PWD Department honored South Philadelphia's own Popi's Italian Restaurant – a local landmark since its establishment in 1993 – as the City's second Stormwater Pioneer for innovation in reducing stormwater runoff. Gina Rucci, co-owner of Popi's, received over \$90,000 in grant money from PWD to install two rain gardens that beautify the neighborhood and protect the environment by keeping polluted runoff out of city sewers.

[Public Input Hearings on PWD's Requested 2016 Rate Change](#)

February – April, 2016 - The PWD and the Rate Board held six Public Input Hearings in February, March and April, 2016 on a requested rate change, spread over a two-year period beginning in July, 2016. The Hearings were held at the following locations to allow customers to share their opinion of their proposed rate increase and offer testimony for the record:

1. February 23, 2016 - White Rock Baptist Church
2. February 24, 2016 - The Philadelphia Protestant Home
3. March 1, 2016 – Central Library, Room 108
4. March 2, 2016 – Roxborough Memorial Hospital
5. March 3, 2016 – YMCA North Philadelphia, Studio #1
6. April 7, 2016 – City Council Chambers

[Fill Up Here Philly! New Water Stations Ribbon Cutting](#)

May 20, 2016 – Managing Director Michael DiBerardinis, Parks & Recreation, the Schuylkill Navy and the River Stewards Committee joined PWD’s Commissioner, Water Woman and Spokesdog “Shorty” in a ribbon-cutting to unveil four, new eye-catching public water stations on Kelly Drive.

[Five Down, 20 to Go! Green City, Clean Waters Celebrates 5 Years!](#)

June 16, 2016 - Joined by community partners, industry experts and state and federal regulators at the historic Fairmount Water Works, officials from PWD held a celebration to mark the Plan’s five-year anniversary and unveiled figures showing that the City had met the 5 year WQBEL targets established in June 2011.

[Videos](#)

July and August 2015 – PWD’s Public Affairs Division worked with our Bureau of Laboratory Services to produce two videos to recruit scientists and engineers for employment with PWD.

[Advertisements](#)

- Paid advertisements were placed in the following newspapers to alert customers of the PWD Rate Board’s Rate Increase Public Hearing Schedule:
 1. Philadelphia Inquirer and Daily News – February 18, 2016
 2. El Sol – February 18, 2016
 3. Philadelphia Tribune – February 19, 2016
 4. Philadelphia Metro – February 19, 2016

- Paid advertisements were placed in the following newspapers to alert customers of the PWD Rate Board’s Additional City Council Public Hearing:
 1. Philadelphia Inquirer and Daily News – March 31, 2016
 2. El Sol – March 31, 2016
 3. Philadelphia Tribune – April 1, 2016
 4. Philadelphia Metro - April 1, 2016

- A paid advertisement was placed in the Water Resources Association’s Awards Program highlighting the milestones of the first five years of *Green City, Clean Waters*. – April, 2016

- Paid advertisements were placed in the following newspapers to alert the public that the 2016 Water Quality Report (featuring 2015 tap water quality results) was available electronically at www.phila.gov/2016waterquality:
The Philadelphia Inquirer – April 28, 2016
The Philadelphia Daily News – April 28, 2016

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

As detailed in **Table II.G.4-1**, during FY16, more than 31,000 visitors attended the Fairmount Water Works which consisted of general visitors, school groups, community groups, and attendees for special exhibits, visiting authors and lecturers. An additional 3,000 adults and children were reached as part of the center's outreach efforts.

Table II.G.4-1 Fairmount Water Works – Education Center Attendance

Types of Attendance	Number Attended
General FWW Visitors	15,414
School Groups, Camps and Recreational Center	9,054
Tours	2,311
Special Events	2,320
Outreach Efforts	2,778
FY16 Total Visitors	31,877

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 develop 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

The CSO signage project was initiated to inform the public of the potential hazards of contact with the stream during combined sewer overflow events. The signs, placed at outfalls that are accessible by the public, let people know that during wet weather it is possible for polluted water to flow from the outfall and it would be hazardous to their health to contact the water during such events. They also request that PWD is informed of any overflows during dry weather and provide an emergency contact number.

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 – Pollution Prevention** on page 14.

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 in order to deliver the best information possible to the public. During FY16, CSOcast reported on the 164 CSO outfalls twice a day. The CSOcast notification system can be accessed through:

http://www.phillywatersheds.org/what_were_doing/documents_and_data/live_data/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 CSO Annual Report, combined with the Stormwater Annual Report, will be submitted in September of each year, documenting the previous fiscal year activities.

III Implementation of the LTCP

Table III.-1: 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

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712
 FY16 Combined Sewer and Stormwater Annual Reports

Project	Status
Cobbs Creek Low Level Conveyance Improvements	Complete
Cobbs Creek Low Level Control Project	Complete
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: <http://www.phillywatersheds.org/ltcpu>.

An amended Consent Order & Agreement was signed by PWD and PADEP on June 1, 2011, amending *the Green City, Clean Waters* Program. For details on these amendments, please refer to Section III.A CSO LTCPU Update – Report on the Progress of the LTCP Update on page 82 of the CSO-Stormwater FY 2011 Annual Report. Please refer to **Appendix A – Green City, Clean Waters FY16 Annual Report** for an update on implementation progress.

III.B Capital Improvement Projects

III.B.1 On-going Capital Improvement Projects

Please see **Table III.B.1-1** – Status updates for On-going Capital Improvement Projects on page 27.

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 33.

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 FY16 maintenance of monitoring network please refer to page XX of this 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 FY 2012 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 FY 2012 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 FY 2010 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.	A Wet Weather Facility plan was submitted on June 1, 2016 which supersedes the FCP. These plans are available on-line through the following website: http://phillywatersheds.org/what_were_doing/documents_and_data/cso_long_term_control_plan
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.
Report to the DEP the Status of these Projects in the Annual Status Reports when Major Work Elements Are Completed	N/A	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: http://phillywatersheds.org/doc/SW%20Facility%20Concept%20Plan%20-%20Final_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 FY 2012 Annual Report.
RTC/Main Relief Sewer Storage (SW) - Construction and Implementation of Main Relief Sewer Storage and Real-time Control		Refer to Section II.B.5 Main Relief on page 7 of this report
Eliminate CSO/Dobsons 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/Dobsons Run Project on page 95 of the CSO-Stormwater FY 2011 Annual Report
Eliminate CSO/Main and Shurs Off-Line Storage (SW) - Construction and Implementation of the Main and Shurs Off-line Storage Project	In FY2016, the facility successfully captured 14 major storms storing a total of approximately 2.5 MG of sanitary wastewater. There was one overflow at relief point R20 detected by local water level monitors during FY16 which occurred on 2/24/2016.	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. By taking a proactive approach, PWD can schedule flushing and sewer cleaning to maximize the USES capacity and the Venice Island storage tank's effectiveness. Grit and debris removal work commenced in the Upper Schuylkill East Side during June 2016.

Table III.B.2-1 – 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 2
Sewer Assessment Program	Ongoing	Refer to Section II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP) on page 2
Monitoring and Modeling Program	Ongoing	Refer to II.B.1 Continue to Institutionalize a Comprehensive Monitoring and Modeling Program on page 3
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 FY 2008 Annual Report
Interceptor Relining	Planning and design is underway	Additional details on the progress of interceptor relining occurring in the Cobbs Creek and Tookany/Tacony-Frankford Watersheds are discussed in the Appendix A – Green City, Clean Waters FY16 Annual Report on page 1
PC-30 Parallel Relief Sewer	COA stipulations completed on 12/27/11. Operating as designed as of July 2013.	During fiscal year 2016, there were no overflow events at manhole PC-30.
Sewer Separation		
	Sewer separation was studied and modeled as one of the options in the LTCPU and deemed cost prohibitive. No 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 identified or 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 goal of the Alliance is to build upon the collective strength of municipal leaders to protect and restore quality of life through innovative stormwater management. Through this model, workshops and stakeholder outreach previously performed by individual partnerships have been united under the Alliance umbrella. This more centralized approach allows individual partnerships to convene only as needed. Through the Watershed Alliance of Southeastern PA, PEC has also combined resources with the William Penn Foundation's Delaware Watershed Protection Initiative, which includes an upstream Philadelphia Cluster. These efforts have yielded an implementation plan detailing both potential stormwater control projects as well as strategies for monitoring, modeling and outreach to municipal officials.

In FY16, PEC continued its support of the implementation of the Upstream Philadelphia Cluster. These efforts resulted in the award of \$326,822 in National Fish and Wildlife Foundation funding (with another \$220,158 in associated matching funds) for the following projects:

- Installing Darby Road Median Rain Gardens in Naylor's Run Micro-Watershed, Darby Creek Valley Association \$99,500 awarded with a \$78,000 match.
- Stream Smart Stormwater House Call, Pennsylvania Resources Council, \$91,014 awarded with a \$92,000 match.
- Stormwater Collection, Filtration, Storage & Infiltration at Lukens Park, Horsham Township, \$50,000 awarded with a \$16,000 match.
- Jenkintown Creek Restoration at Ethel Jordan Park, Tookany/Tacony-Frankford Watershed Partnership, \$86,308 awarded with a \$34,158 match.

Tookany/Tacony-Frankford Watershed Partnership

In FY16, the TTF Watershed Partnership held 48 outreach events with approximately 2,132 participants in attendance.

Darby – Cobbs Watershed Partnership

During the past fiscal year, the Partnership focused on outreach and education, to implement previously identified project opportunities through the William Penn Foundation's Delaware Watershed Protection Initiative. During FY16, the partnership continued work on implantation of projects funded through the Delaware River Watershed Initiative. Additionally, PWD utilized the partnership to aid in public outreach and municipal approval for ecological restoration projects along the Cobbs Creek including a partial removal of the Woodland Ave Dam

Pennypack Creek Watershed Partnership

The Partnership continues to organize activities to involve the community in improving the watershed. These efforts led to PA DEP's approval of the Pennypack Creek Watershed Act 167 Plan on July 22, 2013. In FY16, the partnership continued education and outreach towards implementing the projects identified under the William Penn Foundation's Delaware Watershed Protection Initiative. The partnership also conducted workshops on rain gardens, citizen stream monitoring, Mowing to Meadows and municipal MS4 compliance.

Poquessing Creek Watershed Partnership

The Poquessing Creek Watershed Partnership holds a range of public education and outreach activities and events every year for local residents. In FY16, PWD funded PEC to hire a consultant to aid the partnership with administration, outreach and stream clean-ups. During FY16 the partnership held monthly cleanup events resulting in 150 volunteers participating nearly 400 hours collecting 241 bags of trash and debris, 272 tires, 8 shopping carts, and 58 bags of yard waste; approximately weighing 29,700 lbs. 14.9 tons. The Poquessing Partnership also participates in the Upstream Philadelphia Cluster of the William Penn Watershed Initiative developing programs for citizen monitoring and identification of stormwater projects in the watershed.

Delaware Direct Watershed Partnership

Throughout FY16, the Partnership continued its work acquiring grant funding to support restoration projects throughout the watershed. The Kensington & Tacony Trail, an abandoned riverfront rail line, is a shoreline restoration and trail alignment project. Also in FY16 PWD expanded its floatable debris programming. First, in conjunction with the Partnership for the Delaware Estuary, PWD sponsored a week of clean-up events with Living Lands and Waters. This innovative non-profit specializes in waterways clean-ups that allow participants to spend time on the water. 237 volunteers participated in 20 cleanups removing 32,832lbs of debris from the banks of the Delaware River. PWD also inaugurated a partnership with sustainable retailer United by Blue (UBB). 10 cleanups were held at various locations throughout the City including 6 events within the Delaware Direct Watershed during FY16 removing 22,235 lbs. (11 tons). of trash with nearly 500 volunteers participating

Wissahickon Creek Watershed Partnership

PWD continued its participation in the Wissahickon Partnership throughout FY16. A key component of these efforts was the creation and ratification of a multi-municipal agreement to establish an alternative TMDL program for phosphorous in the watershed. The City of Philadelphia was one of 16 municipalities cooperating in this program with assistance from the Pennsylvania Department of Environmental Protection, the Wissahickon Valley Watershed Association and the Pennsylvania Environmental Council (PEC). The Wissahickon Partnership is also actively participating in components of the Delaware River Watershed Initiative, including citizen monitoring as well as project identification and implementation.

Schuylkill River Watershed Partnership (Philadelphia-Based Partnership)

PWD continued to support the efforts of the Schuylkill Action Network (SAN), a regional watershed partnership dedicated to improving the water resources of the Schuylkill River Watershed through strategic implementation of protection measures. Also in FY16, PWD initiated a new partnership with the Schuylkill Navy of Philadelphia. This new stakeholder provided the Department an opportunity to

expand our programming on floatable debris. These efforts culminated in the 2015 Head of the Schuylkill Regatta, which was the first national rowing event to ban the use of plastic water bottles. To support these efforts PWD donated 12,000 reusable water bottles to the event. More information on the SAN can be found in **Section II.G.2** on page 14 of this Annual Report.

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 current status of the various plans in each of Philadelphia's watersheds. Information on each of the watersheds and the completed plans can be found at www.phillywatersheds.org/your_watershed.

The Cobbs Creek IWMP was completed in October 2004 and can be accessed online through the following website: http://www.phillywatersheds.org/doc/Darby_Cobbs_WMP.pdf.

The Tookany/Tacony Creek IWMP was completed in May 2005 and can be accessed online through the following website: http://www.phillywatersheds.org/doc/Tacony_Frankford_WMP.pdf.

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 has decided to work 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 47. 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 focus on implementation. Many of the recommended management options in the TTF and Cobbs Creek IWMPs have been institutionalized on a city-wide basis and continue to be implemented.

Table III.C.1-2 – 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	PWD updated Stormwater Regulations to implement the Act 167 Plan.
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.	PWD is planning Stormwater Regulation changes to implement the Act 167 Plan.
Wissahickon Creek	2001	2005-2006	Completed in 2000 by FPC	Act 167 Stormwater Management Plan approved on July 10, 2015	PWD is planning Stormwater Regulation changes to implement the Act 167 Plan. 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 FY16 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.

After signing a Consent Order and Agreement with PA DEP in June 2011, PWD recognized an opportunity to improve and strengthen its stormwater programs. Developing a workplan to identify and recommend relevant changes to the Regulations, PWD implemented revised regulations on July 1, 2015. For more information on updates to PWD's Regulations, please see the MS4 Annual Report **Section F.5.b – Post-Construction Stormwater Management in New Development and Redevelopment** on page 31.

III.C.1.2 Conduct workshops on LID

PWD staff in charge of Stormwater Regulation implementation holds weekly walk-in hours, encouraging the development community to attend in order to discuss general and technical details regarding their projects. Guidance is provided by PWD staff as it relates to regulatory applicability as well as stormwater management implementation and approach without the need to schedule an appointment.

As part of the Stormwater Regulation update, PWD engaged in robust outreach efforts with the development community to ensure that all developers and design engineers were as prepared as possible

for the regulatory changes. Leveraging existing partnerships and contacts with professional organizations, PWD led a series of meetings, presentations, focus groups and information sessions dedicated to the discussion of the July 1, 2015 regulation. Due to this effort, the results of the implementation process reflects the benefits gained through PWD's investment into educating and preparing relevant groups well in advance of the new regulatory effective date.

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 FY16 Annual Report** for a detailed description on the City's implementation of GSI during FY16.

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 FY16, please refer to **Section II.F.1 Control the Discharge of Solids and Floatables by Cleaning Inlets and Catch Basins** on page 10.

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 is working to separate stormwater runoff from large impervious tracts of land using incentives and regulatory-based approaches. Projects that apply for PWD's grant programs, Stormwater Management Incentives Program (SMIP) and Greened Acre Retrofit Program (GARP), are evaluated for disconnection potential and encouraged to construct connections to available separate storm sewer or private stormwater outfalls where feasible. To date, PWD has awarded a number of projects where this potential exists, and in the last year 3 projects successfully disconnected from the combined sewer system.

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 FY16 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 FY16, 2,028 trees were planted through this contract.

TreePhilly Yard Tree Program

TreePhilly is a new greening initiative led by PPR, in partnership with Wells Fargo (up until December 2015), TD Bank (as of January 2016) and the Fairmount Park Conservancy that directly engages all Philadelphians in improving their communities by planting and maintaining trees. Through *TreePhilly's* Yard Tree Giveaway program, Philadelphia residents can sign up for free yard trees for their private property (front, back, and side yards). In the FY16 the program distributed approximately 3,500 trees.

Tree Vitalize and Pennsylvania Horticultural Society's Tree Plantings

PWD is an active partner and supporter of *Tree Vitalize* and PHS's other tree planting programs. *Tree Vitalize* was developed by the Pennsylvania Department of Conservation and Natural Resources to increase the tree canopy in the five-county Philadelphia area. *Tree Vitalize* partners with numerous community groups throughout this area in order to plant trees in neighborhoods lacking sufficient tree canopy. During FY16, PHS tree planting events resulted in 5191 trees planted in Philadelphia.

Table III.C.1.6 -1 Pennsylvania Horticultural Society's FY16 Tree Plantings Events/ Activities

# of Trees Planted	Pennsylvania Horticultural Society's Tree Plantings Event
3917	TreeVitalize Watersheds riparian plantings at Schuylkill Center for Env. Education, Wigard Woods, Haddington Woods
905	Philadelphia Tree Tenders street and yard trees
51	Philadelphia Housing Authority – yard trees at Richard Allen (26) & Lucien E. Blackwell homes (25)
111	Philadelphia Public Landscapes (includes Viaduct Rail Park, Stinger Square, Vernon Park, Delaware Waterfront, and Broad Street)
117	Philadelphia LandCare vacant lands trees
90	Eugenio Maria de Hostos Charter School (TD Bank Tree Days)
5191	TOTAL

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 FY16, 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 11 for information pertaining to the Waterways Restoration Team's activities during FY16.

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 FY16, 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 11 for information pertaining to the Waterways Restoration Team's activities during FY16.

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 is currently employing 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.

Cobbs Creek Stream Restoration

During FY16, PWD has coordinated with Upper Darby Township to pass a resolution in support of the project. This resolution provides PWD with the permission to carry out the project and engage landowners that will be impacted by the stream restoration work.

Tacony Creek Stream Restoration

PWD, in partnership with PPR, initiated plans to begin the design phase on multiple reaches of Tacony Creek in FY 2011. During FY16, the mitigation bank prospectus was rejected by the state and federal mitigation banking Interagency Review Team. After the rejection of the mitigation bank, PWD reorganized the design team and resubmitted the joint permit application. It was determined that the permit application was incomplete and the regulatory agencies instructed PWD have another Pennsylvania Natural Diversity Inventory (PNDI) search conducted, get approval for the Erosion and Sediment Control Plan, and get approval from the State Historic Preservation Office for cultural and historic resources. The PNDI search and E&S plan approval have been updated, however, the cultural and historic resources approval requires a Phase 1B study which will be conducted in coordination with Philadelphia Parks and Recreation.

Indian Creek Stream Daylighting & CSO Storage Project

During FY16, PWD continued to monitor the site and has been developing a report to document the findings of the study. Biological studies of macro-invertebrates and fish species in the Indian Creek daylighted stream channel have been conducted and PWD's Collectors Unit has provided the flow data for the Combined Sewer Overflow storage facility. These studies as well as the study of the physical elements of the stream channel will be documented and analyzed in the report are expected to be finalized during FY17.

Wissahickon TMDL Stream Restoration Projects

As part of the Wissahickon Sediment TMDL Implementation Plan, PWD has proposed and implemented multiple stream restoration projects. These projects include:

- Carpenter's Woods (Construction Completed in 2009)
- Cathedral Run (Construction Completed in 2006)
- Cresheim Creek at St. Martins (Construction Completed in 2011)
- Hartwell Lane (Construction Completed in 2009)
- Rex Avenue (Construction Completed in 2010)
- Bells Mill Run (Construction Completed in 2012)
- Wises Mill Run (Construction Completed in 2012)
- Gorgas Run (Design Completed in 2012, Construction starting October 2015)

During FY16, PWD conducted studies and developed data to display the sustainability of these projects and sediment load reduction to the Wissahickon Creek. The results of the monitoring will be incorporated into a report that will be conveyed to state regulatory agencies during FY 2017. Because these projects were completed as part of the Wissahickon Sediment TMDL Implementation Plan, a more detailed description of PWD's efforts have been provided in the **Section D - Wissahickon Sediment TMDL Monitoring plan implementation** on page 1.

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. 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. Because these projects were completed as part of PWD's Wissahickon Sediment TMDL Implementation Plan, a more detailed description of the Department's efforts has been provided in **Section D - Wissahickon Sediment TMDL Monitoring plan implementation** on page 2. PWD is working to maintain these project sites, and new stormwater and floodplain wetland creation projects are being planned in the coming years that will help satisfy PWD's regulatory requirements and improve the health and habitat of PWD watersheds.

Watershed Mitigation Registry

PWD has been consulting with the United States Army Corps Engineers (USACE) to develop a mitigation bank for the Tacony Creek Reaches 4 and 5 restoration project. PWD generated a mitigation bank draft prospectus which was submitted in May 2015 to the Mitigation Banking Interagency Review Team (IRT),

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a group that includes members of US Environmental Protection Agency, US Fish and Wildlife Service, PA Department of Environmental Protection, PA Fish and Boat Commission, and USACE. The IRT rejected the Tacony Creek Reaches 4 and 5 site as a mitigation bank site due to concerns about site protection in perpetuity. Their concerns stemmed from public utility right-of-ways and the potential to disturb the site to repair or maintain infrastructure and from the instability created by the flashy urban flow regime and the potential for the failure of stream structures that would require maintenance. In light of this response, PWD has opted to move forward with the project without creating a mitigation bank or the return on investment funding it would have provided. PWD is investigating other projects and partnerships that could be better suited for the state's mitigation banking program.

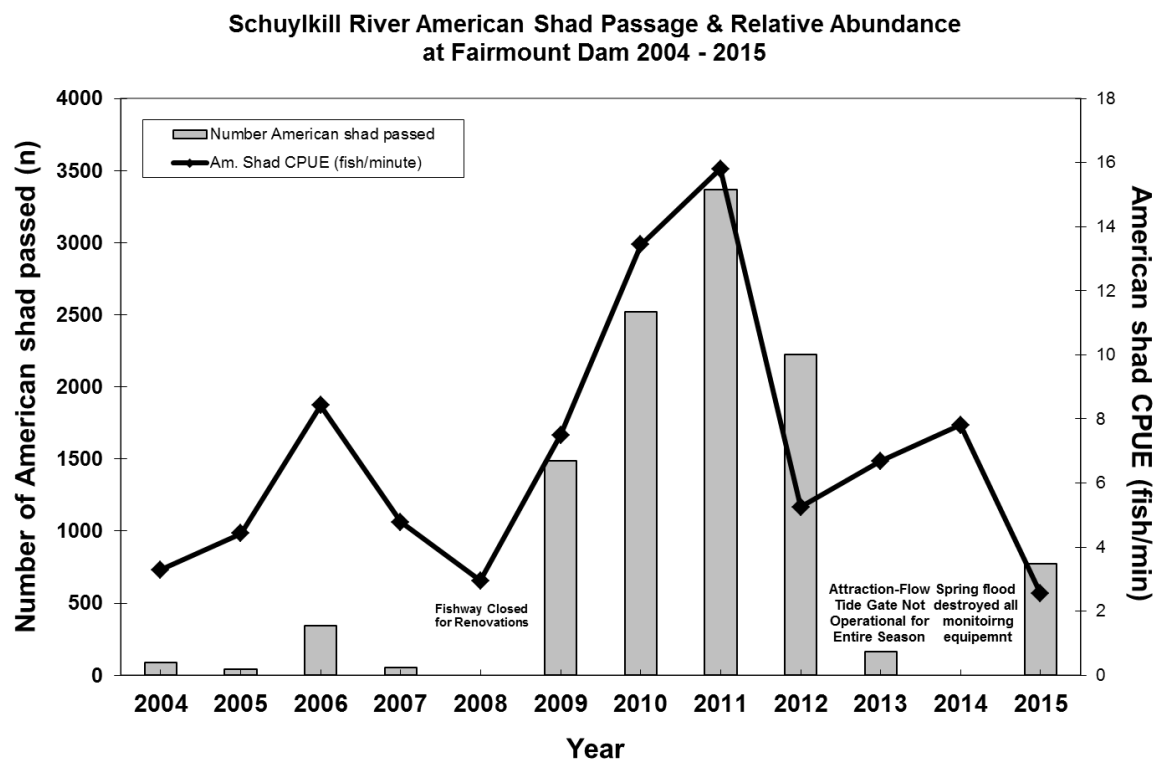
III.C.2.5 Fish Passage Projects

Fairmount Fish Ladder

The Fairmount Dam Fishway located on the western side of the Fairmount Dam, was completed in 1979. In 2009, through a joint cooperative agreement with the United States Army Corps of Engineers (USACE), the City of Philadelphia was able to upgrade many features of the fishway to improve hydraulics and overall fish passage efficiency.

As outlined in **Figure III.C.2.5 -1 Catch-Per-Unit-Effort and Fish Passage of American shad**, Catch-Per-Unit Effort (CPUE) average for the 2015 sampling season was 2.54 fish/minute, one of the lowest values observed since the PWD began its fish monitoring program on the Schuylkill River. In addition, fish passage monitoring revealed a total of 771 American shad successfully passed the fishway during 2015. While the catch-per-unit-effort and shad passage numbers may warrant concern for the ecological stability of the American shad population in the Schuylkill Drainage, it should be emphasized that the entire Mid-Atlantic stock experienced a decline in commercial landings in the upper bay/river and lower bay regions in 2015. Moreover, fishery-independent relative abundance estimates of American shad in the Delaware, Lehigh and Schuylkill rivers declined significantly at three (3) of the monitoring stations in the Delaware Drainage (Delaware River Basin Fish and Wildlife Management Cooperative, 2016). Similarly, during the 2015 sampling season, other Alosine species (e.g., Blueback herring and Alewife) also experienced a downward trend in numbers through fisheries surveys and fish passage counts. As such, it can be postulated that the overall decrease of American shad and other migratory Alosids in the Schuylkill Drainage is not a result of the operational efficiency of the Fairmount Fishway, and may be more closely related to other biotic and abiotic stressors, such as predation, by-catch, or impingement and entrainment experienced within and/or outside the Mid-Atlantic Slope. Despite the decrease in overall fish passage and relative abundance of American shad in 2015, it should be noted that the Fairmount Fishway passed the most amount of resident and migratory species on record since the PWD began its monitoring program in 2004. A total of 58,922 fish representing twenty-one (21) species were identified through the Department's video monitoring program. Most notable is the large numbers of Gizzard shad (*Dorosoma cepedianum*) successfully passing upstream (52,923 or 89% of the passage assemblage). In contrast to the negative trends in relative abundance of Blueback herring and Alewife witnessed at the Delaware River Basin Fish and Wildlife Management Cooperative monitoring locations, fish passage numbers of these two congeners increased from an average of 11 fish/year (2004 -2013) to a total of 137 passed in 2015.

Figure III.C.2.5 -1 Catch-Per-Unit-Effort and Fish Passage of American shad



PWD Sanitary Line Natural Rock Ramp Fishway

A rock ramp fishway was constructed in Pennypack Creek in 2007 to raise the water surface elevation and provide fish passage at this site. PWD electrofishing surveys of the tidal Pennypack Creek have documented a spawning population of anadromous alewife and blueback herring. Both adult and juvenile striped bass have been collected in the tidal portion, but not above the rock ramp. The future of shad restoration in Pennypack Creek remains uncertain. No hickory shad fry were stocked in 2016.

Dam Removal Projects

Juniata Golf Course Dam Removal

PWD has completed the review of the 90% Design Plans and Specifications for the removal of the dam in FY16. Over the next fiscal year, PWD plans to finalize the design and move forward with construction. The Philadelphia Streets Department’s Bridge Unit has been reviewing the plans and the inspections of the bridge structure. These reviews are being done by the Bridge Unit to ensure that the integrity of the bridge is not compromised by removing the concrete sections. A monitoring plan is being drafted to properly document any changes that occur to the stream channel post removal. The PADEP/USA CE Joint Permit is planned to be submitted in the next few months.

Woodland Dam Removal

PWD received the USACE draft re-submission of the 90% design plans for the dam removal in late 2015. PWD provided comments to the USACE on their design regarding increasing the rock size and the HEC-RAS model. A resolution from Yeadon Borough was secured in February 2016. With resolutions from both Darby and Yeadon, easement drafts were completed in May 2016. To secure funding before the end of the USACE fiscal year, the Construction Agreement needs to be executed along with the North Atlantic Division Review. The Letter of Intent was signed by the Commissioner in May 2016 along with the Self Certification of Financial Capability as part of the review package. The submission of the 100% design has not been given a date yet.

Boulevard Dam Removal

PWD has developed a design to lower the dam upstream of the Roosevelt Boulevard (Route 1) Stream Crossing to address recurrent flooding of a sewer access trail. This design includes a rock ramp fishway to improve upstream and downstream habitat connectivity. At this time, PWD and project partner Philadelphia Parks and Recreation are searching for a funding source to complete the design and implement the removal of the dam and the rock ramp.

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 FY 2012 Annual Report.

Riparian Buffer component of Stream Restorations

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, 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 of the applications mentioned above. Please refer to **Section III.C.2.3 Stream Habitat Restoration** on page 37 and **Section III.C.2.4 Wetland Enhancement and Construction** on page 38 in this report for more information on these topics.

Natural Lands Team

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. Bi-monthly 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 FY2016,

the Natural Lands Team convened five times 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:

http://www.phillywatersheds.org/your_watershed under each respective watershed’s key documents.

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.
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 15 and **Section II.H.2 Expand the Internet-Based Notification System (River cast) to the Tidal Section of the Lower Schuylkill River** on page 25 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 15 for details about these communication and water quality monitoring systems.

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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 25 for information pertaining to this topic.

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

Green Stormwater Infrastructure and Restoration Locations Signage

In FY16 PWD conducted the third phase of the interpretive *Green City, Clean Waters* permanent signage process, which involved fabrication and implementation of the second wave of signage. This process also included site visits, coordination with property owners/partners, and promotion of the signage. Additional information on the *Green City, Clean Waters* Signage Program can be found within **APPENDIX A- Green City, Clean Waters FY16 Annual Report** on page 37.

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 19 and **Section II.G.4 Continue to Support the Fairmount Water Works** on page 24 for more information on activities done in FY16 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 III.C.1-2 Planning by Watershed** on page 33 for more information.

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 FY16, PWD reviewed 854 "Sewage Facilities Planning Module Application Mailers" for projects requiring building permits within Philadelphia County. During the same period, PWD issued 74 sanitary sewer capacity certifications for projects in tributary municipalities.

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 FY16, 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 2015 – June 30 2016 as required in the NPDES Permit. Please refer to **Table 1 in Appendix D – NPDES – FY16 CSO Status Report** on page 2 for a listing of all CSO permitted outfalls. The tables have been reorganized to present overflows by the specific receiving water into which the CSOs from a given interceptor system discharge. In order 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 2010-2016 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 MS4 Annual Report **Section F.2.Step 1.b – Preliminary physical, chemical and biological quality assessment** on page 9 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, 2015 to June 30, 2016**

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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

The City maintains adequate legal authority to enforce the Stormwater Management Program, in accordance with the National Pollutant Discharge Elimination System (NPDES) regulations 40 CFR122.26(D)(2)(i). Legal authority to enforce the Stormwater Management Program is granted by various ordinances and regulations. Philadelphia Code section 13-603 was enacted in 1993 to ensure that the City has the authority necessary to implement the federal stormwater program. This ordinance and other city ordinances are available at <http://www.amlegal.com/library/pa/philadelphia.shtml>. Additionally, Philadelphia Water Department Regulation (PWD) 500.0 prohibits cross connected sewer laterals, and PWD Regulations 600.14 and 600.15 prohibit certain non-stormwater discharges and connections to the storm sewer system. PWD's Regulations are available here: <http://www.phila.gov/water/wu/ratesregulationsresp/Pages/Regulations.aspx>.

Additionally, Philadelphia Code section 14-704(3) authorizes the Water Department to regulate stormwater management on a City-wide basis for new and redevelopment. Chapter 6 of PWD's Regulations implements that authority.

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 2016 (FY16) progress completed in order to comply with the requirements during the reporting period from July 1, 2015 to June 30, 2016.

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

PWD has developed and implemented a program designed to achieve the goals of the sediment TMDL, which requires the City "to establish baseline data on the City's contribution of sediment loading and flow variations" and "evaluate and implement BMPs".

Conduct a Wissahickon Sediment TMDL Feasibility study and submit report

PWD initiated a feasibility study in October of 2005 in order to evaluate pollutant loads at MS4 outfalls and tributaries to the Wissahickon Creek (within Philadelphia) that cause an adverse

impact to in-stream habitats as a result of transport of sediment and/or stream-bank erosion. The study also evaluates which outfalls and tributaries have the greatest potential for improvement through implementation of BMPs and/or other methods. Upon completion of the study, the City has designed and implemented a monitoring plan for Total Suspended Solids (TSS) and flow at selected MS4 outfalls, as well as at the confluence of selected tributaries to the Wissahickon Creek during various flow events (low flow, normal flow, and storm flow). The monitoring plan incorporates modeling results. A report documenting the findings of the feasibility study was submitted in September of 2009, a follow-up report on the monitoring effort was submitted in 2010. PWD has provided additional details on this study in previous reports; please refer to Section Summary of Sediment and Stream Restoration Feasibility Study on page 201 of the CSO-Stormwater FY 2010 Annual Report.

[Wissahickon Sediment TMDL Monitoring plan implementation and Outline Submission](#)

PWD's commitment to meeting the Wissahickon Sediment TMDL was initiated in 2005 through detailed monitoring and assessment of the Wissahickon Creek Watershed. The goal of PWD's implementation is to reduce the amount of sediment reaching the Wissahickon Creek using a multi-faceted approach. In addition to continuing street sweeping and implementing and strengthening stormwater management regulations, the PWD has implemented three stormwater wetland facilities and seven stream restoration and stabilization projects. During the previous reporting year (FY2014), PWD completed the Sediment TMDL Baseline Monitoring Report in November 2013 based on the previously submitted TMDL Monitoring Plan. This report was submitted with the FY 2014 CSO-MS4 Annual Report. The baseline monitoring report documents the data collected following the implementation of the stormwater wetland facilities and stream restoration projects. This information will be used to measure sediment reductions as a result of the implemented projects. The initial phase of this effort included baseline monitoring to measure the effectiveness of the stream restoration and stormwater treatment wetland facilities projects in meeting the targeted sediment reductions. This effort includes H&H modeling and topographic survey monitoring as a means to confirm sediment reduction estimates presented in PWD's Implementation Plan. These modeling and topographic survey efforts are accompanied by regular photo and video-monitoring, as well as formal site inspections of the stormwater treatment wetland facilities.

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

[During the ninth year of the PCB PMP, the following tasks were accomplished:](#)

- Forty-Six (46) of the three hundred ninety-nine (399) sites listed by EPA or other agencies as housing PCB containing devices were inspected.
- Wet-weather PCB sampling and analysis of the 3 WPCPs' effluent was performed as required by the WPCP NPDES permits.

- PWD wet 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

Additionally, the following initiatives were undertaken:

- Preliminary efforts were made towards the creation of a PCB database, which will store all PCB data needed to create reports, graphs, and GIS maps and will incorporate all future data in one location.
- Generation of interactive GIS maps which could assist in identifying areas of concern and planning any additional trackdown efforts.
- Sampling of surrounding townships’ connections to determine if there are PCB loadings entering the City through these connections.
- 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 608”.

In FY 2014’s annual report, the FY 2013 PCB-Containing Device inspection results were categorized. The ten (10) sites listed as condition of concern were re-inspected during FY16. The inspection concerns were minor and included notes related to: no secondary containment, old and/or dirty capacitors but not leaking, and transformer proximity to drain. All of these concerns were at facilities that are inspected on an annual basis by PWD. For additional information on these PCB investigations, please refer to **Appendix E – PCB Pollutant Minimization Plan: Ninth Annual Report**.

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 1-1**. 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 F.1-1**.

Table F.1-1 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	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 a geodatabase, **PWD_Annual_Report_GIS_Data_2016.mdb** which can be found on the **Supplemental Flash Drive**. The GIS Data Feature class filenames within the geodatabase are provided in **Table F.1-2**.

Table F.1-2 GIS Data Feature Classes within Geodatabase named - FY16_GISlayers.mdb

<ul style="list-style-type: none"> • All_PWD_Monitoring_FY16 • FY16_GSI_Monitored_Locations • FY16_GSI_Projects_Completed • FY16_GSI_Projects_Planned • FY16_IWU_Pollution_Migration_Events • FY16_PD_ActiveConstructionInspectionSites • FY16_PD_Citywide_Regulation • FY16_PD_Citywide_Retrofit • FY16_PD_NewProjectSubmissions • FY16_PD_TechnicalApprovals • FY16_SanitaryInfiltrationEvents • Hydro_Line • Hydro_Poly • Land_Use_PCPC_2016 • PCB_Locations_Known_Historical 	<ul style="list-style-type: none"> • Permitted_Dischargers_FY16 • Philadelphia_Detention_Basins • Philadelphia_Impervious • Philadelphia_Major_Watersheds • Philadelphia_only_Major_Watersheds • Philadelphia_Sewersheds_2016 • PhiladelphiaCensus_Blocks_2010 • Stormwatersheds_Pennypack • Stormwatersheds_Poquessing • Stormwatersheds_Wissahickon • Stormwater_Outfalls • Stormwater_Outfalls_with_DrainageArea_summary • Wissahickon_Point_Source
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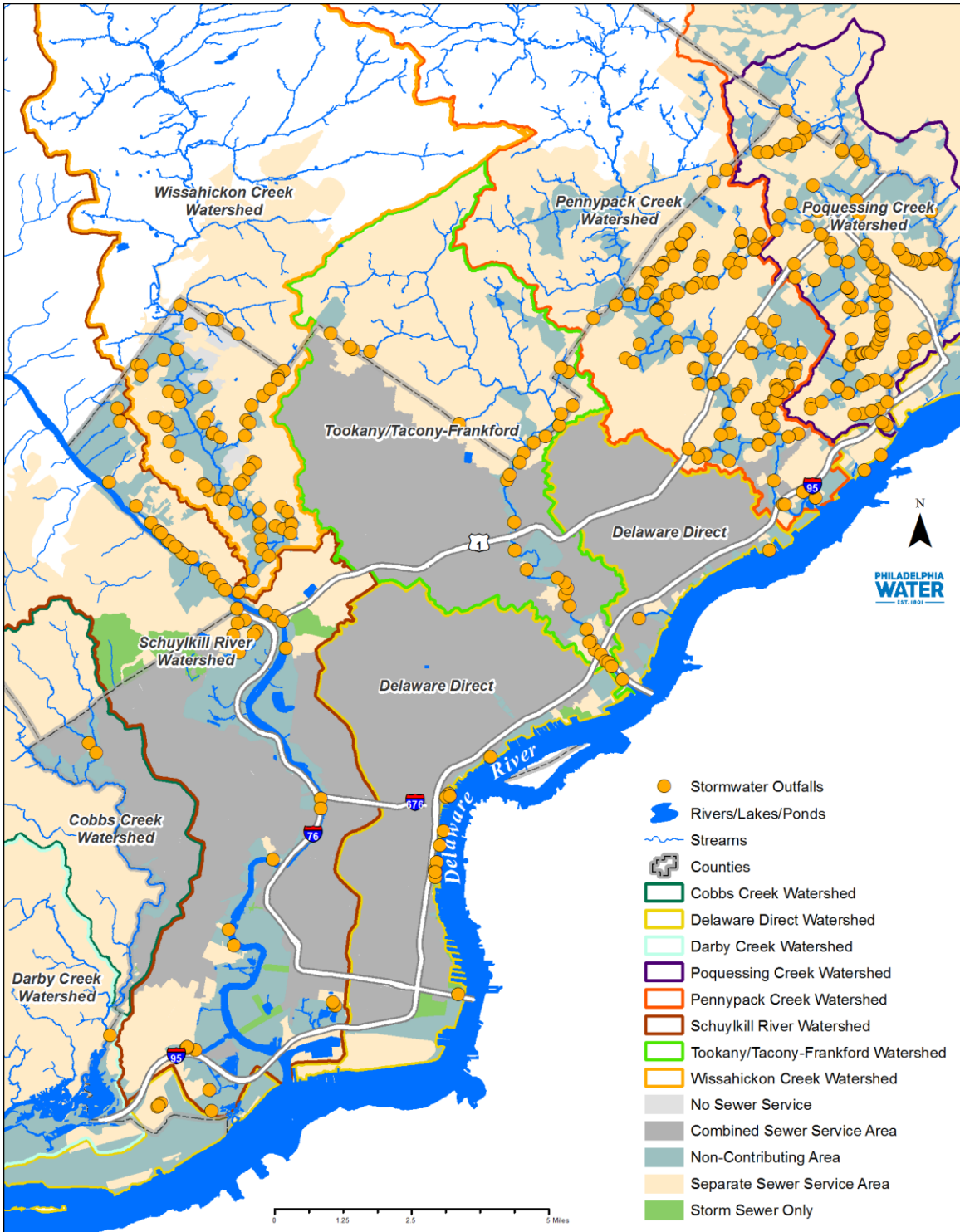


Figure F.1-1 City of Philadelphia Stormwater Outfalls

Descriptions of the GIS layers referenced in **Table F.1-2** are provided below:

All_PWD_Monitoring_2016

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 12.

FY16_GSI_Monitored_Locations

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

FY16_GSI_Projects_Completed

This layer presents the locations of completed publically implemented green stormwater infrastructure projects sorted by their current status within Philadelphia County.

FY16_GSI_Projects_Planned

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

FY16_IWU_Pollution_Migration_Events

This layer presents the locations of spills documented by PWD Industrial Waste Unit within Philadelphia in FY16. The contents of this layer are discussed in **Section F.7.a – Pollutant Migration/Infiltration** on page 37.

FY16_PD_ActiveConstructionInspectionSites

This layer presents the locations of active construction private development projects within Philadelphia in FY16. The contents of this layer are discussed in **Section F.5 –Stormwater From Construction Activities** on page 29.

FY16_PD_Citywide_Regulation

This layer presents the locations of constructed and verified private development projects subjected to stormwater regulations within Philadelphia in FY 2014. The contents of this layer are discussed in **Section F.5 –Stormwater From Construction Activities** on page 29.

FY16_PD_Citywide_Retrofit

This layer presents the locations of constructed and verified private retrofit development projects subjected to stormwater regulations within Philadelphia in FY 2014. The contents of this layer are discussed in **Section F.5 –Stormwater From Construction Activities** on page 29.

FY16_PD_NewProjectSubmissions

This layer presents the locations of new project submissions for conceptual stormwater plan review in FY16. The contents of this layer are discussed in **Section F.5.b - Post Construction Stormwater Management** on page 33.

FY16_PD_TechnicalApprovals

This layer presents the locations of projects issued technical approvals by PWD in FY16. The contents of this layer are discussed in **Section F.5.b - Post Construction Stormwater Management** on page 33.

FY16_SanitaryInfiltrationEvents

This layer presents the locations of Sewage Pollution Incidents documented by PWD within Philadelphia in FY16. The contents of this layer are discussed in **Section F.8.g. – Investigate, Remediate, and Report Sanitary Infiltration** on page 42.

Hydro_Line

This layer presents the boundaries of Philadelphia County and surrounding watershed hydrology in a polyline based feature class.

Hydro_Poly

This layer presents the boundaries of Philadelphia County and surrounding watershed hydrology in a polygon based feature class.

Land_Use_PCPC_2016

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 Minimization Plan for PCBs** on page 5.

Permitted_Dischargers_FY2016

This layer presents the location within Philadelphia of all NPDES Industrial Stormwater permitted Discharger. The contents of this layer are discussed in **Section F.2.Step 1.c** on page 19.

Philadelphia_Detention_Basins

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

Philadelphia_Impervious

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

Philadelphia_Major_Watersheds

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.

Philadelphia_only_Major_Watersheds

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.

Philadelphia_Sewersheds_2016

This layer presents the boundaries of the MS4, combined sewer, un-sewered, non-contributing, and stormwater only areas within Philadelphia County and the neighboring contributing areas.

PhiladelphiaCensus_Blocks_2010

This layer presents the results of the 2010 Census in Philadelphia County on a block level.

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.

Wissahickon_Point_Sources

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

GIS Stormwater Data Conversion Geodatabase Layers

The City has previously submitted additional GIS data layers that will not be included this year. These layers include outfalls, manholes, inlets, and various pipe as listed in **TABLE F.1-3**. The reason for their removal is the City's policy to not release these data layers to the general public due to concerns over redistribution and security. These data layers would be made available for viewing by the Department, should it be necessary.

Table F.1-3 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 9, the GIS files 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 **Supplemental CD**.

b. Preliminary physical, chemical, and biological quality assessment

Comprehensive Watershed Monitoring Program

Comprehensive assessment of our waterways is integral to planning for the long-term health and sustainability of our 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 2016, 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 is 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 of the 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., FGM assessments), CCRs were typically accomplished on a two-year timeline.

PWD conducted benthic macroinvertebrate and physical habitat monitoring activities in the Wissahickon Watershed mainstem in spring and summer 2015. This data will be processed and analyzed with results presented in an Integrated Watershed Management Plan indicator status update. Assessments targeting tributary sites in the Pennypack Creek Watershed were completed in spring of 2016 (**Table F.2.Step 1.b-1**).

As described in PWD’s *Comprehensive Watershed Monitoring Program: Proposed Strategy 2010-2015*, the scale of watershed stressors is so expansive and the BMP program is still in its introductory phase that full implementation is limited but will increase once the program is 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 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 F.2.-1 Overview of PWD Proposed Watershed Monitoring Activities 2010-2017

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

Monitoring Timeline 2010-2017

Allowing 10 years before re-assessment will potentially allow for a greater number of projects to be implemented. It allows PWD to focus monitoring efforts on evaluating the performance of stormwater BMPs and restoration projects, as well as the tidal Schuylkill and Delaware rivers (which have not been assessed), as well as smaller wadeable streams. As described in the *Comprehensive Watershed Monitoring Program: Proposed Strategy 2010-2015*, PWD's current proposed strategy for watershed assessments also 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 and Pennypack watersheds are continuations of that plan and are thus included here.

The proposed strategy for watershed assessments 2010-2017 includes resuming watershed-scale bioassessment activities at several stations within targeted watersheds. This program resumed in the Wissahickon Creek Watershed's mainstem sites in 2015 and continued in the Pennypack Creek Watershed's tributary sites in 2016. (**Table F.2.Step 1.b-2 Proposed Watershed Monitoring Timeline 2008-2017**). These watershed scale reassessments should complement the "adaptive management" approach favored by the IWMP 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 watershed.

Table F.2.-2 Proposed Watershed Monitoring Timeline 2010-2017

Watershed	Program Components	2010				2011				2012				2013				2014				2015				2016				2017			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Cobbs	BMP Monitoring	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
	Quarterly WQ Grab sampling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			
	Continuous WQ Monitoring		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y				
	Annual WQ Summary			Y				Y				Y				Y				Y				Y				Y					
	Bioassessment									Y	Y	Y	Y																				
	Bioassessment Data Analysis									Y	Y	Y	Y																				
	IWMP Indicator Status Update										Y	Y	Y	Y																			
Tacony-Frankford	BMP Monitoring	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Quarterly WQ Grab sampling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Continuous WQ Monitoring		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y				
	Annual WQ Summary			Y				Y				Y				Y				Y				Y				Y					
	Bioassessment													Y	Y	Y	Y																
	Bioassessment Data Analysis													Y	Y	Y	Y																
	IWMP Indicator Status Update														Y	Y	Y	Y															
Wissahickon	BMP Monitoring	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Quarterly WQ Grab sampling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Continuous WQ Monitoring		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y				
	Annual WQ Summary			Y				Y				Y				Y				Y				Y				Y					
	Tributary Assessment														Y	Y	Y	Y															
	Tributary Data Analysis															Y	Y	Y	Y														
	Bioassessment																		Y	Y	Y	Y											
	Bioassessment Data Analysis																			Y	Y	Y	Y										
	IWMP Indicator Status Update																				Y	Y	Y	Y									
Pennypack	BMP Monitoring	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Quarterly WQ Grab sampling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Continuous WQ Monitoring		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y		Y	Y	Y				
	Annual WQ Summary			Y				Y				Y				Y				Y				Y				Y					
	Tributary Assessment																						Y	Y	Y	Y							
	Tributary Data Analysis																						Y	Y	Y	Y							
	Bioassessment																									Y	Y	Y	Y				
	Bioassessment Data Analysis																										Y	Y	Y	Y			
	IWMP Indicator Status Update																													Y			

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 improvements have improved our abilities to collect more data from an increasing number of sampling locations in a more efficient manner. Automated sampling, in particular, has greatly increased the temporal resolution of stormwater sampling at multiple sampling locations for a single storm event.

In order 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 2015 through November 2015 and March 2016 through June 2016. The sampling and monitoring sites are presented in **Appendix F - Monitoring Locations**. 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

In order to characterize conditions throughout the Philadelphia region and build a long-term record of water quality, PWD initiated a quarterly baseflow water quality sampling program at 10 USGS gage stations. 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 G- PWD Quarterly Dry Weather Water Quality Monitoring Program**. Previous annual reports describe PWD's extensive surface water grab sampling efforts dating back to 2002.

Grab samples were also collected from seven locations in the Delaware Estuary by boat in October and November 2015, and in April, May, and June 2016. Samples are collected at low tide to ensure that water samples adequately represent spatial variability in water quality that may be present. PWD has collected 37 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. 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 Assessment

In order to characterize conditions throughout the Philadelphia region and build a long-term record of water quality, PWD initiated a continuous water quality monitoring program at 10 USGS gage stations. 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 <http://pa.water.usgs.gov/pwd/>. The monitoring results from FY16 are presented in **Appendix H - PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary**.

In addition to continuously monitoring water quality at USGS gaging stations, PWD continued deployments of *in situ* self-contained data logging continuous water quality monitoring sondes (YSI Inc. Model EXO2) in the tidal Schuylkill River and Frankford Creek from April-November 2014 and 2015. Tidal sondes were deployed again in June 2016, with the intention of collecting data through November 2016.

Long-term continuous monitoring for TMDL compliance and building a long-term water quality data record for the aforementioned watersheds will be accomplished in 2010-2017 through a 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 in order to provide better spatial distribution of wells in the monitoring network. Current status of the groundwater monitoring network and a summary of data collected through June 30, 2016 are presented in **Appendix I – 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)
- Rapid Bioassessment Protocol V (Fish 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 manpower constraints of collecting and processing samples with the PADEP ICE protocol. It is hoped that this approach 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. Targeted watershed assessments resumed in the Wissahickon Creek Watershed mainstem in spring 2015. (**Table F.2.Step 1.b-3 PROPOSED Benthic Invertebrate Monitoring Timeline 2010-2017**).

Table F.2.-3 Proposed Benthic Invertebrate Monitoring Timeline 2010-2016

Period	Monitoring Activity (number of samples*)
2010	Stream Restoration Monitoring (3)
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)

* Number of samples estimated, actual number of samples may vary

** Number of monitoring sites excludes 2 USGS gage sites in target watershed

*** See section 7 for more information on Wissahickon Creek tributary samples

During March and April 2015, PWD conducted Rapid Bioassessment Protocols (RBP III) at 22 (n=22) locations within Philadelphia area watersheds. Sampling was conducted at 8 USGS gages in the PWD/USGS Cooperative Monitoring program, 10 tributary sites in the Wissahickon Creek Watershed, and 4 randomly selected sites. These data are presented in **Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments**. Results of the Wissahickon Creek assessments will be presented in a Wissahickon Creek Watershed Integrated Watershed Management Plan Indicator Status Update. In spring 2016, PWD sampled 9 USGS gages, 11 tributary sites in the Pennypack Creek Watershed, and 5 randomly chosen sites.

Fish Assessments

Because 2016 monitoring efforts focused on Pennypack tributaries, fish assessments were not performed that year. Targeted watershed assessments will resume in June and July 2017 when fish assessments will be conducted at mainstem sites within the Pennypack Creek Watershed. (**Table F.2.Step 1.B -4 Proposed Fish Monitoring Timeline 2010-2016**). All surveys were conducted using electrofishing gear as described in EPA RBP V (Barbour, et al. 1999). Results of these fish assessments will be presented in Integrated Watershed Management Plan Indicator Status Updates.

Table F.2.-4 Proposed Fish Monitoring Timeline 2010-2016

Period	Monitoring Activity (number of samples*)
2012	Cobbs Creek Watershed Assessment (4)
2013	Tookany/Tacony Creek Watershed Assessment (8)
2015	Wissahickon Creek Watershed Assessment (10)
2016	Fish not assessed; tributaries targeted in 2016.

* Number of samples estimated, actual number of samples may vary

Algae Assessments

Algal biomass and nutrient ratio data may be used to provide information for the parameterization of water quality models. From 2011-2014, PWD collected monthly phytoplankton samples from three monitoring locations on the Delaware River. Grab samples are taken at sites DR8190 (Commodore Barry Bridge), DR10016 (Ben Franklin Bridge), and DR11011 (Baxter Water Treatment Plant Intake). From 2012-2014, PWD collected phytoplankton samples from monitoring location SC470 (Navy Yard) on the Schuylkill River. Samples were delivered to the Patrick Center of the Academy of Natural Sciences of

Philadelphia, phycology section, for taxonomic identification of diatoms and soft algae, as well as the determination of intracellular nutrient (C, N, P) concentrations. 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).

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 Instream Comprehensive Evaluation (ICE) protocols. During 2015, PWD conducted physical habitat assessments at 22 locations within Philadelphia area watersheds. Sampling was conducted at 8 USGS gages in the PWD/USGS Cooperative Monitoring program, 10 mainstem sites in the targeted Wissahickon Creek Watershed, and 4 randomly selected sites. These data are presented in **Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments**. Results of the Wissahickon Creek assessments will additionally be presented in a Wissahickon Creek Watershed Integrated Watershed Management Plan Indicator Status Update. In spring 2016, PWD sampled 9 USGS gages, 11 tributary sites in the Pennypack Creek Watershed, and 5 randomly chosen sites.

Habitat Suitability Index (HSI)

In addition to habitat assessments, Habitat Suitability Index (HSI) models, developed by the U.S. Fish and Wildlife Service (USFWS), have been incorporated into the monitoring program. Based on empirical data and supported by years of research and comprehensive review of scientific literature, these models present numerical relationships between various habitat parameters and biological resources, particularly gamefish species and species of special environmental concern. To date, HSI have applied to Darby-Cobbs, Tookany/Tacony-Frankford, Wissahickon, and Pennypack Creek Watersheds. The Poquessing Creek Watershed CCR approach attempted to simplify the application of fish habitat suitability analysis to generalized guilds.

Fluvial Geomorphologic (FGM) / Infrastructure Analysis

Fluvial Geomorphologic (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. During FY16, PWD initiated construction of a stream restoration project at Gorgas Run, a tributary to the Wissahickon Creek. This project will reduce sedimentation to the creek through the usage of bank revetments and in-stream structures. PWD also completed follow-up cross-section monitoring for implemented stream restoration projects along tributaries to the Wissahickon. Data collected will be summarized in a report detailing the effectiveness of specific projects in reducing stream bank erosion as a source of sedimentation to the Wissahickon Creek.

Summary of Monitoring Locations

Biological, physical and chemical monitoring locations are based on 3 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), which are also available as GIS data, are presented in **Appendix F – Monitoring Locations**.

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 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 Standard Operating Procedures (SOPs) for chemical and biological assessments is available from BLS.

c. Inventory of Point and Non-Point sources

There are 165 NPDES permitted dischargers in Philadelphia County, as shown in **Appendix K – FY2016 NPDES Permitted Dischargers**. 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 actively 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 44.

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://www.phillywatersheds.org/what_were_doing/documents_and_data/watershed_plans_reports

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

During FY16, the Wissahickon Act 167 Plan was completed and adopted by PADEP on July 10, 2015. For more information on the status of the Act 167 plans, please refer to the CSO Annual Report **Table III.C.1-2 - Planning by Watershed** on page 33 for more information.

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 25.

Debris removal from waterways impacted by storm water discharges

PWD continues to employ the WRT to remove debris and conduct small scale stream restoration projects within the City's waterways. Please refer the CSO Annual Report **Section II.F – Control of solid and Floatable Materials** on page 10 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 in previous reports; please refer to Section F.2.3.a.iii on page 261 of the FY 2010 CSO-Stormwater Annual Report.

Stormwater outfall dry weather flow inspections

The City maintains a stormwater outfall inspection program in compliance with the MS4 permit. Outfalls inspected that have observed 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. Those outfalls identified as Priority outfalls under the MS4 permit are inspected quarterly.

During FY16, 43 outfall inspections were conducted and 37 samples were taken due to observed dry weather flow as part of the Priority Outfall inspection program. During FY16, 118 outfall inspections were conducted and 54 samples were taken due to observed dry weather flow as part of the Permit inspection program.

The full details of program accomplishments for FY2016 can be found in **Appendix P – FY16 Defective Lateral Connection Quarterly Status Reports**.

Table F.2-5: Stormwater Outfall Inspection Program – 5 Year Summary

Fiscal Year	Permit Inspection Program		Priority Outfall Program	
	Inspections	Samples	Inspections	Samples
2012	24	20	44	40
2013	2	2	45	40
2014	6	6	45	40
2015	4	4	47	43
2016	118	54	43	37
Total	154	86	224	200

Defective Lateral Program - Priority Outfalls

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 screening, testing and abating program and for efficient crew deployment.

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

As of June 30, 2016, Defective Connections Group (DCG) program activities has performed 2,831 complete tests in this sewershed, identifying 132 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 FY16 are listed below.

Table F.2-6: 7th & Cheltenham Ave – Diversion Devices - FY16 Summary

Location	ID #	Inspections	Blockages	Discharges
Plymouth St. west of Pittsville St.	CFD-01	27	6	0
Pittsville St. south of Plymouth St.	CFD-02	29	4	0
Elston St. east of Bouvier St.	CFD-03	25	0	0
Ashley St. west of Bouvier St.	CFD-04	26	2	0
Cheltenham Ave. east of 19th St.	CFD-05	25	3	0
Verbena St. south of Cheltenham Ave.	CFD-06	29	0	0
Cheltenham Ave. east of 7th St.	CFD-07	67	13	0
7th St. south of Cheltenham Ave.	CFD-08	65	8	0

Inspections and fecal coliform sampling at this outfall continues quarterly. Results for the outfall samples during FY16 are listed below.

Table F.2-7: 7th & Cheltenham Ave - Fecal Coliform Results – FY16 Summary

Date	Fecal Count (MPN per 100 ml)
7/31/2015	2803.0
10/7/2015	2909.0
3/11/2016	6488.0
5/9/2016	906.0

W-060-01 (Monastery Avenue)

As of June 30, 2016, DCG program activities have performed 611 complete tests in this sewershed, identifying 16 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 FY16 are listed below.

Table F.2.-8: Monastery Ave - Diversion Devices - FY16 Summary

Location	ID#	Inspections	Blockages	Discharges
Jannette St. west of Monastery Ave.	MFD-01	26	0	0
Green La. North of Lawnton St.	MFD-02	28	0	0

Inspections and fecal coliform sampling at this outfall continues quarterly. Results for the outfall samples during FY16 are listed below.

Table F.2.-9: Monastery Ave - Fecal Coliform Results – FY16 Summary

Date	Fecal Count (MPN per 100 ml)
8/25/2015	187.0
10/7/2015	520.0
3/23/2016	55.4
4/25/2016	131.4

W-068-05 (Monoshone Creek Outfall)

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, 2016, DCG program activities have performed 2,745 complete tests in these sewershed areas, identifying 93 cross-connections, all of which have been abated. The majority of the efforts have been in the W-068-05 sewershed area which is by far the largest in terms of drainage area and properties served.

Inspections and fecal coliform sampling at the W-068-05 outfall continues quarterly. Results for the outfall samples during FY16 are listed below.

Table F.2.-10: Monoshone Creek (W-068-05 Outfall) - Fecal Coliform Results – FY2016 Summary

Date	Fecal Count (MPN per 100 ml)
8/3/2015	2419.0
10/7/2015	4884.0
3/23/2016	>2419.6
4/25/2016	>24196.0

P-090-02 (Sandyford Run)

As of June 30, 2016, DCG program activities have performed 5,822 complete tests in this sewershed, identifying 87 cross-connections, all 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 FY16 are listed below.

Table F.2.-11: Sandyford Run - Diversion Device - FY16 Summary

Location	ID#	Inspections	Blockages	Discharges
Brous and Lexington Aves.	PFD-01	87	3	0

Additional areas of focus:

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

As of June 30, 2016, DCG program activities have performed 2,478 complete tests in these sewershed areas, identifying 61 cross-connections, all of which have been abated. The majority of the efforts have been in the S-059-04 sewershed area.

Inspections and fecal coliform sampling at the following outfalls continues quarterly. Results for the outfall samples during FY16 are listed below.

Table F.2.-12: Manayunk Canal - Fecal Coliform Results – FY16 Summary

Outfall	Fecal Count (MPN per 100 ml)				
	7/13/2015	10/8/2015	3/10/2016	7/18/2016	4/26/2016
S-058-01	1989.0	1860.0	>2419.0	38730.0	--
S-059-01	17329.0	19863.0	23590.0	32550.0	--
S-059-02	241960.0	241960.0	54750.0	57940.0	--
S-059-03	14670.0	1039.0	>2419.6	>2419.6	--
S-059-04	379.0	216.0	122.3	547.5	--
S-059-05	386.0	231.0	57.3	--	152.9
S-059-06	--	--	NF*	--	--
S-059-09	NF*	NF*	NF*	NF*	NF*

Note: * NF indicates that no flow was observed; -- indicates the outfall was not inspected on that date

T-089-04 (Franklin and Hasbrook Outfall)

As of June 30, 2016, DCG program activities have performed 1,016 complete tests in this sewershed, identifying 46 cross-connections, all 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 FY16 are listed below.

Table F.2.-13: Franklin and Hasbrook - Diversion Device - FY16 Summary

Location	ID#	Inspections	Blockages	Discharges
Franklin and Hasbrook	CFD-01	76	10	3

Please refer to **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 23 for additional information on activities conducted for the Defective Lateral Program.

Priority Outfall Closure Testing

Investigation will continue within each particular outfall area (sewershed) until the Priority outfall status may be closed. During FY16, none of the Priority outfalls were authorized to be removed from the list by DEP. The four (4) Priority outfalls have continued to be inspected and sampled quarterly by PWD. Please reference **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 23 for a more detailed discussion of this subject.

Healthy Living Resources

Develop integrated storm water management plans

PWD develops 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 46 for a detailed explanation of the City's watersheds stormwater management plans.

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

PWD has conducted several projects that have been designed with Natural Stream Channel Design concepts in mind. 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. In order 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.

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. For a complete listing of both completed and current GSI projects, please refer to the **Appendix A Green City, Clean Waters 2016 Annual report**. For a description of activities conducted for PWD's stream restoration, and wetland creation projects, please refer to the CSO Annual Report **Sections III.C.2.3 Stream Habitat** on page 39 and **III.C.2.4 Wetland Enhancement and Construction** starting on page 40.

Monitor three demonstration BMPs

PWD is currently monitoring multiple stormwater BMP project types such as stormwater tree trenches, stormwater planters, and porous pavement in order to develop monitoring protocols and assess the performance of individual BMPs. Monitoring activities for PWD's green stormwater infrastructure projects during FY16 are documented within **Appendix A Green City, Clean Waters 2016 Annual report Section 5.1**.

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 has detailed activities conducted during FY16 for PWD's stream restoration, and wetland creation; please refer to the CSO Annual Report **Sections III.C.2.3 Stream Habitat Restoration** on page 37 and **III.C.2.4 Wetland Enhancement and Construction** starting on page 38.

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. The number of PWD reviewed sewer and storm connections for FY16 was not available before this report was submitted. Connections reviewed will be available upon request. This numbers 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 19** of this report for FY16 priority outfall summaries.

Investigate dry weather flow to identify sewer lateral defects

During FY16, the DCG performed 2,337 complete dye tests with 42 defective connections found and 39 abatements completed. Details of FY16 activities are listed below.

Table F.3-1: Defective Connections Program - FY16 Summary

Quarter	CY2015-3	CY2015-4	CY2016-1	CY2015-2	Total
Date Coverage	Jul15-Sep15	Oct15-Dec15	Jan16-Mar16	Apr16-Jun16	FY2016
Completed Tests	568	642	537	590	2337
No Cross Connections	554	629	532	580	2295
Cross Connection Identified	14	13	5	10	42
Abatements *	9	12	10	8	39

Note: *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 FY16, 24 incidents were investigated. For details, refer to Appendix P – Sanitary Infiltration Events for Potential Sewage Discharges during FY16.

The DCG Field Investigation SOP was updated in March 2016. A copy is available upon request.

d. Abatements

Written notice about sewer lateral defects

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

Abatements of Cross Connections

39 abatements were completed during FY16. Details of abatement types and costs are listed below.

Table F.3-2 Defective Connection Abatement – 5 Year Summary

Fiscal Year	# Cross Connections Abated		Total Cost of Abatements
	Residential	Commercial	
2012	51	11	\$ 389,249.67
2013	59	6	\$ 517,598.50
2014	47	11	\$ 442,113.77
2015	39	4	\$ 357,289.12
2016	32	7	\$ 247,514.90
Total	228	39	\$ 1,953,765.96

Residential Properties Cross Connections Abatement

During FY16, 32 residential abatements were completed at a cost of \$ 244,564.90.

Commercial and Industrial Properties Cross Connections Abatement

During FY16, 7 commercial abatements were completed at a cost of \$ 2,950.00.

Defective Connections Abatement Schedule

All defective connections are required to be abated within 120 days of discovery, in compliance with the MS4 permit. During FY16, there were 4 properties that exceeded the 120-day requirement.

Defective Connections Abatement Confirmation Tests

All abatements completed during FY16 were tested to confirm that the abatement was completed properly.

e. Defective Connection Program Reporting

Illicit connection program quarterly report

Defective Lateral Quarterly Reports are submitted four times a year to Andrew Sinclair at PADEP as part of the reporting requirements of the City of Philadelphia NPDES Storm Water Management 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 FY16, and **Appendix P – FY16 Defective Lateral Quarterly reports** contains all of these reports.

Illicit connection program quarterly report contents

The report content within the illicit connection program quarterly reports has not changed in FY16.

F.4 Monitor and Control Pollutants from Industrial Sources

a. Applications/Permits

The City obtains NPDES permits/discharge information from industries if they contribute significant amounts of 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 Department's website and are listed in **Appendix K – NPDES Permitted Dischargers**.

b. Inspections

Industrial inspections

The Philadelphia Local Emergency Planning Committee (PLEPC) is the entity tasked with meeting the responsibilities of SARA Title III. Under PLEPC, the Fire Department representative is the individual that carries out the inspections. Philadelphia Fire Department (PFD) personnel inspect SARA facilities to ensure that information submitted in their Tier II report is accurate. The inspection includes a visual on-site inspection, verifying the facility has a Preparedness, Prevention, and Contingency (PPC) plan and reviewing any other information contained within the Tier II report. During FY16, PFD personnel inspected 56 facilities of the 446 SARA reporting facilities that submit Tier II status reports. This effort varies each year depending on staffing and the number of SARA Tier II reports that are submitted.

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 DMRs or additional sampling from the Department 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 the interested and downstream parties, including 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. Integrated in the City's development review process, PWD is provided the authority to review and regulate the runoff from earth disturbance activities to improve water quality. Additionally, post-construction stormwater management plan review now 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 discussion documents 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 FY16, PWD performed numerous tasks in direct compliance with the NPDES Permit as well as tasks supporting continuance and improvement of a growing stormwater management program and watershed program. Some of the FY16 activities include the following:

- Continued coordination efforts with multiple City departments, including Department of Public Property and Parks and Recreation, to help streamline review, ensure cost effective project designs, and convey concise maintenance requirements to extend the functional life of SMPs.
- Continued coordination efforts with Philadelphia Licenses and Inspections (L&I) regarding permit review and issuance for private development projects applicable to the Stormwater Regulations. At a minimum, the L&I issuance of a Zoning, Demolition, Foundation, and Building permit was coordinated appropriately between the two agencies.
- Continued coordination with the PA DEP Southeast Regional Office Waterways and Wetlands program through regular project communication and quarterly meetings with PA DEP and southeast region conservation district staff. The purpose of the quarterly meetings is to discuss regional and district updates, permitting services and projects, and other various topics. In FY16, PWD hosted the quarterly meeting, which had not been held in Philadelphia to date. As part of this meeting, PWD organized a stormwater management site tour for the attendees which highlighted both private and public sites, with a focus on urban management strategies including green and blue roofs. Held applicant project meetings to discuss upcoming projects and active projects. Items discussed include project status, project applicability, technical requirements and questions, as well as key dates in the project timeline.
- 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 process.
- Continued to document E&S compliance as an element of all active construction inspections in order to ensure appropriate controls are implemented during construction. 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, requiring continued coordination through L&I.

- Updated plan review website content, including new and revised forms as well as detailed technical guidance, in an effort to provide more resources to the applicant to support quality submittals and efficient reviews.
- Conducted multiple public information sessions on the revised Stormwater Regulations effective July 2015. The well-attended information sessions gave the development community opportunities to learn about the technical and procedural changes and improvements associated with the regulatory change, as well as the new online tools and resources produced by PWD.
- Developed an E&S FAQ for contractors which discusses the importance of E&S controls during construction and highlights typical E&S measures that apply to all construction activities. The FAQ also provides the contractor with information about E&S plan submittals and permitting requirements, and contact information. This FAQ can be found on PWD's website, but has also been provided to partner agencies including Licenses and Inspections (L&I) for distribution to permit applicants and contractors.
- Developed a Factsheet about Philadelphia's Green Roof Density Bonus, a 2015 Zoning Code amendment offering exceptions to certain residential density rules for development projects that include a green roof. The green roof must meet PWD's requirements and be approved by PWD before the bonus can be awarded. To help streamline review of these incentivized green projects, the Department produced a factsheet detailing how to apply for the bonus and obtain PWD's approval.
- 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 Water, L&I, Planning, and Streets to discuss policy and legislation impacting development in Philadelphia to ensure a transparent and efficient development process.
- Continued to hold quarterly Development Services Committee meetings with representatives from the development community including developers, designers, large land owners, and attorneys to discuss ideas for improving the PWD Stormwater Plan Review program to better streamline development in the City. This committee was an integral part of PWD's outreach effort to prepare the development community for the regulatory changes.

In addition to the above, similar tasks were performed as were reported in FY 2015. PWD continued to conduct reviews of stormwater management plans, hold weekly walk-in hours for applicants and maintain the website to allow online submittal of plans.

A summary of all plan review activities City-wide in FY16 is presented in **Table F.5-1**.

a. Construction Site Runoff Control

PWD reviews and approves E&S Plans, along with Post-Construction Stormwater Management Plans, 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 PA DEP E&S Control Manual. PWD conducts coordinated reviews with the PA DEP 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 fences, inlet protection, and concrete washouts. During an inspection, the inspector communicates with the construction manager or 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 out-of-compliance items is generated and distributed to the site manager, 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 Notice of Violation or a Stop Work Order. For more information regarding enforcement actions, see Section F.5.e.

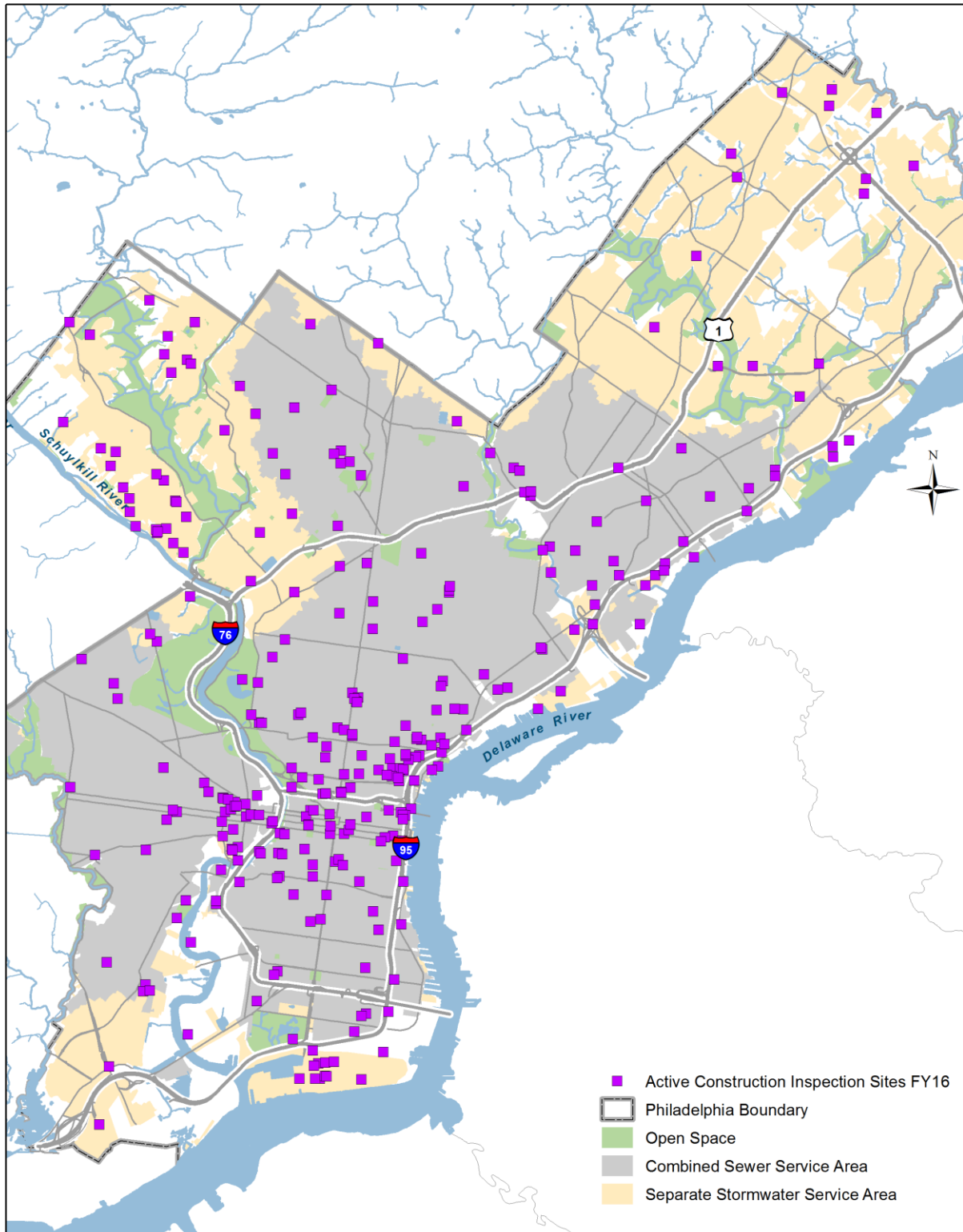
The sites visited cover all of Philadelphia including both separate storm sewer areas and combined sewer areas as depicted in Figure F.5.a-1.

Table F.5-1 FY16 Summary of Plan Review Activities

	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	FY 16 Total
Conceptual Review Stage													
Approvals	21	10	11	17	7	15	14	11	10	10	12	15	153
Rejections	60	37	41	25	28	46	29	29	39	39	38	49	460
Reviews	101	57	77	61	49	79	55	53	59	65	62	87	805
New Project Submittals	15	22	35	20	28	37	15	22	29	24	21	27	295
Average Review Time (days)	7.1	4.3	4.5	3.9	3.5	3.1	2.7	3.1	3.7	2.9	2.7	3.3	3.7
Post Construction Stormwater Management Plan Review Stage													
Administrative Screenings	12	17	30	12	13	22	17	8	8	21	8	11	179
Technical Approvals Issued	10	8	5	6	4	7	9	7	8	6	7	7	84
Rejections	12	15	25	27	22	26	27	29	27	25	32	29	296
Full Technical Reviews	40	37	42	59	43	51	50	51	64	49	58	62	606
New Project Submittals Received	31	29	20	16	12	19	11	11	13	14	12	6	194
Average Number of Reviews per Approval	4.8	4.3	4.4	4.4	4.0	4.8	5.0	3.1	4.5	5.4	4.2	4.8	4.5
Average Approval Time (days)	172	265	120	254	202	171	139	72	88	189	138	173	163
Acres of Earth Disturbance Approved	7.1	27.1	43.5	5.7	5.1	5.1	20.6	10.4	8.7	12.8	18.7	7.8	172.6
Acres of Green Roofs Approved	0.7	2.6	1.0	0.2	0.0	0.4	0.1	0.8	0.1	0.7	0.4	0.0	6.8
Acres of Porous Pavement Approved	0.3	0.2	12.5	0.2	0.0	0.2	0.1	0.5	0.0	0.3	0.6	0.1	15.0
DEP Reviews													
New Coordinated Reviews	4	4	7	9	9	7	3	7	4	9	5	3	71
Erosion and Sedimentation Plan Review													
Defer to DEP	0	0	4	3	1	0	0	0	0	0	1	0	9
Approved	16	7	7	22	12	13	16	15	13	17	14	16	168
Rejected	8	11	14	16	19	18	17	12	15	16	20	17	183
Not Applicable	12	4	16	13	10	15	9	8	9	13	10	10	129
Total Inspections													
New Sites Inspected	168	33	21	54	12	19	16	19	16	37	17	23	435
Total Inspections	490	491	473	614	472	484	395	436	417	443	440	479	5634
Active Construction Inspections at Project Sites with MS4 Sewers	132	113	104	144	118	122	86	62	104	105	84	97	1271
Post Construction Inspections at Project Sites with MS4 Sewers	14	9	2	13	8	4	4	5	8	24	4	7	102
Total Inspections at Project Sites with MS4 Sewers	146	122	106	157	126	126	90	67	112	129	88	104	1373
Active Construction Inspections at Project Sites with Combined Sewers	301	328	324	368	307	320	278	337	277	282	316	321	3759
Post Construction Inspections at Project Sites with Combined Sewers	15	7	15	42	7	10	2	8	2	5	10	19	142
Total Inspections at Project Sites with Combined Sewers	316	335	339	410	314	330	280	345	279	287	326	340	3901

Please note: In FY2009, PWD changed the Technical Screening to more of an administrative check to better mirror DEP's administrative check. PWD Screenings are no longer included in the Technical Review count.

Figure F.5.-1 – FY16 Active Construction Sites



As of 9/13/2016

0 1.25 2.5 5 Miles

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. With the signing of a Consent Order and Agreement with the PA DEP in June 2011, the Department saw an opportunity to maximize stormwater management from land development projects while simultaneously implementing business-friendly improvements to the program.

Beginning in 2012, the Department compiled an ambitious workplan to research and investigate a revision to the Water Quality requirement of the Stormwater Regulations. This effort required the assistance of external contract support in addition to mobilizing limited internal resources. In order to evaluate feasibility and test proposed changes against various development scenarios, PWD conducted peer city research, hydrologic model analyses, and literature reviews. PWD also conducted extensive outreach to the development community, which included collaboration with private engineering firms to develop case studies to confirm the feasibility of the regulatory changes. As a result, the following changes were made to the Water Quality requirement in the Regulations:

- Increasing runoff depth managed from 1 to 1.5 inches.
- Decreasing the release rate from 0.24 cfs/acre to 0.05 cfs/acre for slow release systems.
- Modifying the volume reducing requirement to “pollutant” reducing to ensure that 100% of the stormwater managed goes through a pollutant reducing practice to increase mass capture.

The Philadelphia Stormwater Management Regulations are available online at <http://www.phila.gov/water/PDF/PWDregCH6.pdf>.

c. Applications/Permits

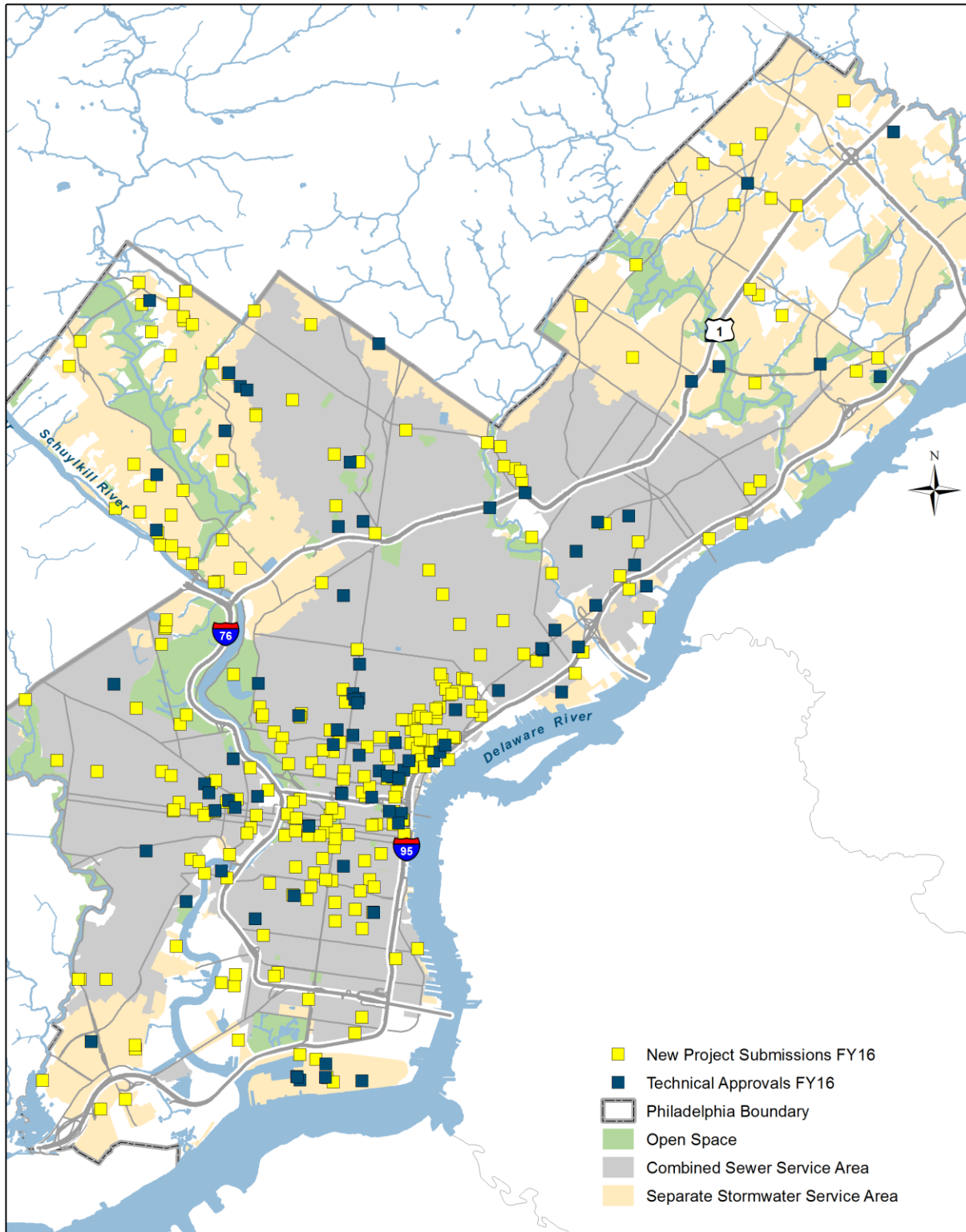
Across the entire city during FY16, 295 unique projects were submitted to PWD for conceptual review through the program’s website. PWD approved full technical plans for 84 projects during FY16 citywide. It should be noted that this number does not include plans re-submitted for review, some of them multiple times. The distribution of development projects that submitted post-construction stormwater management plans for review is presented in **Figure F.5.c-1, Table F.5.c-1 & 2**. During FY16, 71 coordinated permit applications citywide were submitted to PA DEP that underwent a joint stormwater management review as shown in **Table F.5-1**.

Table F.5.-2 Approved Stormwater Plan Location Summary by Contributing Area

Drainage Type	Number of Locations
Combined Sewer Area	62
Non-Contributing Area	5
Separate Sewer Area	17
Total	84

Table F.5.-3 Approved Stormwater Plan Location Summary by Watershed

Drainage Watershed	Number of Locations
Delaware River	40
Poquessing Creek	3
Pennypack Creek	4
Schuylkill River	22
Tacony/Frankford Creek	10
Wissahickon Creek	4
Darby-Cobbs Creek	1
Total	84



As of 9/13/2016

0 1.25 2.5 5 Miles

Figure F.5.-2 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 FY16, PWD conducted 93 pre-construction meetings citywide for development projects. During the pre-construction meeting, both the approved Erosion and Sedimentation Pollution (E&S) Control Plan and the approved Post-Construction Stormwater Management Plan (PCSMP) are discussed with the construction manager and property owner representative. Post-Construction Stormwater Management inspections are discussed in **Section F.8.** on page 38.

The inspection program continued in FY16 by conducting inspections of stormwater structural controls on land development sites. PWD stormwater plan review inspectors conducted site visits for 306 active sites citywide during FY16. Technical plan review staff was also on-site to verify construction of the stormwater management practices (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 and the construction manager.

During FY16, PWD inspectors had the task of inspecting the installation of SMPs and erosion and sedimentation controls during the course of active construction for private development sites. As a result, PWD was able to maintain its presence in the field by conducting over 1,271 active construction inspections on 65 sites in the separate sewered areas of the city. Many sites were visited multiple times to ensure compliance with appropriate requirements (**Table F.5.d-1**).

Table F.5.-4 Active Construction Inspection Site Location Summary

Drainage Type	Number of Locations
Combined Sewer Area	218
Non-Contributing Area	23
Separate Sewer Area	65
Total	306

e. Monitoring/Enforcement

PWD issues a Notice of Violation 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 FY16, PWD issued a total of 24 Notice of Violations to projects under construction citywide. The major compliance issues for active construction projects include improper use of silt fences, inadequate or lack of rock construction entrances, contractor not following the onsite E&S Plan and a complete absence of E&S controls. In severe cases, PWD may request support from PA DEP to perform a co-inspection of a site and aid in enforcement action. In FY16, PWD and PA DEP further refined existing enforcement coordination protocols between the two agencies to address the repeat offenders. Repeat offenders are contractors and developers who are cited for repeat violations on the same or multiple sites throughout the City without taking corrective actions. Building on existing co-inspection procedures, PWD and PA DEP agreed to a referral process where the State can provide enforcement support through notice of violation, compliance meetings, and by issuing fines.

Notice of Violations include a deadline for compliance and re-inspection. If a project remains out of compliance, PWD will coordinate with the Department of Licenses & Inspections to issue a Stop Work Order. A total of two sites were issued Stop Work Orders citywide in Fiscal Year 2016. PWD also coordinates with the Department of Licenses & Inspections to hold the building Certificate of Occupancy for any projects where major issues are identified during the construction process.

f. NPDES Permit Requests

PWD continues to serve as the Conservation District 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 FY 2013 Annual Report.

g. Storm Water BMP handbook and Construction Site BMP Sediment & Erosion Control Checklist

The Stormwater Management Guidance Manual Version 3.0 represents a comprehensive revision released in conjunction with the updated Stormwater Regulations on July 1, 2015. 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 nearly a decade of program growth and technological advancements to streamline the technical design requirements and clearly document the plan review process for applicants. The Department 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 <http://www.pwdplanreview.org/>.

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: EWS, SAN, CSO Management Program, Watershed Planning, Source Water Protection Program, and Wetlands Mitigation Registry. The Watershed Planning Program is presently explained in detail throughout **Section III.C.** on page 30 of the CSO Annual Report.

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, whose sources consist of the Schuylkill and Delaware Rivers. The Source Water Protection Program staff work closely with PWD water treatment plant managers and operators to anticipate and respond to emergencies and challenges to conventional treatment techniques. PWD continues to support the Source Water Protection Program, and has discussed it in full detail in the past. 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 15 for information about this topic.

Delaware Valley Early Warning System

Please refer the CSO Annual Report **Section II.G.2 – Early Warning System** on page 16 for information about this topic.

RiverCast

Please refer the CSO Annual Report **Section II.G.2 – RiverCast** on page 15 for 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 **Section I Management and Control of CSOs** on page 1 in the CSO Annual Report for additional information.

Watershed Mitigation Registry

Please refer to the CSO Annual Report **Section III.C.2.4 – Wetland Enhancement and Construction** on page 38 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 citizen 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 FY16 is presented in **Appendix O – 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 numerous amounts of literature to the public. Please refer to the CSO Annual Report **Section II.G – Pollution Prevention** on page 14 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 the 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 the PWD having 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 PA Department of Agriculture. In order 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. In order to mitigate the impact of these storms, the Streets Department has prepared 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 (6) Highway Districts. Page 36 of the Plan describes the Streets Dept. Salting Policy. The updated Snow and Ice Removal Operations Plan for winter 2015-2016 is provided in **Appendix M - Winter 2015-2016 - Snow and Ice Operations Plan**.

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

The City's one waste transfer station, Northwest Transfer Station is located at Domino Lane and Umbria Street. From 9/22/15 to 9/23/15 PWD cleaned 20 inlets and removed 4 tons of debris from the Northwest Transfer Station located at Domino Lane and Umbria Street. On 9/23/15 PWD also performed dye tests in 11 grate inlets to verify site drainage. All 11 inlets were confirmed to drain to the storm sewer. Moving forward, PWD will work with the Streets Dept. to complete and submit an application for the PAG-03 General NPDES Industrial Stormwater permit.

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 and have been most recently updated in July of 2015. These regulations require stormwater management on development projects with that exceed and 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 31.

PWD has added documentation to a website (<http://www.phila.gov/water/PDF/PWDregCH6.pdf>) in order 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

The Basin was last dewatered in August of 2012 to inspect the sediment levels. The basin sediment appears to have not changed since its last inspection in 2009; therefore no further accumulation has been occurring. For more information on this project, please refer to Section F.8.b.i on page 214 of the CSO-Stormwater FY 2012 Annual Report.

b.ii. Existing privately owned structural controls

To ensure ongoing SMP maintenance of private facilities, the Water Department continues to utilize three means: executing Operation & Maintenance Agreements, conducting post-construction maintenance inspections, and utilizing enforcement tools.

An Operation & Maintenance Agreement is executed by PWD and the property owner, notarized, and recorded to the property land deed prior to the issuance of a Post-Construction Stormwater Management Plan Approval by the Water Department. These agreements outline the SMP(s) on the private site and stipulate maintenance requirements. The agreements also include language granting the Water Department the right to inspect on-site SMPs and even perform maintenance on behalf of the property owner if necessary. The PWD also maintains a comprehensive operations and maintenance manual for SMPs geared toward private development users: <http://www.phila.gov/water/PDF/Retrofit-O.M.Manual.pdf>.

Post-construction maintenance inspections of private facilities were conducted through the reporting period. The Water Department utilizes both specialized inspection techniques as well as visual inspections to assess the performance of private SMPs. The inspections conducted to date have identified the most effective methods and technologies, including closed-circuit television, surveys of critical system elevation points, confined space, visual inspections, pole-mounted camera photography, and wet weather inspections. In FY16, the Water Department performed 256 post-construction inspections citywide. The Department will continue to evaluate and refine post-construction inspection protocols.

Utilizing **enforcement tools**, PWD will issue notification to the property owner if an SMP is found to be insufficiently maintained. This notification will include a description of any issues identified and a timeline for 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 PWD's stormwater regulations are required to maintain the SMP(s) to function as designed. If this initial notification is unsuccessful at bringing action from the property owner, PWD can compel compliance through a number of enforcement tools, including issuance of notice of violations, fines, court action, and/or a nuisance abatement and lien by the City. For non-compliant projects, PWD will also suspend any stormwater billing credits, if the customer is enrolled in the credits program, if the required maintenance is not performed.

In FY2016, 27 projects were brought back into compliance citywide using the above-referenced protocols. 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 Stormwater from Construction Activities** on page 26 for additional information.

d. Street Cleaning Program

During FY16, the Streets Department continued its street cleaning programs that target street debris and litter. With its fleet of mechanical sweepers, the Streets Department provides daily street cleaning in Center City and on major arteries and commercial corridors throughout the city. In FY14 the Streets Department also began monthly street sweeping operations on routes along the Tookany / Tacony Frankford, Wissahickon, Cobbs Creek and Pennypack watersheds within the city. In FY16, a total of 691 miles were cleaned and 121 tons of debris was removed.

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. 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

The City promotes, develops, and implements litter reduction programs in an effort to increase public awareness of litter as a source of stormwater pollution. There are about 500 solar-powered, compaction litter receptacles in Center City, and another 460 in other commercial districts throughout the city. Over 600 standard wire baskets are also in place through the Philadelphia More Beautiful Committee (PMBC) Adopt-A-Basket program, that provides block captains with wire waste baskets to distribute and manage across city neighborhoods. PMBC also organizes neighborhood cleaning events citywide. In the FY16 Clean Block season 4,416 blocks were cleaned by 47,482 volunteers; 750.82 tons of trash were collected and

removed. Such cleaning efforts are bolstered every April by the Philly Spring Cleaning day, a citywide anti-litter event partnering various city agencies and neighborhood community groups, now in its ninth year. These efforts are bolstered by Philadelphia's SWEEP program. SWEEP officers, employees of the Streets Department, work with residential communities to address locations with problematic amounts of litter and short dumping. In cases of non-compliance, SWEEP officers will issue warnings and citations to the appropriate individuals. In FY16, approximately 23,590 tickets were issued.

e. Animal Waste and Code Enforcement

Educational material regarding control of animal waste

The City of Philadelphia actively enforces code which covers the regulation 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 in an effort 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://www.phillywatersheds.org/whats_in_it_for_you/residents/pet-waste

Dog Waste Control Program

PWD launched an innovative approach to address dog waste in targeted neighborhoods in July of 2010. Through a pilot project in the Delaware Watershed, the Partnership for the Delaware Estuary found that many dog-owners are unaware of the connection of dog waste to water pollution. Over the past couple of years, thousands of "Bags on Board" and educational tip cards were produced and purchased for distribution at the FWWIC and various public events. The "Bags on Board" is a roll of 15 dog waste collection bags that conveniently clips onto a dog leash. Refills are available at most local pet shops.

PWD launched a "Spokesdog" competition to find an eco-friendly dog and their caretakers to help educate their bark park buddies on keeping Philadelphia's waterways clean. In FY16 one dog was chosen from the Fishtown neighborhood, with a total of over 31 dogs competing. Messages about the competition and runoff pollution caused by dog waste were featured in multiple articles in local newspapers, magazines and on television, reaching tens of thousands of Philadelphians. Also, PWD's website, which hosted the Spokesdog Competition information, registration and online voting, received 16,030 hits by 10,160 unique visitors. More information can be found at the following website: <http://www.phillywatersheds.org/spokesdog>.

f. Flood Management and Flood Control Devices

Structures built within the floodplain

All structures including buildings and infrastructure such as piping and roads built within or close to the 100 Year Flood Plain area that require a Zoning Permit or a Building Permit or both should be reviewed to determine if Floodplain Regulations apply. The City's Licenses and Inspection (L&I) department will send all applicants with properties located in or close to the 100 Year Flood Plain to the Philadelphia City Planning Commission (PCPC) for review. If the property is determined to be within the Floodway or Floodway Fringe, structures built on the allowable property will be built at least one-foot above the Base Flood Elevation (BFE) or flood proofed such that plan complies to 14-1606 and any special Building Code requirements. PCPC signed off on 26 plans in FY16. The number of zoning and building permits issued in FY16 was not available at the time of the report deadline. These numbers will be available upon request.

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 39 of this report.

Work is being done on sections of the city that have chronic flooding to eliminate or reduce these occurrences; please refer to CSO Annual Report **Section II.B.3.3 – Storm Flood Relief** 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 the CSO Annual Report **Section III.C.2.3 – Stream Habitat Restoration** on page 37 for information pertaining to streambank restoration.

Please refer to the CSO Annual Report **Section III.C.2.4 – Wetland Enhancement and Construction** on page 38 for information pertaining to wetland enhancement.

g. Sanitary Infiltration Controls

Limit sanitary infiltration

As part of the Cross Connection Repair Program, PWD has conducted 1,386 abatements to correct cross connection in sewer laterals since 1994; 39 abatements were completed in FY16 alone. PWD also has in place twelve (12) 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 194.0 million gallons of contaminated flow from entering our waterways since the inception of the program and about 5.0 million gallons during FY16. Please refer to **Section F.3 – Detection, investigation and abatement of Illicit Discharges** on page 25 for more information on the Cross Connection Repair Program.

In addition, as part of PWD's Sewer Maintenance Program, sewer relinings are routinely conducted on both sanitary and storm sewers. Relining 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 sewer assessment meetings.

As a part of PWD's commitment to improvement of water quality and aesthetics in dry weather, a large relining project began on the entire length of an interceptor within Philadelphia in the Tookany/Tacony-Frankford and Cobbs Creek Watersheds. Please refer to **Appendix A Green City, Clean Waters FY16 Annual Report Section 1.1 Interceptor Rehabilitation Program** on page 1 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 relinings to be done around regulator R-20 in an effort 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 26 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 DEP. 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. In FY16, PWD continued to monitor the effectiveness of this relief sewer. There were also several sewer lining projects done under the consent order for PC- 30 area in conjunction with the relief sewer being constructed. Please refer to CSO Annual Report **Section III.B.2. – PC-30 Relief Sewer** on page 33 for more information on the PC-30 Relief Sewer.

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 FY16 are found within in **Appendix N – FY16 Sanitary Infiltration Events**.

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. The City of Philadelphia Emergency Operations Plan – Annex F Hazardous Materials and PWD – Waterways Contamination Response Protocol, can be found in the Additional Documents folder on the **Supplemental CD**.

In order 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. A list of all pollutant migration events in the MS4 section of the City that occurred in FY16 is presented in **Appendix O – Pollutant Migration/Infiltration**.

i. Public Reporting of Illicit Discharges, Improper Disposal

The City encourages public citizens 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 (215 686-6300) 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.

PWD received over 201,000 phone calls which lead to 24,041 service requests being conducted during FY16. Currently PWD does not track phone calls specifically related to illicit discharges and improper disposals in the MS4 area, but instead tracks much 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 FY2016, Philly 311 transferred 1,176 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. For more information on the hazardous waste program please visit: <http://www.philadelphiastreet.com/hazardous-waste>.

k. Storm Water Inlet Labeling/Stenciling

In September 2015, Philadelphia Water released a refreshed storm drain marking program. This new iteration features watershed specific storm drain markers. Each of the seven new markers prominently features a unique color scheme and an animal native to that respective watershed. Educational materials provided with each kit better inform the public about how their actions on the street can reduce stormwater runoff pollution. To date, over 400 volunteer groups have participated in this program marking an estimated total of over 11,000 storm drains. During FY16, 82 storm drain marking kits were distributed totaling 1,230 individual stormwater inlet labels. PWD continues to encourage community organizations and citizens to get involved in storm drain marking projects. More

information on this program has been provided in previous years; please refer to Section F.8.k on page 312 of the CSO-Stormwater FY 2010 Annual Report.

Section G Assessment of Controls

Annually estimate pollutant loadings & reductions from stormwater management plan

Philadelphia Water selected a set of effective post-construction stormwater management controls to address problems identified in the waterways, and documented these controls in the Stormwater Management Guidance Manual. Philadelphia's stormwater management regulation legally require all development and redevelopment 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 down 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. This requirement has been increased in 2015 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.

There are approximately 20.7 square miles of impervious area in the portion of the City that falls under the MS4 permit. As of September 2016, approximately 0.95 square miles (606 acres) of directly connected impervious area are tributary to completed or approved green stormwater infrastructure. This is approximately 4.6% of the impervious area.

Section H Fiscal Resources

Maintain adequate program funding

During FY16, the City provided fiscal resources needed to support operation and maintenance of the Stormwater Management Program as outlined in **Table H.1-1** below. The table presents fiscal year budgets for Fiscal Year 2016. The budget for the upcoming FY17 budget is available upon request.

Table H.1-1 Fiscal Resources

Program	FY16 Budget (\$ Millions)
Office of Watersheds	\$19.13
Collector Systems Support	\$0.90
Sewer Maintenance and Flow Control	\$23.69
Inlet Cleaning	\$4.82
Abatement of Nuisances	\$8.66
Sewer Reconstruction	\$30.10
Public Affairs and Education	\$12.24
Total	\$99.54

Annually submit fiscal analysis

The conditions of the NPDES permit are able to 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 2016 Annual Report

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

Reporting period July 1, 2015 – June 30, 2016

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, 2016

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Glossary of Acronyms

ADCP	Acoustic Doppler Current Profiler
ADA	Americans with Disabilities Act
AOCC	Administrative Order for Compliance on Consent
BMP	Best Management Practice
BOD	Biological Oxygen Demand
CCLL	Cobbs Creek Low Level
City	City of Philadelphia
CMP	Comprehensive Monitoring Plan
COA	Consent Order and Agreement
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
DO	Dissolved Oxygen
DPP	Department of Public Property
ECA	Energy Coordinating Agency
GA	Greened Acre
GARP	Greened Acre Retrofit Program
GIS	Geographic Information Systems
GSI	Green Stormwater Infrastructure
IAMP	Implementation and Adaptive Management Plan
L&I	Department of Licenses and Inspection
LTCP	Long Term Control Plan and its supplemental documents
LTCPU	Long Term Control Plan Update
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
NMCs	Nine Minimum Controls
NOAA	National Oceanic and Atmospheric Association
NPDES	National Pollutant Discharge Elimination System
oTIS	Office of Transportation & Infrastructure Systems
PADEP	Pennsylvania Department of Environmental Protection
PCPC	Philadelphia City Planning Commission
PDE	Partnership for the Delaware Estuary
PEC	Pennsylvania Environmental Council
PennDOT	Pennsylvania Department of Transportation
PHA	Philadelphia Housing Authority
PIDC	Philadelphia Industrial Development Corporation
PPR	Philadelphia Parks and Recreation
PRA	Philadelphia Redevelopment Authority
PWD	Philadelphia Water Department (PWD)
RFI	Request for Information
RFP	Request for Proposal
RTC	Real Time Control
RTP	Rebuilding Together Philadelphia
SDP	School District of Philadelphia
SEPTA	Southeastern Pennsylvania Transportation Authority

SMED	Stormwater Management Enhancement District
SMIP	Stormwater Management Incentive Program
SMP	Stormwater Management Practice
SOD	Sediment Oxygen Demand
SRT	Simulated Runoff Testing
SSES	Sanitary Sewer Evaluation Survey
SWMM	Stormwater Management Model
TIGER	Transportation Investment Generating Economic Recovery
TPL	Trust for Public Land
TTF	Tookany/Tacony-Frankford Watershed
USEPA	United States Environmental Protection Agency
WASP	Water Quality Analysis Simulation Program
WPCP	Water Pollution Control Plant
WQBEL	Water Quality-Based Effluent Limit

1.0 Introduction

The Consent Order and Agreement (COA) between the City of Philadelphia (City) and the Pennsylvania Department of Environmental Protection (PADEP), and the Administrative Order for Compliance on Consent (AOCC) between the City and the United States Environmental Protection Agency (USEPA), formalize the regulatory approval of the *Green City, Clean Waters* program and amended the 2009 CSO Long Term Control Plan Update (LTCPU). This is the fifth Annual Report submitted under the requirements of the COA. Fiscal Year 2016 (FY16) covers the City's *Green City, Clean Waters* implementation progress activities that occurred between July 1, 2015 and June 30, 2016.

1.1 Water Quality Based Effluent Limit (WQBEL) Performance Standards

The City's Combined Sewer Overflow (CSO) Long Term Control Plan Update (LTCPU) and its supplements are based on compliance with the National CSO Policy and with the water quality requirements of the Clean Water Act and the Pennsylvania Clean Streams Law. The City will construct and place into operation the controls described as the selected alternative in the LTCP and its supplements to achieve the elimination of the mass of pollutants that would otherwise be removed by the capture of 85% by volume of the combined sewage collected in the Combined Sewer System (CSS) during precipitation events on a system-wide annual average basis. The Water Quality-Based Effluent Limits (WQBEL) performance standards are broken into incremental targets that must be achieved by the City of Philadelphia every 5 years of the 25-year program. The Philadelphia Water Department is preparing an Evaluation and Adaptation Plan for submission by October 30th to PADEP to report on the progress of meeting the Year 5 targets outlined in the WQBEL. The FY16 COA Annual Report will focus on the progress accomplished in FY16 towards the Greened Acre target.

FY16 Progress on Miles of Interceptor Lined

The WQBEL Performance Standards requires 2 miles of interceptor lining by the end of year 5 (2016). During FY16 the number of completed miles remained the same as FY15 but, the City is well ahead of the year 5 target with 7.5 miles completed. Additionally, there are 4.3 miles in construction or in contract management, and 3.3 miles in design. (**Table 1-1**).

Table1-1 Interceptor Lining FY16 Status

Project Name	Street Extents	Length (Miles)
Construction Complete		7.5
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
In Contract Management		4.3
Cobbs Creek Intercepting Sewer Lining Phase 2	61st and Baltimore to 60th and Warrington	1
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 Design		3.3
Tacony Creek Intercepting Sewer Lining Phase 3	I & Ramona to O & Erie	1
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
Total Anticipated Miles of Interceptor Lined		15.1

1.2 First Five-Years of Deliverables to PADEP

The COA requires twelve deliverables and two reports due between December 1, 2011 and June 1, 2015 (**Table 1-2**). All required deliverables were submitted to PADEP and have either been approved or are awaiting approval.

Table 1-2: COA Deliverables

	Deliverable Name	Deliverable Due Date	Status
I	Implementation and Adaptive Management Plan	December 1, 2011	Approved
II	Green Infrastructure Maintenance Manual Development Process Plan	June 1, 2012	Approved
III	Comprehensive Monitoring Plan	December 1, 2012	Approved
IVa	Facility Concept Plan for NE WPCP*	June 1, 2013	Approved
IVb	Facility Concept Plan for SE WPCP*	June 1, 2013	Submitted
IVc	Facility Concept Plan for SW WPCP*	June 1, 2013	Submitted
V	Updated Nine Minimum Controls Report	June 1, 2013	Approved
VI	Tributary Water Quality Model – Bacteria	June 1, 2013	Submitted
VII	Tributary Water Quality Model - Dissolved Oxygen	June 1, 2014	Submitted
VIII	Green Infrastructure Maintenance Manual - First Edition	June 1, 2014	Submitted
Required	Sanitary Sewer Evaluation Survey Report	June 1, 2014	Submitted
IX	Tidal Waters Water Quality Model - Bacteria	June 1, 2015	Submitted
X	Tidal Waters Water Quality Model - Dissolved Oxygen	June 1, 2015	Submitted
Required	Outlying Communities Report	June 1, 2015	Submitted

* PWD submitted the Wet Weather Facility Plan on June 1, 2016 to PADEP and EPA. This plan supersedes the Facility Concept Plans for the NE, SE and SW WPCPs.

2.0 Implementation Tracking and Reporting

2.1 Reporting Implementation Progress

Paragraph 3(d) of the COA requires the City to provide information regarding the implementation of CSO Controls, including the Nine Minimum Controls from the National CSO Policy, the Capital Projects from the 1997 Long Term Control Plan, and the CSO program elements discussed in the Approved LTCPU. Information regarding the implementation of the Nine Minimum Controls and the 1997 LTCP Capital Projects can be found in Sections II and III.B, respectively, of the Combined Sewer Management Program Annual Report on pages 1 and 27. Updates to the CSO program elements discussed in the Approved LTCPU can be found in the Wet Weather Facility Plan, submitted to PADEP on June 1, 2016 and the forthcoming Evaluation and Adaptation Plan due on October 30, 2016.

2.2 Green City, Clean Waters Program Tracking System

To facilitate the integration of existing databases and systems into the *Green City, Clean Waters* program tracking system, effort was focused on improving the linkage between the various project stages (planning, design, procurement, and construction) and streamlining the reporting process for internal and external data requests. Status updates on the existing databases and systems are provided in **Table 2-1**.

Table 2-1: FY16 Status updates for existing databases and systems used for program tracking

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 GreenIT to begin design phase. PlanIT Version 2.0 was finalized in FY16 and includes new fields to track policy and outreach information, upgraded mapping features, and connectivity with GreenIT and CAPIT.
GreenIT	PWD's tracking system for all public green stormwater infrastructure projects from the concept through construction phases, GreenIT, tracks designated compliance metrics. During FY16, the development of a Version 3 scope was started for integration into the new CAPIT.
Plan Review Database	PWD's tracking system that stores metrics, including detailed SMP data, related to private development project compliance with the Philadelphia Stormwater Regulations as well as voluntary Stormwater management retrofit projects. The database is designed to track workflows related to reviews and inspections, including the status of conceptual and technical reviews, record drawing reviews, and active and post-construction inspections.

Existing Databases and Systems	Status
CAPIT	PWD’s Capital Project Tracking System will be upgraded to meet PWD’s growing needs. In FY16, PWD worked towards understanding the requirements and doing configuration of the system that will replace CAPIT.
Geographic Information System (GIS) Asset Tracking	GIS is used to track the location all PWD Department assets including green infrastructure.
Maintenance Management Systems	Green stormwater infrastructure maintenance activities have been fully incorporated into PWD's Cityworks work order management system, which is linked to the City's GIS and provides tools to track and manage work performed on PWD's assets such as fire hydrants, inlets, water mains, sewers, and green stormwater infrastructure.

2.2.1 Reporting Metrics

The information in GreenIT is used to produce compliance reporting outputs for the completed and planned public project tables as described in **Appendices 1 and 2** of this Report. The reporting format is illustrated in **Table 2-2** and metric definitions are included. Information from the Stormwater Plan Review Database is used to produce reporting outputs for the private complete projects as described in **Appendix 3**. The reporting format is illustrated in **Table 2-3**. During FY16, PWD worked on the alignment of public and private data fields to set the groundwork for integrated reporting of the various implementation approaches. An example of this alignment is represented in **Table 2-4**.

Table 2-2: Public Project Tracking Metrics and Reporting Format

Public Project Tracking Metrics										
Project Name	Status	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acres (acre-inch)	SMP Type	Program	Construction Cost	Partner(s)	Watershed

Table 2-3: Private Project Tracking Metrics and Reporting Format

Private Project Tracking Metrics						
Tracking Number	Sewer Type	Category	Watershed	Zip Code	SMP Type (s)	Greened Acres (acre-inch)

Project Name

For PWD initiated and/or public property project, the project name typically is the name of the associated school, park, playground, or streets. For Privately Initiated projects, the project name is derived from the property owner and date of submission.

Status

Current project status. Statuses include: In Design, In Projects Control (Under Contract Management), In

Construction, and Construction Complete. The category for private and incentivized projects is verified as only completed projects are reported.

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

Area, in square footage, of impervious and/or pervious surface(s) flowing into a system(s) and SMP(s).

Greened Acres (GAs)

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.

Program

Current public programs which a greened acre can be assigned to include:

- Alleys/Driveways
- Campuses
- Facilities
- Industry and Business
- Open Space
- Parking
- Schools
- Stormwater Planning Districts
- Streets
- Vacant Land

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 Creek Watershed
- Delaware Direct Watershed
- Tookany/Tacony-Frankford Creek Watershed
- Schuylkill River Watersheds

Stormwater Management Practice (SMP) Type

A Stormwater Management Practice 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. During FY16, SMP types were aligned between the public and private implementation approaches as their respective tracking systems, GreenIT (public) and The Stormwater Plan Review Database (private and incentives), use different terminology to define SMP's. **Table 2-4** lists the public and private SMP types, and provides an overarching nomenclature that can be used to streamline reporting through the *Green City, Clean Waters* program tracking system. **Tables 2-5** and **2-6** display the definitions for the public and private SMP types, respectively.

Table 2-4: Public and Private SMP Type Alignment

SMP Type Alignment	
Public SMP Types	Private & Incentives SMP Types
Surface Basin	
N/A	Basin
Subsurface Basin	
Infiltration/Storage Basin Tree-Trench	Basin
Blue Roof	
Blue Roof	Blue Roof
Cistern	
Cistern/Rain Barrel	Cistern
Depaving	
Depaving	Depaving
Green Roof	
Green Roof	Green Roof
Pervious Paving	
Pervious Paving	Porous Pavement
Stormwater Planter	

SMP Type Alignment	
Planter Stormwater Tree	N/A
Bio-Basin	
Rain Garden Wetland Basin Green Gutter Bump-out Swale	Bioinfiltration/Bioretention
Infiltration Column	
Infiltration Column	N/A
Drainage Well	
Drainage Well	N/A
Disconnections	
N/A	Planters Total Rooftop Area Disconnection Total Pavement Disconnections Tree Credit

Table 2-5: 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).

Public SMP Type Definitions	
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 slow and infiltrate stormwater.
Green Roof	A green roof is a vegetated surface installed over a roof surface.
Infiltration Column	An infiltration column is a stone column that extends below the bottom of the surrounding GSI system in order to promote infiltration in more permeable sub-grades that exist at greater depths.
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.
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 bio-infiltration basins and bio-retention basins. They are typically integrated into landscape features (e.g. median strips) and are non-mowed areas.

Public SMP Type Definitions	
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 2-6: Private/Incentives SMP Type Definitions

Private / Incentives SMP Type Definitions	
Basin	A surface basin or depression that is vegetated with mowed grass. It is 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.
Cistern	Cisterns are storage tanks, located either above or below ground, that captures and stores 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.
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. Categorized as a Disconnection and logged in square feet.
Green Roof	A green roof is a vegetated surface installed over a roof surface. Green roofs are effective in reducing the volume and rates of stormwater runoff.

Private / Incentives SMP Type Definitions	
Planters	At or above grade planter area and number of planters tracked as "Disconnection" practice. Do not contribute to water quality.
Porous Pavement	Porous pavement 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.
Total Rooftop Area Disconnected	Tracked as the square footage of roof runoff directed to a pervious area.
Total Pavement Disconnections	Tracked as the square footage of runoff from impervious surfaces directed to a pervious area.
Tree Credit	Tracked as either "existing" or "new" tree credits, where each tree is credited with 100 square feet of management per tree.

3.0 Public Green Stormwater Infrastructure

The programmatic strategies for achieving public Greened Acres are benchmarked in three phases: planning, design, and construction. The following three sub sections describe the progress made during the FY16 for each of these phases. **Table 3-1** summarizes Public GSI projects and Greened Acres for FY16. **Figure 3.3** displays the Planned and Completed Public Green Stormwater Infrastructure projects.

Table 3-1: FY16 Summary of Public Green Stormwater Infrastructure

Project Phase	In Design	In Contract Development	In Construction	Completed**
Number of Projects	198	42	23	138
Potential Number of Greened Acres*	TBD	71	75	181

*Potential number of Greened Acres is subject to change as projects go through the design process

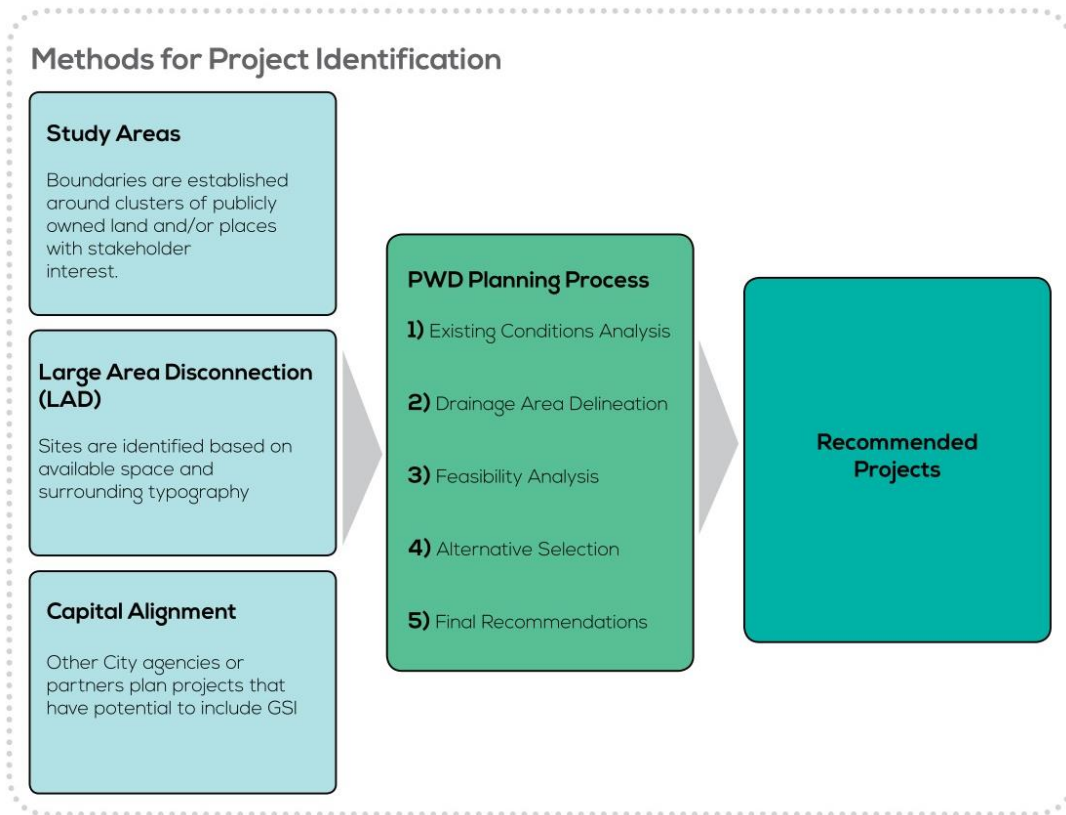
** Completed number of projects and Greened Acres are a cumulative total

3.1 Planning Approaches for Green Stormwater Infrastructure Implementation

Over the past year PWD has continued to streamline and refine a project implementation strategy based on lessons learned. This section will provide an update on the progress PWD has made toward standardizing our planning and analysis process and highlight an example of the results.

PWD has developed a planning and engineering process that is applied to evaluate management potential of large study areas and specific locations, as shown in summary graphic **Figure 3.1**. All project locations are analyzed through the planning process and assessed for immediate or long term implementation potential. **Figure 3.2** displays the study areas that have been evaluated to date.

Figure 3.1 Planning and Engineering Process



Project Highlight - American Street Corridor

Watershed: Delaware

Greened Acre Potential: 25

At the end of 2015, the City of Philadelphia was awarded 15 million dollars in Transportation Investment Generating Economic Recovery (TIGER) funding. A significant portion of the funding was dedicated toward design and construction of streetscaping and GSI improvements along the American Street corridor. The Streets Department is managing the multi-agency effort and PWD is serving as a key member of the project team. PWD participated in the application as base level of stormwater analysis had been completed for the area. The analysis had prepared multiple alternatives for stormwater management. When the grant was awarded it included funds for removal of inactive rail lines which currently run down the center of the wide right-of-way (ROW) which allows PWD to place GSI down the center median in coordination with the streetscape updates.

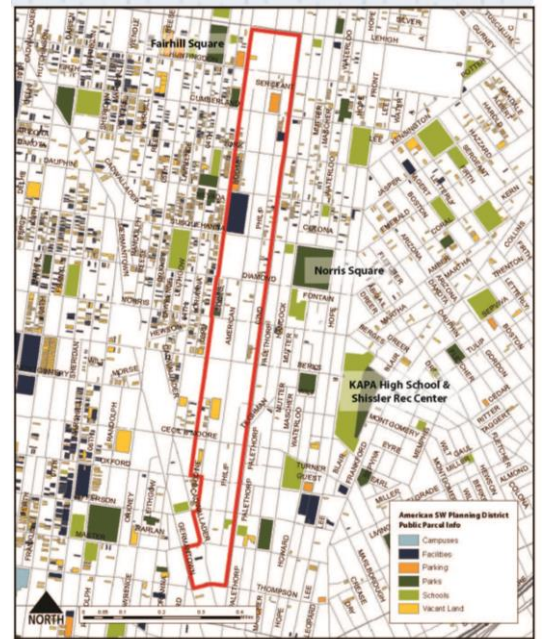
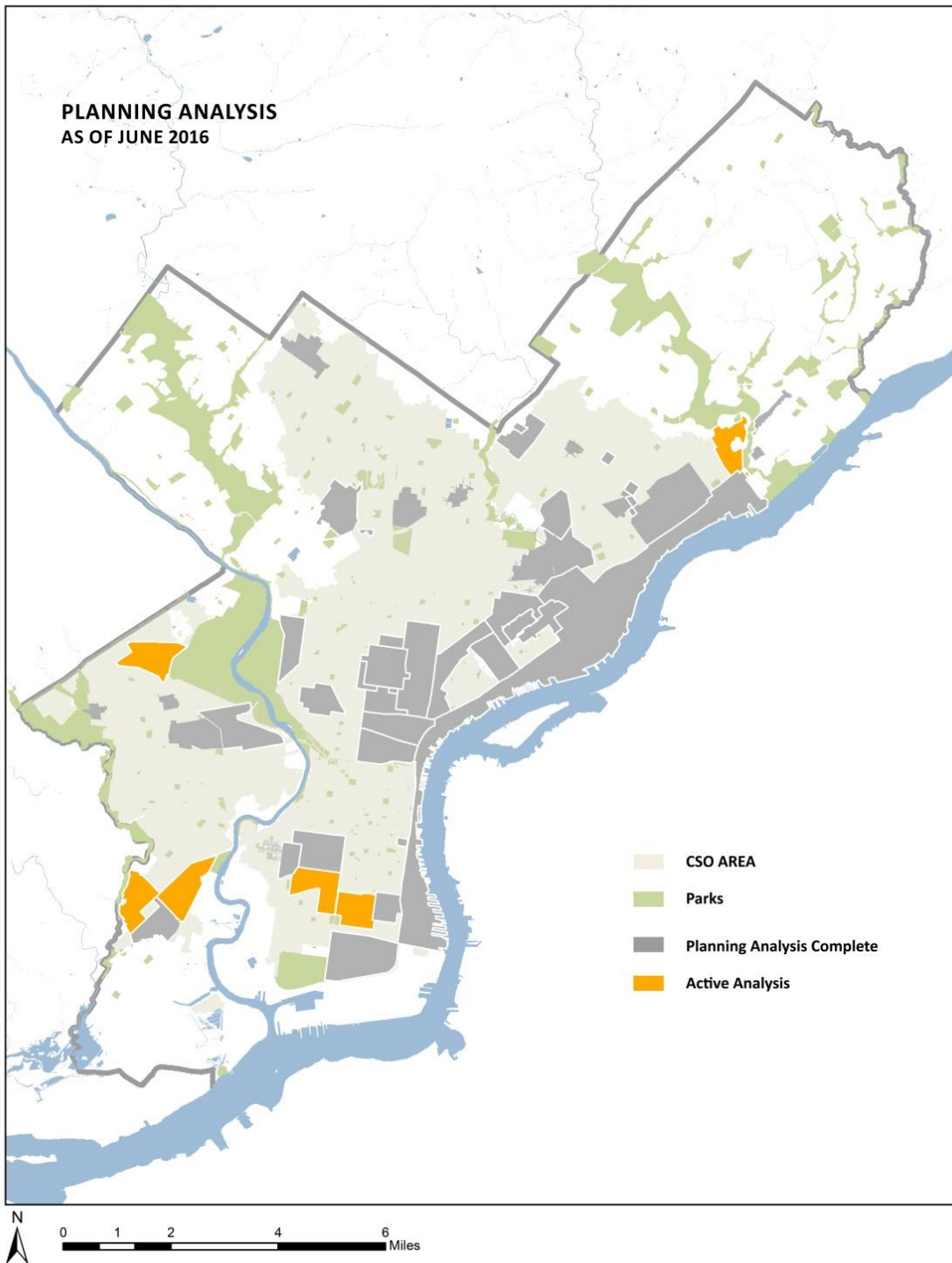


Figure 3.2 Areas Evaluated as of June 2016



3.2 Design Approaches

PWD GSI design teams continued to assist planners to provide technical guidance through planning, development of construction documents, and inspections during construction. The past year has shown major advances in the development and implementation of the Large Area Disconnection (LAD) approach. The LAD approach takes advantage of well situated large open spaces to provide centralized stormwater management for multiple acres of impervious runoff. There are currently 8 LAD projects in design and one multi-phased site, Lanier Playground, with the first phase currently in construction. When complete the Lanier Playground site may manage up to 45 GAs.

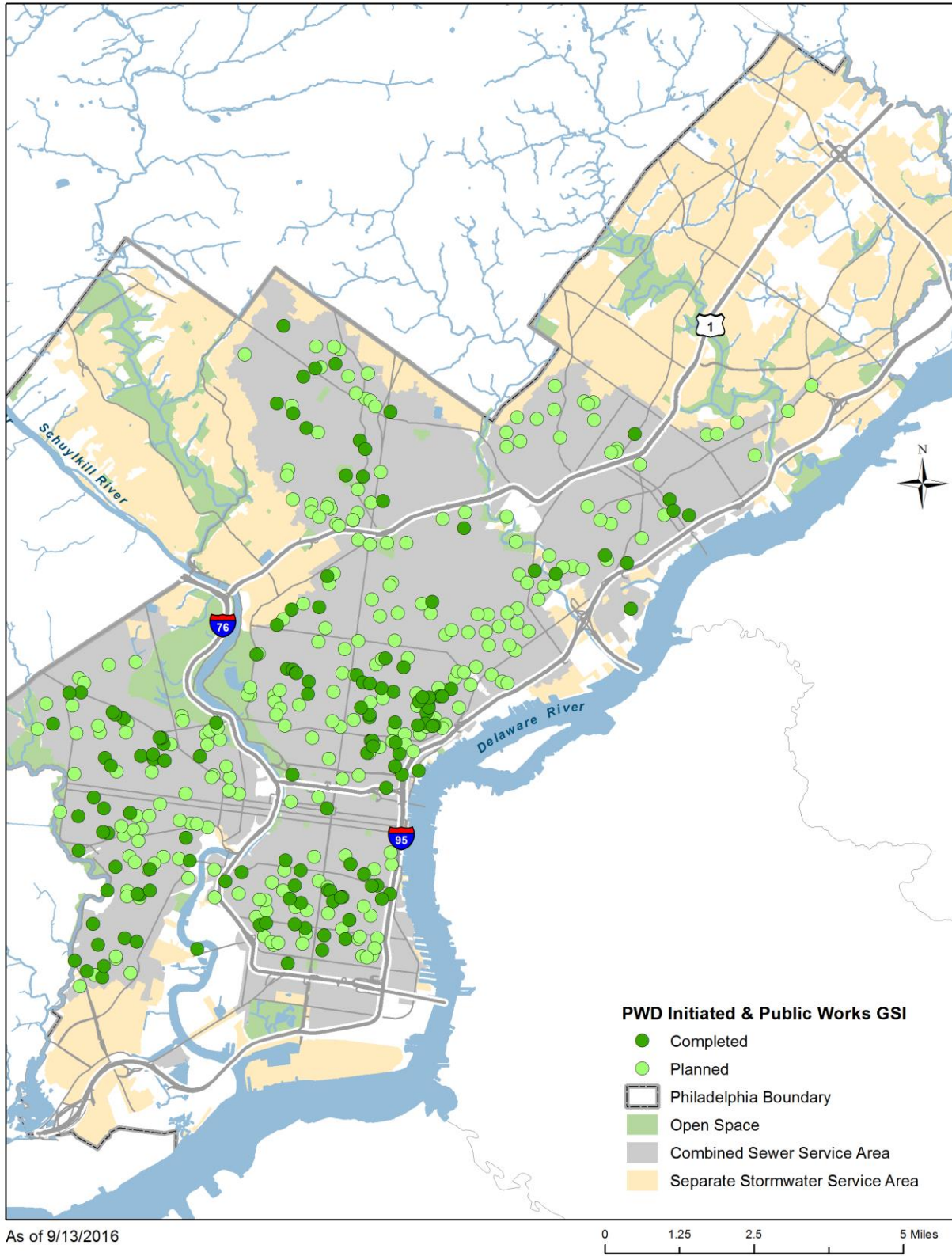
Development of GSI Resources

In the past fiscal year, PWD has finalized and introduced new resources to address multiple needs and has also made significant advances on consolidating the resources into a GSI Planning and Design Manual. Edits to the Green Master Specification were finalized and applied to construction projects bid during the fiscal year. A new As-built Manual was also released and used on several projects recently put out to bid. The new As-Built Manual provides detailed guidance on what elements of construction must be reported in an as-built document as well as the procedure that must be used to produce and deliver that document. The GSI Planning and Design Manual will consolidate many of the resources currently used by PWD staff and contractors, such as the GSI Planning Manual, GSI Design Requirements and Guidelines Packet, GSI Drawing Requirements, and GSI Cad Standards. Concurrent with the creation of the manual, significant effort has gone into updating the GSI Standard Details Book.

3.3 Construction

PWD focused on improving and formalizing the standard specifications for construction of green stormwater infrastructure. In FY16, PWD worked to procure a GSI Landscape contract. The contract will help to provide consistent landscaping at multiple sites, address issues encountered when a construction contract must be held open until the next appropriate planting season and a series of trainings to ensure that the resources are understood and implemented correctly.

Figure 3.3 Public Green Stormwater Infrastructure Projects



3.4 Policy and Partnership

3.4.1 Tracking Federal and State Policy Developments

PWD conducts ongoing analyses and tracking of federal, state and local legislation and regulation that affect *Green City, Clean Waters* goals. This protocol requires a periodic review of policies, regulations, guidance, bills, and reports from a number of priority sources including governments, advocacy organizations, non-profits, and news sources. All legislative and regulatory developments that are relevant to PWD are reviewed and then imported into a policy tracking database.

3.4.2 Study Area-based Opportunities

PWD works closely with a variety of partners in the implementation of the *Green City, Clean Waters* program. Partnership projects take place in two primary ways: 1) identifying green stormwater infrastructure opportunities on public properties and working with partners to acquire access to land and their departmental support and 2) working with partner agencies to identify opportunities to maximize stormwater management in their capital investments. PWD has solidified many of these partnership project identification processes with primary agency partners such as the Streets Department, Philadelphia Parks and Recreation and the Department of Public Property.

PWD relies on a planning study area process, previously described in Section 3.1, to identify City facility sites that present opportunities to manage right of way runoff in a cost-effective manner. In addition to capital alignment with City agencies, PWD is also working to integrate green stormwater infrastructure into investments made by other large landholders in the City who own public facilities such as universities, public housing and public transit.

3.5 Public Green Stormwater Infrastructure Maintenance Program

To ensure the function and sustainability of stormwater management infrastructure investments, PWD continues to maintain each system as well as update its Operation & Maintenance protocols. **Table 3-2** provides a list of SMP types and the total number currently maintained by the PWD.

Table 3-2: PWD SMP Types Maintained in FY16

SMP Types	Total Number of SMPs
Green Roof	2
Infiltration/Storage Trench	69
Pervious Paving	15
Rain Garden/Basin	77
Planter	49
Bumpout	18
Stormwater Tree	86
Tree Trench	199
Swale	6
Total Number of SMP's	521

In FY16 PWD drafted the “Green Stormwater Infrastructure Maintenance Shrub and Herbaceous Plant Identification Guide”. This reference guide is intended for use by PWD crews and contractors and provides photographs, growth habits and other key characteristics useful in vegetation identification. This document is intended to serve as a supplemental reference to the 2014 “PWD Plant Inspection Guidebook” and contains all existing and proposed species to be planted within PWD SMPs.

3.5.1 Inspections

Inspection of Surface Elements

The objective of the surface inspection program is to inform timely preventative and corrective maintenance activities. During FY16 Inspection Staff accumulated a total of 16 hours of training in the following professional training programs: National Stormwater Center ‘s Certified Municipal Stormwater Inspector.

Inspection Program staff and ancillary staff (i.e. staff that have field duties that frequently place them in vicinity of PWD GSI) that assist with this effort meet quarterly to review standard operating procedures and coordination tactics. A total of 18 individuals have participated in such meetings.

Inspections are denoted as wet weather inspections or dry weather inspections. A total of 1,912 inspections were conducted during FY16. There were 1,551 dry weather and 361 wet weather inspections.

Procedure dictates that any issue identified during a routine inspection will be referred for follow-up maintenance.

A total of 367 referrals were initiated from the inspection program whereas: 24 were aesthetic-related issues (e.g. non-destructive vandalism or trash and organic matter accumulation); 20 were issues requiring subsurface maintenance, 311 were issues requiring follow-up standard priority routine maintenance and 12 were issues requiring follow-up high priority routine maintenance.

Inspection of Subsurface Elements

The objective of the subsurface inspection program is to observe and assess all structural components of GSI systems that exist below street level. Inspections are performed in dry weather conditions as capturing discernable video during wet weather conditions is difficult. Inspection staff is certified through the National Association of Sewer Service Companies’ (NASSCO) Pipeline, Manhole, and Lateral Assessment Certification Program. Three full time staff members have a total of 24 hours of training in NASSCO certification programs.

294 SMPs and a total of 12.5 miles of pipe were inspected during FY16. Any issue identified during a routine inspection is referred for follow-up maintenance.

3.5.2 Maintenance

PWD's GSI maintenance program operates through three types of maintenance activities in order to adequately address the maintenance needs of PWD's GSI. Maintenance events associated with surface maintenance, aesthetic maintenance and subsurface maintenance are summarized in **Table 3-3**.

Table 3-3 FY16 Summary of Maintenance Events by Type

Maintenance Work Order Type	Number of FY16 Events
Surface	
Surface Maintenance -Routine	4,689
Surface Maintenance -Reactive	866
Surface Maintenance -Watering	1,556
Porous Pavement -Routine	13
Porous Pavement -Restorative	9
Work Zone Protection	587
Subsurface	
Subsurface Maintenance	300
Inlet Cleaning	129
Aesthetic	909
Total	9,058

PowerCorps PHL Aesthetic Maintenance Program

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 PowerCorpsPHL. PowerCorps is a City of Philadelphia AmeriCorps initiative designed to engage youth, ages 18-26, which transforms lives through service and workforce development.

Table 3-4 summarizes the type and amount (in pounds) of material collected by PowerCorps in FY16. **Table 3-5** summarizes the type and amount (in pounds) of material collected by PowerCorps since the establishment of the GSI Aesthetic Maintenance Program partnership.

Table 3-4 PowerCorps PHL Trash Removal in FY16

Type of material collected	Amount collected (in pounds)	Amount collected (in tons)
Litter	12,644	6.32
Leaves and Organic Debris	74,838	37.49
Construction/Commercial Debris	11,760	5.88
Other (e.g. tires, appliances, short-dumping)	12,685	6.34
Total	111,927	56.03

Table 3-5 PowerCorps PHL Trash Removal since 2014

Type of material collected	Amount collected (in pounds)	Amount collected (in tons)
Litter	40,215	20.1
Leaves and Organic Debris	131,085	65.54
Construction/Commercial Debris	36,930	18.46
Other (e.g. tires, appliances, short-dumping)	16,943	8.47
Total	225,173	112.58

4.0 Green Stormwater Infrastructure through Private Development

4.1 Philadelphia Stormwater Management Regulations

The Philadelphia Stormwater Management Regulations (PSWMR) were revised in January of 2006, providing the foundation of the private sector’s role in the program. PWD requires stormwater management for land development projects in the City of Philadelphia with 15,000 or more square feet of earth disturbance. Projects must submit plans 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 pursuing obtaining a Building Permit. For the projects that proceed to construction, the installations of SMPs are inspected during construction. During FY16, PWD conducted 3,758 inspections during active construction in the combined sewer area. **Figure 4.1** displays the completed Green Infrastructure installed through Private Development and Incentivized Retrofits. A full list of complete private development projects can be found in **Appendix 3**. A summary of constructed Greened Acres through Private Development projects by watershed are listed below in **Table 4-1**.

Table 4-1: Summary of Greened Acres by Watershed from Private Development

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Total
Stormwater Regulations Greened Acres	9.12	192.90	3.69	48.08	168.83	422.62

4.1.1 Philadelphia Stormwater Regulation July 2015 Update

Upon formal adoption of the COA in 2011, PWD recognized an opportunity to align the Philadelphia Stormwater Management Regulations with the goals and targets outlined in the agreement. Since 2011, PWD began planning a significant update to the Regulations with two primary goals: maximize stormwater management opportunities from land development projects and implement business-friendly plan review process improvements.

Planning and Research

Over the course of multiple years, PWD engaged in technical analyses to determine the impact of updating the Water Quality requirement for development projects. PWD created models and development scenarios to identify potential impacts to the development community. Through program evaluation, policy research, and applying insight gained from capital projects, PWD calibrated technical design requirements, such as loading ratios and new stormwater technologies, and explored process improvements to complement the updated regulations.

Outreach

Over the course of three years, PWD established a robust dialogue with the development community in order to ensure a successful implementation. Through the formalization of a quarterly Development Services Committee (DSC), PWD created a forum for discussing proposed changes and providing feedback. Including members from development firms, public land managers, engineers and non-profit stakeholders, the DSC brought together organizations that interact with the Stormwater Management Regulations for the purpose of obtaining their input and listening to their concerns, while simultaneously educating these representatives on the regulation updates. In addition, PWD engaged over 2,400 people through email surveys, focus groups, newsletters, and a series of presentations to professional organizations. Before implementing the revised regulations, PWD also held five information sessions with over 150 attendees.

Implementation

Effective July 1, 2015, the Philadelphia Stormwater Management Regulations (PSWMR) updated the water quality requirement to include a water quality volume of 1.5 inches and a release rate of 0.05 cubic feet per second as well as a volume reducing requirement to ensure that 100% of runoff goes through a pollutant reducing practice. Programmatic improvements represent critical implementation tools for the regulation updates, and are currently available on a redeveloped Stormwater Plan Review website, PWDplanreview.org.

A comprehensive revision to the Philadelphia Stormwater Management Guidance Manual (Version 3.0) was developed as a web-based manual with integrated search functionality. Reorganized to reflect the land development project lifecycle, the Manual includes several new resources. For instance, the development of an SMP hierarchy grew out of the development community's interest in understanding the types of practices preferred by PWD. Similarly, a step-by-step guide to demonstrating compliance with the Regulations will allow applicants to ensure that a complete and compliant technical submission is provided to PWD for review.

As part of the redeveloped website, a project initiation smart form integrates regulatory logic to streamline the application process. Therefore, applicants are only required to answer questions that pertain to their specific project based on critical regulatory characteristics. In order to facilitate the tracking of project review, the website features new log-in functionality to provide access to the smart form as well as a check status feature. Nearly 10,000 lines of code were developed in order to make this possible. The final product allows the Philadelphia development community to better access and understand the process and requirements of meeting the PSWMR.

Expedited Reviews

PWD offers a service level goal of no more than a 15-day review for all projects submitting for post-construction stormwater management review. Projects that use preferred green stormwater management approaches are eligible for an expedited, 5-day review. As part of the regulatory update effective July 1, 2015, PWD implemented the Surface Green Review, which builds upon the existing Disconnection Green Review by expanding the number of projects eligible for expedited reviews.

Previously, only redevelopment that disconnected 95% or more of the post-construction impervious area (DCIA) using features such as green roofs, porous pavement and new tree canopy would receive a review response within 5 days. Leveraging the existing expedited review process and the newly developed SMP hierarchy, PWD established the Surface Green Review. Eligibility for this expedited review option includes new development and redevelopment projects that manage 100% of the post-construction DCIA through bioinfiltration and bioretention basins as well as the practices that qualify for the Disconnection Green Review. In FY16 a total of 25 projects qualified for an expedited review, with 17 projects selecting the Disconnection Green Review and 8 projects selecting the new Surface Green Review.

Inspection Verification Initiative

PWD continued an inspection verification process to assess each project prior to counting Greened Acres toward compliance totals. A key component was an inspection verification initiative to gather documentation of all approvals that have not otherwise been verified. A focus of this effort was the creation of record drawings to document the constructed conditions of the project sites. Through this initiative, 115 projects totaling 157.4 Greened Acres have been inspected and verified through this initiative. To complement this initiative, PWD increased efforts for newly constructed projects to submit record drawings prior to project verification. This effort included maximizing communication efforts from the start of the development process so property owners can adequately budget for record drawing creation as part of the development project. PWD also increased outreach at the close of construction to solicit record drawings from project engineers and owners. These record drawings allow PWD to verify SMP installation and function.

4.2 Incentives for Private Property Owners to Implement Green Stormwater Infrastructure

Stormwater Management Incentives Program & Greened Acre Retrofit Program

PWD offers incentives to private property owners to implement stormwater management practices on existing properties that reduce stormwater pollution to the City's sewers and surrounding waterways and enhance water quality in the region's watersheds. PWD, in partnership with the Philadelphia Industrial Development Corporation, has created the Stormwater Management Incentives Program (SMIP) and the Greened Acre Retrofit Program (GARP) to reduce the cost for qualified non-residential PWD customers and contractors to design and install stormwater best management practices. SMIP and GARP projects that are completed are listed in Table 2 of **Appendix 3**. **Figure 4.1** displays the completed Green Infrastructure installed through Incentivized Retrofits. A summary of constructed Greened Acres from SMIP and GARP projects by watershed are listed below in **Table 4-2**.

Table 4-2: Constructed Green Acres from SMIP and GARP Projects by Watershed

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Total
SMIP/GARP Greened Acres	0.17	79.24	0	66.29	91.05	237.20

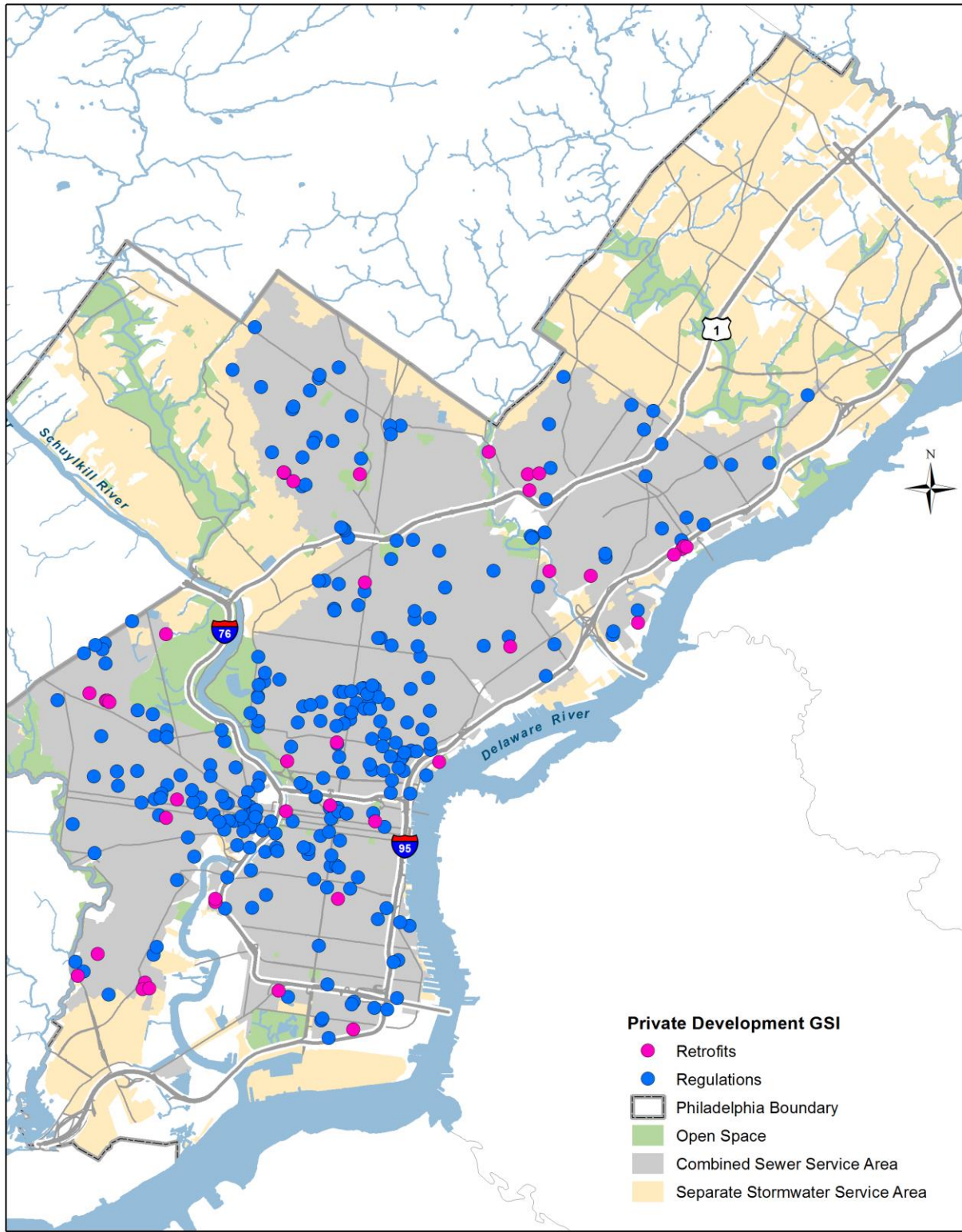
Stormwater Credits

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. Retrofit and development projects are eligible for credits against their stormwater charge upon completion of construction, and owners must renew their credits every 4 years. With the credits renewal application, owners provide maintenance logs and demonstrate that the SMPs continue to be functional. PWD approved or renewed 225 stormwater billing credit applications during the reporting period.

Stormwater Pioneers

In 2014, PWD started Stormwater Pioneers, a recognition program for excellence in design and construction of stormwater management practices on private property. The first Stormwater Pioneer, Stanley's Hardware in Roxborough, was recognized in November 2014 for excellence in meeting the Stormwater Regulations through innovative design. The second Stormwater Pioneer, Popi's Restaurant, was recognized in 2015 for using a SMIP grant to successfully install two rain gardens that mitigate stormwater runoff from the restaurant parking lot. The Stormwater Pioneers program brings elected officials, community members, private landowners and department officials together to recognize the importance of stormwater management on private property. In addition to coordinating a press event to celebrate each the Stormwater Pioneer, PWD also creates a short video and written case study about each project to help other developers and business owners learn from these successful case studies. Visit www.phillywatersheds.org/stormwaterpioneers for more information.

Figure 4.1 Regulations and Retrofit GSI projects



As of 9/13/2016

0 1.25 2.5 5 Miles

4.3 Delaware River Waterfront Stormwater Planning

The target area for stormwater planning along the Delaware River is bounded roughly by the Pennypack Creek to the north, the Philadelphia Naval Yard to the south, I-95 to the west, and the Delaware River to the east. Stormwater management planning for the target area incorporates three components: 1) disconnection of stormwater from the combined sewer system; 2) ensuring that redevelopment occurs in a manner consistent with the Philadelphia Stormwater Management Regulations; and 3) installation of green stormwater infrastructure (GSI) in the public right-of-way.

Throughout the duration of the Consent Order and Agreement period, the Pennsylvania Department of Transportation (PennDOT) will be performing reconstruction and expansion work on Interstate 95 (I-95) in Philadelphia. The multi-phased work between Bleigh Avenue and Race Street is known collectively as Sector A. During FY16, PennDOT received notice to proceed to begin a planning study for Sector B, which encompasses the area 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.

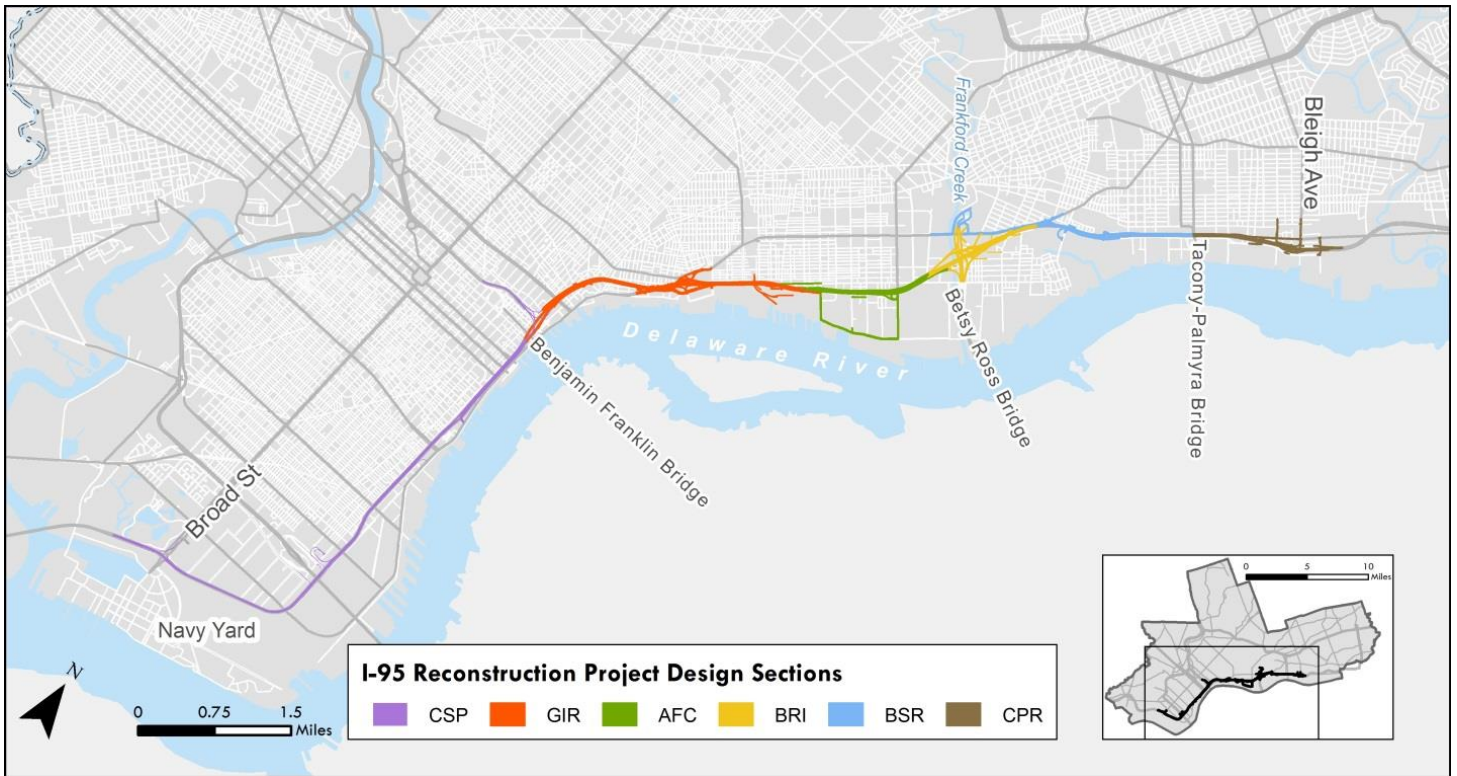
This highway reconstruction project offers a partnership opportunity to address large-scale, incremental stormwater disconnection and installation of GSI. Connection of properties adjacent to the separated sewers, and other means of stormwater management that are consistent with the Philadelphia Stormwater Regulations, will occur concurrently with redevelopment in the target area.

4.3.1 I-95 Reconstruction Project

I-95 Reconstruction Sectors and Sections

Sector A of the I-95 Reconstruction Project is divided into five (5) 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 25 construction subsections. At present, Sector B has one design section delineated, Section CSP from Vine Street to Girard Point Bridge (stadium side). A map of the I-95 Reconstruction Project Sections is featured below in **Figure 4.2**.

Figure 4.2: I-95 Reconstruction Project Sections



The project limits and let dates for the construction subsections are summarized in **Table 3.4**. Additional information is provided for sections with significant design or construction progress in FY16.

Table 4-3: I-95 Construction Section Limits and Anticipated Let Dates

Section	Limits	Anticipated Let date or Estimated Completion (if in construction)
Sector A	Bleigh Ave to Race St.	
CPR	Bleigh Avenue to Levick Street	
CP1	Streetwork along mainline	2013, completed
CP2	I-95 NB/SB between Bleigh Avenue to Levick Street	2019, est. completion
BSR	Levick Street to Margaret Street	
BS1	I-95 NB/SB between Levick and Carver Streets	2018
BS2	I-95 NB/SB between Carver and Margaret Streets	2020
BS3	Aramingo Avenue between Amtrak overpass and Church Street	2028
BS4	Aramingo Avenue between Church Street and Wheatsheaf Lane, and Betsy Ross Interchange Ramps on west side of Aramingo Avenue	2016
BRI	Margaret Street to Frankford Creek	
BR0	Portions of Betsy Ross Interchange	2018, est. completion
BR2	Portions of Betsy Ross Interchange; Aramingo Avenue between Duncan Street and Frankford Creek	2018
BR3	I-95 NB between Margaret Street and Wheatsheaf Lane	2021
BR4	I-95 SB between Margaret Street and Wheatsheaf Lane	2025
BR5	Bridge replacement over Thompson Street	2019
BR6	To be determined	To be determined
AFC	Frankford Creek to Ann Street	
AF1	Richmond Street, Westmoreland Street to Ann Street	2018, est. completion
AF2	Allegheny, Delaware, and Castor Avenues east of I-95	2019
AF3	I-95 SB from Wheatsheaf Lane to Ann Street	2022
AF4	I-95 NB from Wheatsheaf Lane to Ann Street	2026
GIR	Ann Street to Race Street	
GR1	Richmond Street from Ann Street to Schirra Drive; Girard Avenue Bridge over Aramingo Avenue	2016, est. completion
GR2	I-95 NB/SB between Columbia Avenue and Shackamaxon Street	2016, est. completion
GR3	I-95 NB from Ann Street to Columbia Avenue; Delaware Avenue between Aramingo and Columbia Avenues	2018, est. completion
GR4	I-95 SB from Ann Street to Columbia Avenue	2017
GR5	I-95 NB from Shackamaxon to Race Streets	2023
GR6	I-95 SB from Shackamaxon to Race Streets	2020
GR7	Intelligent Transportation System signage installation	2015
GR8	To be determined	2024
GR9	To be determined	2029
Sector B	Vine Street to Girard Point Bridge (Airport Side)	Planning Study Underway

Section CPR (Cottman-Princeton Ramp Area)

CP1

This section was exempt from meeting the Philadelphia Stormwater Regulations because it was designed before the regulations went into effect. Approximately 60 street trees were planted along Princeton Avenue between Torresdale Avenue and State Road as part of this phase.

CP2

Six new separate stormwater outfalls are under construction or completed. Pipes have been completed in Cottman, Princeton, Magee, Disston, and Unruh Streets, and work is ongoing in 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.

Section BRI (Betsy Ross Interchange Area)

BR0

Construction is underway. PWD sanitary and storm sewer culverts will be relocated. Stormwater runoff from the reconstructed portions of the highway and ramps is being treated through the use of under-drained bioretention and water quality units then directly discharged to the Frankford Creek, removing the drainage area from the CSO system.

Section GIR (Girard Avenue Interchange Area)

GR0

Storm sewer systems and swales were constructed in conjunction with the temporary improvements that constituted this; however, portions will be removed or adjusted during later phases of construction. A net increase in impervious coverage (and runoff volume) was avoided by re-grading, seeding, and stabilizing areas where pavement was removed along northbound Aramingo Avenue.

GR3

One separate sewer outfall was constructed in Cumberland Street, and PennDOT is evaluating whether a separate outfall can be constructed in Berks Street as part of GR4. In Dyott Street, a pipe was constructed and will tie in below the regulating chamber.

Stormwater will be managed in GR3 using bioretention basins, infiltration basins, and detention basins. The basins are designed to manage the water quality volume.

4.4 Maintenance of Private Facilities

To ensure ongoing SMP maintenance of private facilities constructed through the Stormwater Management Regulations or the SMIP and GARP grants, PWD continues to utilize three means: executing Operation & Maintenance Agreements, conducting post-construction maintenance inspections, and utilizing enforcement tools.

An Operation & Maintenance Agreement between the property owner and PWD is recorded against the property prior to the issuance of a Post Construction Stormwater Management Plan Approval by PWD. These agreements outline the SMP(s) on the private site and stipulate maintenance requirements. The agreements also include language granting PWD the right to inspect on-site SMPs and even perform maintenance on behalf of the property owner if necessary. PWD also maintains a comprehensive operations and maintenance manual for SMPs geared toward private development users, available at: <http://www.phila.gov/water/PDF/Retrofit-O.M.Manual.pdf>.

Post-construction maintenance inspections of private facilities were conducted through the reporting period. PWD relies on specialized inspection techniques as well as visual inspections to assess the performance of private SMPs. The inspections conducted to date have identified the most effective methods and technologies, including closed-circuit television, surveys of critical system elevation points, confined space, visual inspections, pole-mounted camera photography, and wet weather inspections. In FY16, PWD performed 142 post-construction inspections in the combined sewer areas of the city. PWD will continue to evaluate and refine post-construction inspection protocols.

Utilizing **enforcement tools**, PWD will issue notification to the property owner if an SMP is found to be insufficiently maintained. This notification will include a description of any issues identified and a timeline for 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 PWD's stormwater regulations, as well as properties that have SMPs funded by SMIP and GARP, are required to maintain the SMP(s) to function as designed. If this initial notification is unsuccessful at bringing action from the property owner, PWD can compel compliance through a number of enforcement tools, including issuance of notice of violations, fines, court action, and/or a nuisance abatement and lien by the City. For non-compliant projects, PWD will also suspend any stormwater billing credits, if the customer is enrolled in the credits program, if the required maintenance is not performed.

In FY16, 23 projects were brought back into compliance in the combined sewer areas of the city using the above-referenced protocols. 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.

5.0 Data Collection and Analysis

Proposed methodologies for the *Green City, Clean Waters* monitoring program were outlined in both the draft Comprehensive Monitoring Plan (CMP) submitted December 1, 2012, and in a comment response sent to PADEP and the USEPA on July 31, 2013. A revised CMP was submitted on January 10, 2014 and approved on May 28, 2014 by PADEP. Status updates, including activities, programs, and projects related to PWD's implementation of the GSI Monitoring components of the CMP are summarized in Sections 6.1 below and detailed in **Appendix 4 GSI Monitoring Status Report**. Non-green infrastructure components of the CMP and the associated 2016 reporting year updates can be referenced in **Section F.2 Step 1.b. page 10 of the Stormwater Management Program Annual Report**.

5.1 Green Stormwater Infrastructure Monitoring

Monitoring and testing green stormwater infrastructure is essential to evaluate its effectiveness in managing stormwater and reducing combined sewer overflows. 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. Since November 2012, PWD has monitored 52 stormwater management systems. As requested by the PADEP and USEPA through the CMP comment/comment response negotiations, a Green Stormwater Infrastructure Monitoring Status Report is included in **Appendix 4**.

5.2 Green Stormwater Infrastructure Pilot Program

PWD has completed its five-year green stormwater infrastructure pilot program. Information on the selected sites and their associated variables can be found in the Green Stormwater Infrastructure Monitoring Status Report in **Appendix 4**.

USEPA Science to Achieve Results (STAR) Grant

In September 2012, USEPA solicited applications for proposals to conduct research on and demonstrate the performance and effectiveness of green stormwater infrastructure practices to address combined sewer overflows in the City of Philadelphia. Research agreements were signed with 5 universities: Swarthmore College, Villanova University, Temple University, The University of Pennsylvania, and The University of New Hampshire. Water Department staff have provided data and helped coordinate site selection for instrumentation of GSI systems and SMPs. These monitoring partnerships have begun to provide data complementing monitoring results from PWD's own monitoring programs. Grantees have begun to share research results at conferences and in peer-reviewed journals. The following is a brief summary of each university's research focus:

- **Swarthmore College:** Subsurface monitoring of PWD GSI sites; multi-objective, spatial optimization model for GSI placement
- **Villanova University:** Monitoring and analysis of PWD GSI to develop "next generation" GSI focused on infiltration, evaporation, and transpiration

- **Temple University:** Surface and subsurface monitoring of installations in and around the Temple campus
- **University of Pennsylvania:** Analysis of financial and economic factors affecting decisions in the private sector, and development of tools that may facilitate better stormwater management in the private sector
- **University of New Hampshire:** Assistance to neighborhood groups seeking to implement GSI; experiments on GSI installations derived from PWD specifications

6.0 Public Outreach and Participation

The Philadelphia Water Department continues to enhance tools for engaging a broad range of stakeholders. In FY16, PWD engaged approximately 65,565 citizens through a variety of public education, outreach and participation initiatives. The following includes updates on current programs and projects.

6.1 Green Stormwater Infrastructure (GSI) Notification & Outreach Process for Green Programs

In FY16, public education and outreach for green stormwater infrastructure in Philadelphia's neighborhoods grew with the number of projects going into the ground. During FY16, approximately 3,379 representatives participated in 97 community meetings co-hosted with civic partners and events (such as tours, walks and festivals) to learn about green infrastructure projects and hold one-on-one conversations in neighborhoods across the city. Also, approximately 1,503 residents took on stormwater management on their private properties through Rain Check and 57 participated in Soak It Up Adoption, where they helped maintain the public green stormwater infrastructure.

Furthermore, approximately 57,512 people participated in the following education and outreach events that featured *Green City, Clean Waters* and/or urban waters themed content.

- Environmental education programming offered by PWD educators and Fairmount Water Works educators
- Environmental education programming offered by PP&R educators
- Environmental education and outreach programming offered in Philadelphia by the Tookany/Tacony-Frankford Watershed Partnership and Partnership for Delaware Estuary
- Environmental education and outreach by Wild West Philadelphia

It should be noted that the number of participants associated with Rain Check (which now includes Rain Barrels) and Soak It Up Adoption are reported on in more detail in Section 7.2 of this report.

6.2 Public Education and Outreach Programs

Green City, Clean Waters Partners Master List

The *Green City, Clean Waters* Partners Master List is a distribution list of email addresses that gets updated after collecting contact information at public events and meetings hosted by PWD. Today, there are 10,350 active live entries on the list. This number reflects the number of individuals confirmed through the email management system as participants with accurate contact information and those specifically interested in receiving email updates and, e-newsletters, regarding *Green City, Clean Waters*

and/or other Water Department special initiatives and events. Any contacts found to be redundant or nonresponsive were removed from the Master List in June, 2015 and are not represented in this figure.

Green City, Clean Waters Signage

PWD continued to develop the interpretive Green City, Clean Waters permanent signage, which included new designs, more fabrication and additional installation of the signage. This process also included site visits, coordination with property owners/partners, and promotion of the signage. For images of the installed signage, please visit:

<https://www.flickr.com/photos/philadelphiawater/sets/72157654299547526>

Stormwater Art

PWD uses design and art as one of many public engagement tools. Projects such as yarn bombing (temporary knitted yarn art) of stormwater tree trenches; rain barrel wrap original designs created by local students; and temporary public street art projects are examples of opportunities to engage residents through visual learning. In FY16, PWD and Mural Arts created *Uncover the Green, 2016*, which challenged professional artists to interpret green stormwater infrastructure in a way that highlights the hidden infrastructure below ground. Furthermore, in FY16, PWD teamed up with artist Eurhi Jones to create a signature *Green City, Clean Waters* mural at a future GSI site.



Green City, Clean Waters mural by Eurhi Jones, Hestonville

Homeowner's Stormwater Handbook – Smart Stormwater Management: A How-to for Homeowners

In FY16, PWD and the Partnership for Delaware Estuary produced an updated version of the original Homeowners Guide to Stormwater Management with tips and information that can guide homeowners on the latest tools and resources.

Soak It Up Adoption

In FY 16, one new organization was accepted into the Soak It Up Adoption program, and one organization left the program keeping the total number of participants at fourteen organizations with 57 individuals acting as Adoption representatives. Throughout the fiscal year, adoptees completed a number of community events highlighting their adopted infrastructure. These events included: guided tours, tabling sessions at local public events and presentations at civic association meetings. Photos from Soak It Up events may be accessed at

<https://www.flickr.com/photos/philadelphiawater/sets/72157649212677496> and

<https://www.flickr.com/photos/philadelphiawater/sets/72157648859945369>

Table 6-1 Provides metrics used by PWD to track the Soak It Up Adoption program throughout the fiscal year. These figures track the amount and variety of GSI that has been adopted as well as provide a measurement for the amount of trash collected.

Table 6-1: Soak It Up Adoption Pilot Program Metrics for the 2016 Reporting Year

Adoptee	Number of SMPs Adopted	Amount of Residential Waste Collected in FY'15 (LBS)
New Kensington CDC	9	72
East Falls Development Corporation	6	17
Frankford CDC	2	N/A*
NorthEast Treatment Center	6	356
Northern Liberties Neighbors Association	8	101
Passyunk Square Civic Association	12	N/A*
Southwest CDC	14	1,711
Newbold CDC	6	5,187
UC Green	7	17,721
Urban Tree Connection	11	1,597
Mill Creek Farm	2	N/A*
Asociacion Puertorriquenos en Marcha	5	N/A*
Chew & Belfield Neighbors Club	11	N/A*
Roxborough Conservancy	2	N/A*
TOTAL	101	26,895lbs

*Adoptee has outstanding reporting from FY'16

Philadelphia Watershed and Stormwater Tours

PWD and its partners offer tours several times a year to explore the natural history of a watershed, to better understand the buried streams beneath us or to visit model green stormwater infrastructure projects throughout the City and beyond. By recognizing and showcasing green stormwater

infrastructure projects, PWD hopes to inspire others to replicate similar stormwater management projects. During FY16, PWD led fifteen Stormwater Tours focused on green stormwater infrastructure and catered to diverse audiences. Representatives from the ACWA-US; PA AWWA; VUSP; Economy League of Greater Philadelphia; WRADRB; DEP; Penn State Master Gardeners; and Harrisburg, Capital Region Water attended. Approximately 484 tour attendees participated in stormwater tours over the past year.

Green City, Clean Waters Art Contest

The Partnership for the Delaware Estuary and PWD sponsored an art contest for Philadelphia public, private and home-schooled students, grades K-12. The theme was "*Green City, Clean Waters.*" The 2015-2016 contest brochure was distributed to over 750 schools, libraries, teachers, and miscellaneous informal educators and educational institutions. Over 1,268 entries were received. Four of the winning drawings were made into large street art decals that will be placed throughout the City of Philadelphia.

Urban Waters Curriculum

The Fairmount Water Works (FWW) continues to advance the Urban Waters Curriculum Guide. In fall 2015, FWW began Year 2 of the three-year Middle School Teacher Fellowship Program to create an urban watershed curriculum for grades 6- 8 in nine Philadelphia Schools. The goal for Year 2 was to establish a new group of 7th grade teachers from our schools to develop Learning Experiences using Understanding the Urban Watershed Curriculum Guide as a framework.

The group had a total of 17 teachers who met for 9 full-day professional development sessions starting in October, concluding with a tenth half-day Summit session in early June. During the full day (6-hour) sessions, teachers were provided with background content knowledge, collaborative lesson planning time, and group demonstrations of ideas and activities to be piloted in the classroom.

GreenSTEM Network

The GreenSTEM Network continues to connect students to the environment through hands-on science and technology projects involving green stormwater infrastructure monitoring and data collection. In the past year, student groups from five schools participated in projects and workshops.

6.3 Green Homes Initiatives

Green Homes Technical Evaluation and Improvement

PWD is piloting, monitoring and evaluating residential green tools and tracking technology improvements for these tools. In FY16, several residential tools were evaluated including new designs for rain barrels and cisterns, and vertical planted systems that manage stormwater.

Downspout Planter Technology Improvements

PWD continued working with Shift Design to improve the design of a pre-fabricated downspout planter. The goal is to create a downspout planter that is aesthetically appealing to homeowners, manages more stormwater than our current wooden downspout planter and is easy to assemble and install. A new design has been fabricated and is currently being tested at multiple sites.

In addition, PWD has worked to develop a downspout planter using a pre-fabricated stock tank in place of a custom wood body. This will both reduce material cost and increase the volume of stormwater managed.

Residential Pilot Projects at Philadelphia Water Department Facilities

Installation, inspection, maintenance, and evaluation of downspout planters and other pilot residential tools are conducted at Water Department facilities. These sites represent some of the longest-lasting test sites for evaluating the performance of the downspout planters. In addition, these projects offer an opportunity to strengthen communication between Water Department employees.

The following stormwater tools at Water Department facilities were evaluated in FY 16:

- Belmont – Wooden downspout planters (4)
- Fox Street – Wooden downspout planters (4), stock-tank downspout planter (1)
- Northeast WPCP – Rain gardens (2)

Image: New stock-tank planter at Fox Street testing location:



Conclusions from the inspections include:

- Plant species continue to thrive year to year, especially Black-eyed Susans and Switch Grass
- During cold weather, there were challenges with downspout planter drainage due to freezing; however, the freezing and thawing did not negatively impact performance during warm weather
- Despite varying levels of maintenance, the downspout planters and rain gardens continued to function as designed.

Rain Check Program

In FY16, the number of participants in the Rain Check program increased considerably and PWD made significant improvements in program management and data tracking. In addition, the PWD recruited

and provided free training for a number of new landscape and hardscape companies to install Rain Check stormwater tools.

Table 6-2 Metrics Used to Track the Progress of the Rain Check

Rain Check Metrics	FY 15	FY 16
Workshops Hosted	42	69
Workshop Attendees	1,009	1,503
Contractor Training Participants	31	27
Rain Barrel Installations	468	471
Downspout Planter Installations	16	59
Rain Garden Installations	5	15
Permeable Paving Installations	6	37
Depaving Projects	7	10

Definition of Metrics

Workshop Attendees:

This represents the total number of people who attended a Rain Check workshop. These hour-long educational workshops are mandatory for participation in Rain Check. Of the people who attend workshops in FY16, some of them also had their tools installed in FY16 but others will have their tools installed in FY17.

Installations Completed:

PWD installed 471 rain barrels by the conclusion of the reporting year, and 121 stormwater tools that are part of the “cost-share” portion of the program. For some participants who signed up this year, the installation of their tools is still in progress.

More information on the program can be found at the following site:

<http://www.phillywatersheds.org/raincheck>

Appendix 1

Completed Public Green Stormwater Infrastructure Projects

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acre-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Ogden St and Ramsey St (West Mill Creek Recreation Center)	1/1/2006	830	4	17345	0.229	Stormwater Tree Trench, Pervious Pavement	Streets	Partner-project, no capital investment by PWD	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Recreation	Schuylkill	6/15/2016
West Mill Creek Farm Swales	5/1/2006	360	4	13942	0.099	Rain Garden, Swale	Streets	\$57,850	Pennsylvania Department of Environmental Protection, Philadelphia Water Department, Pennsylvania Horticulture Society	Schuylkill	6/22/2016
Mill Creek Playground Basketball Court	6/2/2006	1870	0	9350	0.429	Pervious Pavement	Open Space	\$33,001	Councilwoman Blackwell, Pennsylvania Department of Environmental Protection, Philadelphia Department of Parks & Recreation	Schuylkill	3/28/2016
47th & Grays Ferry	4/1/2007	1260	7	19200	0.347	Rain Garden	Vacant Land	\$16,000	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, University City Green	Schuylkill	6/30/2016
Cliveden Park	10/1/2007	4563	0	52355	1.257	Rain Garden	Open Space	\$175,000	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	TTF	6/23/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Clark Park Basketball Court	11/1/2007	3080	0	32517	0.848	Infiltration Storage Trench	Open Space	Cost not available	Pennsylvania Department of Environmental Protection, Pennsylvania Department of Conservation & Natural Resources, Philadelphia Department of Parks & Recreation	Schuylkill	6/14/2016
Jefferson Square Raingarden	6/1/2008	347	3	3565	0.096	Rain Garden	Streets	Cost not available		Delaware	6/7/2016
McMahon St (Waterview Recreation Center)	7/1/2008	1836	8	13368	0.506	Stormwater Tree Trench, Stormwater Planter, Pervious Pavement	Streets	\$50,000	Pennsylvania Horticulture Society, Philadelphia Department of Recreation	TTF	6/23/2016
Liberty Lands	6/1/2009	849	24	8000	0.234	Rain Garden	Open Space	\$22,236	Northern Liberties Neighborhood Association, Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Delaware	6/17/2016
Bus Shelter Green Roof	1/1/2010	0	0	0	0.002	Green Roof	Streets	Partner-project, no capital investment by PWD	Environmental Protection Agency, Philadelphia Water Department, Southeastern Transportation Authority, Philadelphia Streets Department, Mayors Office of Transportation & Utilities, National Oceanic and Atmospheric Administration	Schuylkill	4/29/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Sepviva St from Susquehanna Ave to Dauphin St*	1/27/2010	1601	17	27425	0.441	Infiltration Storage Trench, Storm Water Trench	Streets	\$209,000		Delaware	6/22/2016
Columbus Square	5/26/2010	922	0	7908	0.25	Stormwater Planter, Infiltration Storage Trench	Streets	\$65,506	Department of Public Property, Department of Recreation, Friends of Columbus Square	Delaware	6/17/2016
Shissler Playground	10/10/2010	3427	6	17600	0.808	Stormwater Tree Trench	Open Space	\$50,000	New Kensington Community Development Corporation, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Delaware	5/16/2016
Lancaster Ave from N 58th St to N 63rd St	11/1/2010	6091	17	41671.24	1.646	Stormwater Tree Trench, Stormwater Bump-out, Rain Garden, Swale	Streets	Partner-project, no capital investment by PWD	Environmental Protection Agency, Philadelphia Department of Commerce, Philadelphia Industrial Development Corporation	Schuylkill	6/29/2016
7th St, 8th St, and Cumberland St (Hartranft School) *	11/10/2010	3556	6	44524	0.98	Stormwater Tree Trench	Streets	\$402,396	Pennsylvania Horticulture Society	Delaware	5/31/2016
Palmer St from Frankford Ave to Blair St (Shissler Playground) *	11/10/2010	1273	5	9250	0.343	Stormwater Tree Trench	Streets		New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	6/30/2016
16th St between Passyunk Ave and Jackson St*	11/10/2010	609	8	14735	0.168	Stormwater Tree Trench	Streets			Schuylkill	5/26/2016
Rockland St*	4/8/2011	6976	29	178850	1.922	Infiltration Storage Trench, Storm Water Tree	Streets	\$924,000		TTF	6/22/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Bureau of Laboratory Services*	5/14/2011	4423	13	52339	0.374	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets	\$703,733		TTF	6/15/2016
Benjamin Franklin Parkway from 21st St to 23rd St	6/1/2011	3561	0	29605	0.981	Infiltration Storage Trench	Streets	\$215,600	Fairmount Park Commission	Schuylkill	5/12/2016
Percy St from Catharine St to Christian St	7/18/2011	657	0	4740	0.181	Pervious Pavement	Streets	\$48,283		Delaware	6/21/2016
Belfield Ave from Chew Ave to Walnut Ln*	9/23/2011	5846	24	68465	1.61	Stormwater Tree Trench	Streets	\$313,385	Tookany/Tacony-Frankford Watershed Partnership	TTF	6/14/2016
Montgomery Ave, Shissler Playground*	11/4/2011	3386	3	49120	0.933	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets	\$173,494	Department of Recreation, New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	5/8/2016
Reese St	11/5/2011	832	4	4829	0.222	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/24/2016
Earl St (Hetzell Playground)	11/5/2011	827	4	6930	0.228	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/23/2016
8th St	11/5/2011	1154	4	9361	0.318	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/8/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Front St	11/5/2011	991	6	17972	0.273	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/30/2016
9th St	11/5/2011	1108	4	9100	0.305	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/8/2016
Diamond St	11/5/2011	1416	4	12538	0.39	Stormwater Tree Trench	Streets	Partner-project, no capital investment by PWD	Pennsylvania Horticulture Society	Delaware	6/30/2016
Madison Memorial Park	12/16/2011	402	13	7015	0.111	Infiltration Storage Trench	Open Space	Partner-project, no capital investment by PWD	City Play, Digsau, Northern Liberties Neighborhood Association, Philadelphia Department of Parks & Recreation	Delaware	6/28/2016
Eadom Parking Lot	5/2/2012	11243	20	85827	2.872	Rain Garden	Parking	All done in house by PWD crews; No bid costs.	Department of Public Property	Delaware	6/29/2016
Womrath Park*	9/27/2012	4356	7	46080	1.2	Rain Garden, Infiltration Storage Trench, Swale	Open Space	\$540,071	Tookany/Tacony-Frankford Watershed Partnership, Philadelphia Department of Parks & Recreation, Frankford Civic Association	TTF	6/29/2016
Herron Playground	10/2/2012	2689	12	14480	0.517	Rain Garden, Infiltration Storage Trench, Pervious Pavement	Open Space	\$190,959	Philadelphia Capital Program Office, Philadelphia Department of Parks & Recreation	Delaware	6/9/2016
Baltimore Ave Island from S 60th St to Wharton St*	11/23/2012	3251	5	22684	0.896	Stormwater Tree Trench	Streets	\$951,600	Pennsylvania Environmental Council	Cobbs-Darby	6/30/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
52nd St, 53rd St, Pine St, and Osage St (Samuel B. Huey Elementary School) *	11/23/2012	5249	15	34558	1.446	Stormwater Tree Trench	Streets		Pennsylvania Environmental Council	Cobbs-Darby	4/26/2016
Christian St, Webster St, 56th St (Christy Recreation Center) *	11/23/2012	5456	19	43007	1.503	Stormwater Tree Trench	Streets		Department of Recreation, Pennsylvania Environmental Council	Cobbs-Darby	6/24/2016
William Harranty School*	11/23/2012	2804	11	19364	0.771	Stormwater Tree Trench	Streets			Cobbs-Darby	6/24/2016
60th St, 61st St, Cedar Ave, and Hazel Ave (Bryant Elementary School) *	11/23/2012	6421	16	45432	1.769	Stormwater Tree Trench	Streets		Pennsylvania Environmental Council	Cobbs-Darby	4/28/2016
Harper's Hollow Park*	12/4/2012	6257	0	24542	1.127	Stormwater Basin	Open Space	\$474,000	Philadelphia Department of Parks & Recreation	TTF	6/23/2016
Wakefield Park*	12/4/2012	4897	0	38710	1.349	Rain Garden	Open Space		Philadelphia Department of Parks & Recreation	TTF	6/20/2016
21st St from Venango to Pacific	12/6/2012	1497	6	15237	0.412	Stormwater Tree Trench	Streets	\$190,595		Delaware	6/22/2016
58th St, 59th St, and Walnut St (Sayre High School) *	12/13/2012	8418	42	64720	2.319	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$1,658,770	Pennsylvania Environmental Council	Cobbs-Darby	6/29/2016
Haverford Ave, 57th St and Vine St (Shepard Recreation Center) *	12/13/2012	10255	27	64162	2.605	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out	Streets		Pennsylvania Environmental Council	Schuylkill	6/27/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Pine St, Frazier St, and 57th St (Andrew Hamilton School) *	12/13/2012	4790	14	44332	1.319	Stormwater Tree Trench, Stormwater Planter	Streets		Pennsylvania Environmental Council	Cobbs-Darby	5/18/2016
56th St, 57th St, Race St, and Vine St (Daroff School) *	12/13/2012	10566	39	79396	2.911	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out	Streets		Pennsylvania Environmental Council	Cobbs-Darby	6/29/2016
Belgrade St and Marlborough St	12/20/2012	1263	1	14700	0.348	Infiltration Storage Trench	Streets	\$26,835		Delaware	6/29/2016
Norris St, Van Pelt St, and Berks St (Frederick Douglass Elementary School) *	12/24/2012	5058	20	32100	1.393	Stormwater Tree Trench	Streets	\$604,124		Delaware	6/15/2016
Philadelphia Military Academy*	12/24/2012	2429	14	20275	0.669	Stormwater Tree Trench	Streets			Delaware	6/7/2016
22nd St, Cecil B Moore Ave (Martin Luther King Recreation Center) *	12/24/2012	7406	10	42040	1.718	Stormwater Tree Trench	Streets			Delaware	6/30/2016
Berks, Mascher (Towey Recreation Center) *	12/24/2012	4091	6	20800	0.955	Stormwater Tree Trench	Streets		Fairmount Park Commission, Pennsylvania Horticulture Society	Delaware	6/29/2016
Sepviva	12/27/2012	1006	35	0	0.277	Storm Water Trench	Streets	\$155,966		Delaware	6/23/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
58th St Connector (Bartram's Garden, Francis Myers Rec, Cobbs Creek Park)	1/15/2013	4911	12	46000	1.353	Stormwater Tree Trench, Rain Garden	Streets	\$368,321		Cobbs-Darby, Schuylkill	6/30/2016
4th St and Cambridge St (Bodine High School) *	2/8/2013	2593	11	33496	0.714	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets	\$454,930	City Play, Mural Arts Program, Northern Liberties Neighborhood Association	Delaware	6/28/2016
3rd St and Fairmount Ave Intersection*	2/8/2013	1463	7	15630	0.403	Stormwater Tree Trench, Stormwater Bump-out	Streets		Northern Liberties Neighborhood Association	Delaware	6/28/2016
Passyunk Ave	3/5/2013	10945	0	56500	1.019	Stormwater Bump-out	Streets	Partner-project, no capital investment by PWD	Philadelphia Streets Department	Schuylkill	6/27/2016
Welsh School*	4/23/2013	1817	7	23419	0.5	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets	\$691,409	Pennsylvania Horticulture Society	Delaware	6/17/2016
Wakisha Charter School*	4/23/2013	3077	19	31812	0.848	Stormwater Tree Trench	Streets		Department of Recreation	Delaware	6/9/2016
Diamond St from 25th St to Stillman St*	4/23/2013	974	7	9178	0.268	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	6/30/2016
Poplar St from 8th St to Franklin St*	4/23/2013	1034	4	8242	0.285	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	6/29/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
10th St and Jefferson St (Dendy Recreation Center) *	4/23/2013	2313	7	24057	0.637	Stormwater Tree Trench	Streets		Department of Recreation	Delaware	6/9/2016
Woolston Ave, Walnut Ln, Rodney St (Simons Recreation Center) *	5/10/2013	9317	43	61647	2.567	Stormwater Tree Trench	Streets	\$1,130,670	Department of Recreation	TTF	6/16/2016
Morris Leeds Middle School*	5/10/2013	32652	83	229748	8.995	Stormwater Tree Trench	Streets			TTF	6/6/2016
22nd, Carpenter, Montrose (Julian Abele Park) *	5/16/2013	3566	7	22487	0.982	Stormwater Tree Trench	Streets	\$1,335,859	Department of Public Property	Schuylkill	5/12/2016
Oakford, 30th (Donald Finnegan Playground) *	5/16/2013	3728	23	29513	1.027	Stormwater Tree Trench	Streets			Schuylkill	6/24/2016
24th St and Wolf St (Smith Playground) *	5/16/2013	8933	18	55510	2.461	Stormwater Tree Trench	Streets			Schuylkill	6/21/2016
23rd St, 24th St, and Jackson (E.H. Vare Middle School) *	5/16/2013	4471	20	32228	1.232	Stormwater Tree Trench	Streets			Schuylkill	5/25/2016
Stephen Girard School*	5/16/2013	1604	6	9315	0.428	Stormwater Tree Trench	Streets			Schuylkill	5/19/2016
Southwark School*	5/16/2013	2029	4	16658	0.559	Stormwater Tree Trench	Streets			Delaware	6/24/2016
Philadelphia Zoo	5/29/2013	7342	5	52446	1.972	Stormwater Planter, Rain Garden, Infiltration Storage Trench	Streets		\$357,687	Philadelphia Department of Parks & Recreation, Philadelphia Zoo	Schuylkill

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Penn Street Trail	6/13/2013	2265	25	38203	0.47	Rain Garden	Streets	Partner-project, no capital investment by PWD	DRWC	Delaware	6/14/2016
33rd & Dauphin SEPTA Bus Stop Loop	7/31/2013	481	0	3750	0.133	Stormwater Tree Trench, Infiltration Storage Trench	Streets	Partner-project, no capital investment by PWD	Southeastern Transportation Authority	Schuylkill	5/12/2016
George W. Nebinger School	9/8/2013	7364	10	46815	2.029	Rain Garden, Infiltration Storage Trench, Pervious Pavement, Swale	Schools	\$361,073	Environmental Protection Agency	Delaware	6/28/2016
Preston St, 41st St, Brown St, and Aspen St (Belmont School) *	9/9/2013	6497	29	47758	1.79	Stormwater Tree Trench	Streets	\$1,547,000		Schuylkill	6/22/2016
49th St, Parrish St, and Ogden St (James Rhoads School) *	9/9/2013	3614	13	24384	0.996	Stormwater Tree Trench	Streets			Schuylkill	6/22/2016
Sister Clara Muhammad School*	9/9/2013	2764	15	26407	0.761	Stormwater Tree Trench	Streets			Schuylkill	6/10/2016
47th St, 48th St, Wyalusing Ave (Muhammed Square) *	9/9/2013	6880	39	57043	1.895	Stormwater Tree Trench	Streets			Schuylkill	6/23/2016
53rd St and Peach St (Mastery Charter School) *	9/9/2013	3140	4	23751	0.865	Stormwater Tree Trench	Streets			Schuylkill	6/23/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Kenmore Rd, Haddington St, and Atwood Rd (Cassidy Elementary School) *	9/9/2013	5776	9	42141	1.591	Stormwater Tree Trench	Streets			Cobbs-Darby	6/17/2016
62nd St and Lebanon (Overbrook Elementary) *	9/9/2013	3189	3	26530	0.879	Stormwater Tree Trench	Streets			Schuylkill	6/29/2016
Old Cathedral Cemetery*	9/9/2013	2921	12	25301	0.805	Stormwater Tree Trench	Streets			Schuylkill	6/29/2016
12th St and Reed St (Columbus Square) *	9/17/2013	1977	0	19690	0.545	Rain Garden, Infiltration Storage Trench	Streets	\$873,261	Department of Recreation, Passyunk Square Civic Association	Delaware	6/17/2016
12th St from Dickinson St to Tasker St*	9/17/2013	2930	5	24020	0.807	Stormwater Tree Trench, Stormwater Planter	Streets		Passyunk Square Civic Association	Delaware	6/30/2016
10th St from Wilder St to Reed St*	9/17/2013	1112	5	9400	0.306	Stormwater Tree Trench	Streets		Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware	6/30/2016
18th St, 19th St, Ellsworth St, and Washington Ave (Chew Playground) *	9/17/2013	5197	13	41940	1.419	Stormwater Tree Trench, Stormwater Bump-out	Streets		Department of Recreation	Delaware, Schuylkill	6/29/2016
Passyunk Ave from Dickinson St to Reed St*	9/17/2013	1354	3	11620	0.373	Stormwater Planter, Infiltration Storage Trench	Streets		Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware	6/21/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Thompson St and Columbia Ave*	9/20/2013	3921	4	34905	1.08	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench	Streets	\$580,829	New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	6/24/2016
Trenton Ave and Norris St*	9/20/2013	3866	3	30943	1.065	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets		New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	6/2/2016
Bridesburg Recreation Center/ Bridesburg School*	9/30/2013	7716	3	51638	1.959	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets	\$1,607,932	Philadelphia Department of Parks & Recreation, Tacony Civic Association	Delaware	6/7/2016
White Hall Commons/Carmella Playground/ Gambrell Recreation Center/Warren G Harding School*	9/30/2013	12308	76	88542	3.391	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	6/23/2016
Hegerman St, Magee Ave, and Hellerman St (Dorsey Playground) *	9/30/2013	5752	35	35604	1.559	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	6/23/2016
Hellerman St, Cottage St, and Levick St (Roosevelt Playground) *	9/30/2013	8439	42	55435	2.215	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets		Roosevelt Playground Park Advisory Council, Tacony Civic Association	Delaware	6/23/2016
Magnolia Cemetary*	9/30/2013	1968	9	11861	0.542	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	6/23/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
18th St, 19th St, and Bigler St (Barry Playground) *	10/14/2013	16144	36	108972	4.167	Stormwater Tree Trench	Streets	\$975,008	Department of Recreation	Schuylkill	6/29/2016
13th St, Porter St, and Moyamensing Ave (A.S. Jenks School) *	10/22/2013	3374	18	22520	0.929	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$1,107,760	Lower Moyamensing Civic Association	Delaware	6/24/2016
4th St, 5th St, Federal St, and Washington Ave (Sacks Playground) *	10/22/2013	6569	13	47775	1.81	Stormwater Tree Trench	Streets		Delaware	6/29/2016	
Smith Elementary School*	10/22/2013	2905	20	23700	0.8	Stormwater Tree Trench	Streets		Schuylkill	6/30/2016	
St Thomas Aquinas School*	10/22/2013	4723	19	42170	1.301	Stormwater Tree Trench, Infiltration Storage Trench	Streets		Schuylkill	6/23/2016	
Franklin St from Diamond St to Norris St	10/24/2013	7215	22	62625	1.988	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$184,925		Delaware	6/6/2016
Blue Bell Inn Triangle Park*	10/31/2013	2189	6	25911	0.603	Rain Garden	Open Space	\$278,349	Fairmount Park Commission, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Cobbs-Darby	6/27/2016
Little Sisters of the Poor*	1/13/2014	9885	33	75556	2.723	Stormwater Tree Trench	Streets	\$1,232,000	Snyderville Community Development Corporation	Schuylkill	6/14/2016
57th St and Pentridge St (Longstreth School) *	1/13/2014	4488	13	35058	1.236	Stormwater Tree Trench, Stormwater Planter	Streets		Snyderville Community Development Corporation	Cobbs-Darby	6/29/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
McCreesh Playground / Catharine Elementary School*	1/13/2014	8627	12	62951	2.363	Stormwater Tree Trench, Infiltration Storage Trench	Streets		Snyderville Community Development Corporation	Cobbs-Darby	6/24/2016
Springfield Ave and Cobbs Creek Island*	1/13/2014	3312	6	33640	0.912	Rain Garden, Infiltration Storage Trench	Streets		Snyderville Community Development Corporation	Cobbs-Darby	6/27/2016
Chalmers (29th and Chalmers Playground) *	4/25/2014	3353	5	27710	0.924	Stormwater Tree Trench, Stormwater Bump-out	Streets	\$612,155	Philadelphia Department of Parks & Recreation	Delaware	6/16/2016
27th St from Indiana to Toronto*	4/25/2014	1189	2	9000	0.328	Stormwater Tree Trench	Streets		Philadelphia Department of Parks & Recreation	Delaware	6/22/2016
William Cramp School*	4/25/2014	4880	11	36565	1.344	Stormwater Tree Trench	Streets			Delaware	6/13/2016
Rosehill St (Barton School) *	4/25/2014	4885	5	38500	1.346	Stormwater Tree Trench	Streets			TTF	6/24/2016
William Dick Elementary	6/13/2014	8738	0	65171	2.407	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Schools	\$207,000	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	Delaware	5/17/2016
Stenton Avenue and Washington Lane, NE Intersection	7/8/2014	2326	0	12340	0.567	Rain Garden, Infiltration Storage Trench	Streets	\$34,123	Philadelphia Streets Department, Ogontz Avenue Revitalization Corporation, Mayors Office of Transportation & Utilities	TTF	6/30/2016
William Gray Youth Center*	8/1/2014	4225	9	38946	1.164	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$887,378		Delaware	6/22/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Parking Lot - 12th St, Marvine St, and Diamond St*	8/1/2014	7687	21	48344	2.025	Stormwater Tree Trench	Streets			Delaware	6/7/2016
24th St and Diamond St (Dick Elementary School) *	8/1/2014	6641	11	26669	1.224	Stormwater Tree Trench	Streets			Delaware	5/17/2016
Alder St from Norris St to Diamond St*	8/1/2014	1985	1	14662	0.547	Stormwater Tree Trench	Streets		Philadelphia Housing Authority	Delaware	6/7/2016
Jackson St, Tree St, 13th St (Epiphany of Our Lord School) *	11/25/2014	619	1	4200	0.171	Infiltration Storage Trench	Streets	\$881,827	Lower Moyamensing Civic Association	Delaware	6/23/2016
8th St, Wolf St, and Mildred St (Francis Scott Key School) *	11/25/2014	2980	2	24300	0.821	Stormwater Tree Trench, Infiltration Storage Trench	Streets		Lower Moyamensing Civic Association	Delaware	6/30/2016
Duval St, Crittenden St, and Johnson St (Anna B. Day School) *	11/25/2014	9882	15	72900	2.715	Stormwater Tree Trench	Streets		Tookany/Tacony-Frankford Watershed Partnership	TTF	6/16/2016
Moyamensing Ave and Morris St (Dickinson Square) *	11/25/2014	3650	5	27875	1.006	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench	Streets		Department of Recreation, Friends of Dickinson Park, Southeastern Transportation Authority	Delaware	6/10/2016
Kemble Park	1/21/2015	37176	69	227049	10.239	Rain Garden, Stormwater Basin, Infiltration Storage Trench, Swale	Open Space	\$2,330,406	Philadelphia Department of Parks & Recreation	TTF	6/23/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Wister Woods Park	1/21/2015	41165	7	207638	9.533	Rain Garden, Stormwater Basin	Open Space		Philadelphia Department of Parks & Recreation	TTF	6/24/2016
73rd and Grays	2/3/2015	9534	8	73799	2.626	Stormwater Tree Trench	Streets	\$2,533,627		Cobbs-Darby	6/21/2016
72nd, Buist, 71st, Dicks (Elmwood Park)	2/3/2015	17958	9	134010	4.942	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets		Philadelphia Department of Parks & Recreation	Schuylkill	6/20/2016
Buist Ave, 70th, Elmwood, Holbrook (Patterson School)	2/3/2015	5490	6	40863	1.512	Stormwater Tree Trench, Infiltration Storage Trench	Streets			Schuylkill	6/20/2016
Elmwood, 64th, Grays, 65th (Connell Park)	2/3/2015	9141	16	70873	2.518	Stormwater Tree Trench	Streets			Schuylkill	6/30/2016
Buist, 63rd, Chelwynde, 64th (Mother Mary of Peace School)	2/3/2015	5678	8	49418	1.564	Stormwater Tree Trench	Streets			Schuylkill	6/22/2016
St. James Episcopal Church of Kingesessing	2/3/2015	16576	18	112757	4.268	Stormwater Tree Trench	Streets			Cobbs-Darby, Schuylkill	6/20/2016
Panati Playground	5/14/2015	2726	7	37113	0.751	Rain Garden, Infiltration Storage Trench	Open Space		\$227,394	Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware
Dauphin from Frankford to Tulip	8/26/2015	4630	10	30422	1.275	Stormwater Tree Trench, Infiltration Storage Trench, Pervious Pavement	Streets	\$122,998		Delaware	6/22/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Ralph Brooks Park	10/8/2015	1503	8	14510	0.414	Rain Garden, Infiltration Storage Trench	Open Space	\$152,300	Philadelphia Department of Parks & Recreation, Councilman Johnson, Urban Roots	Schuylkill	6/16/2016
Benson Park	11/13/2015	3259	9	13238	0.527	Stormwater Tree Trench, Infiltration Storage Trench, Pervious Pavement	Open Space	\$162,843	Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware	2/17/2016
Woodland Ave (Tiger III)	12/14/2015	7050	15	61563	1.942	Stormwater Tree Trench	Streets	\$357,918	Philadelphia Streets Department	Cobbs-Darby, Schuylkill	6/27/2016
Callowhill Stormwater Trees	2/5/2016	272	10	0	0.075	Other, Storm Water Trench	Streets	\$0	Philadelphia Streets Department	Delaware	6/21/2016
Bustleton Ave (Tiger III)	2/8/2016	2641	0	20261	0.728	Stormwater TreeTrench, Infiltration Storage Trench	Streets	\$174,320	Philadelphia Streets Department	Delaware	6/28/2016
56th from Greenway to Paschall	5/6/2016	2410	5	21675	0.664	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$156,362		Schuylkill	6/22/2016
Hope St from Master to Jefferson	6/1/2016	1364	0	1364	0.376	Pervious Pavement	Streets	\$228,735		Delaware	6/23/2016
Hope St from Berks to Norris	6/1/2016	1274	0	1274	0.351	Pervious Pavement	Streets			Delaware	6/24/2016
Baker Playground	6/1/2016	1417	0	1417	0.39	RainGarden, Infiltration Storage Trench	Open Space	\$692,423	Philadelphia Department of Parks & Recreation	Schuylkill	6/24/2016
Heston Lot	6/1/2016	3638	4	3638	1.002	RainGarden, Infiltration Storage Trench	Vacant Land	\$760,433	Department of Public Property, Philadelphia Department of Parks & Recreation	Schuylkill	6/24/2016

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Green Construction Cost**	Partner(s)	Watershed	Last Maintained Date
Stinger Square	6/1/2016	3064	15	27118	0.844	Rain Garden, Infiltration Storage Trench	Open Space	\$231,585	Philadelphia Department of Parks & Recreation	Schuylkill	6/16/2016

* Pennvest project

Appendix 2

Planned Public Green Stormwater Infrastructure Projects

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Hunting Park	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	6.15	2019	TBD
Master / Wanamaker / Hobart	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		0.74	2019	TBD
Cloud St from Church St to Walnut St	Combined	TTF	Streets	In Design	Pervious Pavement		0.216	2019	TBD
Kinsey from Tackawanna St to Torresdale St	Combined	TTF	Streets	In Design	Other		0.135	2019	TBD
Nicholas, 28th, Myrtlewood	Combined	Schuylkill	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		0.75	2019	TBD
Bailey, Oxford, Turner, 26th & 30th	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		0.685	2019	TBD
Berks / Montgomery / 6th	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		5.35	2019	TBD
Summerdale, Longshore, Tyson (J. Hampton Moore School)	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		3.404	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Pennway, Longshore, Algon, Knorr	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		1.171	2019	TBD
Ashville/Ditman/Rhawn et al	Combined	Delaware, Pennypack	Streets	In Design	Stormwater Tree Trench		2.53	2019	TBD
50th, Walton, Rodman	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench		1.19	2019	TBD
Guerin Recreation Center	Combined	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Pervious Pavement	Philadelphia Department of Parks & Recreation	1.28	2019	TBD
Smith Playground	Combined	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation, Councilman Johnson, Urban Roots	2.49	2019	TBD
Philadelphia Protestant House	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		1.36	2019	TBD
Har Nebo Cemetery - Algon and Oxford Intersection	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		2.67	2019	TBD
Rowland Ave - Ryan to Vista	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Infiltration Storage		5.27	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
					Trench				
Crispin St - Ryan to Lansing	Combined, Separate	Delaware, Pennypack	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		12.8	2019	TBD
Crispin St - Hartel to Rhawn	Combined, Separate	Pennypack	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		2.7	2019	TBD
15th & Carlisle	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		1.288	2019	TBD
Somerset/7th/Huntingdon	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		4.32	2019	TBD
Watkins / Fernon / McClellan	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.83	2019	TBD
Price and Wayne Green Streets	Combined, Separate	Schuylkill, TTF, Wissahickon	Streets	In Design	Stormwater Tree Trench		2.32	2019	TBD
Morris Park	Combined	Cobbs-Darby	Open Space	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation	6.15	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Race, Vodges, 55th	Combined	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench		1.81	2019	TBD
Bristol & Staub Streets	Combined	TTF	Streets	In Design	Stormwater Tree Trench		0.43	2019	TBD
Luzerne, Dungan, L, Lycoming (Francis Hopkinson Little School House)	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		1.143	2019	TBD
Erie Shopping Center	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		2.2	2019	TBD
Mariana Bracetti Academy Charter School	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		2.227	2019	TBD
28th, Poplar, Pennsylvania	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		1.2	2019	TBD
Cement Park Streets Locations	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench		3.1	2019	TBD
Cement Park (Northern Liberties)	Combined	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench, Pervious		0.23	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Recreation Center)					Pavement				
Cohocksink Playground	Combined	Delaware	Open Space	In Design	Rain Garden, Stormwater Basin, Infiltration Storage Trench		20.6	2019	TBD
46th, Westminster to Lancaster	Combined	Schuylkill	Streets	In Design	Stormwater Bump-out		0.9	2019	TBD
Crease / Frankford / Mascher / Thompson	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		4.01	2019	TBD
Bambrey, Stillman, Toronto	Combined	Delaware	Streets	In Design	Pervious Pavement		3.31	2019	TBD
Porous Streets - Atlantic, Joyce, Schiller	Combined	Delaware	Streets	In Design	Infiltration Storage Trench, Pervious Pavement		2.24	2019	TBD
Frankford from Placid to Ellie	Combined	Pennypack, Poquessing	Streets	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Planning Commission	3.54	2019	TBD
St. Dominic School	Combined	Pennypack	Streets	In Design	Stormwater Tree Trench	Philadelphia Planning Commission	1.08	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
48th St. Osage to Ludlow	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		4.14	2019	TBD
Warriner Post Park	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation	1.34	2019	TBD
Stephen Girard Park - Porter St, 21st St, Shunk St, 22nd St	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out	Philadelphia Department of Parks & Recreation	3.44	2019	TBD
Girard Park and Warriner Post Park Streets	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		3.76	2019	TBD
McClellan, Morris at 18th	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		0.44	2019	TBD
Media	Combined	Schuylkill	Streets	In Design	Stormwater Planter, Stormwater Bump-out, Green Gutter		2	2019	TBD
Kingsessing Recreation Center	Combined	Schuylkill	Open Space	In Design	Rain Garden, Swale	Philadelphia Department of Parks & Recreation	7.68	2019	TBD
Francis Myers Recreation Center	Combined	Cobbs-Darby	Open Space	In Design	Stormwater Planter, Rain Garden, Infiltration Storage Trench, Pervious Pavement	Philadelphia Department of Parks & Recreation	0.93	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Kingsessing Recreation Streets Locations	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		1.32	2019	TBD
Francis Myers Streets Locations	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench, Green Gutter, Infiltration Columns		18.55	2019	TBD
Max Myers - Park	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden, Infiltration Storage Trench, Swale		9.77	2019	TBD
Max Myers - Streets	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		4.82	2019	TBD
Argyle, Potter, Shelbourne, Russell	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		4.77	2019	TBD
East Poplar Playground	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Swale		4.1	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
East Poplar Field	Combined	Delaware	Open Space	In Design	Infiltration Storage Trench, Swale		0.79	2019	TBD
Darien St from Poplar St to Girard Ave	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.54	2019	TBD
Benner/Lawndale /Levick/Palmetto	Combined	Delaware	Streets	In Design	Stormwater Planter		5.66	2019	TBD
Springfield/Ruby/Upland	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		0.99	2019	TBD
Maplewood Mall	Combined	TTF	Streets	In Design	Depaving		0	2019	TBD
Osage Ave. from 42nd St to 43rd St	Combined	Schuylkill	Streets	In Design	Stormwater Planter, Pervious Pavement		0.76	2019	TBD
Revere St Greening	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.61	2019	TBD
McIlvain Playground	Combined	Delaware	Open Space	In Design	Infiltration Storage Trench		2.04	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Mount Sinai Streets Locations	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	12.15	2019	TBD
Parkside Edge	Combined	Schuylkill	Streets	In Design	Rain Garden, Infiltration Storage Trench	Fairmount Park Conservancy	3.95	2019	TBD
Waterloo/Hewson/Mutter/Palethorp	Combined	Delaware	Streets	In Design	Pervious Pavement		2.7	2019	TBD
Athletic Square	Combined	Schuylkill	Open Space	In Design	Stormwater Tree Trench		2.6	2019	TBD
Athletic Square	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		2.99	2019	TBD
Fotterall Square Streets	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Infiltration Storage Trench		4.4	2019	TBD
Vandergrift Park - Danny Boyle Park	Combined	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Philadelphia School District	0.48	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Gerritt/Earp/Fernon/22nd/Cleveland	Combined	Schuylkill	Streets	In Design	Pervious Pavement		2.27	2019	TBD
Yorktown Park	Combined	Delaware	Streets	In Design	Stormwater Planter, Infiltration Storage Trench		2.359	2019	TBD
Atlantic, Tioga (Kenderton Field Park)	Combined	Delaware	Streets	In Design	Stormwater Tree Trench	Fairmount Park Commission, Pennsylvania Horticulture Society	0.94	2019	TBD
Sedgley Ave, 22nd St (Cecil B Moore Recreation Center, Reyburn Park)	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out	Fairmount Park Commission, Pennsylvania Horticulture Society	1.72	2019	TBD
16th St, Sydenham St, and Cumberland St (HM Stanton School)	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.39	2019	TBD
Marston St, Eyre St, and Taney St	Combined	Schuylkill	Streets	In Design	Pervious Pavement		0.913	2019	TBD
Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	Combined	Delaware	Streets	In Design	Infiltration Storage Trench		1.65	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
52nd, 53rd, Gainor, and Diamond	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		1.118	2019	TBD
59th, Vodges	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		1.665	2019	TBD
Cobbs Creek Park Reaches 6-8	Combined, Separate, Non-Contributing	Cobbs-Darby	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Swale	Philadelphia Department of Parks & Recreation	13.7	2019	TBD
Black Coyle and McBride Playground	Combined	Delaware	Open Space	In Design	Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	1.375	2019	TBD
Palmer Cemetery	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		0.878	2019	TBD
Almond St - York to Boston	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.289	2019	TBD
Amber St, Lehigh Ave, Collins St	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.424	2019	TBD
Lehigh Ave - Martha to Trenton	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.566	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
St. Anne Rectory	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.838	2019	TBD
Penn Treaty School - Moyer St	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		0.33	2019	TBD
Bridge/Creston/D arrah/Penn	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		1.39	2019	TBD
35th St, Earp St	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		1.187	2019	TBD
Tacony Creek Reaches 4/5	Combined, Separate, Non-Contributing	TTF	Open Space	In Design	Rain Garden	Tookany/Tacony-Frankford Watershed Partnership, Philadelphia Department of Parks & Recreation	13.25	2019	TBD
Berks, 17th, Arlington & Bouvier	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		1.483	2019	TBD
Pemberton St from Front St to 2nd St	Combined	Delaware	Streets	In Design	Drainage Well		0.2	2019	TBD
Warnock St from Fitzwater St to Bainbridge St	Combined	Delaware	Streets	In Design	Drainage Well		0.13	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Unruh Ave between Summerdale and Frontenac	Combined	Delaware	Streets	In Design	Drainage Well		0.32	2019	TBD
E Rockland St from B St to C St	Combined	TTF	Streets	In Design	Drainage Well		0.34	2019	TBD
Pennsgrove St between 39th St and 40th St	Combined	Schuylkill	Streets	In Design	Drainage Well		0.4	2019	TBD
Stenton Park	Combined	TTF	Open Space	In Design	Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	7.3	2019	TBD
Stenton Streets Locations	Combined	TTF	Streets	In Design	Stormwater Tree Trench		4.5	2019	TBD
Moss Playground	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	3.8	2019	TBD
Carmella Playground	Combined	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	2.66	2019	TBD
Parrish, Union, 41st	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		3.12	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Hestonville Neighborhood Disconnection SMP	Combined	Schuylkill	Open Space	In Design	Stormwater Basin, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	13.5	2019	TBD
Gillespie, Cottage, Ditman, Devereaux	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		1.779	2019	TBD
Ross Park	Combined	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Department of Public Property, Philadelphia Department of Parks & Recreation, Councilwoman Sanchez	0.62	2019	TBD
Drexel College of Media Arts & Design	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench	Drexel University	1.447	2019	TBD
40th and Baltimore	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench	Southeastern Transportation Authority, University City District	1.504	2019	TBD
Woodcrest, Graham, Malvern, 59th (Beeber Middle School)	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		0.624	2019	TBD
Pine, Larchwood, 51st (Malcolm X Park)	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench	Philadelphia Planning Commission, Philadelphia Department of Parks & Recreation	3.037	2019	TBD
Upland Way	Combined	Schuylkill	Streets	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage	American Cities Foundation	3.085	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
					Trench, Swale				
Ridgewood - 55th to 54th	Combined	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		0.253	2019	TBD
Warrington - 54th to 55th	Combined	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		1.344	2019	TBD
65th, 18th, Chelton, Ogontz (Mt. Airy School of God in Christ)	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		3.02	2019	TBD
Point Breeze, 25th to 26th	Combined	Schuylkill	Streets	In Design	Infiltration Storage Trench		1.23	2019	TBD
1-95 Green Streets	Combined, Non-Contributing	TTF	Streets	In Design	Stormwater Tree Trench		4.18	2019	TBD
Malvern Ave from Atwood Rd to 65th St	Combined	Cobbs-Darby	Streets	In Design	Drainage Well		0.22	2019	TBD
Algon Ave from Glenview St to Longshore Ave	Combined	Delaware	Streets	In Design	Drainage Well		0.28	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres)	Completion Date Estimate	Estimated Construction Cost
Rising Sun/Germantown/Ontario Intersection	Combined	Delaware	Streets	In Design	Stormwater Bump-out	Philadelphia Streets Department, Mayors Office of Transportation & Utilities	1.15	2019	TBD
Reading Viaduct	Combined	Delaware	Streets	In Design	Rain Garden	Center City District	0.21	2019	TBD
PHA/Blumberg Green Streets	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench	Philadelphia Housing Authority	2.2	2019	TBD
Hackett School	Combined	Delaware	Schools	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Community Design Collaborative, Pennsylvania Horticulture Society, School District of Philadelphia	5.22	2019	TBD
Longshore/Bingham/Glenview/Martin Mills	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		3.75	2019	TBD
Auburn/Hagert/Rush/William	Combined	Delaware	Streets	In Design	Stormwater Planter, Pervious Pavement, Swale		3.95	2019	TBD
Viola & Stiles Street	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		3.24	2019	TBD
Brancroft/Chadwick/Courtland/19th	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		1.2	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Carroll Park Streets	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench		14.27	2019	TBD
McPherson Square	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden		2.62	2019	TBD
McPherson Square Streets Locations	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		7.87	2019	TBD
Allegheny Ave Safety Corridor Improvement Project Street Locations	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out	PennDOT	3.76	2019	TBD
Paschall, 46th-49th	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		2.12	2019	TBD
Osage Ave	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		0.67	2019	TBD
Cornwall, Westmoreland, Thayer	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		2.91	2019	TBD
Trenton & Auburn Playground	Combined	Delaware	Open Space	In Design	Infiltration Storage Trench		13.5	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Lawncrest Streets Southeast	Combined	Delaware, TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		21.32	2019	TBD
Pennypacker - Safe Routes to Schools	Combined	TTF	Streets	In Design	Stormwater Bump-out		1.56	2019	TBD
Duckrey - Safe Routes to Schools	Combined	Delaware	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		1.69	2019	TBD
Spruance School	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		0	2019	TBD
Weinberg Street Locations	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		6.96	2019	TBD
Weinberg Park	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	1.09	2019	TBD
Weinberg Street 2	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		1.01	2019	TBD
Moore St. 34th to 35th	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		0.86	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Cantrell, Jackson at 5th	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		0.38	2019	TBD
Wilder/Cross/Mountain/Greenwich	Combined	Delaware	Streets	In Design	Pervious Pavement		2.53	2019	TBD
Lawncrest Streets Southwest	Combined, Separate	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Infiltration Storage Trench		21.74	2019	TBD
Additional Lawncrest Streets	Combined	TTF	Streets	In Design	Stormwater Tree Trench		2.91	2019	TBD
Wharton Square Greening Improvement	Combined	Schuylkill	Open Space	In Design	Rain Garden, Infiltration Storage Trench		4.3	2019	TBD
Lawncrest Rec Center	Combined, Separate	TTF	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden	Philadelphia Department of Parks & Recreation	3.04	2019	TBD
Buist Avenue Green Streets and Park Improvements	Combined	Schuylkill	Streets	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	6.65	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Buist Park Improvements	Combined	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Stormwater Bump-out		1.25	2019	TBD
Passyunk Avenue Medians Improvements	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden		7.32	2019	TBD
Glenwood Streets Improvements	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		6.53	2019	TBD
Loudoun Park Green Streets Improvements	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		5.19	2019	TBD
Loudoun Park	Combined	TTF	Open Space	In Design	Stormwater Tree Trench, Rain Garden		2.25	2019	TBD
Mantua Greenway	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden	Philadelphia Planning Commission	7.68	2019	TBD
Nelson Playground and Green Improvements	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden		2.25	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
1900-02 Point Breeze Ave. Vacant Lot	Combined	Schuylkill	Vacant Land	In Design	Rain Garden		0.44	2019	TBD
1701-03 Ringgold St. Vacant Lot	Combined	Schuylkill	Vacant Land	In Design	Rain Garden		0.33	2019	TBD
Point Breeze Vacant Lots Streets	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden		6.86	2019	TBD
Callowhill Green Streets	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		3.49	2019	TBD
41st / Pine / Chester	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		1.93	2019	TBD
Elmwood Medians Package	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Planter, Rain Garden, Swale		6.52	2019	TBD
Erie and Rising Sun Street Improvements	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		7.99	2019	TBD
903 Rising Sun Ave.	Combined	Delaware	Vacant Land	In Design	Rain Garden		0.69	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Loudoun Green Streets Improvements - Phase II	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		8.43	2019	TBD
Kensington Streets Package	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		4.19	2019	TBD
53rd and Baltimore	Combined	Cobbs-Darby	Streets	In Design	Rain Garden	Philadelphia Streets Department	1.56	2019	TBD
Mascher/Mutter/Palmer/Wilt	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		4.41	2019	TBD
Kensington Neighborhood Greening Phase 2	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		6.5	2019	TBD
Broad/Carlisle/Thompson/Master	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		1.5	2019	TBD
49th & Osage Alley	Combined	Schuylkill	Alleys/Driveways	In Design	Stormwater Tree Trench		0.5	2019	TBD
Temple Station Green Streets	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater		5.94	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
					Bump-out				
Cedar Park Neighborhood Streets Package 1	Combined	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		8.75	2019	TBD
Dakota Street	Combined	Delaware	Streets	In Design	Pervious Pavement		0.28	2019	TBD
Wissinoming Park	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench		29.16	2019	TBD
Cedar Park Neighborhood Streets 2	Combined	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Storm Water Tree		6.36	2019	TBD
W Oxford St from N 33rd St to N Natrona St	Combined	Schuylkill	Streets	In Design	Stormwater Bump-out		1.22	2019	TBD
East Park Greenways Parcle	Combined	Schuylkill	Open Space	In Design	Rain Garden	Philadelphia Department of Parks & Recreation, Fairmount Park Conservancy	4.24	2019	TBD
South Street Head house Square	Combined	Delaware	Streets	In Design	Infiltration Storage Trench	Department of Public Property, Philadelphia Streets Department	0.99	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Elmwood Culs-de-Sac	Combined	Schuylkill	Streets	In Design	Stormwater Planter, Stormwater Bump-out, Rain Garden, Storm Water Tree, Green Gutter, Infiltration Columns		7.04	2019	TBD
Cohocksink Green Streets Improvements	Combined	Delaware	Streets	In Design	Storm Water Tree, Drainage Well		3.78	2019	TBD
Tioga Green Streets I	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		5.15	2019	TBD
American Street Corridor Improvements	Combined	Delaware	Streets	In Design	Stormwater Tree Trench		31.72	2019	TBD
Girard Estates Green Streets Improvements	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		9.33	2019	TBD
Wayne & Manheim Streets	Combined, Separate	Schuylkill, TTF	Streets	In Design	Stormwater Tree Trench		4.6	2019	TBD
Germantown Ave South	Combined	TTF	Streets	In Design	Stormwater Tree Trench		3.69	2019	TBD
Saunders Park Streets Package	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		4.95	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Berks & Sedgley Greening	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench		4.61	2019	TBD
16th Police District Headquarters	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Rain Garden		2.54	2019	TBD
16th Police District Parcels	Combined	Schuylkill	Facilities	In Design	Stormwater Planter, Rain Garden		2.5	2019	TBD
Feltonville Plaza package	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Storm Water Tree		5.37	2019	TBD
Seymour Streets Corridor	Combined	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		5.86	2019	TBD
Port Richmond Green Streets Improvements	Combined, Separate	Delaware, TTF	Streets	In Design	Storm Water Tree		6.35	2019	TBD
Jefferson Street	Combined	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		6.3	2019	TBD
Palmer Park	Combined	Delaware	Open Space	In Design	Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.71	2019	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Palmer Park Streets	Combined	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden, Stormwater Basin, Infiltration Storage Trench		3.01	2019	TBD
Fishtown Recreation Center	Combined	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Trust for Public Land	0.82	2019	TBD
Newbold Green Streets Improvements	Combined	Schuylkill	Streets	In Design	Storm Water Tree		3.9	2019	TBD
Clayborn and Lewis Playground 1	Combined	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		2.55	2019	TBD
Clayborn & Lewis Playground	Combined	Schuylkill	Open Space	In Design	Stormwater Planter, Rain Garden		0.8	2019	TBD
Germantown Ave SFR - Phase 5	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		0.391	2018	\$97,950.00
Sedgwick Station	Combined	TTF	Streets	In Contract Management	Stormwater Bump-out, Infiltration Storage Trench	Southeastern Transportation Authority	1.247	2018	\$2,300,055.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Cheltenham Cemetery	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench, Swale		7.508	2018	\$2,300,055.00
Thouon Ave, Mohican St, Rugby St, W Washington Ln (Pennypacker School)	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.719	2018	\$2,300,055.00
Galloway, Howard, & Hancock	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		0.361	2018	\$107,500.00
Hunting Park from Old York Rd to Roosevelt Blvd	Combined	TTF	Streets	In Contract Management	Other		0	2018	TBD
Marshall St from Hunting Park Ave to Cayuga St	Combined	TTF	Streets	In Contract Management	Infiltration Storage Trench, Pervious Pavement		1.224	2018	TBD
Mole St from Fitzwater to Catharine St and Webster St from 16th to 17th	Combined	Delaware	Streets	In Contract Management	Pervious Pavement		0.297	2018	TBD
Thompson, Conestoga	Combined	Schuylkill	Streets	In Contract Management	Stormwater Tree Trench		0.935	2018	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Hirst, Ludlow, Robinson	Combined	Cobbs-Darby	Streets	In Contract Management	Stormwater Tree Trench, Pervious Pavement		1.736	2018	TBD
Gaul, Weikel, Witte	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		1.945	2018	TBD
9th St, Hoffman St, Mifflin St, Percy St, Pierce St	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Pervious Pavement		0.884	2018	TBD
Mole, Bancroft	Combined	Schuylkill	Streets	In Contract Management	Pervious Pavement		1.478	2018	TBD
Adams Ave from Ruan to Factory	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench, Storm Water Tree		0.522	2018	TBD
Rosehill St and C Street	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		1.85	2018	TBD
8th & Poplar	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.006	2018	TBD
Crowson/Stokes/Woodlawn	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.517	2018	TBD

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Leithgow / Cambridge	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		0.521	2018	TBD
Federal St, Wharton St, Columbus Square	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.784	2018	TBD
Helen/Jasper/Clementine/Hilton	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.6	2018	TBD
Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Combined	Delaware	Streets	In Contract Management	Pervious Pavement		1.545	2018	TBD
Windrim Ave from Wayne Ave to Germantown Ave	Combined	TTF	Streets	In Contract Management	Stormwater Bump-out, Infiltration Storage Trench	Philadelphia Planning Commission, Southeastern Transportation Authority, Nicetown Community Development Corporation	2.069	2018	\$2,261,512.21
Wayne Ave and Abbottsford Ave	Combined	TTF	Streets	In Contract Management	Infiltration Storage Trench		0.334	2018	\$2,261,512.21
Ruscomb, 17th, Ogontz (Logan School)	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench		2.067	2018	\$2,261,512.21

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Mercer, Indiana, Ann, Almond (Powers Park)	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		1.149	2018	\$2,261,512.21
Thompson, Elkhart, Edgemont, Indiana (Stokley Playground)	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		0.853	2018	\$2,261,512.21
Westmoreland and Tulip	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		1.488	2018	\$2,261,512.21
Old York Rd (Skevchenko Park)	Combined	TTF	Streets	In Contract Management	Stormwater Bump-out, Infiltration Storage Trench	Department of Public Property	0.677	2018	\$2,261,512.21
Park Ave	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench		0.757	2018	\$2,261,512.21
Taggart School	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench	Community Design Collaborative	1.62	2018	\$1,185,360.00
Wolf St (Sharswood School and Our Lady of Carmel School)	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.673	2018	\$1,185,360.00
St. Monica Manor	Combined	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.153	2018	\$1,185,360.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Ferko Playground	Combined, Separate, Non-Contributing	TTF	Open Space	In Contract Management	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	14.611	2018	TBD
Cedar Ave, Yewdall St	Combined	Cobbs-Darby	Streets	In Contract Management	Infiltration Storage Trench		1.17	2018	TBD
Fairmount, Corinthian, 20th, Ridge	Combined	Delaware, Schuylkill	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		2.538	2018	TBD
Church, Orchard, Ruan, Salem	Combined	TTF	Streets	In Contract Management	Stormwater Planter, Infiltration Storage Trench		0.239	2018	TBD
Mansfield Ave	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.749	2018	TBD
Drew (Walnut Center) (UCHS Redevelopment)	Combined	Schuylkill	Schools	In Contract Management	Stormwater Tree Trench		3.84	2018	TBD
Loudon, Carlisle	Combined	TTF	Streets	In Contract Management	Infiltration Storage Trench		0.596	2018	TBD
37th & Mt Vernon Playground	Combined	Schuylkill	Open Space	In Contract Management	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.532	2018	\$72,439.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Cleveland, Gratz, Greene, Roberts	Combined	TTF	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.254	2018	TBD
Germantown Ave SFR - Phase 4 - Laurel to Wildey	Combined	Delaware	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench, Other		0.619	2017	\$226,849.00
Ellsworth, 22nd, 20th, 18th	Combined	Delaware, Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench		2.044	2017	\$565,810.00
Benjamin Franklin Pkwy from 16th St to 19th St	Combined	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench	Department of Public Property, Philadelphia Department of Parks & Recreation	3.549	2017	\$0.00
JFK, 20th to 23rd Street	Combined, Non-Contributing	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench		2.866	2017	TBD
Wagner Louis Middle School	Combined	TTF	Streets	In Construction	Stormwater Tree Trench		1.479	2017	\$1,101,200.00
Hope St from Master to Jefferson	Combined	Delaware	Streets	In Construction	Pervious Pavement		0.376	2017	\$228,735.00
Hope St from Berks to Norris	Combined	Delaware	Streets	In Construction	Pervious Pavement		0.351	2017	\$228,735.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
43rd St & 45th St	Combined	Schuylkill	Streets	In Construction	Stormwater Tree Trench		0.157	2017	\$75,219.00
Collazo Park	Combined	Delaware	Open Space	In Construction	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Pervious Pavement	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	2.536	2017	\$275,000.00
Brandywine St, Melon St, Synedum St	Combined	Delaware, Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench		0.267	2017	\$112,670.00
Wynnefield, Monument	Combined	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench		5.251	2017	\$651,724.75
29th & Cambria PWD Facility Employee Parking Lot	Combined	Delaware	Streets	In Construction	Stormwater Tree Trench, Swale		2.344	2017	\$937,258.00
20th, Limekiln, Ridley, and 65th (Kinsey School)	Combined	TTF	Streets	In Construction	Stormwater Tree Trench		1.671	2017	\$1,101,200.00
National Cemetery	Combined	TTF	Streets	In Construction	Rain Garden, Infiltration Storage Trench, Swale		0.442	2017	\$1,101,200.00
19th, Haines (Rowen William School)	Combined	TTF	Streets	In Construction	Stormwater Tree Trench		0.898	2017	\$1,101,200.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Ingersoll Commons Park	Combined	Delaware	Open Space	In Construction	Rain Garden, Infiltration Storage Trench, Swale, Other	Community Ventures, Department of Public Property, Philadelphia Department of Parks & Recreation	1.581	2017	\$1,162,121.00
Weccacoe Playground	Combined	Delaware	Open Space	In Construction	Rain Garden, Infiltration Storage Trench, Depaving	Philadelphia Department of Parks & Recreation	0.411	2017	\$110,409.43
Frankford Ave	Combined	Delaware, TTF	Streets	In Construction	Infiltration Storage Trench, Other		2.153	2017	\$542,435.00
Haverford Triangle	Combined	Schuylkill	Vacant Land	In Construction	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Swale		1.536	2017	\$760,433.00
Ontario St from A St to 6th St	Combined	Delaware	Streets	In Construction	Stormwater Tree Trench		1.5	2017	\$438,850.00
East Park - 33rd and Cecil B Moore Ave	Combined	Schuylkill	Open Space	In Construction	Rain Garden	Southeastern Transportation Authority, Philadelphia Department of Parks & Recreation	0.451	2017	TBD
Grays Ferry Neighborhood Disconnection SMP	Combined	Schuylkill	Open Space	In Construction	Stormwater Basin	Philadelphia Department of Parks & Recreation	34.01	2017	\$3,795,000.00

Project Name	Sewer Type	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre (acres-inches)	Completion Date Estimate	Estimated Construction Cost
Harrowgate Park	Combined	Delaware	Open Space	In Construction	Rain Garden	Southeastern Transportation Authority, Philadelphia Department of Parks & Recreation	3.507	2017	\$772,155.00
Botanic Ave from 49th St to 51 St	Combined	Schuylkill	Streets	In Construction	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	2.713	2017	\$500,000.00
Clearview and Washington	Combined	TTF	Vacant Land	In Construction	Rain Garden, Infiltration Storage Trench	Tookany/Tacony-Frankford Watershed Partnership	0.973	2017	\$840,000.00
Morris Estates	Combined	TTF	Open Space	In Construction	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	2.264	2017	\$840,000.00

Appendix 3

Complete Redevelopment and Incentivized Green Stormwater Infrastructure Projects

Table 1: Complete Private Development Green Stormwater Infrastructure

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2006-BOOT-310-01	Combined	Verified	Darby-Cobbs	19139	Subsurface Infiltration/Detention	0.7
2006-COMM-328-01	Combined	Verified	Darby-Cobbs	19139	Subsurface Detention, Porous Pavement	0.93
2007-THEC-538-01	Combined	Verified	Darby-Cobbs	19143	Green Roof, Porous Pavement	0.55
2007-WEST-684-01	Combined	Verified	Darby-Cobbs	19139	Tree Credit	0.01
2009-PASC-1226-01	Combined	Verified	Darby-Cobbs	19142	Subsurface Infiltration, Porous Pavement	3.25
2010-PASC-1238-01	Combined	Verified	Darby-Cobbs	19142	Subsurface Infiltration, Porous Pavement	2.17
2013-COBB-2080-01	Combined	Verified	Darby-Cobbs	19143	Subsurface Infiltration, Bio-infiltration	0.76
2010-5526-1348-01	Combined	Verified	Darby-Cobbs	19139	Subsurface Infiltration, Porous Pavement	0.45
2013-ALDI-2287-01	Combined	Verified	Darby-Cobbs	19151	Bio-retention	0.3
2006-0057-01	Combined	Verified	Delaware Direct	19123	Subsurface Detention	0.02
2006-0063-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	1.9
2006-0084-01	Combined	Verified	Delaware Direct	19121	Subsurface Infiltration	2.51
2006-94-01	Combined	Verified	Delaware Direct	19148	Subsurface Detention	2.25
2006-0110-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration, Subsurface Detention	0.69
2006-132-01	Combined	Verified	Delaware Direct	19133	Subsurface Detention	0.15
2006-777L-326-01	Combined	Verified	Delaware Direct	19147	Subsurface Infiltration, Porous Pavement	2.04
2006-9349-349-01	Combined	Verified	Delaware Direct	19123	Subsurface Detention	0.1
2006-BCRC-246-01	Combined	Verified	Delaware Direct	19134	Subsurface Infiltration	0.21
2006-BEAZ-250-01	Combined	Verified	Delaware Direct	19134	Subsurface Detention	1.55
2006-BRID-200-01	Combined	Verified	Delaware Direct	19137	Subsurface Infiltration	0.7
2006-CCPO-276-01	Combined	Verified	Delaware Direct	19122	Surface Infiltration/Detention	4.54

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2006-EDWI-215-01	Combined	Verified	Delaware Direct	19136	Subsurface Detention	0.76
2006-FAIR-175-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	1.24
2006-FEDE-409-01	Combined	Verified	Delaware Direct	19106	Subsurface Detention, Green Roof	0.27
2006-FRON-290-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration	0.45
2006-GENE-192-01	Combined	Verified	Delaware Direct	19123	Subsurface Detention	0.3
2006-HOPE-447-01	Combined	Verified	Delaware Direct	19122	Porous Pavement	0.5
2006-HUNT-445-01	Combined	Verified	Delaware Direct	19133	Subsurface Infiltration, Porous Pavement	1.36
2006-LAWT-291-01	Combined	Verified	Delaware Direct	19135	Subsurface Detention	1.17
2006-LE22-460-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration, Porous Pavement	0.68
2006-MICH-419-01	Combined	Verified	Delaware Direct	19125	Subsurface Infiltration	0.37
2006-NATI-441-01	Combined	Verified	Delaware Direct	19106	Subsurface Detention	0.52
2006-PHIL-205-01	Combined	Verified	Delaware Direct	19123	Subsurface Detention, Porous Pavement	0.14
2006-PILG-444-01	Combined	Verified	Delaware Direct	19111	Subsurface Infiltration	1.09
2006-PREF-176-01	Combined	Verified	Delaware Direct	19148	Subsurface Detention	1.6
2006-PROG-400-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	3.65
2006-SAFE-234-01	Combined	Verified	Delaware Direct	19134	Subsurface Detention	0.56
2006-SOLI-300-01	Combined	Verified	Delaware Direct	19149	Subsurface Infiltration	1.99
2006-TACO-337-01	Combined	Verified	Delaware Direct	19149	Subsurface Detention	0.18
2006-TEMP-210-01	Combined	Verified	Delaware Direct	19122	Subsurface Detention	0.6
2006-TEMP-245-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	1.06
2007-CECI-556-01	Combined	Verified	Delaware Direct	19121	Subsurface Detention	1.08
2007-CECI-561-01	Combined	Verified	Delaware Direct	19121	Subsurface Detention, Subsurface Infiltration	0.78

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2008-NEWL-839-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration	0.48
2007-HACE-731-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration	0.52
2007-HERR-690-01	Combined	Verified	Delaware Direct	19147	Porous Pavement	0.56
2007-HOWI-498-01	Combined	Verified	Delaware Direct	19123	Subsurface Detention, Disconnected Impervious Area	0.34
2007-MCDO-558-01	Combined	Verified	Delaware Direct	19133	Subsurface Detention	0.54
2007-MCDO-560-01	Combined	Verified	Delaware Direct	19135	Subsurface Detention	0.06
2007-MTTA-480-01	Combined	Verified	Delaware Direct	19123	Green Roof, Porous Pavement	0.33
2007-PRAD-489-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	1.45
2007-SOUT-557-01	Combined	Verified	Delaware Direct	19148	Subsurface Detention	0.12
2007-WARN-646-01	Combined	Verified	Delaware Direct	19133	Subsurface Infiltration	2.07
2007-WARN-651-01	Combined	Verified	Delaware Direct	19133	Subsurface Infiltration	2.66
2007-WASH-642-01	Combined	Verified	Delaware Direct	19146	Subsurface Infiltration	0.99
2007-WILL-699-01	Combined	Verified	Delaware Direct	19134	Subsurface Detention	5.04
2008-1600-898-01	Combined	Verified	Delaware Direct	19122	Bio-retention	0.5
2008-4014-979-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	0.47
2008-CAST-875-01	Combined	Verified	Delaware Direct	19149	Subsurface Detention	0.02
2008-FRAN-994-01	Combined	Verified	Delaware Direct	19130	Subsurface Infiltration, Porous Pavement	0.66
2008-MART-980-01	Combined	Verified	Delaware Direct	19147	Subsurface Infiltration/Detention	0.6
2008-NEWK-958-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Porous Pavement, Bio-infiltration, Green Roof, Cistern	5.15
2008-NEWL-778-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration	0.45
2008-ROTE-960-01	Combined	Verified	Delaware Direct	19148	Bio-retention, Subsurface Detention, Porous Pavement	1.58
2008-SCHM-902-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	4.37

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2008-SHER-926-01	Combined	Verified	Delaware Direct	19122	Green Roof, Porous Pavement	0.24
2008-THEC-806-01	Combined	Verified	Delaware Direct	19103	Subsurface Detention, Green Roof	0.21
2008-WALG-838-01	Combined	Verified	Delaware Direct	19146	Subsurface Detention	0.5
2009-IATS-1023-01	Combined	Verified	Delaware Direct	19148	Subsurface Detention, Green Roof	0.79
2009-LAWR-1044-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration, Porous Pavement	2.95
2009-TEMP-1077-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	0.91
2009-TDBA-1072-01	Combined	Verified	Delaware Direct	19149	Subsurface Infiltration, Bio-infiltration	1.1
2009-2007-1090-01	Combined	Verified	Delaware Direct	19148	Subsurface Infiltration/Detention	17.72
2009-TEMP-1096-01	Combined	Verified	Delaware Direct	19122	Subsurface Detention	1.48
2009-FRAN-1130-01	Combined	Verified	Delaware Direct	19137	Subsurface Infiltration	4.08
2009-HAWT-1102-01	Combined	Verified	Delaware Direct	19147	Porous Pavement	0.3
2009-THEM-1167-01	Combined	Verified	Delaware Direct	19121	Green Roof, Porous Pavement	0.39
2009-THEC-1174-01	Combined	Verified	Delaware Direct	19135	Bio-retention, Green Roof, Disconnected Impervious Area	0.54
2009-7149-1186-01	Combined	Verified	Delaware Direct	19135	Subsurface Infiltration	0.35
2009-PHIL-1205-01	Combined	Verified	Delaware Direct	19148	Porous Pavement	14.6
2009-CONG-1210-01	Combined	Verified	Delaware Direct	19133	Subsurface Infiltration, Porous Pavement	2.8
2010-BRID-1233-01	Combined	Verified	Delaware Direct	19137	Subsurface Infiltration, Porous Pavement	1.08
2010-PSDC-1234-01	Combined	Verified	Delaware Direct	19147	Subsurface Infiltration	1.08
2010-411W-1300-01	Combined	Verified	Delaware Direct	19122	Subsurface Detention	0.15
2010-TEMP-1302-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Cistern	2.92
2010-WATE-1343-01	Combined	Verified	Delaware Direct	19123	Disconnected Impervious Area	0.05
2010-PHIL-1362-01	Combined	Verified	Delaware Direct	19148	Bio-retention	2.18

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2010-PROP-1376-01	Combined	Verified	Delaware Direct	19141	Subsurface Infiltration, Bio-infiltration, Bio-retention	2.36
2010-ARCH-1393-01	Combined	Verified	Delaware Direct	19122	Green Roof	0.2
2010-DICK-1410-01	Combined	Verified	Delaware Direct	19148	Porous Pavement, Disconnected Impervious Area	0.65
2010-1940-1435-01	Combined	Verified	Delaware Direct	19140	Subsurface Infiltration, Porous Pavement	0.55
2010-CREA-1427-01	Combined	Verified	Delaware Direct	19125	Green Roof, Porous Pavement	0.3
2010-PHIL-1469-01	Combined	Verified	Delaware Direct	19148	Bio-retention, Bio-infiltration, Subsurface Detention	3.39
2010-NORR-1475-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Porous Pavement	2.1
2010-AGIL-1461-01	Combined	Verified	Delaware Direct	19121	Subsurface Infiltration	1.36
2011-STMA-1508-01	Combined	Verified	Delaware Direct	19147	Subsurface Infiltration, Subsurface Detention, Green Roof, Porous Pavement	0.52
2011-FAIR-1488-01	Combined	Verified	Delaware Direct	19130	Subsurface Detention, Green Roof	0.39
2011-MONT-1516-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	2.83
2011-CHRI-1545-01	Combined	Verified	Delaware Direct	19147	Subsurface Infiltration, Green Roof, Porous Pavement	0.95
2011-SAMU-1569-01	Combined	Verified	Delaware Direct	19111	Porous Pavement	0.4
2011-HOME-1571-01	Combined	Verified	Delaware Direct	19107	Subsurface Detention, Bio-retention	0.15
2011-DIAM-1617-01	Combined	Verified	Delaware Direct	19140	Subsurface Detention, Green Roof	0.44
2011-NEWN-1620-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration, Green Roof, Porous Pavement	0.88
2011-TEMP-1622-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Green Roof, Porous Pavement, Blue Roof	1.93
2011-JWSD-1674-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	1.82
2011-TEMP-1739-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Porous Pavement	2.14
2012-SOUT-1782-01	Combined	Verified	Delaware Direct	19102	Subsurface Detention, Green Roof	0.76
2012-CENT-1791-01	Combined	Verified	Delaware Direct	19122	Porous Pavement	1.34
2012-SPRU-1813-01	Combined	Verified	Delaware Direct	19107	Subsurface Detention, Green Roof	0.1

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2012-RODE-1835-01	Combined	Verified	Delaware Direct	19130	Subsurface Infiltration	0.7
2012-INGE-1798-01	Combined	Verified	Delaware Direct	19121	Subsurface Infiltration	0.89
2012-412N-1844-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration, Porous Pavement, Green Roof	1.15
2012-HUNT-1764-01	Combined	Verified	Delaware Direct	19140-2107	Disconnected Impervious Area, Porous Pavement	1.77
2012-915N-1854-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration, Porous Pavement	0.82
2012-SYSC-1931-01	Combined	Verified	Delaware Direct	19148	Bio-retention	3.94
2012-701W-2002-01	Combined	Verified	Delaware Direct	19133	Hybrid Infiltration/Detention, Subsurface Detention	4.67
2012-LINC-2012-01	Combined	Verified	Delaware Direct	19148	Bio-retention, Porous Pavement	1.81
2013-9THS-2075-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	4.6
2013-8268-2116-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	0.4
2013-THES-2177-01	Combined	Verified	Delaware Direct	19123	Subsurface Infiltration	1.17
2013-TACO-2197-01	Combined	Verified	Delaware Direct	19135	Subsurface Detention, Bio-infiltration, Tree Credit	2.05
2013-1601-2261-01	Combined	Verified	Delaware Direct	19148	Subsurface Infiltration	0.85
2013-EDBE-2293-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration, Bio-infiltration	4.21
2014-STJO-2424-01	Combined	Verified	Delaware Direct	19122	Subsurface Infiltration	5.56
2014-ENVI-2646-01	Combined	Verified	Delaware Direct	19148-5607	Subsurface Detention, Bio-retention	1.97
2014-TEMP-2699-01	Combined	Verified	Delaware Direct	19121	Porous Pavement	0.4
2009-WALM-1045-01	MS4	Verified	Delaware Direct	19148	Direct Discharge	7.99
2005-0099-01	Combined	Verified	Lower Schuylkill River	19131	Hybrid Bio-infiltration/Bio-retention	37.4
2006-0017-01	Combined	Verified	Lower Schuylkill River	19142	Subsurface Infiltration, Porous Pavement	1.21
2006-0074-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface Infiltration/Detention	0.65
2005-0052-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface Infiltration	2.49

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2006-129-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof	0.48
2006-30TH-236-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration	0.63
2006-96-01	Combined	Verified	Lower Schuylkill River	19140	Subsurface Detention	0.06
2006-ANGE-268-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration	0.82
2006-ANNE-209-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention	0.17
2006-CINT-431-01	Combined	Verified	Lower Schuylkill River	19131	Surface Detention	8.62
2006-HESS-267-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Detention	0.63
2006-OVER-462-01	Combined	Verified	Lower Schuylkill River	19151	Subsurface Infiltration	1.77
2006-PENN-421-01	Combined	Verified	Lower Schuylkill River	19107	Subsurface Detention	2.3
2006-PROP-233-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration	1.04
2006-REBA-275-01	Combined	Verified	Lower Schuylkill River	19143	Subsurface Infiltration	2.14
2006-STHE-171-01	Combined	Verified	Lower Schuylkill River	19130	Subsurface Infiltration	0.41
2006-STJO-273-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Infiltration, Porous Pavement	1.1
2006-UNIO-235-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Porous Pavement	1.05
2006-VAUX-338-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration	1.33
2006-WALN-251-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof, Porous Pavement	0.67
2007-1615-544-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration, Porous Pavement	0.55
2007-4839-625-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Detention	0.95
2007-DREX-669-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Porous Pavement	0.81
2007-GUIO-721-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Detention, Porous Pavement	1.35
2007-POWE-679-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement	0.37
2007-SAIN-553-01	Combined	Verified	Lower Schuylkill River	19131	Porous Pavement	3.58

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2007-THEM-495-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Detention, Surface Detention	6.38
2007-UNIV-633-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Bio-infiltration	0.36
2008-20UN-767-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Porous Pavement	0.4
2008-2116-992-01	Combined	Verified	Lower Schuylkill River	19103	Subsurface Detention, Green Roof, Bio-infiltration	0.45
2008-BARN-986-01	Combined	Verified	Lower Schuylkill River	19130	Subsurface Infiltration, Green Roof	3.45
2008-CLAS-765-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Porous Pavement	0.34
2008-COMM-763-01	Combined	Verified	Lower Schuylkill River	19130	Porous Pavement, Green Roof, Subsurface Infiltration	2.35
2008-DREX-788-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Bio-infiltration, Porous Pavement	1.47
2008-DREX-950-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Subsurface Detention	0.23
2008-FRAN-921-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement	0.25
2008-NAVA-893-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration	5.67
2008-NORT-1012-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Disconnected Impervious Area	0.4
2008-PROP-824-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface Infiltration, Porous Pavement	5.4
2008-STRA-799-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration, Porous Pavement	0.42
2008-STRA-802-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration, Porous Pavement	0.34
2008-WOOD-864-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement	0.45
2009-GLOB-1016-01	Combined	Verified	Lower Schuylkill River	19131	Bio-retention, Subsurface Infiltration	1.75
2009-PENN-1019-01	Combined	Verified	Lower Schuylkill River	19104	Bio-retention, Subsurface Detention, Tree Credit, Direct Discharge	3.94
2009-DORA-1041-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Infiltration, Porous Pavement	0.4
2009-STRA-1050-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration	0.22
2009-STRA-1055-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration	0.25
2009-MANT-1033-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration	3.64

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2009-SIST-1062-01	Combined	Verified	Lower Schuylkill River	19103	Disconnected Impervious Area	0.15
2009-NEWH-1079-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface Infiltration	0.34
2009-PHIL-1101-01	Combined	Verified	Lower Schuylkill River	19102	Subsurface Detention	0.26
2009-PECO-1133-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration	2.75
2009-SIST-1131-01	Combined	Verified	Lower Schuylkill River	19103	Subsurface Infiltration, Green Roof, Disconnected Impervious Area	0.37
2009-HELP-1138-01	Combined	Verified	Lower Schuylkill River	19153	Subsurface Infiltration	3.73
2009-JANN-1141-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Porous Pavement	0.27
2009-PRIN-1147-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration	0.51
2009-SCHU-1140-01	Combined	Verified	Lower Schuylkill River	19103	Disconnected Impervious Area	0.69
2009-PENN-1144-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement, Green Roof, Subsurface Detention	0.44
2009-RODI-1176-01	Combined	Verified	Lower Schuylkill River	19130	Subsurface Infiltration	0.18
2009-THEP-1173-01	Combined	Verified	Lower Schuylkill River	19140	Green Roof	0.09
2009-PARK-1197-01	Combined	Verified	Lower Schuylkill River	19104	Disconnected Impervious Area	0.11
2010-STJO-1239-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Infiltration, Bio-infiltration, Green Roof	1
2010-1800-1260-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration	0.84
2010-4109-1277-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Porous Pavement	0.21
2010-UNIV-1312-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof	0.72
2010-3737-1331-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof	0.29
2010-CHOP-1367-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof	2.61
2010-GEST-1346-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Detention, Subsurface Infiltration	1.09
2010-DREX-1399-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Green Roof	1.5
2010-EARL-1460-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration, Tree Credit	0.45

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2010-DILW-1442-01	Combined	Verified	Lower Schuylkill River	19107	Subsurface Detention	0.72
2010-UNIV-1385-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Bio-retention	1.41
2011-LOCU-1503-01	Combined	Verified	Lower Schuylkill River	19104	Tree Credit	0.2
2011-CONV-1491-01	Combined	Verified	Lower Schuylkill River	19107	Subsurface Detention, Green Roof	0.25
2011-KARA-1505-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface Infiltration, Porous Pavement	3.96
2011-HAMI-1518-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration, Green Roof	1.6
2011-4240-1543-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Infiltration	0.74
2011-CCTD-1535-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface Infiltration	1.04
2011-TOLL-1586-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration, Green Roof	2.36
2011-DREX-1638-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Bio-retention	0.78
2011-PHIL-1596-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration, Porous Pavement	3.15
2011-PROP-1662-01	Combined	Verified	Lower Schuylkill River	19130	Subsurface Infiltration, Bio-infiltration	3.68
2011-WEST-1675-01	Combined	Verified	Lower Schuylkill River	19139	Depaving	0
2011-33RD-1697-01	Combined	Verified	Lower Schuylkill River	19132	Green Roof	0.09
2011-PENN-1664-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement	0.19
2012-1900-1754-01	Combined	Verified	Lower Schuylkill River	19145	Porous Pavement, Green Roof	0.59
2012-1426-1805-01	Combined	Verified	Lower Schuylkill River	19102	Green Roof, Blue Roof	0.32
2012-UNIV-1848-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration, Porous Pavement, Green Roof, Subsurface Detention	1.57
2012-SENI-1900-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface Detention, Bio-retention	0.42
2012-PENN-1774-01	Combined	Verified	Lower Schuylkill River	19104	Bio-infiltration, Subsurface Detention	0.86
2012-CIRA-1937-01	Combined	Verified	Lower Schuylkill River	19104	Green Roof, Subsurface Detention	2.14
2012-RIVE-2027-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement, Disconnected Impervious Area, Tree Credit	3.34

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2013-DREX-2081-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface Detention, Bio-retention	1.33
2013-1901-2109-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface Infiltration, Green Roof, Porous Pavement	0.56
2013-HALP-2134-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration	1.61
2013-CECI-2157-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface Infiltration, Green Roof	0.85
2013-HELP-2241-01	Combined	Verified	Lower Schuylkill River	19153	Bio-infiltration	1.78
2013-23RD-2272-01	Combined	Verified	Lower Schuylkill River	19140	Subsurface Infiltration	0.42
2013-MAST-2259-01	Combined	Verified	Lower Schuylkill River	19121	Disconnected Impervious Area	0.58
2014-DREX-2457-01	Combined	Verified	Lower Schuylkill River	19104	Porous Pavement	2.55
2006-NEWF-343-01	Combined	Verified	Pennypack Creek	19136	Subsurface Infiltration	2.51
2010-8828-1321-01	Combined	Verified	Pennypack Creek	19136	Subsurface Infiltration	1.18
2006-PASQ-416-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface Detention	0.32
2006-PIZZ-242-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface Infiltration	0.15
2006-TEMP-197-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface Detention, Porous Pavement	0.22
2007-AROU-626-01	Combined	Verified	Tacony-Frankford Creek	19144	Porous Pavement, Green Roof, Subsurface Infiltration	0.46
2007-EYEI-616-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface Detention	0.37
2007-GAMB-624-01	Combined	Verified	Tacony-Frankford Creek	19124	Porous Pavement	0.07
2007-GAMB-701-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration, Porous Pavement	1.54
2007-GERM-647-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface Detention, Bio-infiltration, Green Roof, Bio-retention	0.81
2007-LASA-593-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface Infiltration, Porous Pavement, Tree Credit	10.63
2007-SIMO-496-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-infiltration, Porous Pavement	0.52
2007-THEL-606-01	Combined	Verified	Tacony-Frankford Creek	19119	Subsurface Detention	0.49
2008-ROLA-813-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface Infiltration, Green Roof	0.24

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2009-PRES-1037-01	Combined	Verified	Tacony-Frankford Creek	19150	Subsurface Infiltration, Porous Pavement	1.92
2009-NICE-1136-01	Combined	Verified	Tacony-Frankford Creek	19140	Bio-retention, Subsurface Detention	0.41
2009-CANC-1145-01	Combined	Verified	Tacony-Frankford Creek	19124	Surface Detention	6.14
2009-WOLC-1169-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface Detention, Bio-retention, Disconnected Impervious Area	1.72
2010-ESPE-1288-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface Infiltration, Tree Credit	1.05
2010-BROA-1347-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface Infiltration	0.86
2010-PNKW-1360-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface Infiltration, Porous Pavement	2.26
2010-HUNT-1351-01	Combined	Verified	Tacony-Frankford Creek	19140-2107	Disconnected Impervious Area	0.06
2010-NORT-1449-01	Combined	Verified	Tacony-Frankford Creek	19124-3024	Subsurface Infiltration	0.92
2010-PLEA-1444-01	Combined	Verified	Tacony-Frankford Creek	19119	Subsurface Detention, Green Roof	0.16
2011-PROP-1483-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface Infiltration, Porous Pavement	1.55
2011-CANC-1485-01	Combined	Verified	Tacony-Frankford Creek	19124	Green Roof	0.17
2011-DOLL-1636-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface Infiltration	0.32
2011-3343-1653-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface Infiltration, Porous Pavement	0.68
2011-BOTT-1646-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface Detention, Bio-retention	2.71
2011-GREE-1706-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface Detention, Surface Infiltration	1.9
2011-NICE-1728-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface Infiltration, Porous Pavement	0.3
2011-NICE-1729-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface Detention, Porous Pavement	0.51
2011-NICE-1730-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface Infiltration, Porous Pavement	1.11
2012-BUIL-1807-01	Combined	Verified	Tacony-Frankford Creek	19111	Disconnected Impervious Area	0.08
2012-CANC-1770-01	Combined	Verified	Tacony-Frankford Creek	19124	Bio-infiltration, Green Roof	0.56
2012-PROP-1883-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface Infiltration	0.97

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2012-WISS-1891-01	Combined	Verified	Tacony-Frankford Creek	19138	Bio-retention	1.3
2013-SETT-2085-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration, Porous Pavement	2.11
2013-PROP-2163-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface Infiltration	0.87
2014-GSTR-2443-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface Infiltration	1.07
2014-VERN-2690-01	Combined	Verified	Tacony-Frankford Creek	19144	Porous Pavement, Disconnected Impervious Area	0.55
Total Greened Acres:						422.62

Table 2: Complete SMIP and GARP Green Stormwater Infrastructure Projects

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2010-COMM-1370-01	Combined	Verified	Delaware Direct	19140	Green Roof	0.076
2011-1518-1561-01	Combined	Verified	Delaware Direct	19130	Subsurface Infiltration	0.17
2011-2150-1616-01	Combined	Verified	Delaware Direct	19134	Subsurface Infiltration	1.43
2011-RETR-001-01	Combined	Verified	Lower Schuylkill River	19142	Disconnected Impervious Area	0.26
2012-5818-1784-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-infiltration	0.108
2012-6225-1857-01	Combined	Verified	Delaware Direct	19135	Bio-infiltration	0.341
2012-GSFS-2028-01	Combined	Verified	Tacony-Frankford Creek	19144	Bio-retention	1.04
2012-NEWM-1776-01	Combined	Verified	Delaware Direct	19135	Cistern	1.01
2012-ROOF-1869-01	Combined	Verified	Delaware Direct	19125	Direct Discharge	0.869
2012-THEE-1746-01	Combined	Verified	Lower Schuylkill River	19139	Green Roof	0.062
2012-WOLF-1792-01	Combined	Verified	Delaware Direct	19137	Direct Discharge	11.74
2013-1148-2105-01	Combined	Verified	Delaware Direct	19127	Subsurface Infiltration, Bio-infiltration, Green Roof	0.67
2013-6225-2400-01	Combined	Verified	Delaware Direct	19135	Subsurface Infiltration, Bio-infiltration	2.506
2013-CARD-2076-01	Combined	Verified	Delaware Direct	19124	Subsurface Detention, Bio-retention	52.99
2013-CARD-2220-01	Combined	Verified	Tacony-Frankford Creek	19124	Surface Detention	15.82
2013-METH-2117-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration	1.96
2013-SITE-2387-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Infiltration	5.27
2013-SITE-2401-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Infiltration	3.41

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2014-GLOB-2467-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface Detention	0.58
2014-SITE-2501-01	Combined	Verified	Lower Schuylkill River	19131	Bio-infiltration	35.53
2014-SITE-2549-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface Infiltration	3.28
2014-SITE-2550-01	Combined	Verified	Delaware Direct	19135	Subsurface Infiltration	1.67
2014-SITE-2592-01	Combined	Verified	Lower Schuylkill River	19153	Direct Discharge	9.08
2014-SITE-2665-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface Detention, Subsurface Infiltration	8.92
2014-SITE-2666-01	Combined	Verified	Lower Schuylkill River	19153	Subsurface Infiltration	2.7
2014-SITE-2682-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface Detention, Bio-retention	7.04
2015-LASA-2865-01	Combined	Verified	Tacony-Frankford Creek	19141	Bio-retention	7.36
2015-LEAE-2888-01	Combined	Verified	Lower Schuylkill River	19036	Subsurface Detention, Bio-infiltration, Porous Pavement	2.33
2015-MINK-2844-01	Combined	Verified	Lower Schuylkill River	19145	Bio-infiltration	0.73
2015-NORT-2977-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface Detention, Subsurface Infiltration	17.72
2015-SITE-2809-01	Combined	Verified	Tacony-Frankford Creek	19120	Subsurface Infiltration, Subsurface Detention	21.92
2015-SITE-2810-01	Combined	Verified	Lower Schuylkill River	19153	Subsurface Detention	9.87
FY16-ADAM-4101-01	Combined	Verified	Tacony-Frankford Creek	19124	Surface Detention	1.74
FY16-FRIE-4238-01	Combined	Verified	Lower Schuylkill River	19102	Green Roof	0.166
FY16-PECO-4145-01	Combined	Verified	Lower Schuylkill River	19103	Green Roof	0.745
FY16-PHIL-4130-01	Combined	Verified	Darby Creek	19142	Depave	0.17
FY16-PHIL-4134-01	Combined	Verified	Lower Schuylkill River	19130	Green Roof	0.144
FY16-SITE-4039-01	Combined	Verified	Delaware Direct	19148	Subsurface Detention, Bio-retention	5.42
FY16-USGS-4133-01	Combined	Verified	Delaware Direct	19106	Green Roof	0.346
Total Greened Acres:						237.20

Appendix 4

Green Stormwater Infrastructure Monitoring Status Report

GSI Monitoring Status Report

1.0 Introduction

During the reporting period of July 1, 2015 to June 30, 2016, the Water Department'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 the degree to which the system is connected to the existing drainage system, but in general the objective is to evapotranspire, infiltrate, reuse, 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 monitoring program during the first five years of the *Green City, Clean Waters* program is post-construction performance monitoring and testing using various methods (*e.g.*, continuous water level monitoring, simulated runoff tests, etc.). The primary goal of GSI monitoring and testing is to measure the performance of GSI systems for reducing stormwater runoff volume. Secondary goals include providing information for improvements to GSI design and maintenance and developing appropriate monitoring methods for the variety of GSI projects installed city-wide.

Project characteristics such as contributing drainage area, storage volume, inlet capture efficiency, and (when present) slow release discharge parameters can be observed, allowing for a more complete view of a system's functionality. The comprehensive understanding of GSI through monitoring and testing allows the Water Department to make informed decisions for current and future projects regarding the GSI design standards, type and frequency of maintenance activities, and program optimization.

From July 1, 2015 to June 30, 2016, the Water Department performed monitoring and testing of GSI stormwater management practices (SMPs) using methods described in the Comprehensive Monitoring Plan (CMP) submitted January 10, 2014 and approved by PADEP May 28, 2014. In selecting monitoring locations, The Water Department has made an attempt to allocate monitoring effort roughly according to the types of SMPs that are being constructed for the *Green City Clean Waters* program as a whole (Table 1-1).

Table 1-1: Number of Monitored SMPs and Total Number of SMPs Constructed by SMP Type

SMP Type	Monitored SMPs	Total Constructed SMPs	Percent Monitored
Stormwater Tree Trench	29	207	13%
Stormwater Planter	7	49	14%
Stormwater Bump-out	1	18	6%
Rain Garden	2	58	4%
Stormwater Basin	0	3	0%
Infiltration/Storage Trench	12	62	19%
Pervious Paving	5	11	45%
Swale	0	6	0%
Stormwater Wetland	0	0	n/a
Green Roof	0	2	0%
Other	0	97	0%
Total	56	513	11%

2.0 Data Tracking

During the reporting period, much consideration was given to how best to track the information gathered from GSI monitoring activities. A relational database was created using Microsoft Access to store data collected from the monitoring methods currently being implemented. Data is collected at the task level and can be used in data analysis via queries to determine deployment and site characteristics. This database is also linked to the GreenIT tracking system, and therefore contains the individual SMP information for monitored GSI projects.

3.0 Comprehensive Monitoring Plan Implementation Status

Proposed methods for performance monitoring were outlined in both the draft Comprehensive Monitoring Plan submitted December 1, 2012 and in a comment 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. The following sections summarize the status of implementation of monitoring activities described in the CMP for July 1, 2015 through June 30, 2016.

3.1 Green Stormwater Infrastructure Performance Monitoring

Continuous water level and storage volume monitoring of GSI systems is the primary way that the Water Department is evaluating performance of constructed SMPs. In 2015/2016 75 HOBO U20-001-04water level loggers (Onset Computer Corp, Bourne MA) have been deployed in 56 GSI systems (Tables 3-1 and 3-2, Figure 3-1). It should be noted that the number of water level sensors is greater than the number of systems because some systems have multiple SMPs and some SMPs have multiple observation wells. Additionally, 21 barometric pressure sensors were also deployed throughout the City to provide compensation for changes in barometric pressure. Each barometric sensor can provide data for multiple water level loggers. A one kilometer radius is the maximum distance used between a barometric sensor and water level loggers deployed in GSI system observation wells.

Table 3-1: Number of sensors and Average Deployment Duration for Continuous Water Level Monitoring Sensors

Sensor Type	Number Currently Deployed	Average Number of Days Deployed
Barometric Pressure Sensor	21	1017
Water Level Sensor	75	1015

Table 3-2: SMP Attributes for Continuous Water Level Monitoring SMPs

SMP ID	SMP Type	Project Name	System Name
1-1-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-A2
1-2-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-B2 & SWT-A3
1-3-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-B3
3-1-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	1
3-2-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	2
3-3-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	3
3-4-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	4
3-5-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	5
3-6-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	6
8-1-1	Tree Trench	Montgomery Ave, Shissler Playground	SWT-B5
9-1-1	Tree Trench	Palmer St from Frankford Ave to Blair St (Shissler Playground)	SWT-A4
9-2-1	Tree Trench	Palmer St from Frankford Ave to Blair St (Shissler Playground)	SWT-B4
10-1-1	Tree Trench	Thompson St and Columbia Ave	SWT-A3, SWT-A4
12-1-3	Infiltration/Storage Trench	4th St and Cambridge St (Bodine High School)	S-1
12-5-1	Tree Trench	4th St and Cambridge St (Bodine High School)	S-5
14-1-2	Infiltration/Storage Trench	12th St and Reed St (Columbus Square)	Columbus Square Rain Garden
18-1-1	Tree Trench	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5
20-1-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 1
20-2-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 2
20-3-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 3
20-4-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 4
20-5-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 5
20-6-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 6

SMP ID	SMP Type	Project Name	System Name
20-7-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 7
20-8-1	Infiltration/Storage Trench	Bureau of Laboratory Services	Hunting Park In. Trench H1
88-1-1	Infiltration/Storage Trench	Trenton Ave and Norris St	SWT-A2, SWT-B2, RG-D2
88-1-2	Rain Garden	Trenton Ave and Norris St	SWT-A2, SWT-B2, RG-D2
91-1-1	Tree Trench	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9
170-1-1	Tree Trench	Shissler Playground	Blair St.- SWT-A2
170-2-1	Tree Trench	Shissler Playground	Hewson St.- SWT-A4
180-1-1	Tree Trench	Reese St	Reese St Tree Trench
187-3-3	Infiltration/Storage Trench	Columbus Square	Infiltration Planters 3 & 4
211-1-1	Bumpout	Haverford Ave, 57th St and Vine St (Shepard Recreation Center)	SWT2-1
231-2-1	Tree Trench	56th St, 57th St, Race St, and Vine St (Daroff School)	SWT1-2 & SWT1-3
240-1-1	Pervious Paving	Percy St from Catharine St to Christian St	Percy St
264-1-1	Tree Trench	57th St and Pentridge St (Longstreth School)	S-2A & B
271-1-1	Infiltration/Storage Trench	Bridesburg Recreation Center/Bridesburg School	RG1
274-4-1	Infiltration/Storage Trench	Hellerman St, Cottage St, and Levick St (Roosevelt Playground)	SP13&14
285-1-1	Tree Trench	21st St from Venango to Pacific	Tree Trench
324-1-1	Tree Trench	Earl St (Hetzell Playground)	Earl Street Tree Trench
325-1-1	Tree Trench	8th St	8th Street
326-1-1	Tree Trench	Front St	Front St
327-1-1	Tree Trench	9th St	9th Street Tree Trench
366-2-1	Rain Garden	Philadelphia Zoo	RG-B2/SWT-A2
366-2-2	Infiltration/Storage Trench	Philadelphia Zoo	RG-B2/SWT-A2
366-9-1	Infiltration/Storage Trench	Philadelphia Zoo	SWT-A7
366-10-3	Infiltration/Storage Trench	Philadelphia Zoo	P-A8/P-B8/P-C8/SWT-D8/SWT-E8
403-1-3	Infiltration/Storage Trench	George W. Nebinger School	Rain Garden
403-1-4	Rain Garden	George W. Nebinger School	Rain Garden
403-2-1	Infiltration/Storage Trench	George W. Nebinger School	Underground Basin
445-1-1	Pervious Paving	Southwest Treatment Plant Parking Lot	Parking Lot
179-5-1	Tree Trench	Morris Leeds Middle School	MIT-5
398-1-1	Tree Trench	St. James Episcopal	Tree Trench System 7A/7B
398-2-1	Tree Trench	St. James Episcopal	Tree Trench System 8
250-1-1	Infiltration/Storage Trench	Belmont School	SWT 8-1
250-2-1	Infiltration/Storage Trench	Belmont School	SWT 8-2/8-3
250-3-1	Infiltration/Storage Trench	Belmont School	SWT 8-4
19-5-1	Tree Trench	Barry Playground	IS-1/IS-2

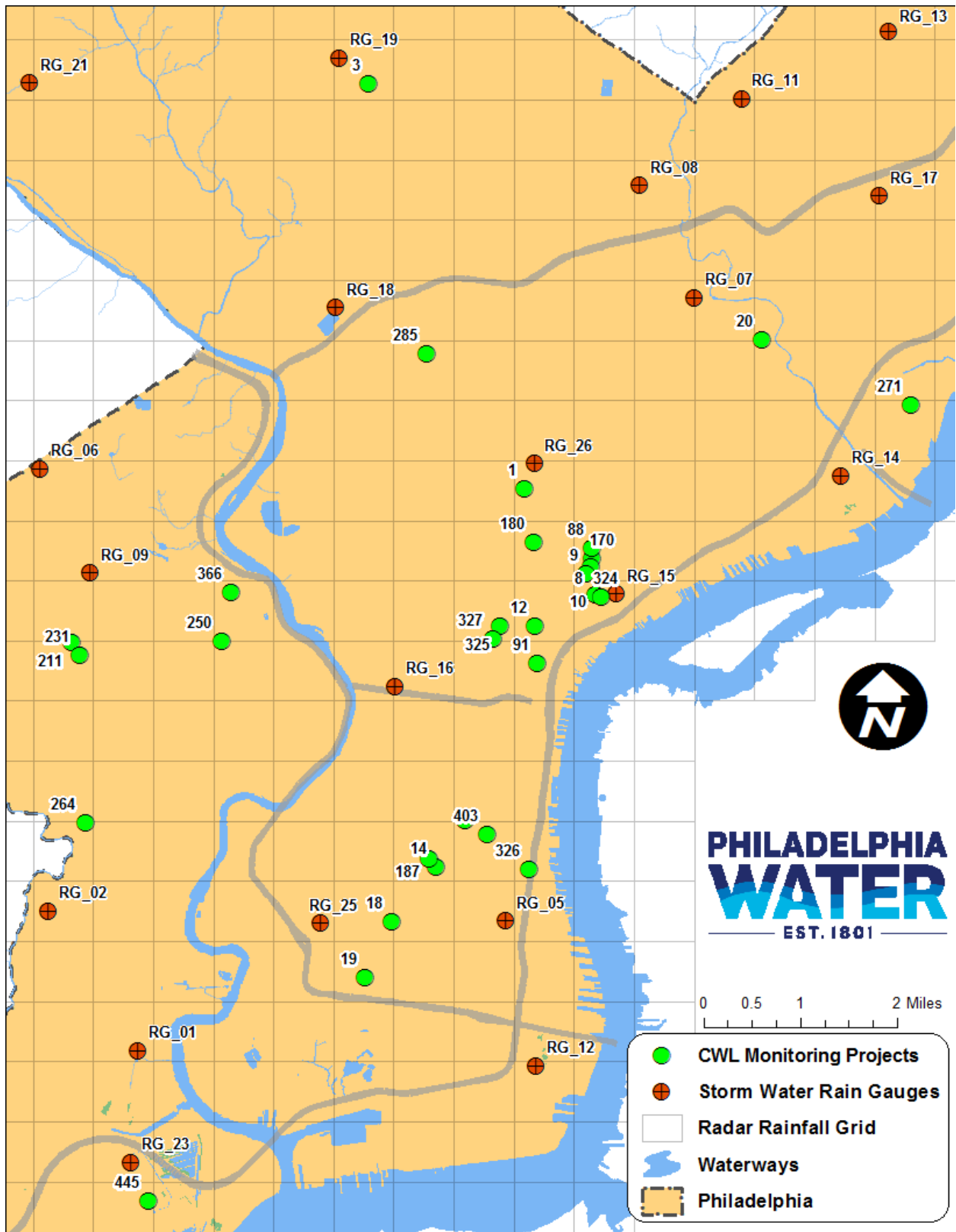


Figure 3-1: Continuous Water Level Monitoring Project Locations, Storm Water Rain Gauges and Radar Rainfall Grid.

3.2 Green Stormwater Infrastructure Performance Testing

The Water Department uses a W-1250 Sensus Water Meter Tester for measuring flow applied to an SMP during Simulated Runoff Tests (SRT). This water meter is capable of estimating flows from 0.04 CFM to 167 CFM. Simulated Runoff Tests have been performed for 32 GSI systems for July 1 st 2015 to June 30th 2016. Monitoring locations are shown in **Table 3-3** and **Figure 3-2**.

Table 3-3: SMP Attributes for SMPs tested with Simulated Runoff Test (SRT)

SMP ID	SMP Type	Project Name	System Name	Test Date
179-5-1	Tree Trench	Morris Leeds Middle School	SWT-A2	6/10/2015
1-1-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-B2 & SWT-A3	6/13/2015
327-1-1	Tree Trench	9th St	9th Street Tree Trench	10/23/2015
12-1-3	Infiltration/Storage Trench	4th St and Cambridge St (Bodine High School)	S-1	10/27/2015
20-1-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 1	11/3/2015
20-2-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 2	11/3/2015
20-3-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 3	11/3/2015
20-4-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 4	11/3/2015
20-5-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 5	11/3/2015
20-6-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 6	11/3/2015
20-7-1	Planter	Bureau of Laboratory Services	Hunting Park Planter 7	11/3/2015
20-8-1	Infiltration/Storage Trench	Bureau of Laboratory Services	Hunting Park In. Trench H1	11/3/2015
3-3-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	3	11/17/2015
3-6-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	6	11/17/2015
274-4-1	Infiltration/Storage Trench	Roosevelt Playground	SP13&14	11/18/2015
324-1-1	Tree Trench	Earl St (Hetzell Playground)	Earl Street Tree Trench	11/20/2015
187-3-3	Infiltration/Storage Trench	Columbus Square	Infiltration Planters 3 & 4	11/24/2015
366-2-1	Rain Garden	Philadelphia Zoo	RG_B2	

SMP ID	SMP Type	Project Name	System Name	Test Date
366-2-2	Infiltration/Storage Trench	Philadelphia Zoo	RG-B2/SWT-A2	12/3/2015
271-1-1	Infiltration/Storage Trench	Bridesburg Recreation Center/Bridesburg School	RG1	12/4/2015
91-1-1	Tree Trench	3rd St and Fairmount Ave Intersection	S-7, S-9	12/7/2015
10-1-1	Tree Trench	Thompson St and Columbia Ave	SWT-A3	12/8/2015
88-1-1	Infiltration/Storage Trench	Trenton Ave and Norris St	SWT-A2	12/10/2015
88-1-2	Rain Garden	Trenton Ave and Norris St	SWT-A2	12/10/2015
366-9-1	Infiltration/Storage Trench	Philadelphia Zoo	SWT-A7	1/13/2016
366-10-3	Infiltration/Storage Trench	Philadelphia Zoo	SWT-E8	1/13/2016
1-3-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-B3	2/2/2016
1-2-1	Tree Trench	7th St, 8th St, and Cumberland St (Hartranft School)	SWT-B2	2/4/2016
264-1-1	Tree Trench	57th St and Pentridge St (Longstreth School)	S-2B	2/26/2016
14-1-2	Infiltration/Storage Trench	12th St and Reed St (Columbus Square)	Columbus Square Rain Garden	3/3/2016
14-1-1	Rain Garden	12th St and Reed St (Columbus Square)	Columbus Square Rain Garden	3/3/2016
326-1-1	Tree Trench	Front St	Front St	3/11/2016
8-1-1	Tree Trench	Montgomery Ave, Shissler Playground	SWT-B5	3/17/2016
231-2-1	Tree Trench	56th St, 57th St, Race St, and Vine St (Daroff School)	SWT1-2	6/14/2016

3.3 Permeable Pavement 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 pervious paving infiltration testing. Development of these procedures was completed in FY 2013 and refinement of the methods is ongoing. Two 12" diameter sections of Schedule 60 PVC pipe are used as infiltration rings to allow for performing multiple tests simultaneously. Modifications were made to the test calculations in order to compensate for the different infiltration ring diameter compared to the ring diameter specified in the method. Six SMPs have been selected for surface infiltration rate testing in FY16. Monitoring locations are shown in **Table 3-4** and **Figure 3-2**. Fifty-three different surface infiltration rate tests of porous surfaces have been performed on these sites.

Table 3-4: Permeable Pavement SMPs Selected for Surface Infiltration Rate Testing

SMP ID	Project Name	Surface Type (trade name)	Number of Test Locations	Number of Tests Performed
197-1-1	Mill Creek Playground Basketball Court	Porous asphalt	6	11
240-1-1	Percy St from Catharine St to Christian St	Porous asphalt	4	8
445-1-1	Southwest Treatment Plant Parking Lot	Porous asphalt	4	2
445-1-1	Southwest Treatment Plant Parking Lot	Permeable Interlocking Concrete Paver (Eagle Bay Aqua Bric)	3	2
445-1-1	Southwest Treatment Plant Parking Lot	Permeable Articulating Concrete Block/Mat (Pave Drain)	3	2
445-1-1	Southwest Treatment Plant Parking Lot	Modular Pre-Cast Porous Concrete (Stormcrete)	3	2
445-1-1	Southwest Treatment Plant Parking Lot	Pervious concrete	3	2
445-1-1	Southwest Treatment Plant Parking Lot	Pervious stamped concrete	3	2
301-1-1	Dauphin from Frankford to Tulip	Porous asphalt	5	7
301-3-1	Dauphin from Frankford to Tulip	Porous asphalt	3	6
208-3-1	West Mill Creek Recreation Center	Porous asphalt	3	6
192-2-1	Herron Playground Basketball Court	Porous Asphalt	9	1
207-1-3	McMahon St (Waterview Recreation Center)	Pervious Concrete	3	1

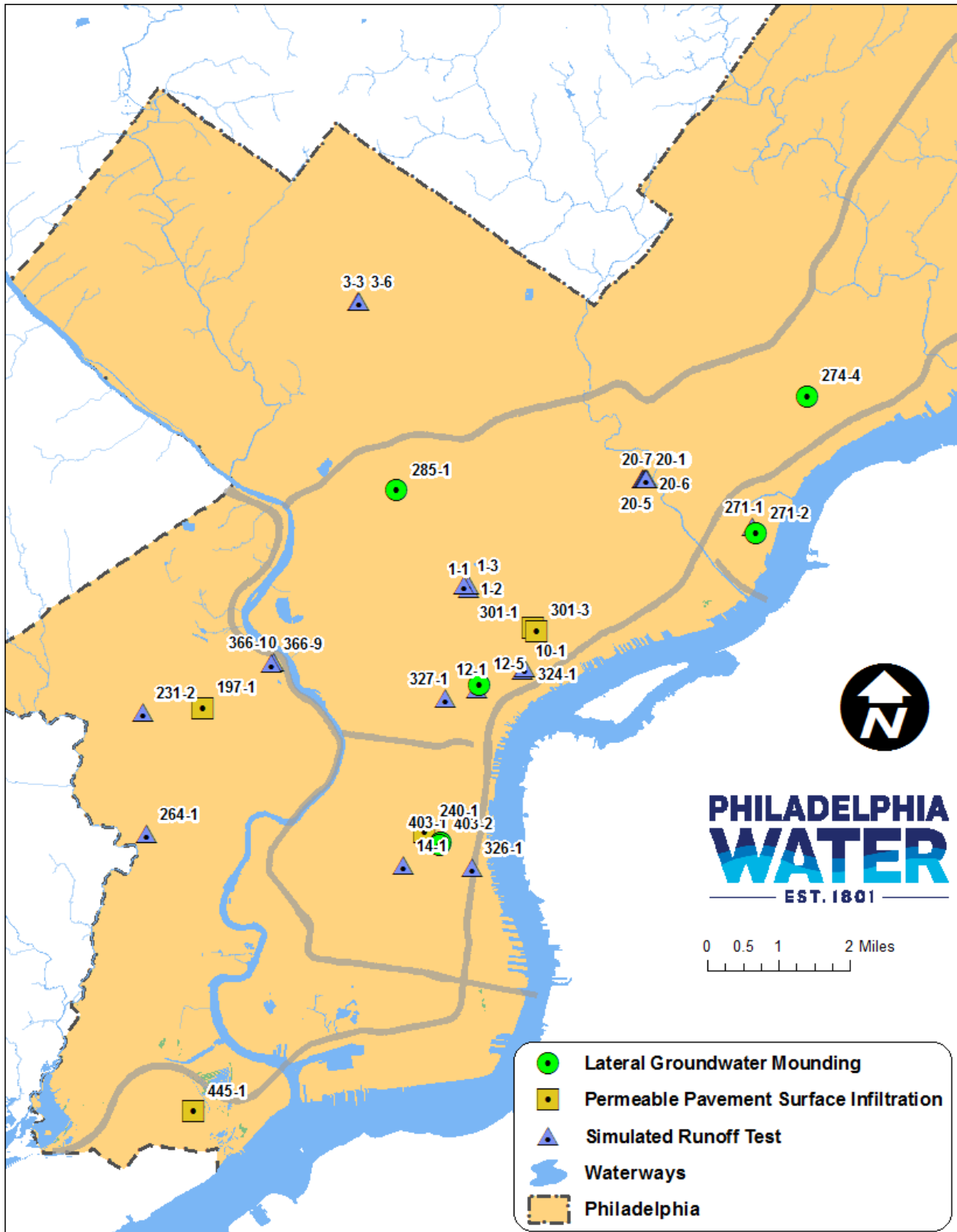


Figure 3-2: Lateral Groundwater Mounding Monitoring, Simulated Runoff Testing and Surface Infiltration Testing Locations

3.4 Soil Surface Infiltration Rate Testing

The Water Department currently has one double ring infiltrometer and five single ring infiltrometers that are used in the implementation of the Soil Surface Infiltration Rate Testing. Refinements to the Soil Surface Infiltration Rate Testing protocol are ongoing. ASTM Standards (ASTM Committee D18, ASTM D3385-09 Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer, 2009) and (ASTM Committee D18, ASTM D-5093-02, Standard Test Method for Field Measurement of Infiltration Rate Using Double-Ring Infiltrometer with Sealed-Inner Ring, 2008) are currently under review as elements of Soil Surface Infiltration Rate Testing Standard Operating Procedures. Several Modified Philip-Dunne permeameters were constructed using methods developed at The University of Minnesota (Gulliver & Anderson, 2007) and are also used to measure infiltration rates in soil surfaces.

3.5 Lateral Groundwater Mounding

The Water Department installed 18 groundwater monitoring wells in close proximity to six SMPs and four groundwater monitoring wells away from SMPs to act as control wells. Monitoring locations are shown in **Table 3-5** and **Figure 3-2**.

Table 3-5: SMP Attributes for SMPs Selected for Lateral Groundwater Mounding Monitoring

SMP ID	SMP Type	Project Name	System Name	Number of wells
12-5-1	Stormwater Tree Trench	Bodine High School	S-5	3
271-2-1	Rain Garden	Bridesburg Recreation Center	RG-1	4
274-4-2	Stormwater Planter	Roosevelt Playground	SP-13	4
285-1-1	Stormwater Tree Trench	21 st and Venango Streets	Tree Trench	2
403-2-1	Infiltration/Storage Trench	George W. Nebinger School	SWT-2	5
403-1-3	Infiltration/Storage Trench	George W. Nebinger School	SWT-1	4

Table 3-6: Number of sensors and Average Deployment Duration for Lateral Groundwater Water Mounding Monitoring Sensors

Sensor Type	Number Currently Deployed	Average Number of Days Deployed
Water Level Sensor	22	785

3.6 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** Flow Monitoring.

3.7 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** Flow Monitoring.

3.8 Groundwater Level Monitoring

The Water Department is monitoring groundwater levels in the Philadelphia region in partnership with the U.S. Geological Survey. As of July 2016, 21 wells have been established from which water level measurements are made on a monthly basis. Results of groundwater monitoring are presented in **Appendix I PWD-USGS Cooperative Groundwater Monitoring Program**. Well PH1043, located in the Germantown section of the City, is equipped with continuous water level recording and telemetry equipment making the data available in near-real time. In addition to the 21 established sites, the Water Department is investigating several potential wells that have been identified through archives of construction records. Coordination with USGS to verify well dimensions and connection to groundwater table is underway. Nine potential sites have been identified and are being investigated for establishment of new groundwater wells.

4.0 CMP Implementation Successes and Challenges Encountered

In response to the barometric pressure sensor malfunctions that occurred during FY15, the GSI monitoring program has developed a visualization technique to assist in QA of barometric pressure data. PWD has continued to maintain a redundant barometric pressure network to guard against sensor malfunction.

The GSI monitoring program has been successful in acquiring the needed equipment, deploying water level sensors to GSI systems, and performing simulated runoff and permeable pavement infiltration tests. During FY16, the number of simulated runoff tests performed more than tripled relative to the previous fiscal year. Simulated runoff tests were performed for all continuously monitored systems in preparation for the 5-year evaluation and adaptation plan (EAP) to be submitted to the EPA and DEP. Manpower and scheduling challenges associated with this increase in testing were successfully overcome.

PWD desired to improve the feedback mechanisms to designers from the maintenance and monitoring perspectives. PWD developed internal mechanisms to discuss data and anecdotal observations from fieldwork of monitoring and maintenance staff. Monthly meetings where groups present data from fieldwork and discuss with representatives from various internal groups were created to facilitate information sharing and help resolve implementation issues in the field.

The GSI monitoring team has continued providing monitoring assistance to the GSI Implementation and Design groups to collect data from systems where problems have been observed to help interpret cause(s) and verify remediation measures. Some of the problems investigated include perched/ponded water in SMPs (and SMP components) that are designed to drain; rapid recession of stormwater from systems designed for slow release; and localized clogging of porous asphalt.

This coordination has led to the modification of several SMPs found to have inflow inefficiencies. During FY15, several green inlets were found to be susceptible to flow bypass during specific storm conditions. With assistance from the GSI monitoring group, the GSI maintenance group has installed a variety of inflow control mechanisms designed to redirect stormwater to inflow points. The performance of these systems will be further evaluated by the GSI monitoring group to assess these modifications.

A study of SMP drainage areas took place in parallel with the study of inflow mechanisms. Monitored SMPs were observed in wet and dry weather to estimate the amount of runoff that was directed to the

inflow point from points outside the designed drainage area, both inside and outside of the right-of-way. As a result of this study, recommendations have been made to a retrofit committee and modifications have been made to the greened acres credited to some systems.

In some cases, it has been difficult to reconcile elevations of water level observed in observation wells with dimensions from design plans or as-built drawings. Some of the problems encountered are due to the construction of observation wells themselves. Ideally observation wells are sumped below the depth of storage and sealed with a solid cap. Water level data are easier to interpret when there exists a constant baseline water level reading between storm events and a clear transition from the water level in the sumped portion of the well to the base of system storage on the ascending limb of each storm hydrograph. In FY16, the GSI monitoring group began measuring the relative elevations of various SMP assets to verify system details. Under most circumstances, the relative elevations matched those of the plan sets/as-builts. In some cases, they differed enough to indicate a change in the SMP's storage volume relative to the value indicated on the plan sets.

Another challenge encountered is establishing a network of groundwater wells for monitoring ambient groundwater elevations. Given that a USGS study conducted in the 1980s to revise the groundwater table map of Philadelphia (Paulachok and Wood, 1984) contained several hundred observation points, The Water Department had expected to be able to identify numerous potential existing well locations within the City to investigate for gaining site access and establishing groundwater monitoring wells. During a recent investigation construction records were discovered indicating numerous groundwater wells in Philadelphia. PWD is working with USGS to identify wells that are functional and begin monitoring these wells. Several wells have been identified as preliminary groundwater monitoring sites. Following the outcome of this investigation PWD will work to construct additional groundwater wells if required.

5.0 Development of Continuous GSI Monitoring Data Analysis Methods

Introduction

To derive evidence that Philadelphia's constructed Green Stormwater Infrastructure (GSI) systems are functioning as effective combined sewer overflow source controls, it is necessary first to collect the data, second to subject the data to quality assurance procedures, and third to develop analysis methods and appropriate metrics to benchmark performance. Development of appropriate tools and metrics has been a significant effort over the early years of the program. Philadelphia Water has developed methods to analyze data from pre-construction infiltration testing and from water level sensors to produce these necessary performance metrics, including infiltration performance and water budget volume component metrics, described below. Infiltration rate is critical to removal of runoff from the combined sewer system, to system performance during back-to-back events, and to aesthetic considerations. Water budget analysis confirms that runoff generated has been intercepted and managed by the system, confirms that the system fully captures events up to its design rainfall depth, estimates infiltration volume, and confirms that any managed runoff released to the combined sewer system does not exceed wet weather treatment capacity.

Monitored sites include subsurface systems, such as tree trenches and infiltration/storage trenches, and surface systems such as planters, rain gardens, and bumpouts, most of which are located above a stone storage trench. The data collected is a key component of Philadelphia Water's commitment to provide

evidence that well designed and maintained green stormwater infrastructure systems are an effective combined sewer overflow source control, one of the core concepts of *Green City, Clean Waters*.

Methods

Analysis Tools

An R-based analysis tool, called PilotDB, was created to view and analyze the monitoring data and system performance during individual rain events. Each event can be viewed as a time series plot as shown in Figure 1, along with the site’s estimated water budget components and design metrics. After the monitoring data is uploaded, the events are individually evaluated to determine whether or not they should be included in the analysis. Events may be removed from the analysis if the water level data shows an abnormal response to the rainfall data, which could be due to snowfall/snowmelt or device error.

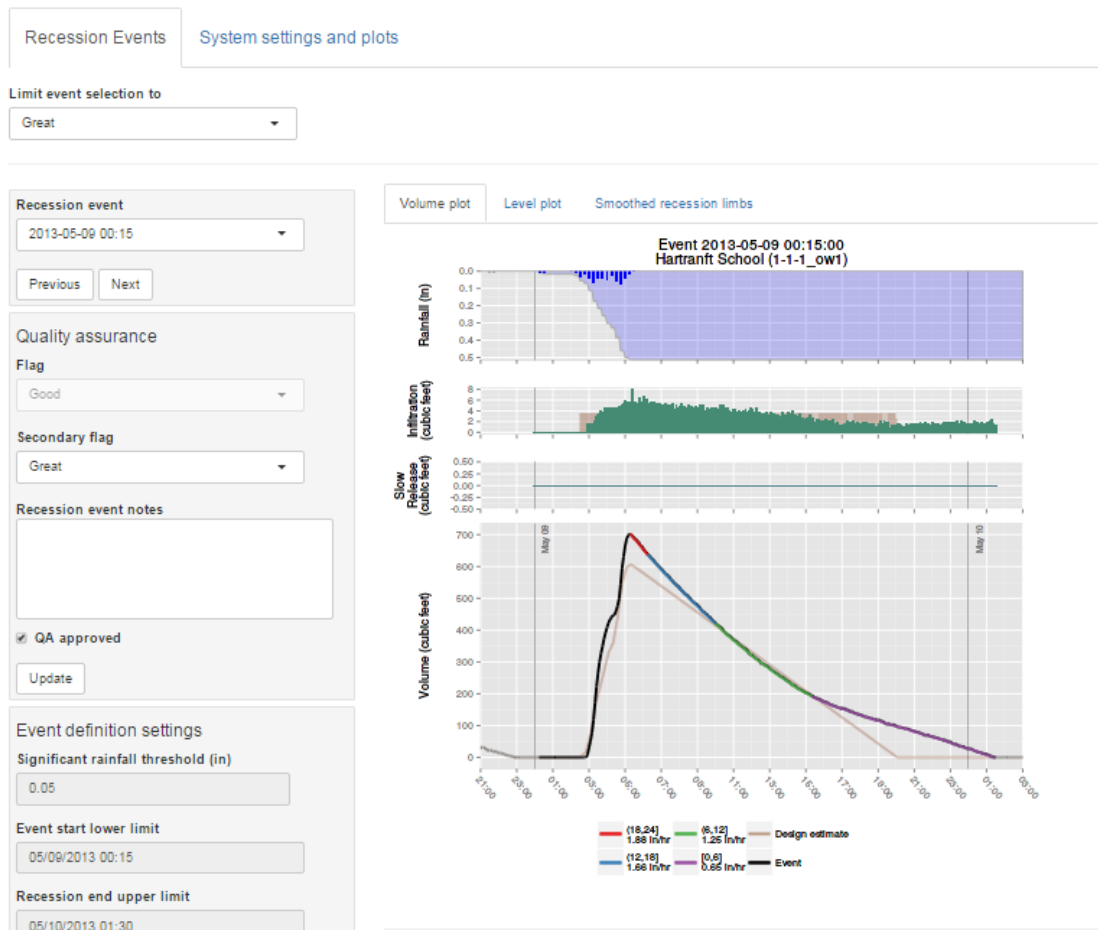


Figure 1: Example of water level and rainfall data from a 0.51 inch storm plotted in PilotDB

Infiltration Rate Measurement and Analysis

Infiltration rates are estimated both from pre-construction site investigation data and from post-construction water level sensor data. The range of observed infiltration rates can then be compared to determine whether pre-construction rates are serving as a suitable predictor of expected post-construction performance, and whether observed post-construction rates are sufficient to provide the expected design performance in the context of combined sewer overflow control.

Water Budget Measurement and Analysis

As monitoring data was collected and methods for analysis started to be developed, it became apparent that it would be a complex undertaking to accurately assess the stormwater management performance of these monitored systems. A method was developed that can estimate the water budget of the monitored systems during wet weather events, validated by controlled simulated runoff tests. This method will be applied to all of the monitored systems to determine how they are performing compared to conservative design assumptions and compared to characteristics of the combined sewer collection and treatment system.

A numerical mass balance approach was developed to estimate the amount of runoff managed by the system, to compare to estimated rainfall volume, and to subdivide the volume into its hydrologic components. The mass balance equation for an event is shown as Equation 1, indicating that the volume leaving the system must be equal to the runoff entering the system after accounting for any change in storage. This approach uses two inputs: water level readings from a water level data logger placed within the system, and radar-rainfall data. The radar rainfall data and impervious drainage area are used to estimate the amount of runoff, and thus the volume of stormwater entering the system. The water level data logger records the amount of water in the system every 5 minutes.

$$\text{Runoff} = (\text{Infiltration}) + (\text{Slow Release}) + (\text{Bypass/Overflow}) + (\text{Change in Storage}) + (\text{Error})$$

Equation 1

Where Runoff = runoff entering the system during the event (ft³),

Infiltration = infiltration into surrounding soil or fill (ft³),

Slow Release = volume released to the combined sewer system at a controlled rate (0 for infiltration-only systems) (ft³),

Bypass/Overflow = volume of runoff that exceeds available storage capacity in the system (ft³),

Change in Storage = difference between storage at beginning and end of event, if any (applies to back-to-back events) (ft³), and

Error = a term incorporating all sources of error and uncertainty in the system (ft³), listed in Table 2.

Table 2. Errors in water budget metrics

Sources of Error	Description
System Elements Measurement Uncertainty	Uncertainty in measurement of system physical elements and dimensions, such as drainage area characteristics, as-built system dimensions, properties of porous media, stage-storage relationships
Environmental Data Measurement Uncertainty	Uncertainty in spatial and temporal measurement of environmental data, including rainfall and water depth
Mathematical Representation of Physical Processes	Simplification in mathematical representations of complex physical processes, such as rainfall-runoff, infiltration, unsaturated and saturated flow in porous media, soil moisture and evapotranspiration, and behavior of flow control structures such as inlets, outlets, orifices, and risers
Numerical Error	Errors introduced by numerical integration in time-step-based computational methods

Of the sources of error discussed in Table 2, rainfall measurement error and flow control structure representation error can be minimized or eliminated through synthetic runoff testing, allowing more

accurate estimation of the other sources of error. Additional information to help quantify these errors is being collected through surveys and wet weather visits.

The slow release rate, if any, is calculated at the end of each 5 minute time step based on the head above the orifice, using the submerged orifice equation (Equation 2).

$$\text{Slow Release rate} = C_d \times A_o \times \sqrt{2 \times g \times h} \quad \text{Equation 2}$$

Where C_d is the orifice discharge coefficient (0.62), A_o is the area of the orifice (ft²), g is the acceleration due to gravity (32.2 ft/s²), and h is the head above the center of the orifice (ft). This release rate is then multiplied by 5 minutes and converted to cubic feet to calculate the slow release volume for that time step.

Infiltration volume is estimated during recession time steps, when there is no GSI bypass/overflow, no rainfall, and thus no water entering the system. In this case, the mass balance during a 5 minute interval is represented by Equation 3. The error parameter is assumed to be negligible during a recession period, when only stage measurement error and numerical error are introduced.

$$\Delta \text{Storage} = \text{Infiltration} + \text{Slow Release} \quad \text{Equation 3}$$

Infiltration volume is calculated by subtracting the slow release volume from the change in storage during the 5 minute interval. A stage-infiltration rate is developed for the system using data taken during the recession limb. These infiltration rates are then used to estimate infiltration during the rainfall period by matching the stage during each time step to the corresponding infiltration rate. This method is known to introduce a conservative bias because it underestimates infiltration rates during the early part of the storm, when soil is not yet saturated. Philadelphia Water is exploring alternative representations of unsaturated infiltration processes.

GSI bypass/overflow volume is defined as the volume of runoff that will bypass an inlet during periods when the system storage is full. Any remaining error term necessary to close the water balance in Equation 1 is the difference between the runoff volume and calculated infiltration, slow release, and GSI bypass/overflow volumes. This value encompasses all sources of uncertainty and error discussed in Table 2.

Infiltration Analysis Example Results

Infiltration rates are being calculated for each system using the steps described in the Methods section. An early example result of this analysis is shown in Figure 2. Figure 2 summarizes the ranges in infiltration rates estimated from pre-construction site investigation testing and from post-construction water level sensors for 34 monitored systems. In general, post-construction monitoring is yielding higher infiltration results than estimated by pre-construction testing, suggesting that more volume will be sent through infiltration pathways and kept out of the collection and treatment system. Additional analysis of infiltration data will be presented in the Evaluation and Adaptation Plan.

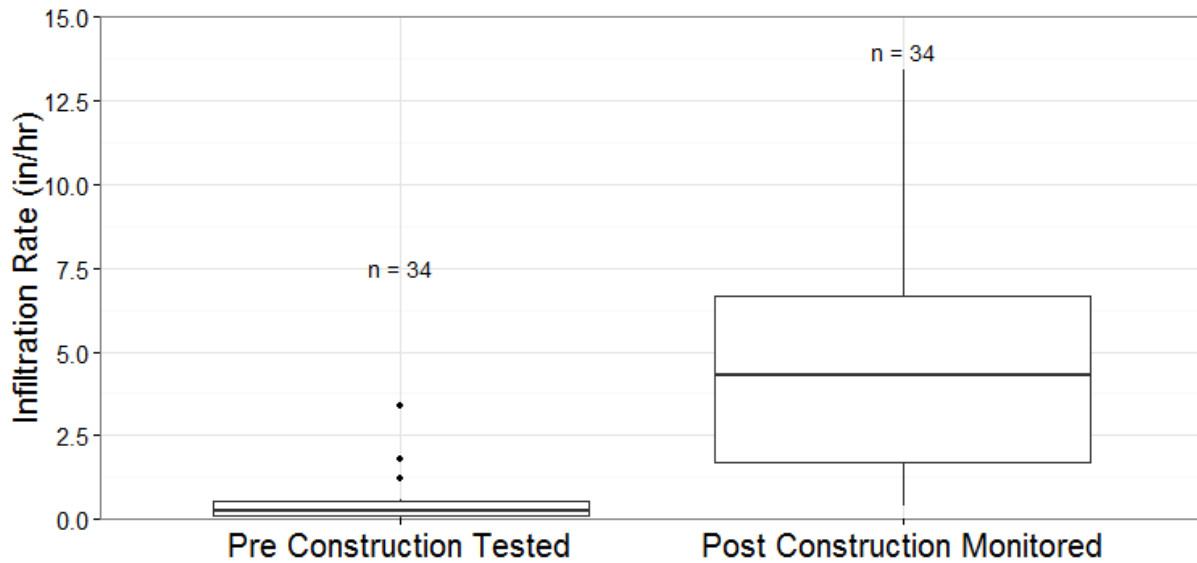


Figure 2: Pre- and post-construction Infiltration rates for 34 monitored systems

Water Budget Analysis Example Results

Using the water level sensor data and mass balance calculation method discussed above, the amount of water managed by each system is separated into slow release, infiltration, GSI bypass/overflow, and an error term. An example water budget for a tree trench SMP is included in Figure 3. The infiltration volume can be assumed removed from the combined sewer collection system, yielding a CSO reduction benefit downstream. In this example, there is no controlled release to the collection system. The small amount of GSI bypass/overflow observed in this system can be compared to how the system was expected to perform under conservative design assumptions. For this tree trench, around 80% of the estimated runoff can be accounted for in the systems using the water budget calculation method. The remaining 20% of runoff can be attributed to the sources of error discussed in Table 2, including error in representation of the rainfall-runoff process itself. Additional water budget analysis will be presented in the Evaluation and Adaptation Plan.

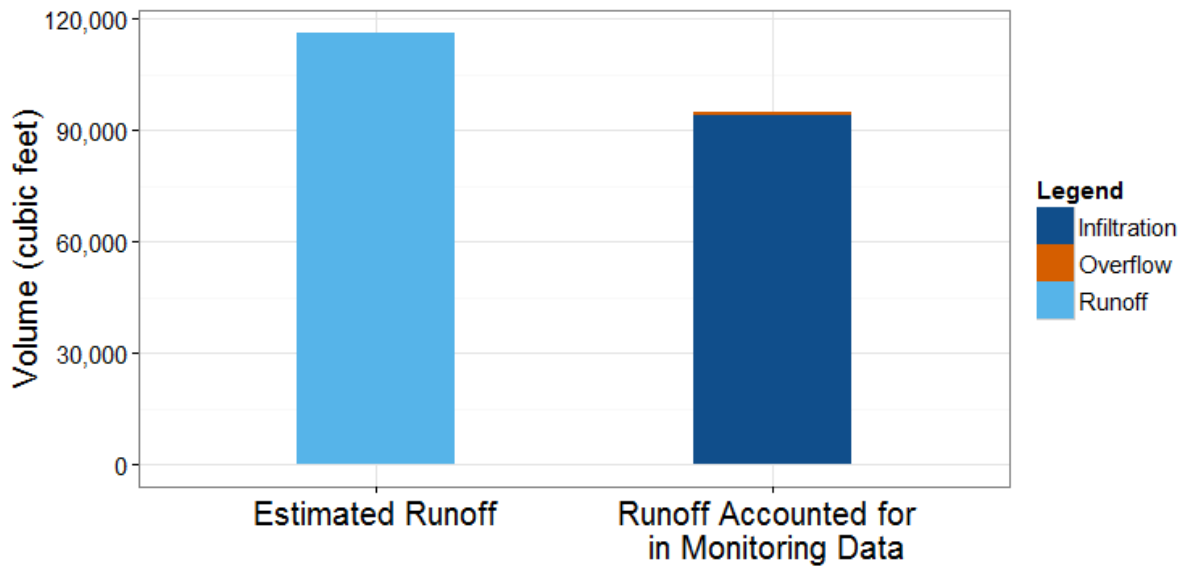


Figure 3. Water budget for Hartranft tree trench 1, data taken from December 2012 to December 2015

Figure 4 and Table 3 present one example comparing a simulated runoff test result to a wet weather event of similar depth and duration. Results provide some evidence that the error term may be smaller for the synthetic runoff test, as expected since this test eliminates some sources of error. However, results of one test should not be considered conclusive evidence, and additional analysis results will be presented in the Evaluation and Adaptation Plan.

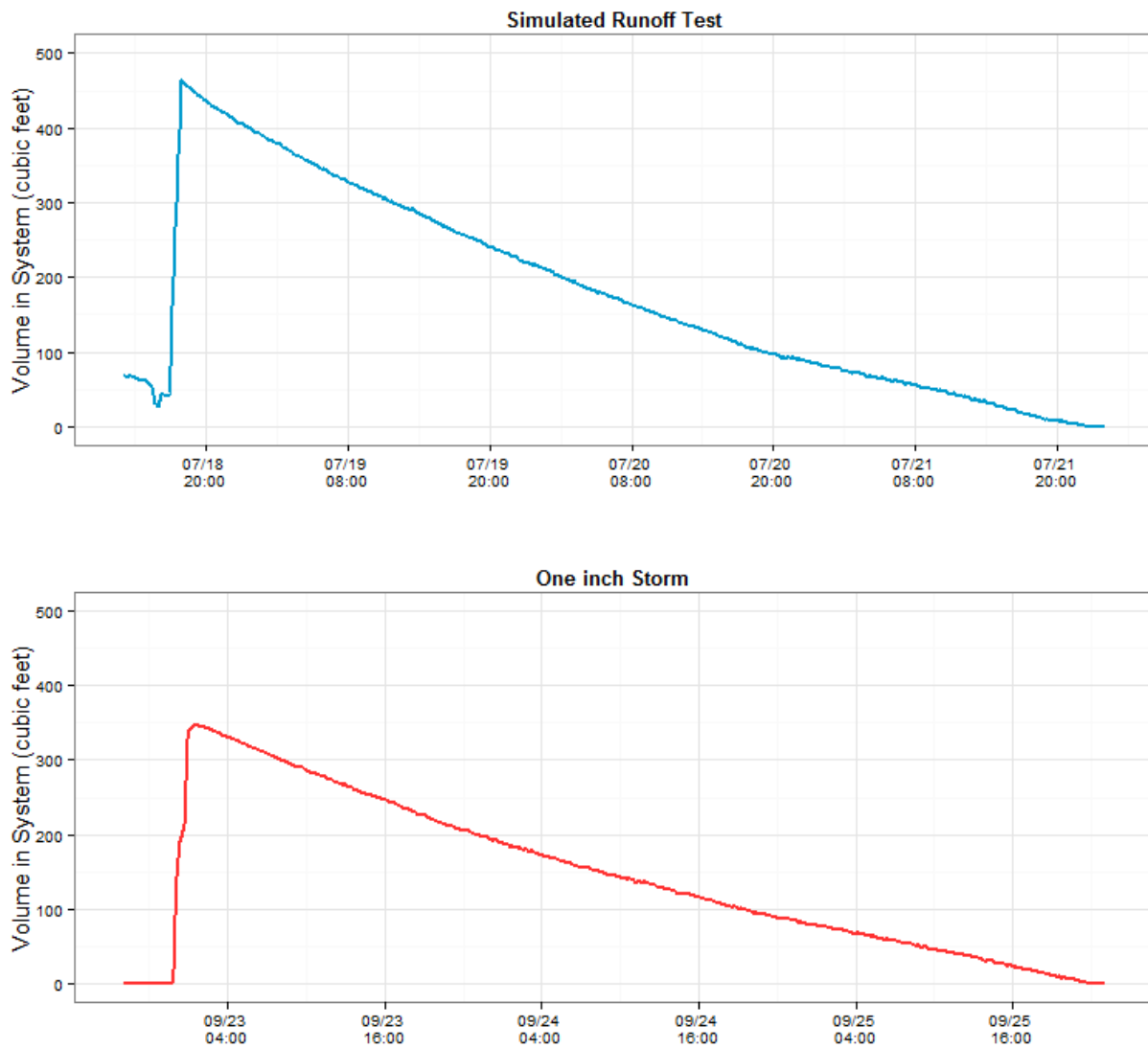


Figure 4: Slow Release Test and 1 inch storm event plots for Palmer St tree trench 9-2-1.

Table 3. Results of water budget analysis on a SRT and similar sized storm at Palmer tree trench 2

	Simulated Runoff Test (cf)	Wet Weather Event (cf)
Total Rainfall (in)	0.95	1.05
Duration (hours)	1.17	3.00
Runoff Entered (cf)	532	559
Slow Release (cf)	NA	NA
Infiltration (cf)	449	384
Overflow (cf)	0	0
Error Term (cf)	83	175
Error Term (%)	18%	31%

6.0 Pilot Projects Selection Criteria

Initial site selection for the GSI pilot program was based largely upon the types of SMPs that were available and the feasibility of site monitoring at a project location given the limited amount of constructed GSI projects at the time. To test the feasibility and measure the effectiveness of GSI under the full range of potential conditions during this early stage of GSI implementation, a pilot program was designed to ensure that a wide range of materials and implementation conditions were represented in sites selected for the monitoring program. Through the creation of the pilot program, additional sites have been selected for either current or future monitoring efforts based upon an extensive list of project characteristics and site variables. Constructed sites currently are undergoing evaluation for monitoring feasibility and are subject to change/be replaced by another site if it is determined that monitoring activities are not practical at the selected site. Pilot Program sites and their variables are documented in the following section.

7.0 Pilot Program Framework

Pilot projects are defined as GSI projects designed, constructed, and monitored to provide information to guide design and program development. Information from pilot projects is being collected and analyzed to refine the GSI program by testing a variety of projects and evaluating them for a number of factors, including:

- Ability to meet performance requirements
- Ease of implementation for on-street and off-street settings
- Cost-effectiveness of various physical conditions
- Efficiency of various systems
- Effectiveness of various materials
- Ease of maintenance

GSI pilot projects can take many forms, be located in a variety of settings, and consist of differing technologies. The pilot program is designed to test the feasibility of GSI projects under the full range of

potential conditions, captured by numerous variables. A single pilot project is likely to be useful in testing multiple variables. By delivery of the first Evaluation and Adaptation Plan (EAP) in year 5, over 100 projects will have been evaluated by the pilot program, providing information leading to refined designs, locations, maintenance procedures, and community aspects. The tables in this section provide the full framework of projects and variables that are currently being evaluated.

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Table 1: Variables and levels, definitions, and number of systems tagged

Pilot program variables are organized by groups and sub-groups. The structure of the pilot program variables list is as follows:

Blue Cell-Bold Letters	Pilot variable primary group
Dark green	Pilot variable sub-group
Light green	Pilot variable within sub-group
Light blue	Pilot variable within primary group, but not within any sub-group

Variable	Definition	Number of Systems
Pilot Land Use Type		
School Yard or Perimeter	GSI is implemented in a school yard, school playground, or in the sidewalk around the school perimeter.	97
Recreation Center	GSI is implemented on a recreation center site or in the sidewalk around its perimeter	82
Open Space Park Site	GSI is implemented in an open space park site.	34
Traffic Triangle	GSI is implemented in the triangular space between the intersection of three streets.	6
Non-Residential Street	GSI is implemented on a non-residential street	176
Residential Street	GSI is located on a residential street with stormwater laterals	18
Median	GSI is implemented in the median of a wide roadway to capture runoff from both sides of the street.	0
Alley	GSI is implemented in an alley.	1
Athletic Field	GSI is implemented within an athletic field.	8
Commercial Corridor	GSI is implemented in the public right of way in an area with high commercial activity, such as shops, restaurants, and other businesses.	0
Parking Lot	GSI is installed within a parking lot.	14
Vacant Land	GSI is implemented on vacant land.	4
Drainage Area Characteristics		
Street	The impervious drainage area includes street area	410

Variable	Definition	Number of Systems
Sidewalk	The impervious drainage area includes sidewalk area	402
Street Crossing	The impervious area includes area that is captured and conveyed across a street to a GSI system	85
Parking Lot	The impervious drainage area includes parking lot area	14
School Yard/Playground	The impervious drainage area includes school yard or playground area	33
Rooftop	The impervious drainage area includes rooftop area	10
Bridge	The impervious drainage area includes elevated bridge area	2
Park	The impervious drainage area includes paved areas within a park	20
GSI System Type		
Bumpout	A curbed and vegetated system that extends into the street and captures runoff directly from the gutter.	15
Bumpout and Storage Trench	A bumpout that includes a subsurface storage layer beneath the surface vegetation.	14
Planter	The system includes a planter or planters without a stone storage layer beneath the bioretention soil media. A stone trench can be included adjacent to the planter to manage overflow.	15
Planter and Storage Trench	The system includes a planter or planters hydraulically connected through a stone storage trench beneath the bioretention soil media.	17
Tree Trench	GSI includes a tree trench in the public right of way that manages street and sidewalk runoff.	171
Infiltration/Storage Trench	GSI includes an infiltration/storage trench without tree pits in the public right of way that manages street and sidewalk runoff.	51
Subsurface Basin	GSI that captures stormwater in a large subsurface storage volume for infiltration or slow release.	26
Permeable Pavement	GSI includes a permeable pavement surface.	23
Rain Garden	GSI includes a rain garden, utilizing surface ponding, vegetation, and soil storage. A stone trench can be included within the footprint of the rain garden beneath the soil for additional storage.	52
Rain Garden with Extended Storage	GSI includes a rain garden with a large subsurface stone storage area that extends beyond the footprint of the surface area.	19
Swale	The system includes a vegetated swale as pretreatment for solids and pollutant removal.	23
Green Roof	Detention storage is provided on the roof of a building with vegetation.	0
Blue Roof	Detention storage is provided on the roof of a building, but with no vegetation.	0
Drainage Well	GSI includes is a deep vertical drainage well, utilizing both vertical and lateral infiltration from the system.	9

Variable	Definition	Number of Systems
Other	GSI that does not meet the definitions above	3
GSI Design Elements		
Inlet Type		
Highway Grate	Grate inlet located in the street adjacent to the curb	222
City	Curb opening inlet box located in the sidewalk	87
Open Mouth Grate	Combination inlet with a grate and curb opening, located in the street adjacent to the curb	9
Curb Cut	Surface inlet consisting of an opening in the curb that allows runoff to flow directly to the SMP from the gutter.	117
Trench Drain	Runoff enters the system via a shallow trench drain, either by curb cuts leading to trench drains or through a surface level grate over the trench drain.	45
Tree Pit Inlet	Runoff enters the system via below-grade stormwater tree pits, where it will then percolate through the soil of the tree pits into the gravel trench.	5
Porous Inlet	Runoff infiltrates into GSI through porous material.	0
Dual Trap	A single structure that acts as both the inlet and outlet of the system, separated by a weir wall.	12
Curbless	Runoff enters GSI through lateral sheet flow with no curb.	1
Other	Inlet type that does not meet the definitions above.	3
System Surface/Subsurface Status		
Surface	The system is open to the surface.	156
Subsurface	The system is entirely subsurface.	284
Loading Ratio		
Low (< 10)	The loading ratio of impervious drainage area to system footprint is less than 10.	124
Medium (10 - 15)	The loading ratio of impervious drainage area to system footprint is between 10 and 15.	167
High (> 15)	The loading ratio of impervious drainage area to system footprint is greater than 15.	51
Static Storage Volume		
Low (< 1.0")	GSI captures less than 1 inch of runoff from the impervious drainage area.	45
Medium (1.0 - 1.5")	GSI captures between 1 and 1.5 inches of runoff from the impervious drainage area.	175
High (> 1.5")	GSI captures more than 1.5 inches of runoff from the impervious drainage area.	123

Variable	Definition	Number of Systems
Vegetation Status		
Vegetated with Stone Storage	Runoff enters a stone storage volume after infiltration through vegetated soil located directly above the stone.	99
Vegetated without Stone Storage	Runoff infiltrated directly into native soil through planting media and vegetation.	51
Not Vegetated	Runoff does not pass through vegetated planting media.	278
Pretreatment Type		
Sump and Trap	The system includes an inlet or inlets with a sump and trap.	281
Inlet Filter Bag Insert	The system includes a green inlet or inlets with a filter bag.	207
Swale	The system includes a vegetated swale as pretreatment.	23
Forebay	The system includes a forebay as pretreatment.	4
Energy Dissipater	The system includes an energy dissipator to reduce erosion from runoff.	43
Hydrodynamic Separator	The system includes a hydrodynamic separator for pretreatment with a swirl concentrator and flow controls.	0
Proprietary Device	Pretreatment includes a proprietary product.	1
Vegetated Filter Strip	The system includes a vegetated filter strip where runoff enters.	1
Splash Block	The system includes a masonry block at the curb cut inlet to prevent erosion.	55
Centralized Pretreatment	The system includes a larger pretreatment device fed by several inlets before discharging to the storage in the GSI.	1
Inlet Porous Media Filter	A porous media filter, such as a sand filter, is included in the inlet.	5
Inflow Type		
Surface Inflow	Runoff enters the system at the surface.	175
Subsurface Inflow	Runoff enters the system through subsurface piping.	274
Street Crossing		
Surface Crossing	Stormwater is conveyed across a street to a GSI practice with at-grade infrastructure.	2
Shallow Crossing	Stormwater is conveyed across a street to a GSI practice with shallow infrastructure.	3

Variable	Definition	Number of Systems
Standard Subsurface Crossing	Subsurface piping is used to convey stormwater across a street to a GSI practice.	77
Rooftop Disconnection		
Surface Disconnection	Rooftop downspout is disconnected from the sewer and directed to GSI at the surface.	6
Subsurface Disconnection	Rooftop downspout is disconnected from the sewer and directed to GSI through the subsurface.	5
Tree Pits	The system contains tree pits within its footprint.	186
Centralized Facility	A system fed by a large drainage area and multiple inlets in different locations.	6
Pipeless	The system has less piping, relying on water's movement through the storage media for distribution of stormwater.	14
Pump System	The system includes a detention structure where outflow to the combined sewer is controlled by a pump system.	0
Reuse System	Runoff is captured in a detention system to be reused by building or site operations such as providing water for toilets or irrigation.	0
Regrading Street Crown	The entire street is regraded so that all runoff drains to one side of the street or to the median of a multi-lane street, where it is then managed with GSI.	0
Modular Planter Box	Modular precast planter systems designed to have simpler installation and lower cost than cast-in-place planter walls.	2
Prefabricated	The system contains prefabricated elements for simpler installation.	8
Drywell	The system contains drywells as a component to infiltrate stormwater.	0
Fencing	The surface portion of the system has fencing around the perimeter of the footprint.	5
Artistic / Aesthetic Features	Stormwater-relevant art is incorporated with GSI implementation. This can include outreach with local artists or art groups to increase aesthetics and awareness of GSI.	2
Education Signage	GSI is implemented with educational signage with information for the public on the purpose and function of the system.	2
Green Gutter	GSI includes a green gutter, including vegetated area adjacent to the curb to convey runoff to the system and filter some pollutants	0
Proprietary	GSI includes proprietary devices for storage, inlets, outflow control, pretreatment, etc.	23
Surface Hydraulically Connected Systems	Multiple systems are hydraulically connected at the surface, where one system overflows and the excess runoff is captured by another system downstream.	20
Deep Infiltration Columns	GSI includes deep infiltration columns that allows stormwater to bypass urban fill and infiltrate into deeper native soils.	2

Variable	Definition	Number of Systems
Tiered Surface Features	Long surface feature in a sloped area with check dams to separate ponding areas of different elevations.	18
Vegetated Surface Mowability		
Mowable	A surface system in an open space park site that is not planted with shrubs and herbaceous species, but rather with mowable grass.	4
Not Mowable	A surface system in an open space park site that is planted with herbaceous species, shrubs, and occasionally trees.	149
Materials		
Storage Type		
Stone	The system includes subsurface storage in gravel.	345
Arched System	The system includes subsurface storage with arched storage systems, such as the StormTech chambers or approved equal.	9
Structural Vault	The system includes subsurface storage in a concrete vault.	2
Plastic Crates	The system includes subsurface storage with plastic storage crates such as the Atlantic D-Raintank crates or approved equal.	16
Silva Cell	The system includes subsurface storage in Silva Cells or approved equal.	0
Permeable Pavement Type		
Pavers	Newly paved area consists of permeable interlocking concrete pavers with a stone storage layer to capture and infiltrate runoff.	5
Asphalt	Newly paved area consists of permeable asphalt with a stone storage layer to capture and infiltrate runoff.	17
Concrete	Newly paved area consists of permeable concrete with a stone storage layer to capture and infiltrate runoff.	4
Play Surface	Newly paved area consists of a permeable rubber play surface with a stone storage layer to capture and infiltrate runoff.	4
Other	Newly paved area consists of alternative permeable pavement technologies with a stone storage layer to capture and infiltrate runoff.	3
Soil Type		
PWD Soil Spec	The soil media meets the standard PWD specifications for bioretention soil.	124
Alternate Soil Spec	An alternative soil specification is used to test the performance of a new soil media composition.	8
Native Soil	The soil media in the vegetated system uses native soils.	1

Variable	Definition	Number of Systems
Amended Native Soil	The soil media in the vegetated system uses native soils amended with materials to help promote plant health and treatment capacity.	4
Structural Soil	Tree pits use structural soil, which is soil-aggregate mix that can be compacted to pavement design and installation requirements while promoting root growth.	15
Physical Conditions		
Physiographic Province		
Piedmont	The site is located in the Piedmont Physiographic Province.	216
Coastal Plain	The site is located in the Coastal Plain Physiographic Province.	222
Tested Soil Infiltration Rate		
< 0.25 in/hr	The field estimated infiltration rate at the location of the SMP is less than 0.25 in/hr.	127
0.25 - 1.00 in/hr	The field estimated infiltration rate at the location of the SMP is between 0.25 and 1.00 in/hr.	101
1.01 - 3.00 in/hr	The field estimated infiltration rate at the location of the SMP is between 1.01 and 3.00 in/hr.	69
3.01 - 5.00 in/hr	The field estimated infiltration rate at the location of the SMP is between 3.01 and 5.00 in/hr.	8
> 5.00 in/hr	The field estimated infiltration rate at the location of the SMP is greater than 5 in/hr.	26
Slope		
Steep (> 2%)	The drainage area to the system is steep, with a slope greater than 2%.	16
Medium (0.5 - 2%)	The drainage area to the system is moderate, with a slope greater than between 0.5% and 2%.	51
Flat (< 0.5%)	The drainage area to the system is relatively flat, with a slope less than 1.5%.	13
Policy/Partnership Type		
LEED / Sustainable Sites Initiative	GSI is implemented either adjacent to a development seeking LEED certification, or as part of the LEED certification requirements.	5
Public Agency		
Philadelphia School District	GSI is implemented in partnership with the Philadelphia School District.	10
Public Parks and Recreation	GSI is implemented in partnership with Parks and Recreation.	140
Department of Public Property	GSI is implemented in partnership with the Department of Public Property.	23

Variable	Definition	Number of Systems
Streets Department	GSI is implemented in partnership with the Streets Department.	6
Mayor's Office of Sustainability	GSI is implemented in partnership with the Mayor's Office of Sustainability.	0
SEPTA	GSI is implemented in partnership with SEPTA.	12
Other	GSI is implemented in partnership with at least one other public agency.	3
Non-Government Organization	GSI is implemented in partnership with at least one non-government organization.	100
Civic Group	GSI is implemented in partnership with at least one civic group.	53
Center City District, University City District	GSI is implemented within Center City District or University City District.	6
Public/Private Partnership	GSI is implemented in partnership with a private company or developer.	2
Other	GSI is implemented in a partnership that does not fit the other policy/partnership variables.	3
Implementation Strategy		
Complete Streets Concept	GSI is implemented in coordination with other improvement projects to enhance pedestrian friendliness and safety, multi-modal transportation, and overall greening of the street.	0
Storm Flood Relief	GSI is implemented as part of a storm flood relief project, or as the storm flood relief project.	10
Standard Detail Roll-out	GSI is implemented using standard details instead of individual site designs.	5
Area Wide Disconnection	GSI includes new stormwater sewers to capture runoff from a large drainage area containing multiple streets and convey it to a centralized storage facility where it will be infiltrated or slowly released to the combined sewer.	3
Following Public Works	GSI is implemented in coordination with other public works projects.	33
Low-Budget Retrofit (Design Light)	Site is retrofitted with simple GSI that does not require fully detailed design or major construction.	6
Green Campus	GSI is implemented on a campus, as part of a larger scale plan.	0
SMIP	Stormwater Management Incentives Program – grants to non-residential property owners to construct stormwater retrofit projects	0
GARP	Greened Acre Retrofit Program – grants to contractors, companies, or project aggregators who can build large-scale stormwater retrofit projects across multiple properties	0
Pilot Program Managed	New GSI design project managed by Pilot Program staff, with the goal of finding solutions to common implementation	18

Variable	Definition	Number of Systems
	challenges.	
Problematic Subsurface Conditions		
Groundwater Mounding	An infiltrating GSI system includes piezometer wells for groundwater level monitoring to determine if any significant groundwater mounding occurs or has an impact on adjacent buildings.	0
Soil Subsidence	Soil stability issues are observed due to the GSI system, requiring repairs.	1
Flooded Basements	Flooded basements were reported near a new GSI system, requiring monitoring and investigation to confirm the source and subsequent repair to prevent future damages.	2
Sinkhole	Sinkhole observed, suspected to be cause by infiltrating stormwater, requiring repairs	0
Health and Safety Impacts		
Pedestrian Impacts		
Potentially Positive	The GSI system positively influences pedestrian safety and/or friendliness of a street.	4
Potentially Negative	The GSI system negatively influences pedestrian safety and/or friendliness of a street.	3
Bicyclist Impacts		
Potentially Positive	The GSI system positively influences bicycle safety and/or friendliness of a street.	4
Potentially Negative	The GSI system negatively influences bicycle safety and/or friendliness of a street.	3
Driver Impacts		
Potentially Positive	The GSI system positively influences driver safety and/or friendliness of a street, including traffic calming effects.	4
Potentially Negative	The GSI system negatively influences driver safety and/or friendliness of a street, including traffic calming effects.	3
Vectors and Pests	The GSI system leads to problems with animals or insects that could potentially pose a risk to human health.	1
GSI Visibility		
None - Subsurface, No Trees	No surface features that are visible to the public.	101
Moderate - Subsurface, with Trees	System is subsurface, but includes trees that are visible to the public, but might not be distinguishable to typical street trees.	174
High - Surface Vegetated System	Surface vegetated features that are clearly recognizable as GSI	75
Highest - Surface Vegetated System, Community Anchor Site	Surface vegetated features that are clearly recognizable as GSI located at community anchor sites, including parks, schools, recreation centers, and churches.	87

Variable	Definition	Number of Systems
GSI Location		
Public Right-of-Way	GSI is implemented in the public right of way, managing street and sidewalk runoff.	341
Public Parcel	GSI is implemented in a public parcel, such as a park, government building, school, etc.	94
Private Parcel	GSI is implemented on private property with assistance from PWD.	3

Table 2: Work number, project name, SMP name, status, system type, number of variables

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	Closed	Bumpout/Tree trench	28
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1	Bid Awarded	Subsurface basin	17
50100	Hestonville Neighborhood Disconnection SMP	1013-1	Design 70 percent Complete	Subsurface basin	17
50034	Thompson St and Columbia Ave	SWT-A5	Closed	Tree trench	21
50103	Malvern Ave from Atwood Rd to 65th St	1024-1	Design Started	Drainage Well	13
50103	Algon Ave from Glenview St to Longshore Ave	1025-1	Design Started	Drainage Well	13
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	Design Started	Drainage Well	13
50103	Pemberton St from Front St to 2nd St	1027-1	Design Started	Drainage Well	13
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1	Design Started	Drainage Well	13
50103	Unruh Ave between Summerdale and Frontenac	1029-1	Design Started	Drainage Well	13
50103	E Rockland St from B St to C St	1030-1	Design Started	Drainage Well	13
50103	Pennsgrove St between 39th St and 40th St	1031-1	Design Started	Drainage Well	13
50005	Hartranft School	SWT-A2	Closed	Tree trench	19
50005	Hartranft School	SWT-B2 & SWT-A3	Closed	Tree trench	20
50003	Bodine High School - 4th St and Cambridge St	S-1	Closed	Planter trench	21
50003	Bodine High School - 4th St and Cambridge St	S-2	Closed	Planter	20
50003	Bodine High School - 4th St and Cambridge St	S-3	Closed	Tree trench	19
50003	Bodine High School - 4th St and Cambridge St	S-4	Closed	Tree trench	19
50003	Bodine High School - 4th St and Cambridge St	S-5	Closed	Tree trench	25
50005	Hartranft School	SWT-B3	Closed	Tree trench	19
50022	Madison Memorial Park	S-1	Closed	Infiltration/storage trench	22
50001	12th St and Reed St (Columbus Square)	Columbus Square	Closed	Bioretention	22
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	Construction Complete	Tree trench	20

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	Construction Complete	Tree trench	20
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	Construction Complete	Tree trench	20
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	Construction Complete	Tree trench	20
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	Construction Complete	Tree trench	21
50083	Weccacoe Playground	151-1	In Projects Control	Bioretention	23
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	NTP	Tree trench	21
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	NTP	Tree trench	21
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	NTP	Tree trench	21
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	NTP	Tree trench	19
50001	10th St from Wilder St to Reed St	10th and Wilder	Closed	Infiltration/storage trench	20
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	Closed	Bumpout/Tree trench	21
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	Closed	Bumpout/Tree trench	21
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	Closed	Tree trench	20
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	Closed	Tree trench	19
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	Construction Complete	Tree trench	19
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	Construction Complete	Tree trench	22
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	Construction Complete	Tree trench	19
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	Closed	Infiltration/storage trench	22

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	Closed	Tree trench	24
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	NTP	Bumpout/Tree trench	22
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	NTP	Tree trench	21
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	Construction Complete	Tree trench	19
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	Construction Complete	Tree trench	18
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	Construction Complete	Tree trench	18
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	Construction Complete	Tree trench	18
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	Construction Complete	Tree trench	21
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	Construction Complete	Tree trench	21
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	Construction Complete	Tree trench	21
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	Construction Complete	Tree trench	23
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	Construction Complete	Tree trench	19

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	Construction Complete	Tree trench	21
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	Construction Complete	Tree trench	21
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	Construction Complete	Tree trench	21
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	Construction Complete	Tree trench	19
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	Construction Complete	Tree trench	19
50032	Reese St	Reese St	Closed	Tree trench	20
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	Closed	Tree trench	19
50014	47th & Grays Ferry Rain Garden	Basin 1	Closed	Bioinfiltration	23
50006	Columbus Square Stormwater Planters	Infiltration Planter 1	Closed	Planter	18
50006	Columbus Square Stormwater Planters	Infiltration Planter 2	Closed	Planter	18
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	Closed	Planter trench	23
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	Closed	Tree trench	21
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	Closed	Tree trench	21
50023	Herron Playground Permeable Basketball Court	Infil Trench	Closed	Infiltration/storage trench	18
50023	Herron Playground Permeable Basketball Court	Porous Paving	Closed	Porous Pavement	17
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	Closed	Infiltration/storage trench	19
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	Closed	Infiltration/storage trench	21

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50011	Liberty Lands Stormwater Project	Liberty Lands	Closed	Bioretention	23
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	Closed	Infiltration/storage trench	18
50009	Bureau of Laboratory Services	Hunting Park Planter 1	Closed	Planter	20
50009	Bureau of Laboratory Services	Lycoming Tree Trench	Closed	Tree trench	18
50009	Bureau of Laboratory Services	Hunting Park Planter 2	Closed	Planter	20
50009	Bureau of Laboratory Services	Hunting Park Planter 3	Closed	Planter	20
50009	Bureau of Laboratory Services	Hunting Park Planter 4	Closed	Planter	20
50009	Bureau of Laboratory Services	Hunting Park Planter 5	Closed	Planter	20
50009	Bureau of Laboratory Services	Hunting Park Planter 6	Closed	Planter	20
50009	Bureau of Laboratory Services	Hunting Park Planter 7	Closed	Planter	20
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	Closed	Tree trench/porous pavement	23
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left	Closed	Tree trench	18
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right	Closed	Porous Pavement	18
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	Closed	Infiltration/storage trench	18
50009	Bureau of Laboratory Services	Castor Tree Trench	Closed	Tree trench	18
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	Closed	Bioretention	20
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	Closed	Infiltration/storage trench	18
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	Closed	Tree trench	19

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	Closed	Tree trench	19
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	Closed	Tree trench	19
50007	Blue Bell Inn Triangle	Rain Garden	Closed	Bioinfiltration	25
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	Closed	Bumpout/Tree trench	23
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	Closed	Tree trench	20
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	Closed	Tree trench	20
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	Closed	Tree trench	19
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	Closed	Tree trench	19
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	Closed	Tree trench	19
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	Closed	Tree trench	21
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	Closed	Tree trench	20
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	Closed	Tree trench	20
50027	William Harranty School - Webster St and Frazier St	S-6	Closed	Tree trench	19
50027	William Harranty School - Webster St and Frazier St	S-7	Closed	Tree trench	19
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	Closed	Tree trench	20
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	Closed	Tree trench	20
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	Closed	Tree trench	20
50020	Welsh School - 4th St and Dakota St	Dakota St.	Closed	Tree trench	20
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	Construction Complete	Tree trench	19
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	Construction Complete	Tree trench	19
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	Construction Complete	Tree trench	17

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	Construction Complete	Tree trench	17
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	Construction Complete	Tree trench	17
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	Construction Complete	Tree trench	19
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	Construction Complete	Tree trench	17
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	Construction Complete	Tree trench	17
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	Construction Complete	Tree trench	19
50036	27th St from Indiana to Toronto	27th St	Construction Complete	Tree trench	19
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	Closed	Tree trench	20
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	Closed	Bumpout/Tree trench	25
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	Closed	Tree trench	21
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	Closed	Tree trench	21
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	Design 70 percent Complete	Infiltration/storage trench	19
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	Design 70 percent Complete	Infiltration/storage trench	18
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3	Design 70 percent Complete	Infiltration/storage trench	18
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	Design 70 percent Complete	Infiltration/storage trench	18
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	Design 70 percent Complete	Infiltration/storage trench	18

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	Design 70 percent Complete	Infiltration/storage trench	19
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	Design 70 percent Complete	Infiltration/storage trench	19
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	Design 70 percent Complete	Infiltration/storage trench	18
40224	Percy St from Catharine St to Christian St	Permeable asphalt	Closed	Porous Pavement	16
50046	Womrath Park	Basin	Closed	Bioretention	24
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	Bid Awarded	Bioinfiltration	27
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	Closed	Tree trench	19
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	Closed	Tree trench	21
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	Closed	Tree trench	20
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	Closed	Tree trench	20
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	Closed	Tree trench	18
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	Closed	Tree trench	18
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	Closed	Tree trench	18
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	Closed	Tree trench	19
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	Construction Complete	Planter tree trench	28
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	Construction Complete	Tree trench	21
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	Construction Complete	Infiltration/storage trench	18
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	Construction Complete	Infiltration/storage trench	20
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	Construction Complete	Infiltration/storage trench	20

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	Construction Complete	Tree trench	19
50041	Springfield Ave and Cobbs Creek Island	S-1	Construction Complete	Bioinfiltration	26
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	Construction Complete	Tree trench	16
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	Construction Complete	Infiltration/storage trench	16
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	Construction Complete	Tree trench	17
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	Construction Complete	Tree trench	17
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	Construction Complete	Tree trench	17
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	Construction Complete	Tree trench	17
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	Construction Complete	Tree trench	17
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	Construction Complete	Tree trench	17
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	Construction Complete	Tree trench	17
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	Construction Complete	Tree trench	17
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	Construction Complete	Bioinfiltration	26
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	Construction Complete	Infiltration/storage trench	20
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	Construction Complete	Tree trench	22

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	Construction Complete	Tree trench	21
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW	Construction Complete	Tree trench	19
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW	Construction Complete	Tree trench	19
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE	Construction Complete	Tree trench	19
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE	Construction Complete	Tree trench	19
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	Construction Complete	Tree trench	19
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	Construction Complete	Tree trench	19
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	Construction Complete	Tree trench	19
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	Construction Complete	Tree trench	21
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	Construction Complete	Tree trench	21
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	Construction Complete	Tree trench	22
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	Construction Complete	Tree trench	22

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	Construction Complete	Tree trench	20
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	Construction Complete	Planter trench	19
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	Construction Complete	Tree trench	19
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	In Projects Control	Tree trench	20
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	Construction Complete	Tree trench	20
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	Construction Complete	Tree trench	20
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	Construction Complete	Tree trench	18
50043	Harper's Hollow Park	Basin 1	Closed	Bioinfiltration	20
50044	Kemble Park	Kemble Park System 1	Construction Complete	Bioinfiltration	26
50044	Kemble Park	Kemble Park System 2	Construction Complete	Infiltration/storage trench	22
50044	Kemble Park	Kemble Park System 3	Construction Complete	Infiltration/storage trench	22
50044	Kemble Park	Kemble Park System 4	Construction Complete	Infiltration/storage trench	21
50043	Wakefield Park	Upper Basin	Closed	Bioinfiltration	23
50043	Wakefield Park	Lower Basin	Closed	Bioinfiltration	22
50044	Wister Woods Park	Wister's Woods Depression 1	Construction Complete	Bioinfiltration	22
50044	Wister Woods Park	Wister's Woods Depression 2	Construction Complete	Bioinfiltration	22
50044	Wister Woods Park	Wister's Woods Depression 3	Construction Complete	Bioinfiltration	22

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50044	Wister Woods Park	Wister's Woods Depression 4	Construction Complete	Bioinfiltration	22
50039	Alder St from Norris St to Diamond St	SWT-9	Construction Complete	Tree trench	17
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	Design 70 percent Complete	Porous Pavement	18
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2	Design 70 percent Complete	Porous Pavement	18
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	In Projects Control	Porous Pavement	16
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench	Closed	Infiltration/storage trench	17
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits	Closed	Tree pit	17
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	Design 70 percent Complete	Bumpout and storage trench	27
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	Design 70 percent Complete	Bumpout and storage trench	29
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	Design 70 percent Complete	Bumpout and storage trench	28
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1	NTP	Infiltration/storage trench	19
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2	NTP	Infiltration/storage trench	19
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	NTP	Infiltration/storage trench	19
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4	NTP	Infiltration/storage trench	19
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	NTP	Infiltration/storage trench	19
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	NTP	Infiltration/storage trench	19

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50078	Clearview and Washington	303-1	Design 70 percent Complete	Bioinfiltration	27
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	Closed	Tree trench	19
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4	Closed	Bioinfiltration	16
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3	Closed	Bioinfiltration	16
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5	Closed	Bioinfiltration	16
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6	Closed	Bioinfiltration	16
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1	Closed	Bioinfiltration	16
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2	Closed	Bioinfiltration	16
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	Closed	Infiltration/storage trench	20
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	Closed	Tree trench	20
50077	49th St, 50th St, and Haverford St	322-2	Bid Awarded	Bioretention	14
50077	49th St, 50th St, and Haverford St	322-3	Bid Awarded	Swale	15
50032	Earl St (Hetzell Playground)	Earl St	Closed	Tree trench	20
50032	8th St	8th St	Closed	Tree trench	20
50032	Front St	Front St	Closed	Tree trench	20
50032	9th St	9th St	Closed	Tree trench	20
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	NTP	Porous Pavement	16
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	Closed	Tree trench	20
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris	NTP	Porous Pavement	16
50052	Sedgwick Station - Sprague and Durham	335-01	Design 70 percent Complete	Swale	28
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	Closed	Tree trench	20
50032	Diamond St	Diamond St	Closed	Tree trench	20
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	Closed	Tree trench	20

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	Closed	Tree trench	20
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	Closed	Bioinfiltration	22
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	Closed	Planter trench/infiltration trench	23
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	Closed	Bioinfiltration/infiltration trench	23
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	Closed	Bioinfiltration	21
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	Closed	Bioinfiltration	22
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	Closed	Bioinfiltration	22
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	Closed	Bioinfiltration	21
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	Closed	Bioretention/infiltration trench	22
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	Closed	Infiltration/storage trench	21
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	Closed	Infiltration/storage trench	20
50065	Panati Playground, 2119-29 Clearfield St	SMP 4	NTP	Infiltration/storage trench	24
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	In Projects Control	Swale	19
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	In Projects Control	Swale	19
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	In Projects Control	Swale	19
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	Design 70 percent Complete	Infiltration/storage trench	23
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	Design 70 percent Complete	Bumpout	24
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	Design 70 percent Complete	Bumpout	24
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	Design 70 percent Complete	Bumpout	24

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	Design 70 percent Complete	Infiltration/storage trench	17
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	Design 70 percent Complete	Bumpout	24
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	Design 70 percent Complete	Infiltration/storage trench	18
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	Design 70 percent Complete	Swale	26
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	Design 70 percent Complete	Infiltration/storage trench	19
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	Design 70 percent Complete	Infiltration/storage trench	17
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	Design 70 percent Complete	Swale	25
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	Design 70 percent Complete	Infiltration/storage trench	17
50049	St. Monica Manor	389-1	Design 70 percent Complete	Infiltration/storage trench	17
50051	73rd and Gray	System 10	Construction Complete	Tree trench	21
50051	73rd and Gray	System 11	Construction Complete	Tree trench	21
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	Construction Complete	Bioretention	27
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	Construction Complete	Tree trench	18
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	Construction Complete	Bioretention	26
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	Construction Complete	Infiltration/storage trench	18
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	Construction Complete	Tree trench	20

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	Construction Complete	Tree trench	18
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	Construction Complete	Tree trench	19
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	Construction Complete	Infiltration/storage trench	17
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	Construction Complete	Tree trench	18
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	Construction Complete	Tree trench	18
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	Construction Complete	Tree trench	18
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	Construction Complete	Tree trench	20
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	Construction Complete	Tree trench	20
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	Construction Complete	Tree trench	21
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	Construction Complete	Tree trench	21
50055	Upland Way - Redfield to 59th	400-1	Design 70 percent Complete	Swale	24
50055	Upland Way - Redfield to 59th	400-2	Design 70 percent Complete	Swale	20
50055	Upland Way - Redfield to 59th	400-3	Design 70 percent Complete	Swale	20
50055	Upland Way - Redfield to 59th	400-4	Design 70 percent Complete	Swale	20
50079	Guerin Recreation Center	401-1	Design 30 percent Complete	Infiltration/storage trench	19
50079	Guerin Recreation Center	401-2	Design 30 percent Complete	Infiltration/storage trench	18

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	Closed	Bioinfiltration	24
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	Closed	Infiltration/storage trench	24
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	In Projects Control	Bioinfiltration	22
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	In Projects Control	Bioinfiltration	23
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	In Projects Control	Bioinfiltration	26
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	In Projects Control	Bioinfiltration	26
50059	Ferko Playground - I St, Cayuga St, L St	411-1	Design 70 percent Complete	Subsurface infiltration basin	23
50059	Ferko Playground - I St, Cayuga St, L St	411-2	Design 70 percent Complete	Bioinfiltration	17
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	Design 70 percent Complete	Bumpout	20
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	Design 70 percent Complete	Bumpout and storage trench	19
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	Design 30 percent Complete	Infiltration/storage trench	21
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	Design 30 percent Complete	Infiltration/storage trench	21
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	Design 30 percent Complete	Infiltration/storage trench	16
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	Design 30 percent Complete	Infiltration/storage trench	15
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	Design 30 percent Complete	Bioinfiltration	17
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	Design 30 percent Complete	Bioinfiltration	22
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	Design 30 percent Complete	Bioinfiltration/Bioretenion	24
73068	Southwest Treatment Plant Parking Lot	Parking Lot	Closed	Porous Pavement	16

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	Closed	Infiltration/storage trench	16
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	Closed	Infiltration/storage trench	16
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	Closed	Infiltration/storage trench	18
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	Closed	Tree trench	17
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	Closed	Bumpout	19
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	Closed	Bioinfiltration	19
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	Closed	Sidewalk Swale	18
50062	Woodland Ave from 43rd to 72nd	Trench 1	NTP	Tree trench	20
50062	Woodland Ave from 43rd to 72nd	Trench 2	NTP	Tree trench	20
50062	Woodland Ave from 43rd to 72nd	Trench 3	NTP	Tree trench	20
50062	Woodland Ave from 43rd to 72nd	Trench 4	NTP	Tree trench	20
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	NTP	Infiltration/storage trench	19
50071	Collazo Park - Westmoreland and Howard	S-1	Bid Open	Bioretention	26
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	Closed	Tree trench	20
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	Construction Complete	Bioretention	25
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	In Projects Control	Tree trench	19
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	In Projects Control	Infiltration/storage trench	19
50079	Smith Playground	488-1	Design 30 percent Complete	Infiltration/storage trench	16
50079	Smith Playground	488-2	Design 30 percent Complete	Infiltration/storage trench	17

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50079	Smith Playground	488-3	Design 30 percent Complete	Bioinfiltration	15
50079	Smith Playground	488-4	Design 30 percent Complete	Bioinfiltration	19
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	Construction Complete	Bumpout/Tree trench	20
50009	Queen Lane from Henry St to Fox St	Bumpout #1	Closed	Bumpout	20
50009	Queen Lane from Henry St to Fox St	Bumpout #2	Closed	Bumpout	19
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	NTP	Porous Pavement	22
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	NTP	Infiltration/storage trench	19
50009	Queen Lane from Henry St to Fox St	Bumpout #3	Closed	Bumpout	19
50077	Baker Playground	530-1	Bid Awarded	Bioinfiltration	23
50009	Queen Lane from Henry St to Fox St	Bumpout #4	Closed	Bumpout	19
50009	Queen Lane from Henry St to Fox St	Bumpout A	Closed	Bumpout	20
50077	Heston Lot - Hunter St, 55th St	558-1	Bid Awarded	Bioinfiltration	27
50009	Queen Lane from Henry St to Fox St	Bumpout B	Closed	Bumpout	20
50085	Ralph Brooks Park	574-1	NTP	Bioretention and Subsurface Trench	23
50091	Stinger Square	589-1	NTP	Infiltration/storage trench	18
50091	Stinger Square	589-2	NTP	Bioretention	24
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	Closed	Tree trench	21
50086	East Fairmount Park - Kelly Drive	641-1	Bid Open	Swale	17
50086	East Fairmount Park - Kelly Drive	641-2	Bid Open	Swale	17
50086	East Fairmount Park - Kelly Drive	641-3	Bid Open	Bioretention	17
50086	East Fairmount Park - Kelly Drive	641-4	Bid Open	Bioretention	17
50086	East Fairmount Park - Kelly Drive	641-5	Bid Open	Bioretention	17

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	NTP	Infiltration/storage trench	20
50002	Montgomery Ave, Shissler Playground	SWT-B5	Closed	Tree trench	21
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	NTP	Tree trench	18
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	NTP	Infiltration/storage trench	19
50034	Trenton Ave and Norris St	RG-D2	Closed	Bioinfiltration	21
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	Closed	Infiltration/storage trench	21
50034	Trenton Ave and Norris St	SWT-C2	Closed	Tree trench	21
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	Closed	Tree trench	20
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	Closed	Bumpout/Tree trench	22
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	Closed	Tree trench	20
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10	In Projects Control	Tree pits	14
50083	Weccacoe Playground	untitled	In Projects Control	Porous Pavement	11
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	On Hold In Design	Tree trench	20
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	On Hold In Design	Tree trench	20
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	On Hold In Design	Tree trench	20
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	On Hold In Design	Tree trench	20
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	On Hold In Design	Tree trench	20
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	On Hold In Design	Tree trench	20
40747	Marston, Eyre, Taney	Marston Street	Design 70 percent Complete	Porous Pavement	16
40747	Marston, Eyre, Taney	Eyre Street	Design 70 percent Complete	Porous Pavement	16
40747	Marston, Eyre, Taney	Taney Street	Design 70 percent Complete	Porous Pavement	16
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3	Design Started	Bumpout	22

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	Design Started	Bumpout	22
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5	Design Started	Bumpout	20
40775	Cloud St from Church St to Walnut St	Cloud Street	Design 30 percent Complete	Porous Pavement	13
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	Design 30 percent Complete	Drainage well	17
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	Design 30 percent Complete	Infiltration/storage trench	15
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	Design 30 percent Complete	Infiltration/storage trench	14
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	Design 30 percent Complete	Tree trench	14
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	Design 30 percent Complete	Infiltration/storage trench	18
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench	Design 30 percent Complete	Infiltration/storage trench	16
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	Design 30 percent Complete	Infiltration/storage trench	16
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2	Design 30 percent Complete	Infiltration/storage trench	16
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	Design 30 percent Complete	Infiltration/storage trench	19
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	In Projects Control	Tree trench	23
50097	Black Coyle McBride Playground	30% G-24	Design Started	Subsurface basin	16
50097	Black Coyle McBride Playground	30% G-25	Design Started	Subsurface basin	15
50084	Moss Playground	System 1	Design 30 percent Complete	Tree trench	17
50084	Moss Playground	System 2	Design 30 percent Complete	Rain garden	20
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street	In Projects Control	Porous Pavement	13

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street	In Projects Control	Porous Pavement	13
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street	In Projects Control	Porous Pavement	13
50087	Pennway, Longshore, Algon, Knorr	G-5	Design 30 percent Complete	Tree Trench	17
50089	Glenwood from Pacific to Castor	SMP 1	Design 30 percent Complete	Tree trench	14
50089	Glenwood from Pacific to Castor	SMP 2	Design 30 percent Complete	Tree trench	15
40827	Mole, Bancroft	Mole St from Shunk St to Porter St	Design 70 percent Complete	Porous Pavement	13
40827	Mole, Bancroft	Mole St from Porter St to Ritner St	Design 70 percent Complete	Porous Pavement	13
40827	Mole, Bancroft	Bancroft St	Design 70 percent Complete	Porous Pavement	13
50084	Carmella Playground	SMP #1	Design 30 percent Complete	Rain garden	15
50084	Carmella Playground	SMP #2	Design 30 percent Complete	Rain garden	15
50084	Carmella Playground	SMP #3	Design 30 percent Complete	Rain garden	15
50084	Carmella Playground	SMP #4	Design 30 percent Complete	Rain garden	14
50084	Carmella Playground	SMP #5	Design 30 percent Complete	Rain garden	13
50084	Carmella Playground	SMP #6	Design 30 percent Complete	Infiltration/storage trench	14
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	Design 30 percent Complete	Tree trench	14
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	Design 30 percent Complete	Infiltration/storage trench	14

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	Design 30 percent Complete	Infiltration/storage trench	14
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	Design 30 percent Complete	Infiltration/storage trench	14
50099	Conestoga Community Playground	Porous basketball court	Design Started	porous pavement	12
50101	Kingsessing Recreation Center	GSI System 8	Design Started	tree trench	14
50101	Kingsessing Recreation Center	GSI System 9	Design Started	tree trench	13
50097	Palmer Cemetery	30% G-5	Design Started	planter trench	16
50097	Amber St, Lehigh Ave, and Collins St	30% G-14	Design Started	tree trench	16
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	Design Started	tree trench	15
50097	St. Anne Rectory	One is supposed to have tree pit inlets	Design Started	tree trench	15
50097	Thompson St and Huntingdon St	30% G-11	Design Started	planter trench	16
50095	Hackett School	Trenton Avenue and York Street	Design Started	rain garden	10
50096	William McKinley School	SMP 1	Design Started	rain garden	15
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	Design Started	rain garden	12
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	Design Started	rain garden	12
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	Design Started	tree trench	12
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	Design Started	tree trench	12
50097	Penn Treaty School	30% G-7	Design Started	tree trench	12
50098	Wissinoming Park	Parking Lot rain garden	On Hold In Design	rain garden	16
50098	Wissinoming Park	Hockey Rink rain garden	On Hold In Design	rain garden	15
50109	Osage Ave. from 42nd St to 43rd St	tree planters	Design Started	tree planters	17

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	Design Started	Stone column, Infiltration/storage trench	13
50115	Taggart School	rain garden	Cancelled	Rain Garden	12
50115	Taggart School	artificial turf w/ infiltration	Cancelled	Subsurface basin	11
50116	East Poplar Playground	SMP 1	Design Started	Tree swale	9
50116	East Poplar Playground	SMP 2	Design Started	Subsurface basin	10
50116	East Poplar Playground	SMP 3	Design Started	Subsurface basin	12
50116	East Poplar Playground	SMP 4	Design Started	Subsurface basin	12
50112	Botanic Ave from 49th St to 51 St	49th St	Design Started	Tree swale	15
50112	Botanic Ave from 49th St to 51 St	51st St	Design Started	Tree swale	16
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	Design Started	Rain Garden	14
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave	Design Started	Rain garden	7
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St	Design Started	Tree trench	7
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St	Design Started	Tree trench	7
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St	Design Started	Infiltration/storage trench	7
50119	Cement Park Streets Locations	663	Design Started	Tree trench	13
50119	Cement Park Streets Locations	25144	Design Started	Tree trench	15
50119	Cement Park Streets Locations	25145	Design Started	Infiltration/storage trench	14
50119	Cement Park Streets Locations	25143	Design Started	Infiltration/storage trench	13
50119	Cement Park Streets Locations	25141	Design Started	Tree trench	13
50119	Cement Park Streets Locations	25146	Design Started	Infiltration/storage trench	15
50119	Cement Park (Northern Liberties Recreation Center)	485	Design Started	Rain garden	14

Work Number	Project Name	SMP Name	Status	System Type	Number of Variables
9406	Larchwood Alley Project	Alley		Infiltration/storage trench	3

Table 3: Pilot land use type variables

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4					1									
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1										1				
50100	Hestonville Neighborhood Disconnection SMP	1013-1										1				
50034	Thompson St and Columbia Ave	SWT-A5					1									
50103	Malvern Ave from Atwood Rd to 65th St	1024-1					1									
50103	Algon Ave from Glenview St to Longshore Ave	1025-1					1									
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1					1									
50103	Pemberton St from Front St to 2nd St	1027-1					1									
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1					1									
50103	Unruh Ave between Summerdale and Frontenac	1029-1					1									
50103	E Rockland St from B St to C St	1030-1					1									
50103	Pennsgrove St between 39th St and 40th St	1031-1					1									
50005	Hartranft School	SWT-A2	1													
50005	Hartranft School	SWT-B2 & SWT-A3	1													
50003	Bodine High School - 4th St and Cambridge St	S-1	1													
50003	Bodine High School - 4th St and Cambridge St	S-2	1													
50003	Bodine High School - 4th St and Cambridge St	S-3	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50003	Bodine High School - 4th St and Cambridge St	S-4	1													
50003	Bodine High School - 4th St and Cambridge St	S-5	1													
50005	Hartranft School	SWT-B3	1													
50022	Madison Memorial Park	S-1			1											
50001	12th St and Reed St (Columbus Square)	Columbus Square		1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1		1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2		1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3		1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4		1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5		1												
50083	Weccacoe Playground	151-1		1												
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1													
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1													
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1													
50001	10th St from Wilder St to Reed St	10th and Wilder					1									
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th		1												
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th		1												
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th		1												
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th		1												
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3					1									
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4					1									
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B					1									
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2										1				
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4										1				
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10					1									
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11					1									

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1													
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1													
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits		1												
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street		1												
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St		1												
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St		1												
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1													
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1													
50032	Reese St	Reese St					1									
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5					1									
50014	47th & Grays Ferry Rain Garden	Basin 1				1										
50006	Columbus Square Stormwater Planters	Infiltration Planter 1					1									
50006	Columbus Square Stormwater Planters	Infiltration Planter 2					1									
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4					1									
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1		1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1												
50023	Herron Playground Permeable Basketball Court	Infil Trench		1												
50023	Herron Playground Permeable Basketball Court	Porous Paving		1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3		1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4		1												

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50011	Liberty Lands Stormwater Project	Liberty Lands			1											
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2		1												
50009	Bureau of Laboratory Services	Hunting Park Planter 1					1									
50009	Bureau of Laboratory Services	Lycoming Tree Trench					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 2					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 3					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 4					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 5					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 6					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 7					1									
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving		1												
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left		1												
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right		1												
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1					1									
50009	Bureau of Laboratory Services	Castor Tree Trench					1									
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1													
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1											
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1											
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1											
50007	Blue Bell Inn Triangle	Rain Garden				1								
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1		1										
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2		1										
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3		1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1											
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1											
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1											
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8		1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9		1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10		1										
50027	William Harrity School - Webster St and Frazier St	S-6	1											
50027	William Harrity School - Webster St and Frazier St	S-7	1											

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1													
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1													
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1													
50020	Welsh School - 4th St and Dakota St	Dakota St.	1													
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1													
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1													
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.		1												
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.		1												
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.		1												
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1													
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1													
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type														
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land			
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1														
50036	27th St from Indiana to Toronto	27th St					1										
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1														
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1														
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1														
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7					1										

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8					1							
40224	Percy St from Catharine St to Christian St	Permeable asphalt						1						
50046	Womrath Park	Basin			1									
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1			1									
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D					1							
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D		1										
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B		1										
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5		1										
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1											
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1											
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1											
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1											
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1											

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1													
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7		1												
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8		1												
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9		1												
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1													
50041	Springfield Ave and Cobbs Creek Island	S-1				1										
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1					1									
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2					1									
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3					1									
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4					1									

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5					1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6					1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7					1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8					1							
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1											
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1											
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7					1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW					1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW					1							

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
	Wak															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE					1									
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE					1									
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N		1												
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S		1												
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4		1												
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5		1												

Work Number	Project Name	SMP Name	Pilot Land Use Type												
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land	
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6		1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10		1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S		1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N		1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14		1											
50042	Magnolia Cemetery - Cottage St and Levick St	TT11					1								
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1											1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1												
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1												
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1												
50043	Harper's Hollow Park	Basin 1			1										
50044	Kemble Park	Kemble Park System 1			1										
50044	Kemble Park	Kemble Park System 2			1										
50044	Kemble Park	Kemble Park System 3			1										

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50044	Kemble Park	Kemble Park System 4			1									
50043	Wakefield Park	Upper Basin			1									
50043	Wakefield Park	Lower Basin			1									
50044	Wister Woods Park	Wister's Woods Depression 1			1									
50044	Wister Woods Park	Wister's Woods Depression 2			1									
50044	Wister Woods Park	Wister's Woods Depression 3			1									
50044	Wister Woods Park	Wister's Woods Depression 4			1									
50039	Alder St from Norris St to Diamond St	SWT-9					1							
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1						1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2						1						
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving						1						
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench					1							
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits					1							
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1					1							
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2					1							
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3					1							

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1					1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2					1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3					1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4					1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5					1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6					1									
50078	Clearview and Washington	303-1														1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1					1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4													1	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3													1	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5													1	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6													1	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1													1	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2													1	
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk					1									
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2					1									
50077	49th St, 50th St, and Haverford St	322-2				1										
50077	49th St, 50th St, and Haverford St	322-3					1									
50032	Earl St (Hetzell Playground)	Earl St					1									

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50032	8th St	8th St					1									
50032	Front St	Front St					1									
50032	9th St	9th St					1									
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson							1							
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3					1									
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris							1							
50052	Sedgwick Station - Sprague and Durham	335-01					1									
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4					1									
50032	Diamond St	Diamond St					1									
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5					1									
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4					1									
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4					1									

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWG-A6					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWG-A7					1							
50065	Panati Playground, 2119-29 Clearfield St	SMP 4		1										
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1					1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2					1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05					1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06					1							

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07					1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09					1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10					1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11					1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12					1							
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	1											
50049	St. Monica Manor	389-1					1							
50051	73rd and Gray	System 10					1							
50051	73rd and Gray	System 11					1							
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15			1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17			1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1											

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1													
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1													
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1													
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1													
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1													
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1					1									
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2					1									
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7					1									
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8					1									
50055	Upland Way - Redfield to 59th	400-1					1									
50055	Upland Way - Redfield to 59th	400-2					1									
50055	Upland Way - Redfield to 59th	400-3					1									
50055	Upland Way - Redfield to 59th	400-4					1									
50079	Guerin Recreation Center	401-1		1												
50079	Guerin Recreation Center	401-2		1												

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1													
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1													
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1			1											
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2			1											
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3			1											
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4			1											
50059	Ferko Playground - I St, Cayuga St, L St	411-1									1					
50059	Ferko Playground - I St, Cayuga St, L St	411-2		1												
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1					1									
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2					1									
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1			1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2			1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3			1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4			1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6			1											

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7			1									
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9			1									
73068	Southwest Treatment Plant Parking Lot	Parking Lot											1	
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1					1							
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2					1							
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3					1							
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches					1							
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout					1							
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale					1							
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center		1										
50062	Woodland Ave from 43rd to 72nd	Trench 1					1							
50062	Woodland Ave from 43rd to 72nd	Trench 2					1							
50062	Woodland Ave from 43rd to 72nd	Trench 3					1							
50062	Woodland Ave from 43rd to 72nd	Trench 4					1							
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1					1							
50071	Collazo Park - Westmoreland and Howard	S-1		1										
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench		1										

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1													
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1					1									
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2					1									
50079	Smith Playground	488-1									1					
50079	Smith Playground	488-2		1												
50079	Smith Playground	488-3		1												
50079	Smith Playground	488-4		1												
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave					1									
50009	Queen Lane from Henry St to Fox St	Bumpout #1					1									
50009	Queen Lane from Henry St to Fox St	Bumpout #2					1									
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park		1												
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park		1												
50009	Queen Lane from Henry St to Fox St	Bumpout #3					1									
50077	Baker Playground	530-1		1												
50009	Queen Lane from Henry St to Fox St	Bumpout #4					1									
50009	Queen Lane from Henry St to Fox St	Bumpout A					1									
50077	Heston Lot - Hunter St, 55th St	558-1														1
50009	Queen Lane from Henry St to Fox St	Bumpout B					1									
50085	Ralph Brooks Park	574-1		1												

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50091	Stinger Square	589-1		1												
50091	Stinger Square	589-2		1												
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1				1										
50086	East Fairmount Park - Kelly Drive	641-1			1											
50086	East Fairmount Park - Kelly Drive	641-2			1											
50086	East Fairmount Park - Kelly Drive	641-3			1											
50086	East Fairmount Park - Kelly Drive	641-4			1											
50086	East Fairmount Park - Kelly Drive	641-5			1											
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1													
50002	Montgomery Ave, Shissler Playground	SWT-B5					1									
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1													
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	1													
50034	Trenton Ave and Norris St	RG-D2					1									
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2					1									
50034	Trenton Ave and Norris St	SWT-C2					1									
50005	Palmer St from Frankford Ave to Blair St	SWT-A4		1												
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9					1									
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1												

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10					1							
50083	Weccacoe Playground	untitled		1										
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2					1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2					1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3					1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3					1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4					1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4					1							
40747	Marston, Eyre, Taney	Marston Street						1						
40747	Marston, Eyre, Taney	Eyre Street						1						
40747	Marston, Eyre, Taney	Taney Street						1						
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3					1							
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4					1							
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-5					1							
40775	Cloud St from Church St to Waln St	Cloud Street						1						
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street					1							
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1											

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50089	Erie Shopping Center - Castor, Erie, M	SMP 1					1							
50089	Erie Shopping Center - Castor, Erie, M	SMP 2					1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout					1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench					1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1					1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2					1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench					1							
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets					1							
50097	Black Coyle McBride Playground	30% G-24		1										
50097	Black Coyle McBride Playground	30% G-25		1										
50084	Moss Playground	System 1									1			
50084	Moss Playground	System 2									1			
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street						1						
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street						1						

Work Number	Project Name	SMP Name	Pilot Land Use Type														
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land			
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street						1									
50087	Pennway, Longshore, Algon, Knorr	G-5					1										
50089	Glenwood from Pacific to Castor	SMP 1					1										
50089	Glenwood from Pacific to Castor	SMP 2					1										
40827	Mole, Bancroft	Mole St from Shunk St to Porter St						1									
40827	Mole, Bancroft	Mole St from Porter St to Ritner St						1									
40827	Mole, Bancroft	Bancroft St						1									
50084	Carmella Playground	SMP #1		1													
50084	Carmella Playground	SMP #2		1													
50084	Carmella Playground	SMP #3		1													
50084	Carmella Playground	SMP #4		1													
50084	Carmella Playground	SMP #5		1													
50084	Carmella Playground	SMP #6		1													
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1														
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1														

Work Number	Project Name	SMP Name	Pilot Land Use Type													
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1													
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	1													
50099	Conestoga Community Playground	Porous basketball court		1												
50101	Kingsessing Recreation Center	GSI System 8		1												
50101	Kingsessing Recreation Center	GSI System 9		1												
50097	Palmer Cemetery	30% G-5					1									
50097	Amber St, Lehigh Ave, and Collins St	30% G-14					1									
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets					1									
50097	St. Anne Rectory	One is supposed to have tree pit inlets					1									
50097	Thompson St and Huntingdon St	30% G-11					1									
50095	Hackett School	Trenton Avenue and York Street	1													
50096	William McKinley School	SMP 1	1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1													

Work Number	Project Name	SMP Name	Pilot Land Use Type												
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land	
50097	Penn Treaty School	30% G-7	1												
50098	Wissinoming Park	Parking Lot rain garden												1	
50098	Wissinoming Park	Hockey Rink rain garden			1										
50109	Osage Ave. from 42nd St to 43rd St	tree planters						1							
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane						1							
50115	Taggart School	rain garden	1												
50115	Taggart School	artificial turf w/ infiltration	1												
50116	East Poplar Playground	SMP 1		1											
50116	East Poplar Playground	SMP 2		1											
50116	East Poplar Playground	SMP 3		1											
50116	East Poplar Playground	SMP 4		1											
50112	Botanic Ave from 49th St to 51 St	49th St						1							
50112	Botanic Ave from 49th St to 51 St	51st St						1							
50112	Botanic Ave from 49th St to 51 St	Botanical Ave						1							
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave					1								
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St						1							

Work Number	Project Name	SMP Name	Pilot Land Use Type											
			School Yard or Perimeter	Recreation Center	Open Space Park Site	Traffic Triangle	Non-Residential Street	Residential Street	Median	Alley	Athletic Field	Commercial Corridor	Parking Lot	Vacant Land
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St					1							
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St					1							
50119	Cement Park Streets Locations	663					1							
50119	Cement Park Streets Locations	25144											1	
50119	Cement Park Streets Locations	25145											1	
50119	Cement Park Streets Locations	25143					1							
50119	Cement Park Streets Locations	25141					1							
50119	Cement Park Streets Locations	25146											1	
50119	Cement Park (Northern Liberties Recreation Center)	485		1										
9406	Larchwood Alley Project	Alley								1				
Total Levels Tagged			97	82	34	6	176	18	0	1	8	0	14	4

Table 4: Drainage area characteristics

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1	1	1					
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1	1	1	1					
50100	Hestonville Neighborhood Disconnection SMP	1013-1	1	1	1					
50034	Thompson St and Columbia Ave	SWT-A5	1	1						
50103	Malvern Ave from Atwood Rd to 65th St	1024-1	1	1						
50103	Algon Ave from Glenview St to Longshore Ave	1025-1	1	1						
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	1	1						
50103	Pemberton St from Front St to 2nd St	1027-1	1	1						
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1	1	1						
50103	Unruh Ave between Summerdale and Frontenac	1029-1	1	1						
50103	E Rockland St from B St to C St	1030-1	1	1						
50103	Pennsgrove St between 39th St and 40th St	1031-1	1	1						
50005	Hartranft School	SWT-A2	1	1						
50005	Hartranft School	SWT-B2 & SWT-A3	1	1						
50003	Bodine High School - 4th St and Cambridge St	S-1	1	1						
50003	Bodine High School - 4th St and Cambridge St	S-2	1	1						
50003	Bodine High School - 4th St and Cambridge St	S-3	1	1						
50003	Bodine High School - 4th St and Cambridge St	S-4	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50003	Bodine High School - 4th St and Cambridge St	S-5	1	1	1					
50005	Hartranft School	SWT-B3	1	1						
50022	Madison Memorial Park	S-1	1	1						
50001	12th St and Reed St (Columbus Square)	Columbus Square	1	1						
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1	1						
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1	1						
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1	1						
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1	1						
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1	1						
50083	Weccacoe Playground	151-1	1	1			1			
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1	1	1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1	1	1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1	1	1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1	1						
50001	10th St from Wilder St to Reed St	10th and Wilder	1	1						
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	1	1						
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1	1						
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1	1						
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1	1						
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1	1	1					
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1	1						
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1	1						
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1	1	1					
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	1	1						
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	1	1						
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1	1						
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1	1						
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1	1						
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1	1						
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1	1	1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1	1						
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1	1						
50032	Reese St	Reese St	1	1						
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1	1						
50014	47th & Grays Ferry Rain Garden	Basin 1	1	1						
50006	Columbus Square Stormwater Planters	Infiltration Planter 1	1	1						
50006	Columbus Square Stormwater Planters	Infiltration Planter 2	1	1						
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1	1						
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1	1			1			
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2					1	1		
50023	Herron Playground Permeable Basketball Court	Infil Trench	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50023	Herron Playground Permeable Basketball Court	Porous Paving	1	1			1			
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	1	1			1			
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	1	1	1					
50011	Liberty Lands Stormwater Project	Liberty Lands	1	1						
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1	1						
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1	1						
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1	1						
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	1	1						
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left						1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right						1		
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50009	Bureau of Laboratory Services	Castor Tree Trench	1	1						
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1	1			1			
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1	1						
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1	1						
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1	1						
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1	1						
50007	Blue Bell Inn Triangle	Rain Garden	1	1	1					
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1	1						
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1	1						
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1	1						
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1	1						
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1	1						
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1	1						
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1	1						
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1	1						
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1	1						
50027	William Harrity School - Webster St and Frazier St	S-6	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50027	William Harrity School - Webster St and Frazier St	S-7	1	1						
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1	1						
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1	1						
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1	1						
50020	Welsh School - 4th St and Dakota St	Dakota St.	1	1						
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1	1						
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1	1						
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1	1						
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1	1						
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1	1						
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1	1						
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1	1						
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1	1						
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50036	27th St from Indiana to Toronto	27th St	1	1						
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1	1						
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1	1						
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1	1						
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	1	1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	1	1						
40224	Percy St from Catharine St to Christian St	Permeable asphalt	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50046	Womrath Park	Basin	1	1						
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1	1						
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1	1						
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1	1	1					
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1	1	1					
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1	1	1					
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1	1						
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1	1						
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1	1						
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1	1						
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1	1	1					
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1	1	1					
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1	1						
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1	1	1					
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1	1						
50041	Springfield Ave and Cobbs Creek Island	S-1	1	1	1					
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1	1						
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1	1						
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1	1						
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1	1						
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1	1						
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1	1						
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1	1						
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1	1						
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1	1						
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1	1						
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1	1						
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1	1						
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1	1	1					
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW	1	1						
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW	1	1						
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE	1	1						
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE	1	1						
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1	1						
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1	1						
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT4	1	1						
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT5	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1	1	1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1	1	1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1	1	1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1	1						
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1	1						
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1	1						
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1	1		1				
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1	1	1					
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1	1	1					
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1	1						
50043	Harper's Hollow Park	Basin 1	1	1						
50044	Kemble Park	Kemble Park System 1	1	1	1					
50044	Kemble Park	Kemble Park System 2	1	1	1					
50044	Kemble Park	Kemble Park System 3	1	1	1					
50044	Kemble Park	Kemble Park System 4	1	1	1					
50043	Wakefield Park	Upper Basin	1	1	1					
50043	Wakefield Park	Lower Basin	1	1	1					
50044	Wister Woods Park	Wister's Woods Depression 1	1	1	1					
50044	Wister Woods Park	Wister's Woods Depression 2	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50044	Wister Woods Park	Wister's Woods Depression 3	1	1	1					
50044	Wister Woods Park	Wister's Woods Depression 4	1	1	1					
50039	Alder St from Norris St to Diamond St	SWT-9	1	1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	1	1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2	1	1						
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	1	1						
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench	1	1						
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits	1	1						
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1	1	1					
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1	1	1					
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1	1	1					
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1	1	1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2	1	1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	1	1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4	1	1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1	1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1	1						
50078	Clearview and Washington	303-1	1	1		1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4				1				
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3				1				
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5				1				
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6				1				
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1				1				
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2				1				
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	1	1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1	1						
50077	49th St, 50th St, and Haverford St	322-2	1	1						
50077	49th St, 50th St, and Haverford St	322-3	1	1						
50032	Earl St (Hetzell Playground)	Earl St	1	1						
50032	8th St	8th St	1	1						
50032	Front St	Front St	1	1						
50032	9th St	9th St	1	1						
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	1	1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1	1						
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris	1	1						
50052	Sedgwick Station - Sprague and Durham	335-01	1	1	1					
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50032	Diamond St	Diamond St	1	1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1	1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1	1						
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1	1						
50065	Panati Playground, 2119-29 Clearfield St	SMP 4	1	1			1	1		
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	1	1						
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	1	1						
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	1	1						
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1	1	1					
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1	1	1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1	1	1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1	1						
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1	1	1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1	1						
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1	1	1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1	1	1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1	1						
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1	1	1					
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	1	1						
50049	St. Monica Manor	389-1	1	1						
50051	73rd and Gray	System 10	1	1	1					
50051	73rd and Gray	System 11	1	1	1					
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1	1	1					1
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1	1						
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1	1	1					
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1	1						
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1	1	1					
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics								
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park	
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1	1							
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1	1							
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1	1							
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1	1							
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1	1							
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1	1	1						
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1	1	1						
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1	1	1						
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1	1	1						
50055	Upland Way - Redfield to 59th	400-1	1	1							
50055	Upland Way - Redfield to 59th	400-2	1	1							
50055	Upland Way - Redfield to 59th	400-3	1	1							
50055	Upland Way - Redfield to 59th	400-4	1	1							
50079	Guerin Recreation Center	401-1	1	1				1			
50079	Guerin Recreation Center	401-2	1	1				1			
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1	1				1			
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics								
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park	
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	1	1							1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1	1							1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1	1	1						1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1	1	1						1
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1	1	1						
50059	Ferko Playground - I St, Cayuga St, L St	411-2					1	1			
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1	1							
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1	1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1	1							1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1	1							1
73068	Southwest Treatment Plant Parking Lot	Parking Lot				1					
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	1		1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1	1						
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1	1						
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	1	1						
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1	1						
50062	Woodland Ave from 43rd to 72nd	Trench 1	1	1						
50062	Woodland Ave from 43rd to 72nd	Trench 2	1	1						
50062	Woodland Ave from 43rd to 72nd	Trench 3	1	1						
50062	Woodland Ave from 43rd to 72nd	Trench 4	1	1						
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1	1						
50071	Collazo Park - Westmoreland and Howard	S-1	1	1			1			
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench					1			
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1	1			1			
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	1	1						
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	1	1						
50079	Smith Playground	488-1	1	1						
50079	Smith Playground	488-2	1	1			1			
50079	Smith Playground	488-3					1			
50079	Smith Playground	488-4	1	1			1			
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1	1						
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1	1						
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	1	1						1
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	1	1						
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1	1						
50077	Baker Playground	530-1	1	1			1			
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1	1						
50009	Queen Lane from Henry St to Fox St	Bumpout A	1	1						
50077	Heston Lot - Hunter St, 55th St	558-1	1	1	1					
50009	Queen Lane from Henry St to Fox St	Bumpout B	1	1						
50085	Ralph Brooks Park	574-1	1	1			1			
50091	Stinger Square	589-1	1	1						
50091	Stinger Square	589-2	1	1			1			
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1	1						
50086	East Fairmount Park - Kelly Drive	641-1	1							
50086	East Fairmount Park - Kelly Drive	641-2	1							
50086	East Fairmount Park - Kelly Drive	641-3	1							
50086	East Fairmount Park - Kelly Drive	641-4	1							
50086	East Fairmount Park - Kelly Drive	641-5	1							

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1	1	1					
50002	Montgomery Ave, Shissler Playground	SWT-B5	1	1						
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1	1						
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	1	1	1					
50034	Trenton Ave and Norris St	RG-D2	1	1						
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	1	1						
50034	Trenton Ave and Norris St	SWT-C2	1	1						
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	1	1						
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1	1						
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	1	1						
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10	1	1						
50083	Weccacoe Playground	untitled					1			
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	1	1						
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	1	1						
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	1	1						
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	1	1						
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	1	1						
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	1	1						
40747	Marston, Eyre, Taney	Marston Street	1	1						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
40747	Marston, Eyre, Taney	Eyre Street	1	1						
40747	Marston, Eyre, Taney	Taney Street	1	1						
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3	1	1	1					
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4	1	1	1					
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-5	1	1	1					
40775	Cloud St from Church St to Waln St	Cloud Street	1	1						
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	1	1	1					
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1	1	1					
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	1	1						
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1	1						
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	1	1						
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench	1	1						
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	1	1						
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2	1	1						
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1	1						
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1	1	1					
50097	Black Coyle McBride Playground	30% G-24	1	1			1			
50097	Black Coyle McBride Playground	30% G-25	1	1			1			

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50084	Moss Playground	System 1	1	1						
50084	Moss Playground	System 2	1	1			1			
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street	1	1						
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street	1	1						
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street	1	1						
50087	Pennway, Longshore, Algon, Knorr	G-5	1	1						
50089	Glenwood from Pacific to Castor	SMP 1	1	1						
50089	Glenwood from Pacific to Castor	SMP 2	1	1	1					
40827	Mole, Bancroft	Mole St from Shunk St to Porter St	1	1						
40827	Mole, Bancroft	Mole St from Porter St to Ritner St	1	1						
40827	Mole, Bancroft	Bancroft St	1	1						
50084	Carmella Playground	SMP #1	1	1						
50084	Carmella Playground	SMP #2	1	1						
50084	Carmella Playground	SMP #3	1	1						
50084	Carmella Playground	SMP #4	1	1			1			
50084	Carmella Playground	SMP #5	1	1			1			

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50084	Carmella Playground	SMP #6					1	1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1	1						
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1	1						
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1	1						
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	1	1						
50099	Conestoga Community Playground	Porous basketball court					1			
50101	Kingsessing Recreation Center	GSI System 8						1		1
50101	Kingsessing Recreation Center	GSI System 9						1		
50097	Palmer Cemetery	30% G-5	1	1						
50097	Amber St, Lehigh Ave, and Collins St	30% G-14	1	1						
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	1	1						
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1	1						
50097	Thompson St and Huntingdon St	30% G-11	1	1						
50095	Hackett School	Trenton Avenue and York Street	1	1			1			
50096	William McKinley School	SMP 1	1	1			1	1		

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1					1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2					1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1	1						
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1	1						
50097	Penn Treaty School	30% G-7	1	1						
50098	Wissinoming Park	Parking Lot rain garden				1				
50098	Wissinoming Park	Hockey Rink rain garden								1
50109	Osage Ave. from 42nd St to 43rd St	tree planters	1	1						
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	1	1						
50115	Taggart School	rain garden					1			
50115	Taggart School	artificial turf w/ infiltration					1			
50116	East Poplar Playground	SMP 1							1	1
50116	East Poplar Playground	SMP 2								1
50116	East Poplar Playground	SMP 3	1	1						1
50116	East Poplar Playground	SMP 4	1	1					1	
50112	Botanic Ave from 49th St to 51 St	49th St	1	1	1					
50112	Botanic Ave from 49th St to 51 St	51st St	1	1	1					
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	1	1						
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St	1	1	1					
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St	1	1	1					
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St	1	1	1					
50119	Cement Park Streets Locations	663	1	1						
50119	Cement Park Streets Locations	25144	1	1		1				
50119	Cement Park Streets Locations	25145	1	1		1				
50119	Cement Park Streets Locations	25143	1	1						
50119	Cement Park Streets Locations	25141	1	1						
50119	Cement Park Streets Locations	25146	1	1		1				
50119	Cement Park (Northern Liberties Recreation Center)	485						1		1
9406	Larchwood Alley Project	Alley								
Total Levels Tagged			410	402	85	14	33	10	2	20

Table 5: GSI system type

GSI System Type

Work Number	Project Name	SMP Name															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4		1													
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1							1								
50100	Hestonville Neighborhood Disconnection SMP	1013-1							1								
50034	Thompson St and Columbia Ave	SWT-A5					1										
50103	Malvern Ave from Atwood Rd to 65th St	1024-1														1	
50103	Algon Ave from Glenview St to Longshore Ave	1025-1														1	
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1														1	
50103	Pemberton St from Front St to 2nd St	1027-1														1	
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1														1	
50103	Unruh Ave between Summerdale and Frontenac	1029-1														1	
50103	E Rockland St from B St to C St	1030-1														1	
50103	Pennsgrove St between 39th St and 40th St	1031-1														1	
50005	Hartranft School	SWT-A2					1										
50005	Hartranft School	SWT-B2 & SWT-A3					1										
50003	Bodine High School - 4th St and Cambridge St	S-1				1											
50003	Bodine High School - 4th St and Cambridge St	S-2		1													
50003	Bodine High School - 4th St and Cambridge St	S-3				1											
50003	Bodine High School - 4th St and Cambridge St	S-4				1											

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50003	Bodine High School - 4th St and Cambridge St	S-5					1											
50005	Hartranft School	SWT-B3					1											
50022	Madison Memorial Park	S-1							1									
50001	12th St and Reed St (Columbus Square)	Columbus Square									1							
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1					1											
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2					1											
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3					1											
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4					1											
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5					1											
50083	Weccacoe Playground	151-1									1							
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2					1											
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3					1											

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4					1										
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6					1										
50001	10th St from Wilder St to Reed St	10th and Wilder						1									
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th		1													
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th		1													
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th					1										
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th					1										
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3					1										
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4					1										
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B					1										
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2						1									

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4					1										
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10		1													
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11					1										
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks					1										
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St					1										
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits					1										
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street					1										
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8					1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9					1										
50032	Reese St	Reese St					1										
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5					1										
50014	47th & Grays Ferry Rain Garden	Basin 1								1							
50006	Columbus Square Stormwater Planters	Infiltration Planter 1			1												
50006	Columbus Square Stormwater Planters	Infiltration Planter 2			1												
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4				1											
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1					1										

Work Number	Project Name	SMP Name	GSI System Type													
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2							1							
50023	Herron Playground Permeable Basketball Court	Infil Trench					1									
50023	Herron Playground Permeable Basketball Court	Porous Paving							1							
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3					1									
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4					1									
50011	Liberty Lands Stormwater Project	Liberty Lands								1						
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2					1									
50009	Bureau of Laboratory Services	Hunting Park Planter 1			1											
50009	Bureau of Laboratory Services	Lycoming Tree Trench				1										
50009	Bureau of Laboratory Services	Hunting Park Planter 2			1											
50009	Bureau of Laboratory Services	Hunting Park Planter 3			1											

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50009	Bureau of Laboratory Services	Hunting Park Planter 4			1												
50009	Bureau of Laboratory Services	Hunting Park Planter 5			1												
50009	Bureau of Laboratory Services	Hunting Park Planter 6			1												
50009	Bureau of Laboratory Services	Hunting Park Planter 7			1												
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving					1										
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left			1												
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right			1												
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1						1									
50009	Bureau of Laboratory Services	Castor Tree Trench					1										
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden								1							
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1						1									

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2					1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3					1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4					1										
50007	Blue Bell Inn Triangle	Rain Garden								1							
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1		1													
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2					1										
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3					1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3					1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4					1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8					1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9					1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10					1										
50027	William Harrity School - Webster St and Frazier St	S-6					1										
50027	William Harrity School - Webster St and Frazier St	S-7					1										
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11					1										
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12					1										
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1					1										
50020	Welsh School - 4th St and Dakota St	Dakota St.					1										
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.					1										

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.					1											
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.					1											
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.					1											
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.					1											
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)					1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)					1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)					1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)					1											
50036	27th St from Indiana to Toronto	27th St					1											

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1					1										
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2		1													
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3					1										
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4					1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6						1									

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7						1									
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8						1									
40224	Percy St from Catharine St to Christian St	Permeable asphalt								1							
50046	Womrath Park	Basin									1						
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1							1								
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D					1										
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D					1										
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B					1										
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5					1										
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B					1										
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8					1										
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C					1										
50041	Longstreth School - 57th St and Pentridge St	S-2A & B			1												
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6					1										
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7						1									
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8						1									
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9						1									
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10					1										

Work Number	Project Name	SMP Name	GSI System Type																								
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other										
50041	Springfield Ave and Cobbs Creek Island	S-1													1												
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1						1																			
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2							1																		
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3						1																			
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4						1																			
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5						1																			
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6						1																			
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7						1																			
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8						1																			
50039	Dick Elementary School - 24th St and Diamond St	SWT-10						1																			
50039	Dick Elementary School - 24th St and Diamond St	SWT-11						1																			

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1					1					1					
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2					1										
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St	TT8-NE					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
	from Margaret St to Wak																
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N					1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S					1										
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT4					1										
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT5					1										
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT6					1										

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10					1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S					1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N					1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14				1												
50042	Magnolia Cemetery - Cottage St and Levick St	TT11					1											
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1					1											
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario					1											
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St					1											
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School					1											
50043	Harper's Hollow Park	Basin 1									1							
50044	Kemble Park	Kemble Park System 1									1							

Work Number	Project Name	SMP Name	GSI System Type																
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other		
50044	Kemble Park	Kemble Park System 2								1									
50044	Kemble Park	Kemble Park System 3								1									
50044	Kemble Park	Kemble Park System 4								1									
50043	Wakefield Park	Upper Basin										1							
50043	Wakefield Park	Lower Basin										1							
50044	Wister Woods Park	Wister's Woods Depression 1										1							
50044	Wister Woods Park	Wister's Woods Depression 2										1							
50044	Wister Woods Park	Wister's Woods Depression 3										1							
50044	Wister Woods Park	Wister's Woods Depression 4										1							
50039	Alder St from Norris St to Diamond St	SWT-9					1												
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1									1								
40695	Marshall St from Hunting Park Ave to Cayuga	287-2									1								

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
	St																	
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving								1								
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench						1										
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits																1
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1		1														
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2		1														
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3		1														
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1						1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2						1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3						1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4						1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5						1									
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6						1									
50078	Clearview and Washington	303-1									1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1					1										
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4								1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3								1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5								1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6								1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1								1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2								1							
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk				1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2					1										
50077	49th St, 50th St, and Haverford St	322-2								1							
50077	49th St, 50th St, and Haverford St	322-3										1					
50032	Earl St (Hetzell Playground)	Earl St					1										

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50032	8th St	8th St					1											
50032	Front St	Front St					1											
50032	9th St	9th St					1											
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson								1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3					1											
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris								1								
50052	Sedgwick Station - Sprague and Durham	335-01										1						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4					1											
50032	Diamond St	Diamond St					1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5					1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6					1											
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2									1							
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8				1												
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2									1							

Work Number	Project Name	SMP Name	GSI System Type																
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3										1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4										1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4										1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4										1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5										1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6						1											
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7						1											
50065	Panati Playground, 2119-29 Clearfield St	SMP 4							1										
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1											1						
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2											1						
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3											1						
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01							1										
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1																

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1														
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1														
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05						1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1														
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07						1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09										1					
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10						1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11						1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12										1					
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1						1									

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50049	St. Monica Manor	389-1						1										
50051	73rd and Gray	System 10					1											
50051	73rd and Gray	System 11					1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15									1							
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16						1										
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17									1							
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18						1										
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19					1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12					1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13					1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14						1										
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3					1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5					1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6					1											

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1					1											
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2					1											
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7					1											
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8					1											
50055	Upland Way - Redfield to 59th	400-1										1						
50055	Upland Way - Redfield to 59th	400-2										1						
50055	Upland Way - Redfield to 59th	400-3										1						
50055	Upland Way - Redfield to 59th	400-4										1						
50079	Guerin Recreation Center	401-1							1									
50079	Guerin Recreation Center	401-2							1									
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden									1							
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin							1									
50059	Harrowgate Park - Kensington, Tioga, Jasper,	410-1									1							

Work Number	Project Name	SMP Name	GSI System Type																
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other		
	Schiller																		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2												1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3												1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4												1					
50059	Ferko Playground - I St, Cayuga St, L St	411-1							1										
50059	Ferko Playground - I St, Cayuga St, L St	411-2												1					
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1		1															
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1																
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1												1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2												1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3							1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4							1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6									1						
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7							1								
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9									1						
73068	Southwest Treatment Plant Parking Lot	Parking Lot								1							
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1						1									
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2						1									
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3						1									
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches					1										
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1														
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale										1					
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center								1							
50062	Woodland Ave from 43rd to 72nd	Trench 1					1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50062	Woodland Ave from 43rd to 72nd	Trench 2					1										
50062	Woodland Ave from 43rd to 72nd	Trench 3					1										
50062	Woodland Ave from 43rd to 72nd	Trench 4					1										
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1						1									
50071	Collazo Park - Westmoreland and Howard	S-1									1						
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench					1										
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden								1							
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1						1									
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2					1										
50079	Smith Playground	488-1						1									
50079	Smith Playground	488-2						1									
50079	Smith Playground	488-3								1							
50079	Smith Playground	488-4								1							

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave		1													
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1														
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1														
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park								1							
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park							1								
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1														
50077	Baker Playground	530-1										1					
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1														
50009	Queen Lane from Henry St to Fox St	Bumpout A	1														
50077	Heston Lot - Hunter St, 55th St	558-1										1					
50009	Queen Lane from Henry St to Fox St	Bumpout B	1														
50085	Ralph Brooks Park	574-1										1					
50091	Stinger Square	589-1								1							
50091	Stinger Square	589-2									1						
50027	Baltimore Ave Island from S 60th St to	S-1						1									

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
	Wharton St																
50086	East Fairmount Park - Kelly Drive	641-1											1				
50086	East Fairmount Park - Kelly Drive	641-2											1				
50086	East Fairmount Park - Kelly Drive	641-3									1						
50086	East Fairmount Park - Kelly Drive	641-4									1						
50086	East Fairmount Park - Kelly Drive	641-5									1						
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9						1									
50002	Montgomery Ave, Shissler Playground	SWT-B5					1										
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7					1										
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8						1									
50034	Trenton Ave and Norris St	RG-D2									1						
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2						1									
50034	Trenton Ave and Norris St	SWT-C2					1										
50005	Palmer St from Frankford Ave to Blair St	SWT-A4					1										
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9		1													

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50005	Palmer St from Frankford Ave to Blair St	SWT-B4					1											
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10																1
50083	Weccacoe Playground	untitled								1								
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2					1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2					1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3					1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3					1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4					1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4					1											
40747	Marston, Eyre, Taney	Marston Street								1								
40747	Marston, Eyre, Taney	Eyre Street								1								
40747	Marston, Eyre, Taney	Taney Street								1								
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3	1															
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	1															
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5	1															

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
40775	Cloud St from Church St to Waln St	Cloud Street									1						
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street															1
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2				1											
50089	Erie Shopping Center - Castor, Erie, M	SMP 1				1											
50089	Erie Shopping Center - Castor, Erie, M	SMP 2				1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout		1													
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench						1									
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1		1													
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2		1													
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench						1									
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets					1										
50097	Black Coyle McBride Playground	30% G-24							1								

Work Number	Project Name	SMP Name	GSI System Type																
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other		
50097	Black Coyle McBride Playground	30% G-25								1									
50084	Moss Playground	System 1								1									
50084	Moss Playground	System 2										1							
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street								1									
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street								1									
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street								1									
50087	Pennway, Longshore, Algon, Knorr	G-5					1												
50089	Glenwood from Pacific to Castor	SMP 1				1													
50089	Glenwood from Pacific to Castor	SMP 2				1													
40827	Mole, Bancroft	Mole St from Shunk St to Porter St								1									
40827	Mole, Bancroft	Mole St from Porter St to Ritner St								1									
40827	Mole, Bancroft	Bancroft St								1									
50084	Carmella Playground	SMP #1										1							

Work Number	Project Name	SMP Name	GSI System Type																
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other		
50084	Carmella Playground	SMP #2												1					
50084	Carmella Playground	SMP #3												1					
50084	Carmella Playground	SMP #4									1								
50084	Carmella Playground	SMP #5			1														
50084	Carmella Playground	SMP #6									1								
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1				1													
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2				1													
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3				1													
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4				1													
50099	Conestoga Community Playground	Porous basketball court									1								
50101	Kingsessing Recreation Center	GSI System 8					1												
50101	Kingsessing Recreation Center	GSI System 9					1												
50097	Palmer Cemetery	30% G-5				1													

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50097	Amber St, Lehigh Ave, and Collins St	30% G-14					1											
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets					1											
50097	St. Anne Rectory	One is supposed to have tree pit inlets					1											
50097	Thompson St and Huntingdon St	30% G-11				1												
50095	Hackett School	Trenton Avenue and York Street										1						
50096	William McKinley School	SMP 1										1						
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1										1						
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2										1						
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3					1											
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4					1											
50097	Penn Treaty School	30% G-7					1											
50098	Wissinoming Park	Parking Lot rain garden										1						
50098	Wissinoming Park	Hockey Rink rain garden										1						
50109	Osage Ave. from 42nd St to 43rd St	tree planters			1													

Work Number	Project Name	SMP Name	GSI System Type															
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other	
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane								1								
50115	Taggart School	rain garden									1							
50115	Taggart School	artificial turf w/ infiltration							1									
50116	East Poplar Playground	SMP 1										1						
50116	East Poplar Playground	SMP 2							1									
50116	East Poplar Playground	SMP 3							1									
50116	East Poplar Playground	SMP 4							1									
50112	Botanic Ave from 49th St to 51 St	49th St											1					
50112	Botanic Ave from 49th St to 51 St	51st St											1					
50112	Botanic Ave from 49th St to 51 St	Botanical Ave										1						
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave									1							
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St						1										
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St						1										

Work Number	Project Name	SMP Name	GSI System Type														
			Bumpout	Bumpout and Storage Trench	Planter	Planter and Storage Trench	Tree Trench	Infiltration/Storage Trench	Subsurface Basin	Permeable Pavement	Rain Garden	Rain Garden with Extended Storage	Swale	Green Roof	Blue Roof	Drainage Well	Other
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St					1										
50119	Cement Park Streets Locations	663										1					
50119	Cement Park Streets Locations	25144								1							
50119	Cement Park Streets Locations	25145					1		1								
50119	Cement Park Streets Locations	25143										1					
50119	Cement Park Streets Locations	25141										1					
50119	Cement Park Streets Locations	25146								1							
50119	Cement Park (Northern Liberties Recreation Center)	485										1					
9406	Larchwood Alley Project	Alley															
Total Levels Tagged			15	14	15	17	171	51	26	23	52	19	23	0	0	9	3

Table 6: GSI Design elements

GSI Design Elements
Inlet Type

Work Number	Project Name	SMP Name	Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4		1		1						
50034	Thompson St and Columbia Ave	SWT-A5		1								
50005	Hartranft School	SWT-A2			1							
50005	Hartranft School	SWT-B2 & SWT-A3	1		1							
50003	Bodine High School - 4th St and Cambridge St	S-1		1								
50003	Bodine High School - 4th St and Cambridge St	S-2	1									
50003	Bodine High School - 4th St and Cambridge St	S-3	1									
50003	Bodine High School - 4th St and Cambridge St	S-4	1									
50003	Bodine High School - 4th St and Cambridge St	S-5	1	1	1					1		
50005	Hartranft School	SWT-B3	1									
50022	Madison Memorial Park	S-1	1	1								
50001	12th St and Reed St (Columbus Square)	Columbus Square	1									
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1									
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1									
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1									
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1									
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1									
50083	Weccacoe Playground	151-1				1	1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1									

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1											
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1											
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6		1										
50001	10th St from Wilder St to Reed St	10th and Wilder	1											
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th				1								
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th				1								
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1	1										
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1											
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1											
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1	1										
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1											
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1				1							
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1		1									
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10				1								

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	1											
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1	1										
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1											
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits		1										
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1											
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1											
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12		1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14		1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1											
50032	Reese St	Reese St		1										
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1	1										
50014	47th & Grays Ferry Rain Garden	Basin 1				1	1							
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1			1								
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1									1			
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2												1

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50023	Herron Playground Permeable Basketball Court	Infil Trench	1											
50023	Herron Playground Permeable Basketball Court	Porous Paving												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	1											
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4								1				
50011	Liberty Lands Stormwater Project	Liberty Lands	1											
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2											1	
50009	Bureau of Laboratory Services	Hunting Park Planter 1				1								
50009	Bureau of Laboratory Services	Lycoming Tree Trench			1									
50009	Bureau of Laboratory Services	Hunting Park Planter 2				1								
50009	Bureau of Laboratory Services	Hunting Park Planter 3				1								
50009	Bureau of Laboratory Services	Hunting Park Planter 4				1								
50009	Bureau of Laboratory Services	Hunting Park Planter 5				1								
50009	Bureau of Laboratory Services	Hunting Park Planter 6				1								
50009	Bureau of Laboratory Services	Hunting Park Planter 7				1								
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	1											
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1											
50009	Bureau of Laboratory Services	Castor Tree Trench	1											
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden				1								
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1		1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2		1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3		1									1	

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4		1										
50007	Blue Bell Inn Triangle	Rain Garden	1	1			1							
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1				1								
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2		1										
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1											
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1											
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4		1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1											
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1	1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9		1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1											
50027	William Harrity School - Webster St and Frazier St	S-6	1											
50027	William Harrity School - Webster St and Frazier St	S-7	1											
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1											
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12									1			
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50020	Welsh School - 4th St and Dakota St	Dakota St.	1	1										
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1	1										
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1	1										
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1											
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1											
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1											
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1	1										
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1											
50036	27th St from Indiana to Toronto	27th St	1											
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1											
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2				1	1							
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1											
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1	1								1	1	

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	1	1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3									1			
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	1	1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	1	1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	1											
50046	Womrath Park	Basin		1										
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1	1		1	1							
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1											
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1	1										
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1											
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1											
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B		1										

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1											
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1											
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1	1										
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1			1	1							
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1											
50041	Springfield Ave and Cobbs Creek Island	S-1	1			1	1							
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1											
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1											

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1											
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1											
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5		1										
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1											
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1											
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1											
50039	Dick Elementary School - 24th St and Diamond St	SWT-10		1									1	
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1			1	1							
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1											
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW		1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW		1										

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE		1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE		1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1											
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1											
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	1											
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1											
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14				1								

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1											
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1								1			
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1											
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1											
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1											
50043	Harper's Hollow Park	Basin 1	1											
50044	Kemble Park	Kemble Park System 1	1	1		1								
50044	Kemble Park	Kemble Park System 2	1	1										
50044	Kemble Park	Kemble Park System 3	1	1										
50044	Kemble Park	Kemble Park System 4	1											
50043	Wakefield Park	Upper Basin	1	1										
50043	Wakefield Park	Lower Basin	1											
50044	Wister Woods Park	Wister's Woods Depression 1	1											
50044	Wister Woods Park	Wister's Woods Depression 2	1											
50044	Wister Woods Park	Wister's Woods Depression 3	1											
50044	Wister Woods Park	Wister's Woods Depression 4	1											
50039	Alder St from Norris St to Diamond St	SWT-9	1											
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench									1			
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits							1					

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1			1								
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1			1								
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1			1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1											
50078	Clearview and Washington	303-1	1		1	1	1							
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1		1										
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk		1										
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1											
50077	49th St, 50th St, and Haverford St	322-2				1	1							
50077	49th St, 50th St, and Haverford St	322-3				1								
50032	Earl St (Hetzell Playground)	Earl St		1										
50032	8th St	8th St	1											
50032	Front St	Front St	1											
50032	9th St	9th St	1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1											
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris												

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50052	Sedgwick Station - Sprague and Durham	335-01	1	1		1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1											
50032	Diamond St	Diamond St	1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1											
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8				1								
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5				1	1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1											
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1											
50065	Panati Playground, 2119-29 Clearfield St	SMP 4				1	1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1				1								
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2				1								
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3				1								
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1											

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1			1								
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	1	1										
50049	St. Monica Manor	389-1	1	1										
50051	73rd and Gray	System 10	1	1										
50051	73rd and Gray	System 11	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15		1		1	1							
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17		1		1	1							
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1	1										
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3		1										
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6		1										
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1											
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2		1										
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1	1										
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1	1										
50055	Upland Way - Redfield to 59th	400-1	1		1	1					1			
50055	Upland Way - Redfield to 59th	400-2				1								
50055	Upland Way - Redfield to 59th	400-3				1								
50055	Upland Way - Redfield to 59th	400-4				1								

Work Number	Project Name	SMP Name	GSI Design Elements										
			Inlet Type										
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other	
50079	Guerin Recreation Center	401-1	1	1							1		
50079	Guerin Recreation Center	401-2	1										
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden				1	1						
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1	1									
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1				1	1						
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2				1	1						
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1	1									
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1	1									
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1										
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1				1							
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2				1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1	1		1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1			1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4				1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6				1							

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1			1								
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1			1								
73068	Southwest Treatment Plant Parking Lot	Parking Lot												
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	1											
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1											
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3		1										
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout				1								
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale				1	1							
50062	Woodland Ave from 43rd to 72nd	Trench 1	1											
50062	Woodland Ave from 43rd to 72nd	Trench 2		1										
50062	Woodland Ave from 43rd to 72nd	Trench 3		1										
50062	Woodland Ave from 43rd to 72nd	Trench 4		1										
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1											
50071	Collazo Park - Westmoreland and Howard	S-1	1			1								
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1								1			
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1								1			
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1									1			
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2		1										
50079	Smith Playground	488-1	1											
50079	Smith Playground	488-2	1											

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50079	Smith Playground	488-4				1	1							
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave				1								
50009	Queen Lane from Henry St to Fox St	Bumpout #1				1								
50009	Queen Lane from Henry St to Fox St	Bumpout #2				1								
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park				1	1							
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	1											
50009	Queen Lane from Henry St to Fox St	Bumpout #3				1								
50009	Queen Lane from Henry St to Fox St	Bumpout #4				1								
50009	Queen Lane from Henry St to Fox St	Bumpout A				1								
50077	Heston Lot - Hunter St, 55th St	558-1	1			1	1							
50009	Queen Lane from Henry St to Fox St	Bumpout B				1								
50085	Ralph Brooks Park	574-1				1	1							
50091	Stinger Square	589-1	1											
50091	Stinger Square	589-2	1			1	1							
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1	1										
50086	East Fairmount Park - Kelly Drive	641-1				1								
50086	East Fairmount Park - Kelly Drive	641-2				1								
50086	East Fairmount Park - Kelly Drive	641-3				1								
50086	East Fairmount Park - Kelly Drive	641-4				1								
50086	East Fairmount Park - Kelly Drive	641-5				1								

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1				1							
50002	Montgomery Ave, Shissler Playground	SWT-B5		1										
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1											
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	1											
50034	Trenton Ave and Norris St	RG-D2				1	1							
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2		1										
50034	Trenton Ave and Norris St	SWT-C2		1									1	
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	1											
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9		1		1								
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1										
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10				1								
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	1											
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3		1		1								
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	1			1								

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5				1								
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	1											
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2				1	1							
50089	Erie Shopping Center - Castor, Erie, M	SMP 1				1	1							
50089	Erie Shopping Center - Castor, Erie, M	SMP 2				1	1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout				1								
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench		1										
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1				1								
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2				1								
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1											
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1	1	1									
50097	Black Coyle McBride Playground	30% G-24	1	1										
50097	Black Coyle McBride Playground	30% G-25	1											
50084	Moss Playground	System 1	1											
50084	Moss Playground	System 2				1	1							
50087	Pennway, Longshore, Algon, Knorr	G-5							1					

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inlet Type											
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other		
50089	Glenwood from Pacific to Castor	SMP 1				1	1							
50089	Glenwood from Pacific to Castor	SMP 2				1	1							
50084	Carmella Playground	SMP #1				1	1							
50084	Carmella Playground	SMP #2				1	1							
50084	Carmella Playground	SMP #3				1	1							
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1				1	1							
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2				1	1							
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3				1	1							
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4				1	1							
50097	Palmer Cemetery	30% G-5				1								
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		1					1					
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets							1					
50097	St. Anne Rectory	One is supposed to have tree pit inlets							1					
50097	Thompson St and Huntingdon St	30% G-11				1								
50098	Wissinoming Park	Parking Lot rain garden				1	1							
50098	Wissinoming Park	Hockey Rink rain garden				1								
50109	Osage Ave. from 42nd St to 43rd St	tree planters				1								

Work Number	Project Name	SMP Name	GSI Design Elements										
			Inlet Type										
			Highway Grate	City	Open Mouth Grate	Curb Cut	Trench Drain	Tree Pit Inlet	Porous Inlet	Dual Trap	Curbless	Other	
50112	Botanic Ave from 49th St to 51 St	49th St				1							
50112	Botanic Ave from 49th St to 51 St	51st St				1							
50112	Botanic Ave from 49th St to 51 St	Botanical Ave				1							
50119	Cement Park Streets Locations	663				1							
50119	Cement Park Streets Locations	25143				1							
50119	Cement Park Streets Locations	25141				1							
Total Levels Tagged			222	87	9	117	45	5	0	12	1	3	

Table 7: System surface/subsurface status, loading ratios, static storage volume, vegetation status

Work Number	Project Name	SMP Name	GSI Design Elements										
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status		
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1				1		1			1	
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1		1									1
50100	Hestonville Neighborhood Disconnection SMP	1013-1		1									1
50034	Thompson St and Columbia Ave	SWT-A5		1		1			1				1
50103	Malvern Ave from Atwood Rd to 65th St	1024-1		1				1					1
50103	Algon Ave from Glenview St to Longshore Ave	1025-1		1				1					1
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1		1				1					1
50103	Pemberton St from Front St to 2nd St	1027-1		1				1					1
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1		1				1					1
50103	Unruh Ave between Summerdale and Frontenac	1029-1		1				1					1
50103	E Rockland St from B St to C St	1030-1		1				1					1
50103	Pennsgrove St between 39th St and 40th St	1031-1		1				1					1
50005	Hartranft School	SWT-A2		1			1	1					1
50005	Hartranft School	SWT-B2 & SWT-A3		1		1			1				1
50003	Bodine High School - 4th St and Cambridge St	S-1	1				1	1			1		

Work Number	Project Name	SMP Name	GSI Design Elements										
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status		
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated
50003	Bodine High School - 4th St and Cambridge St	S-2	1				1	1				1	
50003	Bodine High School - 4th St and Cambridge St	S-3		1			1	1					1
50003	Bodine High School - 4th St and Cambridge St	S-4		1	1					1			1
50003	Bodine High School - 4th St and Cambridge St	S-5		1			1		1				1
50005	Hartranft School	SWT-B3		1			1	1					1
50022	Madison Memorial Park	S-1		1			1	1					1
50001	12th St and Reed St (Columbus Square)	Columbus Square	1			1			1		1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1		1		1			1				1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2		1		1				1			1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3		1		1				1			1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4		1		1			1				1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5		1			1		1				1
50083	Weccacoe Playground	151-1	1	1							1		

Work Number	Project Name	SMP Name	GSI Design Elements												
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status				
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2		1		1				1					1
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3		1		1					1				1
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4		1		1				1					1
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6		1	1						1				1
50001	10th St from Wilder St to Reed St	10th and Wilder		1		1				1					1
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	1			1				1			1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	1				1			1			1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th		1		1				1					1
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th		1	1						1				1
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3		1		1					1				1
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4		1			1			1					1

Work Number	Project Name	SMP Name	GSI Design Elements												
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status				
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B		1		1				1					1
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2		1	1						1				1
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4		1	1						1				1
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	1			1				1			1		
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11		1		1				1					1
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks		1		1					1				1
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St		1		1				1					1
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits		1		1					1				1
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street		1		1					1				1
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St		1	1						1				1

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St		1	1						1			1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1		1		1					1			1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10		1		1					1			1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11		1		1					1			1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12		1			1			1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13		1		1				1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14		1		1				1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2		1		1				1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3		1		1				1				1

Work Number	Project Name	SMP Name	GSI Design Elements												
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status				
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4		1		1				1					1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5		1		1					1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6		1		1				1					1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7		1		1					1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8		1		1					1				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9		1		1					1				1
50032	Reese St	Reese St		1	1					1					1
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5		1			1	1							1
50014	47th & Grays Ferry Rain Garden	Basin 1	1				1	1					1		
50006	Columbus Square Stormwater Planters	Infiltration Planter 1	1		1						1	1			
50006	Columbus Square Stormwater Planters	Infiltration Planter 2	1		1						1	1			
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1			1				1		1			

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1		1			1	1						1
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1	1			1						1
50023	Herron Playground Permeable Basketball Court	Infil Trench		1		1			1					1
50023	Herron Playground Permeable Basketball Court	Porous Paving	1		1					1				1
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3		1			1		1					1
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4		1	1				1					1
50011	Liberty Lands Stormwater Project	Liberty Lands	1		1				1		1			
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2		1		1				1				1
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1				1	1			1			
50009	Bureau of Laboratory Services	Lycoming Tree Trench		1			1		1					1
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1		1					1	1			
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1		1				1		1			
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1				1	1			1			
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1		1				1		1			
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1		1				1		1			
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1				1	1			1			

Work Number	Project Name	SMP Name	GSI Design Elements											
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving		1	1						1			1
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left	1			1		1				1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right	1			1		1				1		
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1		1		1		1						1
50009	Bureau of Laboratory Services	Castor Tree Trench		1			1		1					1
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1			1			1			1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1		1			1		1					1
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2		1		1			1					1
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3		1		1			1					1
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4		1		1			1					1
50007	Blue Bell Inn Triangle	Rain Garden	1			1			1				1	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1			1			1				1	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2		1	1					1				1
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3		1		1			1					1

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3		1		1				1				1
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4		1		1			1					1
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5		1		1			1					1
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8		1		1				1				1
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9		1		1				1				1
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10		1		1			1					1
50027	William Harrity School - Webster St and Frazier St	S-6		1		1				1				1
50027	William Harrity School - Webster St and Frazier St	S-7		1		1			1					1
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11		1		1			1					1
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12		1			1		1					1
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1		1			1		1					1

Work Number	Project Name	SMP Name	GSI Design Elements												
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50020	Welsh School - 4th St and Dakota St	Dakota St.		1		1				1					1
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.		1		1				1					1
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.		1		1				1					1
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.		1		1					1				1
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.		1		1				1					1
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.		1		1				1					1
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)		1			1			1					1
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)		1		1				1					1
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)		1			1			1					1
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)		1			1			1					1

Work Number	Project Name	SMP Name	GSI Design Elements												
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50036	27th St from Indiana to Toronto	27th St		1		1				1					1
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1		1		1				1					1
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1			1				1		1			
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1						1			1	1		1
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4		1			1			1					1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1		1		1				1					1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2		1		1				1					1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3		1	1						1				1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4		1			1			1					1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5		1			1	1							1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		1		1					1				1

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40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7		1		1				1				1
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8		1	1				1					1
40224	Percy St from Catharine St to Christian St	Permeable asphalt	1		1					1				1
50046	Womrath Park	Basin	1				1			1	1			
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1	1							1			
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D		1	1				1					1
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D		1		1			1					1
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B		1	1					1				1
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5		1	1					1				1
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B		1		1				1				1
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7		1		1			1					1
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8		1	1					1				1
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C		1		1			1					1
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1			1			1		1			

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50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6		1		1				1					1
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7		1	1						1				1
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8		1		1				1					1
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9		1			1			1					1
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10		1	1						1				1
50041	Springfield Ave and Cobbs Creek Island	S-1	1			1				1		1			
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1		1		1				1					1
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2		1		1				1					1
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3		1		1		1							1

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50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4		1		1				1					1
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5		1		1					1				1
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6		1	1						1				1
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7		1	1						1				1
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8		1	1				1						1
50039	Dick Elementary School - 24th St and Diamond St	SWT-10		1	1						1				1
50039	Dick Elementary School - 24th St and Diamond St	SWT-11		1	1						1				1
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1			1				1		1			
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2		1		1				1					1
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3		1	1						1				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7		1	1						1				1

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50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW		1		1				1					1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW		1			1	1							1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE		1		1				1					1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE		1		1				1					1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N		1		1					1				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S		1	1						1				1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Helleman St	TT4		1	1					1					1

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50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5		1		1				1					1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6		1		1				1					1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10		1		1				1					1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S		1	1						1				1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N		1	1						1				1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1		1					1		1			
50042	Magnolia Cemetery - Cottage St and Levick St	TT11		1	1						1				1
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1		1									1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario		1		1				1					1
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St		1		1				1					1

Work Number	Project Name	SMP Name	GSI Design Elements												
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50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School		1		1				1					1
50043	Harper's Hollow Park	Basin 1	1		1					1			1		
50044	Kemble Park	Kemble Park System 1	1		1						1		1		
50044	Kemble Park	Kemble Park System 2		1	1						1				1
50044	Kemble Park	Kemble Park System 3		1	1						1				1
50044	Kemble Park	Kemble Park System 4		1	1						1				1
50043	Wakefield Park	Upper Basin	1			1				1			1		
50043	Wakefield Park	Lower Basin	1		1						1		1		
50044	Wister Woods Park	Wister's Woods Depression 1	1		1						1		1		
50044	Wister Woods Park	Wister's Woods Depression 2	1			1				1			1		
50044	Wister Woods Park	Wister's Woods Depression 3	1		1						1		1		
50044	Wister Woods Park	Wister's Woods Depression 4	1			1					1		1		
50039	Alder St from Norris St to Diamond St	SWT-9		1		1					1				1

Work Number	Project Name	SMP Name	GSI Design Elements												
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1		1	1					1					1
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2		1	1					1					1
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	1		1					1					1
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench		1			1	1							1
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits		1			1	1							1
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1			1				1		1			
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1	1	1						1	1			
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1	1	1						1	1			
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1		1		1					1				1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2		1	1						1				1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3		1	1						1				1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4		1	1						1				1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5		1		1				1					1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6		1		1				1					1
50078	Clearview and Washington	303-1	1			1				1		1			
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1		1			1	1							1

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4	1			1				1		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3	1		1						1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5	1		1						1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6	1		1						1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1	1			1					1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2	1		1						1	1		
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk		1		1				1				1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2		1		1				1				1
50077	49th St, 50th St, and Haverford St	322-2	1										1	
50077	49th St, 50th St, and Haverford St	322-3	1										1	
50032	Earl St (Hetzell Playground)	Earl St		1	1					1				1
50032	8th St	8th St		1	1					1				1
50032	Front St	Front St		1		1				1				1
50032	9th St	9th St		1	1					1				1
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson		1	1						1			1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3		1		1				1				1

Work Number	Project Name	SMP Name	GSI Design Elements											
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris		1	1				1					1
50052	Sedgwick Station - Sprague and Durham	335-01	1			1			1		1			
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4		1			1		1					1
50032	Diamond St	Diamond St		1		1			1					1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5		1		1			1					1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6		1		1			1					1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	1		1				1			1		
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	1			1				1	1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1			1			1			1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1		1					1		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1			1			1			1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1			1			1			1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	1			1		1				1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	1		1					1		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6		1	1					1				1

Work Number	Project Name	SMP Name	GSI Design Elements												
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status				
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7		1	1						1				1
50065	Panati Playground, 2119-29 Clearfield St	SMP 4		1		1					1				1
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	1		1					1		1			
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	1			1			1			1			
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	1			1			1			1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01		1				1		1					1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1		1						1	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1		1						1	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1			1					1	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05		1		1				1					1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1		1						1	1			

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07		1			1		1					1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1		1				1		1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10		1		1			1					1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11		1	1					1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1		1					1	1			
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1		1										1
50049	St. Monica Manor	389-1		1										1
50051	73rd and Gray	System 10		1		1			1					1
50051	73rd and Gray	System 11		1		1			1					1
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1		1					1		1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16		1		1			1					1
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1			1			1		1			
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18		1	1					1				1

Work Number	Project Name	SMP Name	GSI Design Elements												
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status				
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19		1		1				1					1
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12		1		1				1					1
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13		1		1				1					1
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14		1		1				1					1
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3		1		1				1					1
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5		1		1				1					1
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6		1		1				1					1
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1		1		1		1							1
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2		1			1			1					1
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7		1		1				1					1
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8		1		1				1					1
50055	Upland Way - Redfield to 59th	400-1	1		1						1	1			
50055	Upland Way - Redfield to 59th	400-2	1		1						1	1			
50055	Upland Way - Redfield to 59th	400-3	1		1						1	1			
50055	Upland Way - Redfield to 59th	400-4	1			1					1	1			

Work Number	Project Name	SMP Name	GSI Design Elements												
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50079	Guerin Recreation Center	401-1		1											1
50079	Guerin Recreation Center	401-2		1											1
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1			1					1	1			
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin		1		1			1						1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	1		1								1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1			1						1			
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1			1						1			
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1			1						1			
50059	Ferko Playground - I St, Cayuga St, L St	411-1		1		1				1					1
50059	Ferko Playground - I St, Cayuga St, L St	411-2	1		1				1				1		
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1			1				1	1				
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1		1				1		1				
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1										1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1									1			

Work Number	Project Name	SMP Name	GSI Design Elements												
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3		1											1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4		1											1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1									1			
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7		1								1			
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1									1			
73068	Southwest Treatment Plant Parking Lot	Parking Lot		1	1						1				1
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1		1		1				1					1
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2		1		1				1					1
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3		1	1						1				1
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches		1		1			1						1
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1		1						1	1			
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	1		1						1		1		

Work Number	Project Name	SMP Name	GSI Design Elements										
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50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1		1					1	1		
50062	Woodland Ave from 43rd to 72nd	Trench 1		1			1		1				1
50062	Woodland Ave from 43rd to 72nd	Trench 2		1			1	1					1
50062	Woodland Ave from 43rd to 72nd	Trench 3		1			1	1					1
50062	Woodland Ave from 43rd to 72nd	Trench 4		1			1	1					1
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1		1		1			1				1
50071	Collazo Park - Westmoreland and Howard	S-1	1		1					1	1		
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench		1	1					1			1
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1		1				1			1	
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1		1	1				1				1
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2		1		1			1				1
50079	Smith Playground	488-1		1									1
50079	Smith Playground	488-2		1									1
50079	Smith Playground	488-3	1								1		
50079	Smith Playground	488-4	1								1		

Work Number	Project Name	SMP Name	GSI Design Elements											
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50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1			1			1				1	
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1			1				1	1			
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1				1		1		1			
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park		1	1					1				1
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park		1	1					1				1
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1				1	1			1			
50077	Baker Playground	530-1	1	1	1				1				1	
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1				1	1			1			
50009	Queen Lane from Henry St to Fox St	Bumpout A	1				1	1			1			
50077	Heston Lot - Hunter St, 55th St	558-1	1		1				1		1			
50009	Queen Lane from Henry St to Fox St	Bumpout B	1			1				1	1			
50085	Ralph Brooks Park	574-1		1	1					1			1	
50091	Stinger Square	589-1		1	1					1				1
50091	Stinger Square	589-2	1		1				1		1			
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1		1		1				1				1
50086	East Fairmount Park - Kelly Drive	641-1	1		1				1				1	

Work Number	Project Name	SMP Name	GSI Design Elements										
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50086	East Fairmount Park - Kelly Drive	641-2	1		1				1			1	
50086	East Fairmount Park - Kelly Drive	641-3	1		1					1		1	
50086	East Fairmount Park - Kelly Drive	641-4	1		1					1		1	
50086	East Fairmount Park - Kelly Drive	641-5	1		1					1		1	
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9		1		1			1				1
50002	Montgomery Ave, Shissler Playground	SWT-B5		1			1	1					1
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7		1		1			1				1
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8		1	1					1			1
50034	Trenton Ave and Norris St	RG-D2	1		1				1			1	
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2		1		1			1				1
50034	Trenton Ave and Norris St	SWT-C2		1			1	1					1
50005	Palmer St from Frankford Ave to Blair St	SWT-A4		1	1					1			1
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1			1			1		1		
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1		1			1				1
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10	1										1
50083	Weccacoe Playground	untitled											1

Work Number	Project Name	SMP Name	GSI Design Elements												
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50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2		1		1				1					1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2		1		1				1					1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3		1	1					1					1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3		1	1					1					1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4		1		1				1					1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4		1	1					1					1
40747	Marston, Eyre, Taney	Marston Street		1	1						1				1
40747	Marston, Eyre, Taney	Eyre Street		1	1						1				1
40747	Marston, Eyre, Taney	Taney Street		1	1						1				1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3	1									1			
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4	1									1			
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-5	1									1			
40775	Cloud St from Church St to Waln St	Cloud Street		1											1
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street		1											1
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1									1			
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	1									1			

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50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1									1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout		1	1					1		1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench		1		1					1			1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1		1		1				1			1	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2		1	1						1		1	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench		1		1					1			1
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets		1	1						1			1
50097	Black Coyle McBride Playground	30% G-24		1										1
50097	Black Coyle McBride Playground	30% G-25		1										1
50084	Moss Playground	System 1		1										1
50084	Moss Playground	System 2	1	1									1	
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street		1										1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street		1										1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street		1										1

Work Number	Project Name	SMP Name	GSI Design Elements											
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50087	Pennway, Longshore, Algon, Knorr	G-5	1		1				1					1
50089	Glenwood from Pacific to Castor	SMP 1	1									1		
50089	Glenwood from Pacific to Castor	SMP 2	1									1		
40827	Mole, Bancroft	Mole St from Shunk St to Porter St		1										1
40827	Mole, Bancroft	Mole St from Porter St to Ritner St		1										1
40827	Mole, Bancroft	Bancroft St		1										1
50084	Carmella Playground	SMP #1	1										1	
50084	Carmella Playground	SMP #2	1										1	
50084	Carmella Playground	SMP #3	1										1	
50084	Carmella Playground	SMP #4	1										1	
50084	Carmella Playground	SMP #5	1								1			
50084	Carmella Playground	SMP #6	1									1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1									1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1									1		

Work Number	Project Name	SMP Name	GSI Design Elements											
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			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1									1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	1									1		
50099	Conestoga Community Playground	Porous basketball court		1										1
50101	Kingsessing Recreation Center	GSI System 8		1										1
50101	Kingsessing Recreation Center	GSI System 9		1										1
50097	Palmer Cemetery	30% G-5	1									1		
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		1										1
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets		1										1
50097	St. Anne Rectory	One is supposed to have tree pit inlets		1										1
50097	Thompson St and Huntingdon St	30% G-11	1									1		
50095	Hackett School	Trenton Avenue and York Street	1									1		
50096	William McKinley School	SMP 1	1									1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1		1							1		

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1		1							1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3		1	1									1
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4		1		1								1
50097	Penn Treaty School	30% G-7												1
50098	Wissinoming Park	Parking Lot rain garden	1									1		
50098	Wissinoming Park	Hockey Rink rain garden	1									1		
50109	Osage Ave. from 42nd St to 43rd St	tree planters	1										1	
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane		1										1
50115	Taggart School	rain garden	1											
50115	Taggart School	artificial turf w/ infiltration		1										1
50116	East Poplar Playground	SMP 1	1											
50116	East Poplar Playground	SMP 2		1										1
50116	East Poplar Playground	SMP 3		1										1
50116	East Poplar Playground	SMP 4		1										1
50112	Botanic Ave from 49th St to 51 St	49th St	1									1		

Work Number	Project Name	SMP Name	GSI Design Elements											
			System Surface / Subsurface Status		Loading Ratio			Static Storage Volume			Vegetation Status			
			Surface	Subsurface	Low (< 10)	Medium (10 - 15)	High (> 15)	Low (< 1.0")	Medium (1.0 - 1.5")	High (> 1.5")	Vegetated with Stone Storage	Vegetated without Stone Storage	Not Vegetated	
50112	Botanic Ave from 49th St to 51 St	51st St	1									1		
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	1									1		
50119	Cement Park Streets Locations	663	1											
50119	Cement Park Streets Locations	25144	1											
50119	Cement Park Streets Locations	25145		1										
50119	Cement Park Streets Locations	25143	1											
50119	Cement Park Streets Locations	25141	1											
50119	Cement Park Streets Locations	25146	1											
50119	Cement Park (Northern Liberties Recreation Center)	485	1											
Total Levels Tagged			156	284	124	167	51	45	175	123	99	51	278	

Table 8: Pretreatment type

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1	1								1		
50034	Thompson St and Columbia Ave	SWT-A5	1	1										
50103	Malvern Ave from Atwood Rd to 65th St	1024-1	1											
50103	Algon Ave from Glenview St to Longshore Ave	1025-1	1											
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	1											
50103	Pemberton St from Front St to 2nd St	1027-1	1											
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1	1											
50103	Unruh Ave between Summerdale and Frontenac	1029-1	1											
50103	E Rockland St from B St to C St	1030-1	1											
50103	Pennsgrove St between 39th St and 40th St	1031-1	1											
50005	Hartranft School	SWT-A2	1											
50005	Hartranft School	SWT-B2 & SWT-A3	1											
50003	Bodine High School - 4th St and Cambridge St	S-1	1											
50003	Bodine High School - 4th St and Cambridge St	S-3	1											
50003	Bodine High School - 4th St and Cambridge St	S-4	1											
50003	Bodine High School - 4th St and Cambridge St	S-5	1											
50005	Hartranft School	SWT-B3	1											
50022	Madison Memorial Park	S-1	1											
50001	12th St and Reed St (Columbus Square)	Columbus Square	1											

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1	1										
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1	1										
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1	1										
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1	1										
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1	1										
50083	Weccacoe Playground	151-1	1	1	1									
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1	1										
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1	1										
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1	1										
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1	1										
50001	10th St from Wilder St to Reed St	10th and Wilder	1											
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th										1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th										1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1											

Work Number	Project Name	SMP Name	GSI Design Elements													
			Pretreatment Type													
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter			
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1													
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1	1												
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1	1												
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1	1												
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1													
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1													
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10										1				
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	1	1												
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1	1												
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1	1												
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1	1												
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1	1												

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1	1										
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1	1										
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1	1											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1	1											
50032	Reese St	Reese St	1												
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1												
50014	47th & Grays Ferry Rain Garden	Basin 1					1								
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1	1											
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	1	1											
50023	Herron Playground Permeable Basketball Court	Infil Trench	1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	1	1											
50011	Liberty Lands Stormwater Project	Liberty Lands	1		1										
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	1												
50009	Bureau of Laboratory Services	Hunting Park Planter 1										1			
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1												

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50009	Bureau of Laboratory Services	Hunting Park Planter 2										1		
50009	Bureau of Laboratory Services	Hunting Park Planter 3										1		
50009	Bureau of Laboratory Services	Hunting Park Planter 4										1		
50009	Bureau of Laboratory Services	Hunting Park Planter 5										1		
50009	Bureau of Laboratory Services	Hunting Park Planter 6										1		
50009	Bureau of Laboratory Services	Hunting Park Planter 7										1		
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Trench/Paving	1											
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Flow-Through Planter - Left										1		
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Flow-Through Planter - Right										1		
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1											
50009	Bureau of Laboratory Services	Castor Tree Trench	1											
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden										1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1	1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1	1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1	1										
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1	1										
50007	Blue Bell Inn Triangle	Rain Garden	1		1							1		

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1										1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1	1										
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1	1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1	1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1	1										
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1	1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1	1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1	1										
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1	1										
50027	William Harrity School - Webster St and Frazier St	S-6	1	1										
50027	William Harrity School - Webster St and Frazier St	S-7	1	1										
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1	1										
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1	1										
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50020	Welsh School - 4th St and Dakota St	Dakota St.	1	1											
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1												
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1												
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1												
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1												
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1												
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1	1											
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1												
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1												
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1												
50036	27th St from Indiana to Toronto	27th St	1	1											
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1	1											
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2								1			1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3													1

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	1	1											
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	1	1											
50046	Womrath Park	Basin	1		1	1	1								
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1	1	1										
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1	1											
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1	1											
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1	1											
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1	1											
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1	1											
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1	1											
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1	1											
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1	1								1			
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1	1											
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50041	Springfield Ave and Cobbs Creek Island	S-1	1	1			1								
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1												
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1												
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1												
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1												
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1												
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1												
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1												
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1												
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1												
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1												
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1	1								1			
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1	1											
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1	1										
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1	1										
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	1	1										

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1	1											
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1	1											
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14										1			
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1	1											
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1	1	1										
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1	1											
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1	1											
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1	1											
50043	Harper's Hollow Park	Basin 1	1	1			1								
50044	Kemble Park	Kemble Park System 1	1	1	1		1								
50044	Kemble Park	Kemble Park System 2	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50044	Kemble Park	Kemble Park System 3	1	1											
50044	Kemble Park	Kemble Park System 4	1	1											
50043	Wakefield Park	Upper Basin	1	1			1								
50043	Wakefield Park	Lower Basin	1	1			1								
50044	Wister Woods Park	Wister's Woods Depression 1	1	1			1								
50044	Wister Woods Park	Wister's Woods Depression 2	1	1			1								
50044	Wister Woods Park	Wister's Woods Depression 3	1	1			1								
50044	Wister Woods Park	Wister's Woods Depression 4	1	1			1								
50039	Alder St from Norris St to Diamond St	SWT-9	1												
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench	1												
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1	1								1			
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1	1								1			
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1	1								1			
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1	1	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2	1	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	1	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1	1											
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1	1											
50078	Clearview and Washington	303-1	1			1	1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	1	1											
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	1												
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1	1											
50077	49th St, 50th St, and Haverford St	322-3			1										
50032	Earl St (Hetzell Playground)	Earl St	1												
50032	8th St	8th St	1												
50032	Front St	Front St	1												
50032	9th St	9th St	1												
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1	1											
50052	Sedgwick Station - Sprague and Durham	335-01	1	1							1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1	1											
50032	Diamond St	Diamond St	1												
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1	1											
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1	1											
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2										1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2										1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3										1			

Work Number	Project Name	SMP Name	GSI Design Elements											
			Pretreatment Type											
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter	
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4										1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4										1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4										1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5										1		
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1	1								1		
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1	1										
50065	Panati Playground, 2119-29 Clearfield St	SMP 4			1									
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1			1		1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2			1		1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3			1		1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1	1	1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1	1								1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1	1								1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1	1								1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1	1										
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1	1								1		

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1	1	1							1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1	1											
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1	1	1							1			
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	1	1											
50049	St. Monica Manor	389-1	1	1											
50051	73rd and Gray	System 10	1	1											
50051	73rd and Gray	System 11	1	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1	1			1								
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1	1			1								
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1	1											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1	1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1	1											
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1	1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1	1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1	1											
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1	1											
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1	1											
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1	1											
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1	1											
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1	1											
50055	Upland Way - Redfield to 59th	400-1										1			
50055	Upland Way - Redfield to 59th	400-2										1			
50055	Upland Way - Redfield to 59th	400-3										1			
50055	Upland Way - Redfield to 59th	400-4										1			
50079	Guerin Recreation Center	401-1	1	1											
50079	Guerin Recreation Center	401-2	1	1							1				
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden			1		1								
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1				1	1								
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2				1	1								
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1	1			1								
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1	1			1								
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1	1	1										
50059	Ferko Playground - I St, Cayuga St, L St	411-2			1										
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1										1			
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2										1			
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1	1	1		1								
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1	1	1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	1	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4			1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6			1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1	1	1										
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1	1	1		1								

Work Number	Project Name	SMP Name	GSI Design Elements													
			Pretreatment Type													
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter			
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	1													
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1													
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	1													
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1													
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout										1				
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale										1				
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center										1				
50062	Woodland Ave from 43rd to 72nd	Trench 1	1	1												
50062	Woodland Ave from 43rd to 72nd	Trench 2	1	1												
50062	Woodland Ave from 43rd to 72nd	Trench 3	1	1												
50062	Woodland Ave from 43rd to 72nd	Trench 4	1	1												
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1	1												
50071	Collazo Park - Westmoreland and Howard	S-1	1	1	1		1									
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1	1												
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1	1			1									
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	1	1												
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	1	1												
50079	Smith Playground	488-1	1	1												

Work Number	Project Name	SMP Name	GSI Design Elements													
			Pretreatment Type													
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter			
50079	Smith Playground	488-2	1	1												
50079	Smith Playground	488-3			1											
50079	Smith Playground	488-4					1									
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave										1				
50009	Queen Lane from Henry St to Fox St	Bumpout #1										1				
50009	Queen Lane from Henry St to Fox St	Bumpout #2										1				
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	1	1												
50009	Queen Lane from Henry St to Fox St	Bumpout #3										1				
50077	Baker Playground	530-1	1	1			1									
50009	Queen Lane from Henry St to Fox St	Bumpout #4										1				
50009	Queen Lane from Henry St to Fox St	Bumpout A										1				
50077	Heston Lot - Hunter St, 55th St	558-1	1	1			1									
50009	Queen Lane from Henry St to Fox St	Bumpout B										1				
50085	Ralph Brooks Park	574-1					1									
50091	Stinger Square	589-1	1	1												
50091	Stinger Square	589-2	1	1												
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1	1												
50086	East Fairmount Park - Kelly Drive	641-1					1									
50086	East Fairmount Park - Kelly Drive	641-2					1									

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50086	East Fairmount Park - Kelly Drive	641-3					1								
50086	East Fairmount Park - Kelly Drive	641-4					1								
50086	East Fairmount Park - Kelly Drive	641-5					1								
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1												
50002	Montgomery Ave, Shissler Playground	SWT-B5	1												
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1												
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	1												
50034	Trenton Ave and Norris St	RG-D2										1			
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	1	1											
50034	Trenton Ave and Norris St	SWT-C2	1	1											
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	1												
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9										1			
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	1												
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	1	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	1	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	1	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	1	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	1	1											
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	1	1											

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	1	1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	1	1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1	1											
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1	1											
50097	Black Coyle McBride Playground	30% G-24	1												
50097	Black Coyle McBride Playground	30% G-25	1												
50084	Moss Playground	System 1	1	1											
50084	Moss Playground	System 2			1										
50097	Amber St, Lehigh Ave, and Collins St	30% G-14													1
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets													1
50097	St. Anne Rectory	One is supposed to have tree pit inlets													1
50098	Wissinoming Park	Parking Lot rain garden						1							
50098	Wissinoming Park	Hockey Rink rain garden						1							
50119	Cement Park Streets Locations	663						1							
50119	Cement Park Streets Locations	25144						1							
50119	Cement Park Streets Locations	25145													1

Work Number	Project Name	SMP Name	GSI Design Elements												
			Pretreatment Type												
			Sump and Trap	Inlet Filter Bag Insert	Swale	Forebay	Energy Dissipater	Hydrodynamic Separator	Proprietary Device	Vegetated Filter Strip	Splash Block	Centralized Pretreatment	Inlet Porous Media Filter		
50119	Cement Park Streets Locations	25143					1								
50119	Cement Park Streets Locations	25141					1								
50119	Cement Park Streets Locations	25146					1								
50119	Cement Park (Northern Liberties Recreation Center)	485					1								
Total Levels Tagged			281	207	27	4	43	0	1	1	55	1	5		

Table 9: Inflow type, street crossing, rooftop disconnection

Work Number	Project Name	SMP Name	GSI Design Elements											
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability				
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable			
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1					1					1	
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1		1										

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50100	Hestonville Neighborhood Disconnection SMP	1013-1		1								
50034	Thompson St and Columbia Ave	SWT-A5		1								
50103	Malvern Ave from Atwood Rd to 65th St	1024-1		1								
50103	Algon Ave from Glenview St to Longshore Ave	1025-1		1								
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1		1								
50103	Pemberton St from Front St to 2nd St	1027-1		1								
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1		1								
50103	Unruh Ave between Summerdale and Frontenac	1029-1		1								
50103	E Rockland St from B St to C St	1030-1		1								
50103	Pennsgrove St between 39th St and 40th St	1031-1		1								
50005	Hartranft School	SWT-A2		1								
50005	Hartranft School	SWT-B2 & SWT-A3		1								
50003	Bodine High School - 4th St and Cambridge St	S-1	1									1
50003	Bodine High School - 4th St and Cambridge St	S-2	1									1
50003	Bodine High School - 4th St and Cambridge St	S-3		1								
50003	Bodine High School - 4th St and Cambridge St	S-4		1								
50003	Bodine High School - 4th St and Cambridge St	S-5		1			1					
50005	Hartranft School	SWT-B3		1								
50022	Madison Memorial Park	S-1		1			1					

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50001	12th St and Reed St (Columbus Square)	Columbus Square	1									1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1		1								
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2		1								
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3		1								
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4		1								
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5		1								
50083	Weccacoe Playground	151-1	1	1								1
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2		1			1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3		1			1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4		1			1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6		1								
50001	10th St from Wilder St to Reed St	10th and Wilder		1								
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	1									1
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	1									1

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th		1								
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th		1								
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3		1								
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4		1			1					
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B		1								
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2		1								
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4		1			1					
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	1									1
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11		1								
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks		1								
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St		1								
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street		1								
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St		1			1					
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11		1			1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13		1			1					
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4		1				1				
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5		1				1				
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6		1				1				
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8		1								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9		1								
50032	Reese St	Reese St		1								
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5		1				1				
50014	47th & Grays Ferry Rain Garden	Basin 1	1									1
50006	Columbus Square Stormwater Planters	Infiltration Planter 1	1									1
50006	Columbus Square Stormwater Planters	Infiltration Planter 2	1									1
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1									1
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1		1								
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1					1			
50023	Herron Playground Permeable Basketball Court	Infil Trench		1								

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50023	Herron Playground Permeable Basketball Court	Porous Paving	1								
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3		1							
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4		1			1				
50011	Liberty Lands Stormwater Project	Liberty Lands	1								1
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2		1							
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1								1
50009	Bureau of Laboratory Services	Lycoming Tree Trench		1							
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1								1
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1								1
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1								1
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1								1
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1								1
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1								1
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving		1							
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left	1					1			1
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right	1					1			1
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1		1							

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50009	Bureau of Laboratory Services	Castor Tree Trench		1								
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1									1
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1		1								
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2		1								
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3		1								
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4		1								
50007	Blue Bell Inn Triangle	Rain Garden	1				1				1	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1									1
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2		1								
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3		1								
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3		1								
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4		1								
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5		1								
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8		1								
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10		1								
50027	William Harrity School - Webster St and Frazier St	S-6		1								
50027	William Harrity School - Webster St and Frazier St	S-7		1								
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11		1								
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12		1								
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1		1								
50020	Welsh School - 4th St and Dakota St	Dakota St.		1								
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.		1								
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.		1								
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.		1								
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.		1								
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.		1								
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)		1								
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)		1								
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)		1			1					
50036	27th St from Indiana to Toronto	27th St		1								
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1		1								
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1									1
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3		1								
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7		1								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8		1								
40224	Percy St from Catharine St to Christian St	Permeable asphalt	1									
50046	Womrath Park	Basin	1									1
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1	1			1					1
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D		1								
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D		1			1					
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B		1			1					
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5		1			1					
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B		1								
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7		1								
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8		1								
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C		1								
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1	1			1					1

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6		1				1				
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7		1								
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8		1				1				
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9		1				1				
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10		1								
50041	Springfield Ave and Cobbs Creek Island	S-1	1					1				1
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1		1								
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2		1								
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3		1								
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4		1								
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6		1								
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7		1								
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8		1								
50039	Dick Elementary School - 24th St and Diamond St	SWT-10		1								
50039	Dick Elementary School - 24th St and Diamond St	SWT-11		1								
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1									1
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2		1								
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3		1			1					
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7		1			1					
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW		1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE		1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE		1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N		1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S		1								
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4		1								
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5		1			1					
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6		1			1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10		1			1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S		1			1					
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N		1								
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1									

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50042	Magnolia Cemetery - Cottage St and Levick St	TT11		1								
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1		1								1
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario		1				1				
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St		1				1				
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School		1								
50043	Harper's Hollow Park	Basin 1	1								1	
50044	Kemble Park	Kemble Park System 1	1					1				1
50044	Kemble Park	Kemble Park System 2		1				1				
50044	Kemble Park	Kemble Park System 3		1				1				
50044	Kemble Park	Kemble Park System 4		1				1				
50043	Wakefield Park	Upper Basin	1					1				1
50043	Wakefield Park	Lower Basin	1					1				1
50044	Wister Woods Park	Wister's Woods Depression 1	1					1				1
50044	Wister Woods Park	Wister's Woods Depression 2	1					1				1
50044	Wister Woods Park	Wister's Woods Depression 3	1					1				1
50044	Wister Woods Park	Wister's Woods Depression 4	1					1				1
50039	Alder St from Norris St to Diamond St	SWT-9		1								

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	1									
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2	1									
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	1									
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench		1								
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits		1								
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1	1			1					1
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1	1			1					1
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1	1			1					1
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6		1								
50078	Clearview and Washington	303-1	1	1			1					1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1		1								
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4	1									1
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3	1									1

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5	1								1
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6	1								1
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1	1								1
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2	1								1
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk		1							
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2		1							
50077	49th St, 50th St, and Haverford St	322-2	1								1
50077	49th St, 50th St, and Haverford St	322-3	1								1
50032	Earl St (Hetzell Playground)	Earl St		1							
50032	8th St	8th St		1							
50032	Front St	Front St		1							
50032	9th St	9th St		1							
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3		1							
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris	1								
50052	Sedgwick Station - Sprague and Durham	335-01	1	1			1				1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4		1							
50032	Diamond St	Diamond St		1							

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5		1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6		1								
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	1									1
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6		1								
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7		1								
50065	Panati Playground, 2119-29 Clearfield St	SMP 4		1					1			
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	1									1
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	1									1
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	1									1
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01		1				1				

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1	1			1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1	1			1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1	1			1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05		1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1	1			1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07		1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1	1			1				1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10		1			1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11		1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1	1							1
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1		1							
50049	St. Monica Manor	389-1		1							

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50051	73rd and Gray	System 10		1				1				
50051	73rd and Gray	System 11		1				1				
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1	1				1				1
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16		1								
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1	1				1				1
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18		1								
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19		1								
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12		1								
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13		1								
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14		1								
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3		1								
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5		1								
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6		1								
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1		1				1				
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2		1				1				
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7		1				1				
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8		1				1				

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50055	Upland Way - Redfield to 59th	400-1	1									1
50055	Upland Way - Redfield to 59th	400-2	1									1
50055	Upland Way - Redfield to 59th	400-3	1									1
50055	Upland Way - Redfield to 59th	400-4	1									1
50079	Guerin Recreation Center	401-1		1								
50079	Guerin Recreation Center	401-2		1								
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1									1
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin		1			1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	1									1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1									1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1			1						1
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1			1						1
50059	Ferko Playground - I St, Cayuga St, L St	411-1		1			1					
50059	Ferko Playground - I St, Cayuga St, L St	411-2	1					1				1
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1									1
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1									1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1									1

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1	1								1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3		1								
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	1									
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1									1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1	1								1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1				1					1
73068	Southwest Treatment Plant Parking Lot	Parking Lot	1									
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1		1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2		1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3		1			1					
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches		1								
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1									1
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	1									1
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1									1
50062	Woodland Ave from 43rd to 72nd	Trench 1		1								
50062	Woodland Ave from 43rd to 72nd	Trench 2		1								
50062	Woodland Ave from 43rd to 72nd	Trench 3		1								
50062	Woodland Ave from 43rd to 72nd	Trench 4		1								
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1		1								

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50071	Collazo Park - Westmoreland and Howard	S-1	1	1							1
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench		1							
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1								1
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1		1							
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2		1							
50079	Smith Playground	488-1		1							
50079	Smith Playground	488-2		1							
50079	Smith Playground	488-3	1								1
50079	Smith Playground	488-4	1								1
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1								1
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1								1
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1								1
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	1	1							
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park		1							
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1								1
50077	Baker Playground	530-1	1	1							1
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1								1
50009	Queen Lane from Henry St to Fox St	Bumpout A	1								1
50077	Heston Lot - Hunter St, 55th St	558-1	1	1			1				1

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50009	Queen Lane from Henry St to Fox St	Bumpout B	1									1
50085	Ralph Brooks Park	574-1	1									1
50091	Stinger Square	589-1		1								
50091	Stinger Square	589-2	1	1								1
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1		1								
50086	East Fairmount Park - Kelly Drive	641-1	1									1
50086	East Fairmount Park - Kelly Drive	641-2	1									1
50086	East Fairmount Park - Kelly Drive	641-3	1									1
50086	East Fairmount Park - Kelly Drive	641-4	1									1
50086	East Fairmount Park - Kelly Drive	641-5	1									1
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9		1	1							
50002	Montgomery Ave, Shissler Playground	SWT-B5		1								
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7		1								
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8		1		1						
50034	Trenton Ave and Norris St	RG-D2	1									1
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2		1								
50034	Trenton Ave and Norris St	SWT-C2		1								
50005	Palmer St from Frankford Ave to Blair St	SWT-A4		1								
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1									1

Work Number	Project Name	SMP Name	GSI Design Elements										
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability			
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable		
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1									
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10	1										
50083	Weccacoe Playground	untitled	1										
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2		1									
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2		1									
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3		1									
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3		1									
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4		1									
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4		1									
40747	Marston, Eyre, Taney	Marston Street	1										
40747	Marston, Eyre, Taney	Eyre Street	1										
40747	Marston, Eyre, Taney	Taney Street	1										
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3	1		1								
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	1			1							
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5	1										
40775	Cloud St from Church St to Walnut St	Cloud Street	1										
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street		1			1						
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1										1

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	1								1
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1								1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout		1							1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench		1							
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1		1							1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2		1							1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench		1			1				
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets		1			1				
50097	Black Coyle McBride Playground	30% G-24		1							
50097	Black Coyle McBride Playground	30% G-25		1							
50084	Moss Playground	System 1		1			1				
50084	Moss Playground	System 2	1								1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street	1								
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street	1								
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street	1								
50087	Pennway, Longshore, Algon, Knorr	G-5	1								

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50089	Glenwood from Pacific to Castor	SMP 1	1								1
50089	Glenwood from Pacific to Castor	SMP 2	1								1
40827	Mole, Bancroft	Mole St from Shunk St to Porter St	1								
40827	Mole, Bancroft	Mole St from Porter St to Ritner St	1								
40827	Mole, Bancroft	Bancroft St	1								
50084	Carmella Playground	SMP #1	1								1
50084	Carmella Playground	SMP #2	1								1
50084	Carmella Playground	SMP #3	1								1
50084	Carmella Playground	SMP #4									1
50084	Carmella Playground	SMP #5									1
50084	Carmella Playground	SMP #6					1				1
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1								1
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1								1
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1								1
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	1								1

Work Number	Project Name	SMP Name	GSI Design Elements									
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability		
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable	
50099	Conestoga Community Playground	Porous basketball court	1									
50101	Kingsessing Recreation Center	GSI System 8		1					1			
50101	Kingsessing Recreation Center	GSI System 9		1					1			
50097	Palmer Cemetery	30% G-5	1									1
50097	Amber St, Lehigh Ave, and Collins St	30% G-14	1									
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	1									
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1									
50097	Thompson St and Huntingdon St	30% G-11	1									1
50095	Hackett School	Trenton Avenue and York Street										1
50096	William McKinley School	SMP 1	1						1			1
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1									1
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1									1
50097	Penn Treaty School	30% G-7		1								
50098	Wissinoming Park	Parking Lot rain garden	1									1
50098	Wissinoming Park	Hockey Rink rain garden	1									1
50109	Osage Ave. from 42nd St to 43rd St	tree planters	1									1
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	1									

Work Number	Project Name	SMP Name	GSI Design Elements								
			Inflow Type		Street Crossing			Rooftop Disconnection		Vegetated Surface Mowability	
			Surface Inflow	Subsurface Inflow	Surface Crossing	Shallow Crossing	Standard Subsurface Crossing	Surface Disconnection	Subsurface Disconnection	Mowable	Not Mowable
50115	Taggart School	rain garden	1								1
50116	East Poplar Playground	SMP 1	1								
50116	East Poplar Playground	SMP 2		1							
50116	East Poplar Playground	SMP 3		1							
50116	East Poplar Playground	SMP 4		1							
50112	Botanic Ave from 49th St to 51 St	49th St	1				1				1
50112	Botanic Ave from 49th St to 51 St	51st St	1				1				1
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	1								1
50119	Cement Park Streets Locations	663	1								1
50119	Cement Park Streets Locations	25144									1
50119	Cement Park Streets Locations	25145		1							1
50119	Cement Park Streets Locations	25143	1								1
50119	Cement Park Streets Locations	25141	1								1
50119	Cement Park Streets Locations	25146	1								1
50119	Cement Park (Northern Liberties Recreation Center)	485	1					1			
9406	Larchwood Alley Project	Alley									
Total Levels Tagged			175	274	2	3	77	6	5	4	149

Table 10: Other GSI design elements

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1																
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1		1						1						1			
50100	Hestonville Neighborhood Disconnection SMP	1013-1		1						1						1			
50034	Thompson St and Columbia Ave	SWT-A5	1																
50005	Hartranft School	SWT-A2	1																
50005	Hartranft School	SWT-B2 & SWT-A3	1																
50003	Bodine High School - 4th St and Cambridge St	S-1											1						
50003	Bodine High School - 4th St and Cambridge St	S-2											1						
50003	Bodine High School - 4th St and Cambridge St	S-3	1																
50003	Bodine High School - 4th St and Cambridge St	S-4	1																

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50003	Bodine High School - 4th St and Cambridge St	S-5	1																
50005	Hartranft School	SWT-B3	1																
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1																
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1																
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1																
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1																
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1																
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1																
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1																
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1																

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1															
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1															
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1															
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1															
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1															
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1															
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1															
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1															
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10											1					
50019	Dickinson Square - Moyamensing Ave and	SWT-A11	1															

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
	Morris St																		
50028	Frederick Douglass Elementary School, Little's Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1																
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1																
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1																
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1																
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1																
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1																

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1																
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1																
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1																
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	1																
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1													1			

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1															
50032	Reese St	Reese St	1															
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1															
50014	47th & Grays Ferry Rain Garden	Basin 1	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4												1				
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1															
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	1															
50023	Herron Playground Permeable Basketball Court	Infil Trench	1															
50009	Bureau of Laboratory Services	Hunting Park Planter 1															1	
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1															
50009	Bureau of Laboratory Services	Hunting Park Planter 2															1	
50009	Bureau of Laboratory Services	Hunting Park Planter 3															1	
50009	Bureau of Laboratory Services	Hunting Park Planter 4															1	
50009	Bureau of Laboratory Services	Hunting Park Planter 5															1	

Work Number	Project Name	SMP Name	GSI Design Elements																	
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features	
50009	Bureau of Laboratory Services	Hunting Park Planter 6																1		
50009	Bureau of Laboratory Services	Hunting Park Planter 7																1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/ Paving	1																	
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1																1		
50009	Bureau of Laboratory Services	Castor Tree Trench	1																	
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1																	
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1																	
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1																	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1																	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1																	

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1															
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1															
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1															
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1															
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1															
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1															
50027	William Harrity School - Webster St and Frazier St	S-6	1															
50027	William Harrity School - Webster St and Frazier St	S-7	1															
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1															
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1															
50020	Welsh School - 4th St and Dakota St	Dakota St.	1															
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1															
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1															
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1															
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1															
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1															

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1																
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1																
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1																
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1																
50036	27th St from Indiana to Toronto	27th St	1																
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1																
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2									1								1
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1																

Work Number	Project Name	SMP Name	GSI Design Elements																	
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features	
50046	Womrath Park	Basin													1		1			
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1																	
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1																	
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1																	
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1																	
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1																	
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1																	
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1																	
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1																	
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1											1						

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1															
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1															
50041	Springfield Ave and Cobbs Creek Island	S-1																1
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1															
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1															
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1															
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1															
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1															
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1															
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1															
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1															
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1															
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1															
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW	1															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW	1															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE	1															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1															
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1															
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	1															
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1															
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1															
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1															
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1															
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1															
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1															
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1															
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1															
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1															
50044	Kemble Park	Kemble Park System 1		1														
50044	Kemble Park	Kemble Park														1		

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
		System 2																	
50044	Kemble Park	Kemble Park System 3																1	
50044	Kemble Park	Kemble Park System 4																1	
50039	Alder St from Norris St to Diamond St	SWT-9	1																
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1								1								1	
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2								1								1	
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits	1																
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2																	1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	1															1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1																
50032	Earl St (Hetzell Playground)	Earl St	1																
50032	8th St	8th St	1																

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50032	Front St	Front St	1																
50032	9th St	9th St	1																
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1																
50052	Sedgwick Station - Sprague and Durham	335-01			1														1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1																
50032	Diamond St	Diamond St	1																
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1																
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1																
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2																1	
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8										1							1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2																1	
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4																1	
50047	Philadelphia Zoo - Girard from 39th to	RG-B4																1	

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
	34th																	
50065	Panati Playground, 2119-29 Clearfield St	SMP 4															1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1								1						1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07															1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09																1
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12																1
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1															1	
50049	St. Monica Manor	389-1															1	
50051	73rd and Gray	System 10	1															
50051	73rd and Gray	System 11	1															
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1															
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1															
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1															
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1															
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1															
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1															
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1															
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1															
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1															
50055	Upland Way - Redfield to 59th	400-1			1													1
50055	Upland Way - Redfield to 59th	400-2																1
50055	Upland Way - Redfield to 59th	400-3																1
50055	Upland Way - Redfield to 59th	400-4																1

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1			1													
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2			1													
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3			1													
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4			1													
50059	Ferko Playground - I St, Cayuga St, L St	411-1		1												1		
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1																1
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9		1														
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1															
50062	Woodland Ave from 43rd to 72nd	Trench 1	1															
50062	Woodland Ave from 43rd to 72nd	Trench 2	1															
50062	Woodland Ave from 43rd to 72nd	Trench 3	1															

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50062	Woodland Ave from 43rd to 72nd	Trench 4	1																
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1																
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden										1							
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	1																
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	1																
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1																
50009	Queen Lane from Henry St to Fox St	Bumpout #1															1		
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	1																
50009	Queen Lane from Henry St to Fox St	Bumpout A															1		
50009	Queen Lane from Henry St to Fox St	Bumpout B															1		
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1																
50002	Montgomery Ave, Shissler Playground	SWT-B5	1																

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1															
50034	Trenton Ave and Norris St	SWT-C2	1															
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	1															
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	1															
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	1															
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	1															

Work Number	Project Name	SMP Name	GSI Design Elements															
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3			1											1		1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4			1											1		1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-5			1											1		1
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench													1			
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench													1			
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1															
50084	Moss Playground	System 1		1														
50084	Moss Playground	System 2															1	
50087	Pennway, Longshore, Algon, Knorr	G-5	1		1											1		
50084	Carmella Playground	SMP #4															1	
50101	Kingsessing Recreation Center	GSI System 8	1															
50101	Kingsessing Recreation Center	GSI System 9	1															

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50097	Palmer Cemetery	30% G-5							1	1						1			
50097	Amber St, Lehigh Ave, and Collins St	30% G-14	1																
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	1																
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1																
50097	Thompson St and Huntingdon St	30% G-11							1	1						1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1																
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1																
50097	Penn Treaty School	30% G-7	1													1			
50109	Osage Ave. from 42nd St to 43rd St	tree planters			1								1				1		
50112	Botanic Ave from 49th St to 51 St	49th St																	1
50112	Botanic Ave from 49th St to 51 St	51st St			1														1
50112	Botanic Ave from 49th St to 51 St	Botanical Ave																	1
50119	Cement Park Streets Locations	25144	1		1														

Work Number	Project Name	SMP Name	GSI Design Elements																
			Tree Pits	Centralized Facility	Pipeless	Pump System	Reuse System	Regrading Street Crown	Modular Planter Box	Prefabricated	Drywell	Fencing	Artistic / Aesthetic Features	Education Signage	Green Gutter	Proprietary	Surface Hydraulically Connected Systems	Deep Infiltration Columns	Tiered Surface Features
50119	Cement Park Streets Locations	25146	1		1														
50119	Cement Park (Northern Liberties Recreation Center)	485	1																
Total Levels Tagged			186	6	14	0	0	0	2	8	0	5	2	2	0	23	20	2	18

Table 11: Materials

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1											1				
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1			1													
50100	Hestonville Neighborhood Disconnection SMP	1013-1			1													
50034	Thompson St and Columbia Ave	SWT-A5	1															
50005	Hartranft School	SWT-A2	1															
50005	Hartranft School	SWT-B2 & SWT-A3	1															
50003	Bodine High School - 4th St and Cambridge St	S-1	1										1					
50003	Bodine High School - 4th St and Cambridge St	S-2	1										1					
50003	Bodine High School - 4th St and Cambridge St	S-3	1															
50003	Bodine High School - 4th St and Cambridge St	S-4	1															
50003	Bodine High School - 4th St and Cambridge St	S-5				1												
50005	Hartranft School	SWT-B3	1															
50022	Madison Memorial Park	S-1	1															
50001	12th St and Reed St (Columbus Square)	Columbus Square	1										1					
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1															

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1														
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1														
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1														
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5				1											
50083	Weccacoe Playground	151-1	1									1					
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1														
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1														
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1														
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1														
50001	10th St from Wilder St to Reed St	10th and Wilder	1														
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	1									1					
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	1									1					

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1														
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1														
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1														
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1														
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1														
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1														
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1														
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	1									1					
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	1														
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1														
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1														
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1														
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1														
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12				1											

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1														
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1														
50032	Reese St	Reese St	1														1
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1														
50014	47th & Grays Ferry Rain Garden	Basin 1										1					
50006	Columbus Square Stormwater Planters	Infiltration Planter 1										1					
50006	Columbus Square Stormwater Planters	Infiltration Planter 2										1					
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1									1					
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1														
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	1														
50023	Herron Playground Permeable Basketball Court	Infil Trench	1														
50023	Herron Playground Permeable Basketball Court	Porous Paving	1						1								
50010	Barry Playground - 18th St, 19th St, and	SRS-3	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
	Bigler St																
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	1														
50011	Liberty Lands Stormwater Project	Liberty Lands	1									1					
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	1														
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1									1					
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1														
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1									1					
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1									1					
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1									1					
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1									1					
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1									1					
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1									1					
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	1							1					1		

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left											1				
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right											1				
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1														
50009	Bureau of Laboratory Services	Castor Tree Trench	1														
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1										1				
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1														
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1														
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1														
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1														
50007	Blue Bell Inn Triangle	Rain Garden											1				
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1										1				
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1														
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1														
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1														
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1														
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1														
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1														
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1														
50027	William Harrity School - Webster St and Frazier St	S-6	1														
50027	William Harrity School - Webster St and Frazier St	S-7	1														
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1														
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1														
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1														
50020	Welsh School - 4th St and Dakota St	Dakota St.	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1														
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1														
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1														
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1														
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1														
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1														
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1														
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1														
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1														
50036	27th St from Indiana to Toronto	27th St	1														
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2									1					1	
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3														1	
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	1														
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	1														
40224	Percy St from Catharine St to Christian St	Permeable asphalt	1						1								

Work Number	Project Name	SMP Name	Materials																
			Storage Type					Permeable Pavement Type					Soil Type						
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil		
50046	Womrath Park	Basin				1									1				
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1												1				
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1																
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1																
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1																
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1																
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1																
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1																
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1																
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1																
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1												1				
50041	McCreech Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1																

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1														
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1														
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1														
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1														
50041	Springfield Ave and Cobbs Creek Island	S-1	1									1					
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1														
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1														
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1														
50039	Parking Lot - 12th St, Marvine St, and	SWT-4	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
	Diamond St																
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1														
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1														
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1														
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1														
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1														
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1														
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1										1				
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1														
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1														
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW	1														
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW	1														
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE	1														
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE	1														
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1														
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	1														
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1														
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1														
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1														
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1														
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1														
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1									1					
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1														
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1									1					
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1														
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1														
50043	Harper's Hollow Park	Basin 1											1				
50044	Kemble Park	Kemble Park System 1											1				
50044	Kemble Park	Kemble Park System 2				1											
50044	Kemble Park	Kemble Park System 3				1											
50044	Kemble Park	Kemble Park System 4				1											
50043	Wakefield Park	Upper Basin											1				
50043	Wakefield Park	Lower Basin											1				
50044	Wister Woods Park	Wister's Woods Depression 1											1				
50044	Wister Woods Park	Wister's Woods Depression 2											1				
50044	Wister Woods Park	Wister's Woods Depression 3											1				
50044	Wister Woods Park	Wister's Woods Depression 4											1				

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50039	Alder St from Norris St to Diamond St	SWT-9	1														
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	1								1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2	1								1						
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	1							1							
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench	1														
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits	1														
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1										1				
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1										1				
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1										1				
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1	1														
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2	1														
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	1														
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4	1														

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
	19th St																	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1															
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1															
50078	Clearview and Washington	303-1	1										1					
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1				1												
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4	1										1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3	1										1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5	1										1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6	1										1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1	1										1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2	1										1					
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	1															
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1															
50077	49th St, 50th St, and Haverford St	322-2											1					
50077	49th St, 50th St, and Haverford St	322-3	1										1					
50032	Earl St (Hetzell Playground)	Earl St	1															1
50032	8th St	8th St	1															1
50032	Front St	Front St	1															1

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50032	9th St	9th St	1														1
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	1							1							
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1														
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris	1							1							
50052	Sedgwick Station - Sprague and Durham	335-01	1										1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1														
50032	Diamond St	Diamond St	1														1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1														
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1														
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2											1				
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	1						1				1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1										1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3											1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4											1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4											1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4											1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	1										1				
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1														
50065	Panati Playground, 2119-29 Clearfield St	SMP 4				1										1	
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	1										1				
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	1										1				
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	1										1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01		1													
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1										1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1										1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1										1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1														
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1										1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07		1													

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1											1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1															
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1															
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1										1					
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1		1														
50049	St. Monica Manor	389-1		1														
50051	73rd and Gray	System 10	1															
50051	73rd and Gray	System 11	1															
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1										1					
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1															
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1										1					
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1															
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19	1															
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12	1															
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1															

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1														
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1														
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1														
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1														
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1														
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1														
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1														
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1														
50055	Upland Way - Redfield to 59th	400-1	1									1					
50055	Upland Way - Redfield to 59th	400-2	1									1					
50055	Upland Way - Redfield to 59th	400-3	1									1					
50055	Upland Way - Redfield to 59th	400-4	1									1					
50079	Guerin Recreation Center	401-1	1														
50079	Guerin Recreation Center	401-2	1														
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1							1		1					

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1						1			1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1										1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1									1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1									1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1									1					
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1	1													
50059	Ferko Playground - I St, Cayuga St, L St	411-2														1	
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1									1					
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1									1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1										1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2				1						1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3				1											

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	1															
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1										1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1			1							1					
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9				1							1					
73068	Southwest Treatment Plant Parking Lot	Parking Lot	1					1	1	1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	1															
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1															
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	1															
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1															
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1										1					
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale											1					
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1										1					
50062	Woodland Ave from 43rd to 72nd	Trench 1	1															
50062	Woodland Ave from 43rd to 72nd	Trench 2	1															

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50062	Woodland Ave from 43rd to 72nd	Trench 3	1														
50062	Woodland Ave from 43rd to 72nd	Trench 4	1														
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1														
50071	Collazo Park - Westmoreland and Howard	S-1	1									1					
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1														
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden										1					
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	1														
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	1														
50079	Smith Playground	488-1	1														
50079	Smith Playground	488-2	1														
50079	Smith Playground	488-3	1									1					
50079	Smith Playground	488-4	1									1					
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1									1					
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1									1					
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1									1					
50070	Benson Park- Jefferson, 4th, Harlan, and	West Benson Park						1									1

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
	Lawrence																
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	1														
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1									1					
50077	Baker Playground	530-1	1									1					
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1									1					
50009	Queen Lane from Henry St to Fox St	Bumpout A	1									1					
50077	Heston Lot - Hunter St, 55th St	558-1	1									1					
50009	Queen Lane from Henry St to Fox St	Bumpout B	1									1					
50085	Ralph Brooks Park	574-1	1									1					
50091	Stinger Square	589-1	1														
50091	Stinger Square	589-2	1										1				
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1														
50086	East Fairmount Park - Kelly Drive	641-1											1				
50086	East Fairmount Park - Kelly Drive	641-2											1				
50086	East Fairmount Park - Kelly Drive	641-3											1				
50086	East Fairmount Park - Kelly Drive	641-4											1				
50086	East Fairmount Park - Kelly Drive	641-5											1				
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1														

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50002	Montgomery Ave, Shissler Playground	SWT-B5	1														
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7	1														
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8	1														
50034	Trenton Ave and Norris St	RG-D2										1					
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	1														
50034	Trenton Ave and Norris St	SWT-C2	1														
50005	Palmer St from Frankford Ave to Blair St	SWT-A4	1														
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1														
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	1														
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10										1					
50083	Weccacoe Playground	untitled								1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2	1														
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2	1														
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3	1														
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3	1														
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4	1														
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4	1														
40747	Marston, Eyre, Taney	Marston Street	1						1								

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
40747	Marston, Eyre, Taney	Eyre Street	1							1							
40747	Marston, Eyre, Taney	Taney Street	1							1							
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3				1											1
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4				1											1
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5				1											1
40775	Cloud St from Church St to Walnut St	Cloud Street	1							1							
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	1														
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1														
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	1														
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1														
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	1										1				
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench	1	1													
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	1										1				
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2	1										1				

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1	1														
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1															
50097	Black Coyle McBride Playground	30% G-24	1															
50097	Black Coyle McBride Playground	30% G-25	1															
50084	Moss Playground	System 1	1															
50084	Moss Playground	System 2	1									1						
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street	1							1								
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street	1							1								
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street	1							1								
50087	Pennway, Longshore, Algon, Knorr	G-5																1
50089	Glenwood from Pacific to Castor	SMP 1	1															
50089	Glenwood from Pacific to Castor	SMP 2	1															
40827	Mole, Bancroft	Mole St from Shunk St to Porter St	1							1								
40827	Mole, Bancroft	Mole St from Porter St to Ritner St	1							1								
40827	Mole, Bancroft	Bancroft St	1							1								

Work Number	Project Name	SMP Name	Materials															
			Storage Type					Permeable Pavement Type					Soil Type					
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil	
50084	Carmella Playground	SMP #1												1				
50084	Carmella Playground	SMP #2												1				
50084	Carmella Playground	SMP #3												1				
50084	Carmella Playground	SMP #4												1				
50084	Carmella Playground	SMP #5												1				
50084	Carmella Playground	SMP #6		1										1				
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1															
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1															
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1															
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4	1															
50099	Conestoga Community Playground	Porous basketball court	1						1									
50101	Kingsessing Recreation Center	GSI System 8	1															
50101	Kingsessing Recreation Center	GSI System 9	1															
50097	Palmer Cemetery	30% G-5	1															
50097	Amber St, Lehigh Ave, and Collins St	30% G-14	1															1
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	1															1

Work Number	Project Name	SMP Name	Materials														
			Storage Type					Permeable Pavement Type					Soil Type				
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1														1
50097	Thompson St and Huntingdon St	30% G-11	1														
50097	Penn Treaty School	30% G-7		1													
50098	Wissinoming Park	Parking Lot rain garden	1									1					
50098	Wissinoming Park	Hockey Rink rain garden	1									1					
50109	Osage Ave. from 42nd St to 43rd St	tree planters															1
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	1					1									
50116	East Poplar Playground	SMP 2	1														
50116	East Poplar Playground	SMP 3	1														
50116	East Poplar Playground	SMP 4	1														
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	1														
50119	Cement Park Streets Locations	663											1				
50119	Cement Park Streets Locations	25144	1										1				
50119	Cement Park Streets Locations	25145											1				
50119	Cement Park Streets Locations	25143											1				
50119	Cement Park Streets Locations	25141											1				
50119	Cement Park Streets Locations	25146											1				

Work Number	Project Name	SMP Name	Materials																
			Storage Type					Permeable Pavement Type					Soil Type						
			Stone	Arched System	Structural Vault	Plastic Crates	Silva Cell	Pavers	Asphalt	Concrete	Play Surface	Other	PWD Soil Spec	Alternate Soil Spec	Native Soil	Amended Native Soil	Structural Soil		
50119	Cement Park (Northern Liberties Recreation Center)	485													1				
Total Levels Tagged			345	9	2	16	0	5	17	4	4	0	124	8	1	4	15		

Table 12: Physical conditions

Work Number	Project Name	SMP Name	Physical Conditions													
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope						
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)				
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4		1		1										
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1		1												
50100	Hestonville Neighborhood Disconnection SMP	1013-1	1													

Work Number	Project Name	SMP Name	Physical Conditions												
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope					
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)			
50034	Thompson St and Columbia Ave	SWT-A5		1		1									1
50103	Malvern Ave from Atwood Rd to 65th St	1024-1	1												
50103	Algon Ave from Glenview St to Longshore Ave	1025-1	1												
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	1												
50103	Pemberton St from Front St to 2nd St	1027-1		1											
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1		1											
50103	Unruh Ave between Summerdale and Frontenac	1029-1	1												
50103	E Rockland St from B St to C St	1030-1	1												
50103	Pennsgrove St between 39th St and 40th St	1031-1	1												
50005	Hartranft School	SWT-A2		1		1								1	
50005	Hartranft School	SWT-B2 & SWT-A3		1	1									1	
50003	Bodine High School - 4th St and Cambridge St	S-1		1	1										
50003	Bodine High School - 4th St and Cambridge St	S-2		1	1										
50003	Bodine High School - 4th St and Cambridge St	S-3		1	1										
50003	Bodine High School - 4th St and Cambridge St	S-4		1	1										
50003	Bodine High School - 4th St and Cambridge St	S-5		1	1										
50005	Hartranft School	SWT-B3		1	1									1	
50022	Madison Memorial Park	S-1		1	1										

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50001	12th St and Reed St (Columbus Square)	Columbus Square		1	1								1
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1		1							1	
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1				1					1	
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1				1			1			
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1			1						1	
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1			1				1			
50083	Weccacoe Playground	151-1		1						1			
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1				1						
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1				1						
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1				1						
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1				1						
50001	10th St from Wilder St to Reed St	10th and Wilder		1		1						1	

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th		1	1							1	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th		1	1							1	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th		1	1							1	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th		1	1							1	
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3	1		1								
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1		1								
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1		1								
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2		1					1			1	
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4		1				1				1	
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10		1		1							
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11		1		1							
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1		1								

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1				1						
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1		1								
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1			1							
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St		1	1								
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St		1		1							
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1				1					1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1				1					1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1				1					1	

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12	1			1					1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1				1					1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1				1					1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1		1							1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1			1						1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1			1						1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1				1					1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1			1						1	

Work Number	Project Name	SMP Name	Physical Conditions									
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope		
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)
	Woolston Ave											
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1				1					1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1				1					1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1				1					1
50032	Reese St	Reese St		1	1							1
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5		1	1							
50014	47th & Grays Ferry Rain Garden	Basin 1	1				1					
50006	Columbus Square Stormwater Planters	Infiltration Planter 1		1	1							1
50006	Columbus Square Stormwater Planters	Infiltration Planter 2		1	1							1
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4		1	1							1
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1		1	1							
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1	1							
50023	Herron Playground Permeable Basketball Court	Infil Trench		1		1						

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50023	Herron Playground Permeable Basketball Court	Porous Paving		1		1								
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3		1		1								
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4		1	1									
50011	Liberty Lands Stormwater Project	Liberty Lands		1	1									
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2		1			1							
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1				1				1			
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1			1					1			
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1				1				1			
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1				1				1			
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1				1				1			
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1				1				1			
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1				1				1			
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1				1				1			
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	1						1				1	
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left	1											
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right	1											

Work Number	Project Name	SMP Name	Physical Conditions									
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope		
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1				1			1		
50009	Bureau of Laboratory Services	Castor Tree Trench	1			1					1	
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1			1						
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1		1							
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1		1							
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1		1							
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1		1							
50007	Blue Bell Inn Triangle	Rain Garden		1			1					
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1		1						1	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1		1						1	
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1		1						1	
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1		1							
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1		1							
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1		1							
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1				1					1

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1				1						1
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1				1					1	
50027	William Harrity School - Webster St and Frazier St	S-6	1			1							1
50027	William Harrity School - Webster St and Frazier St	S-7	1			1						1	
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1		1								1
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1		1								1
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1		1								
50020	Welsh School - 4th St and Dakota St	Dakota St.	1			1							
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.		1	1								
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.		1	1								
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.		1		1							
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.		1			1						

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.		1			1						
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)		1			1						
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)		1		1							
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)		1					1				
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)		1				1					
50036	27th St from Indiana to Toronto	27th St	1			1							
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1		1							1	
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1						1				
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1						1				
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1		1							1	
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1		1		1							
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2		1		1							
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3		1		1							

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4		1		1							
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5		1			1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		1			1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7		1			1						
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8		1	1								
40224	Percy St from Catharine St to Christian St	Permeable asphalt		1								1	
50046	Womrath Park	Basin		1	1								
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1				1						
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D		1	1								
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D		1	1								
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B		1	1								
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5		1		1							
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B		1	1								

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate				Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7		1						1			
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8		1	1								
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C		1	1								
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1		1								
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1		1								
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1			1							
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1			1							
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1		1								
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1			1							

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50041	Springfield Ave and Cobbs Creek Island	S-1	1			1							
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1						1				
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1		1								
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1		1								
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1			1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1			1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1			1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1			1							
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1		1								
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1		1								
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1		1								
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1		1			1						
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2		1			1						
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3		1			1						

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7		1		1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW		1	1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW		1	1								
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE		1		1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE		1		1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N		1		1							
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S		1		1							

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4		1	1								
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5		1	1								
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6		1	1								
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10		1	1								
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S		1	1								
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N		1	1								
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14		1	1								
50042	Magnolia Cemetery - Cottage St and Levick St	TT11		1			1						
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1										
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1		1								
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1				1						

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1			1							
50043	Harper's Hollow Park	Basin 1	1						1				
50044	Kemble Park	Kemble Park System 1	1			1							
50044	Kemble Park	Kemble Park System 2	1				1						
50044	Kemble Park	Kemble Park System 3	1					1					
50044	Kemble Park	Kemble Park System 4	1					1					
50043	Wakefield Park	Upper Basin	1						1				
50043	Wakefield Park	Lower Basin	1						1				
50044	Wister Woods Park	Wister's Woods Depression 1	1				1						
50044	Wister Woods Park	Wister's Woods Depression 2	1						1				
50044	Wister Woods Park	Wister's Woods Depression 3	1				1						
50044	Wister Woods Park	Wister's Woods Depression 4	1						1				
50039	Alder St from Norris St to Diamond St	SWT-9	1		1								
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	1			1							
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2	1			1							
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving		1		1							
40330	Sevilla St from Susquehanna Ave to Dauphin St	Infiltration trench		1							1		

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
40330	Seviva St from Susquehanna Ave to Dauphin St	Tree pits		1								1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1	1		1								
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2	1			1							
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3	1		1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1		1		1							
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2		1			1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3		1			1						
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4		1	1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5		1	1								
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6		1					1				
50078	Clearview and Washington	303-1	1						1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	1										
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4		1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3		1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5		1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6		1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1		1									
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2		1									

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk		1		1						1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1			1						1	
50077	49th St, 50th St, and Haverford St	322-2	1										
50077	49th St, 50th St, and Haverford St	322-3	1										
50032	Earl St (Hetzell Playground)	Earl St		1		1						1	
50032	8th St	8th St		1		1						1	
50032	Front St	Front St		1		1						1	
50032	9th St	9th St		1			1					1	
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson		1		1							
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1			1						1	
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris		1		1							
50052	Sedgwick Station - Sprague and Durham	335-01	1		1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1			1						1	
50032	Diamond St	Diamond St		1					1	1			
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1			1						1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1			1							1
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	1				1						
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-	1							1			

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
		E8											
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1				1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1						1				
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1				1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1				1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	1				1						
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5	1		1								
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1						1				
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1						1				
50065	Panati Playground, 2119-29 Clearfield St	SMP 4	1			1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1	1			1							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2	1				1						
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3	1			1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1		1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1			1							
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1				1						

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1					1						
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1		1									
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1			1								
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1			1								
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1		1	1									
50049	St. Monica Manor	389-1		1	1									
50051	73rd and Gray	System 10		1	1									
50051	73rd and Gray	System 11		1	1									

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15		1	1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16		1	1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17		1	1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18		1	1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19		1	1									
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12		1	1									
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13		1	1									
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14		1	1									
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3		1	1									
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5		1	1									
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6		1	1									
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1		1	1									
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2		1			1							
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7		1	1									
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8		1	1									
50055	Upland Way - Redfield to 59th	400-1	1			1								

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50055	Upland Way - Redfield to 59th	400-2	1				1							
50055	Upland Way - Redfield to 59th	400-3	1				1							
50055	Upland Way - Redfield to 59th	400-4	1				1							
50079	Guerin Recreation Center	401-1		1	1									
50079	Guerin Recreation Center	401-2		1	1									
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden		1					1					
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin		1		1								
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1		1					1					
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2		1			1							
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3		1			1							
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4		1					1					
50059	Ferko Playground - I St, Cayuga St, L St	411-1		1										
50059	Ferko Playground - I St, Cayuga St, L St	411-2		1										
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1		1									
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1		1									
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1											

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1											
73068	Southwest Treatment Plant Parking Lot	Parking Lot		1	1									
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1		1		1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2		1		1								
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3		1		1								
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1											
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1											
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	1											
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1											

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50062	Woodland Ave from 43rd to 72nd	Trench 1	1			1								
50062	Woodland Ave from 43rd to 72nd	Trench 2	1		1									
50062	Woodland Ave from 43rd to 72nd	Trench 3	1		1									
50062	Woodland Ave from 43rd to 72nd	Trench 4	1		1									
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1		1									
50071	Collazo Park - Westmoreland and Howard	S-1	1											
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1			1								
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1			1								
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1		1		1								
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2		1		1								
50079	Smith Playground	488-1		1				1						
50079	Smith Playground	488-2		1					1					
50079	Smith Playground	488-3		1					1					
50079	Smith Playground	488-4		1			1							
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1		1									
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1			1								
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1			1								
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	1		1									

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park	1		1									
50009	Queen Lane from Henry St to Fox St	Bumpout #3	1			1								
50077	Baker Playground	530-1	1				1							
50009	Queen Lane from Henry St to Fox St	Bumpout #4	1			1								
50009	Queen Lane from Henry St to Fox St	Bumpout A	1			1								
50077	Heston Lot - Hunter St, 55th St	558-1	1			1								
50009	Queen Lane from Henry St to Fox St	Bumpout B	1			1								
50085	Ralph Brooks Park	574-1		1	1									
50091	Stinger Square	589-1		1	1									
50091	Stinger Square	589-2		1	1									
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1	1				1							1
50086	East Fairmount Park - Kelly Drive	641-1	1		1									
50086	East Fairmount Park - Kelly Drive	641-2	1		1									
50086	East Fairmount Park - Kelly Drive	641-3	1		1									
50086	East Fairmount Park - Kelly Drive	641-4	1		1									
50086	East Fairmount Park - Kelly Drive	641-5	1		1									
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9		1	1									
50002	Montgomery Ave, Shissler Playground	SWT-B5		1			1					1		

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7		1	1								
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8		1		1							
50034	Trenton Ave and Norris St	RG-D2		1	1								
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2		1	1								
50034	Trenton Ave and Norris St	SWT-C2		1	1								1
50005	Palmer St from Frankford Ave to Blair St	SWT-A4		1		1						1	
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9		1	1								
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1		1						1	
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10		1									
50083	Weccacoe Playground	untitled		1		1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2		1		1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2		1		1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3		1	1								
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3		1				1					
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4		1		1							
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4		1		1							
40747	Marston, Eyre, Taney	Marston Street	1			1							
40747	Marston, Eyre, Taney	Eyre Street	1			1							

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
40747	Marston, Eyre, Taney	Taney Street	1			1								
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-3	1							1	1			
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	1							1	1			
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5	1							1	1			
40775	Cloud St from Church St to Walnut St	Cloud Street		1										
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street		1										
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1											
50089	Erie Shopping Center - Castor, Erie, M	SMP 1		1										
50089	Erie Shopping Center - Castor, Erie, M	SMP 2		1										
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench	1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	1											
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2	1											

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1										
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets		1			1						
50097	Black Coyle McBride Playground	30% G-24		1									
50097	Black Coyle McBride Playground	30% G-25		1									
50084	Moss Playground	System 1		1									
50084	Moss Playground	System 2		1									
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street		1									
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street		1									
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street		1									
50087	Pennway, Longshore, Algon, Knorr	G-5	1										
50089	Glenwood from Pacific to Castor	SMP 1		1									
50089	Glenwood from Pacific to Castor	SMP 2		1									
40827	Mole, Bancroft	Mole St from Shunk St to Porter St		1									

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
40827	Mole, Bancroft	Mole St from Porter St to Ritner St		1										
40827	Mole, Bancroft	Bancroft St		1										
50084	Carmella Playground	SMP #1		1										
50084	Carmella Playground	SMP #2		1										
50084	Carmella Playground	SMP #3		1										
50084	Carmella Playground	SMP #4		1										
50084	Carmella Playground	SMP #5		1										
50084	Carmella Playground	SMP #6		1										
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1		1										
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2		1										
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3		1										
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4		1										
50099	Conestoga Community Playground	Porous basketball court	1											
50101	Kingsessing Recreation Center	GSI System 8	1											
50101	Kingsessing Recreation Center	GSI System 9	1											

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50097	Palmer Cemetery	30% G-5		1										
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		1										
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets		1										
50097	St. Anne Rectory	One is supposed to have tree pit inlets		1										
50097	Thompson St and Huntingdon St	30% G-11		1										
50095	Hackett School	Trenton Avenue and York Street		1										
50096	William McKinley School	SMP 1	1											
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1											
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1											
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1											
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1											
50097	Penn Treaty School	30% G-7		1										
50098	Wissinoming Park	Parking Lot rain garden		1										
50098	Wissinoming Park	Hockey Rink rain garden		1										
50109	Osage Ave. from 42nd St to 43rd St	tree planters	1											
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	1											

Work Number	Project Name	SMP Name	Physical Conditions										
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope			
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)	
50115	Taggart School	rain garden		1									
50115	Taggart School	artificial turf w/ infiltration		1									
50116	East Poplar Playground	SMP 1		1									
50116	East Poplar Playground	SMP 2		1									
50116	East Poplar Playground	SMP 3		1									
50116	East Poplar Playground	SMP 4		1									
50112	Botanic Ave from 49th St to 51 St	49th St				1							
50112	Botanic Ave from 49th St to 51 St	51st St					1						
50112	Botanic Ave from 49th St to 51 St	Botanical Ave							1				
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave		1									
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St		1									
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St		1									
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St		1									
50119	Cement Park Streets Locations	663		1									
50119	Cement Park Streets Locations	25144		1									
50119	Cement Park Streets Locations	25145		1									

Work Number	Project Name	SMP Name	Physical Conditions											
			Physio-graphic Province		Tested Soil Infiltration Rate					Slope				
			Piedmont	Coastal Plain	< 0.25 in/hr	0.25 - 1.00 in/hr	1.01 - 3.00 in/hr	3.01 - 5.00 in/hr	> 5.00 in/hr	Steep (> 2%)	Medium (0.5 - 2%)	Flat (< 0.5%)		
50119	Cement Park Streets Locations	25143		1										
50119	Cement Park Streets Locations	25141		1										
50119	Cement Park Streets Locations	25146		1										
50119	Cement Park (Northern Liberties Recreation Center)	485		1										
9406	Larchwood Alley Project	Alley	1											
Total Levels Tagged			216	222	127	101	69	8	26	16	51	13		

Table 13: Policy/partnership type

Work Number	Project Name	SMP Name	Policy/Partnership Type												
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4									1	1			
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1			1										
50100	Hestonville Neighborhood Disconnection SMP	1013-1			1										
50034	Thompson St and Columbia Ave	SWT-A5									1	1			
50005	Hartranft School	SWT-A2									1				
50005	Hartranft School	SWT-B2 & SWT-A3									1				
50003	Bodine High School - 4th St and Cambridge St	S-1									1	1			
50003	Bodine High School - 4th St and Cambridge St	S-2									1	1			
50003	Bodine High School - 4th St and Cambridge St	S-3									1	1			
50003	Bodine High School - 4th St and Cambridge St	S-4									1	1			
50003	Bodine High School - 4th St and Cambridge St	S-5									1	1			
50005	Hartranft School	SWT-B3									1				
50022	Madison Memorial Park	S-1			1						1	1			1
50001	12th St and Reed St (Columbus Square)	Columbus Square			1							1			

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1			1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2			1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3			1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4			1												
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5			1												
50083	Weccacoe Playground	151-1			1												
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2											1				
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3											1				
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4											1				
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6											1				

Work Number	Project Name	SMP Name	Policy/Partnership Type													
			LEED / Sustainable Sites Initiative	Public Agency							Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other	
				Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other						
50001	10th St from Wilder St to Reed St	10th and Wilder			1								1		1	
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th			1											
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th			1											
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th			1											
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th			1											
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3									1					
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4									1					
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B									1					
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2			1						1	1				
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4			1						1	1				

Work Number	Project Name	SMP Name	Policy/Partnership Type												
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10			1				1			1			
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11			1				1			1			
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St			1						1				
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St			1						1				
50032	Reese St	Reese St									1				
50014	47th & Grays Ferry Rain Garden	Basin 1							1	1	1				
50006	Columbus Square Stormwater Planters	Infiltration Planter 1			1	1					1				
50006	Columbus Square Stormwater Planters	Infiltration Planter 2			1	1					1				
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4			1	1					1				
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1		1										
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	1		1										

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50023	Herron Playground Permeable Basketball Court	Infil Trench			1						1						
50023	Herron Playground Permeable Basketball Court	Porous Paving			1						1						
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	1		1												
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	1		1												
50011	Liberty Lands Stormwater Project	Liberty Lands			1						1	1	1				
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	1		1												
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving			1							1					
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left			1							1					
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right			1							1					
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden										1					
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1										1					
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2										1					

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3										1					
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4										1					
50007	Blue Bell Inn Triangle	Rain Garden			1							1					
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1										1					
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2										1					
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3										1					
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3										1					
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4										1					
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5										1					
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8			1												
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9			1												

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10			1												
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11										1					
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12										1					
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1										1					
50020	Welsh School - 4th St and Dakota St	Dakota St.										1					
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.											1				
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.											1				
50036	27th St from Indiana to Toronto	27th St			1												
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1										1					
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2							1								

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3							1								
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4									1						
50046	Womrath Park	Basin			1												
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1			1	1					1						
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B. S-1C, S-1D				1											
50041	Longstreth School - 57th St and Pentridge St	S-2A & B									1						
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6									1						
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7									1						
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8									1						

Work Number	Project Name	SMP Name	Policy/Partnership Type													
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other	
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9										1				
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10										1				
50041	Springfield Ave and Cobbs Creek Island	S-1										1				
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1			1								1			
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2			1								1			
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3			1								1			
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7												1		

Work Number	Project Name	SMP Name	Policy/Partnership Type												
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW										1			
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW										1			
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE										1			
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE										1			
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N										1			

Work Number	Project Name	SMP Name	Policy/Partnership Type													
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S											1			
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4											1			
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5											1			
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6											1			
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10			1								1			
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S			1								1			
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N			1								1			
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14			1								1			
50042	Magnolia Cemetery - Cottage St and Levick St	TT11											1			

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50043	Harper's Hollow Park	Basin 1			1												
50044	Kemble Park	Kemble Park System 1			1												
50044	Kemble Park	Kemble Park System 2			1												
50044	Kemble Park	Kemble Park System 3			1												
50044	Kemble Park	Kemble Park System 4			1												
50043	Wakefield Park	Upper Basin			1												
50043	Wakefield Park	Lower Basin			1												
50044	Wister Woods Park	Wister's Woods Depression 1			1												
50044	Wister Woods Park	Wister's Woods Depression 2			1												
50044	Wister Woods Park	Wister's Woods Depression 3			1												
50044	Wister Woods Park	Wister's Woods Depression 4			1												
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1							1	1	1						

Work Number	Project Name	SMP Name	Policy/Partnership Type													
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2							1	1	1					
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3							1	1	1					
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1			1	1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2			1	1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3			1	1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4			1	1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5			1	1										
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6			1	1										
50078	Clearview and Washington	303-1									1					
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1									1					
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4				1										
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3				1										
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5				1										
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6				1										

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1				1											
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2				1											
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk			1								1			1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2											1				
50077	49th St, 50th St, and Haverford St	322-2															
50077	49th St, 50th St, and Haverford St	322-3															
50032	Earl St (Hetzell Playground)	Earl St											1				
50032	8th St	8th St											1				
50032	Front St	Front St											1				
50032	9th St	9th St											1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3											1				
50052	Sedgwick Station - Sprague and Durham	335-01							1								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4											1				
50032	Diamond St	Diamond St											1				
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5											1				

Work Number	Project Name	SMP Name	Policy/Partnership Type															
			LEED / Sustainable Sites Initiative	Public Agency							Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other			
				Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other								
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6											1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6			1								1					
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7			1								1					
50065	Panati Playground, 2119-29 Clearfield St	SMP 4			1	1												
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15			1													
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16			1													
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17			1													

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18			1												
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19			1												
50055	Upland Way - Redfield to 59th	400-1									1						
50055	Upland Way - Redfield to 59th	400-2									1						
50055	Upland Way - Redfield to 59th	400-3									1						
50055	Upland Way - Redfield to 59th	400-4									1						
50079	Guerin Recreation Center	401-1			1												
50079	Guerin Recreation Center	401-2			1												
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden									1						
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin									1						
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1			1					1							
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2			1					1							
50059	Harrowgate Park - Kensington, Tioga, Jasper,	410-3			1					1							

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
	Schiller																
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4			1					1							
50059	Ferko Playground - I St, Cayuga St, L St	411-1			1												
50059	Ferko Playground - I St, Cayuga St, L St	411-2			1												
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1				1											
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2				1											
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1			1												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2			1												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3			1												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4			1												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6			1												

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7			1												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9			1												
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1			1												
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2			1												
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3										1					
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches									1	1					
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout									1	1					
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale									1	1					
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center									1	1					
50062	Woodland Ave from 43rd to 72nd	Trench 1					1										
50062	Woodland Ave from 43rd to 72nd	Trench 2					1										

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50062	Woodland Ave from 43rd to 72nd	Trench 3					1										
50062	Woodland Ave from 43rd to 72nd	Trench 4					1										
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1					1										
50071	Collazo Park - Westmoreland and Howard	S-1		1	1						1						
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench			1						1						
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden		1	1						1						
50079	Smith Playground	488-1			1												
50079	Smith Playground	488-2			1												
50079	Smith Playground	488-3			1												
50079	Smith Playground	488-4			1												
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave			1												
50009	Queen Lane from Henry St to Fox St	Bumpout #1									1						
50009	Queen Lane from Henry St to Fox St	Bumpout #2									1						
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park			1	1											

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park			1	1											
50009	Queen Lane from Henry St to Fox St	Bumpout #3											1				
50077	Baker Playground	530-1			1												
50009	Queen Lane from Henry St to Fox St	Bumpout #4											1				
50009	Queen Lane from Henry St to Fox St	Bumpout A											1				
50077	Heston Lot - Hunter St, 55th St	558-1			1	1											
50009	Queen Lane from Henry St to Fox St	Bumpout B											1				
50085	Ralph Brooks Park	574-1			1								1				1
50091	Stinger Square	589-1			1												
50091	Stinger Square	589-2			1												
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1											1				
50086	East Fairmount Park - Kelly Drive	641-1			1												
50086	East Fairmount Park - Kelly Drive	641-2			1												
50086	East Fairmount Park - Kelly Drive	641-3			1												

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50086	East Fairmount Park - Kelly Drive	641-4			1												
50086	East Fairmount Park - Kelly Drive	641-5			1												
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9											1				
50002	Montgomery Ave, Shissler Playground	SWT-B5			1							1	1				
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7											1				
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8											1				
50034	Trenton Ave and Norris St	RG-D2										1	1				
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2										1	1				
50034	Trenton Ave and Norris St	SWT-C2										1	1				
50005	Palmer St from Frankford Ave to Blair St	SWT-A4										1	1				
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9										1					
50005	Palmer St from Frankford Ave to Blair St	SWT-B4										1	1				
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10					1										
50083	Weccacoe Playground	untitled			1												

Work Number	Project Name	SMP Name	Policy/Partnership Type												
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2											1		1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2											1		1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3											1		1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3											1		1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4											1		1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4											1		1
50097	Black Coyle McBride Playground	30% G-24			1										
50097	Black Coyle McBride Playground	30% G-25			1										
50084	Moss Playground	System 1			1										
50084	Moss Playground	System 2			1										
50084	Carmella Playground	SMP #1			1										
50084	Carmella Playground	SMP #2			1										
50084	Carmella Playground	SMP #3			1										
50084	Carmella Playground	SMP #4			1										
50084	Carmella Playground	SMP #5			1										
50084	Carmella Playground	SMP #6			1										

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50099	Conestoga Community Playground	Porous basketball court			1												
50101	Kingsessing Recreation Center	GSI System 8			1												
50101	Kingsessing Recreation Center	GSI System 9			1												
50095	Hackett School	Trenton Avenue and York Street		1							1						
50096	William McKinley School	SMP 1		1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1		1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2		1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3		1													
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4		1													
50098	Wissinoming Park	Parking Lot rain garden			1												
50098	Wissinoming Park	Hockey Rink rain garden			1												
50115	Taggart School	rain garden		1	1						1						
50115	Taggart School	artificial turf w/ infiltration		1	1						1						

Work Number	Project Name	SMP Name	Policy/Partnership Type														
			LEED / Sustainable Sites Initiative	Philadelphia School District	Public Parks and Recreation	Department of Public Property	Streets Department	Mayor's Office of Sustainability	SEPTA	Other	Non-Government Organization	Civic Group	Center City District, University City District	Public/Private Partnership	Other		
50119	Cement Park (Northern Liberties Recreation Center)	485			1												
Total Levels Tagged			5	10	140	23	6	0	12	18	100	53	6	2	8		

Table 14: Implementation strategy

Work Number	Project Name	SMP Name	Implementation Strategy										
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed	
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1				1							
50100	Hestonville Neighborhood Disconnection SMP	1013-1				1							
50103	Malvern Ave from Atwood Rd to 65th St	1024-1											1
50103	Algon Ave from Glenview St to Longshore Ave	1025-1											1
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1											1
50103	Pemberton St from Front St to 2nd St	1027-1											1
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1											1
50103	Unruh Ave between Summerdale and Frontenac	1029-1											1
50103	E Rockland St from B St to C St	1030-1											1
50103	Pennsgrove St between 39th St and 40th St	1031-1											1
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Trench/Paving						1					
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Flow-Through Planter - Left						1					
40659	Waterview Recreation Center - McMahan St from Price St to Haines St	Flow-Through Planter - Right						1					
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1		1									

Work Number	Project Name	SMP Name	Implementation Strategy											
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7		1										
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8		1										
40224	Percy St from Catharine St to Christian St	Permeable asphalt						1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1						1						
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2						1						
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving						1						
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench						1						

Work Number	Project Name	SMP Name	Implementation Strategy											
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed		
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits					1							
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4						1						
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3						1						
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5						1						
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6						1						
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1						1						
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2						1						
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson					1							
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4					1							

Work Number	Project Name	SMP Name	Implementation Strategy											
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6					1							
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7					1							
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9				1								
50062	Woodland Ave from 43rd to 72nd	Trench 1			1									
50062	Woodland Ave from 43rd to 72nd	Trench 2			1									
50062	Woodland Ave from 43rd to 72nd	Trench 3			1									
50062	Woodland Ave from 43rd to 72nd	Trench 4			1									
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1			1									
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1		1										
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2		1										
40747	Marston, Eyre, Taney	Marston Street					1							
40747	Marston, Eyre, Taney	Eyre Street					1							
40747	Marston, Eyre, Taney	Taney Street					1							
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3												1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4												1

Work Number	Project Name	SMP Name	Implementation Strategy																		
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed									
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelton, Ogontz	S-5																			1
40775	Cloud St from Church St to Waln St	Cloud Street							1												
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street							1												
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets							1												
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street							1												
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street							1												
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street							1												
40827	Mole, Bancroft	Mole St from Shunk St to Porter St							1												
40827	Mole, Bancroft	Mole St from Porter St to Ritner St							1												
40827	Mole, Bancroft	Bancroft St							1												
50109	Osage Ave. from 42nd St to 43rd St	tree planters																			1
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane																			1

Work Number	Project Name	SMP Name	Implementation Strategy										
			Complete Streets Concept	Storm Flood Relief	Standard Detail Roll-out	Area Wide Disconnection	Following Public Works	Low-Budget Retrofit (Design Light)	Green Campus	SMIP	GARP	Pilot Program Managed	
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave											1
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St											1
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St											1
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St											1
9406	Larchwood Alley Project	Alley											1
Total Levels Tagged			0	10	5	3	33	6	0	0	0	0	18

Table 15: Health and safety impacts

Work Number	Project Name	SMP Name	Health and Safety Impacts						Vectors and Pests
			Pedestrian Impacts		Bicyclist Impacts		Driver Impacts		
			Potentially Positive	Potentially Negative	Potentially Positive	Potentially Negative	Potentially Positive	Potentially Negative	
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1				1		
50001	12th St and Reed St (Columbus Square)	Columbus Square		1					
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th				1			
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th				1			
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1			1	1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1			1		1	
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3							1
50034	Trenton Ave and Norris St	RG-D2		1					
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	1				1		
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1			1	1		
Total Levels Tagged			5	2	0	5	4	1	1

Table 16: GSI visibility

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1			
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1	1			
50100	Hestonville Neighborhood Disconnection SMP	1013-1		1		
50034	Thompson St and Columbia Ave	SWT-A5		1		
50103	Malvern Ave from Atwood Rd to 65th St	1024-1				1
50103	Algon Ave from Glenview St to Longshore Ave	1025-1				1
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	1			
50103	Pemberton St from Front St to 2nd St	1027-1	1			
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1				1
50103	Unruh Ave between Summerdale and Frontenac	1029-1				1
50103	E Rockland St from B St to C St	1030-1		1		
50103	Pennsgrove St between 39th St and 40th St	1031-1		1		
50005	Hartranft School	SWT-A2				1
50005	Hartranft School	SWT-B2 & SWT-A3		1		
50003	Bodine High School - 4th St and Cambridge St	S-1	1			
50003	Bodine High School - 4th St and Cambridge St	S-2		1		
50003	Bodine High School - 4th St and Cambridge St	S-3				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50003	Bodine High School - 4th St and Cambridge St	S-4				1
50003	Bodine High School - 4th St and Cambridge St	S-5		1		
50005	Hartranft School	SWT-B3		1		
50022	Madison Memorial Park	S-1		1		
50001	12th St and Reed St (Columbus Square)	Columbus Square			1	
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1		1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2		1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3		1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4		1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5		1		
50083	Weccacoe Playground	151-1		1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2		1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3		1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4		1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6		1		
50001	10th St from Wilder St to Reed St	10th and Wilder		1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th				1
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th				1
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th				1
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-3			1	
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4			1	
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B			1	
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2			1	
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4			1	
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10			1	
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11			1	
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks			1	
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St			1	
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits			1	
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street			1	

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St			1	
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St			1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1			
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10		1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11		1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12			1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13			1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14	1			
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2	1			
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4		1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6		1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7				1
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8		1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9		1		
50032	Reese St	Reese St	1			
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5		1		
50014	47th & Grays Ferry Rain Garden	Basin 1		1		
50006	Columbus Square Stormwater Planters	Infiltration Planter 1		1		
50006	Columbus Square Stormwater Planters	Infiltration Planter 2		1		
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4		1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1		1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50023	Herron Playground Permeable Basketball Court	Infil Trench		1		
50023	Herron Playground Permeable Basketball Court	Porous Paving		1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3		1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4		1		
50011	Liberty Lands Stormwater Project	Liberty Lands		1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 1		1		
50009	Bureau of Laboratory Services	Lycoming Tree Trench		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 2		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 3		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 4		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 5		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 6		1		
50009	Bureau of Laboratory Services	Hunting Park Planter 7		1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving		1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left		1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right		1		
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50009	Bureau of Laboratory Services	Castor Tree Trench		1		
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden		1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1		1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2		1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3		1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4		1		
50007	Blue Bell Inn Triangle	Rain Garden		1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1		1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2		1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3		1		
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3		1		
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4		1		
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5		1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8		1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9		1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10		1		
50027	William Harranty School - Webster St and Frazier St	S-6		1		
50027	William Harranty School - Webster St and Frazier St	S-7		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11		1		
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12		1		
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1		1		
50020	Welsh School - 4th St and Dakota St	Dakota St.		1		
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.			1	
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.			1	
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.			1	
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.			1	
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.		1		
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)		1		
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)			1	
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)		1		
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1			
50036	27th St from Indiana to Toronto	27th St	1			
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1			
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2		1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3			1	
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7		1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8		1		
40224	Percy St from Catharine St to Christian St	Permeable asphalt		1		
50046	Womrath Park	Basin		1		
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1		1		
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1			
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D		1		
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B		1		
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5		1		
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B		1		
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7		1		
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C		1		
50041	Longstreth School - 57th St and Pentridge St	S-2A & B		1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6		1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7				1
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8		1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9		1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10		1		
50041	Springfield Ave and Cobbs Creek Island	S-1		1	1	
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1			1	
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2		1		
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3				1
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4		1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5		1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7		1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8		1		
50039	Dick Elementary School - 24th St and Diamond St	SWT-10		1		
50039	Dick Elementary School - 24th St and Diamond St	SWT-11		1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1		1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2		1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3		1		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7		1		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N				1
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S				1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4				1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5				1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6				1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10				1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S				1
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1			
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1			
50042	Magnolia Cemetery - Cottage St and Levick St	TT11				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1		1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario		1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St		1		
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School		1		
50043	Harper's Hollow Park	Basin 1		1		
50044	Kemble Park	Kemble Park System 1		1		
50044	Kemble Park	Kemble Park System 2		1		
50044	Kemble Park	Kemble Park System 3		1		
50044	Kemble Park	Kemble Park System 4		1		
50043	Wakefield Park	Upper Basin		1		
50043	Wakefield Park	Lower Basin		1		
50044	Wister Woods Park	Wister's Woods Depression 1	1			
50044	Wister Woods Park	Wister's Woods Depression 2				1
50044	Wister Woods Park	Wister's Woods Depression 3	1			
50044	Wister Woods Park	Wister's Woods Depression 4				1
50039	Alder St from Norris St to Diamond St	SWT-9	1			
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1		1		
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving	1			
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench			1	
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits			1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1			1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2			1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3			1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1			1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2			1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3		1		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4		1		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1			
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1			
50078	Clearview and Washington	303-1	1			
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6			1	

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1		1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2		1		
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	1			
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1			
50077	49th St, 50th St, and Haverford St	322-2				1
50077	49th St, 50th St, and Haverford St	322-3		1		
50032	Earl St (Hetzell Playground)	Earl St		1		
50032	8th St	8th St		1		
50032	Front St	Front St		1		
50032	9th St	9th St		1		
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson		1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3		1		
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris		1		
50052	Sedgwick Station - Sprague and Durham	335-01		1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4		1		
50032	Diamond St	Diamond St			1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5				1
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6		1		

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1			
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4		1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5				1
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6	1			
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1			
50065	Panati Playground, 2119-29 Clearfield St	SMP 4	1			
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1				1
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2				1
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3				1
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01				1
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1			
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1			
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09		1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1			
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12				1
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1	1			
50049	St. Monica Manor	389-1	1			
50051	73rd and Gray	System 10	1			
50051	73rd and Gray	System 11	1			
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15		1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16		1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17		1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18		1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19				1
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12		1		
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1			
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1			
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5		1		
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1			
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1			
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1			
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1			
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1			
50055	Upland Way - Redfield to 59th	400-1	1			
50055	Upland Way - Redfield to 59th	400-2	1			
50055	Upland Way - Redfield to 59th	400-3	1			
50055	Upland Way - Redfield to 59th	400-4	1			
50079	Guerin Recreation Center	401-1	1			
50079	Guerin Recreation Center	401-2	1			
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin		1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	1			
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1			
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1			
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1			
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1			
50059	Ferko Playground - I St, Cayuga St, L St	411-2	1			
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1			
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1			
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7		1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9			1	
73068	Southwest Treatment Plant Parking Lot	Parking Lot			1	

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1			1	
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1			
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	1			
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches			1	
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1			
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale			1	
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center			1	
50062	Woodland Ave from 43rd to 72nd	Trench 1			1	
50062	Woodland Ave from 43rd to 72nd	Trench 2	1			
50062	Woodland Ave from 43rd to 72nd	Trench 3			1	
50062	Woodland Ave from 43rd to 72nd	Trench 4	1			
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1			1	
50071	Collazo Park - Westmoreland and Howard	S-1	1			
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1			
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden			1	
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1			1	
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2			1	
50079	Smith Playground	488-1			1	

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50079	Smith Playground	488-2				1
50079	Smith Playground	488-3				1
50079	Smith Playground	488-4			1	
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave			1	
50009	Queen Lane from Henry St to Fox St	Bumpout #1			1	
50009	Queen Lane from Henry St to Fox St	Bumpout #2			1	
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park	1			
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park				1
50009	Queen Lane from Henry St to Fox St	Bumpout #3				1
50077	Baker Playground	530-1				1
50009	Queen Lane from Henry St to Fox St	Bumpout #4				1
50009	Queen Lane from Henry St to Fox St	Bumpout A				1
50077	Heston Lot - Hunter St, 55th St	558-1				1
50009	Queen Lane from Henry St to Fox St	Bumpout B				1
50085	Ralph Brooks Park	574-1	1			
50091	Stinger Square	589-1	1			
50091	Stinger Square	589-2				1
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50086	East Fairmount Park - Kelly Drive	641-1				1
50086	East Fairmount Park - Kelly Drive	641-2			1	
50086	East Fairmount Park - Kelly Drive	641-3				1
50086	East Fairmount Park - Kelly Drive	641-4				1
50086	East Fairmount Park - Kelly Drive	641-5			1	
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9			1	
50002	Montgomery Ave, Shissler Playground	SWT-B5			1	
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7				1
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8			1	
50034	Trenton Ave and Norris St	RG-D2	1			
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2	1			
50034	Trenton Ave and Norris St	SWT-C2				1
50005	Palmer St from Frankford Ave to Blair St	SWT-A4				1
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9	1			
50005	Palmer St from Frankford Ave to Blair St	SWT-B4	1			
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10				1
50083	Weccacoe Playground	untitled	1			
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2				1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3				1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3				1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4				1
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4				1
40747	Marston, Eyre, Taney	Marston Street		1		
40747	Marston, Eyre, Taney	Eyre Street				1
40747	Marston, Eyre, Taney	Taney Street				1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3				1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-4				1
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-5				1
40775	Cloud St from Church St to Waln St	Cloud Street				1
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street				1
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2		1		
50089	Erie Shopping Center - Castor, Erie, M	SMP 1			1	
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1			
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout			1	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench			1	

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	1			
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2			1	
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench			1	
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets				1
50097	Black Coyle McBride Playground	30% G-24			1	
50097	Black Coyle McBride Playground	30% G-25			1	
50084	Moss Playground	System 1				1
50084	Moss Playground	System 2				1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street				1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street				1
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street	1			
50087	Pennway, Longshore, Algon, Knorr	G-5				1
50089	Glenwood from Pacific to Castor	SMP 1				1
50089	Glenwood from Pacific to Castor	SMP 2				1
40827	Mole, Bancroft	Mole St from Shunk St to Porter St		1		
40827	Mole, Bancroft	Mole St from Porter St to Ritner St		1		
40827	Mole, Bancroft	Bancroft St				1
50084	Carmella Playground	SMP #1				1

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50084	Carmella Playground	SMP #2			1	
50084	Carmella Playground	SMP #3		1		
50084	Carmella Playground	SMP #4			1	
50084	Carmella Playground	SMP #5		1		
50084	Carmella Playground	SMP #6		1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1		1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2	1			
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	1			
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4				1
50099	Conestoga Community Playground	Porous basketball court				1
50101	Kingsessing Recreation Center	GSI System 8	1			
50101	Kingsessing Recreation Center	GSI System 9	1			
50097	Palmer Cemetery	30% G-5		1		
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		1		
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1			
50097	Thompson St and Huntingdon St	30% G-11	1			
50095	Hackett School	Trenton Avenue and York Street	1			
50096	William McKinley School	SMP 1	1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1			
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1			
50097	Penn Treaty School	30% G-7			1	
50098	Wissinoming Park	Parking Lot rain garden			1	
50098	Wissinoming Park	Hockey Rink rain garden				1
50109	Osage Ave. from 42nd St to 43rd St	tree planters				1
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane				1
50115	Taggart School	rain garden			1	
50115	Taggart School	artificial turf w/ infiltration			1	
50116	East Poplar Playground	SMP 1			1	
50116	East Poplar Playground	SMP 2				1
50116	East Poplar Playground	SMP 3	1			

Work Number	Project Name	SMP Name	GSI Visibility			
			None - Subsurface, No Trees	Moderate - Subsurface, with Trees	High - Surface Vegetated System	Highest - Surface Vegetated System, Community Anchor Site
50116	East Poplar Playground	SMP 4				1
50112	Botanic Ave from 49th St to 51 St	49th St	1			
50112	Botanic Ave from 49th St to 51 St	51st St	1			
50112	Botanic Ave from 49th St to 51 St	Botanical Ave	1			
50119	Cement Park Streets Locations	663			1	
50119	Cement Park Streets Locations	25144			1	
50119	Cement Park Streets Locations	25145			1	
50119	Cement Park Streets Locations	25143			1	
50119	Cement Park Streets Locations	25141			1	
50119	Cement Park Streets Locations	25146			1	
50119	Cement Park (Northern Liberties Recreation Center)	485				1
Total Levels Tagged			101	174	75	87

Table 17: GSI location ownership

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50034	Thompson St and Columbia Ave	SWT-A3, SWT-A4	1		
50102	Grays Ferry Neighborhood Disconnection SMP	1012-1	1		
50100	Hestonville Neighborhood Disconnection SMP	1013-1	1		
50034	Thompson St and Columbia Ave	SWT-A5	1		
50103	Malvern Ave from Atwood Rd to 65th St	1024-1		1	
50103	Algon Ave from Glenview St to Longshore Ave	1025-1		1	
50103	Dewey St from Lindbergh Blvd to Buist Ave	1026-1	1		
50103	Pemberton St from Front St to 2nd St	1027-1	1		
50103	Warnock St from Fitzwater St to Bainbridge St	1028-1	1		
50103	Unruh Ave between Summerdale and Frontenac	1029-1	1		
50103	E Rockland St from B St to C St	1030-1	1		
50103	Pennsgrove St between 39th St and 40th St	1031-1	1		
50005	Hartranft School	SWT-A2	1		
50005	Hartranft School	SWT-B2 & SWT-A3		1	
50003	Bodine High School - 4th St and Cambridge St	S-1		1	
50003	Bodine High School - 4th St and Cambridge St	S-2	1		
50003	Bodine High School - 4th St and Cambridge St	S-3	1		
50003	Bodine High School - 4th St and Cambridge St	S-4	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50003	Bodine High School - 4th St and Cambridge St	S-5	1		
50005	Hartranft School	SWT-B3	1		
50022	Madison Memorial Park	S-1	1		
50001	12th St and Reed St (Columbus Square)	Columbus Square	1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-1	1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-2	1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-3	1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-4	1		
50029	Simons Recreation Center - Woolston Ave, Walnut Ln, and Rodney St	SIT-5	1		
50083	Weccacoe Playground	151-1	1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A2	1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A3	1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A4	1		
50019	Anna B. Day School - Duval St, Crittenden St, and Johnson S	SWT-A6	1		
50001	10th St from Wilder St to Reed St	10th and Wilder	1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 19th	1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Washington at 18th	1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 18th	1		
50001	Chew Playground - 18th St, 19th St, Ellsworth St, and Washington Ave	Ellsworth at 19th	1		
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingessing Ave	S-3	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	1		
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B	1		
50024	Blair St (Shissler Playground)	Blair St. - SWT-A2	1		
50024	Hewson St from Blair St to Trenton Ave (Shissler Playground)	Hewson St. - SWT-A4	1		
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A10	1		
50019	Dickinson Square - Moyamensing Ave and Morris St	SWT-A11	1		
50028	Frederick Douglass Elementary School, Littles Temple United Holy Church - Norris St, Van Pelt St, and Berks St	Van Pelt and Berks	1		
50028	Philadelphia Military Academy - Susquehanna Ave, 13th St	13th St	1		
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	Cecil B. Moore Ave Tree Pits	1		
50028	MLK Recreation Center - 22nd St from Montgomery Ave to Cecil B. Moore Ave and Cecil B. Moore Ave from 21st St to 22nd St	22nd Street	1		
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	W. Berks St	1		
50028	Towey Rec Center - Berks St from Howard St to Mascher St and Mascher St from Wilt St to Berks St	N. Masher St	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-1	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-10	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-11	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-12		1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-13	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-14		1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-2		1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-3		1	
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-4	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-5	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-6	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-7	1		
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-8	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-9	1		
50032	Reese St	Reese St	1		
50005	16th St between Passyunk Ave and Jackson St	SWT-A,B,C,D,E-5	1		
50014	47th & Grays Ferry Rain Garden	Basin 1	1		
50006	Columbus Square Stormwater Planters	Infiltration Planter 1	1		
50006	Columbus Square Stormwater Planters	Infiltration Planter 2	1		
50006	Columbus Square Stormwater Planters	Infiltration Planters 3 & 4	1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-1	1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2	1		
50023	Herron Playground Permeable Basketball Court	Infil Trench	1		
50023	Herron Playground Permeable Basketball Court	Porous Paving	1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-3	1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-4	1		
50011	Liberty Lands Stormwater Project	Liberty Lands	1		
50010	Barry Playground - 18th St, 19th St, and Bigler St	IS-1/IS-2	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 1	1		
50009	Bureau of Laboratory Services	Lycoming Tree Trench	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 2	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 3	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50009	Bureau of Laboratory Services	Hunting Park Planter 4	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 5	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 6	1		
50009	Bureau of Laboratory Services	Hunting Park Planter 7	1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Trench/Paving	1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Left	1		
40659	Waterview Recreation Center - McMahon St from Price St to Haines St	Flow-Through Planter - Right	1		
50009	Bureau of Laboratory Services	Hunting Park Infil. Trench H1	1		
50009	Bureau of Laboratory Services	Castor Tree Trench	1		
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-1	1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-2	1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-3	1		
50026	Sayre High School - 58th St, 59th St, and Walnut St	SWT3-4	1		
50007	Blue Bell Inn Triangle	Rain Garden	1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-1	1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-2	1		
50026	Shepard Recreation Center - 57th St and Vine St	SWT2-3	1		
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-2,3	1		
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-4	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50027	Samuel B. Huey Elementary School - 52nd St, 53rd St, Pine St, and Osage St	S-5	1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-8	1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-9	1		
50027	Christy Recreation Center - Christian St, Webster St, and 56th St	S-10	1		
50027	William Harrity School - Webster St and Frazier St	S-6	1		
50027	William Harrity School - Webster St and Frazier St	S-7	1		
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-11	1		
50027	Bryant Elementary School - 60th St, 61st St, Cedar Ave, and Hazel Ave	S-12	1		
50026	Andrew Hamilton School - Pine St, Frazier St, and 57th St	SWT4-1	1		
50020	Welsh School - 4th St and Dakota St	Dakota St.	1		
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Porter St. and Moyamensing Ave.	1		
50025	A.S. Jenks School - 13th St, Porter St, and Moyamensing Ave	Moyamensing Ave. and 13th St.	1		
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Washington Ave. from 4th St. to 5th St.	1		
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	5th St. and Federal St.	1		
50025	Sacks Playground - 4th St, 5th St, Federal St, and Washington Ave	Federal St. and 4th St.	1		
50025	Smith Elementary School - 19th St, Garnet St, Reed St, and Wharton St	Smith Elementary School (19th & Reed)	1		
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (17th & Morris)	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (18th St)	1		
50025	St Thomas Aquinas School - 17th St, 18th St, Morris St, and Fernon St	St Thomas Aquinas School (Feron St)	1		
50036	27th St from Indiana to Toronto	27th St	1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-1	1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-2	1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-3	1		
50026	Daroff School - 56th St, 57th St, Race St, and Vine St	SWT1-4	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 1	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 2	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 3	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 4	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 5	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 7	1		
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 8	1		
40224	Percy St from Catharine St to Christian St	Permeable asphalt	1		
50046	Womrath Park	Basin	1		
50068	Ingersoll Commons - Smedley, Seybert, 16th	244-1	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50038	Julian Abele Park - 22nd St, Montrose St, Carpenter St	S-1A, S-1B, S-1C, S-1D	1		
50038	Donald Finnegan Playground - Oakford St and 30th St	S-2A, S-2B, S-2C, S-2D	1		
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-4A, S-4B	1		
50038	Wilson Park - 24th St from Snyder to Wolf and Wolf St from 24th to 25th	S-5	1		
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-6A, S-6B	1		
50038	E.H. Vare Middle School - 23rd St, 24th St, and Jackson	S-7	1		
50038	Stephen Girard School - 18th St, Dorrance St, and Snyder Ave	S-8	1		
50038	Southwark School - 8th St from Mifflin St to McClellan St	S-3A, S-3B, S-3C	1		
50041	Longstreth School - 57th St and Pentridge St	S-2A & B	1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-6	1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-7	1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-8	1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-9	1		
50041	McCreesh Playground / Catharine Elementary School - Regent St from 66th St to 68th St and 66th St from Chester St to Kingsessing	S-10	1		
50041	Springfield Ave and Cobbs Creek Island	S-1		1	
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-1	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-2	1		
50039	William Gray Youth Center - 12th St and Cecil B. Moore Ave	SWT-3	1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-4	1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-5	1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-6	1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-7	1		
50039	Parking Lot - 12th St, Marvine St, and Diamond St	SWT-8	1		
50039	Dick Elementary School - 24th St and Diamond St	SWT-10	1		
50039	Dick Elementary School - 24th St and Diamond St	SWT-11	1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	RG1	1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT2	1		
50042	Bridesburg Recreation Center and Bridesburg School - Richmond St, Jenks St, and Buckius St	TT3	1		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT7	1		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NW		1	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SW		1	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-NE		1	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT8-SE		1	
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-N	1		
50042	Carmella Playground / Warren G. Harding School / White Hall Commons - Wakeling St from Torresdale Ave to Jackson St, Ditman St from Margaret St to Wak	TT9-S	1		
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT4	1		
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1		
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT6	1		
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT10	1		
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-S	1		
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	TT12-N	1		
50042	Roosevelt Playground - Hellerman St, Cottage St, and Levick St	SP13&14	1		
50042	Magnolia Cemetery - Cottage St and Levick St	TT11	1		
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1	1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Mascher & Ontario	1		
50036	William Cramp School - Howard St, Ontario St, and Mascher St	Howard St	1		
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	1		
50043	Harper's Hollow Park	Basin 1	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50044	Kemble Park	Kemble Park System 1	1		
50044	Kemble Park	Kemble Park System 2	1		
50044	Kemble Park	Kemble Park System 3	1		
50044	Kemble Park	Kemble Park System 4	1		
50043	Wakefield Park	Upper Basin	1		
50043	Wakefield Park	Lower Basin	1		
50044	Wister Woods Park	Wister's Woods Depression 1	1		
50044	Wister Woods Park	Wister's Woods Depression 2		1	
50044	Wister Woods Park	Wister's Woods Depression 3	1		
50044	Wister Woods Park	Wister's Woods Depression 4		1	
50039	Alder St from Norris St to Diamond St	SWT-9	1		
40695	Marshall St from Hunting Park Ave to Cayuga St	287-1	1		
40695	Marshall St from Hunting Park Ave to Cayuga St	287-2		1	
40713	Mole St from Fitzwater to Catharine and Webster St from 16th to 17th	Porous Paving		1	
40330	Sepviva St from Susquehanna Ave to Dauphin St	Infiltration trench		1	
40330	Sepviva St from Susquehanna Ave to Dauphin St	Tree pits		1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-1		1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-2		1	
50053	Windrim Ave from Wayne Ave to Germantown Ave	290-3		1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-1		1	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-2		1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-3	1		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-4		1	
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	1		
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-6	1		
50078	Clearview and Washington	303-1	1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-4	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-3	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-5	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-6	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1	1		
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-2	1		
50001	Passyunk Ave from Dickinson St To Reed St	Dickinson and Passyunk	1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-2	1		
50077	49th St, 50th St, and Haverford St	322-2	1		
50077	49th St, 50th St, and Haverford St	322-3	1		
50032	Earl St (Hetzell Playground)	Earl St	1		
50032	8th St	8th St	1		
50032	Front St	Front St	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50032	9th St	9th St	1		
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-3	1		
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris	1		
50052	Sedgwick Station - Sprague and Durham	335-01	1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-4	1		
50032	Diamond St	Diamond St		1	
50004	Belfield Ave from Chew Ave to Walnut Ln	B-5	1		
50004	Belfield Ave from Chew Ave to Walnut Ln	B-6	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C2	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	P-A8/P-B8/P-C8/SWT-D8/SWT-E8	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A3	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-C4	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B4	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4	1		
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5		1	
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A6		1	
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7		1	
50065	Panati Playground, 2119-29 Clearfield St	SMP 4		1	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1		1	
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2		1	
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-3		1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01		1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1		
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10		1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-11		1	
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-12		1	
50049	Wolf St (Sharswood School and Our Lady of Carmel School)	388-1		1	
50049	St. Monica Manor	389-1	1		
50051	73rd and Gray	System 10	1		
50051	73rd and Gray	System 11	1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15	1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 17	1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18	1		
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 19		1	
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 12		1	
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 13	1		
50051	Patterson School - Buist Ave, 70th Elmwood, Holbrook	System 14	1		
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 3	1		
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 5	1		
50051	Connell Park- Elmwood, 64th, Grays, 65th	System 6	1		
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 1	1		
50051	Mother Mary of Peace School - Buist, 63rd, Chelwynde, 64th	System 2	1		
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 7	1		
50051	St. James Episcopal Church of Kingsessing - Woodland, 68th, Paschall, 69th	System 8	1		
50055	Upland Way - Redfield to 59th	400-1	1		
50055	Upland Way - Redfield to 59th	400-2	1		
50055	Upland Way - Redfield to 59th	400-3	1		
50055	Upland Way - Redfield to 59th	400-4	1		
50079	Guerin Recreation Center	401-1	1		
50079	Guerin Recreation Center	401-2	1		
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Rain Garden	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50056	George W. Nebinger School-Carpenter St between S 6th St and E Passyunk Ave	Underground Stormwater Basin	1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-1	1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-2	1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-3	1		
50059	Harrowgate Park - Kensington, Tioga, Jasper, Schiller	410-4	1		
50059	Ferko Playground - I St, Cayuga St, L St	411-1	1		
50059	Ferko Playground - I St, Cayuga St, L St	411-2	1		
50053	Skevchenko Park - Old York, Somerville, Fisher	413-1	1		
50053	Skevchenko Park - Old York, Somerville, Fisher	413-2	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-1	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-4	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-6	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7	1		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-9	1		
73068	Southwest Treatment Plant Parking Lot	Parking Lot	1		
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-1	1		
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-2	1		
50035	Benjamin Franklin Parkway from 21st St to 23rd St	SWT-3	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50033	Lancaster Ave from N 58th St to N 63rd St	59th-63rd St. Tree Trenches	1		
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswale Bumpout	1		
50033	Lancaster Ave from N 58th St to N 63rd St	Triangular Bioswale	1		
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	1		
50062	Woodland Ave from 43rd to 72nd	Trench 1	1		
50062	Woodland Ave from 43rd to 72nd	Trench 2	1		
50062	Woodland Ave from 43rd to 72nd	Trench 3	1		
50062	Woodland Ave from 43rd to 72nd	Trench 4	1		
50061	Bustleton Ave from Magee to St Vincent	Stormwater Trench - 1	1		
50071	Collazo Park - Westmoreland and Howard	S-1	1		
50074	Gathers Recreation Center - Diamond, Glenwood	Tree trench	1		
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1		
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 1	1		
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 2	1		
50079	Smith Playground	488-1	1		
50079	Smith Playground	488-2	1		
50079	Smith Playground	488-3	1		
50079	Smith Playground	488-4	1		
50036	29th and Chalmers Playground - Chalmers from Lehigh to 29th	Chalmers Ave	1		
50009	Queen Lane from Henry St to Fox St	Bumpout #1	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50009	Queen Lane from Henry St to Fox St	Bumpout #2	1		
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	West Benson Park		1	
50070	Benson Park- Jefferson, 4th, Harlan, and Lawrence	East Benson Park		1	
50009	Queen Lane from Henry St to Fox St	Bumpout #3		1	
50077	Baker Playground	530-1		1	
50009	Queen Lane from Henry St to Fox St	Bumpout #4		1	
50009	Queen Lane from Henry St to Fox St	Bumpout A		1	
50077	Heston Lot - Hunter St, 55th St	558-1		1	
50009	Queen Lane from Henry St to Fox St	Bumpout B		1	
50085	Ralph Brooks Park	574-1		1	
50091	Stinger Square	589-1		1	
50091	Stinger Square	589-2		1	
50027	Baltimore Ave Island from S 60th St to Wharton St	S-1		1	
50086	East Fairmount Park - Kelly Drive	641-1		1	
50086	East Fairmount Park - Kelly Drive	641-2		1	
50086	East Fairmount Park - Kelly Drive	641-3			1
50086	East Fairmount Park - Kelly Drive	641-4		1	
50086	East Fairmount Park - Kelly Drive	641-5	1		
50019	Epiphany of Our Lord School - Jackson St and Tree St at 13th St	SWT-A9	1		
50002	Montgomery Ave, Shissler Playground	SWT-B5			1

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A7		1	
50019	Francis Scott Key School - 8th St, Wolf St, and Mildred St	SWT-A8			1
50034	Trenton Ave and Norris St	RG-D2		1	
50034	Trenton Ave and Norris St	SWT-A2 & SWT-B2		1	
50034	Trenton Ave and Norris St	SWT-C2		1	
50005	Palmer St from Frankford Ave to Blair St	SWT-A4		1	
50003	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9		1	
50005	Palmer St from Frankford Ave to Blair St	SWT-B4		1	
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10		1	
50083	Weccacoe Playground	untitled		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A2		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C2 & D2		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A3		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-B3		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-A4 & B4		1	
50021	John F Kennedy Blvd from 30th St to 32nd St	SWT-C4 & D4		1	
40747	Marston, Eyre, Taney	Marston Street		1	
40747	Marston, Eyre, Taney	Eyre Street		1	
40747	Marston, Eyre, Taney	Taney Street		1	
50111	Mt. Airy School of God in Christ - 65th, 18th, Chelten, Ogontz	S-3	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-4	1		
50111	Mt. Airy School of God in Christ - 65th, 18th, Cheltenham, Ogontz	S-5	1		
40775	Cloud St from Church St to Walnut St	Cloud Street	1		
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey Street	1		
50089	Francis Hopkinson Little School House - Luzerne, Dungan, L, Lycoming	SMP 2	1		
50089	Erie Shopping Center - Castor, Erie, M	SMP 1	1		
50089	Erie Shopping Center - Castor, Erie, M	SMP 2	1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 bumpout	1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-1 TerreArch trench	1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 1	1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 bumpout 2	1		
50087	Summerdale, Longshore, Tyson (J. Hampton Moore School)	G-3 StormTech trench	1		
40773	Galloway, Howard, & Hancock	2500 S Galloway & Porter Streets	1		
50097	Black Coyle McBride Playground	30% G-24	1		
50097	Black Coyle McBride Playground	30% G-25	1		
50084	Moss Playground	System 1	1		
50084	Moss Playground	System 2	1		
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Iseminger Street	1		
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Pierce Street	1		
40819	Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Camac Street		1	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50087	Pennway, Longshore, Algon, Knorr	G-5		1	
50089	Glenwood from Pacific to Castor	SMP 1		1	
50089	Glenwood from Pacific to Castor	SMP 2		1	
40827	Mole, Bancroft	Mole St from Shunk St to Porter St	1		
40827	Mole, Bancroft	Mole St from Porter St to Ritner St	1		
40827	Mole, Bancroft	Bancroft St		1	
50084	Carmella Playground	SMP #1		1	
50084	Carmella Playground	SMP #2	1		
50084	Carmella Playground	SMP #3	1		
50084	Carmella Playground	SMP #4	1		
50084	Carmella Playground	SMP #5	1		
50084	Carmella Playground	SMP #6	1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 1	1		
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 2		1	
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3		1	
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 4		1	
50099	Conestoga Community Playground	Porous basketball court		1	
50101	Kingsessing Recreation Center	GSI System 8		1	
50101	Kingsessing Recreation Center	GSI System 9		1	
50097	Palmer Cemetery	30% G-5		1	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		1	
50097	Lehigh Ave from Martha St to Trenton Ave	One is supposed to have tree pit inlets		1	
50097	St. Anne Rectory	One is supposed to have tree pit inlets	1		
50097	Thompson St and Huntingdon St	30% G-11	1		
50095	Hackett School	Trenton Avenue and York Street	1		
50096	William McKinley School	SMP 1	1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 1	1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 2	1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 3	1		
50094	Kelley, William D. : 1601-49 N 29TH ST	SMP 4	1		
50097	Penn Treaty School	30% G-7	1		
50098	Wissinoming Park	Parking Lot rain garden	1		
50098	Wissinoming Park	Hockey Rink rain garden	1		
50109	Osage Ave. from 42nd St to 43rd St	tree planters	1		
50109	Osage Ave. from 42nd St to 43rd St	permeable paver parking lane	1		
50115	Taggart School	rain garden	1		
50115	Taggart School	artificial turf w/ infiltration	1		
50116	East Poplar Playground	SMP 1	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
50116	East Poplar Playground	SMP 2		1	
50116	East Poplar Playground	SMP 3		1	
50116	East Poplar Playground	SMP 4		1	
50112	Botanic Ave from 49th St to 51 St	49th St		1	
50112	Botanic Ave from 49th St to 51 St	51st St		1	
50112	Botanic Ave from 49th St to 51 St	Botanical Ave		1	
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Aramingo Ave	1		
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cedar St	1		
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Cambria St	1		
50118	Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Almond St	1		
50119	Cement Park Streets Locations	663	1		
50119	Cement Park Streets Locations	25144	1		
50119	Cement Park Streets Locations	25145	1		
50119	Cement Park Streets Locations	25143	1		
50119	Cement Park Streets Locations	25141	1		
50119	Cement Park Streets Locations	25146	1		
50119	Cement Park (Northern Liberties Recreation Center)	485		1	
9406	Larchwood Alley Project	Alley			
Total Levels Tagged			341	94	3

Appendix B – Flow Monitoring

APPENDIX B –
FLOW MONITORING

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CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Table 1 - Summary of All Monitors

	# of Permanent Monitors	# of Temporary Monitors	# of Unknown Monitors
Combined/Separate Sewer Monitors	469	102	-
Outlying Community Monitors	128	-	1
Pumping Stations	82	-	-
Rain Gages	35	-	-
Total	714	102	1

CITY OF PHILADELPHIA
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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_2	MTR	Abington	METERING CHAMBER LEVEL	LEVEL
MA_2	MTR	Abington	METERING CHAMBER VELOCITY	VELOCITY
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_01	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_01	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_02	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_02	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_02	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_03	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_03	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_03	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_04	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_04	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_04	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_05	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_05	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_05	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_06	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_06	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_06	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_07	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_07	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_07	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_08	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_08	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_08	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_09	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_09	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_09	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_10	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_10	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_10	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2016 Combined Sewer and Stormwater Annual Reports

Appendix B - Flow Monitoring

CITY OF PHILADELPHIA
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Site ID	Connection Type	Township	Measurement Name	Measurement Type
MBE_11	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_11	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_11	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_12	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_12	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_12	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_13	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_13	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_13	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_14	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_14	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_14	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_15		Bensalem	UNMONITORED	
MBE_16	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_16	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_16	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MBE_17	MTR	Bensalem	METERING CHAMBER FLOW	FLOW
MBE_17	MTR	Bensalem	METERING CHAMBER LEVEL	LEVEL
MBE_17	MTR	Bensalem	METERING CHAMBER VELOCITY	VELOCITY
MC_1	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MC_1	MTR	Cheltenham	METERING CHAMBER LEVEL	LEVEL
MC_1	MTR	Cheltenham	METERING CHAMBER VELOCITY	VELOCITY
MC_2	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MC_2	MTR	Cheltenham	METERING CHAMBER LEVEL	LEVEL
MC_2	MTR	Cheltenham	METERING CHAMBER VELOCITY	VELOCITY
MC_3	MTR	Abington	METERING CHAMBER FLOW	FLOW
MC_3	MTR	Abington	METERING CHAMBER LEVEL	LEVEL
MC_3	MTR	Abington	METERING CHAMBER VELOCITY	VELOCITY
MCx_1	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_1	MTR	Cheltenham	METERING CHAMBER LEVEL	LEVEL
MCx_1	MTR	Cheltenham	METERING CHAMBER VELOCITY	VELOCITY
MCx_2	MTR	Cheltenham	METERING CHAMBER FLOW	FLOW
MCx_2	MTR	Cheltenham	METERING CHAMBER LEVEL	LEVEL
MCx_2	MTR	Cheltenham	METERING CHAMBER VELOCITY	VELOCITY
MD_1	MTR	Delaware Co.	METERING CHAMBER FLOW	FLOW
ML_1	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_1	MTR	Lower Merion	METERING CHAMBER LEVEL	LEVEL
ML_1	MTR	Lower Merion	METERING CHAMBER VELOCITY	VELOCITY

CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Site ID	Connection Type	Township	Measurement Name	Measurement Type
ML_2	STD	Lower Merion	TEMPORARY	FLOW
ML_3	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_3	MTR	Lower Merion	METERING CHAMBER LEVEL	LEVEL
ML_3	MTR	Lower Merion	METERING CHAMBER VELOCITY	VELOCITY
ML_4	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_5	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_5	MTR	Lower Merion	METERING CHAMBER LEVEL	LEVEL
ML_5	MTR	Lower Merion	METERING CHAMBER VELOCITY	VELOCITY
ML_6	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_6	MTR	Lower Merion	METERING CHAMBER LEVEL	LEVEL
ML_6	MTR	Lower Merion	METERING CHAMBER VELOCITY	VELOCITY
ML_7	MTR	Lower Merion	METERING CHAMBER FLOW	FLOW
ML_7	MTR	Lower Merion	METERING CHAMBER LEVEL	LEVEL
ML_7	MTR	Lower Merion	METERING CHAMBER VELOCITY	VELOCITY
MLM_1	MTR	Lower Moreland	METERING CHAMBER FLOW	FLOW
MLM_1	MTR	Lower Moreland	METERING CHAMBER LEVEL	LEVEL
MLM_1	MTR	Lower Moreland	METERING CHAMBER VELOCITY	VELOCITY
MLM_2	MTR	Lower Moreland	METERING CHAMBER FLOW	FLOW
MLM_2	MTR	Lower Moreland	METERING CHAMBER LEVEL	LEVEL
MLM_2	MTR	Lower Moreland	METERING CHAMBER VELOCITY	VELOCITY
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
MPNBC_1	NO	PIDC - PNBC	METERING CHAMBER FLOW	FLOW
MS_1	STD	Springfield	TEMPORARY	FLOW
MS_2	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_2	MTR	Springfield	METERING CHAMBER LEVEL	LEVEL
MS_2	MTR	Springfield	METERING CHAMBER VELOCITY	VELOCITY
MS_3	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_3	MTR	Springfield	METERING CHAMBER LEVEL	LEVEL
MS_3	MTR	Springfield	METERING CHAMBER VELOCITY	VELOCITY
MS_4	STD	Springfield	TEMPORARY	FLOW
MS_5	STD	Springfield	TEMPORARY	FLOW
MS_6	MTR	Springfield	METERING CHAMBER FLOW	FLOW
MS_6	MTR	Springfield	METERING CHAMBER LEVEL	LEVEL
MS_6	MTR	Springfield	METERING CHAMBER VELOCITY	VELOCITY

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Site ID	Connection Type	Township	Measurement Name	Measurement Type
MS_7	STD	Springfield	TEMPORARY	UNKNOWN
MS_8	STD	Springfield	TEMPORARY	FLOW
MSH_1	MTR	Southampton	METERING CHAMBER FLOW	FLOW
MSH_1	MTR	Southampton	METERING CHAMBER LEVEL	LEVEL
MSH_1	MTR	Southampton	METERING CHAMBER VELOCITY	VELOCITY
MSH_2	STD	Southampton	TEMPORARY	FLOW
MSHX_1	STD	Southampton	TEMPORARY	FLOW
MSHX_2	STD	Southampton	TEMPORARY	FLOW
MUD_1	MTR	Upper Darby	METERING CHAMBER NEG FLOW N	FLOW
MUD_1	MTR	Upper Darby	METERING CHAMBER NEG FLOW S	FLOW
MUD_1	MTR	Upper Darby	METERING CHAMBER POS FLOW N	FLOW
MUD_1	MTR	Upper Darby	METERING CHAMBER POS FLOW S	FLOW
MUD_10	MTR	Upper Darby	METERING CHAMBER FLOW	FLOW
MUD_10	MTR	Upper Darby	METERING CHAMBER LEVEL	LEVEL
MUD_10	MTR	Upper Darby	METERING CHAMBER VELOCITY	VELOCITY

*STD – temporary flow monitor

**MTR/NO – Permanent monitor

CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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
C_28A	Cobbs Creek Low Level	Cobbs Creek	TRUNK LEVEL	LEVEL

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
D_07	Upper Delaware Low Level	Delaware River	DWO LEVEL	LEVEL

CITY OF PHILADELPHIA
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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
D_37	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL

CITY OF PHILADELPHIA
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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
D_68	Lower Delaware Low Level	Delaware River	TRUNK LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
H_29		Schuylkill River	TRUNK LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
I_LFCH19	Lower Frankford Creek	Frankford Creek	INTERCEPTOR LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
I_SWMGWHLH01	Southwest Main Gravity	Schuylkill River	INTERCEPTOR LEVEL	LEVEL

CITY OF PHILADELPHIA
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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
S_05	Central Schuylkill East Side	Schuylkill River	SWO LEVEL	LEVEL
S_05	Central Schuylkill East Side	Schuylkill River	TRUNK LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
S_32	Lower Schuylkill West Side	Schuylkill River	SWO LEVEL	LEVEL
S_32	Lower Schuylkill West Side	Schuylkill River	TRUNK LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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
T_05	Frankford High Level	Tacony Creek	SWO LEVEL	LEVEL
T_05	Frankford High Level	Tacony Creek	TRUNK LEVEL	LEVEL

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Site Name	Interceptor	Waterbody	Measurement Name	Measurement Type
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 (7/1/2015 - 6/30/2016)

Rain Gage	Location	Percent Working
RG_1	70th and Essington Ave	98.54%
RG_2	66th and Regent St	98.65%
RG_3	Fox Chase Rd. and Castor Ave	96.16%
RG_4	State Rd and Pennypack St	98.65%
RG_5	3rd and Mifflin St	73.09%
RG_6	Cardinal Ave and City Line Ave	93.94%
RG_7	G St. and E Annsbury St	86.72%
RG_8	N Water St. and E Clarkson Ave	98.54%
RG_9	54th and Lancaster Ave	98.49%
RG_10	Pine Rd and Susquehanna Rd	98.65%
RG_11	Rising Sun Ave and Lardner St	92.29%
RG_12	Pattison Ave and Columbus Blvd	98.48%
RG_13	Glendale Ave and Algon Ave	98.49%
RG_14	Delaware Ave and Lewis St	98.63%

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RG_15	E Montgomery Ave and Thompson St	98.59%
RG_16	19th and Wood St	99.55%
RG_17	Saul St. and Benner St	98.49%
RG_18	Fox St. and Roosevelt Blvd	80.19%
RG_19	Chew Ave and Sharpnack St	92.88%
RG_20	Woodhaven Rd and Knights Rd	99.45%
RG_21	Shawmont Ave and Eva St	98.65%
RG_22	N 67th and Callowhill St	0.00%
RG_23	Penrose Ave and Mingo Ave	98.21%
RG_24	Lockart Rd and Lockart Ln	99.04%
RG_25	24 th and Wolf St	97.34%
RG_26	621 Lehigh Ave	85.75%
RG_27	Grant Ave and Ashford Rd	98.26%
RG_28	1350 Southampton Rd	98.58%
RG_29	Springfield Way and PaperMill Rd	97.20%
RG_30	7609 Montgomery Ave	97.02%
RG_31	Valley Rd and Old Valley Rd	98.57%
RG_32	Rozel Ave and Crushmore Rd	97.58%
RG_33	Jackson St and E Broadway Ave	98.47%
RG_34	Lawrence Rd and Chester Ave	93.51%
RG_35	Hagysford Rd and Tower Lane	95.07%

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COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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)

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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)

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COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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_P120	Waste Water	PUMP 1 RUN	EVENT	
PS_P120	Waste Water	PUMP 2 RUN	EVENT	
PS_P120	Waste Water	WET WELL LEVEL	LEVEL	
PS_P542	Waste Water	PUMP 1 RUN	EVENT	
PS_P542	Waste Water	PUMP 2 RUN	EVENT	
PS_P542	Waste Water	WET WELL LEVEL	LEVEL	
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	

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Monitor ID	Type of Pumping Station	Measurement Name	Measurement Type	Address
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)

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COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Table 6 - Listing of all Temporary Flow Monitors Deployed by Projects

Site Name	Start	End	Project
UDLL-0125	1/24/2014	7/29/2015	I/I
T15-000025	7/17/2014	9/1/2015	CSO model calibration
S10-000010	7/9/2015	10/8/2015	CSO model calibration
D54-000145	7/21/2015	10/9/2015	CSO model calibration
PC-0010	1/30/2012	11/20/2015	I/I
S07-000010	7/9/2015	12/16/2015	CSO model calibration
S36A-000035	12/16/2014	1/13/2016	CSO model calibration
WHL-0065	3/7/2013	2/16/2016	I/I
IALL-0080	3/3/2015	3/7/2016	I/I
T06-000010	3/3/2015	3/8/2016	CSO model calibration
S50-000185	3/9/2015	3/17/2016	CSO model calibration
D48-000030	3/11/2015	3/17/2016	CSO model calibration
D07-000015	3/10/2015	3/21/2016	CSO model calibration
S50-000030	3/13/2015	3/24/2016	CSO model calibration
T088-01-S0220	4/14/2015	4/18/2016	I/I
T088-01-S0155	4/17/2015	4/18/2016	I/I
Q120-11-S0015	4/15/2015	4/20/2016	I/I
PP-B0650	4/17/2015	4/20/2016	I/I
S50-017310	3/9/2016	4/21/2016	Tank Drain down
BC-B0675	4/23/2015	4/25/2016	I/I
S058-01-S0100	4/26/2016	6/3/2016	I/I
S058-01-S0035	4/29/2016	6/3/2016	I/I
S058-01-S0065	4/29/2016	6/3/2016	I/I
S059-01-S0010	4/25/2016	6/7/2016	I/I
S059-01-S0100	4/25/2016	6/7/2016	I/I
S059-01-S0130	4/25/2016	6/7/2016	I/I
S059-01-S0315	4/28/2016	6/7/2016	I/I
S059-01-S0440	4/28/2016	6/7/2016	I/I
S059-02-S0055	4/22/2016	6/10/2016	I/I
USE-0925	4/27/2016	6/10/2016	I/I
S051-03-S0060	5/2/2016	6/10/2016	I/I
S051-03-S0070	5/2/2016	6/10/2016	I/I
S059-04-S0080	5/3/2016	6/10/2016	I/I
S059-04-S0065	5/4/2016	6/10/2016	I/I

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Site Name	Start	End	Project
S059-02-S0095	4/22/2016	6/14/2016	I/I
S051-08-S0220	4/27/2016	6/14/2016	I/I
S051-08-S0685	4/27/2016	6/14/2016	I/I
S051-08-S1100	5/2/2016	6/14/2016	I/I
S051-08-S0070A	5/3/2016	6/14/2016	I/I
S051-08-S0070B	5/3/2016	6/14/2016	I/I
S051-05-S0315	5/5/2016	6/15/2016	I/I
USE-0855	4/15/2015	6/23/2016	I/I
S06-000025	7/9/2015	7/18/2016	CSO model calibration
D53-000025	7/9/2015	7/19/2016	CSO model calibration
S05-000012	3/30/2011	Present	CSO model calibration
P083-03-S0050	10/11/2011	Present	I/I
S45-001110	10/13/2011	Present	I/I
D63-000035	10/14/2011	Present	CSO model calibration
BC-0055	11/30/2011	Present	I/I
C17-003360	12/13/2011	Present	CSO model calibration
IALL-B0355	12/13/2011	Present	I/I
T14-013875	1/30/2012	Present	CSO model calibration
M005-07-0070	9/27/2012	Present	Eastwick Level Monitoring
M005-09-0140	9/27/2012	Present	Eastwick Level Monitoring
BC-B0755	12/10/2012	Present	I/I
P090-02-S0590	12/10/2012	Present	I/I
D47-000065	12/12/2012	Present	CSO model calibration
F21-000145	12/12/2012	Present	CSO model calibration
WLL-0565	3/7/2013	Present	I/I
USE-0020	8/12/2013	Present	I/I
PC-0040	1/21/2014	Present	I/I
T08-000015	1/27/2014	Present	CSO model calibration
D45-000015	5/8/2014	Present	CSO model calibration
LDLL-0115	5/15/2014	Present	CSO model calibration
LFLL-0015	5/28/2014	Present	CSO model calibration
LSE-0015	5/29/2014	Present	CSO model calibration
UDLL-0045	5/29/2014	Present	CSO model calibration
UFLL-0010	5/29/2014	Present	CSO model calibration
USE-0365	5/29/2014	Present	I/I

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Site Name	Start	End	Project
USE-0400	5/29/2014	Present	I/I
SOM-0040	5/30/2014	Present	CSO model calibration
D25-001285	6/20/2014	Present	CSO model calibration
SWMG-B0265	6/24/2014	Present	CSO model calibration
UDLL-0085	6/25/2014	Present	CSO model calibration
SOM-0220	6/26/2014	Present	CSO model calibration
CSE-0030	7/18/2014	Present	CSO model calibration
SWMG-0065	7/21/2014	Present	CSO model calibration
UDLL-0275	9/19/2014	Present	CSO model calibration
IALL-0230	3/2/2015	Present	I/I
PP-0065	3/2/2015	Present	GSI Level Monitoring
IALL-0210	3/3/2015	Present	I/I
WLL-0650	3/10/2015	Present	I/I
IALL-0195	3/12/2015	Present	I/I
OA-0020	3/12/2015	Present	CSO model calibration
LSW-0077	3/13/2015	Present	CSO model calibration
WLL-0675	3/13/2015	Present	I/I
FCHL-0175	3/16/2015	Present	CSO model calibration
THL-0085	4/14/2015	Present	CSO model calibration
Yeadon	4/27/2015	Present	CSO model calibration
IALL-0008	6/25/2015	Present	I/I
D51-S000010	7/22/2015	Present	CSO model calibration
UDLL-0120	7/29/2015	Present	I/I
D53-000155	8/5/2015	Present	CSO model calibration
S059-02-S0010	4/22/2016	Present	I/I
S052-05-S0030	4/26/2016	Present	I/I
S051-08-S0015	4/28/2016	Present	I/I
S051-08-S0180	4/29/2016	Present	I/I
S059-04-S0027	5/4/2016	Present	I/I
S051-05-S0015	5/5/2016	Present	I/I
D73-000575	6/22/2016	Present	I/I
C12-000015	6/23/2016	Present	I/I
CV-0145	6/24/2016	Present	I/I

CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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						
MCx7						

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Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
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						
MUD-O						

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Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
MUD-1						
Upper Darby Total				35	22.621	17

Appendix C – FY16 CSO Program Maintenance Annual Report

PWD COLLECTOR SYSTEMS - FLOW CONTROL UNIT

2016 CSO Program Maintenance



Submitted by:
Michael D. Hengstler
Water Conveyance Systems Superintendent
Flow Control

FLOW CONTROL UNIT

The Collector System Flow Control Unit's primary responsibilities are divided into four groups; Combined Sewer Overflow (CSO) Regulator Maintenance, Pumping Station Operation & Maintenance, Collector System Instrumentation and CCTV Technical Inspections. The Wastewater Pumping Group main office is located at 5202 Pennypack Street in the Torresdale Raw Water Pumping Station. The WWP Group assembles at this facility, which also has a maintenance machine shop, storage garage, and workshop to handle maintenance assignments. The other three groups have maintenance shops and assemble at the Fox Street Headquarters Facility. A brief description of each of the group's responsibilities and their 2016 fiscal year highlights follows.

CSO REGULATOR MAINTENANCE GROUP

Inspecting and servicing the combined sewer overflow regulating and diversion chambers are completed by 19 Interceptor maintenance personnel. This group is responsible for the operations, maintenance, inspections and cleaning of 175 combined sewer-regulating chambers, 89 tide gate chambers, 26 storm relief chambers, 12 sanitary flow diversions, several siphons and other related wastewater control devices throughout the collection system.

Currently the Philadelphia Water Department 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

Mechanical or operational malfunctions of the regulators and tide gates can cause dry weather discharges and stream and river inflow. These types of events can have a major impact on the Wastewater and Fresh Water Treatment Plant's performance, stream water quality and affect the recreational use of our local waterways. Thus, the combined sewer regulator systems are closely monitored for potential blockages and when identified the problems are corrected quickly. CSO chamber Inspections and clearing of any regulator blockages prior to causing a dry weather discharge are the primary responsibilities of this group and are key areas in assessing the group's overall performance.

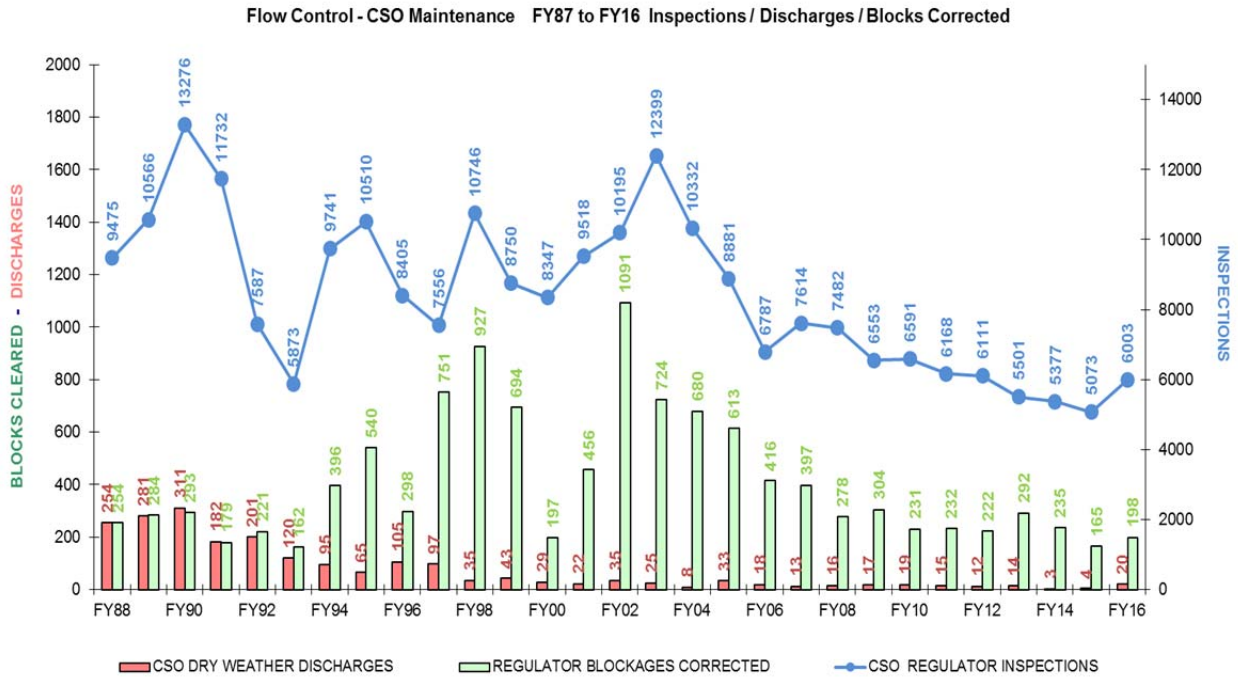
By continually tracking and analyzing Dry Weather Discharges it can be determined if new or modified maintenance procedures would help to prevent them from occurring. Although our established procedures have greatly reduced the number and duration of these discharges, the combined system picks up all manner of trash and debris that is unpredictable in its pattern of causing flow disruptions. Despite incorporating best management practices including; having all inlets trapped and cleaned; preventative maintenance schedules for sewer flushing and cleaning of the regulators; CCTV inspection of DWO pipes; etc., it is virtually impossible to eliminate all blockages before they occur.

The PWD Flow Control Unit continues to aggressively control and minimize these dry weather overflows by utilizing the latest technology-based controls including our Collector System Remote Monitoring Network that currently includes over 320 sites with over 720 individual level and/or flow measurements. Training the CSO maintenance personnel in the use of the system's computer programs for analyzing the trend data has developed a comprehensive understanding of individual CSO sites and their distinctive flow patterns. This familiarity helps them to recognize abnormal conditions quickly at a location so that they can respond before the condition develops into a dry weather CSO blockage or discharge.

The CSO Maintenance Group performed 6,003 inspections of the regulating chambers in FY2016. The work includes frequent visual inspections of the equipment and flow patterns to make sure everything is operating properly. The more comprehensive work such as cleaning

and lubricating of the mechanical equipment is scheduled during lower flow periods between rain events.

In FY2016, the crews cleared 198 regulator blockages before they developed into a CSO dry weather discharge. There were twenty CSO dry weather discharges for this fiscal year.



Many discharges are a result of debris such as rags, sticks, stones and other debris that become lodged in the CSO regulator diversion or the dry weather outlet pipe during dry weather periods. These types of blockages are virtually unpredictable so frequent inspections and closely observing the monitoring trend data is essential to our prevention program. Following moderate to heavy rain events the CSO regulators can have grit, sticks, rags and other debris caught at various places in and around the regulator that could eventually result in a discharge. The CSO maintenance crews perform quick topside inspections of the CSO sites throughout the City for several days following these events to remove or clear away any of this storm debris. The work schedule will then revert to the more comprehensive maintenance such as cleaning, lubricating, adjusting equipment and performing minor repairs to the mechanical regulators.

WASTEWATER PUMPING STATION MAINTENANCE GROUP

The Wastewater Pumping Station Maintenance Group consisting of 24 maintenance personnel are located at the 5202 Pennypack St. Maintenance Shop. They are responsible for the operations and maintenance of 16 wastewater-pumping stations, 3 stormwater pumping stations, 2 sodium hypochlorite dosing stations, 11 computer controlled CSO storage regulators and several inline 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. On average, the main pumping units were in service 98.3% of the time in FY2016. The WWP Group completed five 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 condition.

FY2016 Flow Control Main Pump Unit Out of Service Report

DATE/TIME OUT	DATE/TIME IN	STATION	UNIT	TYPE	REASON	TOTAL DAYS OUT	FY16 DAYS OUT
Fri - 11/6/15 - 10:00 AM	Fri - 11/6/15 - 3:00 PM	NEILL DRIVE	3	OV	REPLACED WITH SPARE	0	0
Tue - 10/20/15 - 9:00 AM	Tue - 10/20/15 - 2:00 PM	SPRING LANE	1	OV	OVERHAUL REPLACED WITH SPARE	0	0
Tue - 10/13/15 - 2:00 PM	Tue - 10/13/15 - 3:00 PM	SPRING LANE	2	OV	OVERHAULED / REPLACED WITH NEW OVERHAULED PUMP.	0	0
Wed - 9/2/15 - 9:00 AM	Wed - 9/2/15 - 3:00 PM	BANK ST	2	OV	OVERHAULED/ REPLACED WITH NEW OVERHAULED PUMP	0	0
Wed - 8/26/15 - 9:00 AM	Wed - 8/26/15 - 3:00 PM	BANK ST	1	OV	OVERHAULED/ REPLACED WITH NEW OVERHAULED PUMP	0	0
Wed - 7/17/13 - 1:00 PM	Wed - 6/22/16 - 12:00 PM	MINGO CREEK	4	BD	BAD LEAD IN MOTOR	1070	357
Type codes: OV-Overhaul BD-Breakdown PM-Preventative Maintenance							

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 hypo into the Upper Schuylkill East Interceptor, and at the Totem Rd. pumping station, which injects hypo into the Bucks County force main. The group is responsible for maintaining adequate supply of the chemical, over 1,130,147 gallons in FY2016, for monitoring the downstream hydrogen sulfide levels and adjusting the dosage levels in addition to maintenance and repair of the equipment.

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.

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 reliable data. The network currently consists of 258 level sensors and flow monitors in the NE, SE, and SW Drainage Districts, 35 gauges in the citywide rain gauge network, 56 Township flow-metering stations, and a number of additional monitors at various control sites. It is crucial that the remote site equipment is communicating and downloading 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 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.

CCTV TECHNICAL INSPECTIONS GROUP

The Technical Inspections group consists of one Supervisor, one group leader, and fourteen Technicians who operate and maintain the seven closed circuit TV camera trucks. The seven CCTV trucks logged 41.65 miles of sewer inspections in FY2016.

The 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 to identify the defective lateral connections.

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.

	<u>CSO Discharges</u>	<u>% Metering</u>	<u>% CSO Level</u>	<u>CCTV</u>	<u>Main Pump</u>
	<u>per 100</u>	<u>Chambers</u>	<u>Meters</u>	<u>Inspections</u>	<u>Availability</u>
<u>Month</u>	<u>Inspections</u>	<u>Operational</u>	<u>Operational</u>	-	-
Goal -->	0.0	95% or Higher	90% or Higher	2.8 Miles	95% or Higher
July - 2015	0.4	88.0%	91.6%	3.70	98.20%
August - 2015	0.0	85.0%	92.0%	3.33	98.20%
September - 2015	0.7	91.0%	92.6%	2.49	98.20%
October - 2015	0.2	92.0%	92.8%	4.00	98.20%
November - 2015	0.0	92.0%	93.5%	3.33	98.20%
December - 2015	0.2	96.0%	93.3%	3.95	98.20%
January - 2016	0.2	95.0%	92.9%	2.81	98.20%
February - 2016	0.9	88.0%	93.0%	3.43	98.20%
March - 2016	0.0	94.0%	95.6%	3.43	98.20%
April - 2016	0.4	95.0%	94.7%	2.94	98.20%
May - 2016	0.8	96.0%	97.4%	4.53	98.20%
June - 2016	0.0	97.0%	96.4%	3.71	98.30%
Yearly Averages or Totals	0.32	92.4%	94%	41.65	98.21%

FLOW CONTROL PERSONNEL SUMMARY

The Flow Control Unit makes every effort to fill all 90 approved positions in order to maintain the service level goals.

90 Flow Control Positions [90 Listed]	Active	Vacant	Total
Clerk III	0	1	1
Clerk Typist II	2	0	2
Electrician 1	1	0	1
Electronic Equipment Supervisor	2	0	2
Electronic Technician 1	1	0	1
Electronic Technician 2	19	2	21
Electronic Technician Grp. Ldr.	2	1	3
Ind. Process Mach. Mech. Grp. Ldr.	2	0	2
Industrial Electrician 1	3	0	3
Industrial Electrician 2	0	1	1
Industrial Electrician Group Leader	1	0	1
Industrial Process Mach. Mech.	6	0	6
Instrumentation Technician I	5	1	6
Interceptor Service Worker I	7	2	9
Interceptor Service Worker II	6	0	6
Interceptor Services Supervisor	2	0	2
Mach. & Equipment Mech.	8	1	9
Semiskilled Laborer	3	0	3
Sewer Maintenance Inspector	1	0	1
Utility Maintenance Trainee	6	0	6
Water Conveyance Sys. Asst. Supt. (P)	2	0	2
Water Conveyance Sys. Supt.	1	0	1
Water Operations Repair Helper	1	0	1
Totals	81	9	90

APPENDICES

- Appendix A - FY 2016 Annual CSO Report Spreadsheets
- Appendix B - FY 2016 Annual CSO Miscellaneous Site & Maintenance Report
- Appendix C - FY 2016 Main Pump Availability Chart
- Appendix D - Historical CSO Charts

Appendix A
FY 2016 Annual CSO Report Spreadsheets

PART 1 DRY WEATHER STATUS REPORT		PHILADELPHIA WATER DEPARTMENT WASTE AND STORM WATER COLLECTION											Section 1	
		FLOW CONTROL UNIT											FY2016 Annual CSO Report	
COLLECTOR	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Totals	
UPPER PENNYPACK - 5 UNITS														
INSPECTIONS	11	10	10	12	12	10	13	10	15	16	10	16	145	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	1	0	0	1	1	2	0	1	0	0	0	6	
UPPER DELAWARE LOW LEVEL - 12 UNITS														
INSPECTIONS	29	24	24	41	25	24	32	33	43	38	43	32	388	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	5	2	4	6	2	2	6	5	2	1	5	2	42	
LOWER FRANKFORD CREEK - 6 UNITS														
INSPECTIONS	19	22	15	12	14	14	13	17	9	15	13	21	184	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	1	3	1	1	2	3	2	0	3	2	1	20	
LOWER FRANKFORD LOW LEVEL - 10 UNITS														
INSPECTIONS	30	27	23	34	26	30	34	26	26	32	22	32	342	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	1	0	0	0	3	0	0	2	1	0	1	9	
FRANKFORD HIGH LEVEL - 14 UNITS														
INSPECTIONS	38	40	34	37	42	38	29	34	28	61	60	44	485	
DISCHARGES	1	0	2	0	0	0	1	0	0	0	1	0	5	
BLOCKS CLEARED	0	2	0	1	0	0	1	0	1	1	2	0	8	
SOMERSET - 9 UNITS														
INSPECTIONS	37	22	24	34	24	33	26	22	27	27	25	28	329	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	0	0	0	2	0	0	1	0	4	0	1	9	
LOWER DELAWARE LOW LEVEL - 33 UNITS														
INSPECTIONS	66	86	68	81	89	89	66	76	84	83	73	79	940	
DISCHARGES	0	0	0	1	0	0	0	0	0	0	0	0	1	
BLOCKS CLEARED	1	2	2	1	3	2	3	2	1	2	2	12	33	
CENTRAL SCHUYLKILL EAST - 18 UNITS														
INSPECTIONS	56	73	46	53	39	55	51	50	36	35	26	37	557	
DISCHARGES	0	0	0	0	0	0	0	1	0	1	0	0	2	
BLOCKS CLEARED	7	5	1	3	0	0	1	1	0	0	0	1	19	
LOWER SCHUYLKILL EAST - 9 UNITS														
INSPECTIONS	36	25	23	18	16	25	12	20	19	21	17	12	244	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	2	0	1	0	0	0	0	2	1	0	1	0	7	
CENTRAL SCHUYLKILL WEST - 9 UNITS														
INSPECTIONS	22	21	22	19	21	32	18	15	17	26	18	18	249	
DISCHARGES	1	0	1	0	0	1	0	0	0	1	1	0	5	
BLOCKS CLEARED	2	1	0	0	0	0	0	0	1	4	0	1	9	
SOUTHWEST MAIN GRAVITY - 10 UNITS														
INSPECTIONS	26	26	21	26	27	40	20	37	26	9	31	18	307	
DISCHARGES	0	0	0	0	0	0	0	1	0	0	0	0	1	
BLOCKS CLEARED	4	1	1	1	1	0	2	1	0	0	3	0	14	
LOWER SCHUYLKILL WEST - 4 UNITS														
INSPECTIONS	6	9	8	17	10	11	7	9	5	5	5	9	101	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	3	0	1	1	0	0	1	1	0	0	0	2	9	
COBBS CREEK HIGH LEVEL - 23 UNITS														
INSPECTIONS	60	70	66	89	72	69	57	37	72	59	68	80	799	
DISCHARGES	0	0	0	0	0	0	0	2	0	2	2	0	6	
BLOCKS CLEARED	0	1	0	2	0	0	0	2	0	1	1	1	8	
COBBS CREEK LOW LEVEL - 13 UNITS														
INSPECTIONS	28	28	24	36	31	24	25	17	31	25	24	35	328	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	0	0	0	0	0	0	1	0	0	0	0	1	
RELIEF SEWERS - 26 UNITS														
INSPECTIONS	42	41	43	49	54	49	51	34	57	64	58	63	605	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	0	0	0	0	0	0	0	2	0	0	2	4	
TOTALS / MONTH for 201 REGULATOR UNITS													Totals	
TOTAL INSPECTIONS	506	524	451	558	502	543	454	437	495	516	493	524	6003	
TOTAL DISCHARGES	2	0	3	1	0	1	1	4	0	4	4	0	20	
TOTAL BLOCKS CLEARED	27	17	13	16	10	10	19	18	11	17	16	24	198	
AVER. # of INSP. / BC	19	31	35	35	50	54	24	24	45	30	31	22	33	
DISC / 100 INSPECTIONS	0.4	0.0	0.7	0.2	0.0	0.2	0.2	0.9	0.0	0.8	0.8	0.0	0.3	

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
UPPER PENNYPACK 5 NEWPC UNITS															
P01	2	2	2	2	2	2	2	2	3	3	2	3	27	2.3	13.5
P02	2	2	2	2	2	2	3	2	3	3	2	3	28	2.3	13.0
P03	2	2	2	2	3	2	3	2	3	3	2	3	29	2.4	12.6
P04	3	2	2	4	3	2	3	2	3	4	2	4	34	2.8	10.7
P05	2	2	2	2	2	2	2	2	3	3	2	3	27	2.3	13.5
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS															
D02	3	2	2	3	3	2	3	3	4	4	4	2	35	2.9	10.4
D03	2	2	2	3	2	2	3	4	4	4	4	2	34	2.8	10.7
D04	4	2	2	8	2	2	5	4	4	3	5	4	45	3.8	8.1
D05	2	2	2	3	2	2	3	3	4	3	4	3	33	2.8	11.1
D06	2	2	2	3	2	2	3	3	4	3	3	3	32	2.7	11.4
D07	2	2	2	3	2	2	2	3	4	3	3	3	31	2.6	11.8
D08	2	2	2	3	2	2	3	3	3	3	3	3	31	2.6	11.8
D09	2	2	2	3	2	2	2	2	3	3	3	2	28	2.3	13.0
D11	3	2	2	3	2	2	2	2	4	3	4	3	32	2.7	11.4
D12	2	2	2	3	2	2	2	2	3	3	3	2	28	2.3	13.0
D13	2	2	2	3	2	2	2	2	3	3	3	2	28	2.3	13.0
D15	3	2	2	3	2	2	2	2	3	3	4	3	31	2.6	11.8
LOWER FRANKFORD CREEK 6 NEWPC UNITS															
F13	3	7	4	2	3	3	3	4	2	3	3	5	42	3.5	8.7
F14	3	5	3	2	3	3	2	5	3	4	4	6	43	3.6	8.5
F21	2	2	2	2	2	2	2	2	2	2	2	2	22	2.0	16.6
F23	5	2	2	2	2	2	2	2	2	2	1	3	27	2.3	13.5
F24	2	4	2	2	2	2	2	2	2	2	1	3	26	2.2	14.0
F25	4	2	2	2	2	2	2	2	2	2	2	2	24	2.2	15.2
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS															
F03	2	3	2	3	2	3	3	2	3	4	2	3	32	2.7	11.4
F04	2	2	2	3	2	3	2	2	3	4	2	3	30	2.5	12.2
F05	2	2	2	3	2	2	2	2	3	4	2	3	29	2.4	12.6
F06	2	2	2	4	3	4	4	3	3	4	2	3	36	3.0	10.1
F07	2	2	3	3	2	3	4	2	2	2	2	4	31	2.6	11.8
F08	2	2	2	3	2	3	4	2	2	2	2	2	28	2.3	13.0
F09	2	2	3	3	5	3	5	4	2	3	3	5	40	3.3	9.1
F10	2	2	2	3	3	4	3	2	3	2	2	2	30	2.5	12.2
F11	12	8	3	6	2	2	3	4	3	4	3	4	54	4.5	6.8
F12	2	2	2	3	3	3	4	3	2	3	2	3	32	2.7	11.4
FRANKFORD HIGH LEVEL 14 NEWPC UNITS															
T01	2	2	1	2	3	3	2	2	2	3	3	2	27	2.3	13.5
T03	2	4	3	2	3	3	2	2	2	4	6	3	36	3.0	10.1
T04	5	4	5	3	3	3	2	3	2	5	5	3	43	3.6	8.5
T05	2	4	2	3	3	3	3	2	2	5	4	2	35	2.9	10.4
T06	2	2	2	3	3	3	2	2	2	5	5	3	34	2.8	10.7
T07	2	2	2	3	3	3	2	2	2	5	3	2	31	2.6	11.8
T08	2	2	2	3	3	3	3	2	5	6	2	3	36	3.0	10.1
T09	4	2	2	3	2	3	1	3	2	5	6	3	36	3.0	10.1
T10	4	5	2	3	4	2	1	3	2	5	5	4	40	3.3	9.1
T11	3	3	3	3	4	3	2	3	2	6	5	5	42	3.5	8.7
T12	4	4	2	2	2	3	3	2	2	4	6	4	38	3.2	9.6
T13	2	2	4	2	4	2	4	2	2	4	2	6	36	3.0	10.1
T14	2	2	2	2	3	2	1	3	2	3	2	3	27	2.3	13.5
T15	2	2	2	3	2	2	1	2	2	2	2	2	24	2.0	15.2
6 TOTAL DISCHARGES FOR NE & SE DISTRICTS DTR = DAYS TO RETURN TO SITE 0.5 AVERAGE DISCHARGES PER MONTH I/D/C = INSPECTIONS PER DAY PER CREW 11.6 AVER. DAYS BEFORE RETURNING TO SITE I/D = INSPECTIONS PER DISCHARGE 3.9 AVER. INSPECTIONS PER DAY PER CREW															

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
SOMERSET LOW LEVEL 9 NEWPC UNITS															
D17	2	2	3	5	3	4	3	2	3	3	3	3	36	3.0	10.1
D18	2	2	3	4	3	3	3	2	3	3	3	3	34	2.8	10.7
D19	3	3	3	4	3	4	3	2	3	4	3	3	38	3.2	9.6
D20	3	3	4	4	3	3	3	2	3	2	3	3	36	3.0	10.1
D21	3	2	2	4	3	3	3	3	3	3	3	3	35	2.9	10.4
D22	2	2	2	4	2	4	3	2	3	3	3	4	34	2.8	10.7
D23	3	3	2	3	2	3	3	2	3	3	3	2	32	2.7	11.4
D24	2	2	2	3	2	5	2	3	3	3	2	3	32	2.7	11.4
D25	17	3	3	3	3	4	3	4	3	3	2	4	52	4.3	7.0
LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS															
D37	3	3	2	4	4	5	3	5	5	3	2	5	44	3.7	8.3
D38	2	2	2	3	6	5	2	4	3	3	2	3	37	3.1	9.9
D39	2	2	2	3	4	3	2	3	3	4	2	2	32	2.7	11.4
D40	2	3	3	3	3	4	3	2	3	2	2	2	32	2.7	11.4
D41	3	2	2	2	6	4	3	2	4	2	2	3	35	2.9	10.4
D42	2	2	2	2	4	4	2	2	4	2	2	3	31	2.6	11.8
D43	2	3	2	2	4	3	2	2	3	2	2	3	30	2.5	12.2
D44	2	2	3	2	4	2	2	2	3	2	2	3	29	2.4	12.6
D45	1	3	2	2	3	2	3	2	3	4	2	2	29	2.4	12.6
D46	2	4	3	2	2	2	3	2	3	4	2	4	33	2.8	11.1
D47	2	3	2	2	4	2	3	3	3	3	2	2	31	2.6	11.8
D48	3	6	2	3	2	2	3	2	3	3	2	3	34	2.8	10.7
D49	3	2	2	2	2	2	3	3	4	3	2	2	30	2.5	12.2
D50	2	2	2	2	2	2	3	2	2	3	3	2	27	2.3	13.5
D51	3	4	2	2	2	3	2	2	3	3	2	2	30	2.5	12.2
D52	2	4	2	2	2	3	2	2	2	3	2	2	28	2.3	13.0
D53	2	3	2	2	2	3	2	2	2	3	2	2	27	2.3	13.5
D54	2	4	2	2	2	4	2	3	2	3	3	2	31	2.6	11.8
D58	2	2	2	4	3	3	2	3	2	3	3	2	31	2.6	11.8
D61	2	2	2	4	2	2	2	2	2	3	2	2	27	2.3	13.5
D62	2	2	2	3	2	2	2	2	2	3	2	3	27	2.3	13.5
D63	2	2	2	3	2	2	2	2	3	3	2	3	28	2.3	13.0
D64	2	2	2	3	2	2	2	2	2	2	2	3	26	2.2	14.0
D65	2	2	2	2	2	2	2	2	2	2	2	3	25	2.1	14.6
D66	2	2	2	2	2	2	3	1	2	2	2	2	24	2.0	15.2
D67	2	3	2	3	2	3	2	2	2	2	3	2	28	2.3	13.0
D68	2	3	2	2	2	2	1	2	2	2	3	2	25	2.1	14.6
D69	2	3	2	3	2	2	1	2	2	2	3	2	26	2.2	14.0
D70	2	2	2	3	3	3	1	2	2	1	2	2	25	2.1	14.6
D71	1	2	2	3	2	2	1	2	2	1	2	2	22	1.8	16.6
D72	2	2	2	1	2	2		2	2	1	2	1	19	1.7	19.2
D73	1	2	2	2	3	2		2	2	1	2	2	21	1.9	17.4
		1	1	1		2	2	2		3	3	1			
TOTAL	230	231	198	251	232	238	213	218	232	272	246	252	2813		
I/D/C	3.8	3.8	3.3	4.1	3.8	3.9	3.5	3.6	3.8	4.5	4.0	4.1			
UP	11	10	10	12	12	10	13	10	15	16	10	16	145	2.4	12.7
UDLL	29	24	24	41	25	24	32	33	43	38	43	32	388	2.7	11.5
LFC	19	22	15	12	14	14	13	17	9	15	13	21	184	2.6	12.7
LFLL	30	27	23	34	26	30	34	26	32	22	32	34	342	2.9	11.1
FHL	38	40	34	37	42	38	29	34	28	61	60	44	485	2.9	10.8
SLL	37	22	24	34	24	33	26	22	27	27	25	28	329	3.0	10.2
LDLL	66	86	68	81	89	89	66	76	84	83	73	79	924	2.4	13.0

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			1										1
T12	1												1
T13			1			1					1		3
T14													0
T15													0
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	1	0	2	0	0	0	1	0	0	0	1	0	5
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	0	0	0	1	0	0	0	0	0	0	0	0	1

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				1									1
D41													0
D42													0
D43													0
D44													0
D45													0
D46													0
D47													0
D48													0
D49													0
D50													0
D51													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
	1	0	2	1	0	0	1	0	0	0	1	0	6
NO OF UNITS IN DISTRICT BLOCKED													
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	1	0	2	0	0	0	1	0	0	0	1	0	5
SLL	0	0	0	0	0	0	0	0	0	0	0	0	0
LDLL	0	0	0	1	0	0	0	0	0	0	0	0	1

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
UPPER PENNYPACK 5 NEWPC UNITS													
P01													0
P02							1						1
P03		1			1	1	1						4
P04													0
P05									1				1
UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS													
D02													0
D03	1										1		2
D04	1			2			2	3			1		9
D05													0
D06			2	2			1		1		1		7
D07													0
D08	1			1	2	1	1	2	1	1		1	11
D09							1					1	2
D11	1												1
D12													0
D13						1	1				1		3
D15	1	2	2	1							1		7
LOWER FRANKFORD CREEK 6 NEWPC UNITS													
F13		1				1	1				2	1	6
F14			1			1	1	1		2			6
F21													0
F23	1		1	1	1								4
F24										1			1
F25			1				1	1					3
LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS													
F03													0
F04													0
F05													0
F06													0
F07						1							1
F08													0
F09									1				1
F10						2			1				3
F11	1									1		1	3
F12		1											1
FRANKFORD HIGH LEVEL 14 NEWPC UNITS													
T01													0
T03											2		2
T04							1			1			2
T05													0
T06		1											1
T07													0
T08													0
T09													0
T10													0
T11				1									1
T12													0
T13		1							1				2
T14													0
T15													0

10.58 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			2
D18													0
D19					1			1		1			3
D20	1												1
D21													0
D22												1	1
D23										2			2
D24													0
D25													0
LOWER DELAWARE LOW LEVEL 33 NEWPC UNITS													
D37		1			1							1	3
D38						1							1
D39													0
D40			1	1					1	1	1	2	7
D41													0
D42												1	1
D43												1	1
D44													0
D45													0
D46			1									1	2
D47													0
D48					1	1	1					1	4
D49	1												1
D50											1		1
D51													0
D52													0
D53													0
D54													0
D58								1	1				2
D61													0
D62									1		1	1	3
D63		1											1
D64													0
D65					1		1					1	3
D66												1	1
D67												2	2
D68													0
D69													0
D70													0
D71													0
D72													0
D73													0
D75													0

	9	9	9	9	9	10	15	10	7	12	11	17	TOTAL
													127

UP	0	1	0	0	1	1	2	0	1	0	0	0	6
UDLL	5	2	4	6	2	2	6	5	2	1	5	2	42
LFC	1	1	3	1	1	2	3	2	0	3	2	1	20
LFLL	1	1	0	0	0	3	0	0	2	1	0	1	9
FHL	0	2	0	1	0	0	1	0	1	1	2	0	8
SL	1	0	0	0	2	0	0	1	0	4	0	1	9
LDLL	1	2	2	1	3	2	3	2	1	2	2	12	33

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR	
CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS																
S05	4	7	2	4	2	4	3	4	2	2	2	2	38	3.2	9.6	
S06	4	7	2	4	2	4	3	3	2	2	4	2	39	3.3	9.4	
S07	4	7	2	4	2	2	3	3	2	2	2	2	35	2.9	10.4	
S08	4	7	6	4	2	3	3	5	2	2	2	2	42	3.5	8.7	
S09	7	7	3	4	2	4	3	4	2	5	2	2	45	3.8	8.1	
S10	2	2	2	4	2	2	3	3	2	2	2	2	28	2.3	13.0	
S12	2	3	3	3	3	3	4	4	2	2	2	4	35	2.9	10.4	
S12A	2	3	4	4	3	3	4	3	2	2	2	3	35	2.9	10.4	
S13	2	2	2	2	3	3	3	2	2	2	1	2	26	2.2	14.0	
S15	3	3	2	2	2	3	4	3	1	2	1	2	28	2.3	13.0	
S16	2	3	2	2	2	2	2	2	2			1	22	2.0	16.6	
S17	2	4	2	2	2	2	2	2	2			1	23	2.1	15.9	
S18	5	5	2	2	2	4	2	2	2	2	1	2	31	2.6	11.8	
S19	2	3	2	2	2	3	3	1	3	2	1	2	26	2.2	14.0	
S21	2	2	2	3	2	3	3	2	2	1	1	2	25	2.1	14.6	
S23	3	3	3	2	2	4	2	4	2	1	2	2	30	2.5	12.2	
S25	4	3	3	2	2	4	2	1	2	1	1	2	27	2.3	13.5	
S26	2	2	2	3	2	2	2	2	2	1		2	22	2.0	16.6	
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS																
S31	2	2	3	2	1	2	1	2	1	1	1		18	1.6	20.3	
S35	1	2	2	2	2	2	1	2	1	1	1		17	1.5	21.5	
S36	1	2	2	1	2	1	1	1	2	2	1	1	17	1.4	21.5	
S36A	1	2	2	3	1	2	1	1				2	15	1.7	24.3	
S37	1	2	2	1	2	1	1	1	2	3	1	1	18	1.5	20.3	
S42	16	6	3	3	2	7	3	6	6	7	8	5	72	6.0	5.1	
S42A	12	5	3	3	2	7	2	5	4	4	3	1	51	4.3	7.2	
S44	1	2	2	1	2	1	1	1	2	2	1	1	17	1.4	21.5	
S46	1	2	4	2	2	2	1	1	1	1	1	1	19	1.6	19.2	
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS																
S01	2	2	2	2	2	3	2	1	2	5	2	2	27	2.3	13.5	
S02	2	2	2	2	2	3	2	1	1	5	2	2	26	2.2	14.0	
S03	2	2	4	2	2	3	2	1	1	4	4	2	29	2.4	12.6	
S04	2	2	3	2	2	3	2	1	2	2	2	2	25	2.1	14.6	
S11	5	3	2	3	3	4	2	2	2	3	1	2	32	2.7	11.4	
S14	2	2	2	2	2	3	2	2	2	3	1	2	25	2.1	14.6	
S20	3	4	3	2	2	7	2	3	3	1	2	2	34	2.8	10.7	
S22	2	2	2	2	3	3	2	2	2	2	2	2	26	2.2	14.0	
S24	2	2	2	2	3	3	2	2	2	1	2	2	25	2.1	14.6	
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS																
S27	2	2	2	2	3	3	2	2	3		2	2	25	2.3	14.6	
S28	2	3	2	2	3	3	2	2	2		2	2	25	2.3	14.6	
S30	2	2	2	2	3	3	2	2	2	1	2	2	25	2.1	14.6	
S34	2	2	2	2	3	3	1	2	2		2	1	22	2.0	16.6	
S39	1	2	2	2	3	4	2	2	3	2		2	24	2.2	15.2	
S40	1	2	2	2	1	2	1	2	2		6	1	22	2.0	16.6	
S43	1	2	2	2	1	4	1	2	1	1	2	1	20	1.7	18.2	
S47	1	2	2	2	3	2	1	3	3	1	3		23	2.1	15.9	
S50	12	5	3	6	4	12	5	15	5	4	6	6	83	6.9	4.4	
S51	2	4	2	3	2	6	3	4	4	2	4	2	38	3.2	9.6	
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS																
S32	2	3	2	5	4	3	2	3	1	1		3	29	2.6	12.6	
S33	2	2	2	4	2	3	2	2	1	2	1	2	25	2.1	14.6	
S38	2	2	2	4	2	3	2	2	1	2	2	2	26	2.2	14.0	
S45	2	2	2	4	2	2	1	2	2		2	2	21	2.1	17.4	
14	TOTAL DISCHARGES IN SW DISTRICT														DTR = DAYS TO RETURN TO SITE	
1.2	AVERAGE DISCHARGES PER MONTH														I/D/C = INSPECTIONS PER DAY PER CREW	
13.8	AVER. DAYS BEFORE RETURNING TO SITE														I/D = INSPECTIONS PER DISCHARGE	
2.4	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	2	2	3	5	3	4	2	2	3	3	3	3	35	2.9	10.4
C02	2	2	3	5	3	4	2	2	3	3	3	3	35	2.9	10.4
C04	3	3	3	4	3	3	2	2	3	2	3	3	34	2.8	10.7
C04A	3	4	3	4	3	3	2	2	3	2	3	3	35	2.9	10.4
C05	3	2	2	4	3	2	2	2	3	2	3	4	32	2.7	11.4
C06	3	4	3	4	4	2	4	1	3	2	3	3	36	3.0	10.1
C07	3	3	3	4	4	2	4	3	3	2	2	3	36	3.0	10.1
C09	3	3	4	3	4	2	3	1	3	2	2	3	33	2.8	11.1
C10	3	4	3	3	3	2	2	1	3	2	2	3	31	2.6	11.8
C11	2	2	2	2	2	2	3	2	3	5	10	9	44	3.7	8.3
C12	2	3	2	4	2	3	2	1	3	2	2	2	28	2.3	13.0
C13	2	2	2	2	2	2	2	1	3	2	2	2	24	2.0	15.2
C14	3	2	2	3	3	2	2	2	3	2	4	7	35	2.9	10.4
C15	3	1	2	3	3	2	2	2	3	2	2	3	28	2.3	13.0
C16	3	2	2	3	3	2	2	2	3	2	2	3	29	2.4	12.6
C17	2	2	2	3	3	2	2	2	3	2	2	3	28	2.3	13.0
C18	2	2	2	3	3	2	2	2	3	2	2	2	27	2.3	13.5
C31	2	4	4	5	3	4	4	1	3	4	3	3	40	3.3	9.1
C32	3	5	3	4	3	4	2	1	3	2	2	3	35	2.9	10.4
C33	2	2	3	5	3	4	2	1	3	3	3	3	34	2.8	10.7
C34	2	2	3	4	3	4	2	1	3	3	3	3	33	2.8	11.1
C35	2	5	4	4	3	4	3	1	3	3	3	3	38	3.2	9.6
C36	2	5	3	4	3	4	2	1	3	3	2	3	35	2.9	10.4
C37	3	4	3	4	3	4	2	1	3	2	2	3	34	2.8	10.7
COBBS CREEK LOW LEVEL 12 SWWPC UNITS															
C19	3	2	2	3	4	2	2	2	3	2	2	3	30	2.5	12.2
C20	4	3	2	3	3	2	2	2	3	2	2	3	31	2.6	11.8
C21	2	3	2	3	3	2	2	2	3	2	2	3	29	2.4	12.6
C22	2	3	2	3	3	2	2	1	3	2	2	3	28	2.3	13.0
C23	2	2	2	3	3	2	2	1	3	2	2	3	27	2.3	13.5
C24	2	2	2	3	2	2	2	1	3	2	2	3	26	2.2	14.0
C25	3	2	2	4	3	2	3	3	3	3	2	3	33	2.8	11.1
C26	2	2	2	4	2	2	2	1	2	2	2	3	26	2.2	14.0
C27	2	2	2	3	2	2	2	1	2	2	2	3	25	2.1	14.6
C28A	2	2	2	3	2	2	2	1	2	2	2	3	25	2.1	14.6
C29	2	2	2	2	2	2	2	1	2	2	2	3	24	2.0	15.2
C30	2	3	2	2	2	2	2	1	2	2	2	2	24	2.0	15.2
TOTAL															
234 252 210 258 216 256 190 185 206 180 189 209 2585															
I/D/C															
2.6 2.8 2.3 2.8 2.4 2.8 2.1 2.0 2.3 2.0 2.1 2.3															
CSES															
56 73 46 53 39 55 51 50 36 35 26 37 557 2.6 12.3															
LSES															
36 25 23 18 16 25 12 20 19 21 17 12 244 2.3 17.8															
CSW															
22 21 22 19 21 32 18 15 17 26 18 18 249 2.3 13.3															
SWMG															
26 26 21 26 27 40 20 37 26 9 31 18 307 2.7 14.0															
LSW															
6 9 8 17 10 11 7 9 5 5 5 9 101 2.2 14.6															
CCHL															
60 70 66 89 72 69 57 37 72 59 68 80 799 2.8 11.2															
CCLL															
28 28 24 36 31 24 25 17 31 25 24 35 328 2.3 13.5															

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													0
S12A													0
S13													0
S15													0
S16													0
S17													0
S18													0
S19													0
S21													0
S23								1		1			2
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			1							1	1		3
S04													0
S11	1												1
S14													0
S20						1							1
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									1				1
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									1				1
C09													0
C10													0
C11									1		1	1	3
C12													0
C13													0
C14											1		1
C15													0
C16													0
C17													0
C18													0
C31													0
C32													0
C33													0
C34													0
C35										1			1
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	1	0	0	1	0	4	0	4	3	0	14
NO OF UNITS IN DISTRICT BLOCKED													
													TOTAL
CSE	0	0	0	0	0	0	0	1	0	1	0	0	2
LSE	0	0	0	0	0	0	0	0	0	0	0	0	0
CSW	1	0	1	0	0	1	0	0	0	1	1	0	5
SWG	0	0	0	0	0	0	0	1	0	0	0	0	1
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	0	0	0	0	0	0	2	0	2	2	0	6
CCLL	0	0	0	0	0	0	0	0	0	0	0	0	0
NO OF DISCHARGES IN DISTRICT													
													TOTAL
CSE	0	0	0	0	0	0	0	1	0	1	0	0	2
LSE	0	0	0	0	0	0	0	0	0	0	0	0	0
CSW	1	0	1	0	0	1	0	0	0	1	1	0	5
SWG	0	0	0	0	0	0	0	1	0	0	0	0	1
LSW	0	0	0	0	0	0	0	0	0	0	0	0	0
CCHL	0	0	0	0	0	0	0	2	0	2	2	0	6
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		1											1
S06													0
S07	1												1
S08	1		1	2									4
S09	3	1											4
S10													0
S12													0
S12A													0
S13													0
S15		1											1
S16													0
S17													0
S18	1	2											3
S19													0
S21							1	1				1	3
S23				1									1
S25	1												1
S26													0
LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS													
S31													0
S35													0
S36													0
S36A													0
S37													0
S42	1		1					1					3
S42A	1							1	1		1		4
S44													0
S46													0
CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS													
S01										2			2
S02													0
S03													0
S04													0
S11	1	1											2
S14	1								2			1	4
S20													0
S22									1				1
S24													0
SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS													
S27													0
S28							1						1
S30	1		1										2
S34		1											1
S39							1						1
S40											2		2
S43	1												1
S47										1			1
S50	2			1	1			1					5
S51													0
LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS													
S32								1					1
S33	2		1	1			1					1	6
S38	1											1	2
S45													0
6.091 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													0
C04													0
C04A													0
C05													0
C06					1								1
C07		1											1
C09													0
C10					1								1
C11										1	1		2
C12													0
C13													0
C14													0
C15													0
C16													0
C17													0
C18													0
C31													0
C32													0
C33												1	1
C34									1				1
C35									1				1
C36													0
C37													0
COBBS CREEK LOW LEVEL 12 SWWPC UNITS													
C19													0
C20													0
C21													0
C22													0
C23													0
C24													0
C25										1			1
C26													0
C27													0
C28A													0
C29													0
C30													0
													TOTAL
													67
CSE	7	5	1	3	0	0	1	1	0	0	0	1	19
LSE	2	0	1	0	0	0	0	2	1	0	1	0	7
CSW	2	1	0	0	0	0	0	0	1	4	0	1	9
SWG	4	1	1	1	1	0	2	1	0	0	3	0	14
LSW	3	0	1	1	0	0	1	1	0	0	0	2	9
CCHL	0	1	0	2	0	0	0	2	0	1	1	1	8
CCLL	0	0	0	0	0	0	0	1	0	0	0	0	1

RELIEF SEWER MONTHLY INSPECTION													
SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
THOMAS RUN RELIEF SEWER													
R01	2	3	2	2	2	2	3	2	3	3	3	3	30
R02	2	3	2	2	2	2	2	2	3	3	3	3	29
R03	2	3	2	2	2	2	2	2	3	3	3	3	29
R04	2	2	2	2	2	2	2	2	3	3	3	3	28
R05	3	2	2	2	2	2	2	2	3	3	3	2	28
R06	1	2	2	2	2	2	2	2	3	3	3	3	27
MAIN RELIEF SEWER													
R07	2	2	2	2	3	2	3	1	3	4	2	2	28
R08	2	2	2	3	3	2	2	2	2	3	2	2	27
R09	1	2	2	2	2	2	2	2	2	3	2	2	24
R10	1	1	2	2	2	2	2	1	2	3	2	2	22
R11	1		2	2	2	2	2	1	2	3	2	2	21
R11A	1		2	2	2	2	2	1	2	3	2	2	21
R12	1		1	2	2	2	3		2	2	2	2	19
WAKLING RELIEF SEWER													
R13	2	1	2	2	2	2	2	1	2	2	2	3	23
R14	2	1	2	2	2	2	1	1	2	2	2	3	22
ROCK RUN STORM FLOOD RELIEF SEWER													
R15	2	2	2	2	2	2	2	1	2	2	2	4	25
OREGON AVE RELIEF SEWER													
R16	2	2	2	2	2	2	2	2	2	1	2	2	23
R17	2	2	2	2	2	2	2	2	2	1	2	3	24
FRANKFORD HIGH LEVEL RELIEF SEWER													
R18	2	2	1	2	2	2	3	1	2	2	2	3	24
32ND ST RELIEF SEWER													
R19	2	1	1	2	3	3	2	1	2	2	2	3	24
MAIN STREET RELIEF SEWER													
R20	2	1	1	2	2	2	1	1	2	2	2	3	21
SOMERSET SYSTEM DIVERSION CHAMBER													
R21													0
TEMPORARY REGULATOR CHAMBER													
R22													
R23	2	2	1	2	2	2	2		2	3	2	2	22
ARCH ST RELIEF SEWER													
R24	1	2	1	2	2	1	2	1	2	3	3	2	22
16TH & SNYDER													
R25	1	2	2	2	2	1	2	3	2	3	3	2	25
GRANT & STATE RD. RELIEF													
R26	1	1	1		3	2	1		2	2	2	2	17
TOTAL	42	41	43	49	54	49	51	34	57	64	58	63	605
AVER	1.6	1.5	1.6	1.8	2.0	1.8	1.9	1.3	2.1	2.4	2.1	2.3	1.9

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
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	0

RELIEF SEWER MONTHLY BLOCKS CLEARED														PAGE 9
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	
R14													0	
ROCK RUN STORM FLOOD RELIEF SEWER														
R15												1	1	
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												1	1	
SOMERSET SYSTEM DIVERSION CHAMBER														
R21													0	
TEMPORARY REGULATOR CHAMBER														
R22													0	
R23													0	
ARCH ST RELIEF SEWER														
R24													0	
16TH & SNYDER														
R25											2		2	
GRANT & STATE RD. RELIEF														
R26													0	
TOTAL	0	0	0	0	0	0	0	0	2	0	0	2	4	
AVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	

FY 2016 CSO Dry Weather Discharge Listing

Discharge Observed		Discharge Stopped		Last Inspection		Site ID	Collector	Type Unit	Location	Comment
Date	Time	Date	Time	Date	Time					
09-Jul-15	12:50 PM	09-Jul-15	2:20 PM	01-Jul-15	2:30 PM	T-12	FHL	SLOT	Whitaker Ave. E of Tacony Creek	DEBRIS IN DWO PIPE.
24-Jul-15	8:40 AM	24-Jul-15	1:30 PM	23-Jul-15	2:00 PM	S-11	CSW	DAM	Market St. (in PRR Baggage Room)	BLOCKAGE IN DWO PIPE.
11-Sep-15	2:30 PM	11-Sep-15	6:10 PM	08-Sep-15	12:10 PM	S-03	CSW	SLOT	Spring Garden St. W of Schuylkill Exp.	SLOT AND DWO BLOCKED WITH GRIT AND DEBRIS.
14-Sep-15	12:30 PM	14-Sep-15	1:00 PM	05-Sep-15	12:50 PM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek	DWO OUTLET BLOCKED WITH STEERING WHEEL AND DEBRIS.
23-Sep-15	1:40 PM	23-Sep-15	2:40 PM	05-Sep-15	10:50 AM	T-11	FHL	SLOT	Ruscomb St. E of Tacony Creek	DEBRIS IN SLOT.
01-Oct-15	11:20 AM	01-Oct-15	12:20 PM	15-Sep-15	8:30 AM	D-40	LDLL	SLOT	Berks St. E of Beach St.	BRICKS AND DIRT IN SLOT.
16-Dec-15	9:50 AM	16-Dec-15	11:30 AM	10-Dec-15	11:40 AM	S-20	CSW	B & B	NNW of South St. (Behind Penn Stad.)	LOG IN REGULATOR INLET.
21-Jan-16	8:30 AM	21-Jan-16	9:20 AM	16-Jan-16	10:30 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek	CLOTHES, DEBRIS AND GRIT IN SLOT.
10-Feb-16	2:40 PM	10-Feb-16	3:50 PM	03-Feb-16	8:30 AM	S-23	CSES	B & B	Schuylkill Ave. & Bainbridge St.	GRIT AND DEBRIS BLOCKING REGULATOR INLET AND SHUTTERGATE.
26-Feb-16	10:00 AM	26-Feb-16	11:00 AM	25-Feb-16	11:30 AM	S-50	SWM	B & B	43rd St. E of Woodland Ave.	DEBRIS ACUMULATED ON BAR SCREEN FOLLOWING RAIN STORMS.
29-Feb-16	8:40 AM	29-Feb-16	9:20 AM	18-Feb-16	8:40 AM	C-07	CCHL	SLOT	Lansdowne Ave. & 69th St.	DEBRIS AND GRIT IN SLOT.
29-Feb-16	10:00 AM	29-Feb-16	4:40 PM	22-Feb-16	11:10 AM	C-11	CCHL	SLOT	63rd St. S of Market St.	GRIT AND DEBRIS IN SLOT AND DWO PIPE.
08-Apr-16	9:10 AM	08-Apr-16	10:00 AM	19-Mar-16	11:20 AM	S-23	CSES	B & B	Schuylkill Ave. & Bainbridge St.	SHUTTER GATE ROD BROKE AND SHUTTER GATE CLOSED.
14-Apr-16	10:20 AM	14-Apr-16	12:50 PM	04-Mar-16	2:50 PM	S-03	CSW	SLOT	Spring Garden St. W of Schuylkill Exp.	SLOT FILLED WITH GRIT.
27-Apr-16	11:20 AM	27-Apr-16	2:10 PM	05-Apr-16	11:50 AM	C-35	CCHL	SLOT	Morris Park W of 72nd St. & Sherwood Rd.	DWO PIPE BLOCKED WITH DEBRIS.
28-Apr-16	9:00 AM	03-May-16	1:50 PM	12-Apr-16	9:30 AM	C-11	CCHL	SLOT	63rd St. S of Market St.	WOOD AND CLOTHES IN DWO PIPE.
25-May-16	1:20 PM	25-May-16	2:40 PM	23-May-16	1:40 PM	S-03	CSW	SLOT	Spring Garden St. W of Schuylkill Exp.	SLOT BOX FULL OF GRIT.
31-May-16	7:20 AM	31-May-16	4:00 PM	25-May-16	9:00 AM	C-11	CCHL	SLOT	63rd St. S of Market St.	ROCKS,GRIT AND DEBRIS IN SLOT.
31-May-16	10:00 AM	31-May-16	1:50 PM	16-May-16	9:10 AM	C-14	CCHL	SLOT	Baltimore Ave. & Cobbs Creek	DEBRIS AND LARGE TURTLE WEDGED IN SLOT.
31-May-16	8:20 AM	31-May-16	8:50 AM	13-May-16	10:10 AM	T-13	FHL	SLOT	Whitaker Ave. W of Tacony Creek	ROCKS AND GRIT IN DWO

Dry Weather Discharges are continually tracked and analyzed to determine if new or modified maintenance procedures would help to prevent them from occurring. Although our established procedures have greatly reduced the number and duration of these discharges, the combined system picks up all manner of trash and debris that is unpredictable in its pattern of causing flow disruptions. Despite incorporating best management practices including; having all inlets trapped and cleaned; preventative maintenance schedules for sewer flushing and cleaning or the regulators; CCTV inspection of DWO pipes; etc., it is virtually impossible to eliminate all blockages before they occur.

The City continues to aggressively control and minimize these dry weather overflows by utilizing the latest technology-based controls including our Collector System Remote Monitoring Network that currently includes over 320 sites with over 720 individual level and/or flow measurements. The CSO maintenance personnel are trained in the use of the system's computer programs for analyzing the data and have developed a comprehensive understanding of individual CSO site's distinct flow patterns. This familiarity allows them to quickly recognize abnormal conditions that may indicate accumulating debris so that they can respond before developing into a dry weather CSO blockage.

Appendix B

FY 2016 Annual CSO Miscellaneous Site & Maintenance Report

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													
	13	6	5	4	7	8	4	7	6	6	6	6	78
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE													
	2	2	1	2	2	2	2	2	2	4	4	2	27
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.													
	2	2	2	2	2	2	2	2	2	4	4	3	29
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.													
	2	2	2	2	2	2	2	2	2	3	2	2	25
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.													
	2	2	2	2	2	2	2	2	3	3	2		26
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.													
	2	2	2	2	2	2	2	2	2	2	2	3	25
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.													
	2	2	2	2	3	2	2	2	2	4	3	3	29
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.													
	2	2	2	2	2	2	1	2	2	3	3	3	26
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.													
	2	2	2	2	2	3	2	2	3	3	3		28
T-089-04-CFD-01 FRANKLIN & HASBROOK													
	12	6	5	4	7	8	5	7	6	5	7	4	76
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
	12	6	4	3	4	6	3	6	4	7	6	6	67
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
	12	6	4	3	4	6	3	7	5	6	5	4	65
Totals	65	40	33	30	39	44	31	43	37	50	48	41	501

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					4						5
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
													0
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
													0
Totals	0	1	0	0	0	0	4	0	0	0	0	0	5

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													
					1				1			1	3
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE													
		2		1				1		1		1	6
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.													
								1				1	2
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.													
								1		1		1	3
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	2		1	1	1	1	2	2	1		12
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
		2	2	3			1	2		1	2	1	14
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
		1			2		1	1		1			6
Totals	3	5	6	3	2	3	5	4	5	6	2	5	49

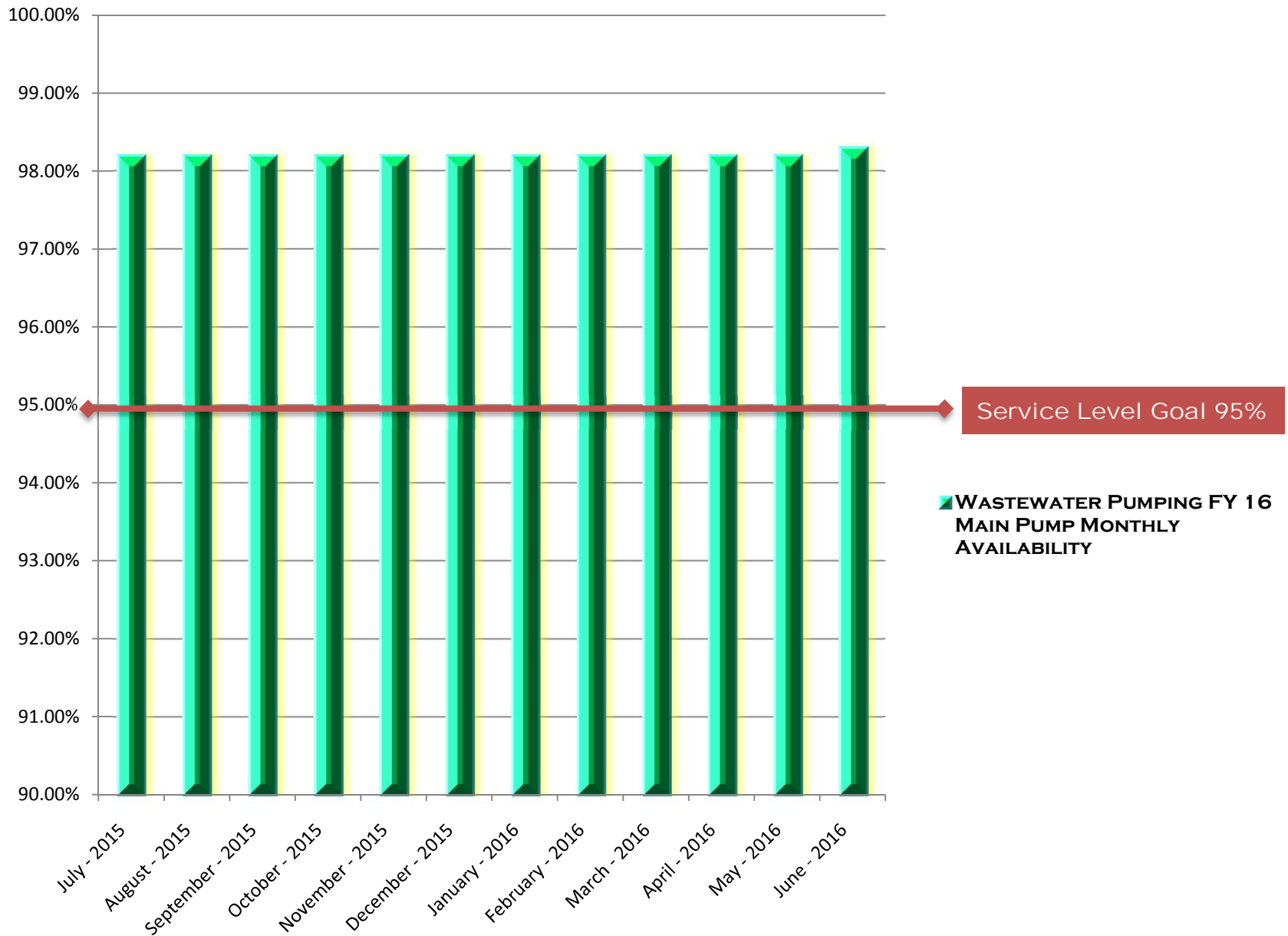
Collector System - Flow Control Unit - FY 2016 CSO Annual Report Miscellaneous Maintenance

SOMERSET GRIT CHAMBER CLEANINGS		T-04 FLOATABLES PILOT PROJECT DEBRIS NET REPLACEMENTS		CSO B&B REGULATOR MAINTENANCE		CSO TIDE GATE MAINTENANCE		CSO OUTFALL - DEBRIS GRILL MAINTENANCE		CSPS SIPHON GRIT POCKET CLEANINGS		COMPUTER CONTROL CHAMBER PREVENTATIVE MAINTENANCE					
DATE	TONS	DATE	TOTAL WEIGHT	DATE	SITE	DATE	SITE	DATE	SITE	DATE	CU. YARDS	DATE	SITE	DATE	SITE	DATE	SITE
Out of Service for sewer rehabilitation		Discontinued 12/31/2012		8/1/2015	S-5	10/16/2015	S-2	2/20/2016	D-5	7/21/2015	20	7/2/2015	Venice	11/6/2015	D-2	3/16/2016	Venice
				8/1/2015	S-7	2/29/2016	S-42	5/14/2016	C-11*	10/19/2015	40	7/3/2015	F-25	11/6/2015	D-3	3/17/2016	D-9
				10/16/2015	S-1	3/10/2016	F-11			1/25/2015	20	7/6/2015	D-7	11/23/2015	H-29	3/17/2016	D-11
				10/16/2015	S-2				* NEW Installation	6/23/2016	20	7/6/2015	D-9	11/23/2015	H-35	3/23/2016	D-15
				2/27/2016	S-6							7/6/2015	H - 29	11/25/2015	D-5	3/28/2016	State Rd.
				3/1/2016	S-9							7/8/2015	H - 35	11/25/2015	D-15	3/30/2016	T-14
				3/1/2016	D-4							7/9/2015	D-2	11/27/2015	State Rd.	3/30/2016	Rock run
				3/1/2016	D-73							7/9/2015	D-3	11/30/2015	Fish Ladder	4/6/2016	D-5
				3/2/2016	S-7							7/13/2015	D-5	12/2/2015	Venice	4/6/2016	D-11
				3/2/2016	D-47							7/14/2015	D - 15	12/4/2015	D-15	4/7/2016	D-15
				3/3/2016	D-38							7/16/2015	D - 11	12/7/2015	D-2	4/7/2016	D-7
				3/3/2016	S-22							7/23/2015	State Rd.	12/9/2015	Rock run	4/8/2016	D-9
				3/7/2016	D-48							7/29/2015	Fish Ladder	12/10/2015	T-14	4/11/2016	H-29
				3/8/2016	D-49							7/31/2015	T-14	12/16/2015	D-5	4/13/2016	D-3
				3/8/2016	S-19							8/5/2015	F-25	12/16/2015	D-7	4/14/2016	T-14
				3/9/2016	D-65							8/5/2015	D-5	12/21/2015	D-3	4/18/2016	Fish Ladde
				3/9/2016	S-47							8/6/2015	D-9	12/21/2015	D-9	4/20/2016	T-14
				3/10/2016	D-50							8/6/2015	D-11	12/23/2015	H-29	4/20/2016	Rock run
				3/11/2016	S-24							8/7/2015	D-7	12/28/2015	State Rd.	4/21/2016	D-2
				3/31/2016	S-20							8/10/2015	D-2	1/4/2016	D-5	4/22/2016	State Rd.
				3/31/2016	D-51							8/10/2015	D-3	1/4/2016	D-15	5/9/2016	Venice
				4/1/2016	S-8							8/12/2015	T-14	1/8/2016	D-2	5/11/2016	D-7
				4/1/2016	D-39							8/13/2015	Rock run	1/8/2016	D-7	5/11/2016	D-9
				4/4/2016	D-37							8/17/2015	D-15	1/11/2016	D-9	5/12/2016	D-3
				4/4/2016	S-26							8/17/2015	H-29	1/11/2016	D-11	5/12/2016	D-2
				4/6/2016	D-58							8/19/2015	Fish Ladder	1/12/2016	Venice	5/13/2016	D-5
				4/6/2016	D-61							8/19/2015	Venice	1/13/2016	T-14	5/16/2016	D-11
				4/6/2016	S-23							9/9/2015	D-2	1/13/2016	H-29	5/16/2016	D-15
				4/7/2016	D-63							9/9/2015	D-3	1/14/2016	Rock Run	5/19/2016	State Rd.
				4/22/2016	S-1							9/10/2015	D-7	1/14/2016	D-3	5/24/2016	Rock run
				4/22/2016	S-2							9/11/2015	D-9	1/22/2016	F-25	5/25/2016	T-14
												9/14/2015	D-5	1/25/2016	State Rd.	5/25/2016	Art Museur
												9/14/2015	D-11	2/1/2016	T-14	5/25/2016	Fish Ladde
												9/16/2015	H-29	2/1/2016	Rock run	6/2/2016	D-15
												9/21/2015	T-14	2/3/2016	D-7	6/2/2016	D-11
												9/29/2015	H-35	2/3/2016	D-9	6/3/2016	D-2
												10/5/2015	D-5	2/4/2016	Venice	6/3/2016	D-3
												10/5/2015	D-7	2/8/2016	D-5	6/6/2016	Venice
												10/7/2015	D-3	2/8/2016	D-2	6/9/2016	D-5
												10/7/2015	D-2	2/11/2016	D-15	6/9/2016	D-7
												10/14/2015	D-9	2/11/2016	F-25	6/13/2016	D-9
												10/14/2015	H-29	2/12/2016	D-3	6/13/2016	State Rd.
												10/14/2015	D-11	2/12/2016	D-11	6/13/2016	F-25
												10/15/2015	D-15	2/17/2016	State Rd.	6/15/2016	T-14
												10/16/2015	F-25	2/18/2016	H-29	6/17/2016	Fish Ladde
												10/16/2015	T-14	3/4/2016	D-2	6/17/2016	Art Museur
												10/21/2015	Venice	3/4/2016	D-3	6/22/2016	Rock run
												10/26/2015	H-35	3/7/2016	D-5		
												10/30/2015	State Rd.	3/7/2016	D-7		
												11/2/2015	D-9	3/10/2016	Fish Ladder		
												11/5/2015	T-14	3/14/2016	H-29		

Appendix C

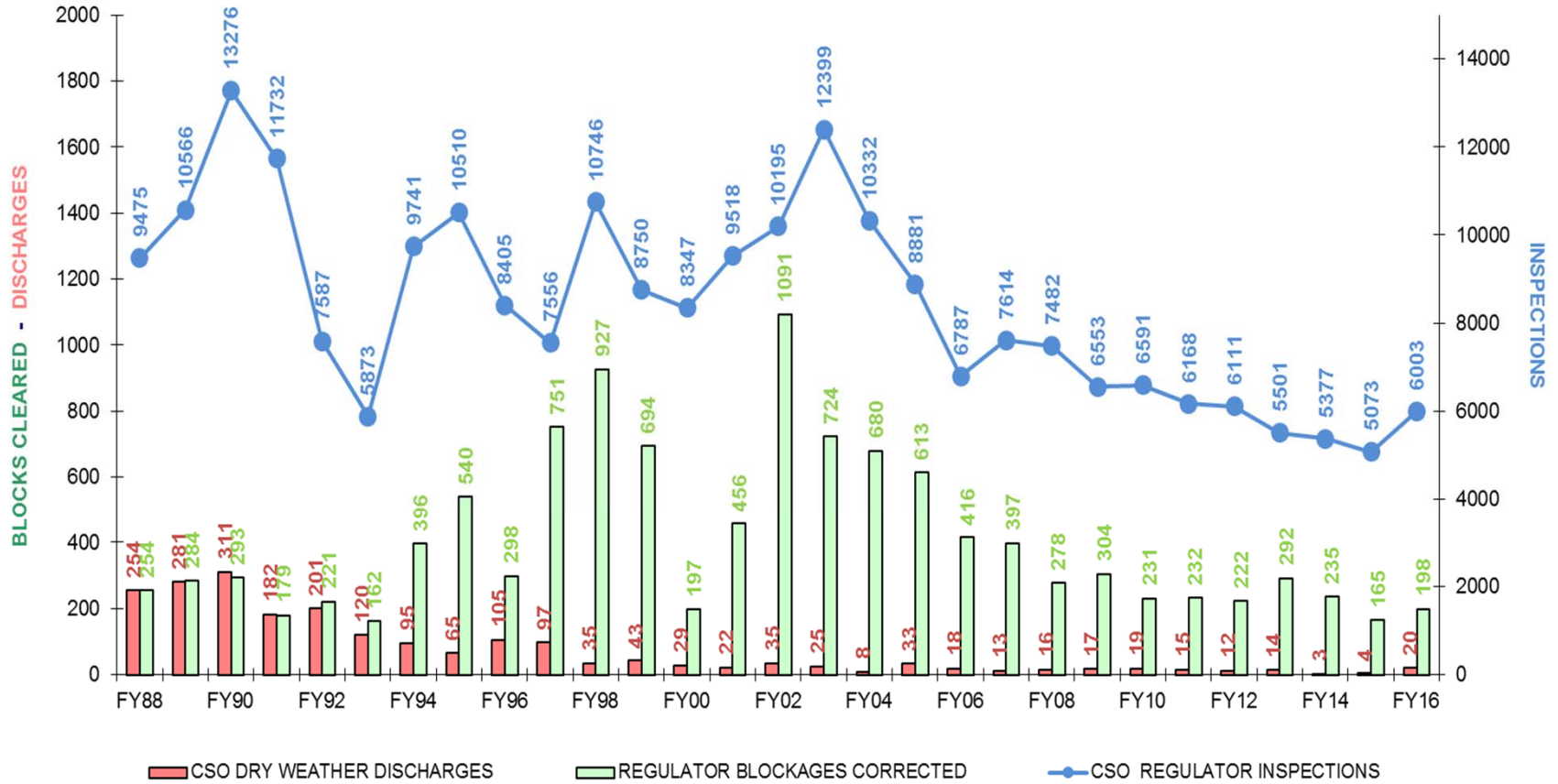
FY 2016 Main Pump Availability Chart

Wastewater-Pumping FY 16 Main Pump Monthly Availability

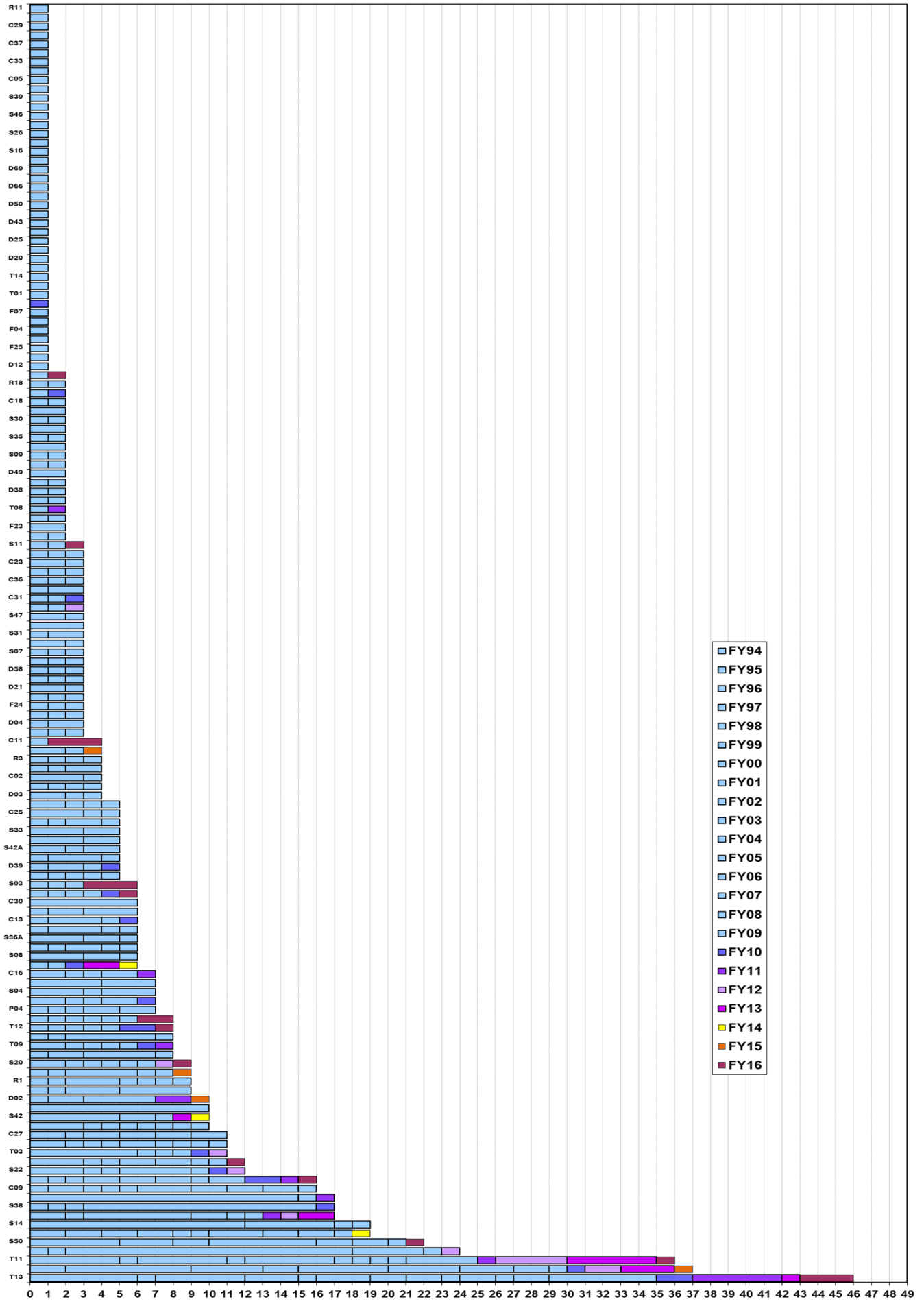


Appendix D
Historical CSO Charts

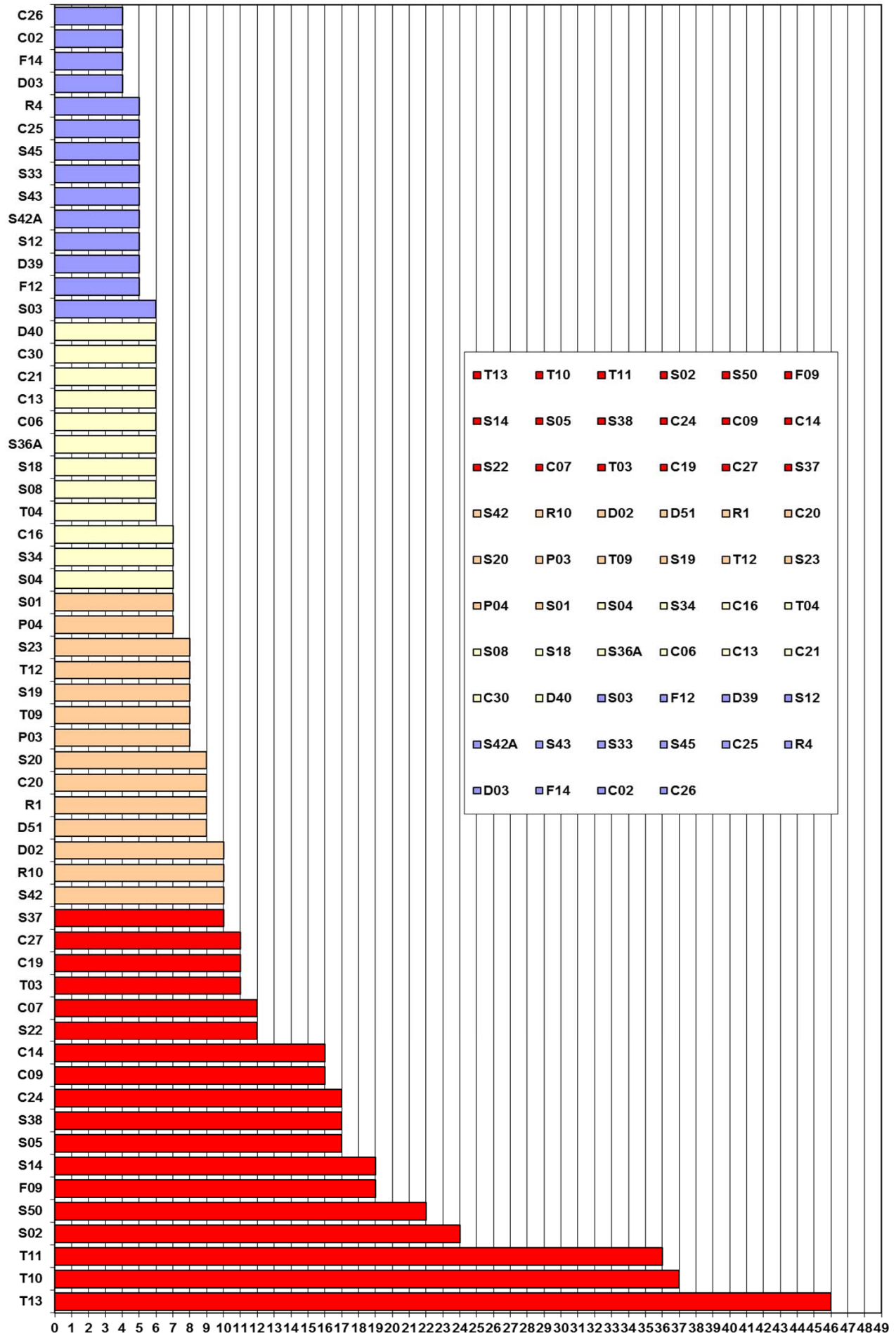
Flow Control - CSO Maintenance FY87 to FY16 Inspections / Discharges / Blocks Corrected



PWD FLOW CONTROL - CSO DISCHARGE HISTORY - FISCAL YEAR 1994 TO 2016

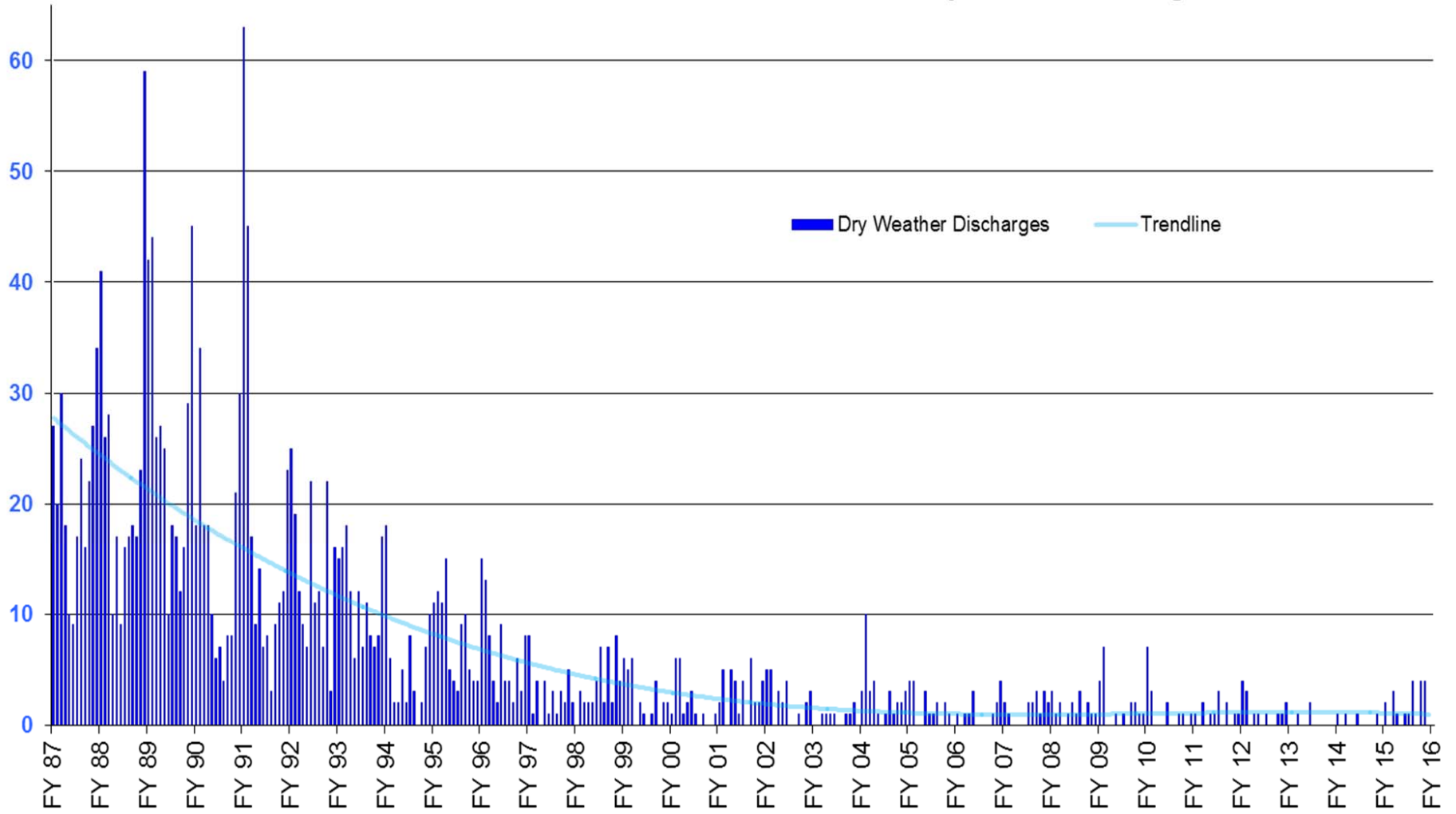


CSO Sites With 4 or More Dry Weather Discharges Since FY 1994



■ T13	■ T10	■ T11	■ S02	■ S50	■ F09
■ S14	■ S05	■ S38	■ C24	■ C09	■ C14
■ S22	■ C07	■ T03	■ C19	■ C27	■ S37
□ S42	□ R10	□ D02	□ D51	□ R1	□ C20
□ S20	□ P03	□ T09	□ S19	□ T12	□ S23
□ P04	□ S01	□ S04	□ S34	□ C16	□ T04
□ S08	□ S18	□ S36A	□ C06	□ C13	□ C21
□ C30	□ D40	■ S03	■ F12	■ D39	■ S12
■ S42A	■ S43	■ S33	■ S45	■ C25	■ R4
■ D03	■ F14	■ C02	■ C26		

Flow Control - CSO Maintenance FY87 to FY16 Dry Weather Discharges



Appendix D – Annual CSO Status Report FY 2016

APPENDIX D –
NPDES ANNUAL CSO STATUS REPORT FY 2016

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CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

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	Complot 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
31	40d 2m 9s	75d 6m 48s	Rising Sun Ave West of Tacony Creek	Tacony Creek	Frankford High Level	T_05

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
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	Seprivia 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
NPDES Permit # 0026662 – Southeast						
2	39d 58m 9s	75d 7m 19s	Dyott Street & Delaware Ave.	Delaware River	Lower Delaware Low Level	D_38

CITY OF PHILADELPHIA
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Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
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
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

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
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
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

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
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
68	39d 58m 40s	75d 15m 44s	Woodcrest Avenue & Morris Park	Cobbs Creek	Cobbs Creek High Level	C_34

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Point Source #	Outfall Latitude	Outfall Longitude	Regulator Location	Discharges to:	Interceptor	Outfall Name
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

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Table 2 - Overflow Summary for 7/1/15 – 6/30/2016

District	Regulator	Frequency	Duration (hours)	Volume (ft ³)
Northeast	D_FRW	41	85.75	19,560,015
Northeast	D02	39	493.25	44,527,023
Northeast	D03	40	485	12,003,870
Northeast	D04	29	295.5	811,891
Northeast	D05	49	480.25	83,701,810
Northeast	D06	23	140	2,571,587
Northeast	D07	51	477.75	69,186,765
Northeast	D08	39	214.25	2,120,666
Northeast	D09	8	4.5	195,507
Northeast	D11	19	62.25	5,941,094
Northeast	D12	36	63	193,340
Northeast	D13	9	6.75	303,593
Northeast	D15	11	10.25	881,433
Northeast	D17	37	106.75	7,660,581
Northeast	D18	40	104.5	5,680,024
Northeast	D19	42	129.75	4,736,479
Northeast	D20	25	50	2,743,844
Northeast	D21	35	78.75	5,601,503
Northeast	D22	59	392.5	26,960,634
Northeast	D23	37	47.75	288,594
Northeast	D25	55	295.25	103,956,170
Northeast	F_FRFG	19	33.5	71,320
Northeast	F03	26	46.75	2,964,033
Northeast	F04	54	166.25	8,607,984
Northeast	F05	60	182.75	1,037,666
Northeast	F06	18	23.25	780,190
Northeast	F07	34	62.75	2,650,725
Northeast	F08	31	53.5	1,474,467
Northeast	F09	52	153.5	897,214
Northeast	F10	60	222.25	3,051,716
Northeast	F11	61	302.75	14,643,844
Northeast	F12	26	29.75	641,412
Northeast	F13	39	76.75	1,249,712
Northeast	F21	60	282.5	91,109,485
Northeast	F23	36	67.25	1,486,578
Northeast	F24	38	62.25	679,030
Northeast	F25	8	9.5	2,386,715

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft ³)
Northeast	P01	17	12.25	315,973
Northeast	P02	44	102	5,444,776
Northeast	P03	28	220.75	3,756,434
Northeast	P04	23	165.5	18,889,313
Northeast	P05	36	322	54,076,843
Northeast	T_FRRR	37	181	32,139,933
Northeast	T01	58	179.5	4,982,165
Northeast	T03	54	104	3,290,347
Northeast	T04	52	101.25	2,331,062
Northeast	T05	39	49.5	1,195,095
Northeast	T06	38	61.75	8,741,300
Northeast	T07	8	4.75	149,197
Northeast	T08	53	151.25	36,530,402
Northeast	T09	41	53.75	916,985
Northeast	T10	56	161.75	2,748,192
Northeast	T11	50	78.5	1,305,380
Northeast	T12	6	3.25	72,020
Northeast	T13	56	130.25	4,569,602
Northeast	T14	41	457.5	204,036,790
Northeast	T15	48	109.5	6,324,135
Southeast	D37	46	200.75	23,259,077
Southeast	D38	37	125.75	22,078,544
Southeast	D39	43	169.25	29,436,537
Southeast	D40	55	230.75	1,944,789
Southeast	D41	39	97.75	2,309,199
Southeast	D42	17	14	307,658
Southeast	D43	16	16.25	254,268
Southeast	D44	38	95	7,712,285
Southeast	D45	31	83.75	42,922,682
Southeast	D46	20	25.25	800,866
Southeast	D47	71	294.75	9,042,769
Southeast	D48	37	87	18,545,256
Southeast	D49	6	3.25	98,728
Southeast	D50	9	5.75	254,435
Southeast	D51	68	588.75	2,897,087
Southeast	D51A	48	172	2,028,519
Southeast	D52	17	19	431,493
Southeast	D53	8	6.25	1,658,869
Southeast	D54	18	28.5	8,035,901

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft ³)
Southeast	D58	24	34.25	924,598
Southeast	D61	40	60	943,378
Southeast	D62	26	29.5	372,877
Southeast	D63	28	59.75	11,673,056
Southeast	D64	30	40	239,291
Southeast	D65	29	58.5	7,870,721
Southeast	D66	33	82.5	8,234,043
Southeast	D67	35	70.75	3,850,791
Southeast	D68	46	182.25	25,663,790
Southeast	D69	24	60.5	5,890,950
Southeast	D70	19	34.25	5,793,728
Southeast	D71	38	99.75	8,091,578
Southeast	D72	24	67.75	5,344,693
Southeast	D73	42	115	13,198,770
Southwest	C_FRA	4	2.25	405,100
Southwest	C_FRTR	74	384.25	14,155,389
Southwest	C01	6	3	91,152
Southwest	C02	2	1	10,532
Southwest	C04A	10	5.75	475,502
Southwest	C05	5	2.75	103,275
Southwest	C06	43	88.75	2,260,988
Southwest	C07	7	6.5	295,950
Southwest	C09	22	22.25	570,097
Southwest	C10	8	6	34,350
Southwest	C11	28	60.75	5,705,601
Southwest	C12	27	54	1,091,331
Southwest	C13	25	41	890,657
Southwest	C14	25	57	2,546,231
Southwest	C15	19	40.5	372,561
Southwest	C16	4	2.75	49,391
Southwest	C17	55	198.75	45,778,266
Southwest	C18	33	68.75	4,169,642
Southwest	C19	18	11.75	606,049
Southwest	C20	16	11.75	325,382
Southwest	C21	18	15.25	428,956
Southwest	C22	41	62.25	1,688,504
Southwest	C23	7	13	173,280
Southwest	C25	22	43.75	2,321,959
Southwest	C28A	44	43.5	299,440

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft^3)
Southwest	C29	51	149.25	2,025,889
Southwest	C30	28	102.75	1,024,429
Southwest	C31	25	39.25	476,482
Southwest	C32	18	13.25	386,134
Southwest	C33	8	4	126,167
Southwest	C34	3	1.5	90,805
Southwest	C35	3	2	40,720
Southwest	C36	3	2	37,491
Southwest	C37	5	2.5	41,958
Southwest	S_FRM	6	7.75	8,708,673
Southwest	S01	40	109	12,455,644
Southwest	S01T	30	50.25	1,993,194
Southwest	S02	47	122.25	1,153,206
Southwest	S03	11	5	123,744
Southwest	S04	74	283	2,685,270
Southwest	S05	49	159	21,521,915
Southwest	S06	69	230.25	14,435,905
Southwest	S07	19	13.25	1,441,292
Southwest	S08	36	57	205,330
Southwest	S09	36	56.5	6,230,259
Southwest	S10	57	149.75	2,737,150
Southwest	S11	56	122	773,486
Southwest	S12A	47	64	753,951
Southwest	S13	12	7.5	356,189
Southwest	S14	62	205.25	2,255,676
Southwest	S15	23	18.25	267,109
Southwest	S16	65	169.5	1,197,223
Southwest	S17	24	20.75	524,268
Southwest	S18	55	146.75	6,260,714
Southwest	S19	27	19.5	246,115
Southwest	S20	77	409.5	18,892,864
Southwest	S21	18	12	157,721
Southwest	S22	38	67.25	2,200,496
Southwest	S23	56	134.25	1,372,455
Southwest	S24	37	63.75	703,110
Southwest	S25	42	82.75	1,604,588
Southwest	S26	63	278.75	16,208,341
Southwest	S30	4	2	111,906
Southwest	S31	53	121	4,039,653

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft ³)
Southwest	S32	12	9	189,790
Southwest	S33	69	258.25	16,620,605
Southwest	S36A	65	231.5	6,992,885
Southwest	S37	61	175.5	2,841,792
Southwest	S38	28	54.25	6,207,091
Southwest	S42	37	88.75	8,367,962
Southwest	S42A	71	382.5	20,767,795
Southwest	S44	19	17.75	2,069,055
Southwest	S45	34	86	17,543,601
Southwest	S46	23	42.25	1,302,473
Southwest	S50	52	264.5	161,214,950

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Table 3 - Overflow Summary for Typical Year Precipitation

Regulator	Frequency	SWO Duration (hrs)	Overflow Volume (MG)	Percent Capture
C01	15	7.25	1.22	93.97%
C02	2	0.5	0.00	99.85%
C04	19	14.5	1.57	90.93%
C04A	11	5.5	1.85	99.14%
C05	14	7.75	1.56	92.39%
C06	59	161.5	34.69	62.48%
C07	20	24	6.29	81.12%
C09	32	48	9.19	83.23%
C10	15	26	0.85	49.28%
C11	41	106.5	83.76	71.60%
C12	40	87.5	13.30	73.72%
C13	30	59.25	7.78	79.38%
C14	32	82.5	23.25	65.30%
C15	19	51	2.65	69.44%
C16	2	0.5	0.00	99.89%
C17	55	254	390.67	54.75%
C18	31	78.25	30.75	63.59%
C19	18	9	2.24	95.83%
C20	13	8.75	1.16	94.92%
C21	16	13.5	1.69	93.89%
C22	37	63	9.82	79.36%
C23	5	11.25	0.62	61.46%
C24	20	51.75	7.22	71.48%
C25	22	29	4.61	89.38%
C26	3	3.75	0.13	97.69%
C27	5	4.25	0.42	97.99%
C28A	39	41.75	1.51	91.42%
C29	48	166.75	14.36	45.88%
C30	30	107.5	6.90	59.16%
C31	40	75	7.92	73.88%
C32	30	40	6.72	84.50%
C33	18	11.5	1.97	92.00%
C34	12	4.25	0.89	96.17%
C35	6	1.75	0.12	97.11%
C36	6	1.75	0.11	97.79%
C37	13	5.75	0.32	95.02%
D02	42	419.75	265.39	7.44%
D03	42	406.75	76.21	4.75%
D04	33	179	5.73	57.86%
D05	57	446.75	601.29	34.70%
D06	20	63.5	10.43	55.55%
D07	53	375.5	406.18	30.84%

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2016 Combined Sewer and Stormwater Annual Reports

Appendix D- NPDES Annual CSO Status Report FY 2016

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Regulator	Frequency	SWO Duration (hrs)	Overflow Volume (MG)	Percent Capture
D08	44	164.5	10.61	41.55%
D09	5	3	0.65	97.18%
D11	18	39.5	33.28	78.30%
D12	48	101.75	1.77	85.96%
D13	10	12.25	1.68	93.31%
D15	14	18.75	7.69	89.05%
D17	49	153.5	64.79	74.30%
D18	50	155.75	53.79	72.07%
D19	52	190	41.44	73.14%
D20	36	74	22.27	75.22%
D21	41	110.5	48.04	68.80%
D22	71	487.75	242.06	46.81%
D23	42	60.5	1.79	89.01%
D24	24	32.25	0.94	82.21%
D25	66	398	952.14	46.80%
D37	56	382.25	360.49	27.44%
D38	50	259.5	364.60	43.52%
D39	55	309	523.51	59.34%
D40	60	371.5	30.49	44.60%
D41	47	191.25	35.53	58.18%
D42	26	46.25	4.48	77.98%
D43	24	41.75	3.17	80.49%
D44	49	213.25	129.42	50.34%
D45	45	208.25	868.41	70.78%
D46	33	87.5	14.12	64.21%
D47	65	488	147.49	42.40%
D48	46	178.75	284.57	55.30%
D49	12	8.5	1.13	89.36%
D50	23	27.25	3.93	78.91%
D51	67	683	36.22	56.99%
D51A	57	260.5	27.56	74.90%
D52	28	53.75	6.43	72.70%
D53	18	25	29.76	86.53%
D54	31	92	162.21	70.47%
D58	32	79.75	14.70	69.96%
D61	48	135.5	14.32	62.51%
D62	34	71.25	5.13	69.02%
D63	39	124	180.89	66.23%
D64	32	64	2.68	79.39%
D65	37	119.75	123.19	63.09%
D66	42	160.5	128.38	59.22%
D67	38	123.5	55.48	64.70%
D68	49	254.5	306.81	46.41%

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Regulator	Frequency	SWO Duration (hrs)	Overflow Volume (MG)	Percent Capture
D69	36	130.75	109.01	63.96%
D70	27	86.5	114.40	72.62%
D71	44	215	157.44	49.92%
D72	42	224.25	171.81	54.66%
D73	47	230.25	257.01	51.10%
F03	35	41.75	10.53	84.99%
F04	63	206.75	49.71	69.87%
F05	68	243.75	6.45	71.69%
F06	20	23.75	3.05	67.64%
F07	40	71.75	14.55	80.89%
F08	39	61	7.74	84.25%
F09	61	202.25	7.37	77.60%
F10	66	299.5	22.45	54.41%
F11	71	408.75	110.87	57.52%
F12	31	34	3.27	83.62%
F13	45	100.75	8.66	73.57%
F14	35	38.75	1.01	88.60%
F21	67	360	734.15	53.34%
F23	44	95.75	9.03	68.47%
F24	45	78.25	4.14	75.09%
F25	7	8.75	6.97	96.06%
P01	17	11.25	3.30	93.11%
P02	49	99.25	22.09	71.49%
P03	22	28.25	2.36	88.42%
P04	21	68	55.73	-94.05%
P05	33	171	180.17	-34.74%
R01	66	228.75	9.31	67.96%
R01A	74	439	95.40	53.11%
R02	68	224.75	1.05	71.92%
R03	42	58.75	0.51	87.79%
R04	84	475.5	11.96	58.50%
R05	70	260.25	2.74	74.15%
R06	49	113	27.15	85.81%
R07	14	7.5	3.52	99.16%
R08	39	90.25	198.82	88.04%
R09	19	110	2.98	93.09%
R10	49	219.25	8.06	84.58%
R11	36	41.5	5.71	90.70%
R11A	6	1.5	0.02	99.85%
R12	8	6.5	9.60	84.06%
R12R	8	7.75	13.40	96.69%
R13	37	60.75	57.81	93.08%
R13A	10	5	4.22	99.11%

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Regulator	Frequency	SWO Duration (hrs)	Overflow Volume (MG)	Percent Capture
R14	86	199.5	126.27	93.94%
R15	8	6	5.54	99.32%
R18	65	303	85.34	97.24%
R20	5	9.5	0.93	99.67%
R21	3	1	1.94	99.71%
R24	11	3.75	3.99	98.30%
S01	41	108.25	79.05	74.33%
S01T	35	56	16.39	90.49%
S02	49	129	7.21	69.05%
S03	11	4.75	0.46	95.85%
S04	72	329.5	17.85	69.56%
S05	66	284.75	215.05	62.73%
S06	68	269.5	101.39	58.86%
S07	15	18.5	7.38	85.86%
S08	34	51.25	1.06	85.30%
S09	37	55.75	40.06	77.65%
S10	56	166.25	18.33	69.29%
S11	54	134.25	4.95	73.16%
S12	45	63	1.99	35.84%
S12A	43	51	2.96	85.83%
S13	17	7.75	1.67	94.09%
S14	63	232.75	15.64	56.79%
S15	22	19.5	1.55	90.09%
S16	66	193.5	8.41	73.32%
S17	24	24.5	3.31	89.34%
S18	52	161.5	45.05	75.39%
S19	27	22	1.56	86.92%
S20	79	465.25	140.76	39.39%
S21	23	15.75	0.86	91.27%
S22	39	64.75	13.27	86.77%
S23	56	150	9.45	70.36%
S24	39	62.25	3.75	77.39%
S25	45	87.75	10.42	84.59%
S26	66	331.5	123.78	58.25%
S27	67	393.5	1275.04	57.53%
S28	7	2.25	0.33	98.21%
S30	6	2	0.23	97.89%
S31	56	140.25	28.58	75.82%
S32	14	7.75	0.72	92.55%
S33	71	318.75	129.62	22.15%
S34	78	424.25	128.25	47.13%
S35	5	1.5	0.12	97.04%
S36	30	30.5	1.34	75.68%

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Regulator	Frequency	SWO Duration (hrs)	Overflow Volume (MG)	Percent Capture
S36A	65	280.5	52.00	59.38%
S37	61	206.75	20.70	64.93%
S38	28	59	45.07	63.26%
S39	21	57.75	24.22	63.84%
S40	20	38	13.88	72.91%
S42	48	152.5	85.38	76.75%
S42A	72	449	167.80	52.49%
S43	61	302.75	84.49	33.50%
S44	41	101.25	51.55	71.15%
S45	41	100	134.08	77.69%
S46	25	37.25	8.19	88.66%
S47	59	440.25	84.52	-10.52%
S50	62	330.75	1329.49	14.49%
S51	3	0.75	0.06	98.43%
T01	66	235.25	35.94	65.53%
T03	61	128.25	19.88	72.93%
T04	60	111.75	13.36	66.93%
T05	43	44.5	5.68	82.33%
T06	37	51.25	42.44	81.52%
T07	9	4.25	0.49	96.40%
T08	71	381.75	629.84	58.65%
T09	44	49.75	4.83	81.72%
T10	64	205.25	18.73	55.98%
T11	55	90.75	7.93	72.54%
T12	7	2.25	0.06	98.69%
T13	62	170	31.53	65.22%
T14	62	233.5	898.07	71.92%

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Table 4 - July 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
7/1/2015	0.1	0.15	0.33	0.08	0.14	0.27	0.18	0.23	0.15	0.23	0.245	0.12	0.31	0.13	0.1	0.14	0.19	0.287
7/2/2015	0.01	0.04	0	0.01	0.06	0	0.01	0	0.02	0	0.001	0.03	0	0.04	0.03	0.04	0	0.008
7/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001
7/4/2015	0.01	0.05	0.04	0.04	0.01	0.07	0.06	0.09	0.06	0.07	0.074	0.01	0.04	0.04	0.07	0.04	0.06	0.06
7/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/6/2015	0	0	0.02	0	0	0	0.01	0	0	0	0.001	0	0	0	0	0	0	0.001
7/7/2015	0	0.15	0.06	0.03	0	0.02	0.08	0.17	0.04	0.03	0.1	0	0.08	0.06	0	0.06	0.04	0.037
7/8/2015	0.07	0.22	0	0.04	0.01	0.01	0.05	0	0	0	0.004	0.02	0	0.01	0.02	0.13	0	0.07
7/9/2015	0.95	1.27	1.48	1.16	1.23	0.93	1.19	1.49	1.09	1.44	1.41	0.88	1.48	1.14	1.06	1.43	1.26	1.265
7/10/2015	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0.002
7/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/14/2015	0.06	0.28	0.02	0.21	0.57	0.19	0	0.03	0.23	0.17	0.01	0.32	0.02	0.18	0.09	0.17	0.01	0.097
7/15/2015	0.74	0.85	0.34	0.44	0.97	0.61	0.51	0.45	0.78	0.32	0.416	0.62	0.35	0.38	0.46	0.64	0.44	0.527
7/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/21/2015	0	0	0.03	0.25	0	0	0	0	0	0	0.01	0.02	0.02	0	0	0	0.03	0.004
7/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/27/2015	0.39	0.32	0.39	0.15	0.26	0.66	0.39	0.46	0.56	0.71	0.609	0.35	1.12	0.23	0.3	0.44	0.57	0.456
7/28/2015	0.11	0	0	0	0.03	0	0.03	0	0	0	0	0	0	0	0.03	0	0	0.008
7/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/30/2015	0.65	0.16	0.13	0.46	0.82	0.07	0.31	0.07	0.31	0.09	0.01	0.86	0.14	0.47	0.48	0.48	0.43	0.193
7/31/2015	0	0	0	0	0	0	0	0.07	0	0.01	0	0	0	0	0	0	0	0.007

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Table 5 - July 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
7/1/2015	0.34	0.13	0.61	0.188	0.09	0.33	0.11	0.131	0.18	0.37	0.431	0.3	0.47	0.36	0.15	0.63	0.54
7/2/2015	0	0	0	0.016	0.04	0	0.02	0.027	0	0	0.01	0	0	0.02	0.04	0	0
7/3/2015	0	0	0	0	0	0	0.06	0	0	0	0	0	0	0.01	0	0	0
7/4/2015	0.05	0.04	0.06	0.062	0.02	0.06	0.02	0.063	0.03	0.04	0.04	0.06	0.04	0.05	0.06	0.06	0.07
7/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/6/2015	0	0	0	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0
7/7/2015	0	0.01	0	0.037	0	0.03	0	0.027	0.02	0.03	0	0.03	0	0	0.05	0	0
7/8/2015	0.09	0	0.41	0.018	0.074	0.03	0.07	0.033	0.03	0.03	0.09	0	0.07	0.17	0.31	0.05	0.02
7/9/2015	1.36	1.59	1.34	1.059	0.86	1.49	0.96	1.139	1.48	1.51	1.44	1.36	1.57	1.31	1.24	0.91	1.07
7/10/2015	0	0	0	0.002	0	0	0	0	0	0	0	0	0	0.01	0.01	0	0.01
7/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/14/2015	0.06	0.07	0.08	0.212	0.11	0.63	0.09	0.09	0.03	0.21	0.06	0.1	0.63	0.19	0.12	0.09	0.04
7/15/2015	0.37	0.46	0.71	0.748	0.92	0.52	0.6	0.484	0.39	0.43	1.06	0.33	0.74	0.66	0.93	1.1	0.79
7/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/21/2015	0	0.1	0	0	0.01	0.2	0	0.001	0.12	0.16	0.02	0.08	0.03	0.08	0	0	0
7/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/27/2015	0.39	0.12	0.27	0.556	0.49	0.21	0.344	0.55	0.09	0.11	0.16	0.59	0.23	0.09	0.22	0.26	0.28
7/28/2015	0	0	0	0.007	0	0	0.62	0	0	0	0	0	0	0	0.15	0.05	0
7/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/30/2015	0.14	0.1	0.14	0.245	0.67	0.18	0.7	0.424	0.1	0.18	0.1	0.05	0.33	0.8	0.09	0.174	0.09
7/31/2015	0	0	0	0	0	0	0	0.003	0	0	0	0	0	0	0	0	0

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Table 6 – August 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
8/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/7/2015	0	0.03	0.026	0.08	0.02	0.09	0.04	0.04	0.09	0.01	0.01	0.01	0.03	0.08	0.06	0.07	0.04	0.039
8/8/2015	0.04	0.04	0.007	0.06	0.04	0	0.01	0.01	0.01	0	0.01	0.06	0.01	0.07	0.04	0.04	0.02	0.01
8/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/11/2015	0.02	0.02	0.009	0	0.02	0.01	0	0	0.01	0.01	0	0.03	0.01	0	0.01	0.02	0	0.005
8/12/2015	0.01	0	0.012	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0	0.02	0.01	0.02	0.01	0.01	0.02	0.012
8/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/15/2015	0.03	0.06	0.063	0	0.08	0.01	0.03	0.05	0.02	0.17	0.204	0.02	0.04	0.03	0.04	0.03	0.03	0.032
8/16/2015	0.77	0.7	1.522	1.12	1.5	1.7	1.29	1.13	1.34	1.06	1.273	0.77	1.71	0.79	1.11	1.3	1.33	1.064
8/17/2015	0	0	0.002	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
8/18/2015	0	0	0.11	0	0	0	0	0	0	0	0.002	0	0	0	0	0	0	0
8/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/22/2015	0	0	0	0.01	0	0	0	0	0	0.63	0.039	0	0.09	0	0	0	0	0.01
8/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/24/2015	0	0	0.14	0	0	0	0.17	0.32	0.002	0.54	0.292	0	0.13	0.1	0.25	0	0.12	0.338
8/25/2015	0.07	0.12	0.1	0.05	0	0.19	0.18	0.23	0.14	0.17	0.153	0.08	0.13	0.05	0.05	0.06	0.07	0.175
8/26/2015	0.11	0.33	0.39	0.02	0	0	0	0	0	0.52	0.054	0	0.1	0.06	0.04	0.06	0	0.162
8/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30/2015	0.11	0.02	0	0	0	0	0	0	0	0	0.41	0	0	0	0.01	0	0	0.01
8/31/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 7 - August 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
8/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/4/2015	0	0	0	0	0	0	0	0	0	0	0.04	0	0	0.07	0	0	0
8/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/6/2015	0	0	0	0	0	0.04	0	0	0	0	0	0	0	0	0	0	0
8/7/2015	0.02	0.01	0.01	0.085	0.02	0	0.01	0.056	0.02	0	0.01	0.01	0	0.01	0.06	0.054	0.02
8/8/2015	0	0.01	0	0.01	0.06	0	0.05	0.034	0	0	0	0	0	0	0.05	0.025	0
8/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/11/2015	0	0.01	0	0.01	0.02	0.01	0.02	0.008	0.01	0	0	0.01	0	0	0.01	0.009	0
8/12/2015	0.01	0.02	0.01	0.016	0.01	0.01	0.01	0.012	0.01	0	0	0.01	0.01	0	0.01	0.011	0.02
8/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/15/2015	0.03	0	0.02	0.02	0.03	0.05	0.03	0.039	0.02	0	0.01	0.04	0.04	0.12	0.02	0.021	0.01
8/16/2015	0.78	1.42	0.8	1.38	0.83	1.34	0.52	1.138	1.36	1.1	0.53	1.07	1.03	1.33	0.79	1.057	0.92
8/17/2015	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001	0.01
8/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/22/2015	0	0.04	0	0	0	2.11	0	0.002	0.43	0.74	0	0.04	0	0.09	0	0	0
8/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/24/2015	0.7	0.15	0	0.005	0	0.18	0	0.215	0	0.02	0.38	0.74	0.97	0.13	0	0	0
8/25/2015	0.26	0.08	0.23	0.15	0.14	0.16	0	0.07	0.07	0.14	0.33	0.03	0.13	0.08	0.17	0.21	0.15
8/26/2015	0.39	1.02	0.67	0.015	0.06	1.43	0.39	0	0.49	1.36	1.83	0.01	1.83	1.93	0	0	0.06
8/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30/2015	0	0	0	0.002	0.09	0	0.1	0	0	0	0	0	0	0	0	0	0
8/31/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 8 – September 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
9/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/10/2015	3.34	2.58	1.582	1.5	2.035	1.54	3.48	2.6	2.61	1.91	2.78	1.64	2.57	2.59	3.37	2.79	2.49	2.449
9/11/2015	0.03	0.02	0.09	0.04	0.091	0.2	0.05	0.08	0.14	0.26	0.1	0.09	0.1	0.06	0.09	0.13	0.06	0.166
9/12/2015	0.02	0.04	0	0	0	0.06	0.01	0.03	0.03	0.11	0.02	0	0	0.01	0.02	0.03	0	0.05
9/13/2015	0	0	0.01	0.04	0	0	0	0.01	0	0.01	0.01	0.03	0.02	0.02	0	0.01	0.02	0.002
9/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/29/2015	0.47	0.49	0.63	0.42	0.8	0.35	0.42	0.42	0.36	0.4	0.41	0.94	0.44	0.41	0.52	0.5	0.54	0.75
9/30/2015	0.93	0.66	1.54	1.51	1.16	0.84	1.012	1.4	0.8	1.57	1.67	1.19	1.62	1.21	1.38	1.23	1.4	1.14

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Table 9 - September 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
9/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/10/2015	2.47	1.55	1.84	2.323	3.24	1.16	2.56	3.194	1.43	0.87	1.52	2.544	1.82	1.12	2.04	1.24	1.8
9/11/2015	0.21	0.05	0.2	0.149	0.08	0.15	0.09	0.089	0.06	0.1	0.19	0.12	0.22	0.13	0.05	0.18	0.26
9/12/2015	0.11	0	0.11	0.041	0.02	0.03	0.02	0	0	0.01	0.06	0.034	0.078	0.1	0.06	0.16	0.15
9/13/2015	0	0.04	0	0	0.01	0.01	0.01	0	0.02	0.01	0	0.009	0.02	0.01	0	0	0
9/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/28/2015	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0.02	0.01	0.01
9/29/2015	0.52	0.34	0.39	0.377	0.61	0.79	0.4	0.317	0.38	0.34	0.36	0.28	0.4	0.45	0.7	0.56	0.39
9/30/2015	0.94	1.33	1.03	0.829	0.62	1.52	0.75	1.31	1.37	1.4	0.98	1.15	1.4	1.29	0.99	1.55	1.08

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Table 10 - October 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
10/1/2015	0.5	0.57	0.29	0.25	0.66	0.41	0.385	0.39	0.41	0.31	0.36	0.35	0.36	0.4	0.47	0.51	0.35	0.32
10/2/2015	1.8	1.99	1.64	2.43	3.45	1.72	1.886	1.89	1.86	1.9	2.03	1.05	1.84	1.72	1.96	1.88	1.83	1.37
10/3/2015	0.09	0.09	0.09	0.19	0.32	0.07	0.104	0.1	0.08	0.11	0.12	0.02	0.12	0.11	0.11	0.1	0.11	0.07
10/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/7/2015	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0
10/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/9/2015	0.37	0.33	0.23	0.21	0.39	0.45	0.32	0.33	0.45	0.31	0.31	0.57	0.25	0.41	0.34	0.41	0.25	0.27
10/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
10/11/2015	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
10/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/30/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/31/2015	0	0	0.01	0.01	0.01	0.01	0.07	0.01	0	0.02	0.016	0	0.01	0	0	0	0.01	0.01

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Table 11 - October 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
10/1/2015	0.25	0.19	0.34	0.415	0.46	0.28	0.51	0.41	0.2	0.21	0.27	0.23	0.25	0.3	0.46	0.35	0.37
10/2/2015	1.6	1.67	1.86	1.834	1.4	1.24	1.68	1.95	1.43	1.66	1.54	1.77	1.77	1.69	2.06	2.06	1.86
10/3/2015	0.08	0.11	0.09	0.077	0.04	0.05	0.08	0.12	0.08	0.09	0.08	0.09	0.08	0.09	0.08	0.09	0.08
10/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/9/2015	0.31	0.27	0.45	0.442	0.39	0.21	0.35	0.43	0.26	0.17	0.32	0.24	0.23	0.18	0.4	0.43	0.36
10/10/2015	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0	0.01	0	0.01
10/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0
10/25/2015	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/30/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/31/2015	0	0.02	0.02	0.002	0	0.02	0	0	0	0.02	0.03	0.02	0.03	0.01	0	0.01	0.01

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Table 12 - November 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
11/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/3/2015	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0
11/4/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/5/2015	0.08	0.07	0.01	0.05	0.09	0.03	0.05	0.03	0.06	0.03	0.02	0.06	0.02	0.05	0.06	0.07	0.03	0.03
11/6/2015	0	0	0	0	0	0.01	0.01	0	0.01	0	0	0.02	0	0	0	0	0	0
11/7/2015	0	0.01	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0.01	0
11/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/2015	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0
11/10/2015	0.62	0.62	0.65	0.83	0.66	0.54	0.66	0.67	0.54	0.64	0.65	0.43	0.67	0.73	0.73	0.73	0.67	0.5
11/11/2015	0	0.01	0.03	0.03	0.01	0.02	0.01	0.01	0.01	0.04	0.01	0	0.02	0.01	0.02	0.01	0.01	0.04
11/12/2015	0.15	0.18	0.12	0.13	0.14	0.14	0.18	0.14	0.16	0.12	0.14	0.13	0.13	0.13	0.16	0.17	0.15	0.14
11/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/14/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/15/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/16/2015	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0
11/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/18/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/19/2015	1.01	1.02	1.41	1.2	0.94	1.65	1.565	1.66	1.51	1.89	1.72	0.84	1.56	0.99	1.17	1.31	1.3	1.84
11/20/2015	0	0	0	0	0.01	0	0.006	0.01	0	0	0	0	0	0	0	0	0	0
11/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/25/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/27/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
11/28/2015	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0
11/29/2015	0.08	0.1	0.03	0.04	0.08	0.07	0.05	0.03	0.07	0.04	0.03	0.09	0.03	0.05	0.06	0.07	0.04	0.05
11/30/2015	0.01	0.04	0.05	0.02	0.02	0.05	0.04	0.05	0.04	0.06	0.05	0.01	0.05	0.02	0.02	0.02	0.03	0.04

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Table 13 - November 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
11/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/5/2015	0.036	0.02	0.03	0.052	0.07	0.05	0.074	0.055	0.02	0.02	0.09	0.02	0.05	0.06	0.05	0.01	0.03
11/6/2015	0.01	0	0.01	0.009	0.02	0	0	0	0	0	0	0	0	0	0.01	0.01	0
11/7/2015	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0
11/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/10/2015	0.52	0.63	0.73	0.543	0.47	0.48	0.618	0.69	0.66	0.59	0.54	0.53	0.56	0.65	0.59	0.61	0.67
11/11/2015	0.01	0.05	0.02	0.012	0	0.03	0.006	0.018	0.03	0.05	0.01	0.05	0.02	0.03	0.02	0.04	0.04
11/12/2015	0.12	0.12	0.14	0.155	0.12	0.12	0.147	0.13	0.13	0.11	0.12	0.136	0.12	0.12	0.17	0.13	0.14
11/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0
11/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/19/2015	1.66	1.3	1.85	1.521	0.86	1.69	1.016	1.28	1.32	1.57	1.65	1.57	1.83	1.7	1.22	1.69	1.7
11/20/2015	0	0	0	0	0	0	0.004	0	0	0	0.01	0	0	0.01	0.01	0	0.01
11/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/28/2015	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0	0	0	0
11/29/2015	0.03	0.03	0.04	0.071	0.11	0.03	0.09	0.06	0.03	0.02	0.03	0.04	0.03	0.01	0.11	0.08	0.05
11/30/2015	0.05	0.02	0.05	0.042	0.01	0.04	0.02	0.04	0.03	0.03	0.05	0.08	0.05	0.06	0.04	0.06	0.05

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Table 14 – December 2015 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12/1/2015	0.75	0.72	0.93	0.92	0.91	0.88	0.99	1.01	0.87	1	0.97	0.61	0.98	0.78	0.85	0.91	0.88	0.98
12/2/2015	0.14	0.19	0.17	0.15	0.17	0.17	0.2	0.19	0.17	0.18	0.17	0.17	0.18	0.14	0.16	0.17	0.18	0.18
12/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/14/2015	0.11	0.11	0.11	0.11	0.1	0.17	0.115	0.11	0.13	0.16	0.12	0.08	0.13	0.13	0.17	0.13	0.13	0.13
12/15/2015	0.14	0.13	0.04	0.07	0.25	0.01	0.037	0.04	0.04	0.05	0.04	0.08	0.01	0.06	0.08	0.08	0.01	0.02
12/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/17/2015	0.97	0.93	0.99	1.11	1.01	0.98	1.007	1.01	1.03	0.97	1.01	0.93	1.04	0.96	1.02	1.02	1.03	1.03
12/18/2015	0	0	0	0.01	0	0	0.002	0	0	0	0	0	0	0.01	0.01	0	0.01	0
12/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/22/2015	0.15	0.15	0.1	0.14	0.17	0.11	0.114	0.11	0.13	0.09	0.11	0.16	0.11	0.14	0.16	0.15	0.12	0.09
12/23/2015	1.35	1.07	1.27	1.55	1.49	1.07	1.214	1.18	1.06	1.16	1.16	1.29	1.3	1.41	1.44	1.41	1.39	1.08
12/24/2015	0.14	0.14	0.11	0.09	0.16	0.07	0.109	0.11	0.08	0.1	0.11	0.11	0.12	0.14	0.15	0.13	0.09	0.06
12/25/2015	0.31	0.27	0.2	0.22	0.29	0.24	0.226	0.22	0.28	0.18	0.23	0.3	0.23	0.24	0.27	0.28	0.22	0.23
12/26/2015	0	0	0	0.01	0	0.01	0.008	0.01	0	0.01	0.01	0	0	0	0	0	0	0.01
12/27/2015	0.26	0.25	0.14	0.16	0.27	0.25	0.142	0.14	0.19	0.15	0.15	0.26	0.13	0.15	0.14	0.18	0.13	0.11
12/28/2015	0.05	0.04	0.07	0.08	0.09	0.07	0.066	0.07	0.07	0.09	0.07	0.03	0.08	0.06	0.05	0.06	0.05	0.08
12/29/2015	0.85	0.97	0.97	1.14	1.05	0.88	0.961	0.96	0.95	0.98	1	0.6	1.03	0.9	0.99	1.12	0.97	0.95
12/30/2015	0.16	0.22	0.38	0.24	0.18	0.3	0.322	0.35	0.24	0.27	0.34	0.15	0.34	0.26	0.27	0.31	0.22	0.36
12/31/2015	0.01	0.01	0	0	0	0	0.008	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0	0	0

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Table 15 - December 2015 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
12/1/2015	0.88	0.88	0.95	0.871	0.68	0.85	0.71	0.87	0.98	0.89	0.74	0.98	0.97	0.92	0.89	1.05	0.92
12/2/2015	0.16	0.17	0.17	0.167	0.17	0.16	0.17	0.15	0.18	0.14	0.15	0.17	0.15	0.16	0.18	0.14	0.18
12/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.02
12/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/10/2015	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0.02	0	0	0
12/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/14/2015	0.15	0.14	0.2	0.138	0.11	0.15	0.11	0.11	0.13	0.12	0.2	0.17	0.2	0.19	0.12	0.15	0.17
12/15/2015	0.05	0.06	0.04	0.04	0.09	0.04	0.15	0.01	0.03	0.02	0.07	0.04	0.04	0.03	0.17	0.05	0.04
12/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/17/2015	0.95	1.11	0.99	1.012	0.9	1.008	0.96	0.94	1.05	1.02	0.9	0.98	0.96	0.98	1.03	0.94	0.91
12/18/2015	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0	0	0.01	0
12/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/21/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/22/2015	0.08	0.11	0.1	0.127	0.15	0.086	0.15	0.11	0.1	0.09	0.06	0.09	0.07	0.05	0.16	0.09	0.104
12/23/2015	1.01	1.86	1.02	1.071	1.37	1.18	1.31	1.2	1.52	1.25	0.98	1.19	1.06	1.12	1.09	0.97	1.029
12/24/2015	0.04	0.1	0.05	0.08	0.11	0.09	0.14	0.1	0.06	0.07	0.05	0.08	0.04	0.04	0.12	0.05	0.05
12/25/2015	0.2	0.19	0.25	0.269	0.32	0.17	0.28	0.24	0.19	0.16	0.24	0.19	0.18	0.21	0.29	0.22	0.21
12/26/2015	0.01	0	0	0.002	0	0.01	0	0	0	0.01	0	0	0.01	0	0	0	0.01
12/27/2015	0.14	0.15	0.17	0.207	0.06	0.11	0.22	0.16	0.16	0.1	0.18	0.17	0.14	0.16	0.28	0.24	0.21
12/28/2015	0.09	0.06	0.1	0.067	0.04	0.11	0.04	0.05	0.1	0.08	0.08	0.1	0.1	0.09	0.07	0.09	0
12/29/2015	0.89	0.9	0.99	0.938	0.69	1.23	0.8	0.99	1.05	1.04	0.84	0.95	0.99	0.92	1.08	0.93	0.955
12/30/2015	0.22	0.32	0.2	0.251	0.14	0.27	0.17	0.24	0.33	0.24	0.22	0.28	0.22	0.24	0.23	0.18	0.227
12/31/2015	0	0.01	0	0.007	0	0.01	0.01	0	0.01	0	0.01	0	0.01	0	0	0.01	0

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Table 16 - January 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1/1/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/2/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/4/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/5/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/6/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/7/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/8/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/9/201	0	0	0	0	0.01	0.02	0	0	0	0.01	0	0	0	0	0	0	0	0.01
1/10/20	0.78	0.71	1.0	1.25	0.77	0.85	0.82	0.9	0.83	1.09	0.9	0.64	0.97	0.78	0.77	0.8	0.85	0.95
1/11/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/12/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/13/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/14/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/15/20	0.12	0.13	0.1	0.06	0.13	0.12	0.08	0.1	0.13	0.1	0.0	0.12	0.1	0.08	0.1	0.1	0.08	0.1
1/16/20	0.2	0.19	0.2	0.25	0.22	0.17	0.19	0.1	0.18	0.19	0.2	0.21	0.19	0.21	0.19	0.2	0.19	0.16
1/17/20	0.02	0.02	0.0	0.03	0.03	0.02	0	0.0	0.02	0.03	0.0	0.02	0.03	0.00	0.02	0.0	0.02	0.01
1/18/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/19/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/20/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/21/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/22/20	0.13	0.13	0.1	0.08	0.13	0.10	0	0.0	0.12	0.12	0.1	0.12	0.12	0.02	0.10	0.1	0.09	0.07
1/23/20	0.44	0.44	0.3	0.21	0.48	0.33	0	0.1	0.41	0.31	0.3	0.44	0.31	0.05	0.35	0.4	0.23	0.15
1/24/20	0	0	0	0.01	0	0	0	0.0	0	0.01	0.0	0	0.00	0.00	0	0	0.00	0.00
1/25/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/26/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/27/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/28/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/29/20	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0
1/30/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/31/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 17 - January 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1/1/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
1/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/7/2016	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0
1/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/9/2016	0	0	0.01	0.004	0	0	0	0	0	0	0	0.01	0	0	0	0	0
1/10/2016	0.95	1.29	1	0.833	0.6	1.38	0.73	0.8	1.14	1.2	1.05	1.03	1.2	1.36	0.82	0.89	0.79
1/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
1/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/15/2016	0.09	0.05	0.1	0.128	0.16	0.1	0.13	0.1	0.07	0.06	0.1	0.1	0.08	0.07	0.16	0.14	0.105
1/16/2016	0.15	0.22	0.17	0.178	0.2	0.22	0.2	0.19	0.2	0.19	0.14	0.18	0.18	0.17	0.21	0.17	0.18
1/17/2016	0.02	0.04	0.018	0.027	0.026	0.04	0.03	0.013	0.036	0.04	0.021	0.034	0.035	0.037	0.026	0.025	0.023
1/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
1/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/22/2016	0.08	0.04	0.082	0.122	0.125	0.05	0.139	0.055	0.077	0.044	0.08	0.111	0.078	0.052	0.12	0.103	0.096
1/23/2016	0.12	0.04	0.126	0.407	0.423	0.28	0.487	0.183	0.181	0.136	0.134	0.27	0.276	0.266	0.382	0.304	0.191
1/24/2016	0	0	0	0	0	0.1	0	0.001	0.01	0.04	0.001	0.007	0.061	0.09	0	0.001	0.001
1/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0
1/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/29/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 18 – February 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2/1/2016	0.1	0.09	0.13	0.12	0.11	0.15	0.12	0.12	0.12	0.1	0.11	0.09	0.12	0.1	0.09	0.1	0.13	0.1
2/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/3/2016	0.48	0.45	0.51	0.4	0.46	0.48	0.44	0.51	0.51	0.54	0.52	0.45	0.48	0.38	0.47	0.51	0.45	0.52
2/4/2016	0.02	0.039	0.04	0.06	0.03	0.038	0.05	0.06	0.039	0.05	0.04	0.04	0.04	0.039	0.03	0.04	0.05	0.034
2/5/2016	0.482	0.478	0.49	0.45	0.483	0.42	0.47	0.459	0.466	0.467	0.45	0.484	0.478	0.463	0.48	0.49	0.459	0.321
2/6/2016	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0
2/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/9/2016	0.056	0.059	0.08	0.078	0.06	0.069	0	0.036	0.059	0.081	0.09	0.055	0.083	0.013	0.043	0.06	0.062	0.081
2/10/2016	0.022	0.022	0.01	0.018	0.021	0.021	0.1	0.06	0.021	0.013	0.01	0.024	0.011	0.082	0.04	0.02	0.033	0.019
2/11/2016	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/15/2016	0.255	0.225	0.39	0.26	0.23	0.252	0.13	0.066	0.226	0.074	0.41	0.194	0.243	0.163	0.343	0.4	0.242	0.211
2/16/2016	0.84	0.88	0.57	1.06	0.62	0.91	0.75	0.93	0.95	0.91	0.55	0.7	0.66	0.73	0.62	0.69	0.8	0.94
2/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/21/2016	0.03	0.03	0.09	0.06	0.04	0.08	0.06	0.1	0.06	0.11	0.1	0.03	0.09	0.06	0.06	0.05	0.07	0.08
2/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/23/2016	0.31	0.27	0.32	0.46	0.42	0.31	0.3	0.35	0.32	0.34	0.35	0.15	0.46	0.32	0.3	0.32	0.33	0.27
2/24/2016	1.82	2.13	1.94	1.3	2.1	1.62	1.68	1.79	2.08	1.9	1.84	1.56	1.98	1.42	1.88	2.13	1.96	1.5
2/25/2016	0.03	0.02	0.01	0.02	0.07	0.02	0.01	0.01	0.01	0.01	0	0.09	0.01	0.01	0.01	0.02	0.01	0.01
2/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/28/2016	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0
2/29/2016	0	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01

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Table 19 - February 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
2/1/2016	0.12	0.12	0.13	0.12	0.11	0.08	0.1	0.13	0.13	0.09	0.08	0.12	0.09	0.07	0.1	0.14	0.12
2/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/3/2016	0.48	0.46	0.55	0.501	0.53	0.6	0.47	0.45	0.45	0.51	0.61	0.58	0.58	0.68	0.5	0.51	0.53
2/4/2016	0.03	0.03	0.02	0.039	0.029	0.03	0.03	0.03	0.04	0.03	0.022	0.039	0.04	0.04	0.039	0.037	0.024
2/5/2016	0.24	0.42	0.265	0.454	0.473	0.27	0.488	0.466	0.43	0.362	0.276	0.421	0.349	0.293	0.456	0.404	0.316
2/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/8/2016	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0
2/9/2016	0.1	0.08	0.093	0.06	0.056	0.09	0.06	0.028	0.08	0.08	0.092	0.083	0.079	0.08	0.06	0.068	0.087
2/10/2016	0	0.02	0.005	0.022	0.023	0.03	0.021	0.063	0.017	0.024	0.005	0.014	0.025	0.028	0.024	0.022	0.013
2/11/2016	0	0	0	0	0	0.002	0	0	0.01	0	0	0	0	0	0	0	0
2/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/13/2016	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0
2/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/15/2016	0.36	0.44	0.064	0.221	0.405	0.34	0.28	0.069	0.083	0.148	0.077	0.11	0.147	0.233	0.069	0.067	0.065
2/16/2016	0.61	0.67	1.31	0.935	0.71	0.53	0.78	0.95	0.81	0.93	0.75	0.98	0.89	0.699	0.94	0.9	1.09
2/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/21/2016	0.1	0.08	0.11	0.063	0.03	0.06	0.03	0.06	0.07	0.08	0.08	0.12	0.07	0.09	0.04	0.08	0.13
2/22/2016	0	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0
2/23/2016	0.28	0.28	0.31	0.314	0.22	0.27	0.3	0.4	0.34	0.35	0.22	0.33	0.29	0.302	0.33	0.36	0.32
2/24/2016	1.62	1.46	1.65	1.944	1.98	1.72	1.72	1.87	1.62	1.6	1.46	1.76	1.87	1.711	1.83	1.31	1.7
2/25/2016	0	0.03	0.04	0.014	0.08	0.01	0.04	0.01	0.03	0.03	0.01	0.01	0.02	0.017	0.05	0.02	0.05
2/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/29/2016	0.01	0.01	0.01	0.009	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0	0.01	0.02

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Table 20 – March 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/1/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2/2016	0.27	0.25	0.28	0.21	0.32	0.17	0.27	0.27	0.22	0.28	0.28	0.29	0.29	0.25	0.3	0.3	0.31	0.16
3/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/13/2016	0.04	0.09	0.06	0.07	0.05	0.11	0.08	0.09	0.11	0.04	0.1	0.07	0.07	0.05	0.06	0.07	0.08	0.13
3/14/2016	1.07	0.98	0.95	1.2	1.27	0.99	0.98	1.01	1.16	0.98	1.06	0.71	1.05	0.89	0.99	1.07	0.93	1.02
3/15/2016	0.02	0.03	0.04	0.02	0.03	0.03	0.03	0.04	0.03	0.04	0.05	0.02	0.04	0.06	0.03	0.02	0.04	0.03
3/16/2016	0	0	0.09	0.12	0	0.02	0.06	0.13	0.01	0.03	0.11	0.02	0.11	0	0	0.01	0.09	0.1
3/17/2016	0.01	0.01	0	0	0.02	0	0	0	0	0	0	0.02	0	0.01	0	0	0.01	0
3/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/20/2016	0.07	0.05	0.03	0.07	0.09	0.03	0.04	0.05	0.04	0.03	0.04	0.02	0.05	0.06	0.06	0.07	0.05	0.02
3/21/2016	0.02	0.02	0.02	0.02	0.04	0.01	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.01	0.04	0.02
3/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/25/2016	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0
3/26/2016	0	0	0	0	0	0	0	0	0	0	0	0.03	0	0	0	0	0	0
3/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/28/2016	0.38	0.37	0.35	0.35	0.39	0.3	0.35	0.37	0.36	0.38	0.36	0.22	0.34	0.29	0.36	0.43	0.33	0.4
3/29/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 21 - March 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
3/1/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/2/2016	0.15	0.28	0.17	0.208	0.3	0.28	0.27	0.24	0.3	0.31	0.2	0.22	0.23	0.29	0.21	0.13	0.2
3/3/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/5/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/7/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/8/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/13/2016	0.09	0.05	0.11	0.111	0.08	0.02	0.05	0.07	0.06	0.01	0.06	0.06	0.01	0	0.12	0.17	0.15
3/14/2016	0.98	0.74	1.15	1.104	0.84	0.83	1.04	1.09	0.91	0.87	0.93	1	0.98	1.25	1.09	1.13	1.1
3/15/2016	0.05	0.01	0.04	0.029	0.03	0.02	0.02	0.04	0.02	0.01	0.06	0.06	0.03	0.02	0.02	0.03	0.04
3/16/2016	0.09	0.05	0.08	0.014	0.01	0	0	0.01	0.08	0	0	0.12	0	0	0	0.05	0.09
3/17/2016	0.01	0	0.01	0.001	0.04	0	0.02	0	0	0	0	0	0	0	0.02	0	0.01
3/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/20/2016	0.01	0.03	0.02	0.035	0.05	0.02	0.08	0.07	0.04	0.03	0	0.04	0.01	0.01	0.05	0.03	0.02
3/21/2016	0	0.01	0	0.016	0.01	0.01	0.02	0.02	0.03	0.03	0.01	0.02	0.02	0.01	0.02	0.02	0.01
3/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0
3/28/2016	0.29	0.36	0.45	0.347	0.4	0.32	0.4	0.36	0.33	0.3	0.39	0.39	0.39	0.45	0.34	0.44	0.45
3/29/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3/31/2016	0.01	0	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0.01

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Table 22 - April 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4/1/2016	0.27	0.4	0	0.01	0.332	0.04	0	0.02	0.03	0.01	0.01	0.4	0	0.04	0.08	0.11	0.01	0.01
4/2/2016	0.16	0.33	0.2	0.16	0.198	0.17	0.24	0.22	0.25	0.17	0.2	0.19	0.22	0.17	0.16	0.27	0.19	0.13
4/3/2016	0.01	0	0.02	0.04	0.016	0	0.01	0.01	0	0.01	0.01	0.02	0	0.01	0.01	0.01	0.01	0
4/4/2016	0.22	0.23	0.06	0.08	0.259	0.1	0.08	0.08	0.11	0.06	0.08	0.29	0.07	0.12	0.15	0.18	0.08	0.07
4/5/2016	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0.02	0	0
4/6/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/7/2016	0.2	0.18	0.16	0.11	0.22	0.1	0.13	0.15	0.11	0.17	0.16	0.23	0.18	0.11	0.18	0.16	0.19	0.12
4/8/2016	0	0.01	0	0	0.006	0	0.01	0	0	0.01	0	0.01	0.01	0.02	0.01	0	0	0.01
4/9/2016	0.31	0.39	0.38	0.48	0.292	0.49	0.36	0.38	0.44	0.46	0.36	0.23	0.38	0.35	0.38	0.39	0.39	0.3
4/10/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/11/2016	0	0	0	0	0.006	0	0	0.01	0	0	0.01	0.01	0	0	0	0	0	0
4/12/2016	0.33	0.39	0.35	0.29	0.317	0.349	0.3	0.33	0.35	0.4	0.32	0.29	0.31	0.32	0.33	0.41	0.32	0.25
4/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/14/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/15/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/16/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/20/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/21/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/22/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
4/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/25/2016	0	0	0.01	0	0	0	0	0.01	0	0	0.01	0	0.01	0	0	0	0	0
4/26/2016	0.16	0.23	0.16	0.17	0.19	0.248	0.3	0.14	0.25	0.13	0.17	0.16	0.17	0.43	0.33	0.29	0.19	0.5
4/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/28/2016	0	0	0	0	0.012	0	0	0	0	0	0	0.02	0	0	0	0	0	0
4/29/2016	0.11	0.14	0.41	0.36	0.14	0.131	0.37	0.34	0.11	0.47	0.32	0.16	0.36	0.23	0.14	0.11	0.33	0.25
4/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 23 – April 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
4/1/2016	0.02	0.01	0.02	0.048	0.26	0.02	0.28	0.01	0	0.01	0.02	0.02	0.02	0.02	0.15	0.04	0.05
4/2/2016	0.11	0.17	0.14	0.226	0.22	0.15	0.2	0.19	0.18	0.32	0.18	0.16	0.14	0.13	0.23	0.14	0.18
4/3/2016	0.04	0.03	0	0	0	0.01	0.01	0.02	0.02	0.06	0	0.01	0	0	0	0	0.04
4/4/2016	0.069	0.05	0.06	0.114	0.28	0.07	0.23	0.09	0.05	0.05	0.06	0.05	0.06	0.08	0.2	0.08	0.08
4/5/2016	0.002	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0
4/6/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/7/2016	0.124	0.13	0.09	0.11	0.21	0.17	0.23	0.14	0.14	0.15	0.09	0.13	0.17	0.23	0.1	0.18	0.12
4/8/2016	0.006	0	0.01	0.001	0	0	0	0.01	0	0	0.01	0	0	0	0.01	0	0.01
4/9/2016	0.359	0.41	0.35	0.451	0.36	0.27	0.39	0.41	0.39	0.41	0.41	0.36	0.41	0.33	0.48	0.56	0.5
4/10/2016	0.016	0	0.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0.08
4/11/2016	0.003	0.06	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0.01	0	0.01
4/12/2016	0.33	0.32	0.43	0.35	0.32	0.3	0.35	0.28	0.31	0.31	0.37	0.39	0.36	0.36	0.34	0.32	0.37
4/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/23/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/24/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/25/2016	0.002	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
4/26/2016	0.277	0.14	0.17	0.25	0.13	0.13	0.22	0.32	0.13	0.11	0.28	0.15	0.16	0.13	0.29	0.24	0.23
4/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/29/2016	0.318	0.26	0.49	0.119	0.2	0.2	0.09	0.21	0.48	0.18	0.29	0.34	0.28	0.16	0.13	0.08	0.43
4/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 24 – May 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
5/1/2016	0.5	0.5	0.6	0.57	0.577	0.51	0.53	0.56	0.56	0.62	0.6	0.61	0.61	0.45	0.48	0.53	0.57	0.57
5/2/2016	0.12	0.19	0.19	0.15	0.143	0.23	0.16	0.18	0.21	0.22	0.19	0.15	0.18	0.12	0.13	0.14	0.17	0.22
5/3/2016	0.47	0.44	0.53	0.48	0.525	0.4	0.42	0.42	0.41	0.49	0.51	0.56	0.5	0.51	0.5	0.52	0.43	0.41
5/4/2016	0.02	0.04	0.1	0.06	0.031	0.05	0.07	0.07	0.04	0.09	0.08	0.03	0.09	0.03	0.05	0.04	0.08	0.04
5/5/2016	0	0.01	0.01	0.04	0.001	0.01	0.01	0.02	0.01	0.01	0.01	0	0.02	0.01	0.01	0.01	0.01	0.02
5/6/2016	1.21	1.3	1.86	1.12	1.061	1.49	1.5	1.48	1.52	1.69	1.71	0.96	1.65	1.28	1.3	1.43	1.48	1.53
5/7/2016	0.08	0.11	0.05	0.03	0.065	0.13	0.09	0.09	0.11	0.07	0.08	0.05	0.06	0.06	0.08	0.1	0.05	0.12
5/8/2016	0	0	0.07	0.07	0.027	0.03	0.07	0.06	0.02	0.08	0.06	0.03	0.07	0.03	0.06	0.06	0.08	0.08
5/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/12/2016	0	0	0	0	0.03	0	0	0	0	0	0	0.05	0	0	0	0	0	0
5/13/2016	0.14	0.11	0.15	0.1	0.191	0.09	0.11	0.129	0.14	0.15	0.16	0.21	0.15	0.16	0.19	0.18	0.15	0.11
5/14/2016	0.08	0.08	0.05	0.04	0.097	0.05	0.05	0.06	0.06	0.04	0.06	0.1	0.06	0.06	0.07	0.08	0.06	0.05
5/15/2016	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/17/2016	0.11	0.11	0.11	0.04	0.132	0.09	0.1	0.11	0.1	0.12	0.11	0.14	0.12	0.1	0.13	0.13	0.1	0.1
5/18/2016	0	0	0	0.02	0.006	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0
5/19/2016	0	0.02	0.03	0.01	0.028	0.02	0.01	0.03	0.02	0.02	0.03	0.04	0.03	0	0.01	0.01	0.02	0.02
5/20/2016	0	0	0	0	0.012	0	0	0	0	0	0	0.02	0	0	0	0	0	0
5/21/2016	1.27	1.33	0.86	1	1.329	1.07	0.87	0.89	1.18	0.92	0.92	1.39	0.87	0.95	1.12	1.22	0.81	0.9
5/22/2016	0.09	0.19	0.2	0.21	0.15	0.1	0.14	0.13	0.12	0.18	0.14	0.16	0.17	0.19	0.2	0.23	0.13	0.07
5/23/2016	0.05	0.15	0.47	0.25	0.076	0.18	0.11	0.19	0.1	0.32	0.18	0.08	0.26	0.08	0.08	0.09	0.19	0.11
5/24/2016	0.08	0.03	0.19	0.17	0.154	0.05	0.27	0.14	0.05	0.19	0.21	0.19	0.24	0.22	0.23	0.1	0.22	0.07
5/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/29/2016	0.46	0.61	0.6	0.59	0.579	0.4	0.57	0.55	0.48	0.46	0.54	0.64	0.5	0.58	0.5	0.53	0.62	0.39
5/30/2016	1.22	1.32	1.36	1.69	1.532	1.5	1.71	1.43	1.49	1.03	1.59	1.63	1.46	1.41	1.84	1.82	1.86	1.02
5/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 25 - May 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
5/1/2016	0.62	0.56	0.55	0.544	0.57	0.52	0.53	0.45	0.57	0.48	0.56	0.59	0.59	0.54	0.53	0.48	0.54
5/2/2016	0.24	0.17	0.34	0.214	0.19	0.23	0.13	0.14	0.17	0.19	0.28	0.2	0.26	0.28	0.21	0.28	0.3
5/3/2016	0.39	0.44	0.31	0.407	0.46	0.41	0.47	0.42	0.44	0.43	0.31	0.41	0.4	0.45	0.41	0.28	0.3
5/4/2016	0.1	0.04	0.12	0.042	0.02	0.06	0.03	0.06	0.06	0.1	0.11	0.06	0.08	0.12	0.05	0.08	0.11
5/5/2016	0	0.01	0	0.009	0	0.01	0	0.01	0.01	0	0.01	0.01	0.01	0.02	0.01	0.01	0.02
5/6/2016	1.66	0.99	1.59	1.491	1.03	0.92	1.16	1.3	1.33	1.01	1.47	1.53	1.52	1.16	1.41	1.3	1.46
5/7/2016	0.14	0.04	0.12	0.115	0.08	0.05	0.08	0.09	0.04	0.03	0.08	0.09	0.07	0.05	0.13	0.13	0.11
5/8/2016	0.08	0.05	0.09	0.022	0.03	0.06	0.01	0.04	0.06	0.06	0.07	0.06	0.06	0.11	0	0.02	0.05
5/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/10/2016	0	0	0	0	0.01	0	0	0	0	0	0	0	0.01	0	0.01	0	0
5/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/13/2016	0.15	0.17	0.2	0.13	0.18	0.16	0.16	0.1	0.15	0.13	0.21	0.13	0.16	0.2	0.11	0.16	0.2
5/14/2016	0.03	0.04	0.04	0.059	0.11	0.04	0.1	0.04	0.04	0.03	0.05	0.04	0.04	0.03	0.05	0.04	0.06
5/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/16/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/17/2016	0.11	0.1	0.12	0.097	0.14	0.12	0.12	0.09	0.09	0.08	0.11	0.11	0.11	0.08	0.11	0.11	0.11
5/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0.01
5/19/2016	0.01	0.03	0.01	0.019	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.01
5/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/21/2016	0.87	0.74	0.87	1.155	1.52	0.76	1.26	0.42	0.69	0.7	0.8	0.89	0.9	0.84	1.25	1.03	0.91
5/22/2016	0.15	0.21	0.17	0.117	0.11	0.2	0.11	0.53	0.19	0.18	0.24	0.13	0.24	0.19	0.17	0.12	0.15
5/23/2016	0.11	0.35	0.11	0.122	0.06	0.26	0.06	0.03	0.69	0.3	0.08	0.26	0.14	0.07	0.15	0.14	0.18
5/24/2016	0.11	0.15	0.05	0.047	0.04	0.08	0.09	0.01	0.19	0.16	0.12	0.1	0.15	0.13	0	0	0.04
5/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/27/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/28/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/29/2016	0.37	0.55	0.37	0.467	0.54	0.5	0.47	0.34	0.7	0.46	0.3	0.38	0.38	0.43	0.62	0.53	0.4
5/30/2016	0.93	1.37	0.84	1.474	1.02	0.82	1.25	1.39	1.48	1	0.58	0.73	0.7	0.51	1.65	1.04	0.9
5/31/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 26 - June 2016 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
6/1/2016	0	0	0	0	0.037	0	0	0	0	0	0	0.06	0	0	0	0	0	0
6/2/2016	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/3/2016	0.12	0.2	0.15	0.12	0.138	0.2	0.14	0.17	0.18	0.16	0.17	0.13	0.15	0.12	0.15	0.19	0.15	0.21
6/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/5/2016	0.54	0.44	0.4	0.63	0.6	0.41	0.33	0.35	0.4	0.42	0.38	0.52	0.37	0.96	0.83	0.74	0.48	0.25
6/6/2016	0	0	0	0	0	0	0.01	0	0	0.01	0	0	0	0	0	0	0	0
6/7/2016	0.05	0.09	0.01	0.01	0.144	0	0	0	0	0	0	0.21	0	0.03	0	0.01	0	0
6/8/2016	0.13	0.17	0.19	0.14	0.254	0.18	0.2	0.18	0.19	0.23	0.21	0.33	0.17	0.16	0.07	0.17	0.17	0.11
6/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/11/2016	0	0	0	0	0.006	0	0	0	0	0	0	0.01	0	0	0	0	0	0
6/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/16/2016	0.27	0.33	0.15	0.17	0.355	0.37	0.22	0.2	0.39	0.13	0.18	0.39	0.19	0.26	0.5	0.3	0.26	0.32
6/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0
6/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/23/2016	0.2	0.17	0.01	0.01	0.268	0.06	0	0	0.08	0.01	0	0.31	0.01	0	0.02	0.11	0	0.01
6/24/2016	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0
6/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/27/2016	0.37	0.53	0.52	0.2	0.42	0.93	0.34	0.62	0.74	0.61	0.52	0.44	0.51	0.23	0.33	0.47	0.51	0.54
6/28/2016	0.52	0.35	0.44	0.4	0.527	0.19	0.2	0.22	0.44	0.55	0.33	0.59	0.34	0.33	0.35	0.37	0.28	0.15
6/29/2016	0	0	0	0.01	0.031	0.07	0.01	0	0.04	0.16	0	0.05	0	0.1	0	0	0.03	0.01
6/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 27 - June 2016 PWD Rain Gage Records

Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
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6/1/2016	0	0	0	0	0	0	0	0	0	0	0.03	0	0	0	0	0	0
6/2/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/3/2016	0.2	0.13	0.24	0.187	0.12	0.13	0.14	0.12	0.11	0.12	0.14	0.17	0.14	0.07	0.26	0.28	0.26
6/4/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/5/2016	0.47	0.46	0.39	0.41	0.44	0.6	0.77	0.19	0.46	0.36	0.22	0.48	0.7	0.38	0.41	0.58	0.49
6/6/2016	0.01	0.01	0.01	0	0	0	0	0.06	0	0	0	0	0	0.01	0.01	0	0
6/7/2016	0	0	0	0.004	0.04	0.01	0.05	0	0.01	0	0	0	0.03	0.01	0.05	0	0
6/8/2016	0.29	0.18	0.25	0.188	0.19	0.21	0.12	0.18	0.14	0.29	0.254	0.28	0.21	0.43	0.18	0.11	0.5
6/9/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/10/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/11/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/12/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/13/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/14/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/15/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/16/2016	0.24	0.06	0.23	0.383	0.36	0.05	0.28	0.34	0.09	0.03	0.12	0.17	0.12	0.01	0.38	0.5	0.27
6/17/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/18/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/19/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/20/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/21/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/22/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/23/2016	0.01	0	0.02	0.078	0.16	0	0.26	0.01	0	0	0.01	0.01	0	0	0.18	0.14	0.03
6/24/2016	0	0	0	0.007	0	0	0	0.01	0	0	0	0	0	0	0	0.01	0
6/25/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/26/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/27/2016	0.57	0.24	0.63	0.778	0.37	0.35	0.36	0.27	0.32	0.28	0.36	0.41	0.27	0.23	0.78	1.25	0.85
6/28/2016	0.62	0.53	0.48	0.364	0.39	0.98	0.47	0.26	0.4	0.54	0.26	0.45	1.2	0.3	0.27	0.01	0.08
6/29/2016	0.01	0.01	0.01	0.045	0	0.11	0	0.01	0	0.02	0	0.32	0.03	0.1	0.04	0	0.13
6/30/2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table 28 - Rain Gage records by year and month for FY15-16

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Jul15	2.82	3.06	3.24	3.07	2.89	3.23	3.56	2.68	2.64	3.57	3.03	3.023	2.82	3.06	3.24	3.07	2.89	3.23
Aug15	1.16	1.32	2.381	1.36	1.68	2.01	1.74	1.8	1.642	3.14	2.447	0.99	2.26	1.2	1.64	1.69	1.63	1.863
Sep15	4.79	3.79	3.852	3.51	4.086	2.99	4.972	4.54	3.94	4.26	4.99	3.89	4.75	4.3	5.38	4.69	4.51	4.557
Oct15	3.99	3.96	3.44	4.35	6.07	3.64	3.916	3.86	3.78	3.73	3.916	2.92	3.73	3.69	4.09	4.13	3.81	3.11
Nov15	1.95	2.05	2.31	2.3	1.95	2.51	2.711	2.6	2.4	2.82	2.63	1.58	2.48	1.98	2.22	2.38	2.24	2.64
Dec15	5.39	5.2	5.48	6	6.14	5.21	5.521	5.52	5.25	5.4	5.5	4.78	5.69	5.39	5.76	5.95	5.43	5.31
Jan16	1.704	1.639	1.79	1.908	1.782	1.632	1.09	1.461	1.711	1.87	1.78	1.569	1.742	1.16	1.533	1.81	1.481	1.471
Feb16	4.445	4.703	4.6	4.296	4.654	4.38	4.11	4.501	4.871	4.625	4.48	3.877	4.665	3.79	4.376	4.84	4.606	4.096
Mar16	1.88	1.8	1.82	2.06	2.21	1.66	1.84	1.98	1.95	1.8	2.02	1.43	1.98	1.64	1.83	1.98	1.88	1.88
Apr16	1.84	2.44	2.05	2.07	2.159	2.087	2.08	2	1.81	2.17	1.94	2.22	2	2	1.91	2.06	2.02	1.91
May16	5.9	6.54	7.43	6.66	6.746	6.4	6.79	6.539	6.62	6.71	7.18	7.05	7.04	6.24	6.98	7.22	7.03	5.83
Jun16	2.2	2.28	1.87	1.7	2.78	2.41	1.45	1.74	2.47	2.28	1.79	3.04	1.74	2.21	2.25	2.36	1.88	1.6
Total	38.069	38.782	40.263	39.284	43.147	38.159	39.78	39.221	39.084	42.375	41.703	36.369	40.897	36.66	41.209	42.18	39.407	37.497
Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Jul15	2.8	2.62	3.62	3.15	3.284	3.68	3.594	2.973	2.47	3.07	3.411	2.9	4.11	3.75	3.37	3.324	2.91	
Aug15	2.19	2.77	1.74	1.701	1.26	5.33	1.13	1.574	2.41	3.36	3.13	1.96	4.01	3.76	1.11	1.388	1.19	
Sep15	4.25	3.31	3.57	3.72	4.58	3.66	3.83	4.91	3.26	2.73	3.11	4.137	3.938	3.1	3.86	3.7	3.69	
Oct15	3.18	3.55	3.94	3.762	3.57	2.99	3.794	4.085	3.17	3.45	3.52	3.32	3.5	3.49	4.15	4.34	3.88	
Nov15	2.436	2.17	2.87	2.405	1.67	2.44	1.975	2.273	2.22	2.39	2.51	2.436	2.66	2.65	2.22	2.63	2.69	
Dec15	4.87	6.06	5.23	5.247	4.84	5.474	5.22	5.17	5.89	5.23	4.75	5.39	5.14	5.13	5.71	5.13	5.035	
Jan16	1.41	1.68	1.506	1.699	1.534	2.17	1.716	1.342	1.724	1.71	1.526	1.742	1.91	2.045	1.728	1.633	1.416	
Feb16	3.95	4.1	4.557	4.696	4.666	4.052	4.329	4.546	4.13	4.244	3.712	4.587	4.47	4.273	4.438	3.928	4.465	
Mar16	1.68	1.53	2.04	1.865	1.76	1.5	1.9	1.9	1.77	1.56	1.66	1.91	1.67	2.03	1.88	2.02	2.08	
Apr16	1.966	1.87	2.17	1.896	2.08	1.52	2.11	1.89	1.99	1.84	1.96	1.91	1.88	1.89	2.08	1.79	2.38	
May16	6.07	6.01	5.9	6.531	6.12	5.21	6.04	5.47	6.92	5.36	5.4	5.74	5.84	5.22	6.89	5.76	5.86	
Jun16	2.42	1.62	2.26	2.444	2.07	2.44	2.45	1.45	1.53	1.64	1.394	2.29	2.7	1.54	2.56	2.88	2.61	
Total	37.222	37.29	39.403	39.116	37.434	40.466	38.088	37.583	37.484	36.584	36.083	38.322	41.828	38.878	39.996	38.523	38.206	

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Table 29 - SSO Statistics for Period July 1 2015 – June 30 2016

Main & Shurs					
Event No.	Start of Overflow Date Time	End of Overflow Date Time	Event Duration (hours:mins)	Flow Volume (ft³)	Flow Volume (Millions of gallons)
1	2/24/16 22:17	2/24/16 22:42	0:25	1833	0.01371129

PC-30					
Event No.	Start of Overflow Date	End of Overflow Date	Event Duration (hours:mins)	Flow Volume (ft³)	Flow Volume (Millions of gallons)
0			0	0	0

Appendix E – PCB PMP 9th Annual Report



PCB

Pollutant Minimization Plan

Ninth Annual Report

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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.

Refer to the First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth Annual Reports for information on PMP efforts during Years 1, 2, 3, 4, 5, 6, 7 and 8.

During the ninth year of our five-year PCB PMP, the following tasks were performed:

- Seventy-Five (75) of the three hundred ninety-nine (399) sites listed by EPA or other agencies as housing PCB-containing devices were inspected. Other sites in the original listing were found to be duplicate listings or were found not to exist.
- 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 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").

Additionally, the following initiatives were undertaken:

- Creation of a PCB database, which will store all PCB data needed to create reports, graphs, GIS Maps and incorporate all future data in one location.
- Generation of interactive GIS Maps, which could assist in identifying areas of concern and planning any additional trackdown efforts (e.g. SEWPCP).
- Monitoring surrounding townships' connections to determine if there are PCB loadings entering the City through the surrounding township connections.
- Monitoring new construction and groundwater remediation sites to ensure compliance with PWD's published PCB limit of "non-detection 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: Nicole Charlton
Manager, Industrial Waste
1101 Market St., 4th Floor
Philadelphia, PA 19107

Phone: 215-685-4910
Fax: 215-685-6232
Email: nicole.charlton@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 9

3 *Revisions to PMP*

During Year 9, no revisions were made to the PMP.

4 *Material and Process Modifications*

During Year 9 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. No direct measurement of the PCB concentration in the source water was made during Year 3. With respect to the ferric chloride, during Year 3 of the PMP, PWD switched ferric chloride suppliers and began receiving ferric chloride from Kemira (Chicago) rather than DuPont. During Year 5, PWD obtained a copy of a letter from Vista Analytical Laboratory to Kemira. Lab analysis of Kemira's ferric chloride for coplanar PCBs (which is the same analysis on which the DuPont ferric chloride content was based) gave a result of 28.3 pg/g. Compared to the DuPont concentration of 0.00055 mg/L, this is a ninety-five percent (95%) reduction in PCB content in ferric chloride used by PWD in its water treatment process.

One probable source of PCBs was identified in PWD's PCB PMP. This source 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

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 Year 9 of the PMP, PWD's Industrial Waste Unit inspected forty-eight (48) of the NEWPCP-related sites, thirteen (13) of the SEWPCP-related sites and fourteen (14) of the SWWPCP-related sites. Several listings were found to be either duplicate listings or non-existent. The exact number of devices removed is uncertain due to the original listing containing no specific information on the number of devices believed to exist at some sites. The results of these inspections are summarized in the Tables, "Inspections of Potential Source Sites" (see Attachment A). The disposal records for some of the sites are not included with this report, but are available.

PCB Database

PWD is in the process of creating a PCB database, which will store all PCB data needed to create reports, graphs, GIS Maps and incorporate all future data in one location. Currently the project is in the development stages. A PWD team has been put together to review any technical requirements and specifications, including the functionality of the database, storage location, networking capabilities and software compatibilities. LINKO has been selected as the PCB database and the database is in the development stage.

GIS Maps

GIS Specialists (GISS) have been brought in to provide assistance with creating interactive GIS Maps, which could assist in identifying areas of concern, and planning any additional trackdown efforts (e.g. SEWPCP). All PCB data locations have been geocoded so that they can be included on GIS Maps. The data locations contain all sampling locations including PCB trackdowns, SIUs' Discharges, Groundwater Permits' Discharges, and Wastewater Treatment Plants.

Township Connections

PWD has agreements with the surrounding townships to convey and treat township wastewater, which is ultimately discharged at NEWPCP 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). Future goals for the monitoring performed at these township connections include PCB monitoring. The analytical results from this PCB monitoring will be used to determine if there are PCB loadings entering the City through the surrounding township connections.

New Construction and Groundwater Remediation Sites:

In an effort to minimize the amount of PCBs entering the City's sewer system, PWD has begun to implement PCB monitoring in all Groundwater Discharge Permits. These permits are used to regulate specific pollutants of concern from groundwater discharges to the City sewer. 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 also 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 published PCB limit of "non-detection by EPA Method 608" limitation. PWD is reviewing and analyzing self-monitoring reports for any recent and historical PCB detections. All PCB detections require additional monitoring by the contractor or subcontractor to show compliance with the permit limitation.

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"):

<u>WPCP</u>	<u>Baseline Loading (mg/day)</u>
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 9, 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.

6.3 Baseline Loading Reduction – Other Measures of Progress

See Attachment B ("Potential Sources and Inspection Findings").

7 Tabular Summary

Facility: Philadelphia Water Department
 Contact Information
 Name: Nicole Charlton
 Phone: 215-685-4910
 Email: nicole.charlton@phila.gov

Date of Completeness Determination: January 12, 2006
 Date of Initiation of PMP: March 4, 2006

NPDES No(s): PA0026689 (Northeast Water Pollution Control Plant, NEWPCP)
 PA0026662 (Southeast Water Pollution Control Plant, SEWPCCP)
 PA0026671 (Southwest Water Pollution Control Plant, SWWPCCP)

Cumulative Percent Reductions

Baseline Loading Calculations Date: 2005
 Revisions Date: N/A

Year	Loading (milligrams per day)	Estimated Reductions (from baseline) (milligrams per day)				Cumulative Reductions (% from baseline)	
TMDL Estimated Loading (to be added by DRBC)							
Discharger Computed Baseline							
NEWPCP	11,510						
SEWPCCP	7,559						
SWWPCCP	10,970						
N/A							
2007	December 3, 2007	December 3, 2007				December 3, 2007	
NEWPCP	8,594			2,916			25.3
SEWPCCP	4,595			2,964			39.2
SWWPCCP	6,369			4,601			41.9
2009	March 27, 2009	October 16, 2009	March 27, 2009	October 16, 2009	March 27, 2009	October 16, 2009	
NEWPCP	5,846	6,571	5,664	4,939	49.2	42.9	42.9
SEWPCCP	3,435	4,287	4,124	3,272	54.6	43.3	43.3
SWWPCCP	7,334	5,690	3,636	5,280	33.1	48.1	48.1
2010	April 21, 2010	December 2, 2010 (Dec. 13 for NEWPCP)	April 21, 2010	December 2, 2010 (Dec. 13 for NEWPCP)	April 21, 2010	December 2, 2010 (Dec. 13 for NEWPCP)	
NEWPCP	5,490	4,615	6,020	6,895	52.3	59.9	59.9
SEWPCCP	2,155	2,736	5,404	4,823	71.5	63.8	63.8
SWWPCCP	2,948	5,027	8,022	5,943	73.1	54.2	54.2
2011	September 6, 2011	November 17, 2011	September 6, 2011	November 17, 2011	September 6, 2011	November 17, 2011	
NEWPCP	6,224	3,745	5,286	7,765	45.9	67.5	67.5
SEWPCCP	4,135	1,368	3,424	6,191	45.3	81.9	81.9
SWWPCCP	10,270	4,280	700	6,690	6.4	61.0	61.0
2012	June 13, 2012	October 16, 2012	June 13, 2012	October 16, 2012	June 13, 2012	October 16, 2012	
NEWPCP	11,189	2,542	321	8,968	2.8	77.9	77.9
SEWPCCP	5,659	1,296	1,900	6,263	25.1	82.9	82.9
SWWPCCP	5,766	2,663	5,204	8,307	47.4	75.7	75.7
2013	April 20, 2013	October 8, 2013	April 20, 2013	October 8, 2013	April 20, 2013	October 8, 2013	
NEWPCP	2,849	2,349	8,661	9,161	75.2	79.6	79.6
SEWPCCP	2,803	2,599	4,756	4,960	62.9	65.6	65.6
SWWPCCP	3,673	3,040	7,297	7,930	66.5	72.3	72.3
2014	April 16, 2014	September 25, 2014	April 16, 2014	September 25, 2014	April 16, 2014	September 25, 2014	
NEWPCP	2,315	1,552	9,195	9,958	79.9	86.5	86.5
SEWPCCP	6,370	1,827	1,189	5,732	15.7	75.8	75.8
SWWPCCP	2,939	2,882	8,031	8,088	73.2	73.7	73.7
2015	May 28, 2015 (August 12, 2015 for SWWPCCP)	October 10, 2015	May 28, 2015 (August 12, 2015 for SWWPCCP)	October 10, 2015	May 28, 2015 (August 12, 2015 for SWWPCCP)	October 10, 2015	
NEWPCP	3,878	2,814	7,632	8,696	N/A	75.6	75.6
SEWPCCP	6,774	6,898	785	661	N/A	8.7	8.7
SWWPCCP	5,143	4,354	5,827	6,616	53.1	60.3	60.3

Measures

Description	Date Initiated	Date Completed	Comments/Status:
SEWPCCP Phase 2 Trackdown Sampling	October 17, 2006	October 20, 2006	Complete
NEWPCP Phase 1 Trackdown Sampling	November 3, 2010	November 4, 2010	
NEWPCP Phase 2 Trackdown Sampling	January 28, 2012	January 27, 2012	
SWWPCCP Phase 1 Trackdown Sampling	October 12, 2011	October 13, 2011	
SWWPCCP Phase 2 Trackdown Sampling	February 23, 2012	February 24, 2012	
Inspections of "Potential Source" sites	March 4, 2006	April 2011	363 Completed
Inspections of "Potential Source" sites (Phila. Health Dept. list)	October 30, 2006	March 21, 2007	31 of 31 Completed

7 Tabular Summary

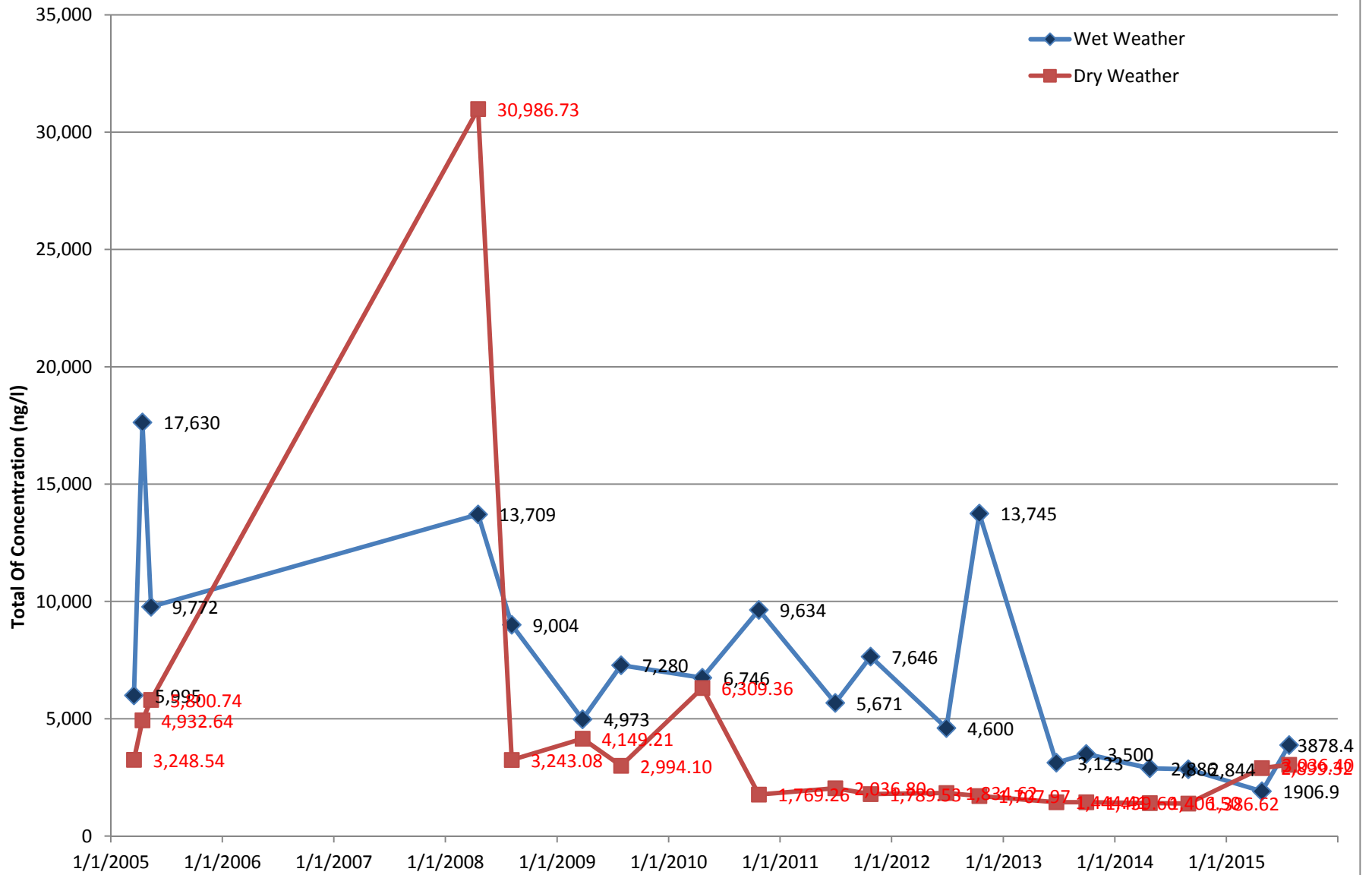
Monitoring

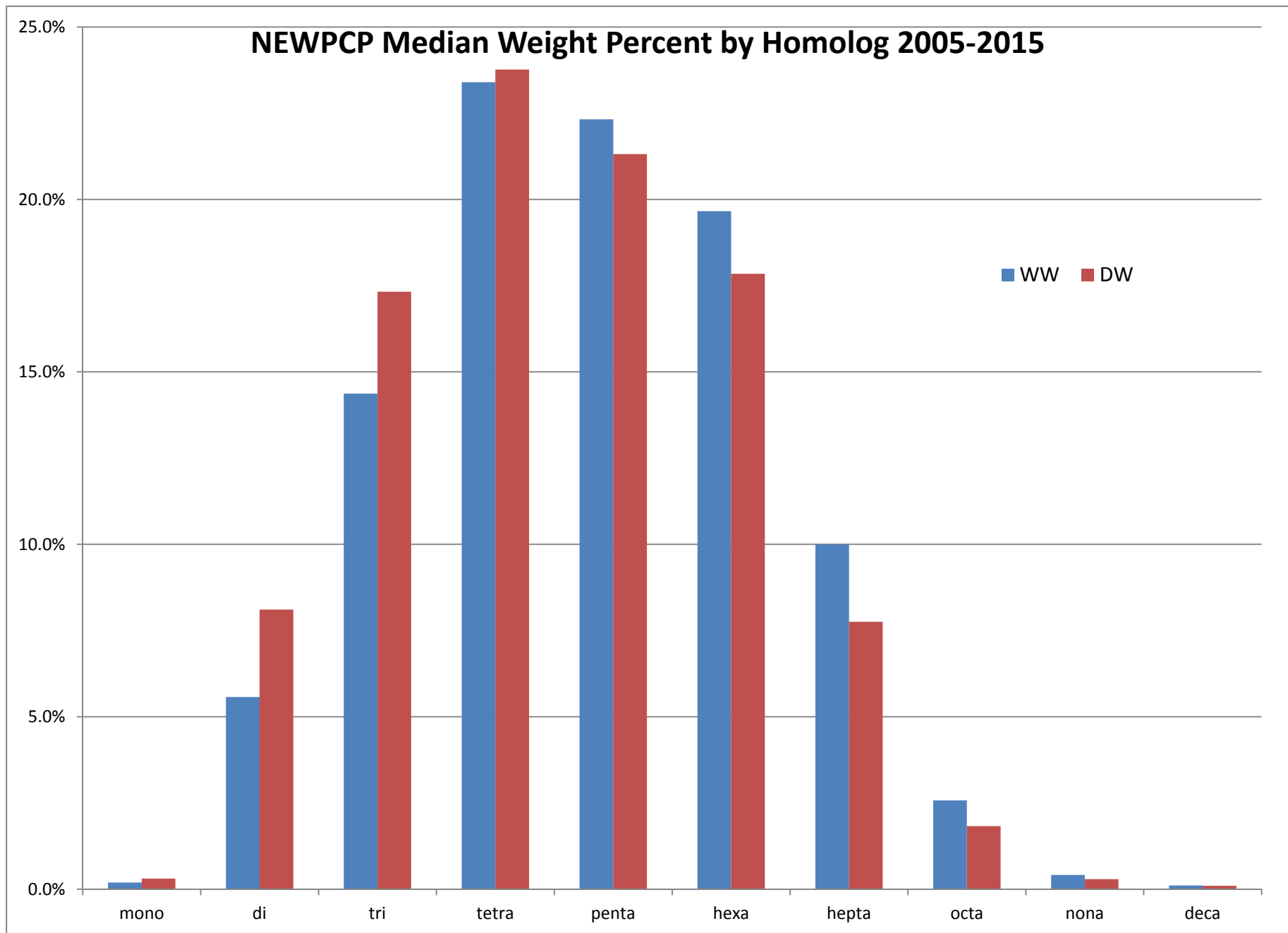
Sample Location	Date of Sample Collection	Date Results Received	Total PCBs (pg/l)	Penta-PCBs (pg/l)
SEWPCP Phase 2 Trackdown Sampling	October 17-20, 2006	May 1, 2007		
NEWPCP, SEWPCP & SWWPCP effluent	December 2-3, 2007	March 28, 2008		
NEWPCP			13,709	2340
SEWPCP			13,580	2233
SWWPCP			7,362	1,314
NEWPCP, SEWPCP & SWWPCP effluent	March 27, 2009	May 29, 2009		
NEWPCP			4,047	850
SEWPCP			1,593	373
SWWPCP			8,866	1,474
NEWPCP, SEWPCP & SWWPCP effluent	October 16, 2009	December 23, 2009		
NEWPCP			5,924	1,238
SEWPCP			3,797	711
SWWPCP			4,612	886
NEWPCP, SEWPCP & SWWPCP effluent	April 21, 2010	June 18, 2010		
NEWPCP			6,746	1,629
SEWPCP			5,322	1,114
SWWPCP			3,623	729
NEWPCP, SEWPCP & SWWPCP effluent	December 2, 2010 (December 13, 2010)	January 31, 2011		
NEWPCP			5,671	1,379
SEWPCP			6,755	1,348
SWWPCP			6,177	1,110
NEWPCP, SEWPCP & SWWPCP effluent	September 6, 2011	October 25, 2011		
NEWPCP			7,646	1,624
SEWPCP			10,206	1,723
SWWPCP			12,385	1,911
NEWPCP, SEWPCP & SWWPCP effluent	November 17, 2011	January 13, 2012		
NEWPCP			4,600	1,159
SEWPCP			3,376	635
SWWPCP			5,162	997
NEWPCP, SEWPCP & SWWPCP effluent	June 13, 2012	July 24, 2012		
NEWPCP			13,745	2,057
SEWPCP			13,968	2,954
SWWPCP			6,954	1,331
NEWPCP, SEWPCP & SWWPCP effluent	October 16, 2012	November 30, 2012		
NEWPCP			3,123	791
SEWPCP			3,198	595
SWWPCP			3,211	558
NEWPCP, SEWPCP & SWWPCP effluent	April 20, 2013	May 29, 2013		
NEWPCP			3,500	806
SEWPCP			6,918	1,566
SWWPCP			4,429	932
NEWPCP, SEWPCP & SWWPCP effluent	October 8, 2013	January 20, 2014		
NEWPCP			2,886	669
SEWPCP	(November 27, 2013)		6,414	1,204
SWWPCP			3,666	757
NEWPCP, SEWPCP & SWWPCP effluent	April 16, 2014	May 26, 2014		
NEWPCP			2,844	622
SEWPCP			15,722	3,182
SWWPCP	(April 26, 2014)	(June 2, 2014)	3,544	737
NEWPCP, SEWPCP & SWWPCP effluent	September 25, 2014 (September 26, 2014)	October 26, 2014		
NEWPCP			1,907	458
SEWPCP			4,510	912
SWWPCP			3,476	745
NEWPCP, SEWPCP & SWWPCP effluent	May 28, 2015	August 4, 2015		
NEWPCP	N/A	N/A	N/A	N/A
SEWPCP	N/A	N/A	N/A	N/A
SWWPCP			4,265	1,338
NEWPCP, SEWPCP & SWWPCP effluent	August 12, 2015	November 2, 2015		
NEWPCP			3,157	963
SEWPCP			2,744	1,411
SWWPCP	N/A	N/A	N/A	N/A
NEWPCP, SEWPCP & SWWPCP effluent	October 10, 2015	December 21, 2015		
NEWPCP			2,291	584
SEWPCP			2,795	1,516
SWWPCP			3,610	790

Attachment A

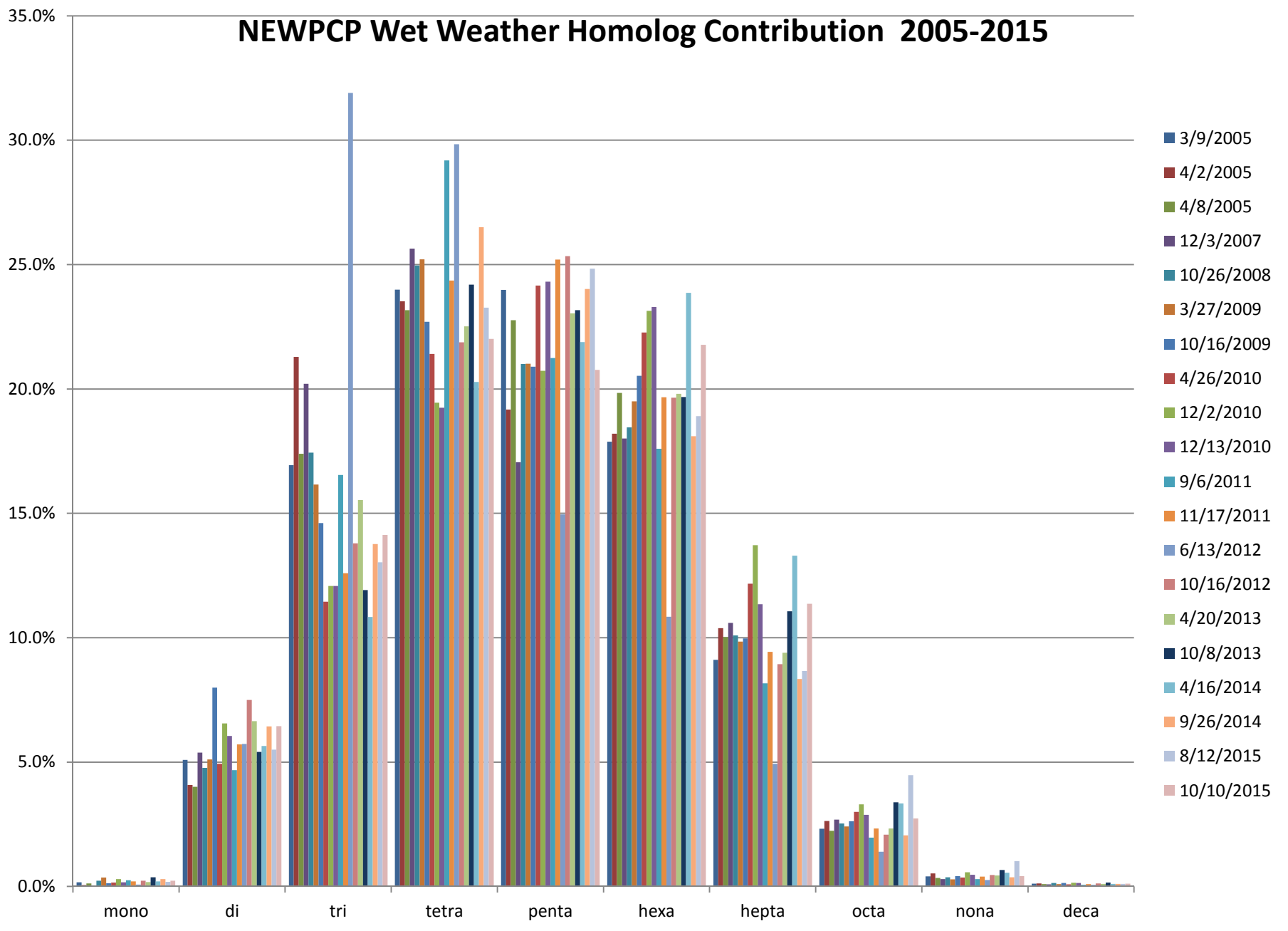
Data Graphs

Total PCB Concentration PWD NEWPCP

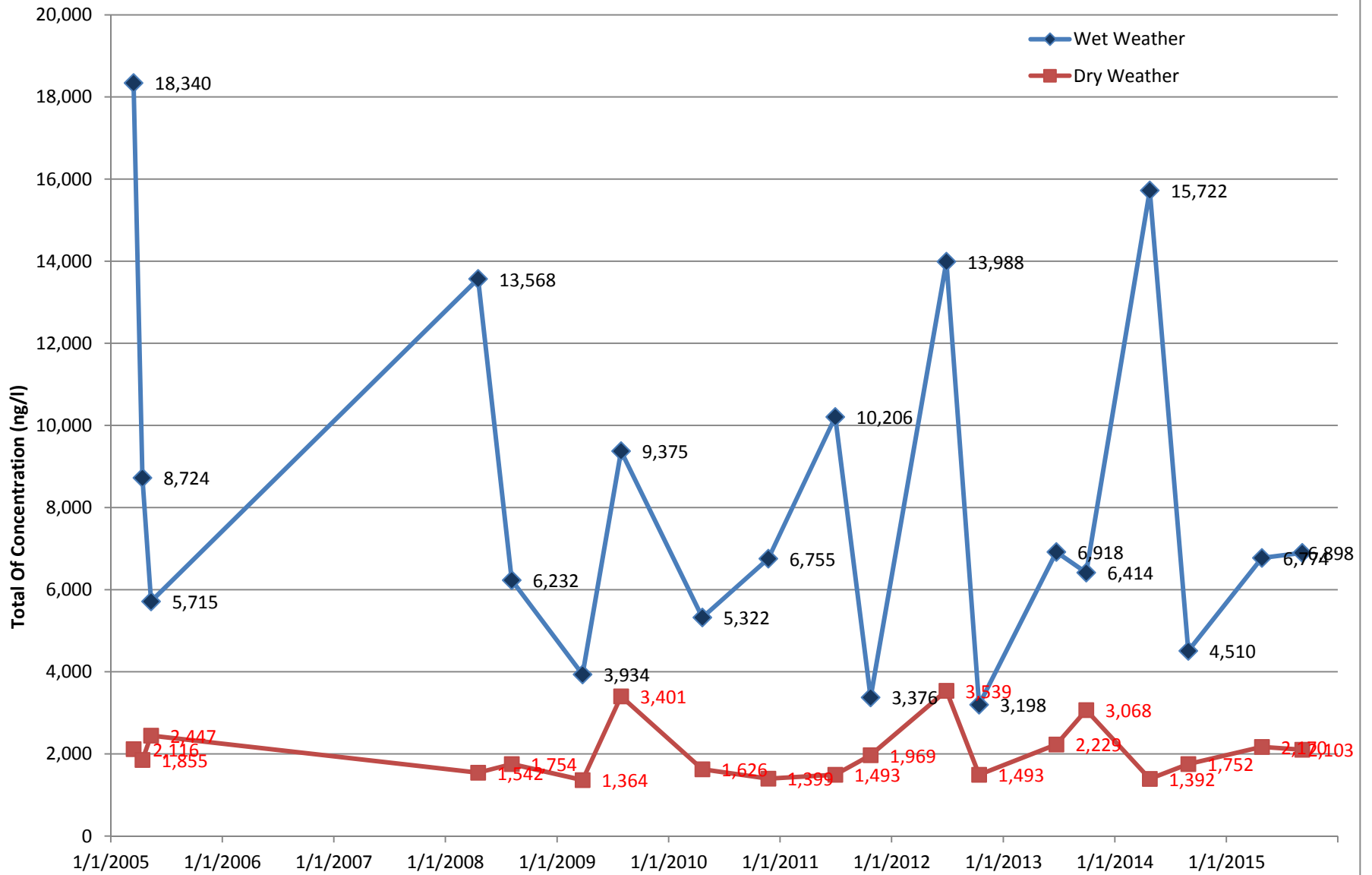


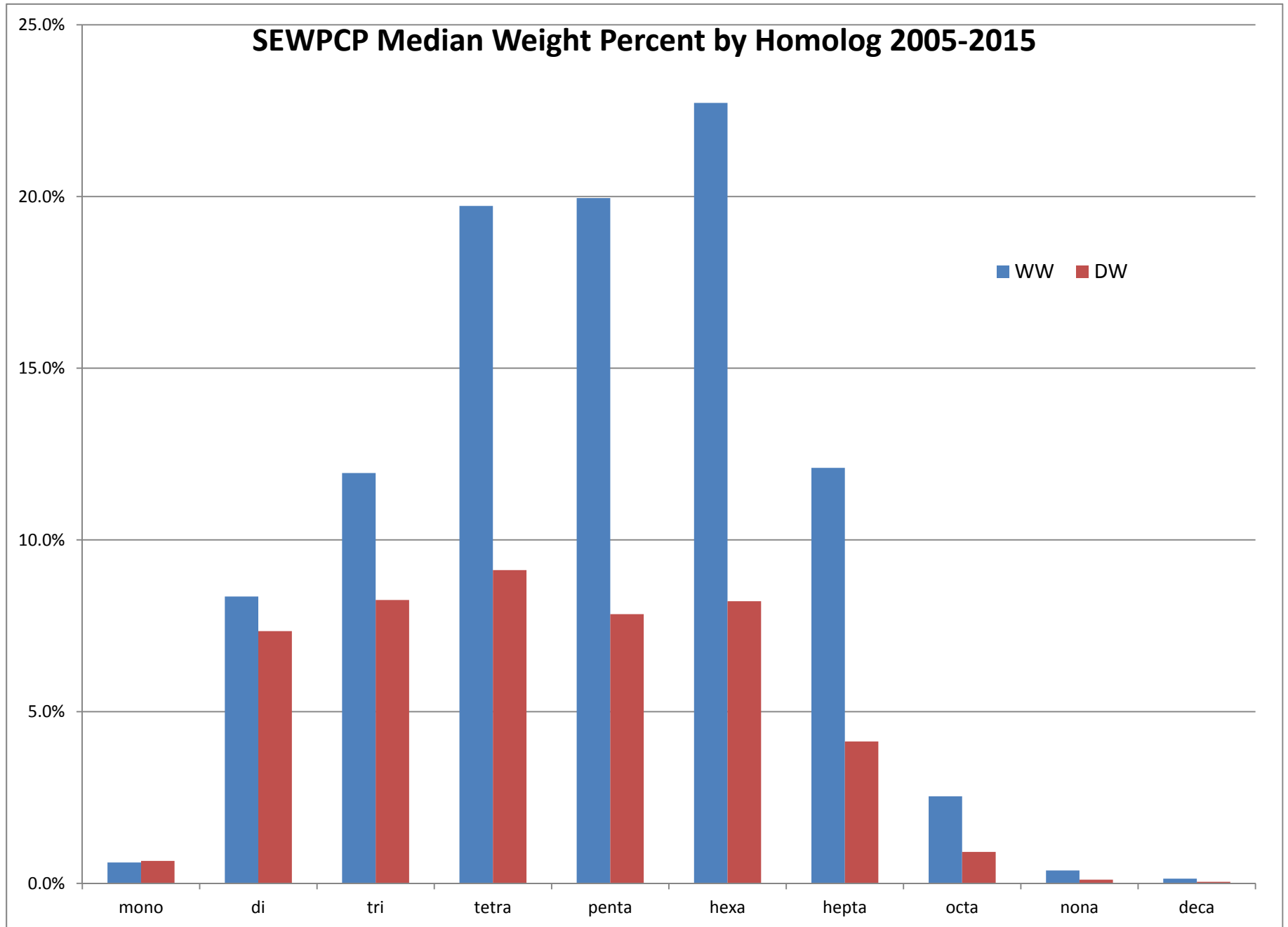


NEWPCP Wet Weather Homolog Contribution 2005-2015

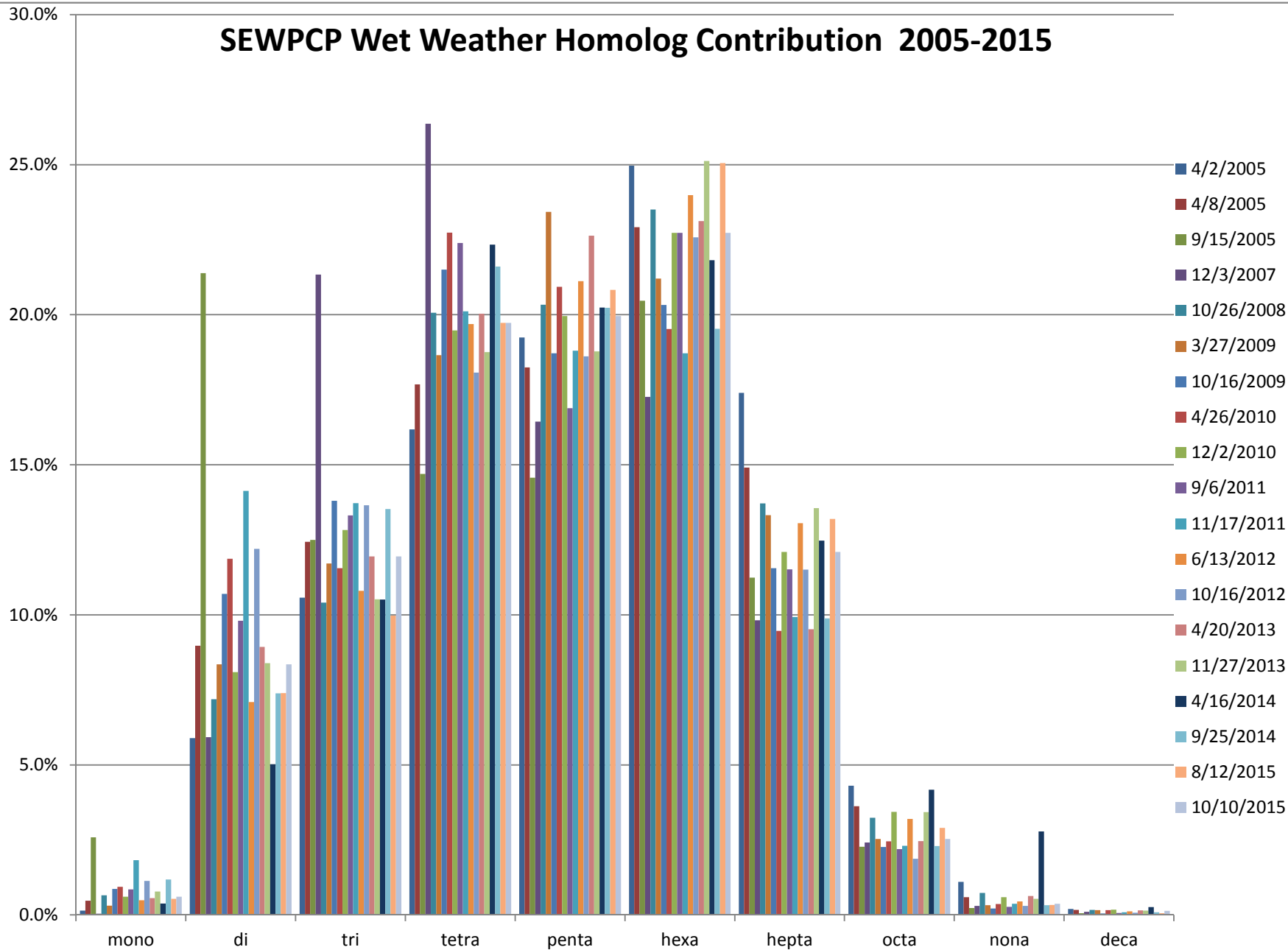


Total PCB Concentration PWD SEWPCP--2015

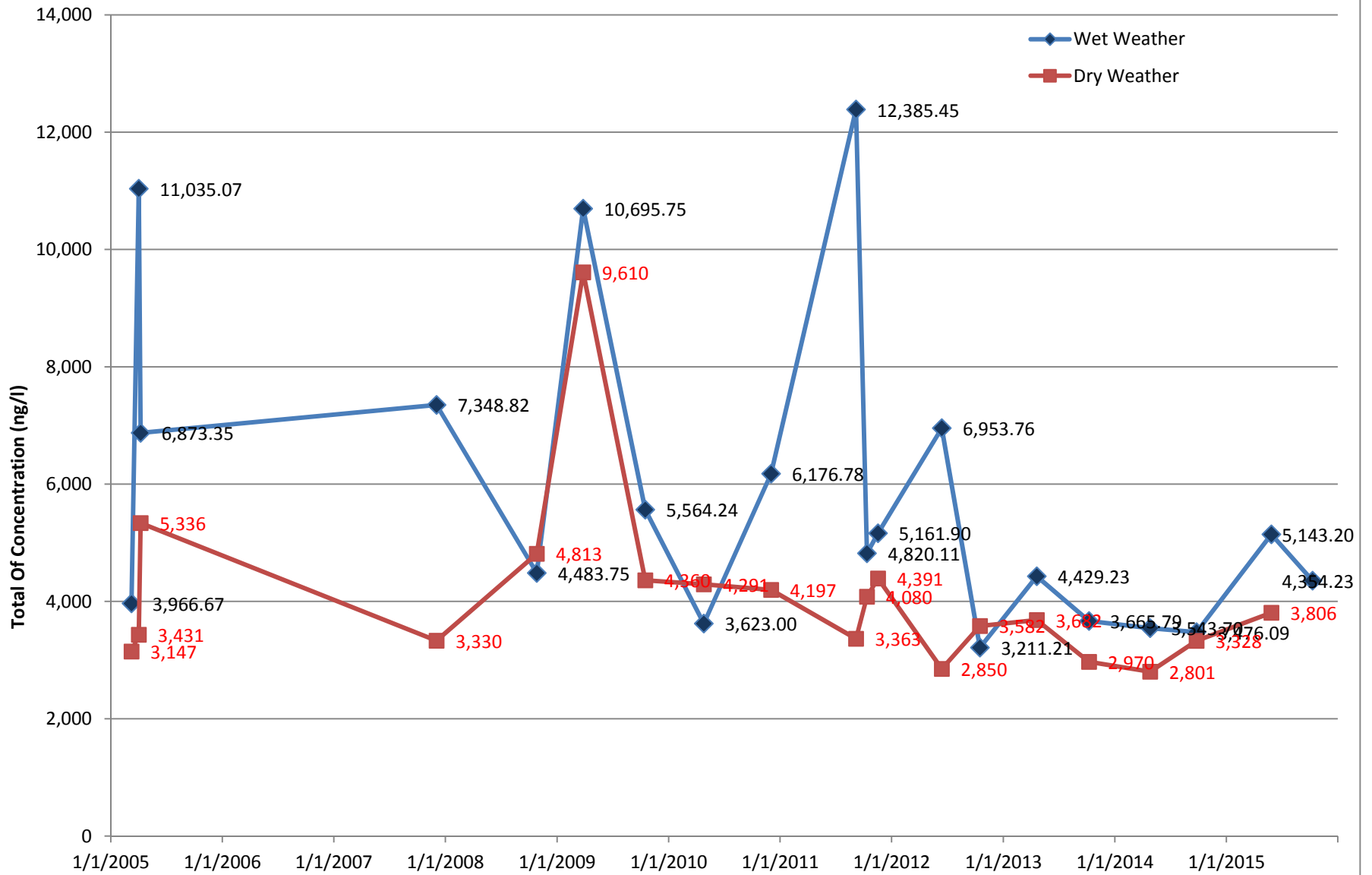




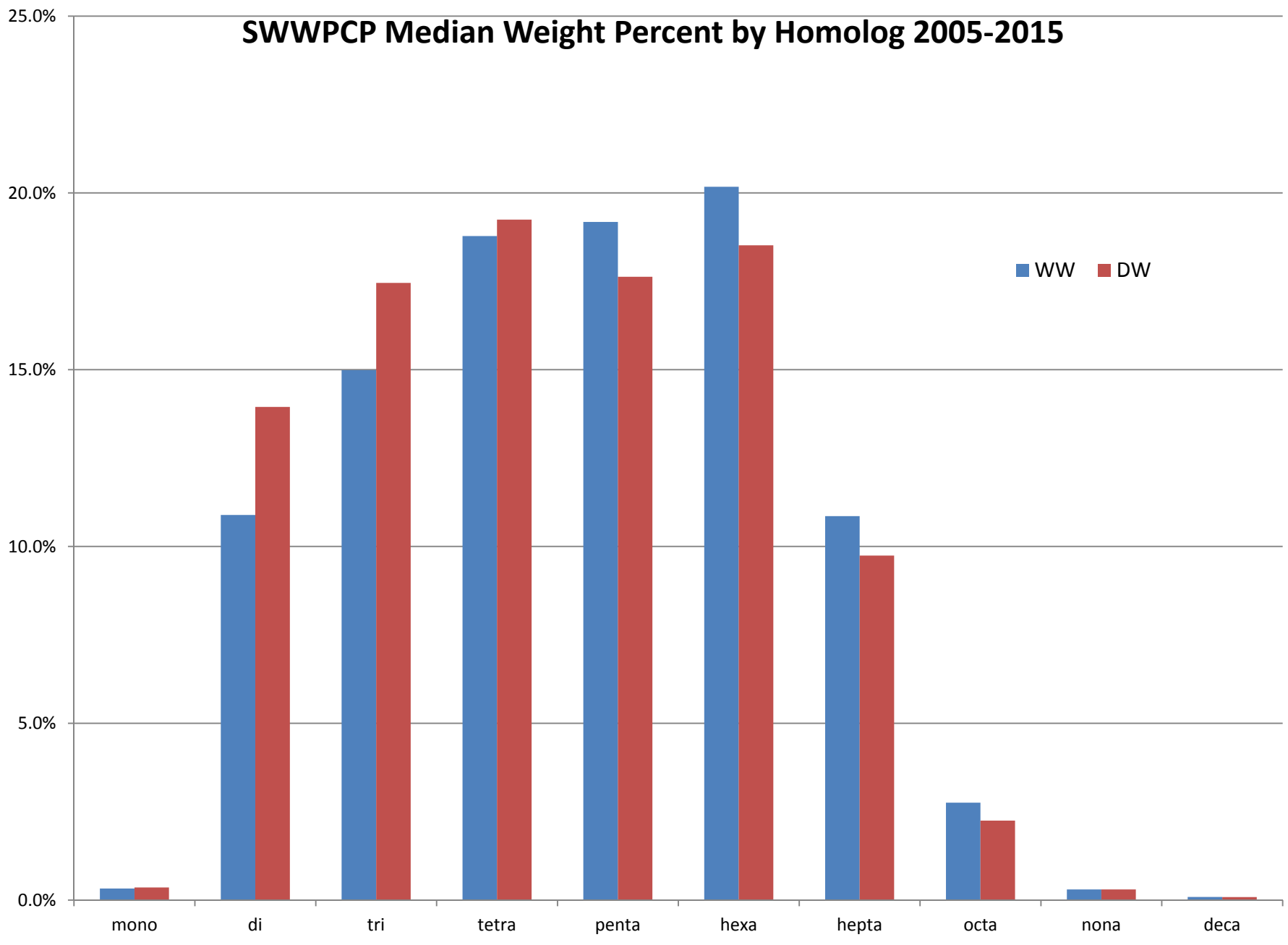
SEWPCP Wet Weather Homolog Contribution 2005-2015



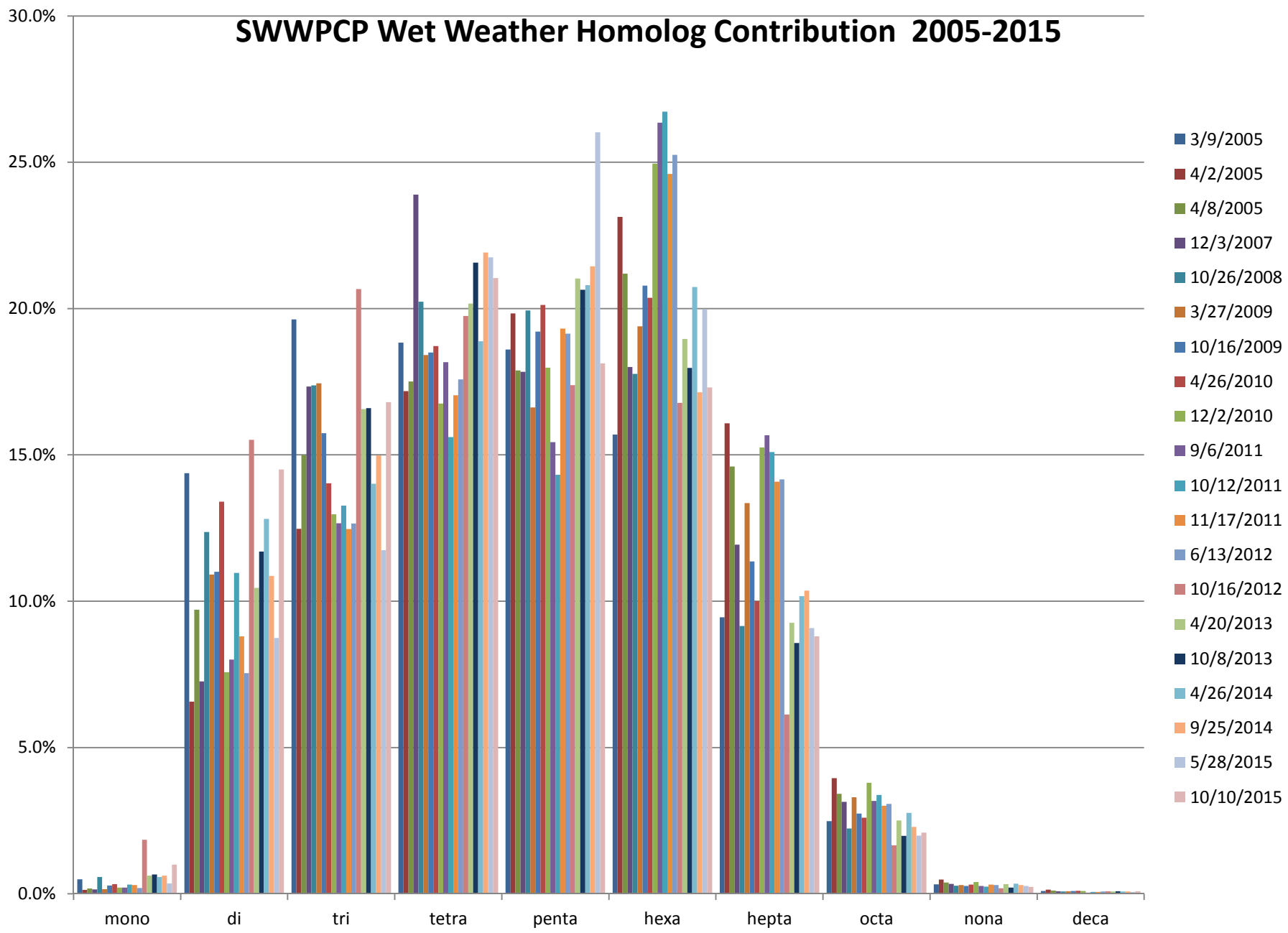
Total PCB Concentration PWD SWWPCP-2015



SWWPCP Median Weight Percent by Homolog 2005-2015



SWWPCP Wet Weather Homolog Contribution 2005-2015



Attachment B

Potential Sources and Inspection Findings

Table 1 - Known, Probable and Potential Sources and Measures to Address Sources

<u>Source</u>	<u>Source Type</u>			<u>Measure to Address Source</u>
	<u>Known</u>	<u>Probable</u>	<u>Potential</u>	
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

2015 Inspections

LOC ID	Company	Address	Location	Contact	Equipment	Number	Aroclor	Amt	Gallons	Date
NE-222	Allied Tube and Conduit	11350 Norcom Rd	In Electrical Rm	Donn Carroll	Transformers	4	Interteen		Approx 300 each	6/3/2015
NE-222	Allied Tube and Conduit	11350 Norcom Rd	In Electrical Rm	Donn Carroll	Transformers	4	Interteen		Approx 300 each	6/3/2015
NE-228	Allied tube and Conduit	11350 Norcom Rd	Loft	Donn Carroll	Capacitor	1				6/3/2015
NE-227	Amuneal	4737 Darrah St	Manufacturing area	Michelle Oleski	Capacitor	3		Removed		7/30/2015
SE-206	Ashland	2801 Columbus Blvd	Front Gate	Eric Weisbrod	Transformer	1		<50	300	6/2/2015
SE-207	Ashland	2801 Columbus Blvd	Roof of Bldg. 10	Eric Weisbrod	Transformer	1		<50	238	6/2/2015
SW-213	Astra Foods	6430 Market Street	Boiler room T1	Demetri Poulmentous	Transformer	1				10/14/2015
SW-214	Astra Foods	6430 Market Street	South Bldg. T4	Demetri Poulmentous	Transformer	1				10/14/2015
SW-215	Astra Foods	6430 Market Street	East Bldg T5	Demetri Poulmentous	Transformer	1				10/14/2015
SW-216	Astra Foods	6430 Market Street	Centrifuge Bldg. west of T4	Demetri Poulmentous	Transformer	1				10/14/2015
NE-210	Cintas	10080 Sandmeyer Lane	Back parking lot	Dennis Kelley	Transformers	2			2590 lbs	7/29/2015
NE-211	Delavau LLC	10101 Roosevelt Blvd	East side of Bldg.	James Hansen	Transformer	1		<50	258	7/8/2015
NE-223	Dickler	4201 Torresdale Ave		Ken Hamel	Capacitors	6		<2		9/17/2015
NE-261	Dietz and Watson	5701 Tacony St	Boiler Room	Mike Kump	Transformers	2			665/705	7/29/2015
NE-262	Dietz and Watson	5701 Tacony St	Electical Room	Mike Kump	Capacitors					7/29/2015
NE-207	Domestic Linen	4100 Frankford Ave	Transformer Room	Jerry Tannian	Transformer	1				6/2/2015
SW-212	G.J Littlewood	4045 Main Street	Vault	Dave Littlewood	Transformers	5			3x50/2x75	8/6/2015
SW-212	G.J Littlewood	4045 Main Street	Vault	Dave Littlewood	Transformers	5			3x50/2x75	8/6/2015
NE-22	General Electric International, Inc. (GEII)	1040 East Erie Avenue	General Electric International	Ana Adornao	Transformer	4				5/11/2015
NE-23	General Electric International, Inc. (GEII)	1040 East Erie Avenue	General Electric International	Ana Adornao	Capacitor	2				5/11/2015
SW-200	Grovers Market	70th and Grovers	Shop. Ctr. Rear		Transformers	3		<50ppm		7/23/2015
NE-203	Henshell Corp.	2229 N. 19th street	Outside by Indiana Ave	Kevin Maloney	Transformer	1			240	9/10/2015
SE-204	Inolex	2101 Swanson St	Jackson St	Dave Olson	Transformer	1				9/2/2015
NE-232	Jomar	5300 Whitaker Ave	Loading Dock		Transformers	2		<50 ppm		10/26/2015
SW-208	McNeill	7050 Camp Hill Rd	WWTP	Kristen Egan	Transformer	1		nd	135	8/19/2015
NE-260	Michel's Bakery	5698 Rising Sun Ave	Trans rm.	Tom Evans	Transformers	2		<50	637	6/30/2015
NE-233	Mondelez	Roosevelt Blvd	Rear parking lot	Pat Cornell	Transformer			<50 ppm		4/14/2015
NE-213	Mutual Pharmaceutical	1100 Orthodox St	Bld Rear	Rob Rovinsky	Transformers	4				9/22/2015
NE-245	Naval Support Activity	700 Robbins St	SE side of Bld 1	Chris Harding	Transformer	1			175	11/5/2015
NE-246	Naval Support Activity	700 Robbins St	Wing 4 South Side	Chris Harding	Transformers	2			360/250	11/5/2015
NE-247	Naval Support Activity	700 Robbins St	Between wings 4 &5	Chris Harding	Transformer	1			210	11/5/2015
NE-248	Naval Support Activity	700 Robbins St	Northeast Bld	Chris Harding	Transformer	1			162	11/5/2015
NE-249	Naval Support Activity	700 Robbins St	West Side Bld 12	Chris Harding	Transformer	1			238	11/5/2015
NE-250	Naval Support Activity	700 Robbins St	SW bld 10	Chris Harding	Transformer	1			335	11/5/2015
NE-251	Naval Support Activity	700 Robbins St	In Bld 27A by generator	Chris Harding	Transformer	1			412	11/5/2015
NE-252	Naval Support Activity	700 Robbins St	Ball Field by Community Center	Chris Harding	Transformer	1			700	11/5/2015
NE-253	Naval Support Activity	700 Robbins St	Ball Field NE of Housing	Chris Harding	Transformer	1			284	11/5/2015
NE-254	Naval Support Activity	700 Robbins St	SE of CDC	Chris Harding	Transformer	1			109	11/5/2015
NE-255	Naval Support Activity	700 Robbins St	SE bld 1	Chris Harding	Transformer	1			196	11/5/2015
NE-256	Naval Support Activity	700 Robbins St	SE bld 12	Chris Harding	Transformers	2			184	11/5/2015
NE-257	Naval Support Activity	700 Robbins St	North bld 9	Chris Harding	Transformer	1			232	11/5/2015
NE-258	Naval Support Activity	700 Robbins St	East side of bld 93	Chris Harding	Transformer	1			175	11/5/2015
NE-234	NE Airport	9300 Ashton Rd	Aviation Ins. Of Maintenance	Wayne Damey	Transformer	1	Pyranol		140	4/29/2015
NE-235	NE Airport	9300 Ashton Rd	Via Air	Wayne Damey	Transformer	1		<50 ppm	290	4/29/2015
NE-236	NE Airport	9300 Ashton Rd	by Shop 209	Wayne Damey	Transformer	1		<1ppm	124	4/29/2015
NE-237	NE Airport	9300 Ashton Rd	Weather Station	Wayne Damey	Transformer	1		<50 ppm	180	4/29/2015
NE-238	NE Airport	9300 Ashton Rd	Keystone Bld.	Wayne Damey	Transformer	1		<50 ppm		4/29/2015
NE-239	NE Airport	9300 Ashton Rd	Field Lighting Vault	Wayne Damey	Transformer	1			196	4/29/2015
NE-240	NE Airport	9300 Ashton Rd	Hortman	Wayne Damey	Transformers	3		1,2,3ppm		4/29/2015
NE-241	NE Airport	9300 Ashton Rd	Airport Tower	Wayne Damey	Transformer	1		Replaced with <1ppm	170.4	4/29/2015
NE-242	NE Airport	9300 Ashton Rd	Atlantic Aviation	Wayne Damey	Transformer	1			133	4/29/2015
NE-243	NE Airport	9300 Ashton Rd	Admin Bld	Wayne Damey	Transformer	1		<50 ppm		4/29/2015
NE-244	NE Airport	9300 Ashton Rd	Red Lion Road	Wayne Damey	Transformer	1		<1ppm	150	4/29/2015
SW-223	Paperworks	5000 Flat Rock Road	T2 Pulper Loft	Gary Warren	Transformer	1			940	8/27/2015
NE-206	Perfecseal	9800 Busleton Ave	outside bld rear	Pauline Smith	Transformers	4			3x100/1x720	11/3/2015
NE-231	Polysat	7240 State Rd	Outside	Jay Patel	Transformer	2		<50		11/5/2015
SW-55	School Dist. OF Phila.	734 Schuykill Ave	GLASS SHOP		Transformer	1		Removed		1/28/2015
SW-56	School Dist. OF Phila.	734 Schuykill Ave	1ST FLR		Transformer	1		Removed		1/28/2015

2015 Inspections

SW-57	School Dist. OF Phila.	734 Schuylkill Ave	1ST FLR MACH SHOP		Transformer	1		Removed		1/28/2015
SE-212	SEWPCP	25 E. Pattison Ave	Admin Bld	Amy Szor	Transformer	1		<50 ppm	411	12/1/2015
SE-214	SEWPCP	25 E. Pattison Ave	S&G 1&2	Kurt Evanson	Transformers	2		<50 ppm	370	12/1/2015
SE-215	SEWPCP	25 E. Pattison Ave	IPS	Kurt Evanson	Transformers	2		<50 ppm	892	12/1/2015
SE-216	SEWPCP	25 E. Pattison Ave	AT-2	Kurt Evanson	Transformers	2		<50 ppm		12/1/2015
SE-217	SEWPCP	25 E. Pattison Ave	Access 6	Kurt Evanson	Transformer	1		<50 ppm	217	12/1/2015
SE-218	SEWPCP	25 E. Pattison Ave	Access 5	Kurt Evanson	Transformer	1		<50 ppm	217	12/1/2015
SE-219	SEWPCP	25 E. Pattison Ave	Compressor Bld	Kurt Evanson	Transformers	8		<50 ppm		12/1/2015
SE-220	SEWPCP	25 E. Pattison Ave	Compressor	Kurt Evanson	Transformers	2		<50 ppm	425	12/1/2015
SE-221	SEWPCP	25 E. Pattison Ave	AT-1	Kurt Evanson	Transformers	2		<50 ppm	580	12/1/2015
SE-203	SIMONS	2438 Sargent St	Inside Front Door	Nelson Kaiser	Capacitor	1				8/12/2015
SW-203	Sky Chefs	8401 Escort Ave	By Admin Driveway	June Weirich	Transformer	1				7/15/2015
NE-204	SPD	13500 Roosevelt Blve	transformer room	Dave Urda	Transformer	4	1260/1254	5 to 25 ppm	318x3/345	5/21/2015
SW-158	Sun Chemical	3301 Hunting Park	BLDG 1 BOILER RM	Lee Ochal	Capacitors	4			1.2	7/7/2015
NE-259	Sweet Ovations	1741 Tomlinson Rd	Bld Rear	Jennifer Fitzgerald	Transformers					3/11/2015
NE-216	Thermacore	2000 Cabot Blvd. suite 150	Bld. Rear	David O'Connor	Transformer	1				5/8/2015
NE-260	Wayne's Mills	130 W. Berkley St	Basement	Doug Wiegand	Transformers	2		<50		7/27/2015
	Plant	Reinspected	New Inspections	Total						
	Northeast	16	32	48						
	Southeast	4	9	13						
	SouthWest	11	3	14						
	Totals	31	44	75						
	5 PBC Devices removed	1 replaced with non-PCB device								
				75 Total Inspections Completed						

Appendix F – Monitoring Locations

APPENDIX F –
MONITORING LOCATIONS

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CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

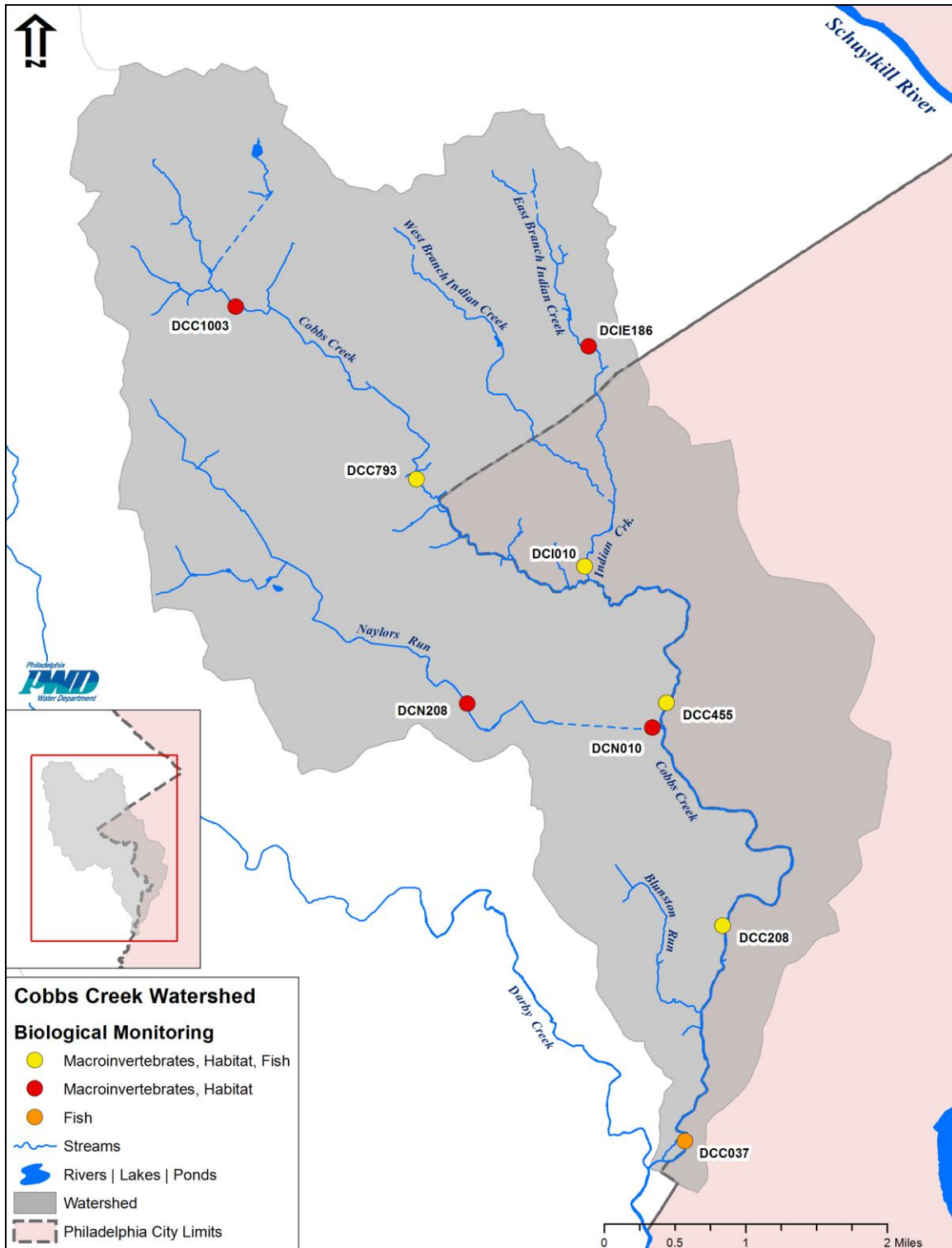


Figure - 1 Biological and Physical assessment locations in Cobbs Creek Watershed

CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

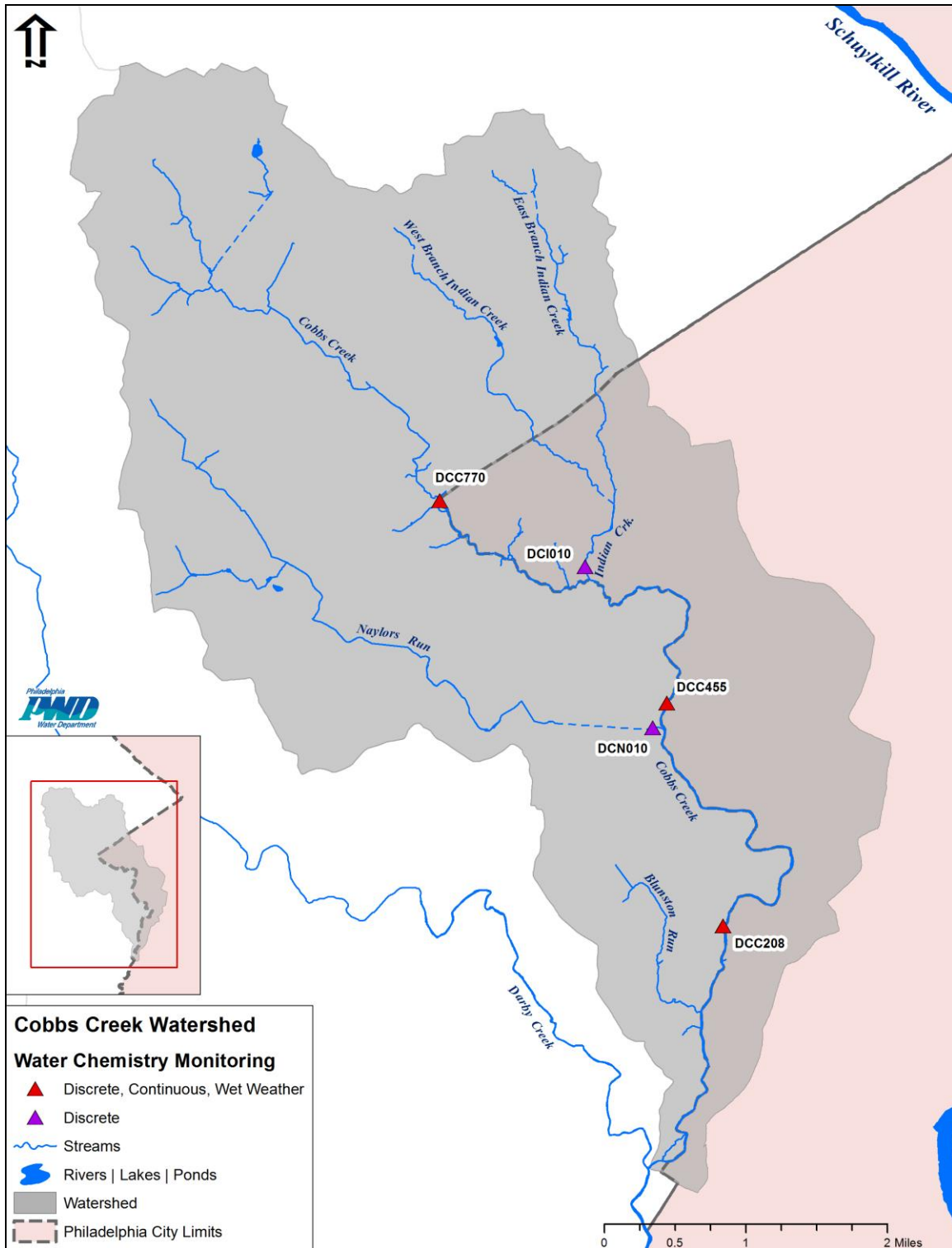


Figure - 2 Chemical monitoring locations in Cobbs Creek Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

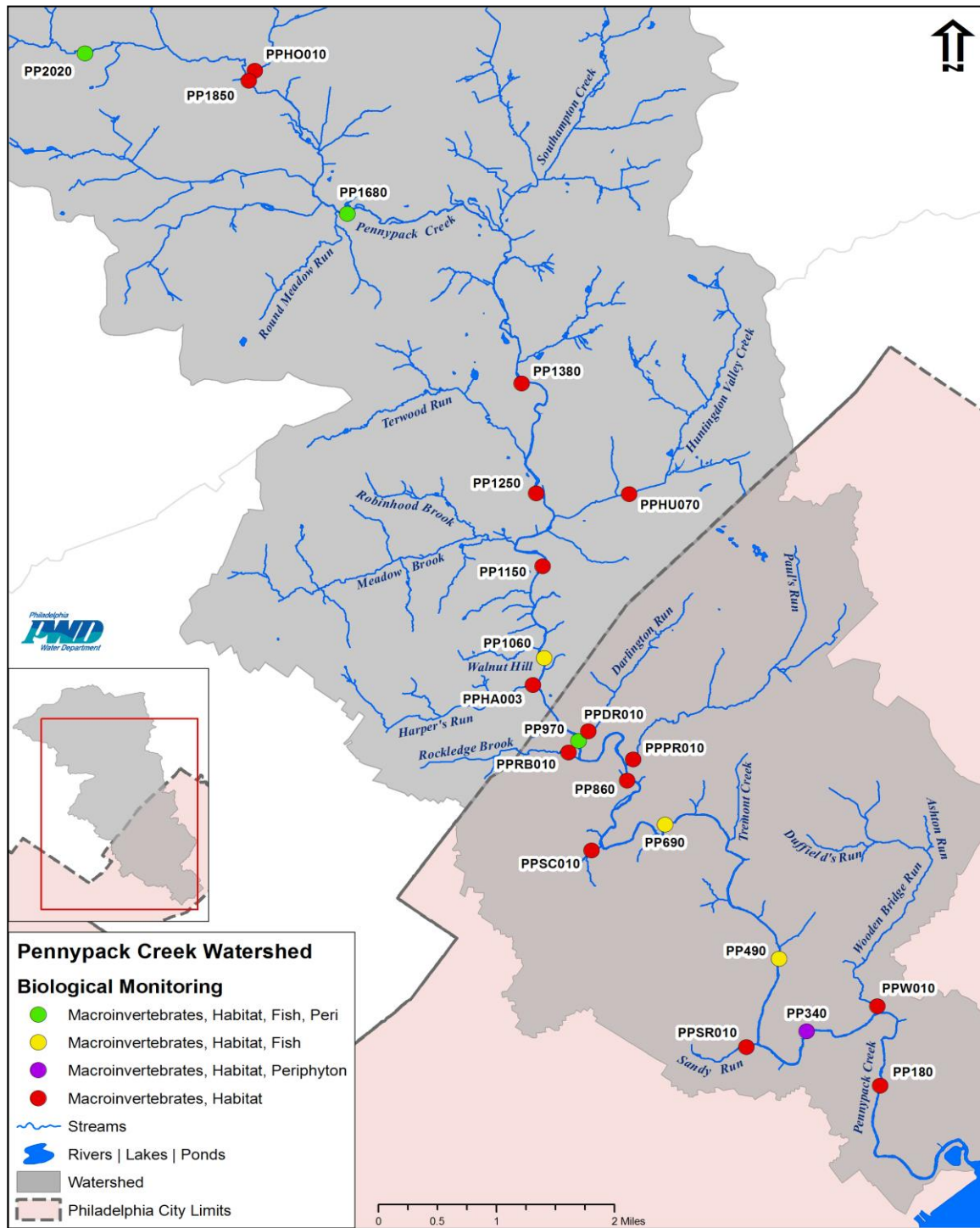


Figure - 3 Biological and Physical assessment locations in Pennypack Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

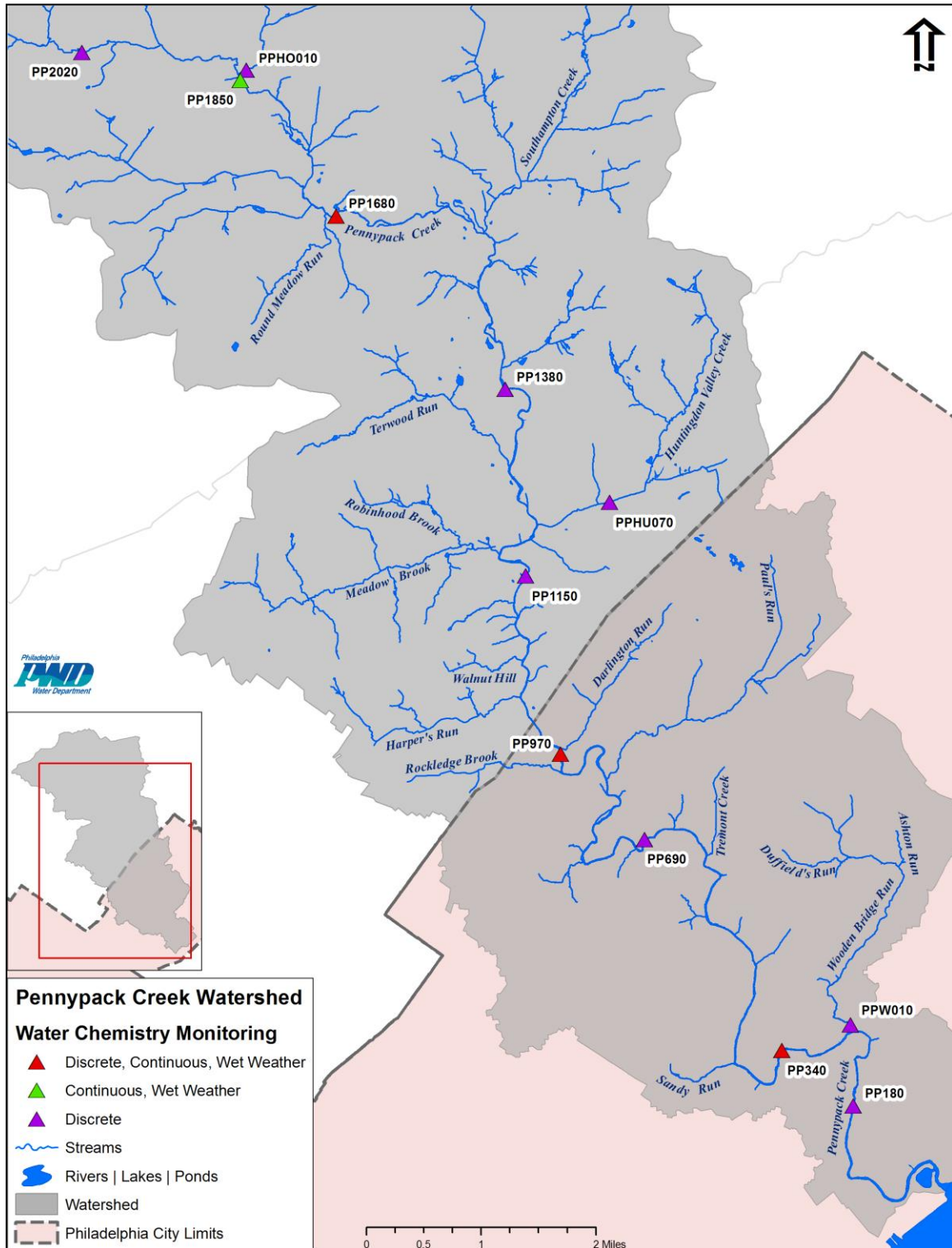


Figure - 4 Chemical monitoring locations in Pennypack Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

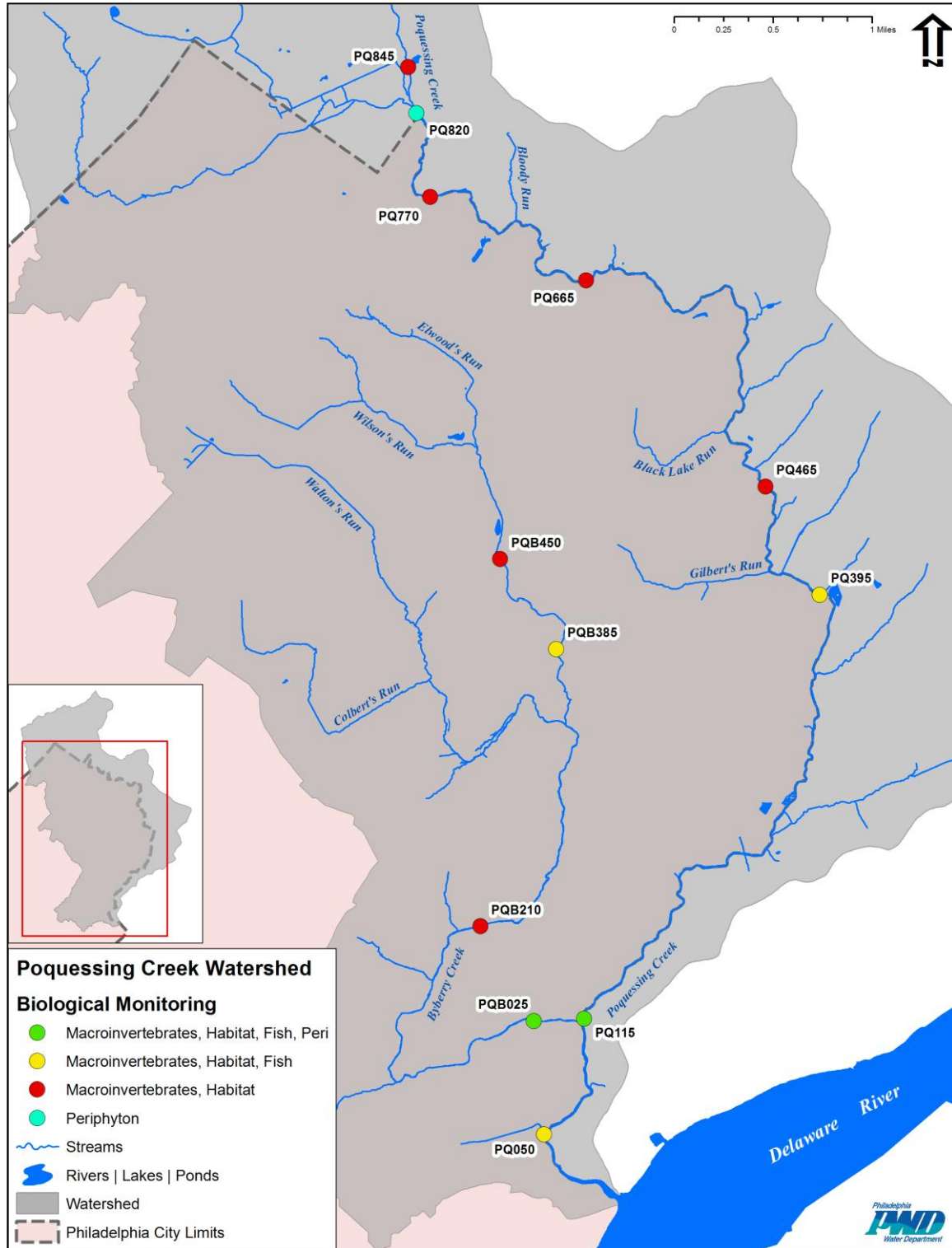


Figure - 5 Biological and Physical assessment locations in Poquessing-Byberry Watershed

CITY OF PHILADELPHIA
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

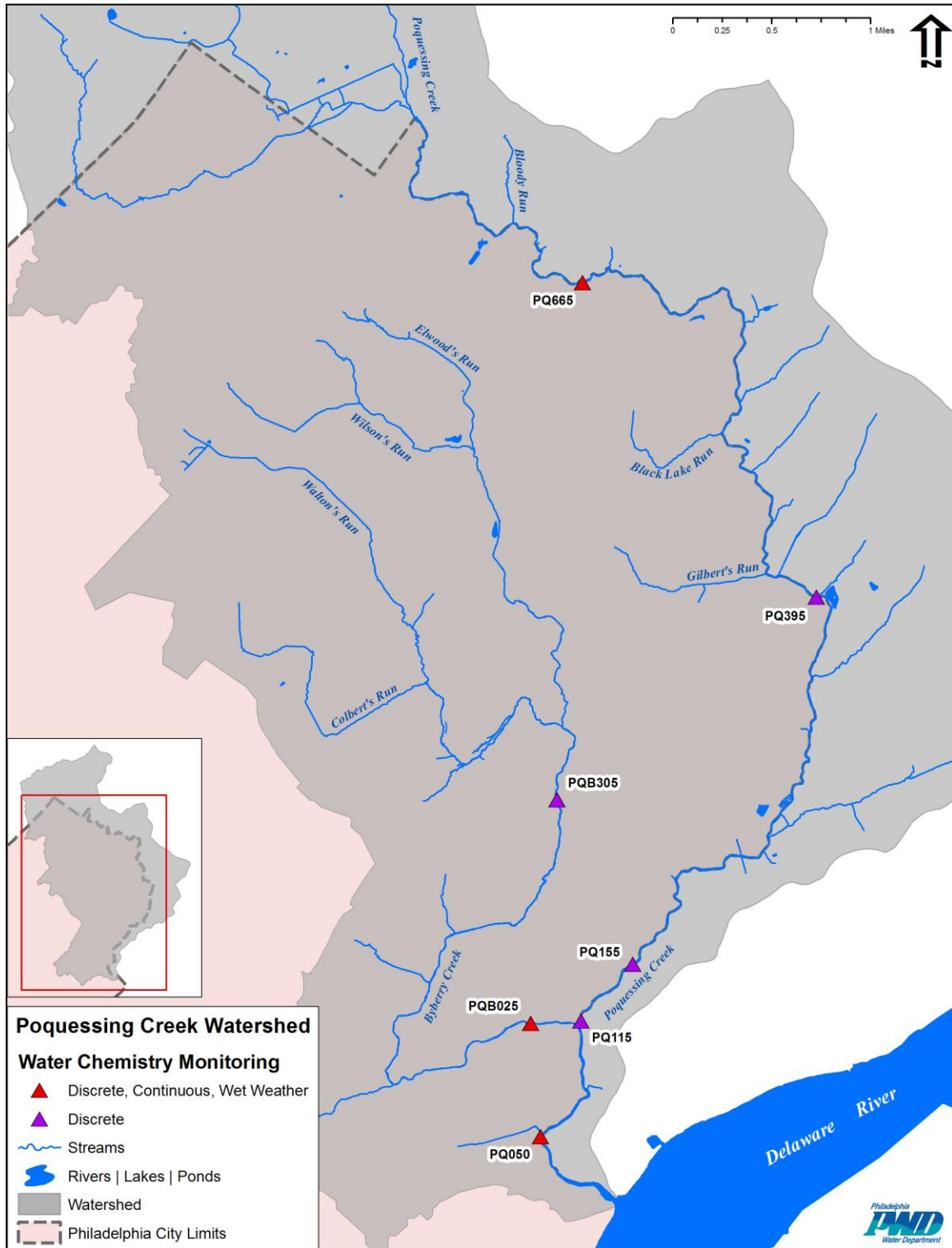


Figure - 6 Chemical monitoring locations in Poquessing-Byberry Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

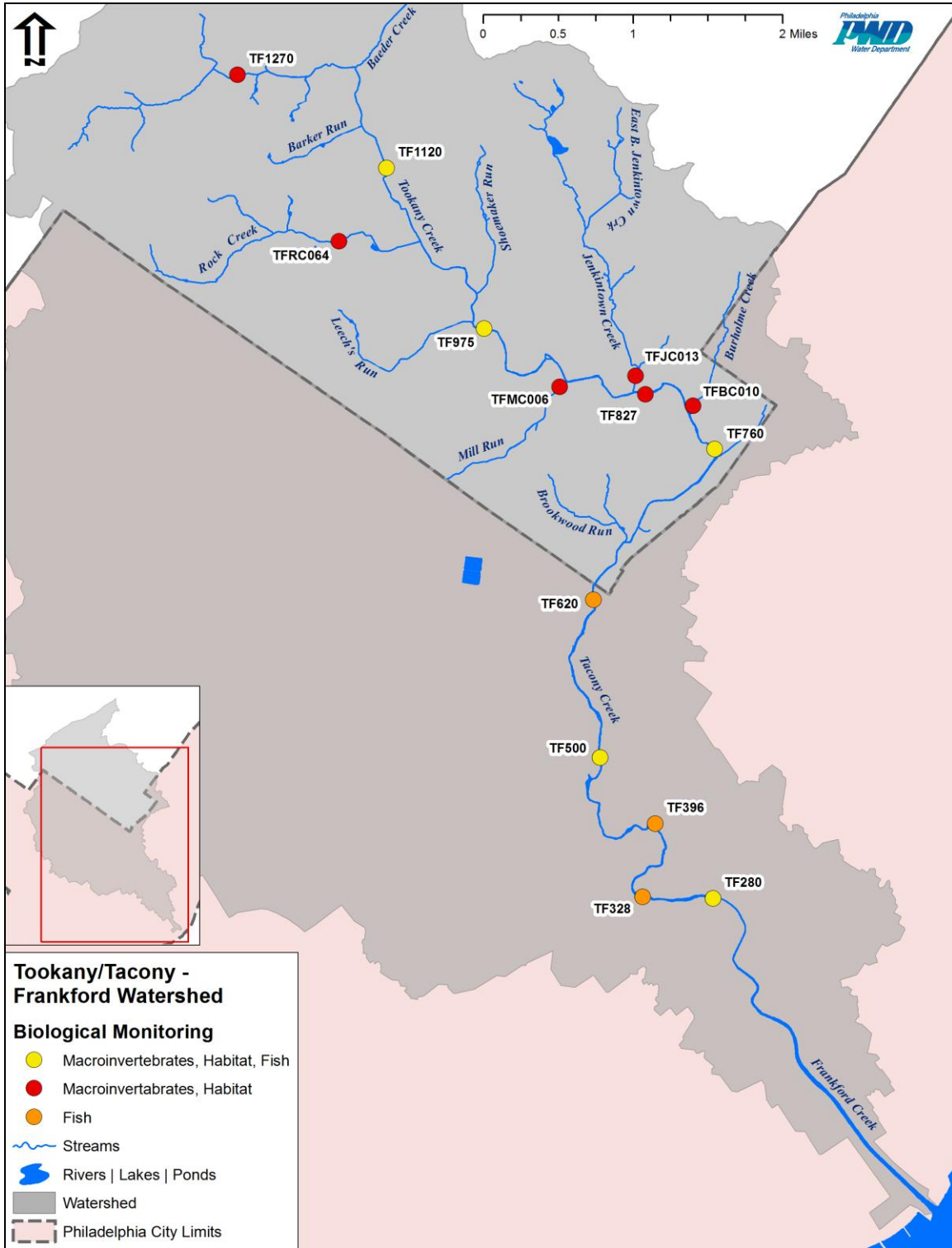


Figure - 7 Biological and Physical assessment locations in Tacony-Frankford Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

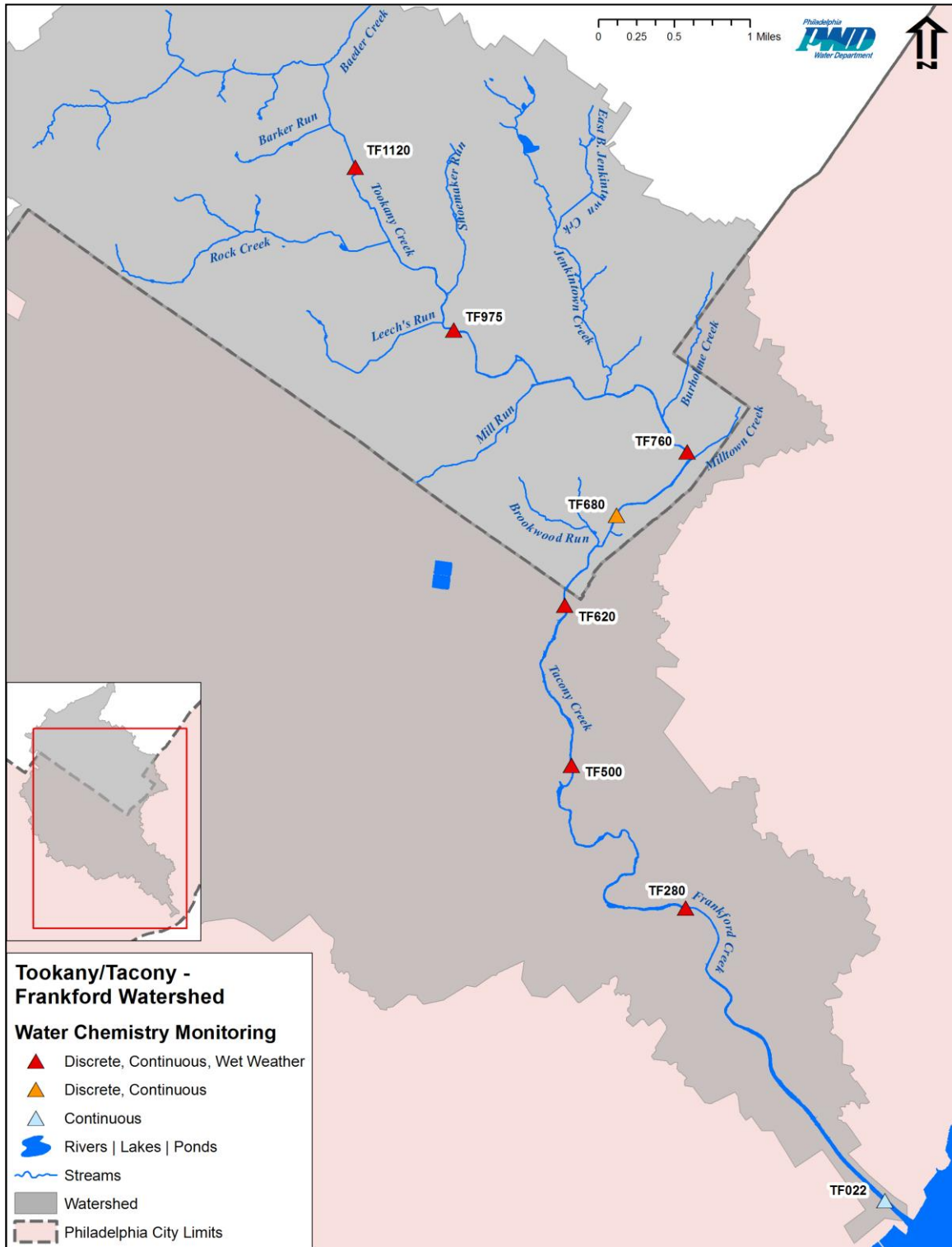


Figure - 8 Chemical monitoring locations in Tacony-Frankford Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

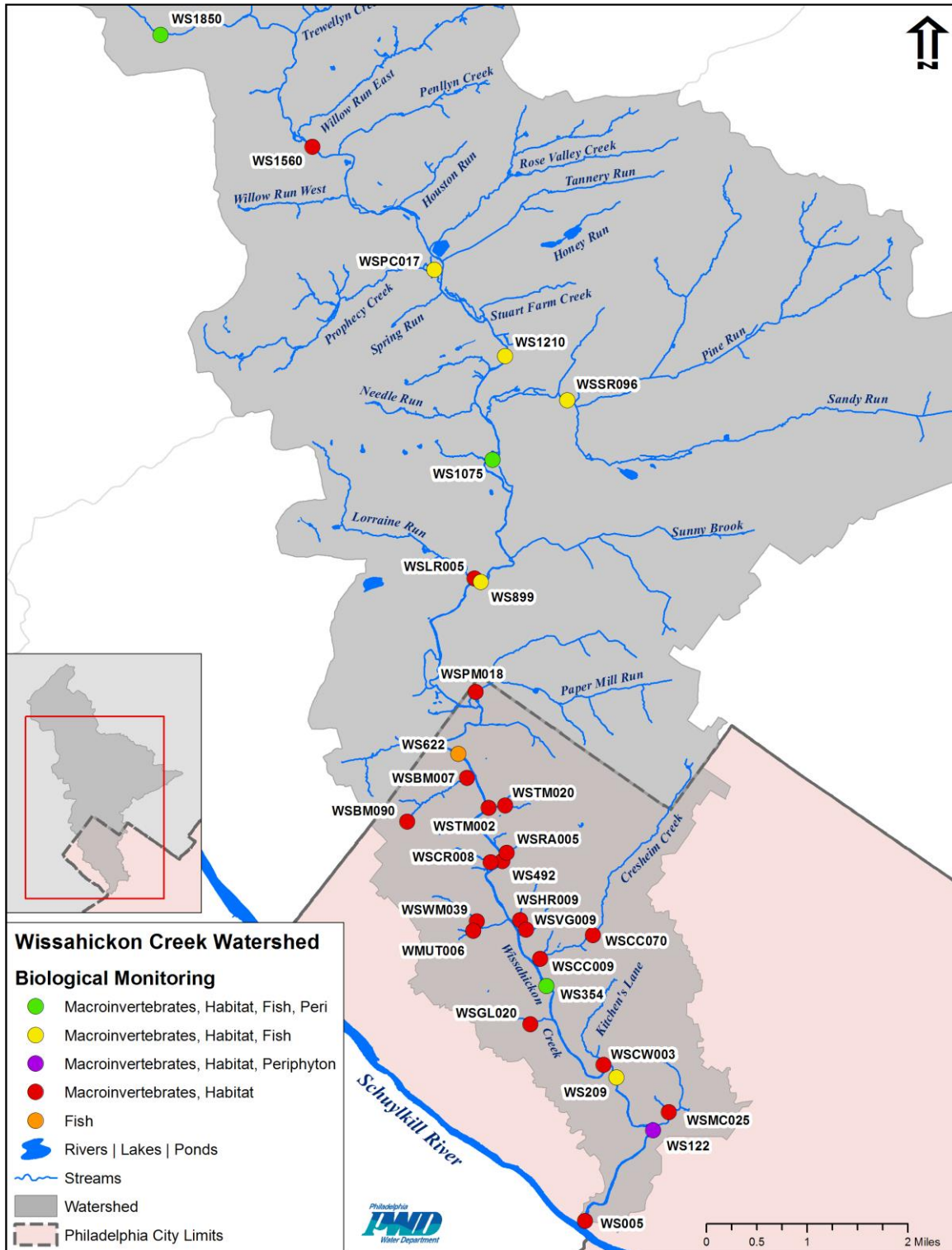


Figure - 9 Biological and Physical assessment locations in Wissahickon Watershed

CITY OF PHILADELPHIA
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

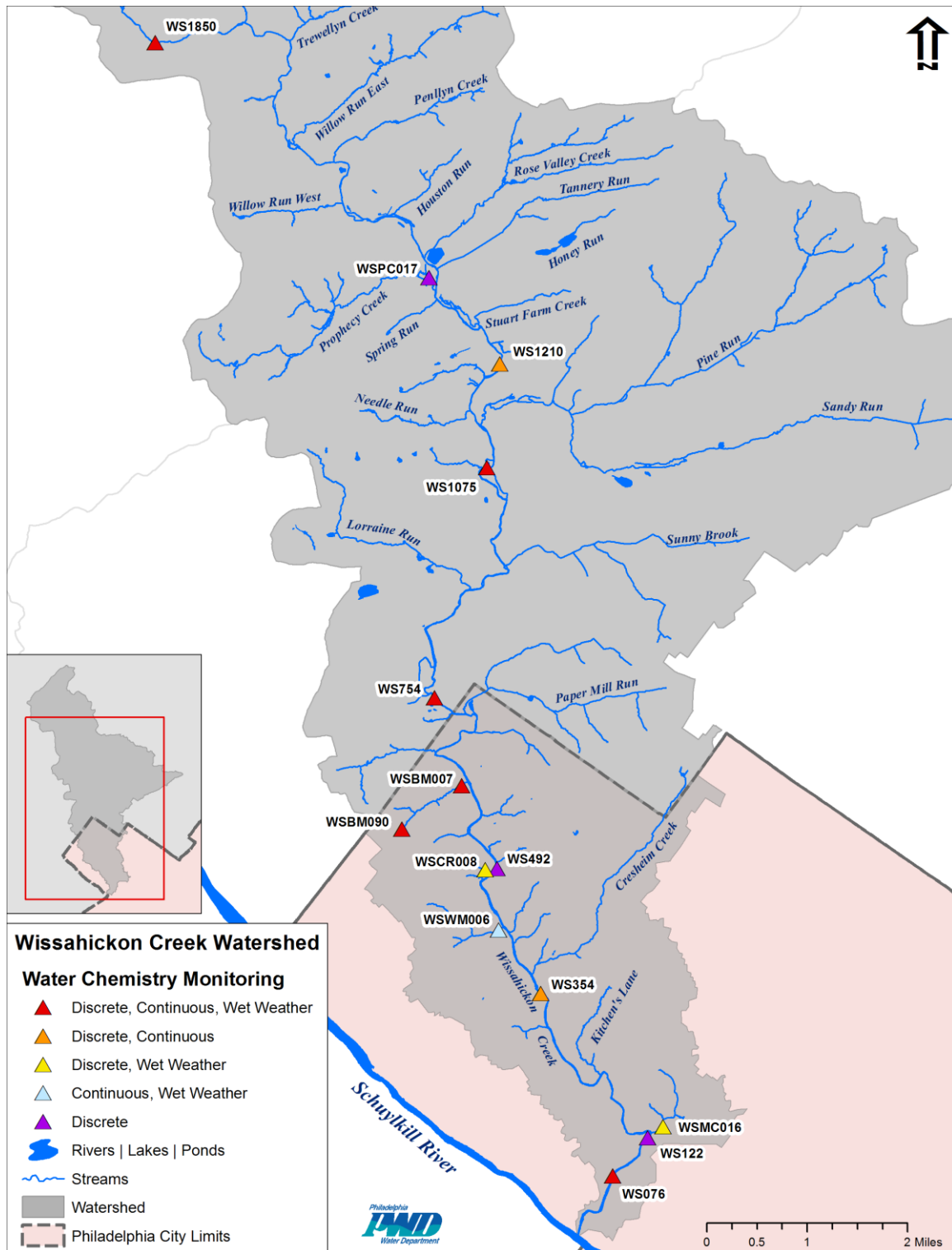


Figure - 10 Chemical monitoring locations in Wissahickon Watershed

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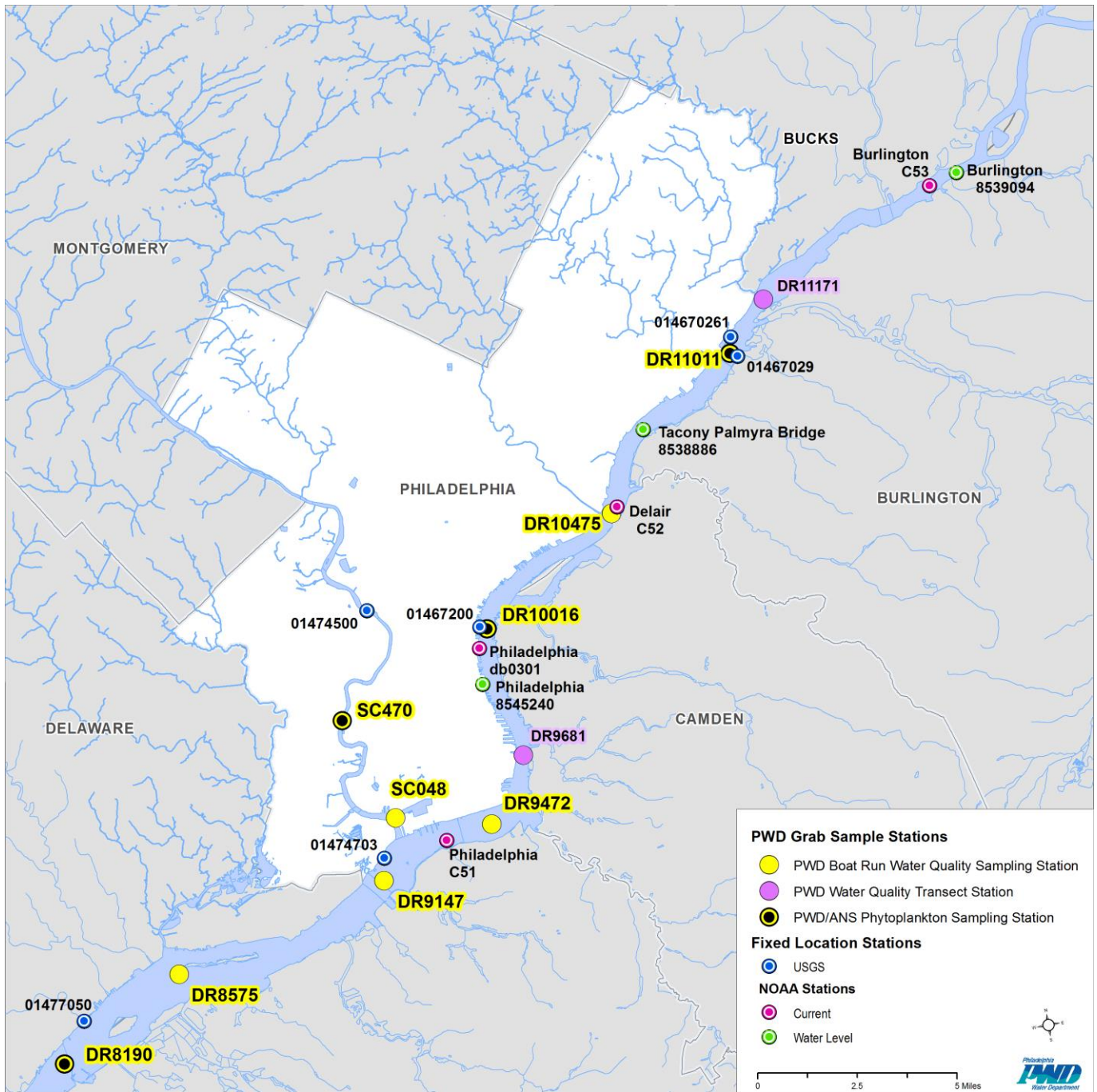


Figure - 11 Chemical monitoring locations in Delaware Estuary and Lower Schuylkill River Watershed

Appendix G – 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

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

to the communities and agencies involved in the restoration, as 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 "programmatically" 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 the 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.

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

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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.

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)

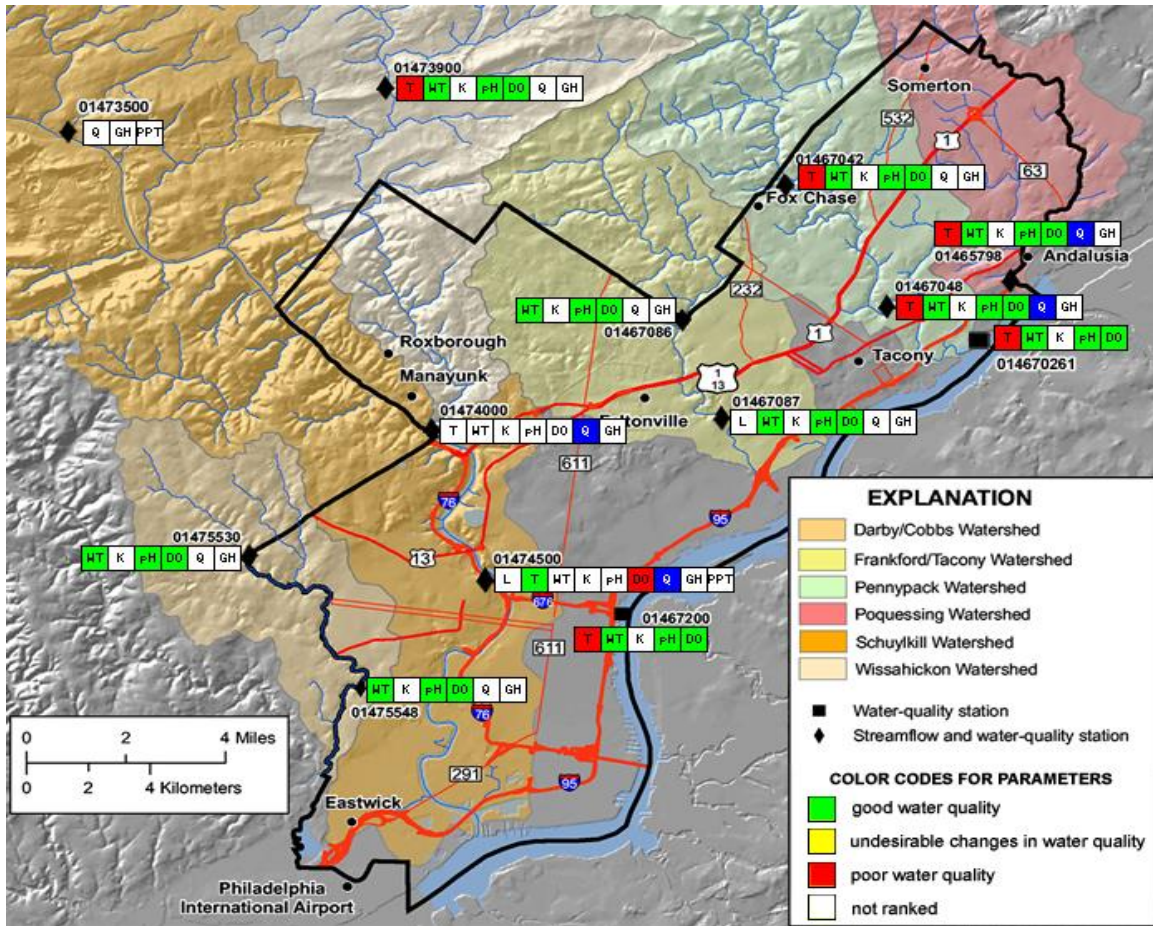


Figure 1. Philadelphia Water Quality Gage Stations as Viewed on Cooperative USGS-PWD Website (<http://pa.water.usgs.gov/pwd/>)

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

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

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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.

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.

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.

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

Quarterly Dry Weather Monitoring July 2009 – June 2016

Table 2. PWD/USGS Quarterly Dry Weather Grab Sample Dates

Sample Date	Season	Recreational Use Season
30-Jun-09	summer	Swimming
02-Oct-09	fall	Non-Swimming
17-Dec-09	winter	Non-Swimming
11-Mar-10	spring	Non-Swimming
22-Jun-10	summer	Swimming
15-Sep-10	fall	Swimming
20-Dec-10	winter	Non-Swimming
29-Mar-11	spring	Non-Swimming
27-Jun-11	summer	Swimming
15-Sep-11	fall	Swimming
13-Dec-11	winter	Non-Swimming
20-Mar-12	spring	Non-Swimming
18-Jun-12	summer	Swimming
26-Sep-12	fall	Swimming
02-Jan-13	winter	Non-Swimming
04-Apr-13	spring	Non-Swimming
17-Jul-13	summer	Swimming
26-Sep-13	fall	Swimming
17-Jan-14	winter	Non-Swimming
26-Mar-14	spring	Non-Swimming
17-Jun-14	summer	Swimming
23-Sep-14	fall	Swimming
19-Dec-14	winter	Non-Swimming
18-Mar-15	spring	Non-Swimming
23-Jun-15	summer	Swimming
6-Oct-15	fall	Non-Swimming
6-Jan-16	winter	Non-Swimming
20-Apr-16	spring	Non-Swimming

Sample Collection Dates

This report summarizes cumulative results from 28 sets of quarterly grab samples that were collected from June 2009 through June 2016. 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). Weather conditions prohibited the summer dry-weather sample normally collected during June 2016; the sampling event instead occurred in July and results will be included in next year's report.

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.

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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 $[\text{H}^+]$ 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 0.05 mg/L, but limits of 0.1 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.

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) Subcoregion 64 guideline for orthophosphate of 0.02625 mg/L, *i.e.*, the median of the 25th percentile seasonal concentrations. Since the detection limit is greater than the guideline, all 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.

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 (Table 4 and Figure 4). The only exceptions are the Pennypack and Wissahickon

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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
1465798	0.058	0.050	0.018	0.050	0.100	28	27	1	27	Needs more evaluation
1467042	0.392	0.278	0.254	0.099	0.953	26	0	26	0	Non-attaining
1467048	0.271	0.197	0.193	0.057	0.852	28	0	28	0	Non-attaining
1467086	0.057	0.050	0.021	0.000	0.100	27	26	1	26	Needs more evaluation
1467087	0.059	0.050	0.022	0.011	0.117	28	23	4	23	Needs more evaluation
1473900	0.308	0.264	0.129	0.112	0.723	28	0	28	0	Non-attaining
1474000	0.173	0.166	0.068	0.050	0.414	27	2	25	2	Non-attaining
1474500	0.138	0.117	0.080	0.050	0.367	28	4	24	4	Non-attaining
1475530	0.057	0.050	0.019	0.019	0.100	28	27	0	27	Needs more evaluation
1475548	0.060	0.050	0.028	0.000	0.152	28	27	1	27	Needs more evaluation

Creek gage sites, which as previously stated are directly impacted by treated wastewater discharge. It should be noted, however, that these statements and observations are in no way conclusive given that the dataset is still relatively limited in size. As this dataset grows in subsequent years, further statistical analysis can be carried out and any apparent patterns or phenomena can be explored.

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. 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) subcoregion 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. One exceedance at 12 mg/L was 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 subcoregion-based guideline.

Quarterly dry-weather analysis of ammonia began in the fall of 2011, limiting the size of the current dataset to 19 results per location. 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 had detection limits of 0.1 mg/L. Ammonia concentration exceeded the detection limit in only 26 of the 190 samples: 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 Figure 5.

There were no observed violations of ammonia water quality criteria at any site during this period of dry-weather monitoring. With 164 of the 190 sample results characterized as non-detects due to laboratory reporting limits,

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ammonia criteria was 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.

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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, Subcoregion	PADEP Assessment	EPA Subcoregion Assessment
1465798	1.707	1.744	0.445	0.797	2.491	27	0	0	27	Attaining	Non-attaining
1467042	4.535	4.003	1.110	3.200	7.943	25	0	0	25	Attaining	Non-attaining
1467048	3.615	3.372	1.025	1.209	6.326	27	0	0	27	Attaining	Non-attaining
1467086	2.329	2.310	0.388	1.517	2.974	26	0	0	26	Attaining	Non-attaining
1467087	1.856	1.817	0.747	0.505	3.373	27	0	0	26	Attaining	Non-attaining
1473900	5.823	5.170	1.929	3.153	12.039	26	0	1	26	Needs more evaluation	Non-attaining
1474000	3.792	3.827	0.942	1.288	5.770	26	0	0	26	Attaining	Non-attaining
1474500	2.914	2.800	0.467	2.141	3.960	27	0	0	27	Attaining	Non-attaining
1475530	3.047	3.098	0.291	2.489	3.521	27	0	0	27	Attaining	Non-attaining
1475548	2.542	2.612	0.496	1.395	3.280	27	0	0	27	Attaining	Non-attaining

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Table 5. Ammonia Summary Statistics and Assessments. Concentrations are in mg/L.

Gage	Mean	Median	Std. dev.	Min.	Max.	n	n, non-detects	Exceedances
1465798	0.127	0.100	0.093	0.100	0.500	19	16	0
1467042	0.129	0.100	0.096	0.100	0.500	19	18	0
1467048	0.133	0.100	0.102	0.100	0.500	19	16	0
1467086	0.121	0.100	0.092	0.100	0.500	19	19	0
1467087	0.197	0.170	0.122	0.100	0.500	19	7	0
1473900	0.121	0.100	0.092	0.100	0.500	19	19	0
1474000	0.121	0.100	0.092	0.100	0.500	19	19	0
1474500	0.135	0.100	0.095	0.100	0.500	19	14	0
1475530	0.121	0.100	0.092	0.100	0.500	19	19	0
1475548	0.122	0.100	0.092	0.100	0.500	19	17	0

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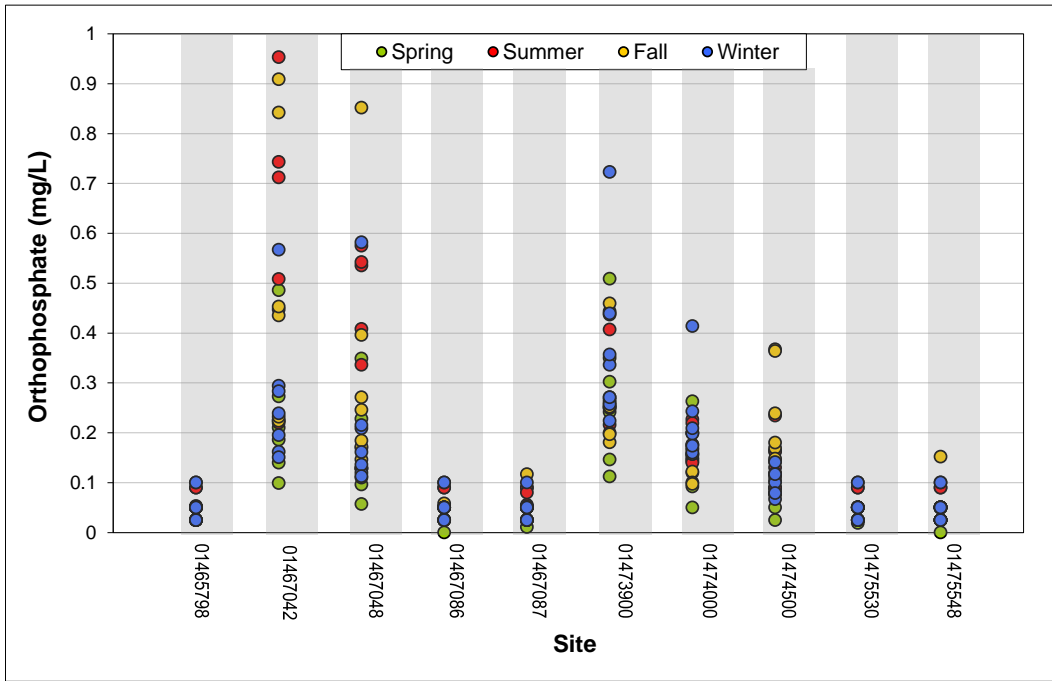


Figure 2. Orthophosphate concentration at 10 USGS gage stations, July 2009-June 2016

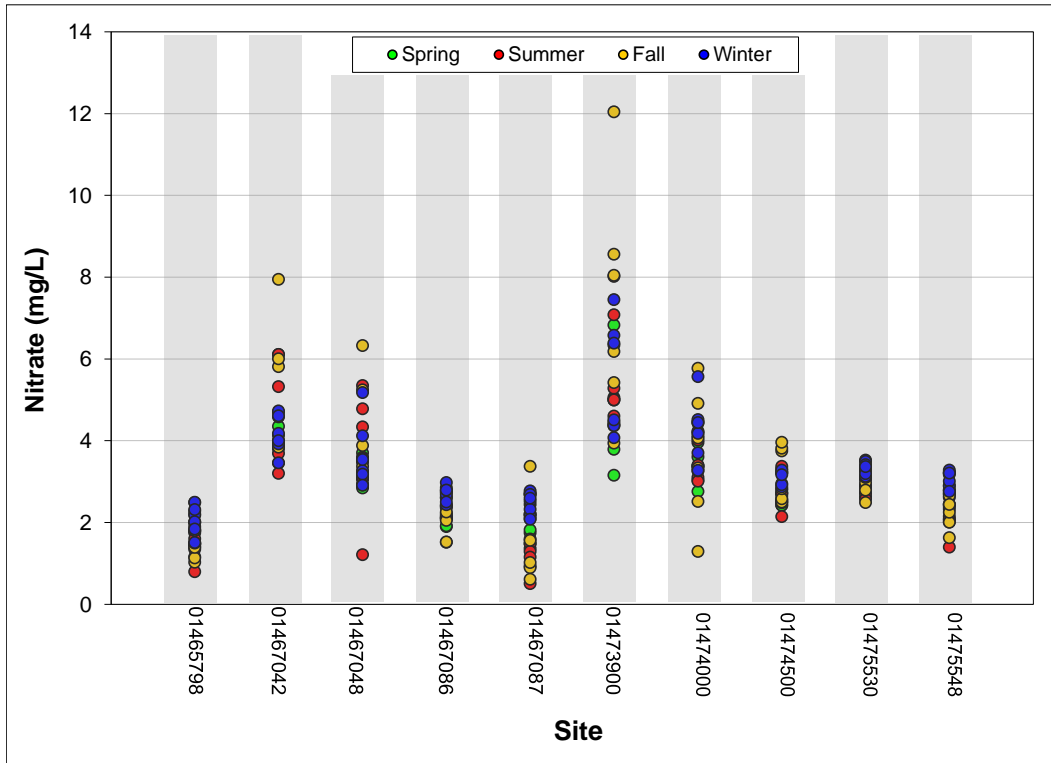


Figure 3. Nitrate concentration at 10 USGS gage stations, July 2009-June 2016

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Appendix G – PWD Quarterly Dry Weather Water Quality Monitoring Program

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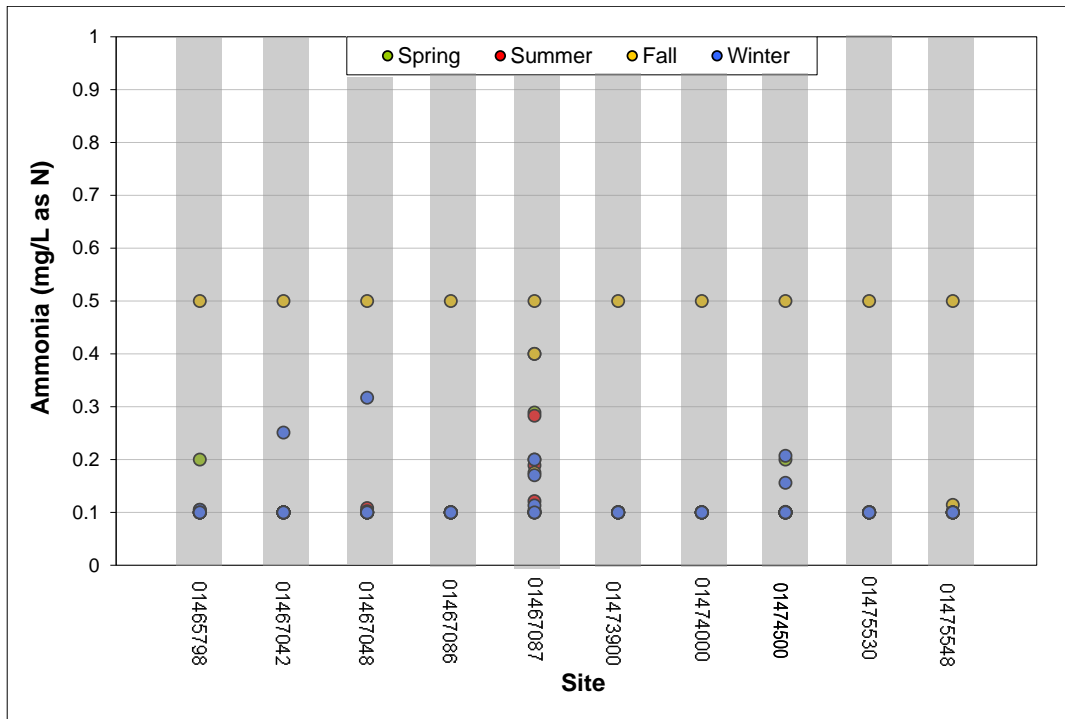


Figure 5. Ammonia concentration at 10 USGS gage stations, September 2011-June 2016

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 three fecal indicator bacteria tests, including fecal coliform, *Escherichia coli* (*E. coli*), and enterococci. 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. The final coliform group tested, the enterococci, are significant in that they tend to mimic many enteric pathogens with their ability to thrive in saline conditions over a wide range of temperatures. This makes the enterococci test very useful in waterways that may have a marine influence, or in any river or stream that may have above normal salinity due to geology.

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 200 fecal coliform CFU (colony forming unit) per 100mL. During the non-swimming season, this value increases to 2000 CFU/100mL.

While samples were collected on a quarterly basis and not within a 30-day period as required by PA DEP water quality criteria, results of microbial analyses from the seven swimming season samples generally indicate fecal coliform geometric means greater than 200CFU/100mL (Table 6). The only exceptions were the downstream Wissahickon Creek and Schuylkill River gage sites, which each had fecal coliform geometric means less than 200 CFU/100mL, based on 10 samples each. The 2000 CFU/100mL geometric mean standard for non-swimming season samples was not exceeded at any of the 10 sites, based on 11 samples at each site.

US EPA recommended water quality criteria (1986) were used as guidelines for evaluation of sample results for other microbial parameters, as PA DEP does not have recreational use water quality criteria for *E. coli* or enterococci. Guidelines used for *E. coli* and enterococci were geometric means of 126 and 33 CFU/100mL, respectively. The *E. coli* geometric mean guideline was exceeded at six of the 10 sites. The enterococci geometric mean guideline was exceeded at eight of the 10 sites (Table 7).

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Table 6. Fecal Coliform Geometric Mean Results and PA DEP Water Quality Recreational Use Criteria Achievement Status by Season

Gage	n	n, non-detects	Geometric mean (CFU/100 mL)	Season	Attaining Standard
1465798	16	1	60	non-swimming	Yes
1465798	12	0	562	swimming	No
1467042	16	1	36	non-swimming	Yes
1467042	12	0	311	swimming	No
1467048	16	0	362	non-swimming	Yes
1467048	12	1	1578	swimming	No
1467086	16	0	237	non-swimming	Yes
1467086	12	0	1144	swimming	No
1467087	16	0	280	non-swimming	Yes
1467087	12	0	584	swimming	No
1473900	16	0	52	non-swimming	Yes
1473900	12	0	289	swimming	No
1474000	16	1	29	non-swimming	Yes
1474000	12	0	127	swimming	Yes
1474500	16	1	29	non-swimming	Yes
1474500	12	2	61	swimming	Yes
1475530	16	1	80	non-swimming	Yes
1475530	12	0	354	swimming	No
1475548	16	0	125	non-swimming	Yes
1475548	12	0	958	swimming	No

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Table 7. *E. Coli* and Enterococci Geometric Mean Results and US EPA Recreational Use Water Quality Guideline Achievement

Gage	n, non-detects		Geometric mean (CFU/100 mL)		Attaining Guideline	
	<i>E. coli</i>	Enterococci	<i>E. coli</i>	Enterococci	<i>E. coli</i>	Enterococci
01465798	1	0	170	73	No	No
01467042	1	0	99	41	Yes	No
01467048	0	0	723	101	No	No
01467086	1	0	438	84	No	No
01467087	1	1	342	69	No	No
01473900	0	0	129	74	No	No
01474000	1	1	52	23	Yes	Yes
01474500	4	3	37	8	Yes	Yes
01475530	1	0	141	96	No	No
01475548	1	0	280	98	No	No

Results for all three microbial parameters were similar seasonally, with samples collected during spring and winter generally having smaller concentrations than fall and summer samples (Figures 6 through 8). Bacteria samples collected from 2009-2016 indicate a fair correlation between fecal coliform and *E. coli* ($r = 0.80$), and weaker correlations between fecal coliform and enterococci ($r = 0.26$), and *E. coli* and enterococci ($r = 0.31$) (Figures 9-11).

While the number of microbial samples limits trend analysis, PWD acknowledges the unusually high fecal coliform concentration at the downstream Pennypack site (01467048, Pennypack at Lower Rhawn St. Bridge). At the time of this writing, PWD is conducting additional dry weather grab sampling at strategic locations upstream of 01467048 in order to determine possible sources of the high fecal coliform concentrations (e.g., a leaking sewer pipe).

Other than the observations at 01467048, the number of samples limits further conclusive statements for microbial parameters at this time, particularly in the case of fecal coliform where the number of results is further reduced by categorization according to swimming vs. non-swimming season. Furthermore, US EPA is currently revising recommended recreational use water quality criteria for microbial parameters. As the quarterly dry weather monitoring program continues, more samples will be obtained, allowing for more rigorous statistical analyses in the future.

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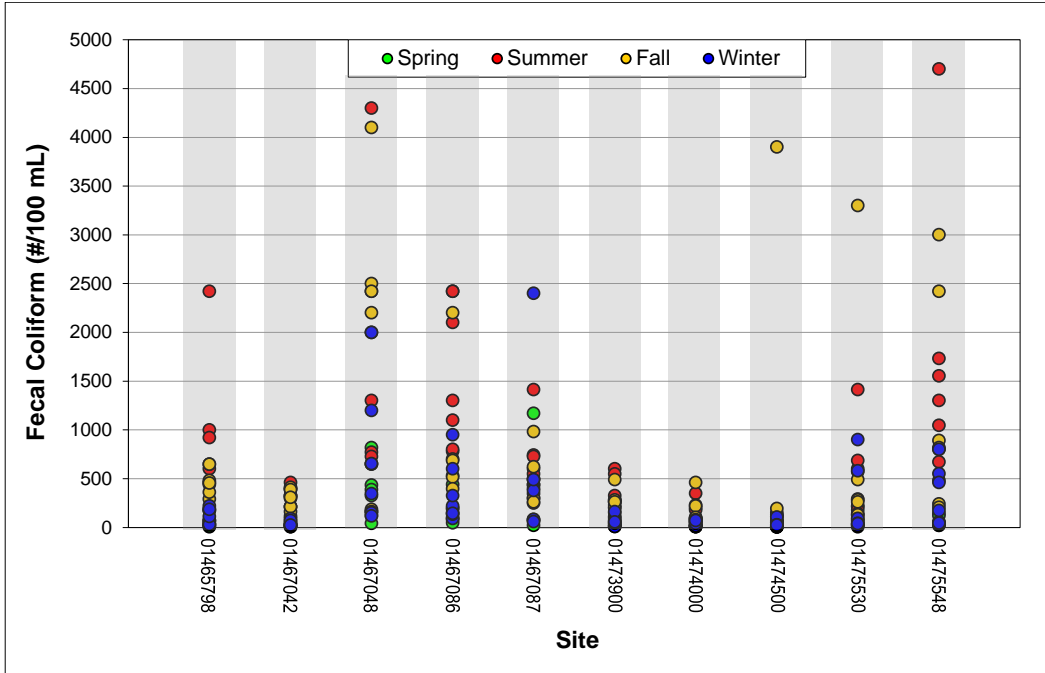


Figure 6. Fecal Coliform results at 10 USGS gage stations, July 2009-June 2016

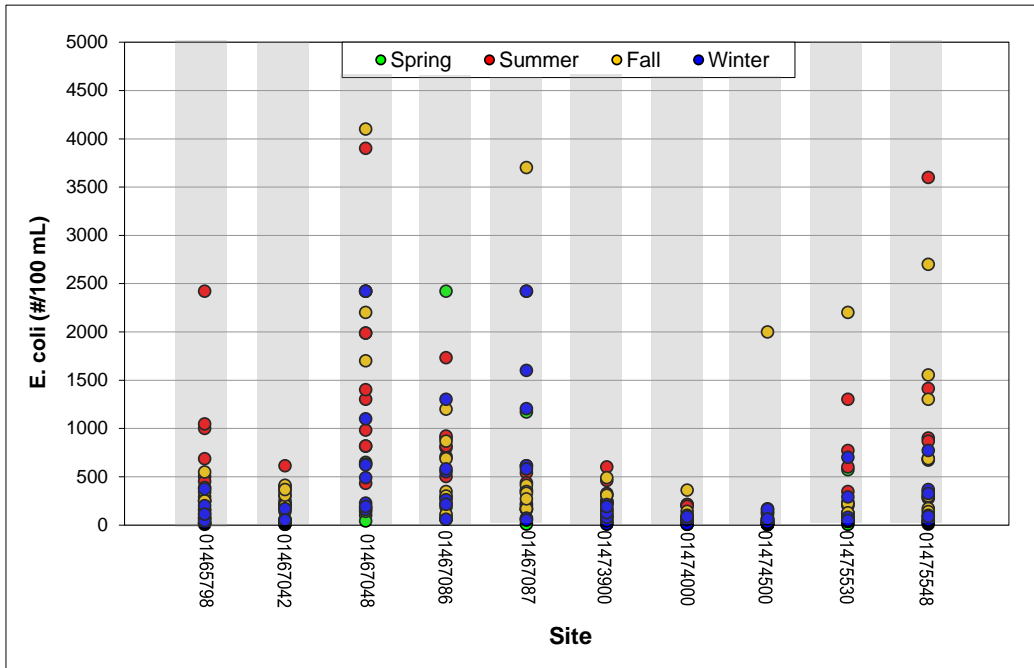


Figure 7. E. coli results at 10 USGS gage stations, July 2009-June 2016

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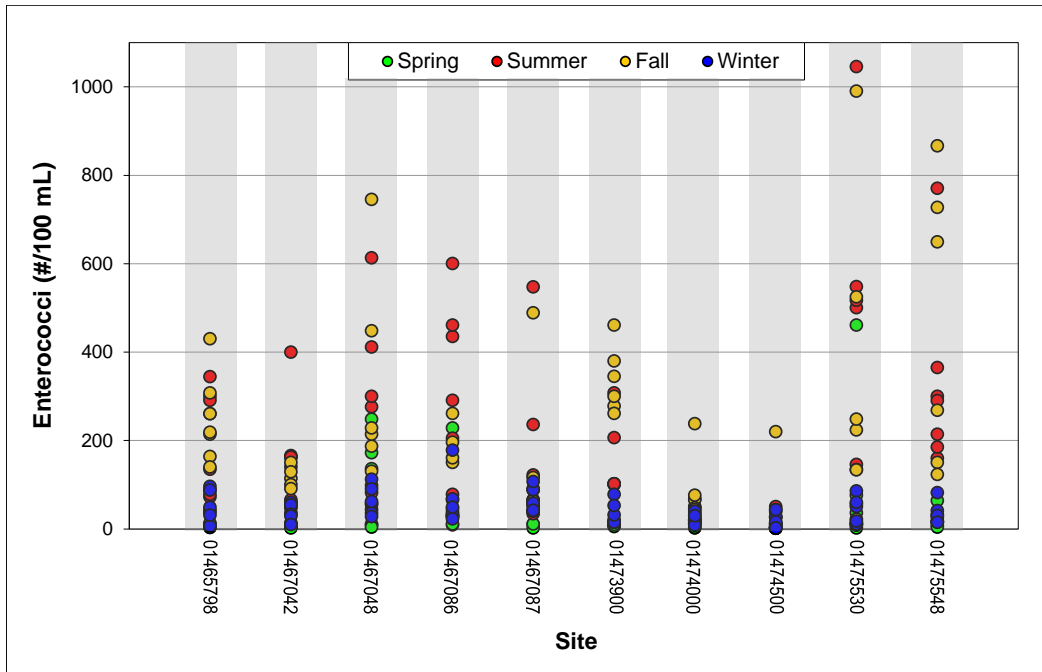


Figure 8. Enterococci results at 10 USGS gage stations, July 2009-June 2016

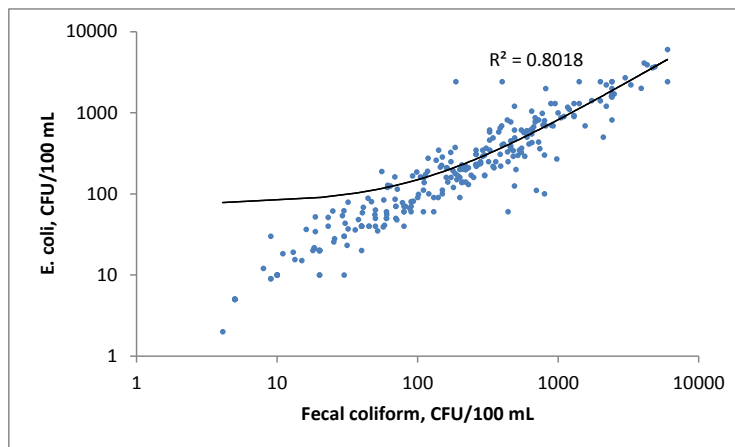


Figure 9. Scatterplot of 2009-2016 Correlating E. coli and Fecal coliform (x-y axes plotted in log10 scale)

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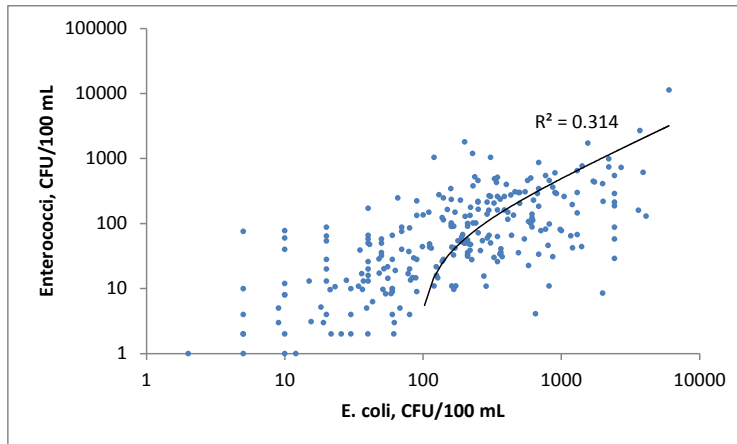


Figure 10. Scatterplot of 2009-2016 Correlating Enterococci and E. coli (x-y axes plotted in log10 scale)

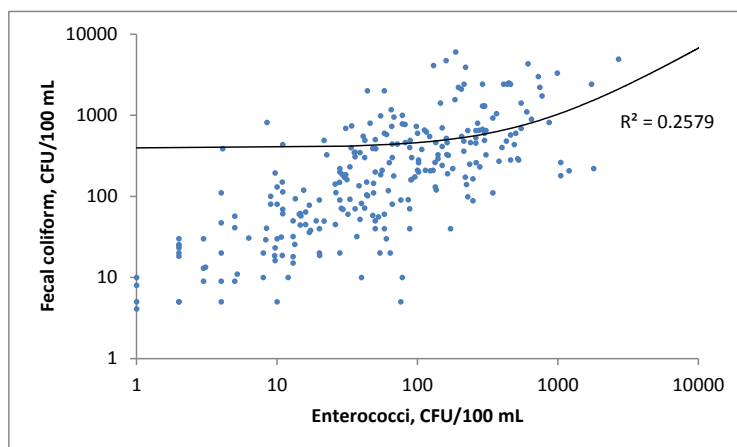


Figure 11. Scatterplot of 2009-2016 Correlating Fecal coliform and Enterococci (x-y axes plotted in log10 scale)

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 12-15.

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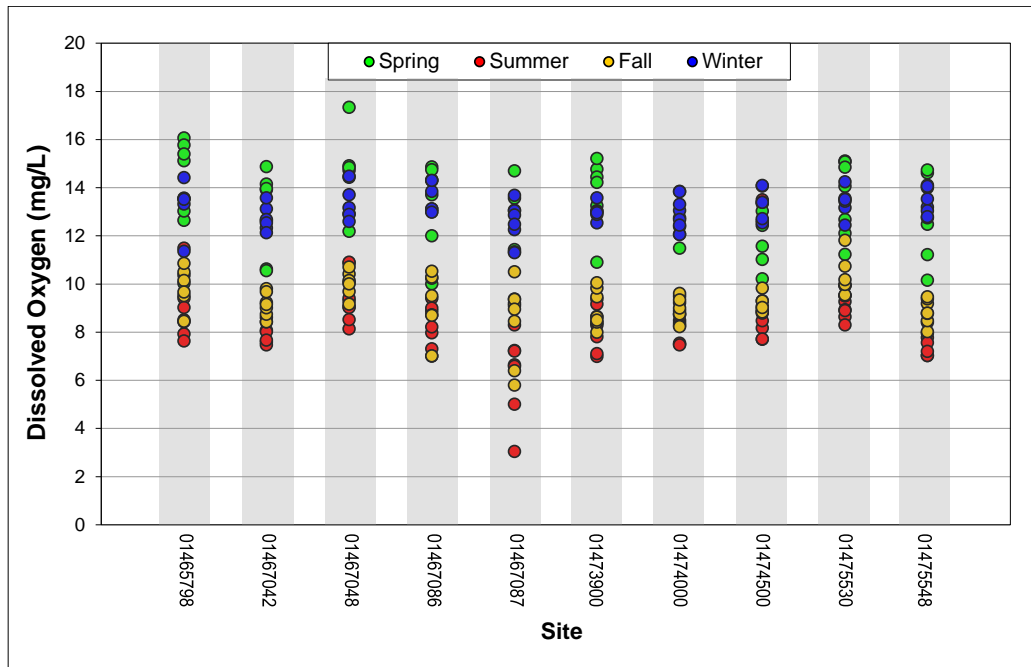


Figure 12. Dissolved oxygen results at 10 USGS gage stations, July 2009-June 2016

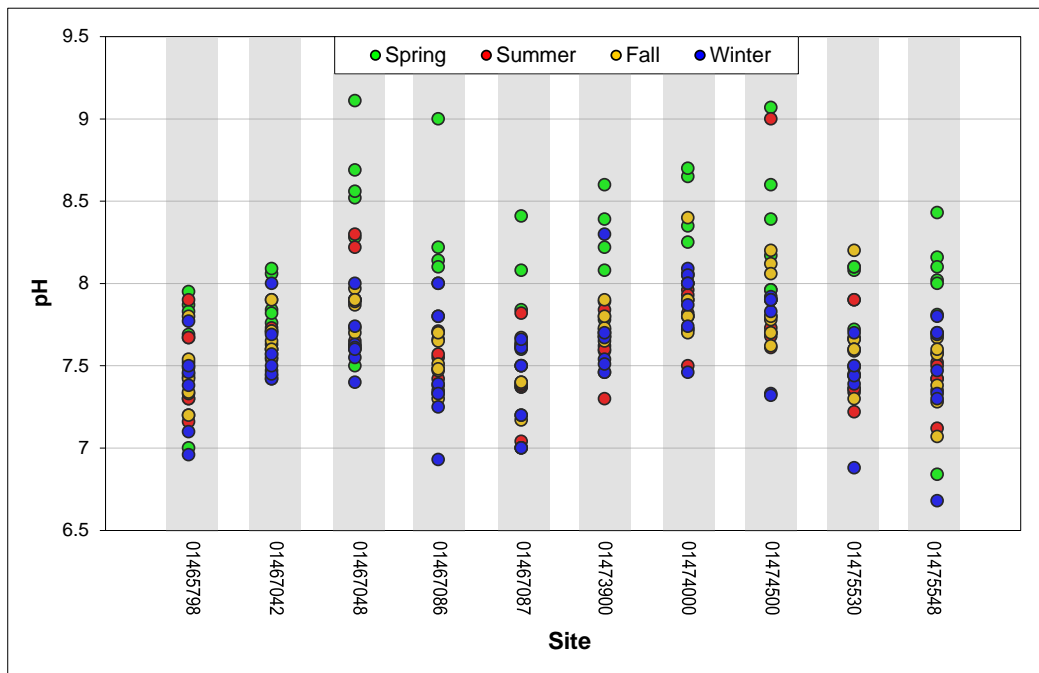


Figure 13. pH results at 10 USGS gage stations, July 2009-June 2016

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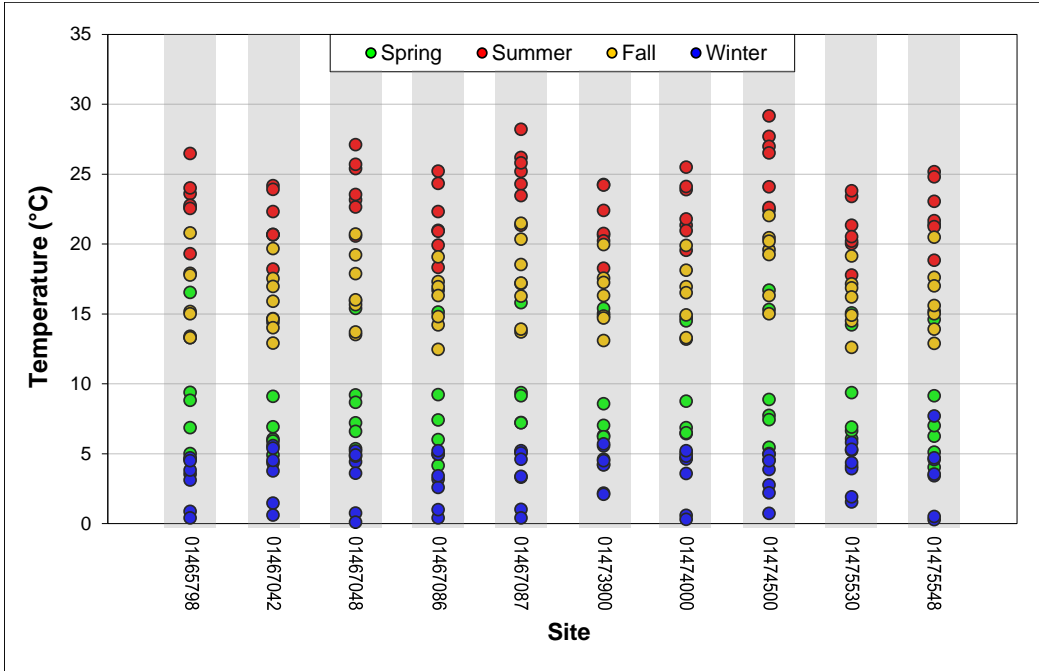


Figure 14. Temperature results at 10 USGS gage stations, July 2009-June 2016

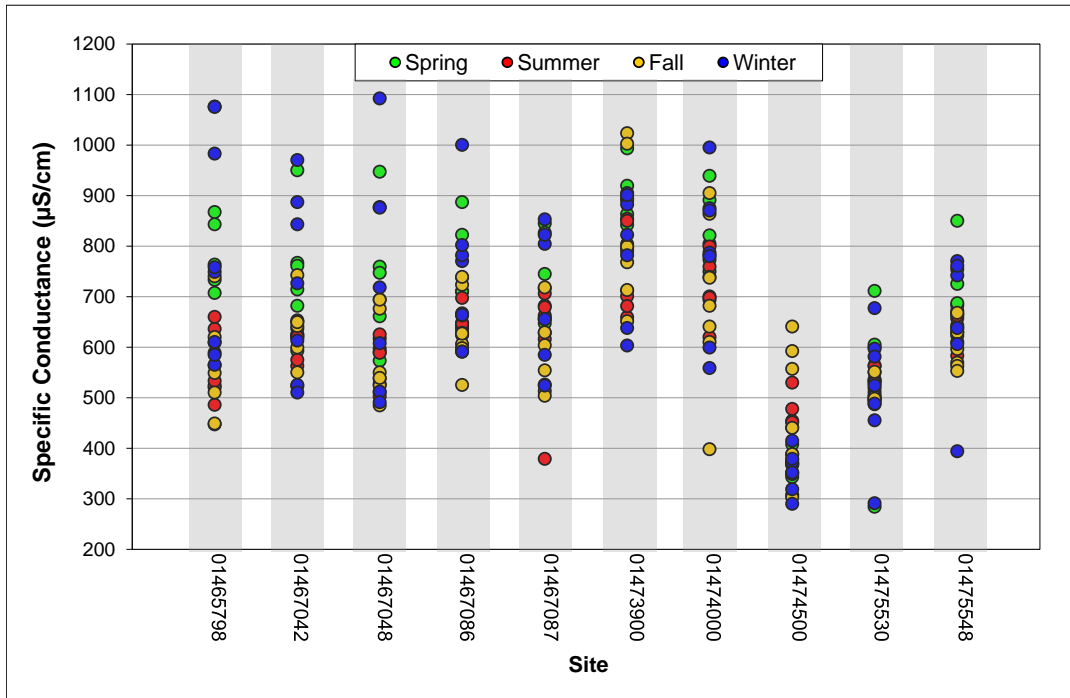


Figure 15. Specific conductance results at 10 USGS gage stations July 2009-June 2016

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 H – PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary

Background

PWD and the United States Geologic 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 (<http://waterdata.usgs.gov/pa/nwis/nwis>), as well as a website specifically dedicated to Philadelphia’s watersheds (Figure 1).

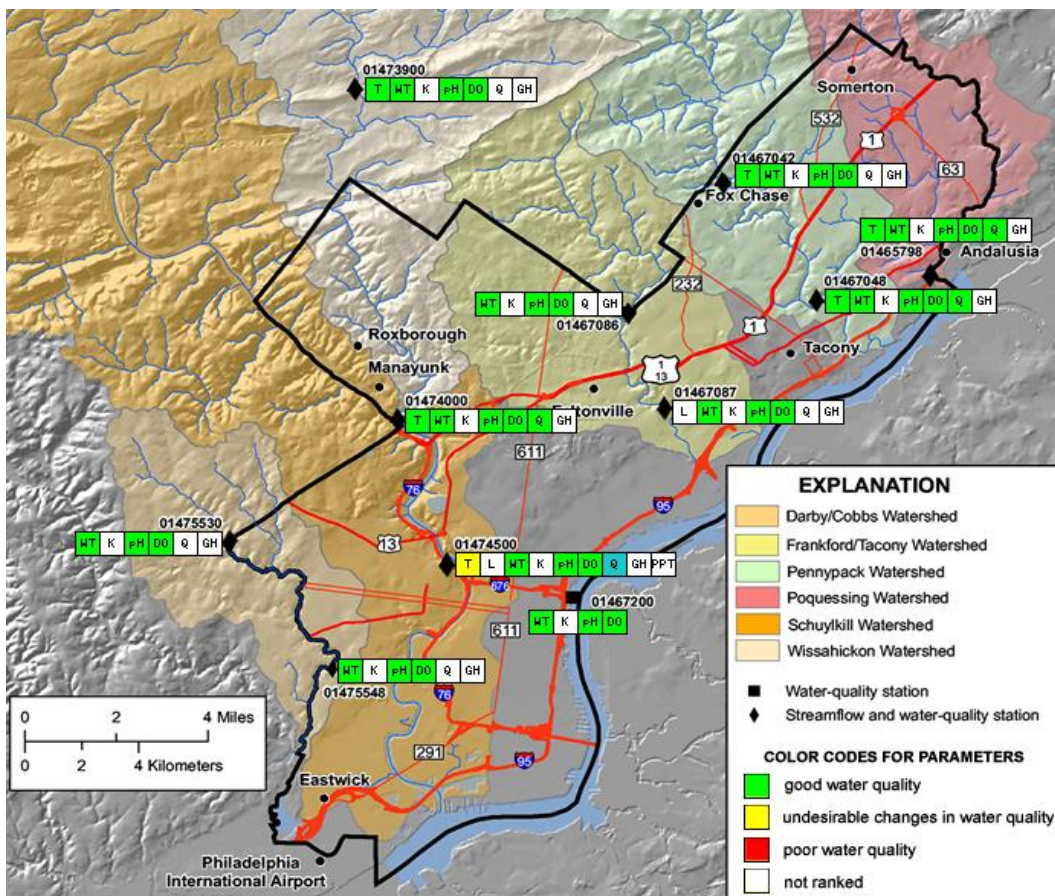


Figure 1. Philadelphia Water Quality Gauge Stations as Viewed on Cooperative USGS-PWD Website (<http://pa.water.usgs.gov/pwd/>).

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.

This annual report summarizes water quality data from July 1, 2015 – June 30, 2016, excluding the period of December 2015 through February 2016, during which time monitoring probes were not deployed in order to protect the equipment from cold temperatures. Per agreement with USGS, water quality data at the Delaware River gage 01467200 was not available for an additional month, from December 2015 through March 2016. Water quality data at the Delaware River gage 014670261 was 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 Ridge Ave.). The period of record for this gage is 50 years. The influence of severe storms can be observed in Figure 2; approved daily mean discharge data was available only until April 12, 2016 at the time of this writing.

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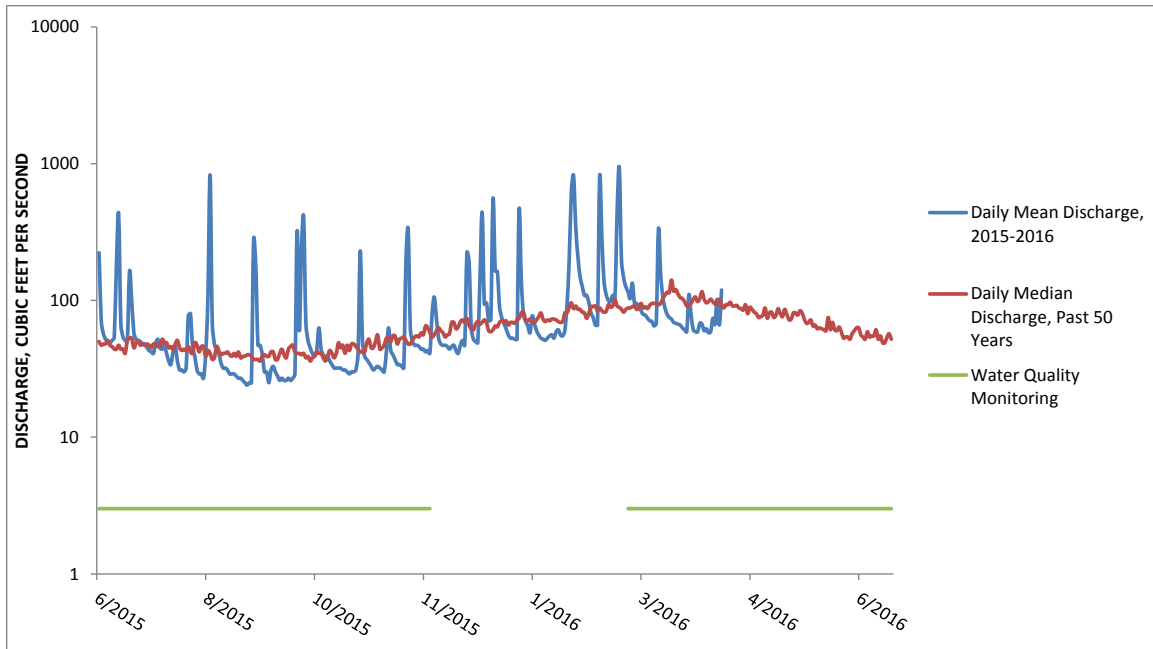


Figure 2. Daily mean flow July 1 2015-April 12 2016 and daily median flow for 50 years of record at USGS gage 01474000 (Wissahickon Creek at Ridge Ave.).

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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, 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 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 and Access software, as well as R, a free software environment for statistical computing and graphics. Most aspects of the data processing and analysis have been automated with custom Visual Basic and R 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.

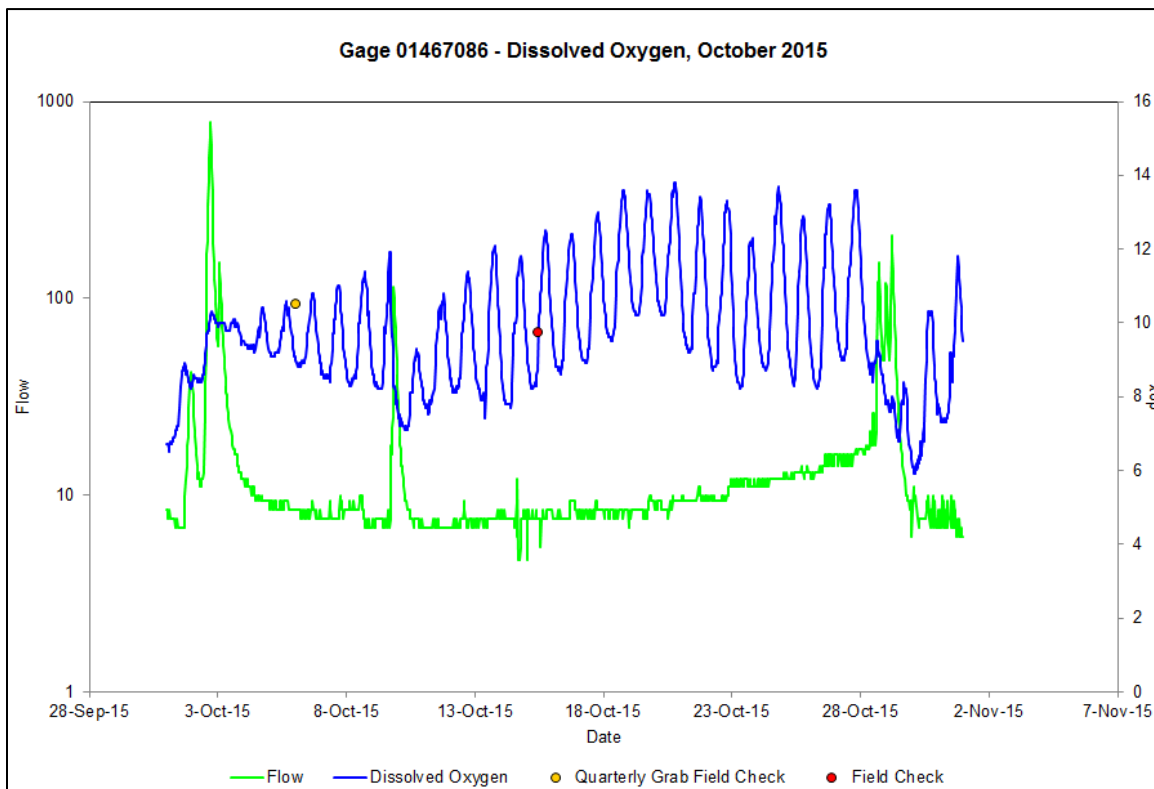


Figure 3. Example of an Excel-generated data processing/analysis plot; Gage 0146786, Dissolved Oxygen, October 2015.

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 R, a statistical programming language and software environment. The R software code developed by OOW staff analyzes all of the water quality data in a database, as well as the good and questionable 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.

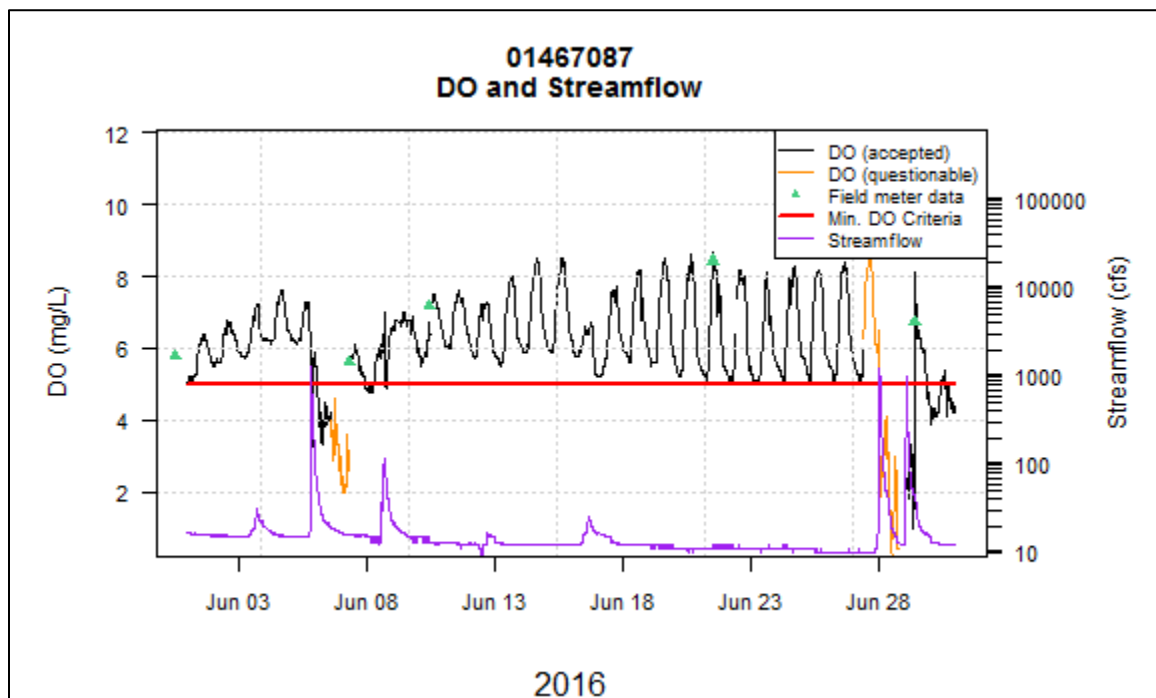


Figure 4. Example of an R-generated plot showing accepted and questionable data, and minimum water quality criteria; Gage 01467087, Dissolved Oxygen, June 2016.

Continuous Water Quality Monitoring Results Annual Summary, July 2015 - June 2016

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 was introduced in 2014 by PA DEP. Prior to 2014, DEP specified a 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). For informational and comparative purposes, this report continues to calculate a daily average as well as the 7-day average. 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 applies to Delaware River gage

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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 “total hours accepted data” are the total hours of data that were not flagged; that quantity divided by 24 yields the “total days accepted data.” The remainder of the table lists the percent of total hours 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 Table 4. If a single day contained at least one flagged measurement, the entire day was considered flagged for calculating the daily mean. Thus the “percent days flagged data” corresponds to the percentage of total days of data that contained at least one flag in a single day. Conversely, if none of the measurements in a single day were flagged, that day was considered one day of accepted data, and the total amount of accepted days was calculated. Finally, the

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percentages of accepted data that attained or failed to attain water quality standards were calculated.

Results were processed as follows for Tables 5 and 6. 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 2015 and 2016 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 2015 - June 2016 Dissolved Oxygen Minimum Criterion Summary Results

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining
01465798	WWF	6291.0	262.1	4.5	2.3	97.7
014670261*	DRBC	NA	NA	NA	NA	NA
01467042	TSF	6353.5	264.7	3.5	0.02	99.9
01467048	TSF	6371.0	265.5	3.5	0.02	99.9
01467086	WWF	6400.5	266.7	0.3	0.4	99.6
01467087	WWF	6048.5	252.0	7.5	14.0	86.0
01467200*	DRBC	NA	NA	NA	NA	NA
01473900	TSF	6307.5	262.8	1.7	0.0	100.0
01474000	TSF	6555.0	273.1	0.7	0.0	100
01474500	WWF	6585.0	274.3	0.2	0.0	100.0
01475530	WWF	6402.0	266.8	0.6	0.0	100.0
01475548	WWF	6051.0	252.1	5.9	6.2	93.8

*No minimum DO criterion applies at gages 01467200 and 014670261

Table 4. USGS Gage July 2015 - June 2016 Dissolved Oxygen Daily Mean Summary Results

Gage number	Designated Use	Total days accepted data	% hrs. flagged data*
01465798	WWF	243.0	11.4
014670261	DRBC	305.0	16.7
01467042	TSF	249.0	9.3
01467048	TSF	241.0	12.4

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01467086	WWF	249.0	6.9
01467087	WWF	215.0	21.1
01467200	DRBC	207.0	16.4
01473900	TSF	246.0	8.0
01474000	TSF	260.0	5.4
01474500	WWF	264.0	4.0
01475530	WWF	252.0	6.1
01475548	WWF	226.0	0.7

*Small data gaps prevent the calculation of a daily mean and are classified as flagged.

Table 5. USGS Gage July 2015 - December 2015 Dissolved Oxygen 7-Day Average Criterion Summary Results

Gage number	Designated Use	Total hours accepted data	% hours flagged data	% hours non-attaining	% hours attaining
01465798	WWF	3048.5	6.3	0	100
014670261	DRBC	NA	NA	NA	NA
01467042	TSF	3029.5	6.9	0	100
01467048	TSF	3253.5	0	0	100
01467086	WWF	3253.5	0	0	100
01467087	WWF	2868.0	11.8	21.9	78.1
01467200	DRBC	NA	NA	NA	NA
01473900	TSF	3008.0	7.5	0	100
01474000	TSF	3253.5	0	0	100
01474500	WWF	3253.5	0	0	100
01475530	WWF	3253.5	0	0	100
01475548	WWF	2870.0	11.8	4.9	95.1

Table 6. USGS Gage March 2016 - June 2016 Dissolved Oxygen 7-Day Average Criterion Summary Results

Gage number	Designated Use	Total hours accepted data	% hours flagged data	% hours non-attaining	% hours attaining
01465798	WWF	2509.5	0	0	100
014670261	DRBC	NA	NA	NA	NA
01467042	TSF	2485.5	1.0	0	100
01467048	TSF	2371.0	5.5	0	100
01467086	WWF	2509.5	0	0	100
01467087	WWF	2509.5	0	4.8	95.2
01467200	DRBC	NA	NA	NA	NA
01473900	TSF	2509.5	0	0	100
01474000	TSF	2509.5	0	0	100
01474500	WWF	2509.5	0	0	100
01475530	WWF	2509.5	0	0	100
01475548	WWF	2110.5	0	0.2	99.8

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

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Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary

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Table 7. USGS Gage 01467200 and 014670261 Dissolved Oxygen Seasonal Mean Criterion Summary Result

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Seasonal mean	Attained Standard?
01467200	DRBC	1821.0	75.9	0.2	7.8	Yes
014670261	DRBC	1815.0	75.6	0.5	8.4	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 CO₂ 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 8). 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 8. The “total hours accepted data” are the total hours of data that were not flagged; that quantity divided by 24 yields the “total days accepted data.” The remainder of the table lists the percentage of total hours of data that was flagged, the percentages of accepted hours 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. Significant (greater than 10%) daily exceedances of the maximum occurred at the upstream Tacony site.

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Table 8. USGS Gage July 2015 - June 2016 pH Criteria Summary Results

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining
01465798	6558.5	273.2	0.4	0.0	0.7	0	0	99.9	99.3
014670261	8664.0	361.0	1.4	0.0	0.0	0	0	100.0	100.0
01467042	6448.5	268.7	2.1	0.3	1.9	0	0	99.7	98.1
01467048	6366.0	265.3	3.5	0.9	5.6	0	0	99.1	94.4
01467086	6400.5	266.7	0.3	2.1	11.2	0	0	97.9	88.8
01467087	6285.5	261.9	3.8	0.0	0.0	0	0	100.0	100.0
01467200	5818.0	242.4	2.1	0.0	0.0	0	0	100.0	100.0
01473900	6306.5	262.8	1.8	0.4	3.4	0	0	99.6	96.6
01474000	6570.0	273.8	0.4	0.0	0.0	0	0	100.0	100.0
01474500	6585.0	274.3	0.2	1.2	3.6	0	0	98.8	96.4
01475530	6406.5	266.9	0.6	0.0	0.0	0	0	100.0	100.0
01475548	5981.0	249.2	7.0	2.1	8.6	0	0	97.9	91.4

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 84-85). 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 9. The “total hours accepted data” are the total hours of data that were not flagged; that quantity divided by 24 yields the “total days accepted data.” The remainder of the table lists the percentage of total hours of data that was flagged, and the percentages of accepted hours 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 gage.

Table 9. USGS Gage July 2015 - June 2016 Turbidity Summary Results

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline
01465798	6161.5	273.3	6.4	32.1	67.9
014670261	7264.0	302.7	17.3	98.0	2.0
01467042	5958.5	248.3	9.5	22.1	77.9
01467048	6066.0	252.8	8.1	46.7	53.3
01467086*	NA	NA	NA	NA	NA
01467087*	NA	NA	NA	NA	NA
01467200*	NA	NA	NA	NA	NA
01473900	6112.5	254.7	4.8	41.9	58.1
01474000	6553.5	273.1	0.7	13.4	86.6
01474500	6582.0	274.3	0.3	58.5	41.5
01475530*	NA	NA	NA	NA	NA
01475548*	NA	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 25°C). 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 10 merely illustrates the total hours of data that was not flagged and considered “accepted,” the equivalent quantity in day-units, and the percentage of total hours of data that was flagged. More detailed results at each site are described in the Monthly Results section.

Table 10. USGS Gage July 2015 - June 2016 Specific Conductance Summary Results

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data
01465798	6558.5	273.3	0.4
014670261	8667.5	361.1	1.3
01467042	6446.0	268.6	2.1
01467048	6365.0	265.2	3.5
01467086	6400.5	266.7	0.3
01467087	6382.0	265.9	2.4
01467200	5836.0	243.2	1.8
01473900	6305.5	262.7	1.8
01474000	6406.0	266.9	2.9
01474500	6583.0	274.3	0.2
01475530	6406.5	266.9	0.6
01475548	6384.0	266.0	0.7

Temperature

Background

Streams in the Philadelphia region are designated Warm Water Fisheries (WWF) or Trout Stocking Fisheries (TSF), with separate corresponding temperature criteria (Table 11). 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 11. 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

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Results

Results were processed in the same manner as the parameters described above. The highest exceedance rate occurred at the downstream Pennypack Creek gage. Aside from the Delaware River gages, the lowest exceedance rates were observed at the Poquessing, both Cobbs, both Tacony Creek, and the Schuylkill River gages (Table 12). Those six gages are all designated as WWF and have less stringent criteria.

Table 12. USGS Gage July 2015 - June 2016 Temperature Maximum Criteria Summary Results

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. exceedance	% hrs. attaining
01465798	WWF	6571.5	273.8	0.2	18.3	81.6
014670261	DRBC	8683.0	361.8	1.1	0.0	100
01467042	TSF	6445.5	268.6	2.1	31.9	68.1
01467048	TSF	6306.5	262.8	4.4	35.8	64.2
01467086	WWF	6400.5	266.7	0.3	18.0	82.0
01467087	WWF	6387.5	266.1	2.3	20.1	79.9
01467200	DRBC	5862.5	244.3	1.3	0.0	100
01473900	TSF	6254.0	260.6	2.6	31.2	68.8
01474000	TSF	6571.0	273.8	0.4	33.4	66.6
01474500	WWF	6584.0	274.3	0.2	21.8	78.2
01475530	WWF	6409.5	267.1	0.6	16.9	83.1
01475548	WWF	6387.0	266.1	0.7	18.1	81.9

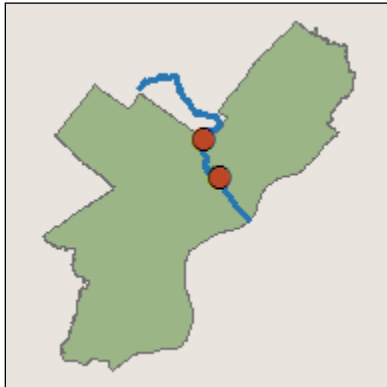
Monthly Results, July 2015 - June 2016

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 hours the minimum criterion was not attained, exceedance of the 7-day average guideline, and percentage of days the daily mean criteria was not attained were typically much worse at the downstream gage (Tables 13-16, Figures 5-8). For example, DO was particularly poor at the downstream Tacony Creek gage during July and August 2015 (Figure 9). Minimum DO exceedances were also observed in the same month at the upstream gage. However, the minimum criterion was usually attained at gage 01467086 (Figure 10). 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

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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 non-attainment of pH maximum criteria, as observed at the upstream gage in March 2016 (Figure 11). Percent DO saturation of more than 175% in daylight were also observed at gage 01467086 in March 2016, 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 17-18).

Table 13. Gage 01467086 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	741.0	30.9	0.4	1.1	98.9	4.0	13.5	7.7
Aug-15	WWF	743.5	31.0	0.1	1.5	98.5	4.2	15.1	7.9
Sep-15	WWF	718.0	29.9	0.3	0.1	99.9	4.9	13.8	8.7
Oct-15	WWF	742.0	30.9	0.3	0.0	100.0	5.9	13.8	9.8
Nov-15	WWF	717.0	29.9	0.4	0.0	100.0	6.0	14.0	10.0
Mar-16	WWF	560.5	23.4	0.3	0.0	100.0	7.7	18.2	12.0
Apr-16	WWF	717.5	29.9	0.3	0.5	99.5	4.7	17.1	10.0
May-16	WWF	743.0	31.0	0.1	0.0	100.0	5.1	12.9	8.3
Jun-16	WWF	718.0	29.9	0.3	0.4	99.6	3.1	12.5	7.5

Table 14. Gage 01467087 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	587.0	24.5	21.1	41.6	58.4	0.1	12.4	5.5
Aug-15	WWF	691.5	28.8	7.1	46.9	53.1	0.1	11.0	5.1
Sep-15	WWF	684.0	28.5	5.0	9.3	90.7	3.1	10.2	6.7
Oct-15	WWF	638.0	26.6	14.2	4.5	95.5	3.7	11.0	7.9
Nov-15	WWF	717.0	29.9	0.4	2.4	97.6	3.1	11.5	8.2
Mar-16	WWF	669.5	27.9	1.6	0.0	100.0	8.1	14.4	11.4
Apr-16	WWF	711.0	29.6	1.3	4.6	95.4	2.9	13.4	8.4
May-16	WWF	714.5	29.8	4.0	12.5	87.5	2.2	9.6	6.9
Jun-16	WWF	636.5	26.5	11.6	7.5	92.4	1.8	8.7	6.2

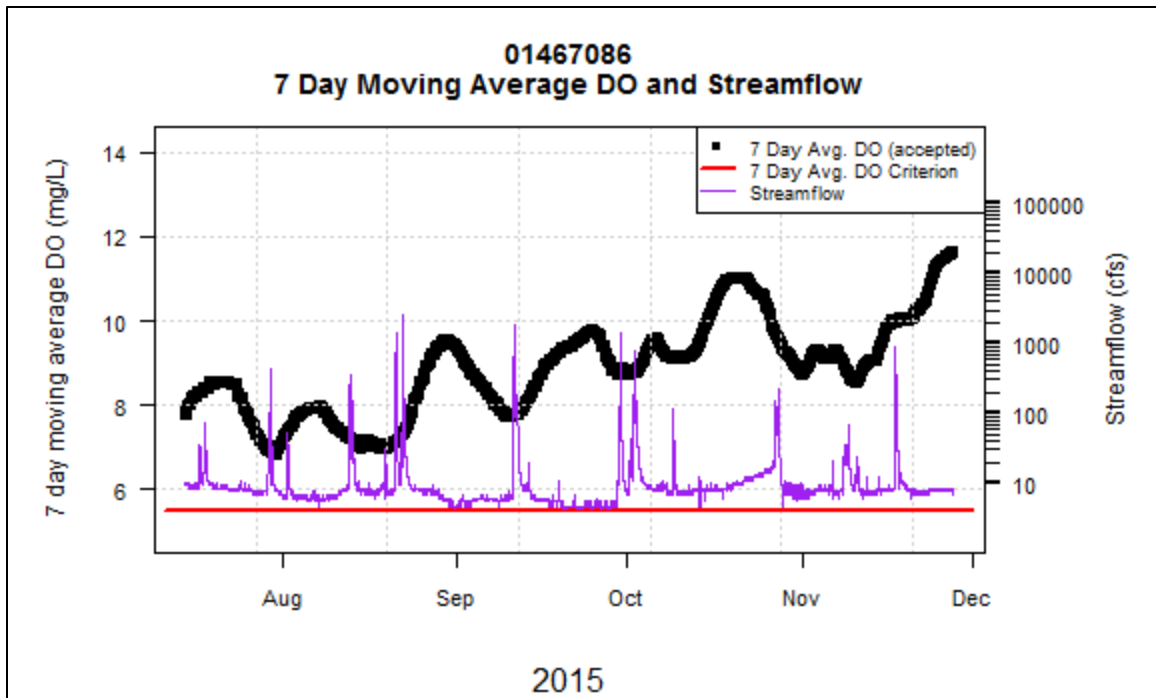


Figure 5. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

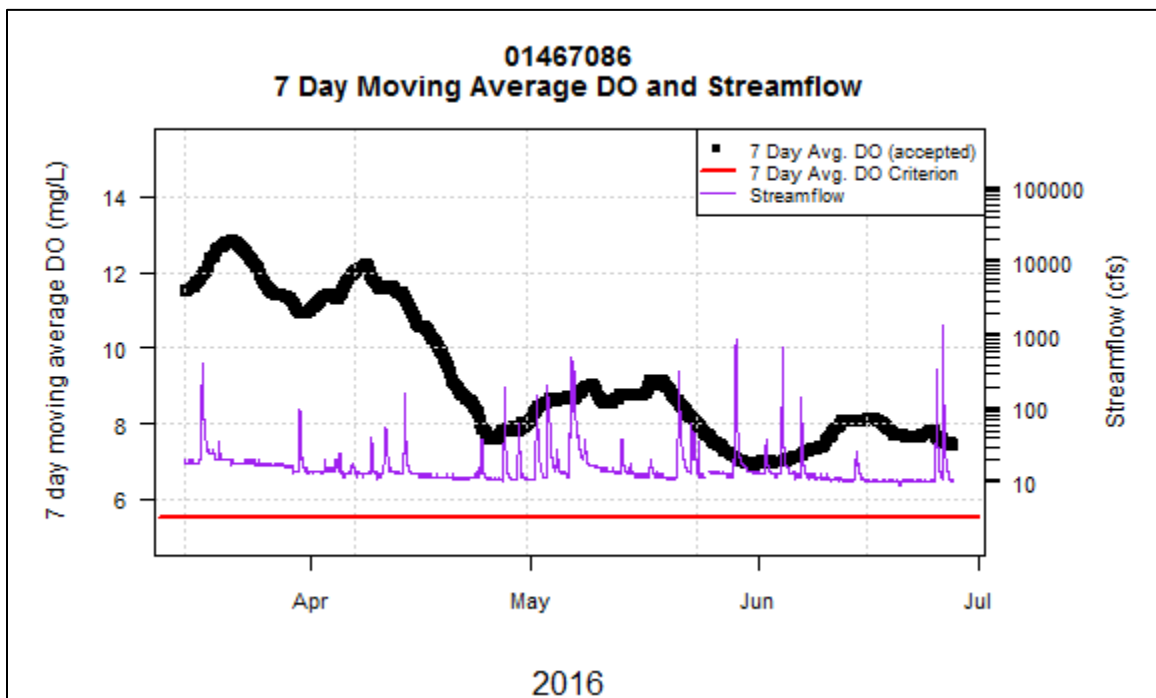


Figure 6. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

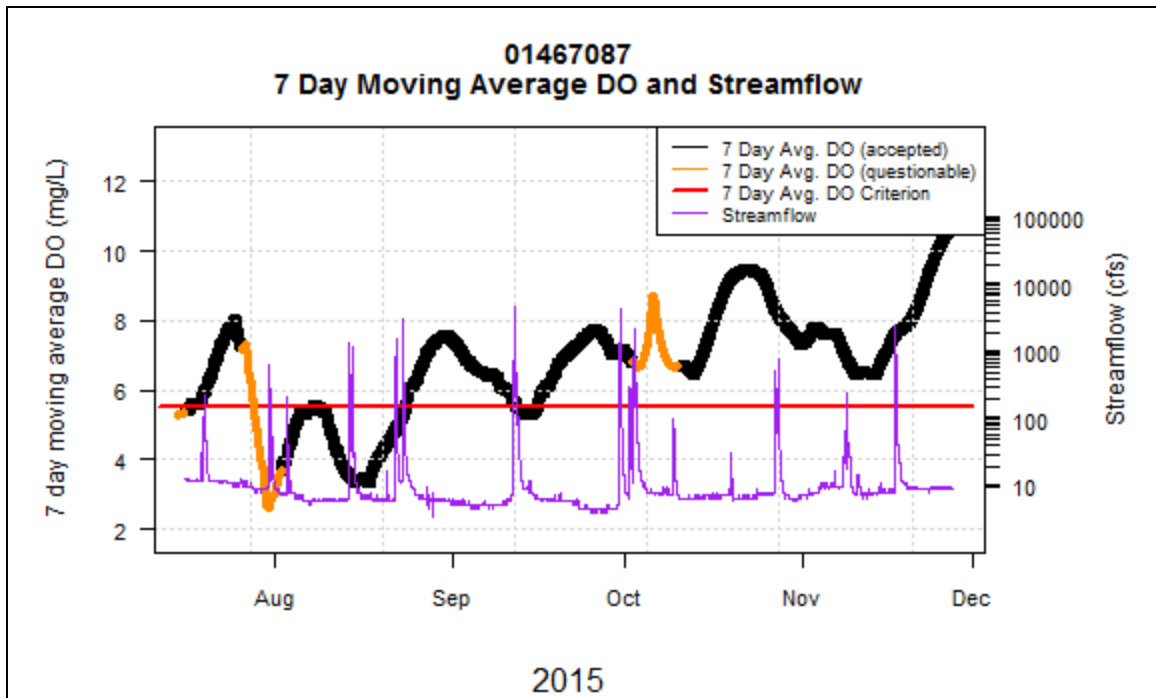


Figure 7. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

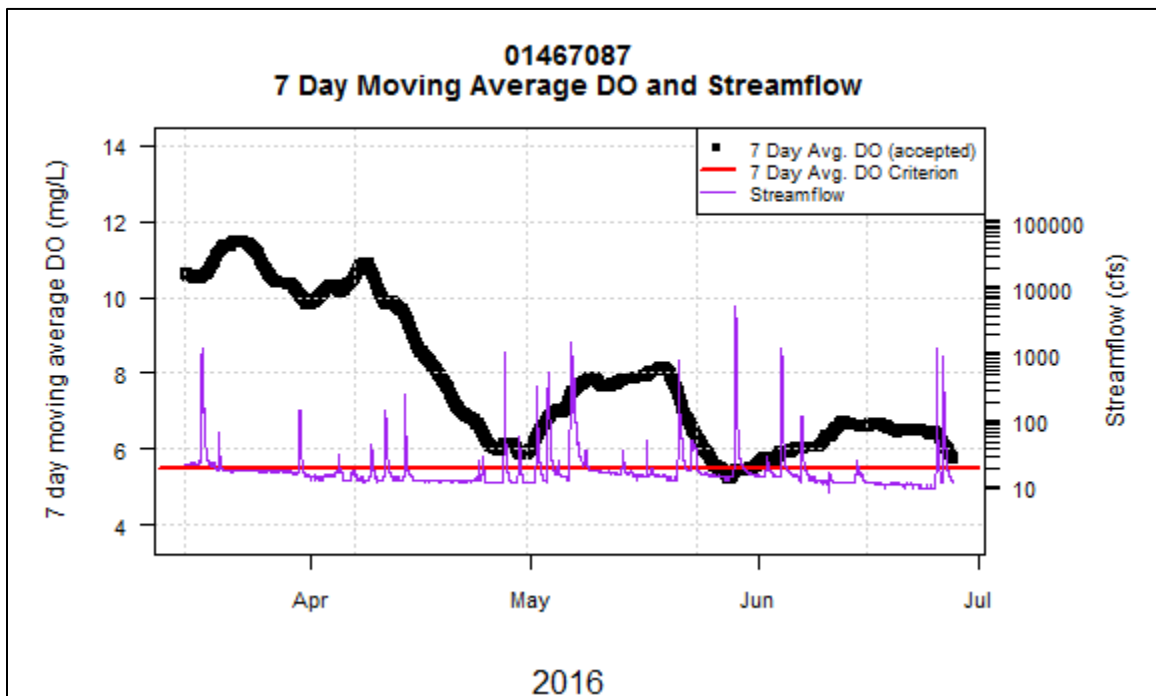


Figure 8. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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Table 15. Gage 01467086 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	29.0	6.5	6.0	9.0	7.7
Aug-15	WWF	30.0	3.2	5.7	10.2	7.9
Sep-15	WWF	28.0	6.7	7.0	9.9	8.8
Oct-15	WWF	28.0	9.7	7.5	11.7	9.9
Nov-15	WWF	27.0	10.0	7.5	12.1	9.9
Mar-16	WWF	21.0	10.3	10.4	13.3	11.9
Apr-16	WWF	28.0	6.7	5.8	13.1	10.0
May-16	WWF	30.0	3.2	6.5	9.8	8.3
Jun-16	WWF	28.0	6.7	5.8	8.8	7.6

Table 16. Gage 01467087 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	21.0	32.3	3.0	8.5	5.7
Aug-15	WWF	23.0	25.8	1.8	8.1	5.3
Sep-15	WWF	26.0	13.3	4.1	8.1	6.7
Oct-15	WWF	23.0	25.8	5.8	10.0	8.1
Nov-15	WWF	27.0	10.0	5.1	11.1	8.2
Mar-16	WWF	26.0	8.3	9.8	13.7	11.5
Apr-16	WWF	27.0	10.0	5.1	12.2	8.5
May-16	WWF	25.0	19.4	4.2	8.5	6.9
Jun-16	WWF	17.0	43.3	5.6	7.0	6.4

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Table 17. Gage 01467086 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	741.0	30.9	0.4	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.9	7.6
Aug-15	743.5	31.0	0.1	0.1	3.2	0.0	0.0	99.9	96.8	6.9	9.1	7.7
Sep-15	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.9	7.9
Oct-15	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.8	8.4	7.5
Nov-15	717.0	29.9	0.4	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.4	7.6
Mar-16	560.5	23.4	0.3	16.1	79.2	0.0	0.0	83.9	20.8	7.4	9.5	8.2
Apr-16	717.5	29.9	0.3	6.1	33.3	0.0	0.0	93.9	66.7	7.1	9.3	7.9
May-16	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.3	7.5
Jun-16	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.5	7.5

Table 18. Gage 01467087 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	667.0	27.8	10.3	0.0	0.0	0.0	0.0	100.0	100.0	6.5	8.6	7.2
Aug-15	616.5	25.7	17.1	0.0	0.0	0.0	0.0	100.0	100.0	6.8	8.2	7.4
Sep-15	716.5	29.9	0.5	0.0	0.0	0.0	0.0	100.0	100.0	6.8	8.1	7.4
Oct-15	741.5	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.7	7.4
Nov-15	717.0	29.9	0.4	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.5	7.3
Mar-16	679.5	28.3	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.2	7.6
Apr-16	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.8	8.0	7.3
May-16	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.7	7.3	7.1
Jun-16	688.0	28.7	0.4	0.0	0.0	0.0	0.0	100.0	100.0	6.7	7.6	7.2

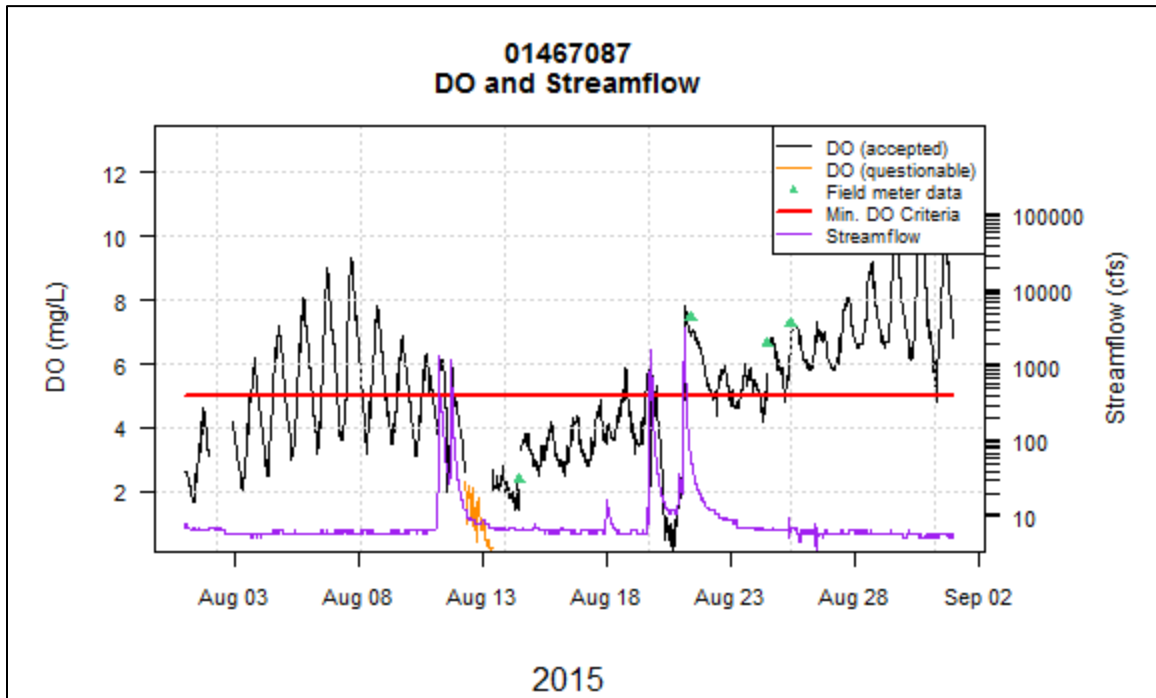


Figure 9. Gage 01467087, Dissolved Oxygen and Streamflow, August 2015.

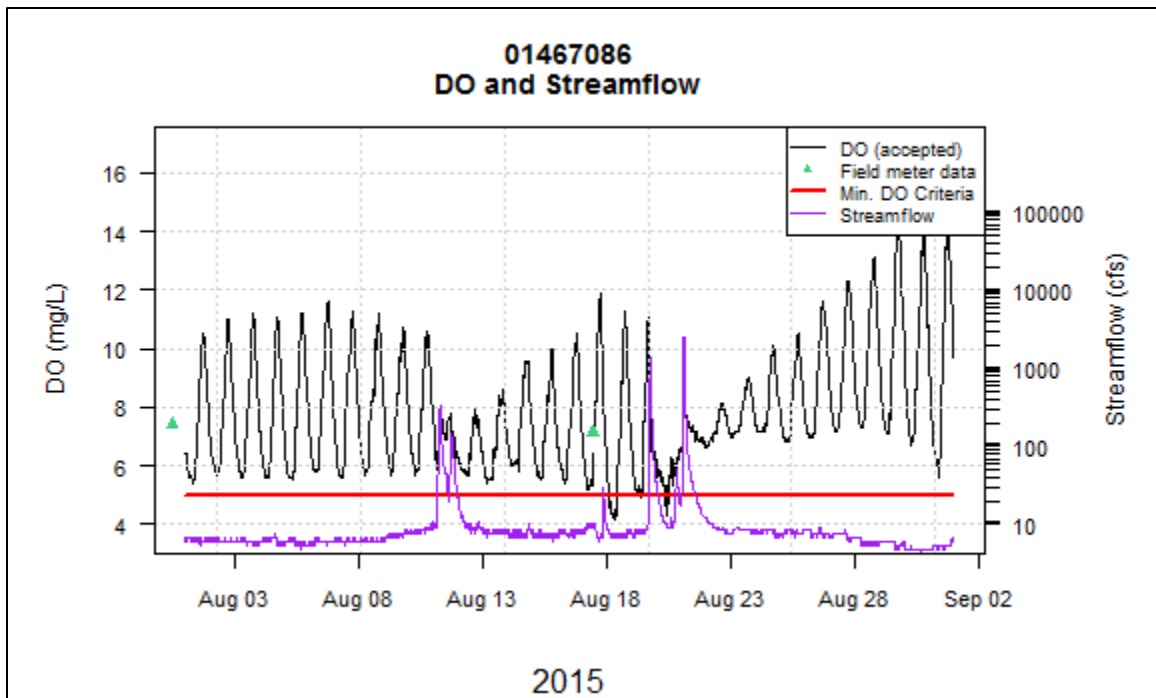


Figure 10. Gage 01467086, Dissolved Oxygen and Streamflow, August 2015.

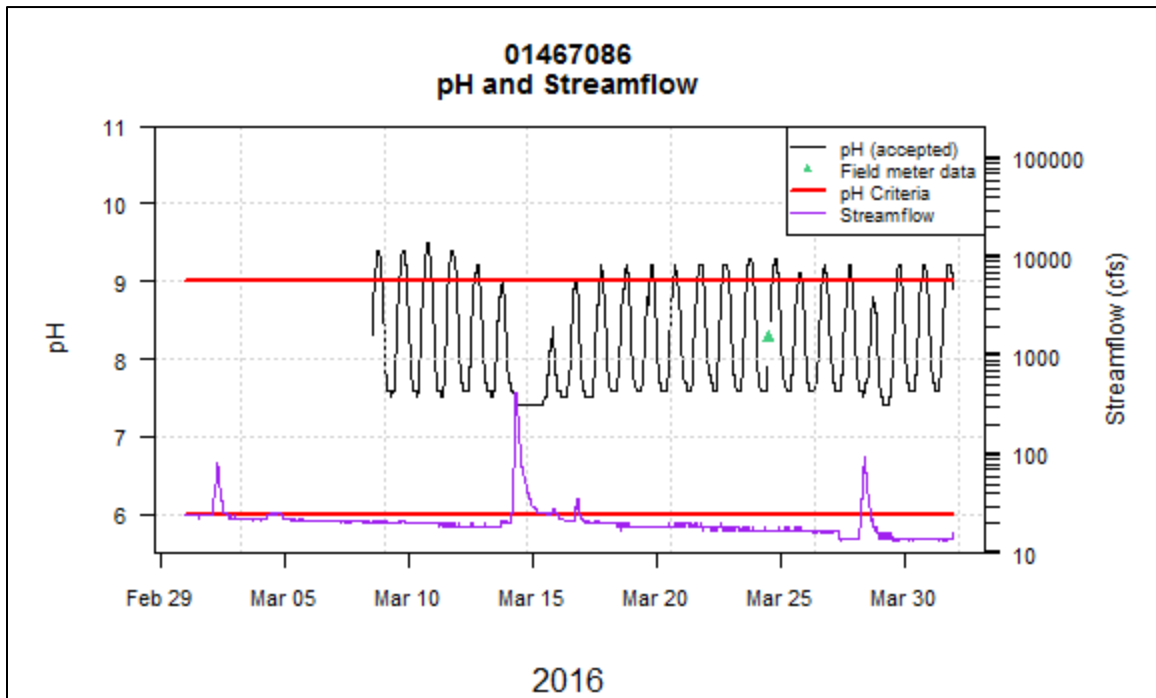


Figure 11. Gage 01467086, pH and Streamflow, March 2016.

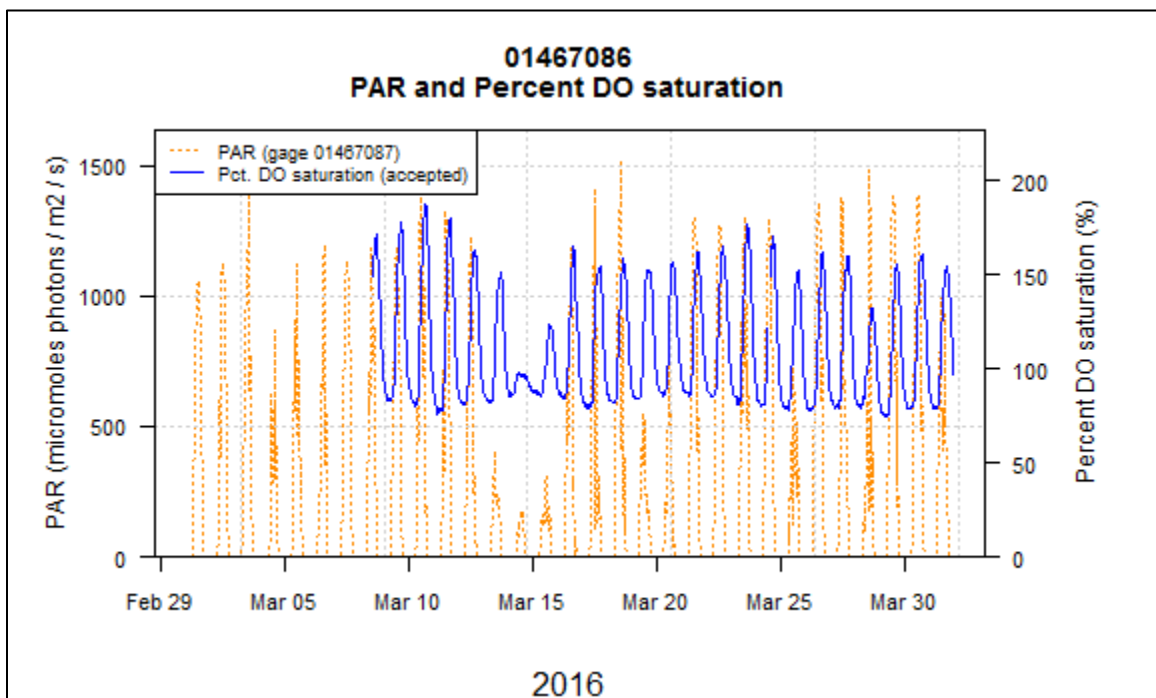


Figure 12. Gage 01467086, PAR and Percent Dissolved Oxygen Saturation, March 2016.



Figure 13. Gage 01467086, Tacony Creek at Adams Ave.



Figure 14. Gage 01467087, Frankford Creek at Castor Ave., looking downstream

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Specific Conductance

Specific conductance observations were usually consistent between the two gage sites (Tables 19-20). Elevated levels of specific conductance observed in March are likely due to the effects of road salt entering the stream.

Table 19. Gage 01467086 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	741.0	30.9	0.4	81.0	842.0	675.8
Aug-15	743.5	31.0	0.1	57.0	859.0	703.6
Sep-15	718.0	29.9	0.3	62.0	864.0	753.5
Oct-15	742.0	30.9	0.3	82.0	963.0	673.5
Nov-15	717.0	29.9	0.4	96.0	837.0	719.3
Mar-16	560.5	23.4	0.3	247.0	872.0	787.1
Apr-16	717.5	29.9	0.3	423.0	860.0	750.5
May-16	743.0	31.0	0.1	114.0	847.0	640.8
Jun-16	718.0	29.9	0.3	120.0	838.0	695.5

Table 20. Gage 01467087 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	662.5	27.6	11.0	16.0	818.0	622.8
Aug-15	718.0	29.9	3.5	86.0	840.0	627.8
Sep-15	716.5	29.9	0.5	57.0	874.0	741.4
Oct-15	741.5	30.9	0.3	109.0	847.0	631.2
Nov-15	717.0	29.9	0.4	120.0	846.0	667.1
Mar-16	679.5	28.3	0.1	252.0	1050.0	781.5
Apr-16	718.0	29.9	0.3	329.0	854.0	737.7
May-16	741.5	30.9	0.3	108.0	830.0	600.1
Jun-16	688.0	28.7	0.4	161.0	883.0	700.1

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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 21-22).

Table 21. Gage 01467086 Temperature Summary Results by Maximum Criteria Period

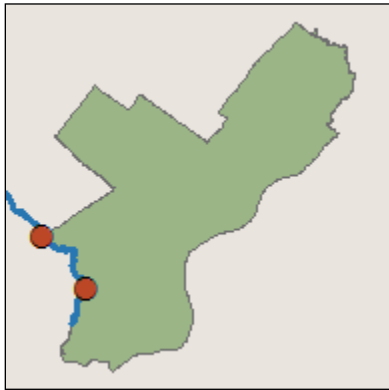
Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	0.4	741.0	30.9	19.5	28.4	23.5
WWF	1-Aug	15-Aug	0.0	100.0	0.0	360.0	15.0	19.1	27.4	23.3
WWF	16-Aug	31-Aug	0.0	100.0	0.1	383.5	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.6	358.0	14.9	16.5	26.3	21.2
WWF	16-Sep	30-Sep	0.0	100.0	0.0	360.0	15.0			
WWF	1-Oct	15-Oct	0.0	100.0	0.4	358.5	14.9	7.6	21.2	13.7
WWF	16-Oct	31-Oct	0.0	100.0	0.1	383.5	16.0			
WWF	1-Nov	15-Nov	17.8	82.2	0.7	357.5	14.9	4.0	17.0	10.4
WWF	16-Nov	30-Nov	16.1	83.9	0.1	359.5	15.0			
WWF	1-Mar	31-Mar	92.6	7.4	0.6	560.5	23.4	5.8	17.9	11.5
WWF	1-Apr	15-Apr	50.6	49.4	0.3	359.0	15.0	4.4	20.9	13.4
WWF	16-Apr	30-Apr	65.7	34.3	0.4	358.5	14.9			
WWF	1-May	15-May	4.0	96.0	0.0	360.0	15.0	10.8	25.8	16.2
WWF	16-May	31-May	20.4	79.6	0.3	383.0	16.0			
WWF	1-Jun	15-Jun	0.0	100.0	0.0	360.0	15.0	15.2	25.8	21.6
WWF	16-Jun	30-Jun	0.0	100.0	0.6	358.0	14.9			

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Table 22. Gage 01467087 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	10.3	667.0	27.8	20.8	28.9	24.4
WWF	1-Aug	15-Aug	0.0	100.0	6.5	336.5	14.0	20.6	28.2	24.5
WWF	16-Aug	31-Aug	0.0	100.0	0.7	381.5	15.9			
WWF	1-Sep	15-Sep	0.0	100.0	1.0	356.5	14.9	17.7	28.2	22.2
WWF	16-Sep	30-Sep	0.0	100.0	0.0	360.0	15.0			
WWF	1-Oct	15-Oct	0.4	99.6	0.4	358.5	14.9	9.4	22.2	14.2
WWF	16-Oct	31-Oct	0.0	100.0	0.3	383.0	16.0			
WWF	1-Nov	15-Nov	20.3	79.7	0.6	358.0	14.9	4.9	16.6	10.7
WWF	16-Nov	30-Nov	16.5	83.5	0.4	358.5	14.9			
WWF	1-Mar	31-Mar	78.4	21.6	0.7	679.5	28.3	4.6	16.6	10.7
WWF	1-Apr	15-Apr	57.6	42.4	0.1	359.5	15.0	6.3	20.2	14.0
WWF	16-Apr	30-Apr	81.3	18.7	0.3	359.0	15.0			
WWF	1-May	15-May	3.9	96.1	0.4	358.5	14.9	11.6	27.2	16.8
WWF	16-May	31-May	28.2	71.8	0.1	383.5	16.0			
WWF	1-Jun	15-Jun	0.0	100.0	0.3	359.0	15.0			
WWF	16-Jun	30-Jun	0.0	100.0	8.5	329.5	13.7	17.4	26.8	23.0

Cobbs Creek (Gages 01475530 and 01475548)



Dissolved oxygen and pH

The upstream Cobbs Creek site (01475530) always met the minimum dissolved oxygen criterion and never exceeded the 7-day average guideline (Table 23, Figures 15, 16, 19). Dissolved oxygen at the downstream site (01475548) did not always attain the minimum or the 7-day average, particularly during the warmer months. The daily mean values are presented in Tables 25-26 for informational purposes.

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 March and April—key months for algal growth—pH exceeded the maximum guideline at the downstream gage (Table 28). Algae remove CO₂ during photosynthesis, raising pH by shifting the dissolved inorganic carbon (DIC) balance toward alkaline carbonates. Furthermore, the diel fluctuations in DO were more pronounced at the downstream gage during these months (Figures 19-20).

A third indicator of increased algal activity at 01475548 is the supersaturation of oxygen caused by photosynthesis. During April, the upstream gage recorded peak DO saturation levels greater than 125% during the day, while the downstream gage recorded peak DO saturation levels greater than 150% (Figures 21-22).

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Table 23. Gage 01475530 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	743.0	31.0	0.1	0.0	100.0	6.2	10.8	8.0
Aug-15	WWF	710.0	29.6	4.6	0.0	100.0	6.2	11.3	7.9
Sep-15	WWF	719.0	30.0	0.1	0.0	100.0	6.2	11.5	8.2
Oct-15	WWF	744.0	31.0	0.0	0.0	100.0	7.5	13.0	9.8
Nov-15	WWF	720.0	30.0	0.0	0.0	100.0	7.8	13.3	10.3
Mar-16	WWF	586.0	24.4	21.1	0.0	100.0	8.6	14.3	11.0
Apr-16	WWF	718.5	29.9	0.2	0.0	100.0	6.8	14.4	10.3
May-16	WWF	743.5	31.0	0.1	0.0	100.0	5.3	11.3	9.1
Jun-16	WWF	718.0	29.9	0.3	0.0	100.0	6.2	10.5	8.0

Table 24. Gage 01475548 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	609.5	25.4	18.1	16.6	83.4	2.2	12.0	6.9
Aug-15	WWF	739.5	30.8	0.6	9.3	90.7	3.2	10.3	6.7
Sep-15	WWF	626.0	26.1	13.1	8.8	91.2	2.1	12.0	7.8
Oct-15	WWF	676.0	28.2	9.1	0.9	99.1	2.7	12.8	9.4
Nov-15	WWF	701.5	29.2	2.6	0.0	100.0	6.0	13.2	10.0
Mar-16	WWF	536.5	22.4	6.7	0.0	100.0	8.0	17.3	11.9
Apr-16	WWF	718.5	29.9	0.2	7.2	92.8	3.0	16.7	9.0
May-16	WWF	724.5	30.2	2.6	7.4	92.6	1.7	12.2	8.0
Jun-16	WWF	719.0	30.0	0.1	5.8	94.2	2.7	10.7	6.9

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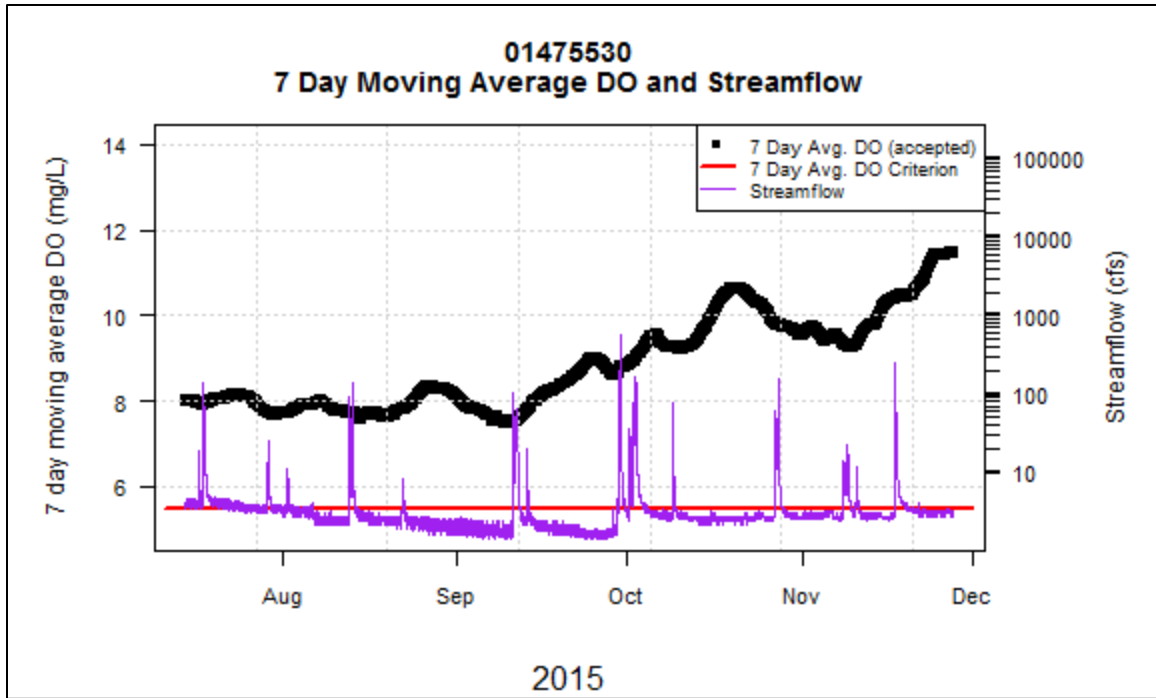


Figure 15. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

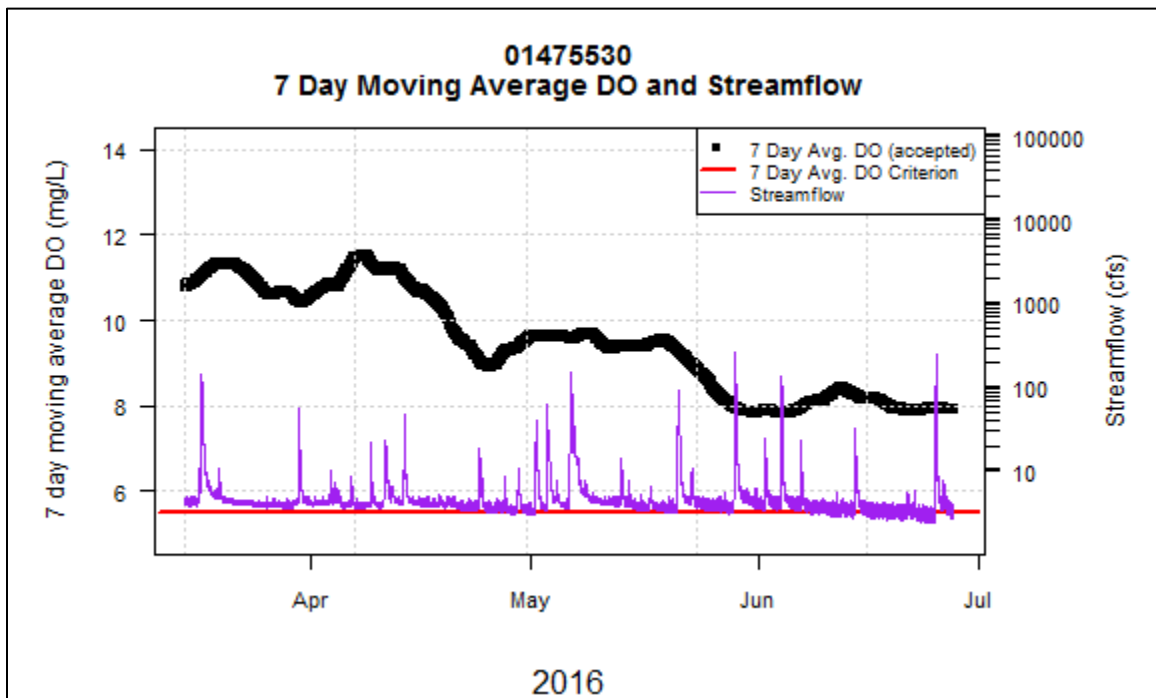


Figure 16. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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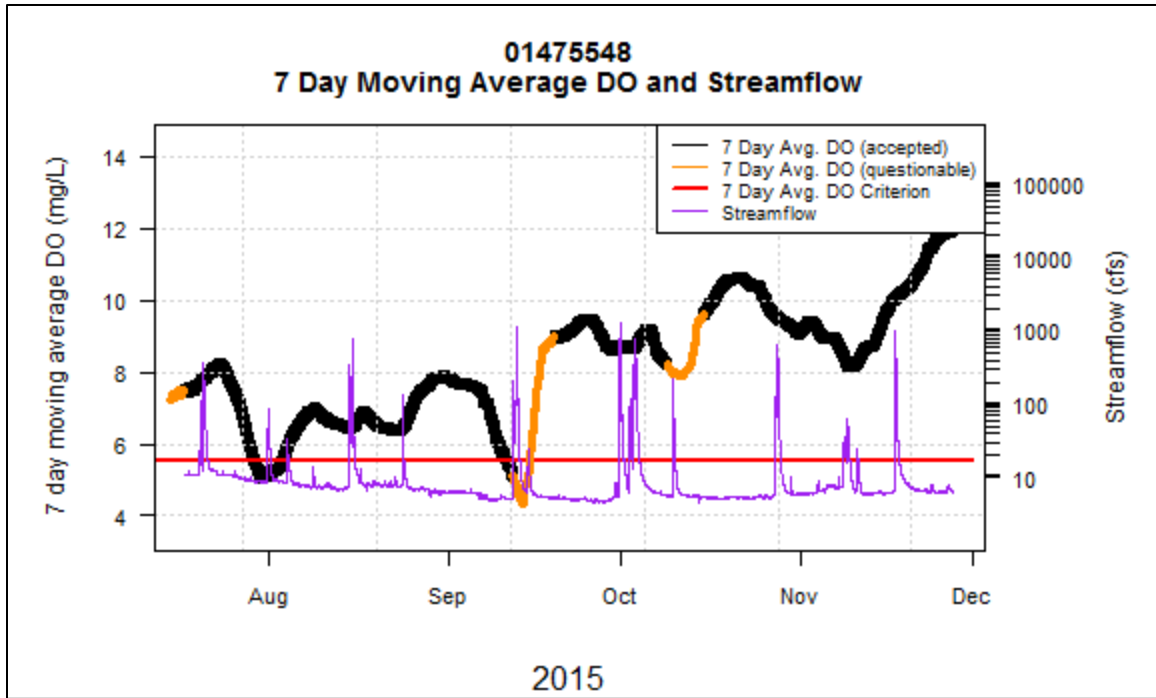


Figure 17. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

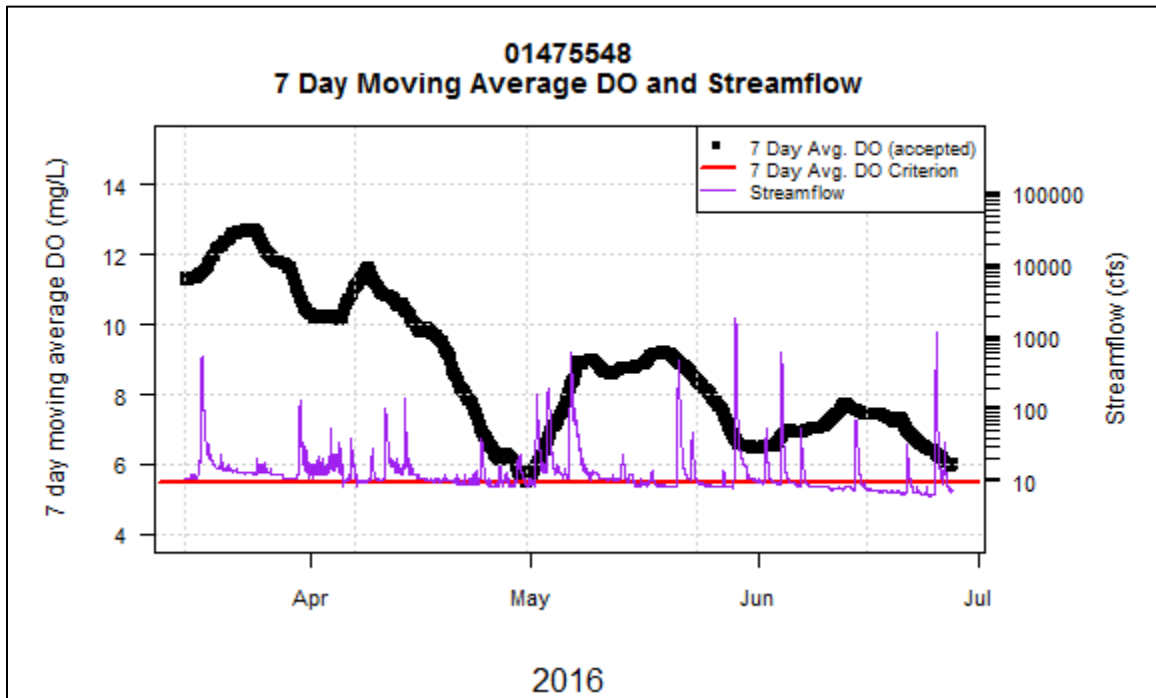


Figure 18. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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Table 25. Gage 01475530 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	30.0	3.2	7.5	8.6	8.0
Aug-15	WWF	22.0	29.0	7.4	8.7	8.0
Sep-15	WWF	29.0	3.3	7.0	9.2	8.1
Oct-15	WWF	31.0	0.0	8.3	11.3	9.8
Nov-15	WWF	30.0	0.0	8.6	12.0	10.3
Mar-16	WWF	23.0	25.7	10.1	12.0	11.0
Apr-16	WWF	29.0	3.3	8.2	12.4	10.3
May-16	WWF	30.0	3.2	7.7	9.9	9.1
Jun-16	WWF	28.0	6.7	7.6	8.6	8.0

Table 26. Gage 01475548 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	21.0	32.3	3.9	8.7	7.1
Aug-15	WWF	28.0	9.7	4.8	8.2	6.7
Sep-15	WWF	21.0	30.0	2.7	9.7	7.5
Oct-15	WWF	26.0	16.1	7.1	11.2	9.5
Nov-15	WWF	27.0	10.0	7.0	12.4	10.1
Mar-16	WWF	18.0	24.9	10.4	13.3	11.8
Apr-16	WWF	29.0	3.3	4.7	12.4	8.9
May-16	WWF	27.0	12.9	4.4	9.5	8.2
Jun-16	WWF	29.0	3.3	4.4	8.3	6.9

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Table 27. Gage 01475530 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.5	7.5
Aug-15	715.5	29.8	3.8	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.7	7.7
Sep-15	719.0	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.6	7.6
Oct-15	744.0	31.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.2	7.5
Nov-15	720.0	30.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.1	7.8	7.4
Mar-16	586.0	24.4	21.1	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.8	7.6
Apr-16	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.2	9.0	7.7
May-16	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.1	7.9	7.5
Jun-16	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.1	7.4

Table 28. Gage 01475548 pH Criteria Summary Results by Month

Month	total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	725.0	30.2	2.6	0.0	0.0	0.0	0.0	100.0	100.0	6.7	8.8	7.5
Aug-15	740.0	30.8	0.5	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.2	7.5
Sep-15	612.0	25.5	15.0	0.0	0.0	0.0	0.0	100.0	100.0	6.6	8.9	7.8
Oct-15	677.5	28.2	8.9	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.6	7.8
Nov-15	717.0	29.9	0.4	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.4	7.8
Mar-16	572.5	23.9	0.4	17.6	66.7	0.0	0.0	82.4	33.3	7.5	9.5	8.4
Apr-16	718.5	29.9	0.2	3.3	20.0	0.0	0.0	96.7	80.0	7.3	9.3	7.9
May-16	500.0	20.8	32.8	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.2	7.5
Jun-16	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.2	7.4

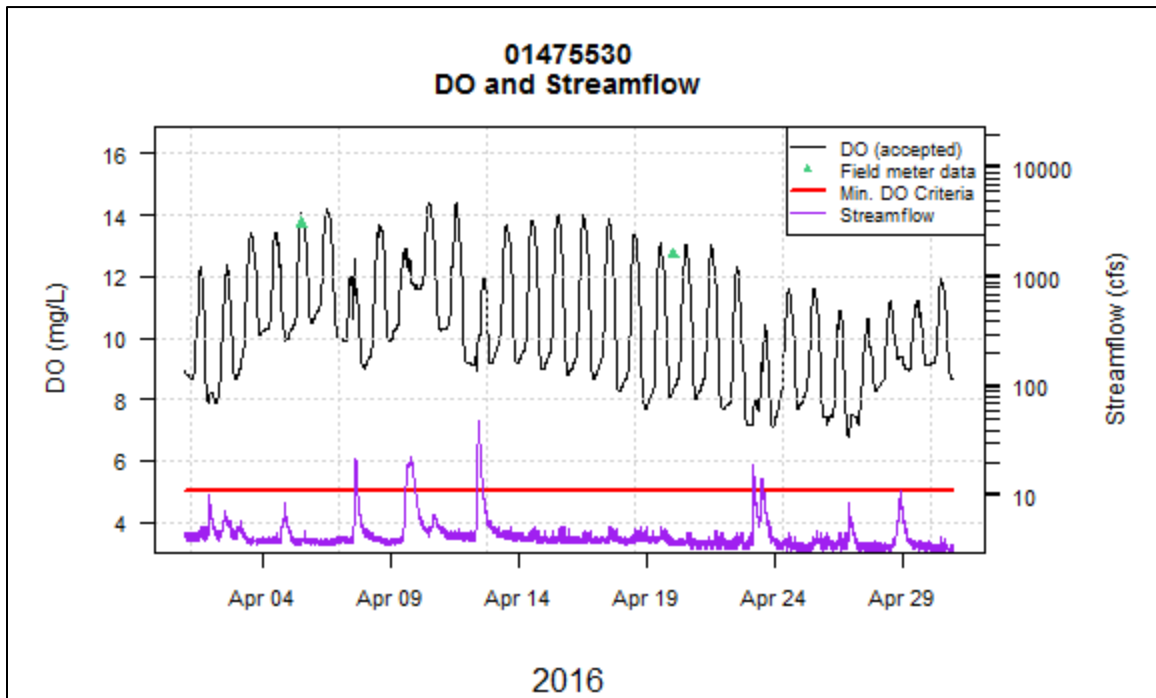


Figure 19. Gage 01475530, Dissolved Oxygen and Streamflow, April 2016.

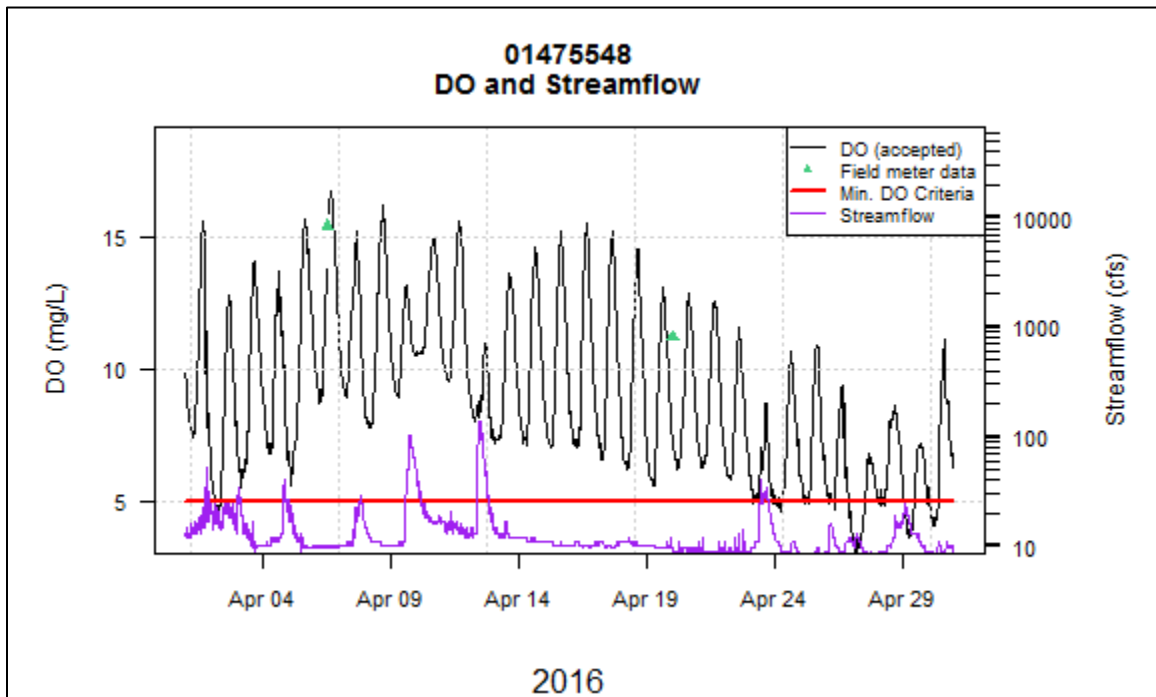


Figure 20. Gage 01475548, Dissolved Oxygen and Streamflow, April 2016.

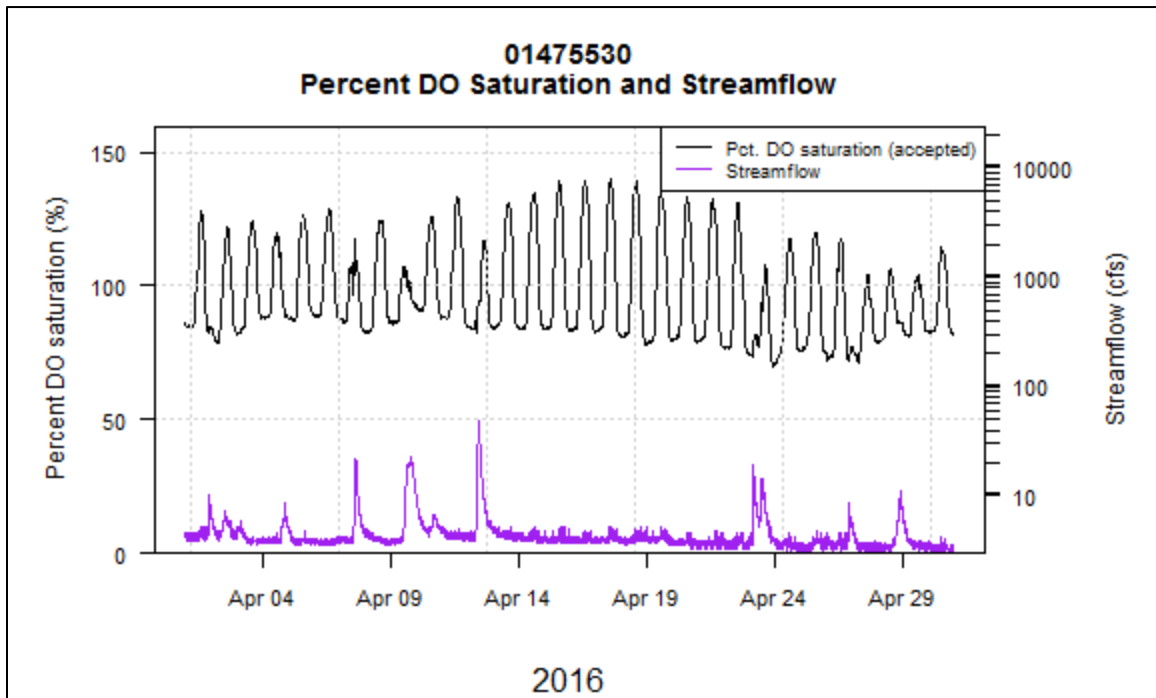


Figure 21. Gage 01475530, Percent DO Saturation and Streamflow, April 2016.

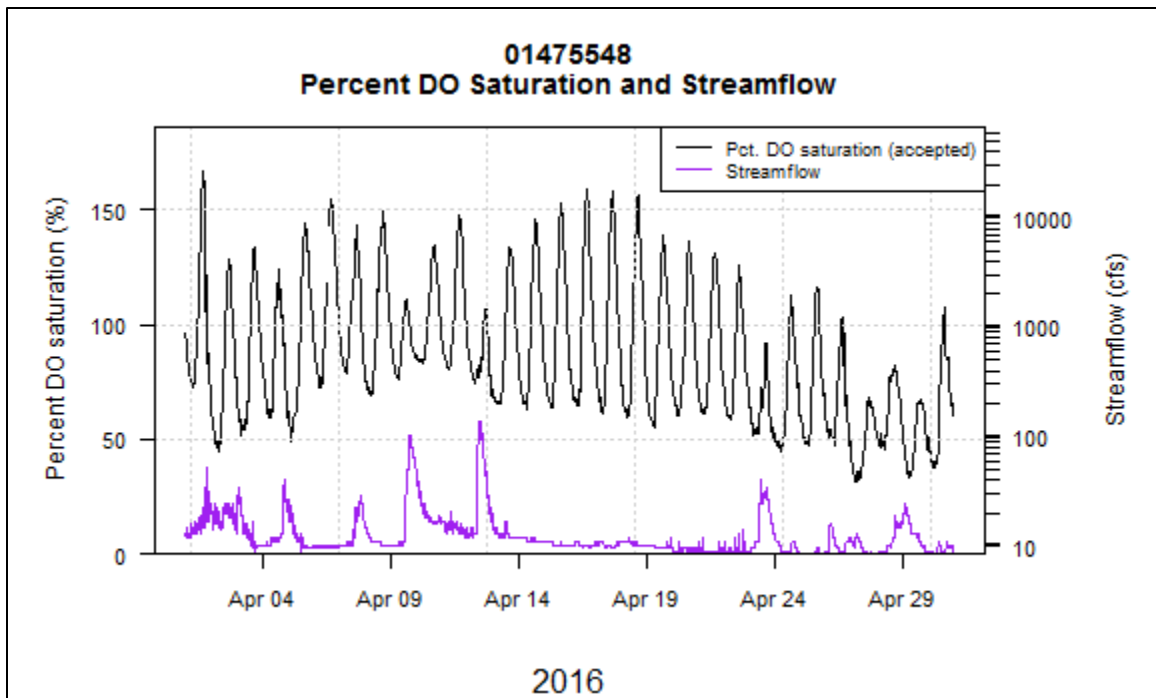


Figure 22. Gage 01475548, Percent DO Saturation and Streamflow, April 2016.



Figure 23. Gage 01475530, Cobbs Creek at Rte. 1, looking upstream



Figure 24. Gage 01475548, Cobbs Creek at Mt. Moriah Cemetery

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Specific Conductance

Specific conductance observations were similar to those observed in Tacony Creek, with the exception of consistently higher conductance observed at the downstream gage 01475548 (Tables 29-30). Road salt may have had some impact on conductance at the upstream gage in March. However, the typical pattern of stormwater lowering conductance levels in the stream is well-observed during the storms that occurred in June (Figures 25-26).

Table 29. Gage 01475530 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	742.0	30.9	0.3	71.0	576.0	520.2
Aug-15	716.5	29.9	3.7	93.0	593.0	544.3
Sep-15	719.0	30.0	0.1	64.0	585.0	517.5
Oct-15	744.0	31.0	0.0	81.0	572.0	498.0
Nov-15	720.0	30.0	0.0	90.0	645.0	523.6
Mar-16	586.0	24.4	21.1	167.0	718.0	604.7
Apr-16	718.5	29.9	0.2	244.0	1000.0	574.6
May-16	743.0	31.0	0.1	73.0	601.0	513.2
Jun-16	717.5	29.9	0.3	98.0	605.0	547.9

Table 30. Gage 01475548 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	727.0	30.3	2.3	178.0	768.0	616.1
Aug-15	739.5	30.8	0.6	132.0	774.0	674.6
Sep-15	709.0	29.5	1.5	129.0	799.0	665.0
Oct-15	742.0	30.9	0.3	117.0	771.0	590.1
Nov-15	718.5	29.9	0.2	138.0	755.0	643.8
Mar-16	573.5	23.9	0.3	249.0	879.0	660.3
Apr-16	718.5	29.9	0.2	422.0	807.0	672.9
May-16	737.5	30.7	0.9	49.0	753.0	571.4
Jun-16	718.5	29.9	0.2	110.0	750.0	622.4

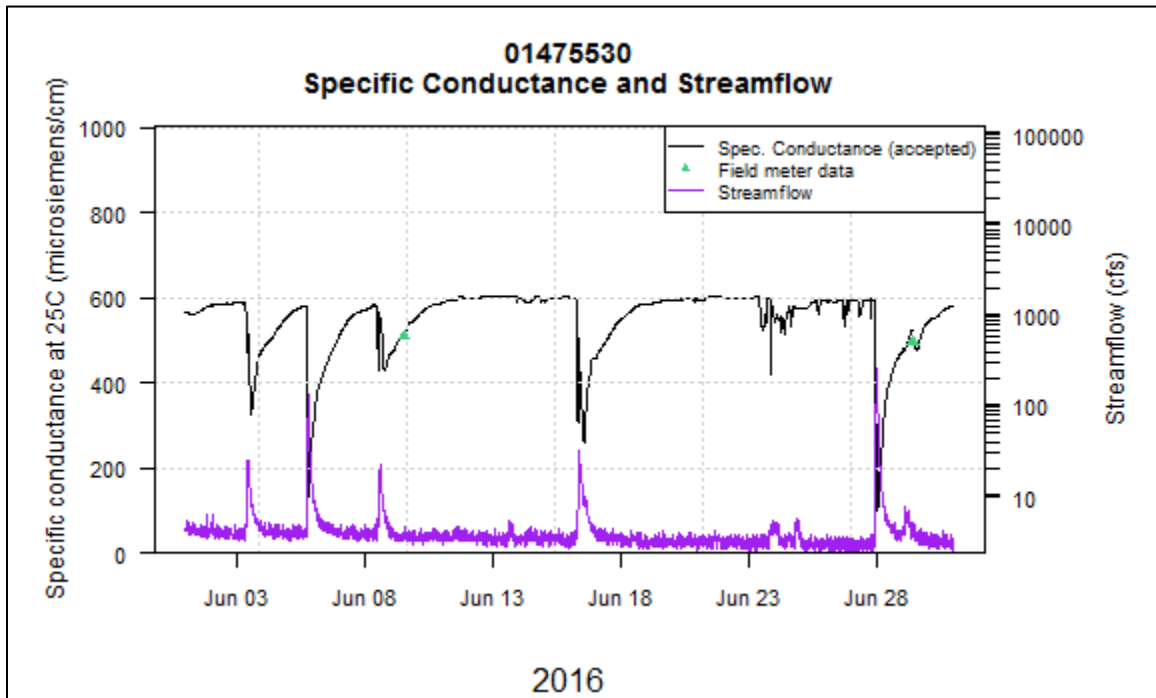


Figure 25. Gage 01475530, Specific Conductance and Streamflow, June 2016.

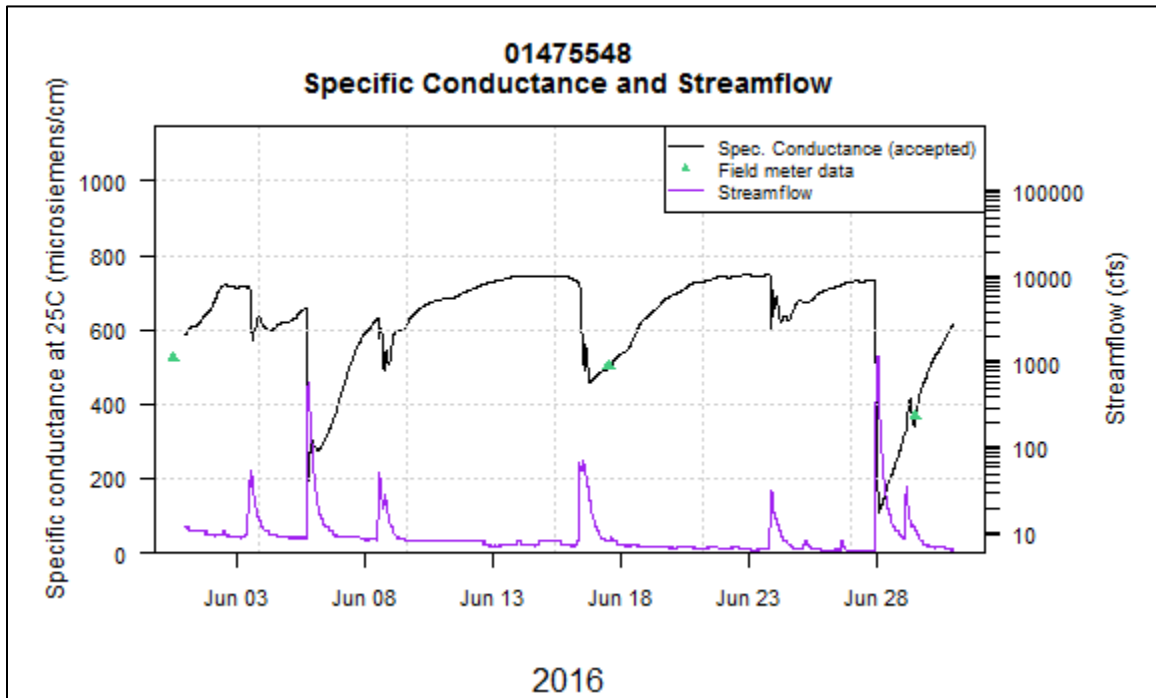


Figure 26. Gage 01475548, Specific Conductance and Streamflow, June 2016.

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Temperature

As was also observed in Tacony Creek, slightly higher temperatures were usually recorded at the downstream gage in Cobbs Creek, resulting in more frequent exceedance of temperature maximum criteria at the downstream gage from November to May (Tables 31-32).

Table 31. Gage 01475530 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	0.1	743.0	31.0	18.5	26.6	22.0
WWF	1-Aug	15-Aug	0.0	100.0	1.9	353.0	14.7	18.0	25.7	21.9
WWF	16-Aug	31-Aug	0.0	100.0	5.1	364.5	15.2			
WWF	1-Sep	15-Sep	0.0	100.0	0.0	360.0	15.0	15.9	25.0	20.2
WWF	16-Sep	30-Sep	0.0	100.0	0.3	359.0	15.0			
WWF	1-Oct	15-Oct	0.0	100.0	0.0	360.0	15.0	7.8	20.0	13.4
WWF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	17.9	82.1	0.0	360.0	15.0	4.9	16.8	10.6
WWF	16-Nov	30-Nov	23.9	76.1	0.0	360.0	15.0			
WWF	1-Mar	31-Mar	91.0	9.0	21.2	586.0	24.4	5.6	16.6	11.0
WWF	1-Apr	15-Apr	45.7	54.3	0.4	358.5	14.9	4.4	20.5	12.7
WWF	16-Apr	30-Apr	53.9	46.1	0.0	360.0	15.0			
WWF	1-May	15-May	0.6	99.4	0.0	360.0	15.0	10.4	24.7	15.5
WWF	16-May	31-May	11.1	88.9	0.1	383.5	15.9			
WWF	1-Jun	15-Jun	0.0	100.0	0.3	359.0	15.0	15.0	24.6	20.4
WWF	16-Jun	30-Jun	0.0	100.0	0.3	359.0	15.0			

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Table 32. Gage 01475548 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	2.1	728.5	30.4	20.1	28.1	23.7
WWF	1-Aug	15-Aug	0.0	100.0	1.1	356.0	14.8	19.5	26.9	23.3
WWF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.0	360.0	15.0	16.9	26.4	21.2
WWF	16-Sep	30-Sep	0.0	100.0	2.5	351.0	14.6			
WWF	1-Oct	15-Oct	0.0	100.0	0.7	357.5	14.9	8.2	21.3	13.7
WWF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	18.0	82.0	0.7	357.5	14.9	4.7	16.7	10.5
WWF	16-Nov	30-Nov	17.1	82.9	0.1	359.5	15.0			
WWF	1-Mar	31-Mar	91.0	9.0	0.0	573.5	23.9	5.9	16.7	11.2
WWF	1-Apr	15-Apr	50.9	49.1	0.4	358.5	14.9	4.8	20.4	13.4
WWF	16-Apr	30-Apr	65.0	35.0	0.0	360.0	15.0			
WWF	1-May	15-May	2.8	97.2	0.0	360.0	15.0	11.6	25.8	16.3
WWF	16-May	31-May	21.2	78.8	1.6	378.0	15.8			
WWF	1-Jun	15-Jun	0.0	100.0	0.0	360.0	15.0	16.7	25.7	22.0
WWF	16-Jun	30-Jun	0.0	100.0	0.3	359.0	15.0			

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 daily DO amplitudes at times nearly 10 mg/L during April (Figures 31-32).

In April, maximum daily pH fluctuations of approximately 1.5 units were observed (Figures 33-34). Maximum pH criteria exceedance occurred mainly at the lower gage in both the spring and late summer. It would be reasonable to conclude that if not for periodic interruptions of algal activity due to rainfall, those extreme 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 storms occurring in April 2016, both DO and pH showed the typical pronounced fluctuations indicative of strong algal activity. This stopped abruptly with the storms, when much of the algae was likely scoured away and overcast

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Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary

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conditions likely inhibited further growth, as indicated by the PAR data at 01467048 for April 2016 (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 33. Gage 01467042 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	TSF	743.0	31.0	0.1	0.0	100.0	5.6	10.8	7.6
Aug-15	TSF	743.0	31.0	0.1	0.0	100.0	5.2	11.1	7.6
Sep-15	TSF	668.0	27.8	7.2	0.1	99.9	4.5	10.8	8.1
Oct-15	TSF	742.5	30.9	0.2	0.0	100.0	6.3	12.1	9.4
Nov-15	TSF	588.5	24.5	18.3	0.0	100.0	6.6	12.1	9.4
Mar-16	TSF	730.0	30.4	0.1	0.0	100.0	8.0	17.8	11.5
Apr-16	TSF	718.5	29.9	0.2	0.0	100.0	5.7	16.8	9.5
May-16	TSF	638.0	26.6	14.2	0.0	100.0	6.0	12.1	8.9
Jun-16	TSF	718.0	29.9	0.3	0.0	100.0	5.9	12.6	7.9

Table 34. Gage 01467048 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	TSF	742.0	30.9	0.3	0.0	100.0	5.6	14.4	8.3
Aug-15	TSF	740.0	30.8	0.5	0.0	100.0	6.0	14.4	8.0
Sep-15	TSF	717.5	29.9	0.3	0.0	100.0	5.1	14.2	8.5
Oct-15	TSF	741.5	30.9	0.3	0.0	100.0	7.7	14.5	10.2
Nov-15	TSF	718.0	29.9	0.3	0.0	100.0	7.6	14.1	10.6
Mar-16	TSF	739.0	30.8	0.5	0.2	99.8	4.1	17.9	11.6
Apr-16	TSF	717.5	29.9	0.3	0.0	100.0	5.1	19.1	9.8
May-16	TSF	741.0	30.9	0.4	0.0	100.0	5.9	13.7	9.2
Jun-16	TSF	514.5	21.4	28.5	0.0	100.0	6.0	12.9	8.1

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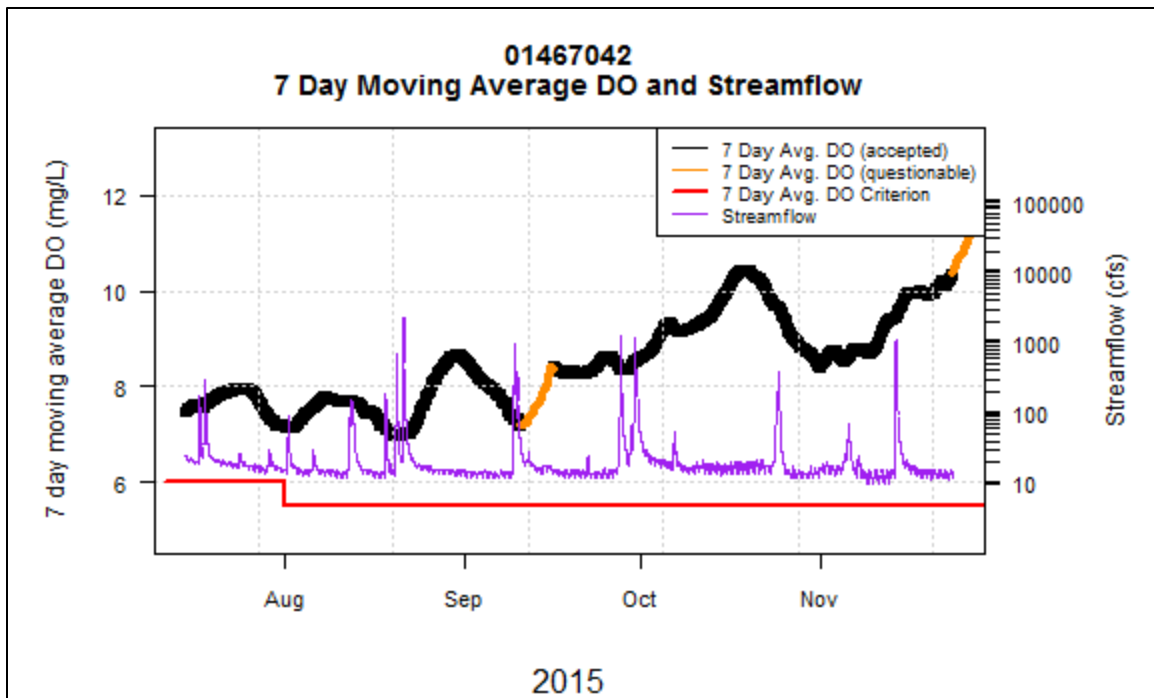


Figure 27. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

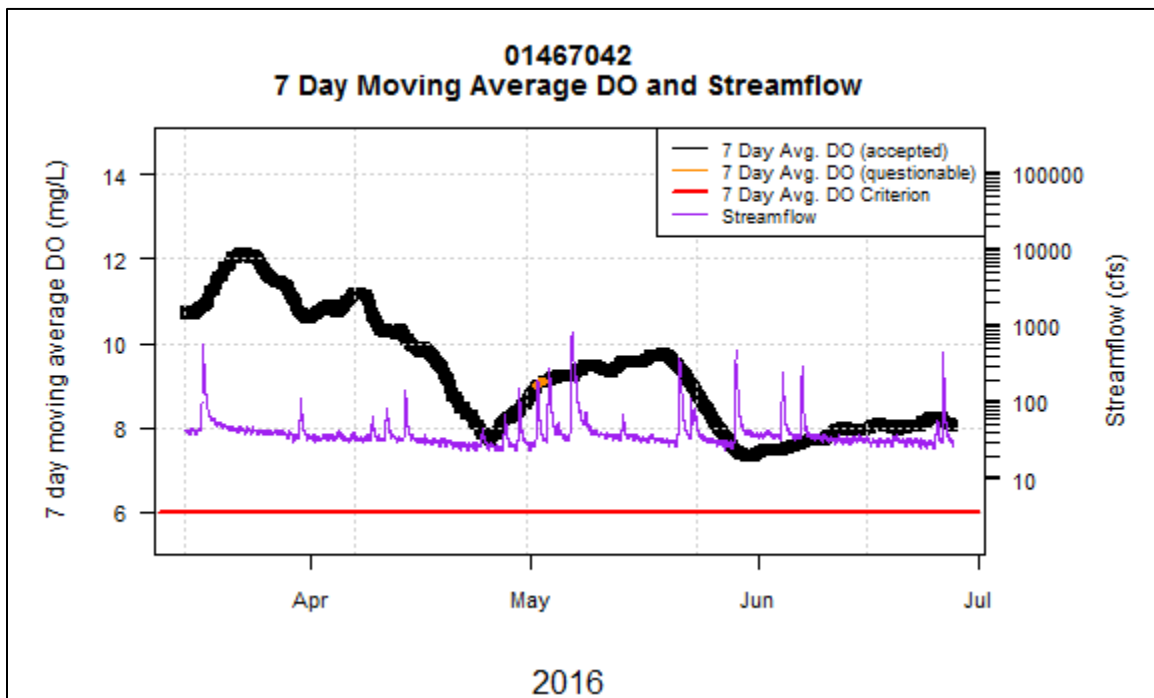


Figure 28. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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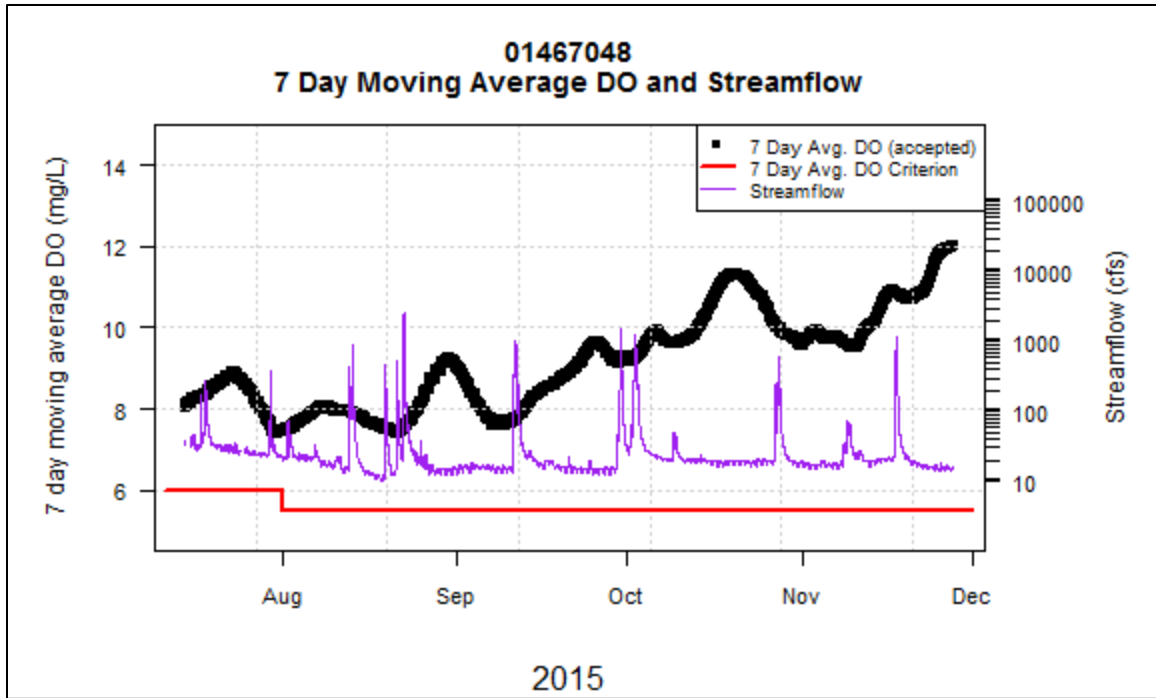


Figure 29. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

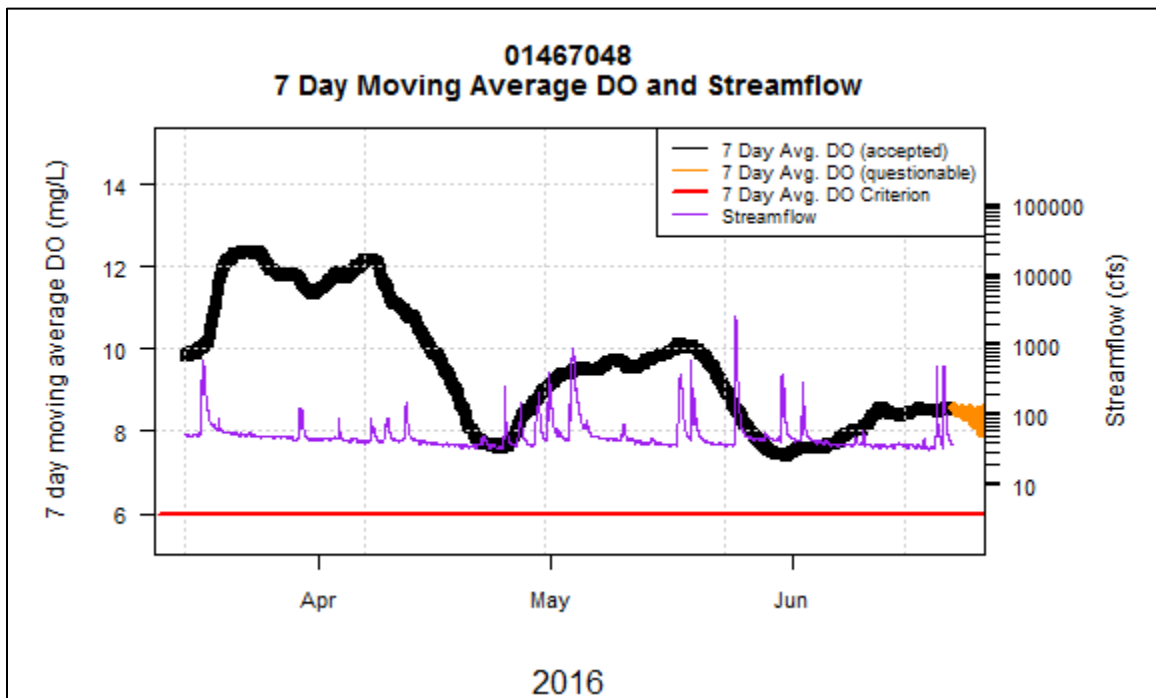


Figure 30. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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Table 35. Gage 01467042 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	TSF	30.0	3.2	6.8	8.5	7.6
Aug-15	TSF	30.0	3.2	5.8	9.1	7.6
Sep-15	TSF	24.0	20.0	6.6	9.0	8.1
Oct-15	TSF	29.0	6.5	7.6	11.0	9.4
Nov-15	TSF	24.0	20.0	7.6	11.4	9.4
Mar-16	TSF	28.0	8.1	9.9	12.6	11.5
Apr-16	TSF	29.0	3.3	7.0	12.4	9.5
May-16	TSF	25.0	19.3	6.9	10.1	8.9
Jun-16	TSF	28.0	6.7	7.0	8.8	7.9

Table 36. Gage 01467048 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	TSF	28.0	9.7	7.0	9.4	8.3
Aug-15	TSF	28.0	9.7	7.2	9.8	8.1
Sep-15	TSF	28.0	6.7	7.0	10.1	8.6
Oct-15	TSF	29.0	6.5	8.8	12.0	10.2
Nov-15	TSF	28.0	6.7	8.7	12.5	10.6
Mar-16	TSF	28.0	9.6	6.0	12.9	11.7
Apr-16	TSF	27.0	10.0	6.5	13.6	10.0
May-16	TSF	26.0	16.1	7.2	10.6	9.1
Jun-16	TSF	19.0	36.7	7.1	8.8	8.2

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Table 37. Gage 01467042 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hours max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.3	7.6
Aug-15	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.6	7.6
Sep-15	719.0	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.2	8.5	7.7
Oct-15	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.0	7.7
Nov-15	591.5	24.6	17.8	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.9	7.6
Mar-16	730.0	30.4	0.1	2.6	16.1	0.0	0.0	97.4	83.9	7.3	9.2	7.9
Apr-16	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.2	8.9	7.7
May-16	653.0	27.2	12.2	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.9	7.4
Jun-16	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.6	7.5

Table 38. Gage 01467048 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.6	8.9	7.5
Aug-15	740.0	30.8	0.5	1.4	6.5	0.0	0.0	98.6	93.5	6.8	9.2	7.5
Sep-15	717.5	29.9	0.3	0.5	6.7	0.0	0.0	99.5	93.3	7.1	9.1	7.9
Oct-15	741.5	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.9	8.0
Nov-15	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.6	7.7
Mar-16	738.0	30.8	0.7	5.0	25.8	0.0	0.0	95.0	74.2	6.9	9.4	8.1
Apr-16	716.5	29.9	0.5	1.2	10.0	0.0	0.0	98.8	90.0	7.1	9.2	7.8
May-16	740.0	30.8	0.5	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.6	7.5
Jun-16	512.5	21.4	28.8	0.0	0.0	0.0	0.0	100.0	100.0	7.2	8.9	7.6

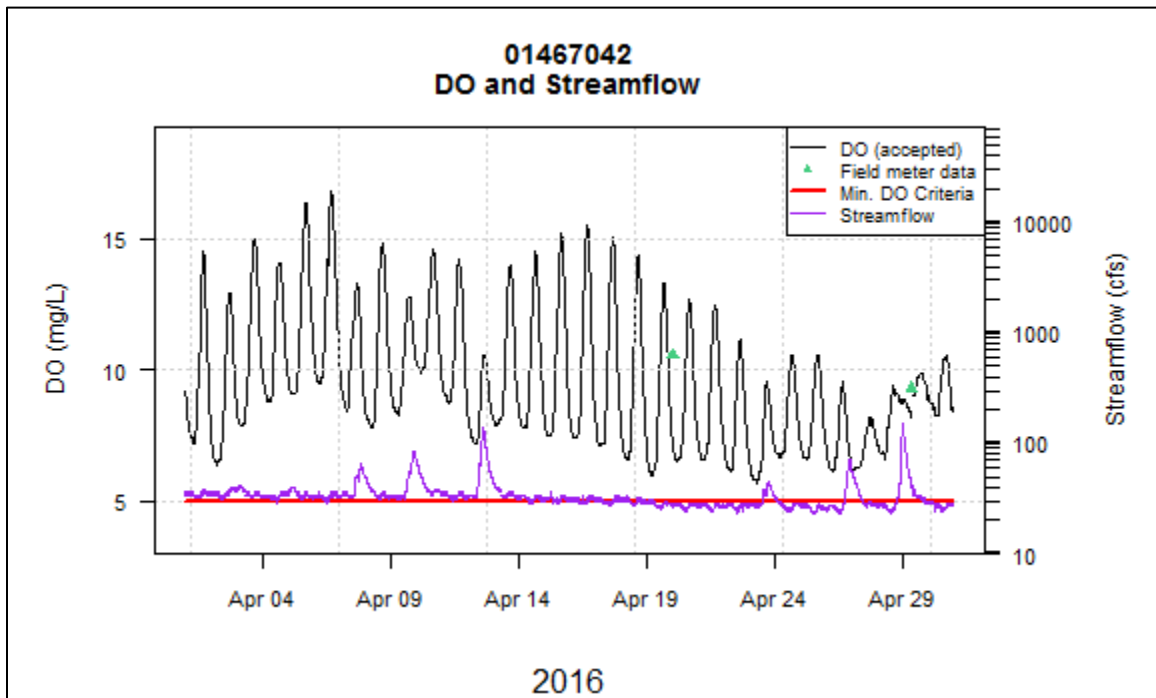


Figure 31. Gage 01467042, Dissolved Oxygen and Streamflow, April 2016.

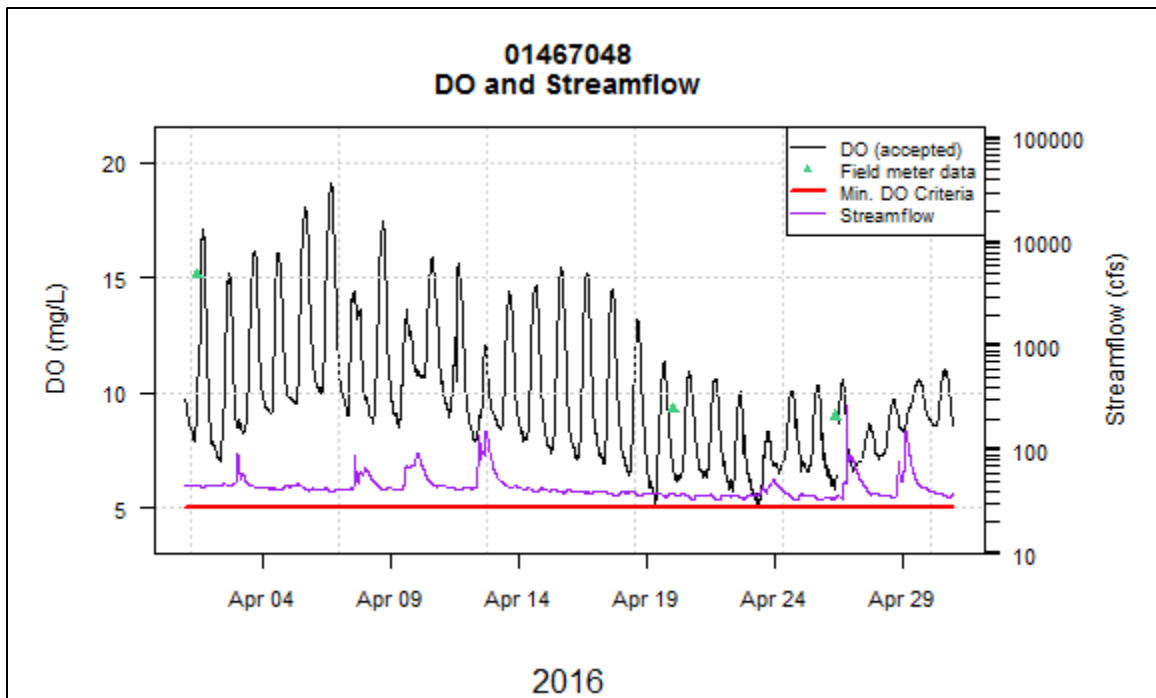


Figure 32. Gage 01467048, Dissolved Oxygen and Streamflow, April 2016.

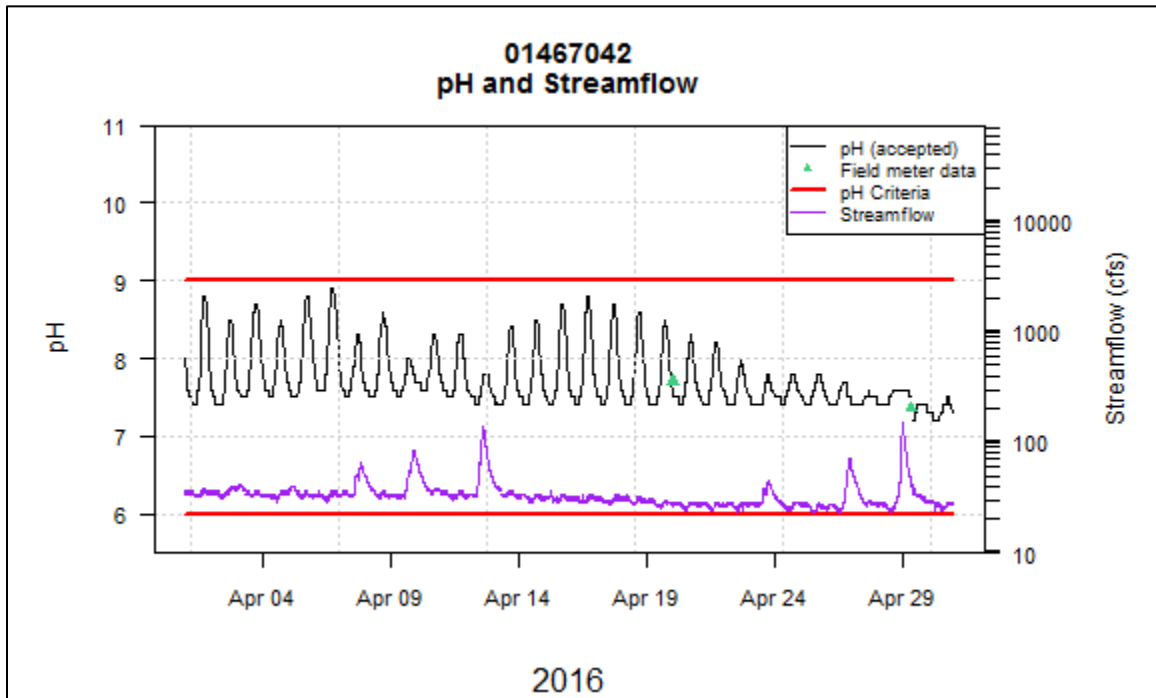


Figure 33. Gage 01467042, pH and Streamflow, April 2016.

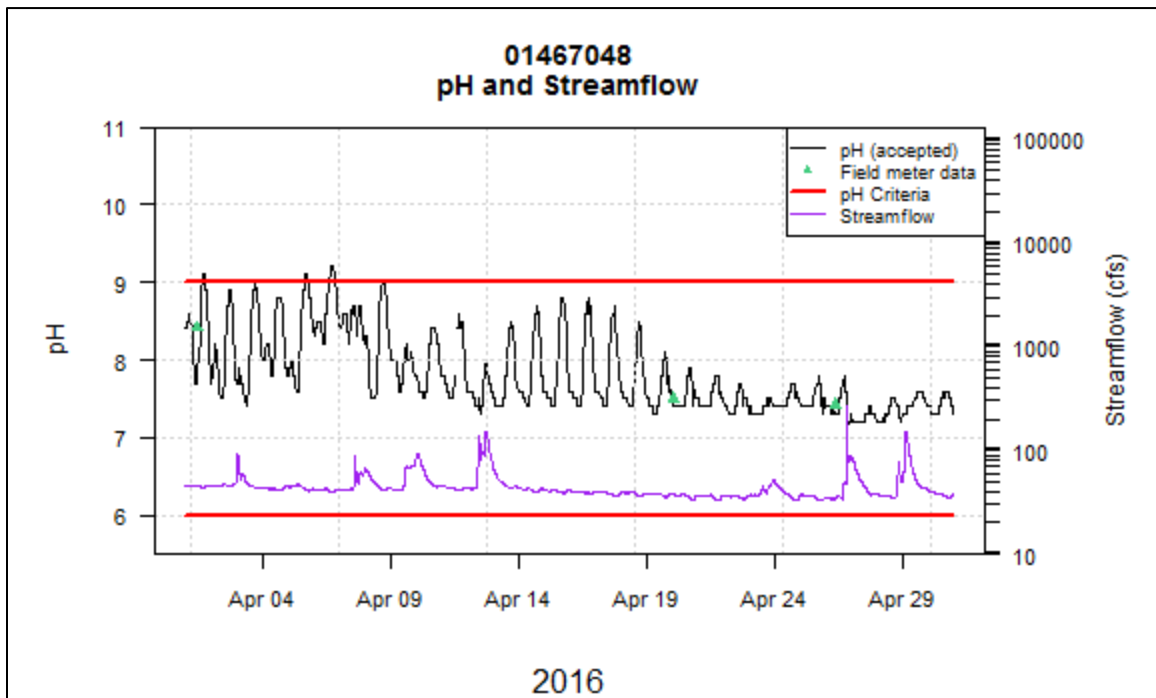


Figure 34. Gage 01467048, pH and Streamflow, April 2016.

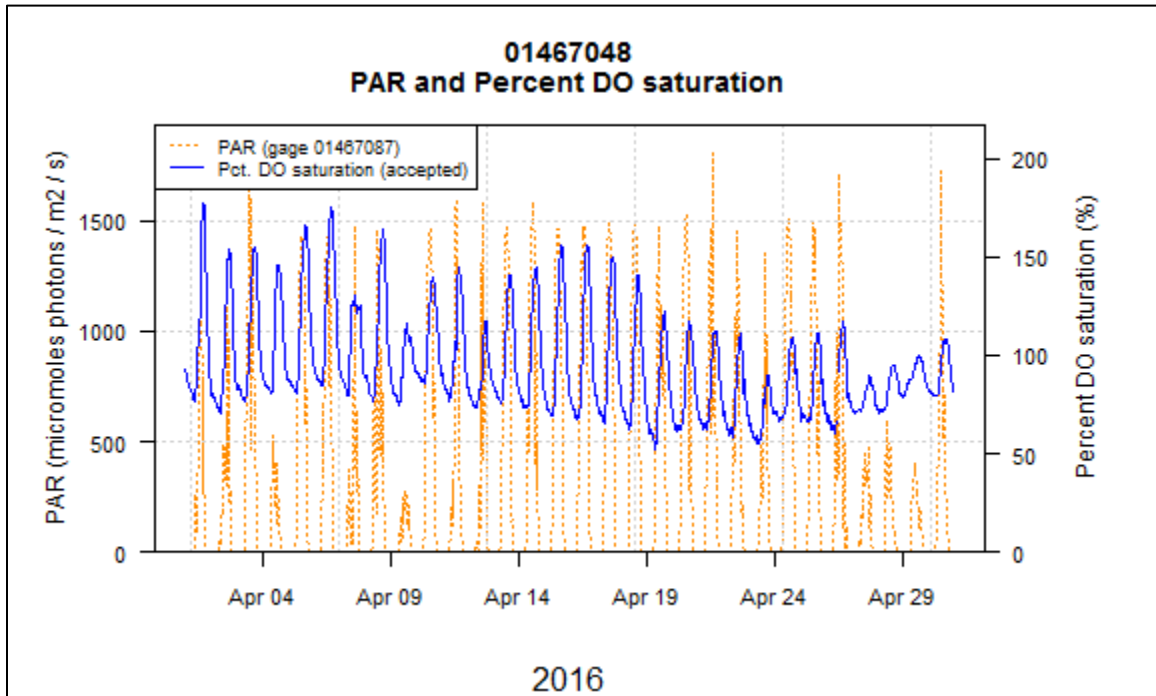


Figure 35. Gage 01467048, PAR and Percent Dissolved Oxygen Saturation, April 2016.



Figure 36. Gage 01467042, Pennypack Creek at Pine Rd., looking upstream



Figure 37. Gage 01467048, Pennypack Creek at Lower Rhawn St. Bridge, looking upstream

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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 higher turbidity values throughout the year (Tables 39-40).

In June, the significant amount of flagged data at both gages was due to periods during the month when each sonde was reporting 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 39. Gage 01467042, Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	640.5	26.7	13.9	23.7	76.3	0.0	400.0	6.0
Aug-15	742.5	30.9	0.2	27.3	72.7	0.0	490.0	7.8
Sep-15	711.0	29.6	1.3	18.1	81.9	0.0	200.0	5.6
Oct-15	671.5	28.0	9.7	19.6	80.4	0.1	76.0	2.9
Nov-15	587.0	24.5	18.5	19.3	80.7	0.3	130.0	3.1
Mar-16	630.5	26.3	13.7	16.6	83.3	0.3	110.0	4.5
Apr-16	711.5	29.6	1.2	16.8	83.2	0.3	13.0	1.6
May-16	637.0	26.5	14.3	29.9	70.1	0.3	130.0	5.3
Jun-16	539.5	22.4	25.1	18.4	81.6	0.2	150.0	3.2

Table 40. Gage 01467048, Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	740.5	30.9	0.5	55.4	44.6	0.7	320.0	8.5
Aug-15	680.5	28.4	8.5	38.6	61.4	1.2	570.0	10.7
Sep-15	716.5	29.9	0.5	18.0	82.0	0.9	190.0	5.9
Oct-15	741.5	30.9	0.3	42.4	57.6	0.9	92.0	4.5
Nov-15	718.0	29.9	0.3	46.4	53.6	1.1	150.0	5.3
Mar-16	693.5	28.9	6.7	84.6	15.4	0.4	410.0	10.6
Apr-16	678.5	28.3	5.8	44.3	55.7	0.6	80.0	3.4
May-16	641.0	26.7	13.8	50.2	49.8	0.1	230.0	9.3
Jun-16	456.0	19.0	36.7	38.2	61.8	0.9	80.0	4.8

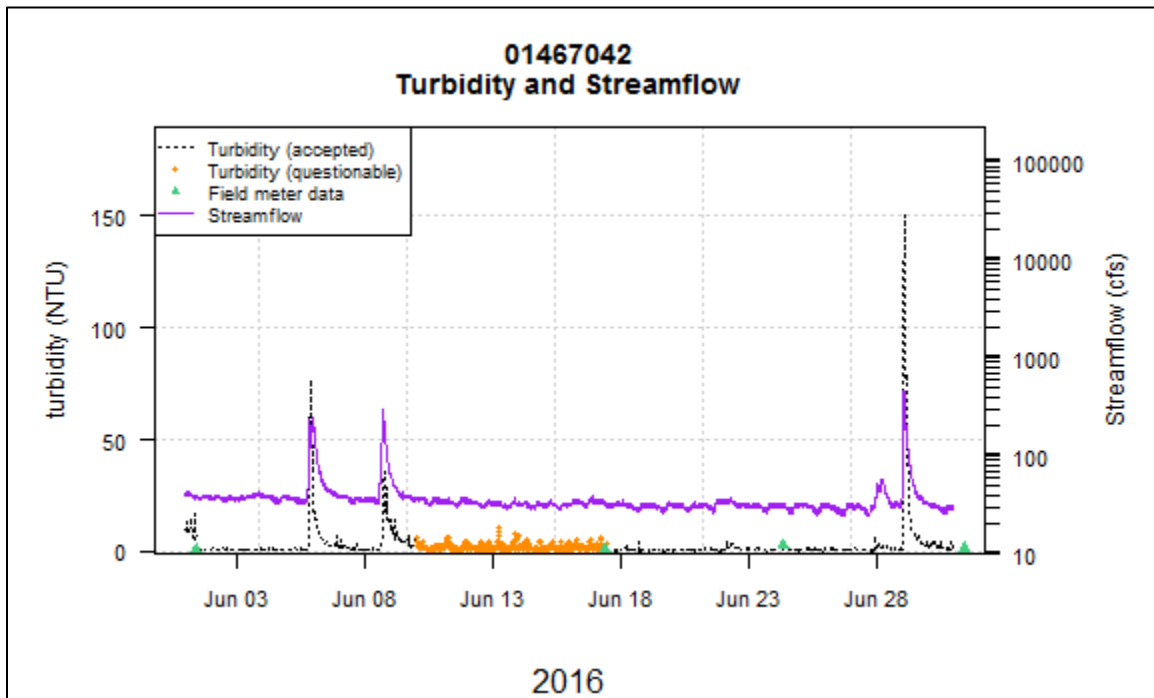


Figure 38. Gage 01467042, Turbidity and Streamflow, June 2016.

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Specific Conductance

Specific conductance data were similar to other Philadelphia area streams. Elevated mean and maximum conductance values at both gages in March may be evidence of the effects of stormwater runoff and snowmelt containing road salt.

Table 41. Gage 01467042 Specific Conductance Summary Results by Month

Month	Total hours accepted data	Total days accepted data	Percent hours flagged data	Min.	Max.	Mean
Jul-15	743.0	31.0	0.1	181.0	815.0	643.3
Aug-15	743.0	31.0	0.1	102.0	846.0	651.1
Sep-15	718.5	29.9	0.2	166.0	871.0	733.1
Oct-15	742.5	30.9	0.2	155.0	830.0	673.7
Nov-15	590.0	24.6	18.1	190.0	796.0	647.7
Mar-16	730.0	30.4	0.1	468.0	932.0	750.1
Apr-16	718.5	29.9	0.2	543.0	893.0	737.4
May-16	653.0	27.2	12.2	213.0	773.0	625.1
Jun-16	717.5	29.9	0.3	235.0	802.0	683.8

Table 42. Gage 01467048 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	742.0	30.9	0.3	112.0	781.0	576.9
Aug-15	740.0	30.8	0.5	107.0	804.0	563.0
Sep-15	717.5	29.9	0.3	131.0	826.0	671.2
Oct-15	741.5	30.9	0.3	153.0	801.0	611.5
Nov-15	717.5	29.9	0.3	218.0	754.0	624.3
Mar-16	737.5	30.7	0.7	383.0	892.0	739.3
Apr-16	716.5	29.9	0.5	387.0	844.0	721.0
May-16	740.0	30.8	0.5	118.0	750.0	561.3
Jun-16	512.5	21.4	28.8	351.0	794.0	660.9

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Temperature

Temperature data showed variable attainment of maximum temperature criteria (Tables 43-44). 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 high stream temperature exceedance rates in July 2015 (Figures 39-40).

Table 43. Gage 01467042 Temperature Summary Results by Maximum Criteria Period

Des. Use	Date range start	Date range end	Percent hours exceedance	Percent hours attaining	Percent hours flagged data	Total hours accepted data	Total days accepted data	Min.	Max.	Mean
TSF	1-Jul	31-Jul	57.4	42.6	0.1	743.0	31.0	19.7	27.5	23.3
TSF	1-Aug	15-Aug	0.0	100.0	0.3	359.0	15.0	19.1	26.5	22.9
TSF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
TSF	1-Sep	15-Sep	0.0	100.0	0.1	359.5	15.0	16.8	25.3	20.9
TSF	16-Sep	30-Sep	0.0	100.0	0.1	359.5	15.0			
TSF	1-Oct	15-Oct	0.0	100.0	0.3	359.0	15.0	7.7	21.4	13.6
TSF	16-Oct	31-Oct	0.0	100.0	0.1	383.5	16.0			
TSF	1-Nov	15-Nov	19.0	81.0	0.0	360.0	15.0	4.9	17.1	11.2
TSF	16-Nov	30-Nov	24.5	75.5	36.4	229.0	9.5			
TSF	1-Mar	31-Mar	79.6	20.4	0.3	730.0	30.4	4.4	16.4	10.4
TSF	1-Apr	15-Apr	45.8	54.2	0.0	360.0	15.0	5.7	19.8	13.2
TSF	16-Apr	30-Apr	64.9	35.0	0.4	358.5	14.9			
TSF	1-May	15-May	3.2	96.8	25.3	269.0	11.2	11.4	25.1	16.5
TSF	16-May	31-May	34.3	65.6	0.0	384.0	16.0			
TSF	1-Jun	15-Jun	43.8	56.2	0.4	358.5	14.9	15.7	25.2	21.6
TSF	16-Jun	30-Jun	63.6	36.4	0.3	359.0	14.9			

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Table 44. Gage 01467048, Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
TSF	1-Jul	31-Jul	74.2	25.8	0.9	737.0	30.7	20.8	29.8	24.4
TSF	1-Aug	15-Aug	8.3	91.7	1.8	353.5	14.7	19.8	28.6	24.0
TSF	16-Aug	31-Aug	0.0	100.0	3.3	371.5	15.5			
TSF	1-Sep	15-Sep	0.0	100.0	3.5	347.5	14.5	16.8	27.6	21.7
TSF	16-Sep	30-Sep	0.0	100.0	1.7	354.0	14.8			
TSF	1-Oct	15-Oct	0.0	100.0	1.9	353.0	14.7	7.9	21.7	13.8
TSF	16-Oct	31-Oct	0.0	100.0	2.6	374.0	15.6			
TSF	1-Nov	15-Nov	19.6	80.4	3.1	349.0	14.5	4.6	16.5	10.4
TSF	16-Nov	30-Nov	17.1	82.9	1.1	356.0	14.8			
TSF	1-Mar	31-Mar	77.4	22.6	0.8	738.0	30.8	4.2	17.0	10.4
TSF	1-Apr	15-Apr	53.6	46.4	0.3	359.0	15.0	5.8	20.8	13.7
TSF	16-Apr	30-Apr	79.5	20.5	0.4	358.5	14.9			
TSF	1-May	15-May	2.8	97.2	0.4	358.5	14.9	11.6	26.5	16.5
TSF	16-May	31-May	36.0	64.0	0.5	382.0	15.9			
TSF	1-Jun	15-Jun	72.7	27.3	6.8	335.5	14.0			
TSF	16-Jun	30-Jun	63.5	36.5	50.1	179.5	7.5	17.1	27.6	22.3

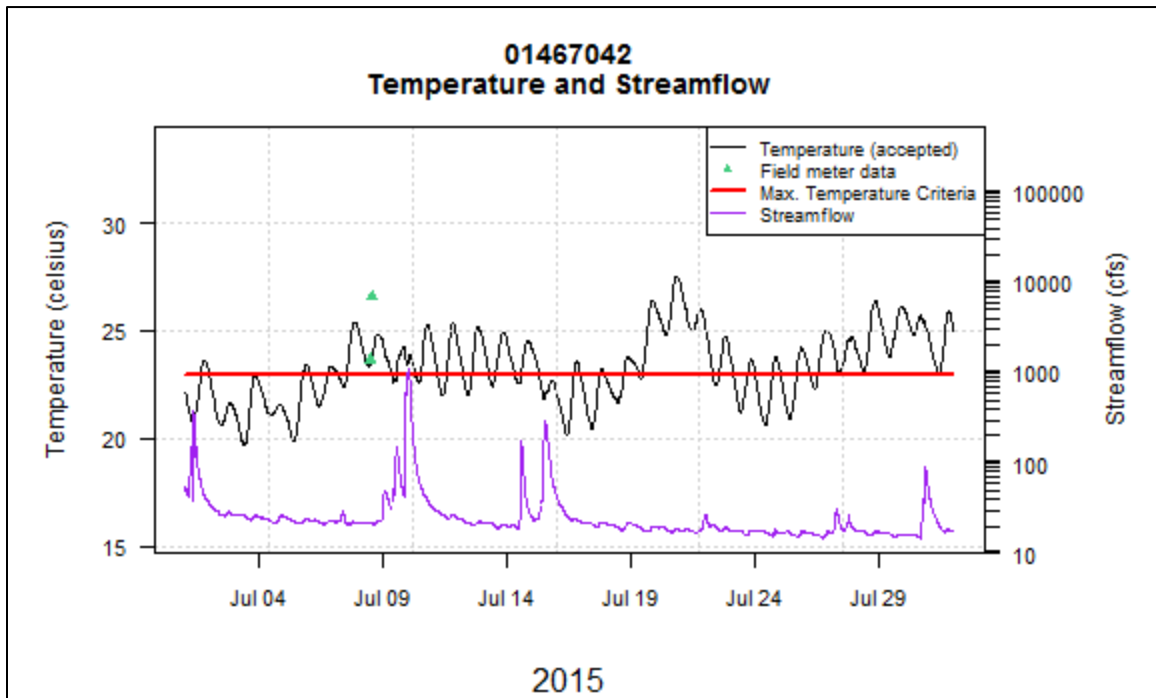


Figure 39. Gage 01467042, Temperature and Streamflow, July 2015.

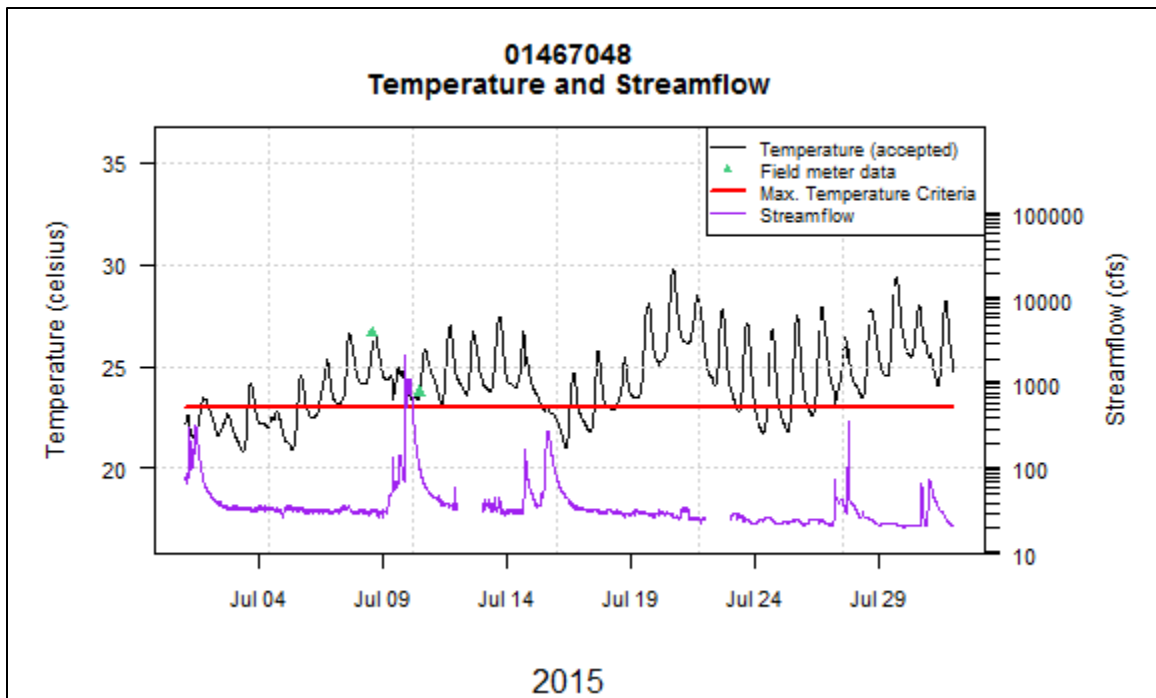
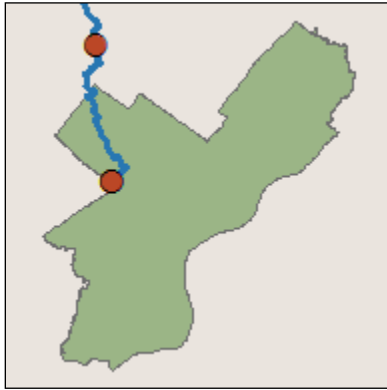


Figure 40. Gage 01467048, Temperature and Streamflow, July 2015.

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 April 2016, dissolved oxygen can be observed to fluctuate by approximately 12 mg/L in a single day/night period (Figure 45), with pH ranging from approximately 8.9 to 7.4 at the same time (Figure 46). The pH maxima was exceeded in March and April, a direct result of algal activity (Table 49).

Table 45. Gage 01473900 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	TSF	643.0	26.8	13.6	0.0	100.0	5.2	12.5	8.0
Aug-15	TSF	742.5	30.9	0.2	0.0	100.0	5.3	13.0	7.9
Sep-15	TSF	718.5	29.9	0.2	0.0	100.0	5.5	12.6	8.3
Oct-15	TSF	743.0	31.0	0.1	0.0	100.0	6.7	13.9	9.3
Nov-15	TSF	720.0	30.0	0.0	0.0	100.0	5.7	16.2	10.2
Mar-16	TSF	561.5	23.4	0.3	0.0	100.0	6.8	20.6	12.1
Apr-16	TSF	717.5	29.9	0.3	0.0	100.0	5.1	20.3	9.8
May-16	TSF	743.0	31.0	0.1	0.0	100.0	5.9	12.3	8.9
Jun-16	TSF	718.5	29.9	0.2	0.0	100.0	5.4	12.9	7.9

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Table 46. Gage 01474000 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	TSF	715.5	29.8	3.8	0.0	100.0	6.5	12.6	8.7
Aug-15	TSF	740.5	30.9	0.5	0.0	100.0	6.7	13.2	8.8
Sep-15	TSF	716.0	29.8	0.6	0.0	100.0	7.1	13.7	9.1
Oct-15	TSF	742.5	30.9	0.2	0.0	100.0	8.1	13.1	10.2
Nov-15	TSF	719.0	30.0	0.1	0.0	100.0	8.6	13.5	10.8
Mar-16	TSF	742.0	30.9	0.1	0.0	100.0	8.9	15.0	11.5
Apr-16	TSF	718.0	29.9	0.3	0.0	100.0	6.4	15.8	10.3
May-16	TSF	742.5	30.9	0.2	0.0	100.0	6.7	12.4	9.5
Jun-16	TSF	719.0	30.0	0.1	0.0	100.0	6.0	11.8	8.5

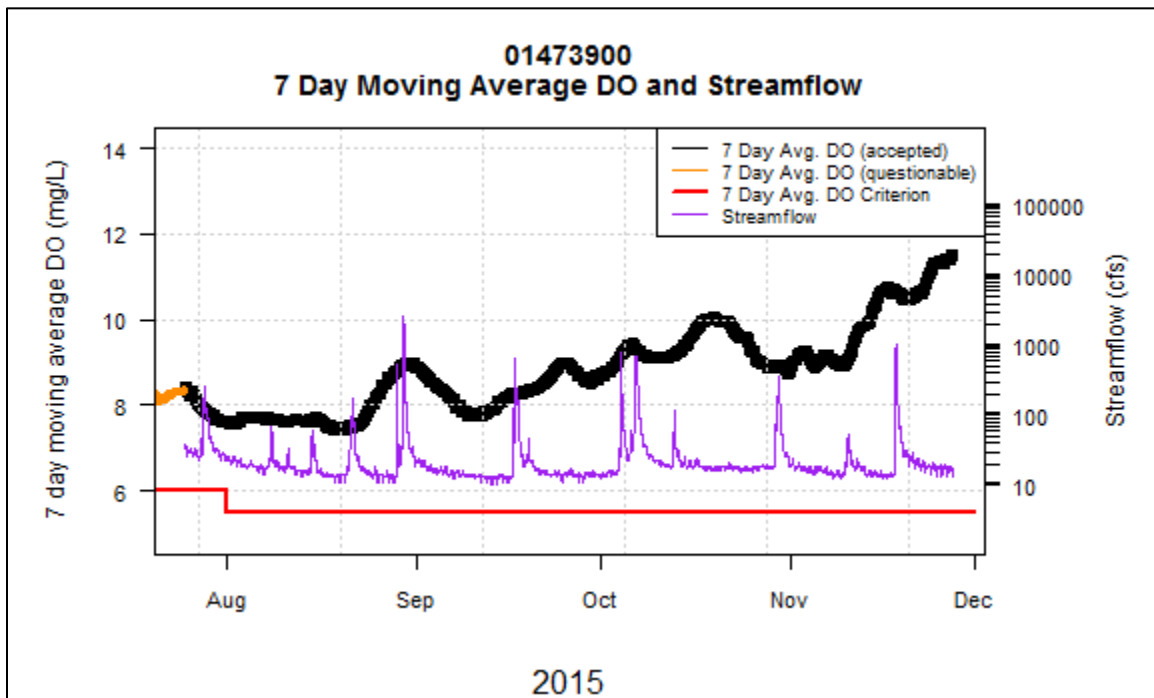


Figure 41. Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

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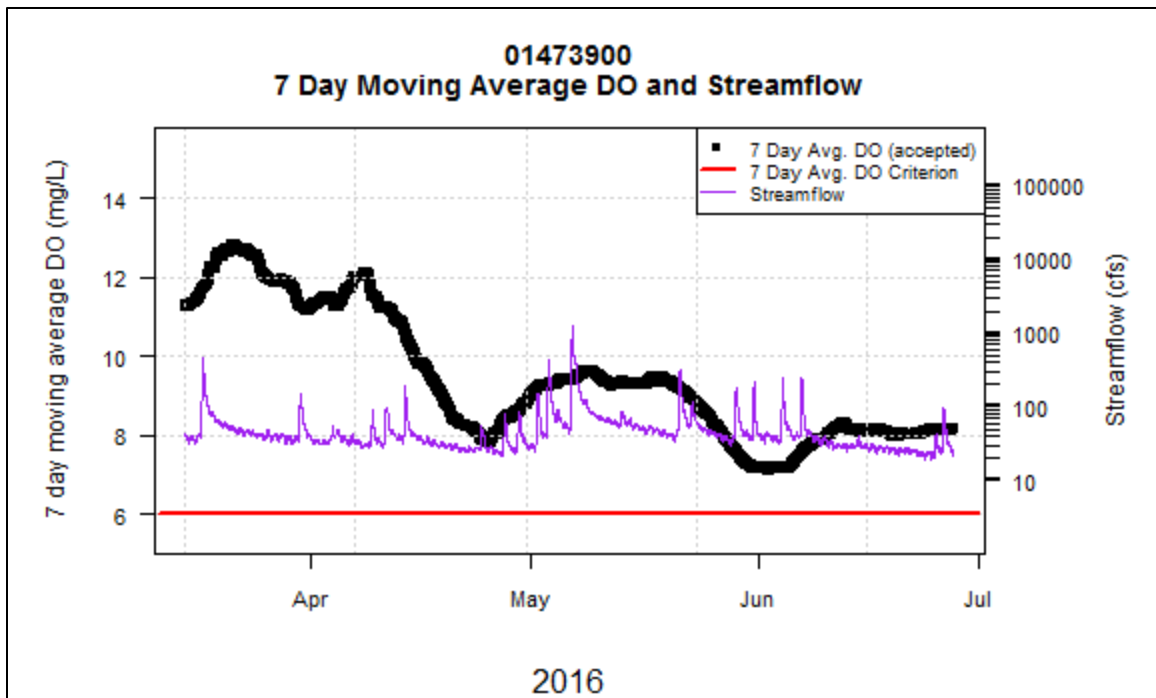


Figure 42. Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

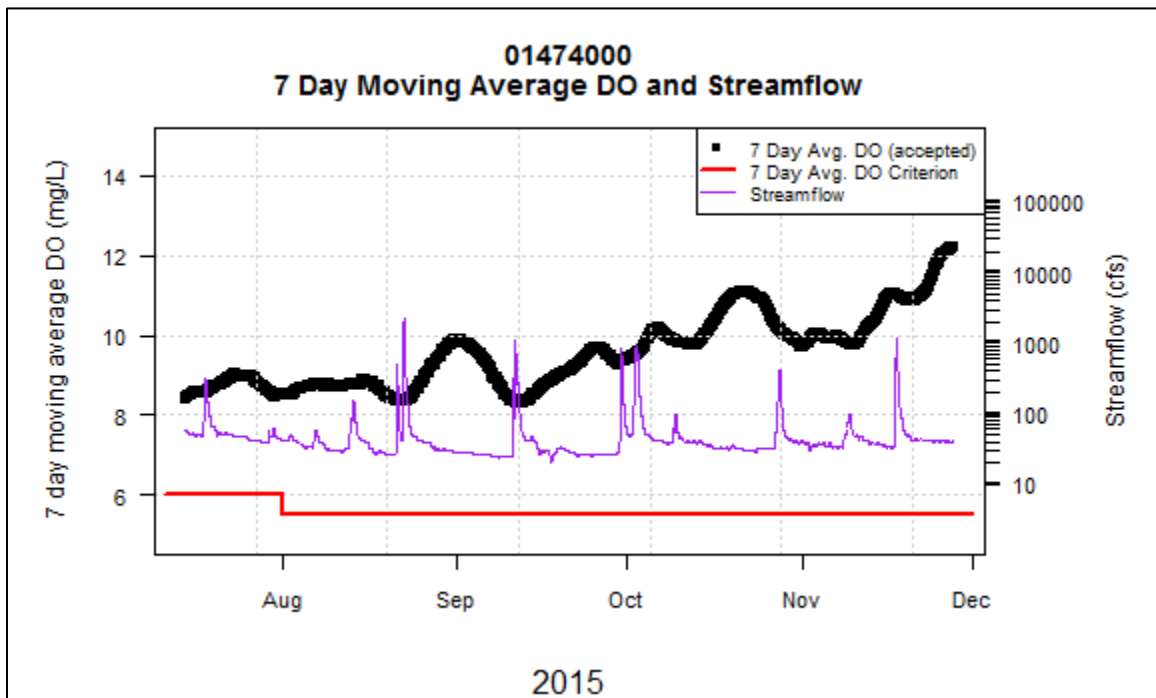


Figure 43. Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

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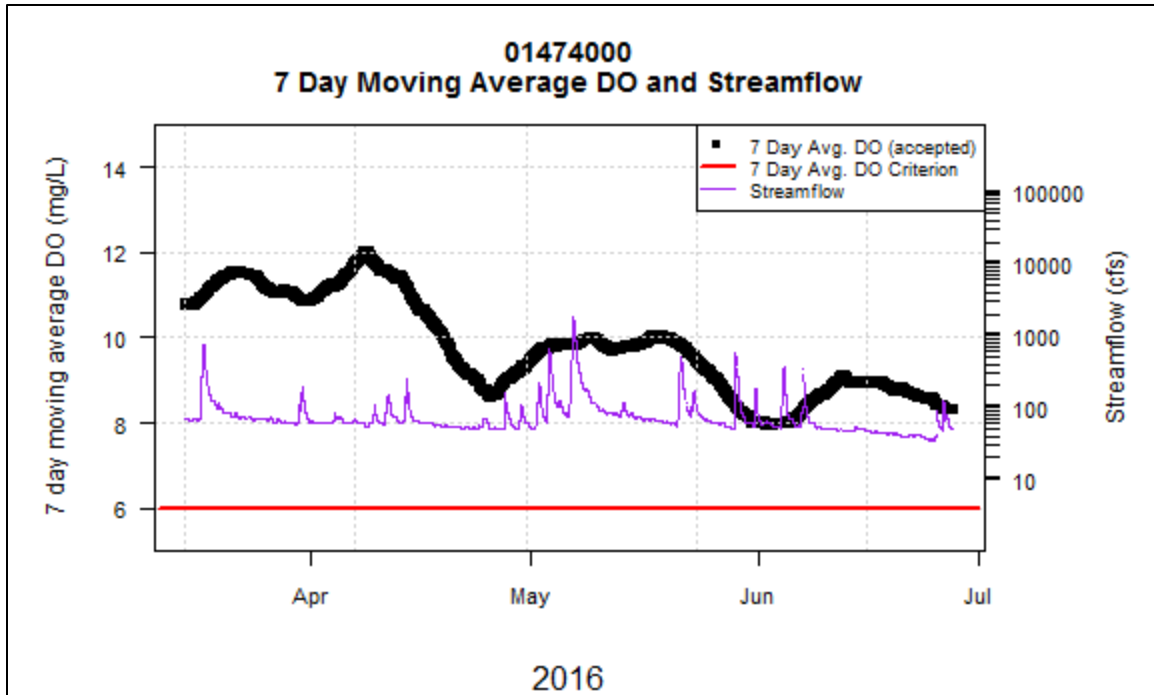


Figure 44. Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

Table 47. Gage 01473900 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	TSF	24.0	22.6	7.0	9.0	8.0
Aug-15	TSF	29.0	6.5	7.1	9.3	7.9
Sep-15	TSF	28.0	6.7	6.6	9.3	8.3
Oct-15	TSF	30.0	3.2	7.6	10.7	9.3
Nov-15	TSF	30.0	0.0	7.4	11.9	10.2
Mar-16	TSF	20.0	14.7	9.9	13.6	12.1
Apr-16	TSF	27.0	10.0	7.0	13.3	9.7
May-16	TSF	30.0	3.2	7.2	10.0	8.9
Jun-16	TSF	28.0	6.7	6.9	8.6	7.9

Table 48. Gage 01474000 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	TSF	26.0	16.1	7.9	9.4	8.7
Aug-15	TSF	29.0	6.5	7.8	10.0	8.8
Sep-15	TSF	29.0	3.3	7.8	10.0	9.1
Oct-15	TSF	30.0	3.2	8.4	11.6	10.2
Nov-15	TSF	29.0	3.3	9.2	12.7	10.8
Mar-16	TSF	29.0	6.3	10.3	13.1	11.5
Apr-16	TSF	29.0	3.3	7.9	12.7	10.4
May-16	TSF	30.0	3.2	7.8	10.5	9.5
Jun-16	TSF	29.0	3.3	7.4	9.4	8.5

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

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Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary

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Table 49. Gage 01473900 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	643.0	26.8	13.6	0.0	0.0	0.0	0.0	100.0	100.0	7.2	8.5	7.8
Aug-15	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.6	7.8
Sep-15	718.0	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.6	7.8
Oct-15	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.4	8.4	7.8
Nov-15	720.0	30.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.7	7.9
Mar-16	562.0	23.4	0.2	4.4	33.3	0.0	0.0	95.6	66.7	7.4	9.2	8.1
Apr-16	716.5	29.9	0.5	0.3	3.3	0.0	0.0	99.7	96.7	7.3	9.1	7.8
May-16	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.1	7.7
Jun-16	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.5	7.7

Table 50. Gage 01474000 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	731.5	30.5	1.7	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.7	8.1
Aug-15	740	30.8	0.5	0.0	0.0	0.0	0.0	100.0	100.0	7.4	8.8	8.3
Sep-15	716	29.8	0.6	0.0	0.0	0.0	0.0	100.0	100.0	7.4	8.9	8.3
Oct-15	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.7	8.6	8.2
Nov-15	719	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.6	8.6	8.3
Mar-16	741.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.7	9.0	8.3
Apr-16	718	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.6	9.0	8.2
May-16	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.4	8.6	8.0
Jun-16	719	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.5	8.6	8.0

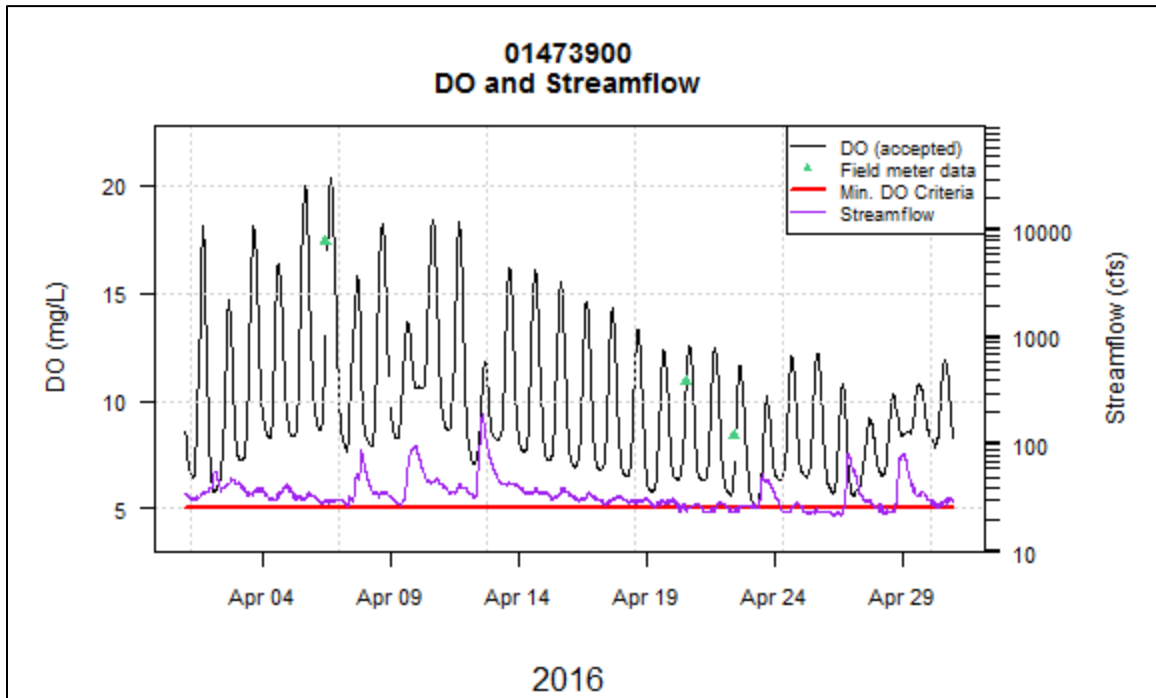


Figure 45. Gage 01473900, Dissolved Oxygen and Streamflow, April 2016.

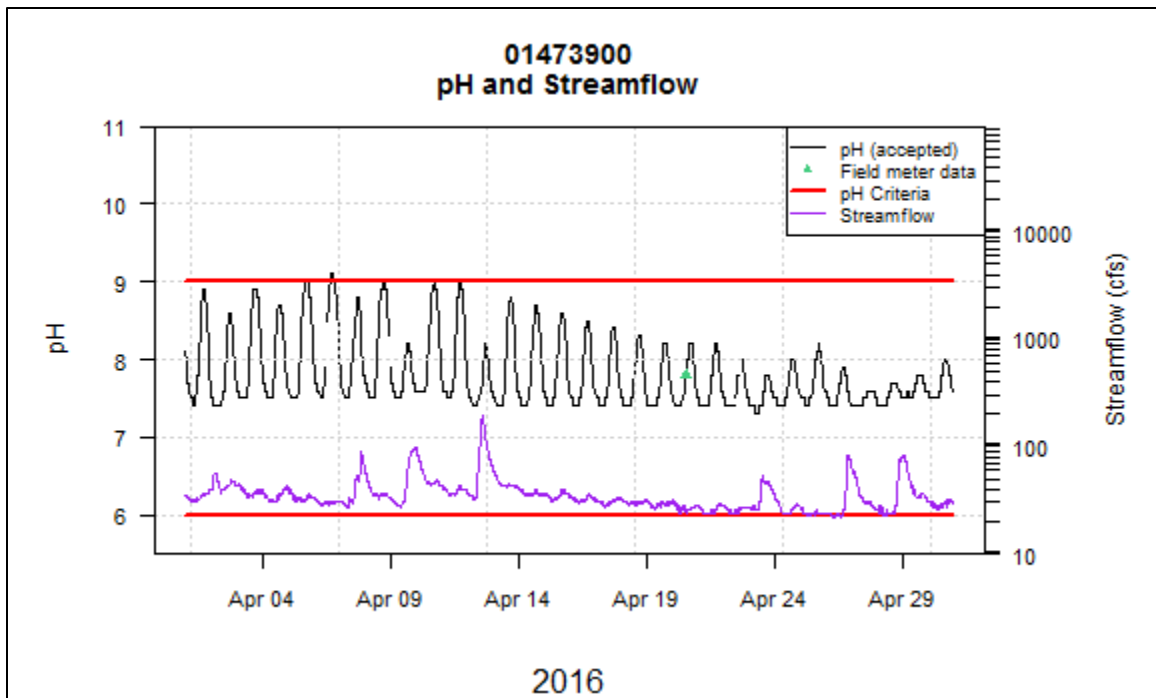


Figure 46. Gage 01473900, pH and Streamflow, April 2016.



Figure 47. Gage 01473900, Wissahickon Creek at Ft. Washington, looking downstream



Figure 48. Gage 01474000, Wissahickon Creek at mouth, looking downstream

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Turbidity

Turbidity in the Wissahickon, as with most of Philadelphia’s streams, increases drastically with increased flow from rainfall. The upper gage (01473900) saw greater spikes in turbidity during storms than the lower gage (Tables 51-52). 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 as in Figure 49.

Table 51. Gage 01473900 Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	645.5	26.9	13.2	32.1	67.9	0.0	280.0	5.8
Aug-15	740.5	30.9	0.5	42.3	57.7	1.1	420.0	7.6
Sep-15	716.5	29.9	0.5	28.3	71.7	0.2	1040.0	7.4
Oct-15	741.5	30.9	0.3	24.9	75.1	0.4	1190.0	4.7
Nov-15	719.0	30.0	0.1	10.2	89.8	0.2	170.0	2.9
Mar-16	561.5	23.4	0.3	44.3	55.7	1.2	800.0	5.5
Apr-16	613.0	25.5	14.9	45.0	55.0	1.1	34.0	3.2
May-16	743.0	31.0	0.1	79.3	20.7	1.7	170.0	8.1
Jun-16	632.0	26.3	12.2	74.1	25.9	1.0	220.0	5.4

Table 52. Gage 01474000 Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	731.5	30.5	1.7	18.9	81.1	0.5	280.0	5.5
Aug-15	740	30.8	0.5	17.2	82.8	0.5	410.0	6.0
Sep-15	703	29.3	2.4	7.1	92.9	0.3	190.0	2.5
Oct-15	742.5	30.9	0.2	18.4	81.6	0.4	44.0	2.3
Nov-15	719	30.0	0.1	9.5	90.5	0.3	100.0	2.4
Mar-16	741.5	30.9	0.2	7.8	92.2	0.3	32.0	1.7
Apr-16	716	29.8	0.6	3.4	96.6	0.3	64.0	1.1
May-16	742.5	30.9	0.2	28.5	71.5	0.4	200.0	6.1
Jun-16	717.5	29.9	0.3	8.7	91.3	0.3	110.0	1.5

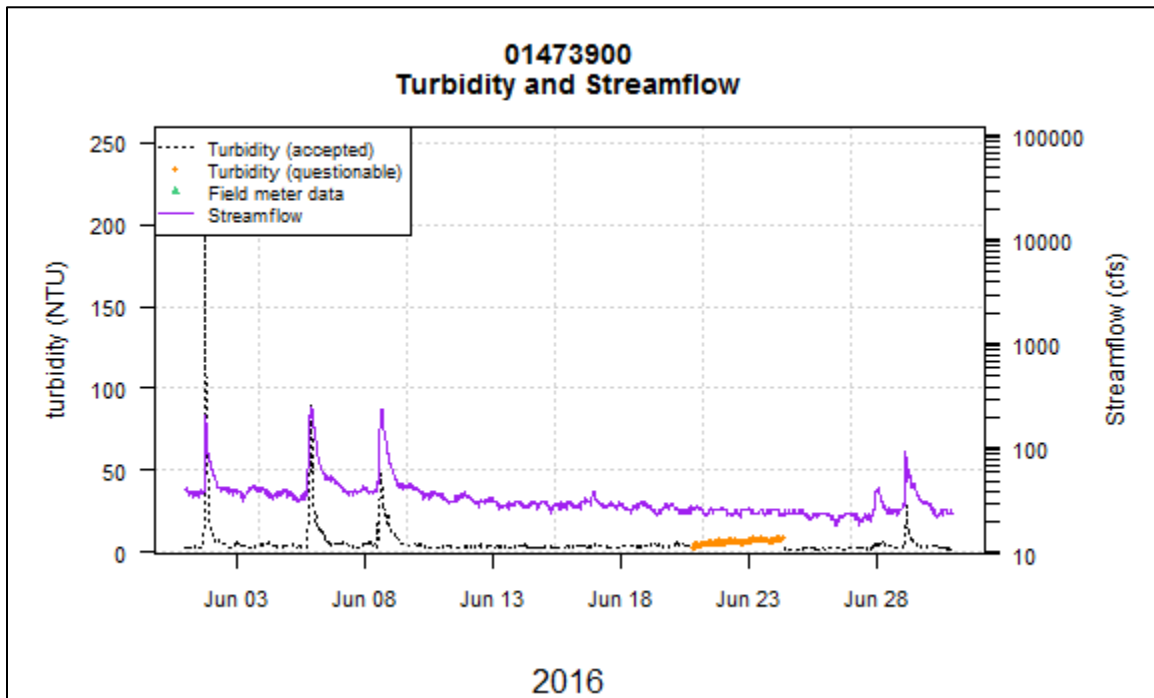


Figure 49. Gage 01473900, Turbidity and Streamflow, June 2016.

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. However, a reversal in this trend sometimes occurs during winter storms, 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. This pattern was not as readily observed in the 2015-2016 data, and November and March specific conductivity patterns remained somewhat typical (Figure 50).

Table 53. Gage 01473900 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	643.0	26.8	13.6	206.0	1100.0	843.7
Aug-15	742.5	30.9	0.2	115.0	1170.0	892.7
Sep-15	718.0	29.9	0.3	151.0	1050.0	889.1
Oct-15	743.0	31.0	0.1	214.0	1120.0	854.6
Nov-15	719.5	30.0	0.1	264.0	1030.0	901.6
Mar-16	561.5	23.4	0.3	534.0	911.0	843.9
Apr-16	716.5	29.9	0.5	685.0	969.0	875.0

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May-16	743.0	31.0	0.1	201.0	861.0	714.8
Jun-16	718.5	29.9	0.2	431.0	1050.0	850.7

Table 54. Gage 01474000 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	568.5	23.7	23.6	255.0	935.0	702.7
Aug-15	740	30.8	0.5	167.0	991.0	778.0
Sep-15	716	29.8	0.6	151.0	922.0	795.9
Oct-15	742.5	30.9	0.2	256.0	1040.0	754.0
Nov-15	719	30.0	0.1	248.0	975.0	775.3
Mar-16	741	30.9	0.3	533.0	897.0	795.6
Apr-16	718	29.9	0.3	560.0	896.0	820.6
May-16	742.5	30.9	0.2	217.0	829.0	674.8
Jun-16	718.5	29.9	0.2	478.0	921.0	780.0

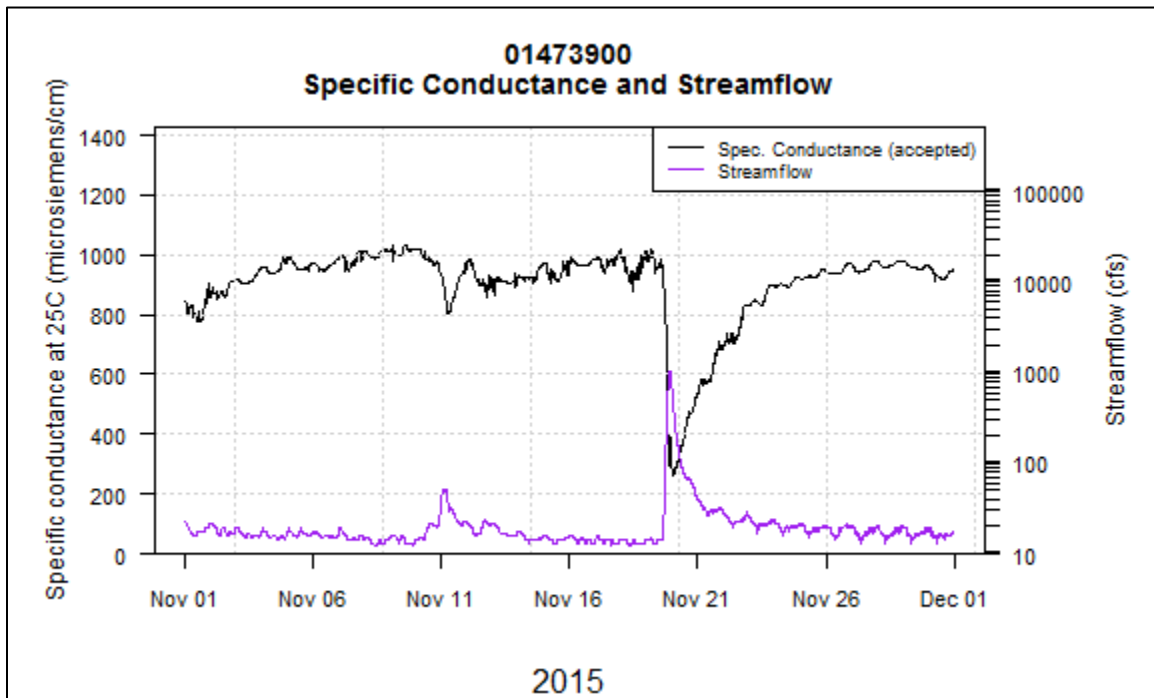


Figure 50. Gage 01473900, Specific Conductance and Streamflow, November 2015.

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Temperature

Temperature trends and exceedance rates in Wissahickon Creek Watershed were similar to those observed in Pennypack Creek, with frequent exceedances during the spring and summer in conjunction with higher ambient air temperatures (Tables 55-56, Figures 51-52).

Table 55. Gage 01473900 Temperature Summary Results by Month by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
TSF	1-Jul	31-Jul	54.3	45.7	14.0	639.5	26.6	19.6	27.1	23.2
TSF	1-Aug	15-Aug	0.0	100.0	1.0	356.5	14.9	19.1	26.4	22.8
TSF	16-Aug	31-Aug	0.0	100.0	0.3	383.0	16.0			
TSF	1-Sep	15-Sep	0.0	100.0	0.7	357.5	14.9	16.9	25.4	21.0
TSF	16-Sep	30-Sep	0.0	100.0	0.7	357.5	14.9			
TSF	1-Oct	15-Oct	0.0	100.0	0.8	357.0	14.9	8.6	21.1	14.2
TSF	16-Oct	31-Oct	0.0	100.0	0.8	381.0	15.9			
TSF	1-Nov	15-Nov	22.3	77.7	1.1	356.0	14.8	5.5	17.9	11.3
TSF	16-Nov	30-Nov	35.7	64.3	1.1	356.0	14.8			
TSF	1-Mar	31-Mar	94.3	5.7	1.7	554.5	23.1	6.5	16.7	11.4
TSF	1-Apr	15-Apr	51.4	48.6	2.2	352.0	14.7	5.1	20.4	13.3
TSF	16-Apr	30-Apr	63.7	36.3	1.9	353.0	14.7			
TSF	1-May	15-May	0.4	99.6	1.1	356.0	14.8	11.2	24.6	15.9
TSF	16-May	31-May	33.3	66.7	0.8	381.0	15.9			
TSF	1-Jun	15-Jun	38.9	61.1	1.1	356.0	14.8	15.7	24.7	21.3
TSF	16-Jun	30-Jun	55.4	44.6	0.6	358.0	14.9			

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Table 56. Gage 01474000 Temperature Summary Results by Month by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
TSF	1-Jul	31-Jul	63.6	36.4	1.7	731.5	30.5	20.4	26.8	23.5
TSF	1-Aug	15-Aug	0.0	100.0	0.1	359.5	15.0	20.1	26.2	23.2
TSF	16-Aug	31-Aug	0.0	100.0	0.8	381.0	15.9			
TSF	1-Sep	15-Sep	0.0	100.0	1.1	356.0	14.8	17.2	24.8	20.9
TSF	16-Sep	30-Sep	0.0	100.0	0.0	360.0	15.0			
TSF	1-Oct	15-Oct	0.0	100.0	0.4	358.5	14.9	9.0	21.2	13.6
TSF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
TSF	1-Nov	15-Nov	11.0	89.0	0.3	359.0	15.0	5.1	15.0	10.4
TSF	16-Nov	30-Nov	17.2	82.8	0.0	360.0	15.0			
TSF	1-Mar	31-Mar	77.7	22.3	0.3	742.0	30.9	4.9	15.8	10.1
TSF	1-Apr	15-Apr	45.7	54.3	0.0	360.0	15.0	6.4	18.9	13.2
TSF	16-Apr	30-Apr	73.5	26.5	0.6	358.0	14.9			
TSF	1-May	15-May	0.0	100.0	0.0	360.0	15.0	11.8	24.9	16.0
TSF	16-May	31-May	31.6	68.4	0.4	382.5	15.9			
TSF	1-Jun	15-Jun	62.4	37.6	0.3	359.0	15.0	16.9	25.1	22.1
TSF	16-Jun	30-Jun	77.5	22.5	0.0	360.0	15.0			

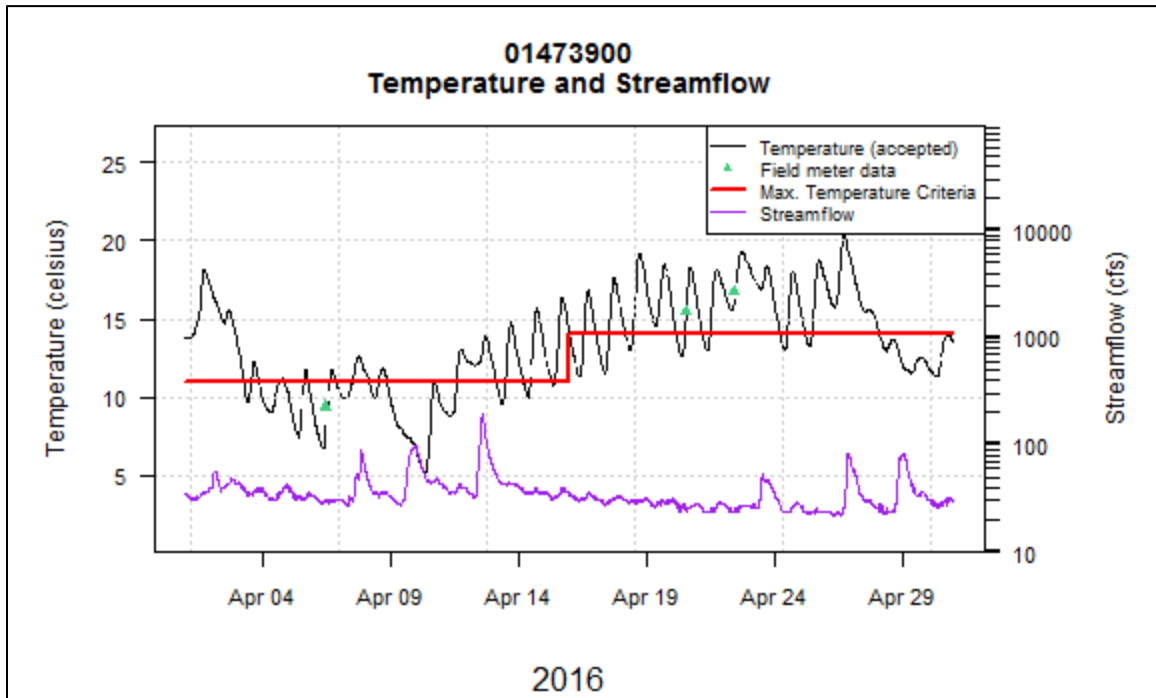


Figure 51. Gage 01473900, Temperature and Streamflow, April 2016.

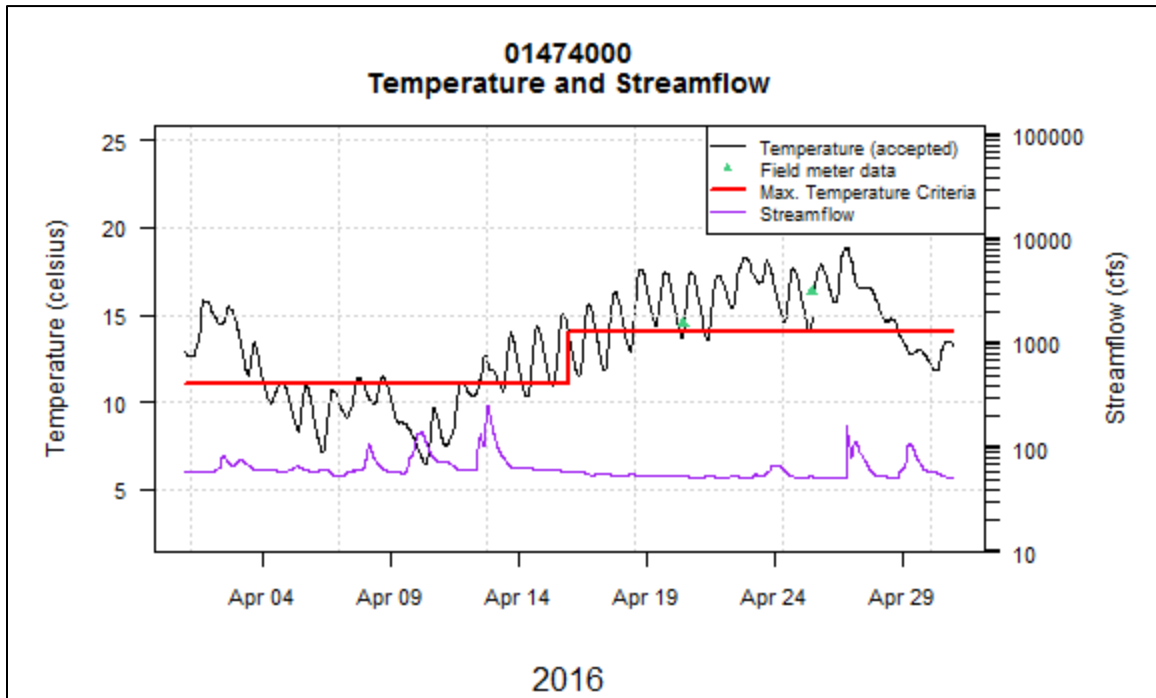


Figure 52. Gage 01474000, Temperature and Streamflow, April 2016.

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 or exceeded the pH maximum criterion (Tables 57-59, 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 2016 (Figures 55-56), one can expect steadily increasing DO and pH fluctuations.

Flow data from gage 01465798 was not available from April 15 – May 22, 2016.

Table 57. Gage 01465798 Dissolved Oxygen Min. Criteria Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	738.5	30.8	0.7	0.0	100.0	5.0	13.4	7.8
Aug-15	WWF	743.0	31.0	0.1	6.0	94.0	2.7	14.0	7.4
Sep-15	WWF	682.5	28.4	5.2	2.1	97.9	3.8	13.6	8.2
Oct-15	WWF	693.0	28.9	6.9	7.2	92.8	3.1	13.2	9.0
Nov-15	WWF	558.5	23.3	22.4	0.4	99.6	3.0	13.6	8.7
Mar-16	WWF	728.5	30.4	0.2	0.0	100.0	8.2	15.5	11.6
Apr-16	WWF	719.0	30.0	0.1	1.1	98.9	4.0	17.2	10.4
May-16	WWF	722.0	30.1	3.0	3.9	96.1	1.2	12.1	8.2
Jun-16	WWF	706.0	29.4	1.9	0.0	100.0	5.2	12.1	7.8

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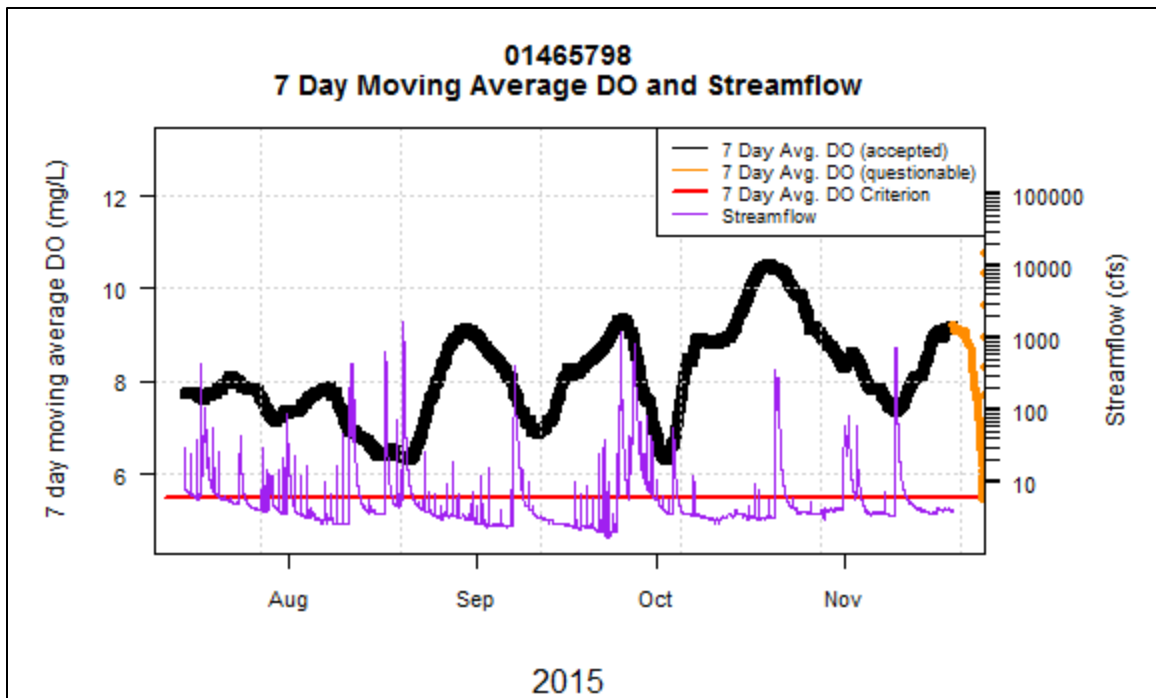


Figure 53. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

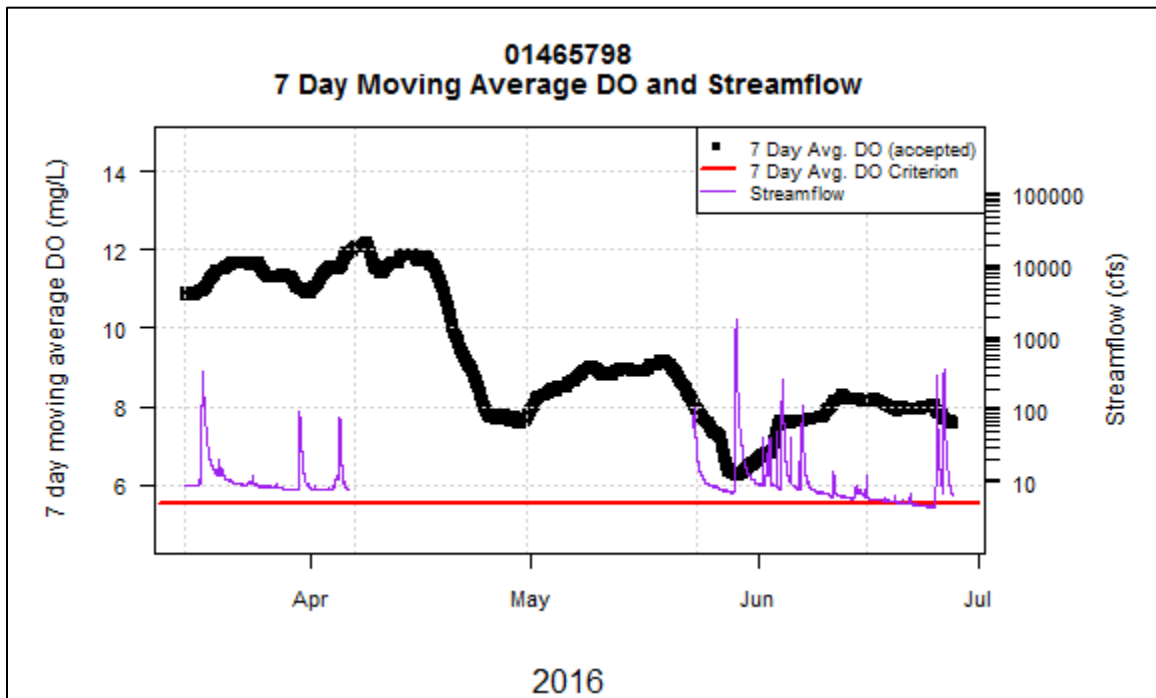


Figure 54. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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Table 58. Gage 01465798 Dissolved Oxygen Mean Criteria Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	27.0	12.9	6.8	9.4	7.8
Aug-15	WWF	30.0	3.2	5.1	9.5	7.5
Sep-15	WWF	26.0	13.3	5.5	9.8	8.2
Oct-15	WWF	26.0	16.1	4.1	11.3	9.1
Nov-15	WWF	22.0	26.7	6.2	11.7	8.6
Mar-16	WWF	28.0	7.9	10.0	13.0	11.6
Apr-16	WWF	29.0	3.3	6.2	13.6	10.4
May-16	WWF	28.0	9.7	3.7	9.6	8.2
Jun-16	WWF	27.0	10.0	6.4	8.7	7.9

Table 59. Gage 01465798 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	739.0	30.8	0.7	0.0	0.0	0.0	0.0	100.0	100.0	6.9	9.0	7.5
Aug-15	743.0	31.0	0.1	0.3	3.2	0.0	0.0	99.7	96.8	6.8	9.1	7.3
Sep-15	719.0	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	6.8	9.0	7.5
Oct-15	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	6.6	7.8	7.2
Nov-15	719.5	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	6.8	7.4	7.0
Mar-16	728.5	30.4	0.2	0.0	0.0	0.0	0.0	100.0	100.0	6.9	8.6	7.3
Apr-16	719.0	30.0	0.1	0.1	3.3	0.0	0.0	99.9	96.7	6.9	9.1	7.5
May-16	742.5	30.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	6.7	7.6	7.2
Jun-16	706.0	29.4	1.9	0.0	0.0	0.0	0.0	100.0	100.0	6.8	8.3	7.3

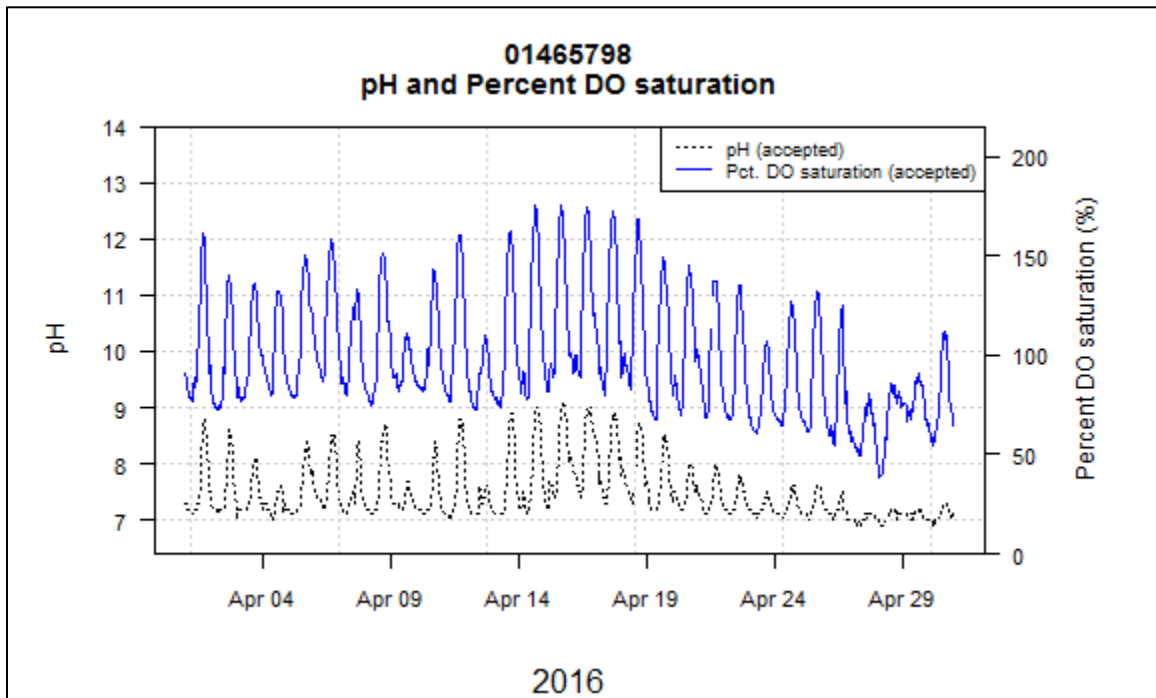


Figure 55. Gage 01465798, pH and Percent DO Saturation, April 2016.

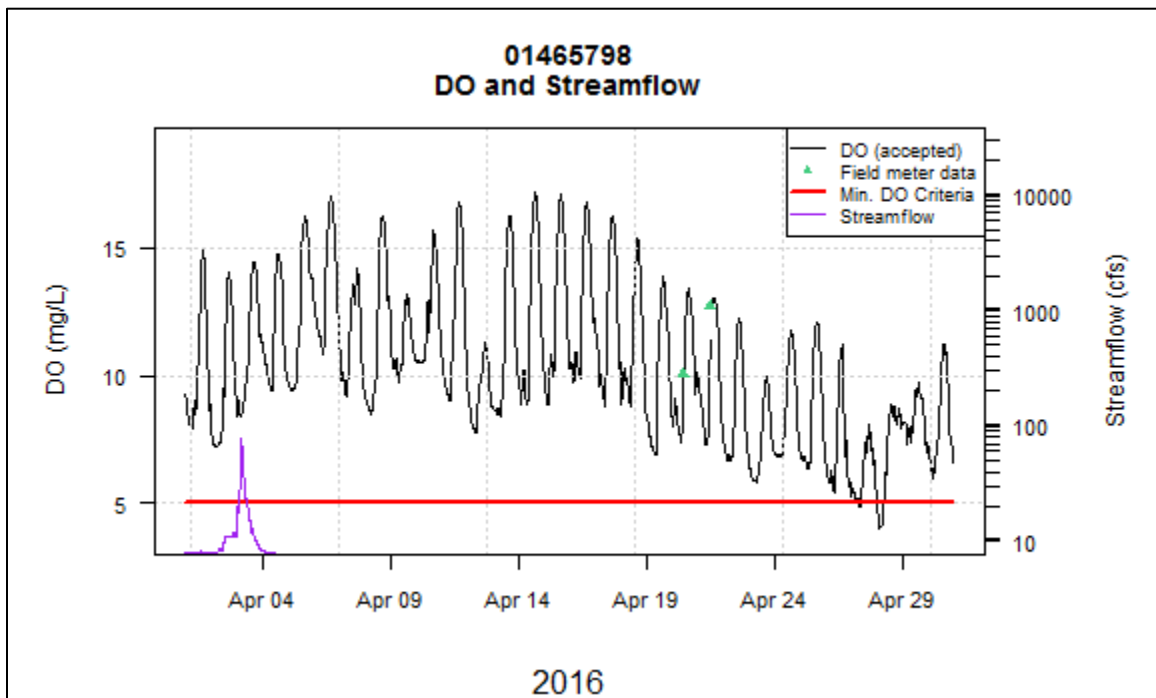


Figure 56. Gage 01465798, DO and Streamflow, April 2016.

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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 60. Gage 01465798 Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	692.0	28.8	7.0	41.8	58.2	0.7	1260.0	30.1
Aug-15	741.5	30.9	0.3	57.5	42.5	1.8	580.0	11.9
Sep-15	718.0	29.9	0.3	38.9	61.1	1.9	350.0	6.6
Oct-15	567.0	23.6	23.8	38.8	61.2	0.8	320.0	6.3
Nov-15	558.5	23.3	22.4	11.1	88.9	0.4	100.0	2.8
Mar-16	728.5	30.4	0.2	16.5	83.5	0.8	76.0	2.7
Apr-16	719.0	30.0	0.1	19.5	80.5	0.7	79.0	2.5
May-16	731.5	30.5	1.7	40.4	59.6	0.7	1570.0	27.0
Jun-16	705.5	29.4	2.0	20.1	79.9	0.8	230.0	4.6

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Specific Conductance

Specific conductance data were similar to other Philadelphia streams, with evidence of road salt causing higher specific conductance in early March.

Table 61. Gage 01465798 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	739.0	30.8	0.7	101.0	775.0	580.7
Aug-15	742.5	30.9	0.2	81.0	834.0	574.3
Sep-15	719.0	30.0	0.1	105.0	877.0	682.9
Oct-15	742.0	30.9	0.3	94.0	844.0	615.1
Nov-15	719.5	30.0	0.1	102.0	785.0	602.6
Mar-16	728.5	30.4	0.2	392.0	1260.0	804.7
Apr-16	719.0	30.0	0.1	329.0	797.0	691.2
May-16	743.0	31.0	0.1	91.0	762.0	540.9
Jun-16	706.0	29.4	1.9	177.0	826.0	647.5

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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 62. Gage 01465798 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	0.7	739.0	30.8	19.8	29.6	23.7
WWF	1-Aug	15-Aug	0.0	100.0	0.4	358.5	14.9	19.3	27.8	23.4
WWF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.0	360.0	15.0	16.6	27.3	21.5
WWF	16-Sep	30-Sep	0.0	100.0	0.3	359.0	15.0			
WWF	1-Oct	15-Oct	0.0	100.0	0.3	359.0	15.0	7.7	21.5	13.9
WWF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	20.8	79.2	0.0	360.0	15.0	4.4	17.3	10.7
WWF	16-Nov	30-Nov	21.0	79.0	0.0	360.0	15.0			
WWF	1-Mar	31-Mar	76.9	23.1	0.0	728.5	30.4	3.1	17.4	10.2
WWF	1-Apr	15-Apr	48.6	51.4	0.0	360.0	15.0	4.8	21.0	13.4
WWF	16-Apr	30-Apr	66.9	33.1	0.4	358.5	14.9			
WWF	1-May	15-May	4.7	95.3	0.0	360.0	15.0	11.2	26.5	16.2
WWF	16-May	31-May	16.9	83.1	0.4	382.5	15.9			
WWF	1-Jun	15-Jun	0.0	100.0	0.3	359.0	15.0			
WWF	16-Jun	30-Jun	0.0	100.0	0.1	359.5	15.0	15.6	26.7	21.8

Gages in Large Watersheds

Schuylkill River (Gage 01474500)



Dissolved oxygen and pH

DO water quality criteria were rarely exceeded at this location (Table 63, Figures 58-59). pH criteria were exceeded in spring and summer months (Table 65). Supersaturated DO conditions were observed concomitant with daily pH peaks around 9.0 in early April (Figure 60), indicating high algal activity.

Table 63. Gage 01474500 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-15	WWF	738.5	30.8	0.7	0.0	100.0	6.3	10.4	8.1
Aug-15	WWF	742.0	30.9	0.3	0.0	100.0	6.7	13.9	8.4
Sep-15	WWF	717.5	29.9	0.3	0.0	100.0	5.8	12.3	8.5
Oct-15	WWF	743.0	31.0	0.1	0.0	100.0	7.8	11.0	9.7
Nov-15	WWF	720.0	30.0	0.0	0.0	100.0	9.3	12.9	10.7
Mar-16	WWF	743.0	31.0	0.0	0.0	100.0	9.8	12.4	11.2
Apr-16	WWF	719.0	30.0	0.1	0.0	100.0	7.6	12.9	10.3
May-16	WWF	743.0	31.0	0.1	0.0	100.0	6.2	10.3	9.1
Jun-16	WWF	719.0	30.0	0.1	0.0	100.0	6.0	9.2	7.6

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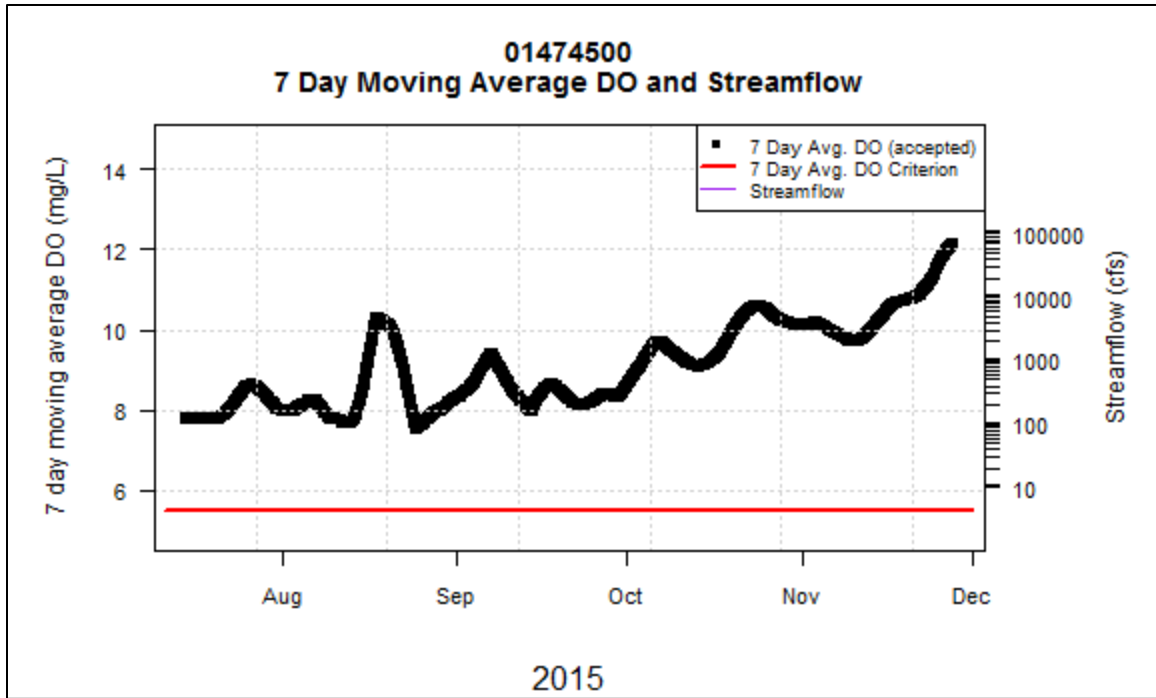


Figure 58. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2015.

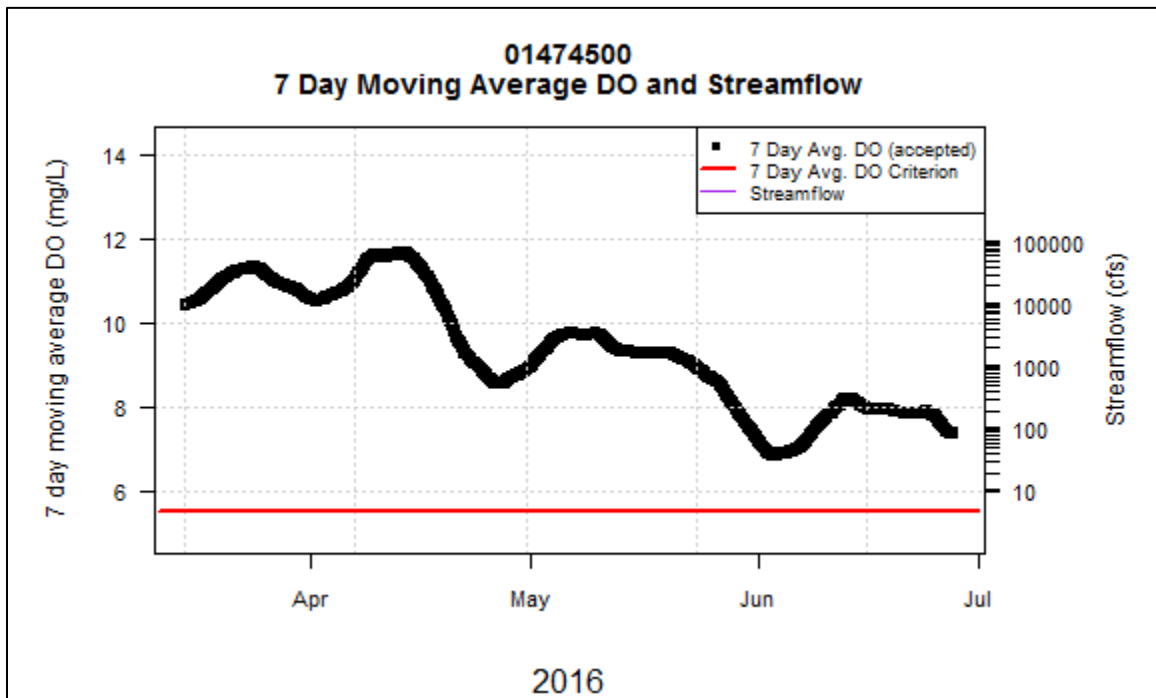


Figure 59. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2016.

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Table 64. Gage 01474500 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	Min.	Max.	Mean
Jul-15	WWF	28.0	9.7	0.0	100.0	7.4
Aug-15	WWF	30.0	3.2	0.0	100.0	7.1
Sep-15	WWF	29.0	3.3	0.0	100.0	6.7
Oct-15	WWF	30.0	3.2	0.0	100.0	8.0
Nov-15	WWF	30.0	0.0	0.0	100.0	9.5
Mar-16	WWF	30.0	3.1	0.0	100.0	10.2
Apr-16	WWF	28.0	6.7	0.0	100.0	8.0
May-16	WWF	30.0	3.2	0.0	100.0	6.9
Jun-16	WWF	29.0	3.3	0.0	100.0	6.6

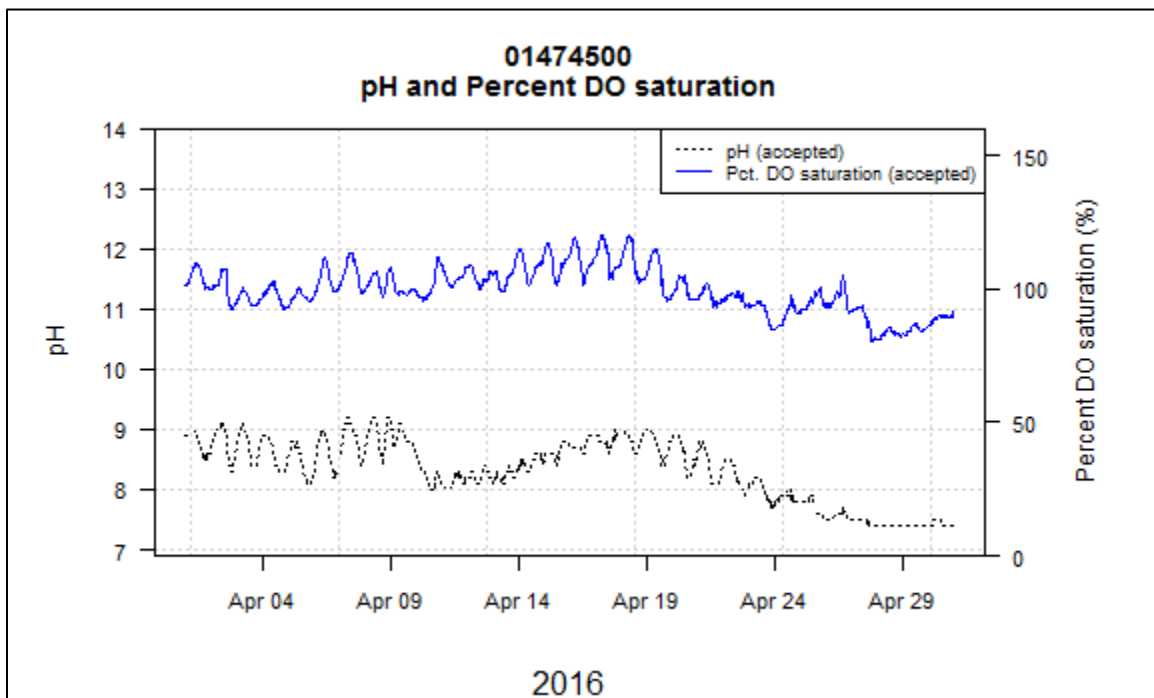


Figure 60. Gage 01474500, pH and Percent Dissolved Oxygen Saturation, April 2016.

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Table 65. Gage 01474500 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	739.0	30.8	0.7	0.0	0.0	0.0	0.0	100.0	100.0	7.6	8.5	7.8
Aug-15	742.0	30.9	0.3	7.7	16.1	0.0	0.0	92.3	83.9	7.6	9.4	8.2
Sep-15	717.5	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.4	8.5	7.9
Oct-15	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.6	8.3	8.0
Nov-15	720.0	30.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.7	8.3	7.9
Mar-16	743.0	31.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.6	9.0	8.0
Apr-16	718.5	29.9	0.2	3.2	16.7	0.0	0.0	96.8	83.3	7.4	9.2	8.3
May-16	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.9	7.5
Jun-16	719.0	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.0	7.6

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Temperature

Table 66. Gage 01474500 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
WWF	1-Jul	31-Jul	0.0	100.0	0.7	739.0	30.8	20.2	29.2	25.1
WWF	1-Aug	15-Aug	0.0	100.0	0.6	358.0	14.9	24.8	29.3	26.5
WWF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.7	357.5	14.9	20.4	28.4	23.9
WWF	16-Sep	30-Sep	0.0	100.0	0.0	360.0	15.0			
WWF	1-Oct	15-Oct	0.0	100.0	0.3	359.0	15.0	12.8	21.8	15.6
WWF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	10.6	89.4	0.0	360.0	15.0	6.6	14.6	11.0
WWF	16-Nov	30-Nov	44.2	55.8	0.0	360.0	15.0			
WWF	1-Mar	31-Mar	74.1	25.9	0.1	743.0	31.0	5.4	13.7	10.1
WWF	1-Apr	15-Apr	59.3	40.7	0.4	358.5	14.9	8.2	20.2	14.3
WWF	16-Apr	30-Apr	96.2	3.8	0.3	359.0	15.0			
WWF	1-May	15-May	0.0	100.0	0.0	360.0	15.0	12.2	27.5	17.2
WWF	16-May	31-May	29.5	70.5	0.3	383.0	16.0			
WWF	1-Jun	15-Jun	4.2	95.8	0.3	359.0	15.0	21.6	28.0	25.2
WWF	16-Jun	30-Jun	0.0	100.0	0.0	360.0	15.0			

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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 67. Gage 01474500 Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	740.0	30.8	0.5	86.8	13.2	0.0	37.0	8.1
Aug-15	739.0	30.8	0.7	84.8	15.2	1.5	44.0	5.1
Sep-15	717.5	29.9	0.3	30.2	69.8	0.9	18.0	2.8
Oct-15	743.0	31.0	0.1	36.8	63.2	1.3	26.0	3.8
Nov-15	720.0	30.0	0.0	70.9	29.1	1.3	15.0	4.2
Mar-16	743.0	31.0	0.0	96.4	3.6	2.2	38.0	7.1
Apr-16	717.5	29.9	0.3	53.4	46.6	1.1	22.0	3.3
May-16	743.0	31.0	0.1	61.2	38.8	1.4	80.0	6.9
Jun-16	719.0	30.0	0.1	4.1	95.9	0.7	10.0	1.9

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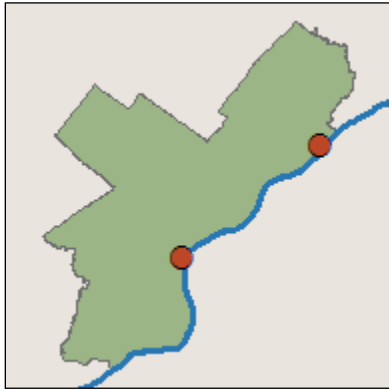
Specific Conductance

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 68. Gage 01474500 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	739.0	30.8	0.7	261.0	501.0	380.1
Aug-15	742.0	30.9	0.3	368.0	595.0	511.6
Sep-15	717.5	29.9	0.3	383.0	638.0	534.0
Oct-15	743.0	31.0	0.1	299.0	602.0	499.4
Nov-15	720.0	30.0	0.0	295.0	510.0	442.6
Mar-16	743.0	31.0	0.0	287.0	496.0	378.9
Apr-16	716.5	29.9	0.5	337.0	504.0	437.4
May-16	743.0	31.0	0.1	256.0	507.0	408.5
Jun-16	719.0	30.0	0.1	393.0	609.0	504.2

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 69 and 71). The Zone 2 DO daily mean and pH criteria were never exceeded at Gage 014670261. In 2015, the collection of data at gage 01467200 began March 28. Thus, data for that month is incomplete for that location. Data is collected year round at 014670261. Small data gaps at both gages prevent the true calculation of a 24-hour mean; this is responsible for the sometimes large percentage of days designated as containing flagged data in Tables 69 and 70.



Figure 62. Delaware River at Ben Franklin Bridge, near Gage 01467200

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Table 69. Gage 01467200 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	% days non-attaining	% days attaining	Daily Avg. Min.	Daily Avg. Max.	Daily Avg. Mean	Min.	Max
Jul-15	DRBC	29.0	6.5	0.0	100.0	6.0	8.2	7.3	5.3	9.1
Aug-15	DRBC	23.0	25.8	0.0	100.0	4.9	5.7	5.3	4.3	6.1
Sep-15	DRBC	11.0	63.3	0.0	100.0	5.0	6.2	5.4	4.0	6.7
Oct-15	DRBC	28.0	9.7	0.0	100.0	6.8	8.3	7.4	5.5	8.7
Nov-15	DRBC	29.0	3.3	0.0	100.0	7.7	9.9	8.8	7.3	10.3
Mar-16	DRBC	2.0	43.5	0.0	100.0	10.4	10.5	10.4	10.1	10.8
Apr-16	DRBC	28.0	6.7	0.0	100.0	7.8	10.5	9.6	7.6	10.8
May-16	DRBC	29.0	6.5	0.0	100.0	6.2	8.2	7.3	5.4	8.5
Jun-16	DRBC	28.0	6.7	0.0	100.0	4.4	6.5	5.7	3.9	7.2

Table 70. Gage 014670261 Dissolved Oxygen Daily Mean Criterion Summary Results by Month

Month	Des. Use	Total days accepted data	% days flagged data	% days non-attaining	% days attaining	Daily Avg. Min.	Daily Avg. Max.	Daily Avg. Mean	Min.	Max
Jul-15	DRBC	28.0	9.7	0.0	100.0	6.5	8.7	7.6	6.2	9.6
Aug-15	DRBC	26.0	16.1	0.0	100.0	6.1	7.0	6.6	5.7	7.8
Sep-15	DRBC	29.0	3.3	0.0	100.0	5.9	7.6	6.6	5.6	7.8
Oct-15	DRBC	25.0	19.4	0.0	100.0	7.7	8.8	8.3	6.6	9.1
Nov-15	DRBC	22.0	26.7	0.0	100.0	8.6	11.1	9.6	8.4	11.3
Dec-15	DRBC	25.0	19.4	0.0	100.0	10.6	11.5	11.1	10.3	11.7
Jan-16	DRBC	15.0	51.6	0.0	100.0	11.0	13.9	12.9	10.9	14.1
Feb-16	DRBC	22.0	14.3	0.0	100.0	11.9	14.0	13.1	11.2	14.2
Mar-16	DRBC	27.0	12.8	0.0	100.0	10.5	12.8	11.5	10.3	12.9
Apr-16	DRBC	27.0	10.0	0.0	100.0	7.4	11.0	9.8	6.9	11.2
May-16	DRBC	30.0	3.2	0.0	100.0	7.0	8.8	8.1	5.7	9.3
Jun-16	DRBC	26.0	13.3	0.0	100.0	5.3	8.0	7.0	5.0	8.8

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Table 71. Gage 01467200 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	744.0	31.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	6.6	7.6	7.1
Aug-15	721.5	30.1	3.0	0.0	0.0	0.0	0.0	100.0	100.0	7.1	7.4	7.2
Sep-15	631.0	26.3	12.4	0.0	0.0	0.0	0.0	100.0	100.0	7.1	7.4	7.3
Oct-15	737.5	30.7	0.9	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.6	7.4
Nov-15	720.0	30.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.6	7.4
Mar-16	84.5	3.5	0.6	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.5	7.4
Apr-16	717.5	29.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.6	7.4
May-16	743.0	31.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.3	7.2
Jun-16	719.0	30.0	0.1	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.4	7.2

Table 72. Gage 014670261 pH Criteria Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-15	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.1	7.4
Aug-15	712.5	29.7	4.2	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.5	7.4
Sep-15	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.6	7.4
Oct-15	737.0	30.7	0.9	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.7	7.5
Nov-15	713.5	29.7	0.9	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.7	7.4
Dec-15	739.0	30.8	0.5	0.0	0.0	0.0	0.0	100.0	100.0	7.3	8.0	7.5
Jan-16	713.5	29.7	0.9	0.0	0.0	0.0	0.0	100.0	100.0	7.1	8.0	7.7
Feb-16	696.0	29.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.5	7.3
Mar-16	716.0	29.8	0.6	0.0	0.0	0.0	0.0	100.0	100.0	7.0	7.5	7.2
April-16	742.0	30.9	0.3	0.0	0.0	0.0	0.0	100.0	100.0	7.0	8.1	7.4
May-16	712.5	29.7	4.2	0.0	0.0	0.0	0.0	100.0	100.0	7.2	7.5	7.4
Jun-16	718.5	29.9	0.2	0.0	0.0	0.0	0.0	100.0	100.0	7.3	7.6	7.4

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Temperature

Temperature criteria for the Delaware River were never exceeded at either gage.

Table 73. Gage 01467200 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
DRBC	1-Jul	31-Jul	0.0	100.0	0.1	743.5	31.0	20.4	27.5	24.5
DRBC	1-Aug	31-Aug	0.0	100.0	3.1	721.0	30.0	26.0	27.5	26.7
DRBC	1-Sep	30-Sep	0.0	100.0	6.8	671.0	28.0	22.0	27.0	25.0
DRBC	1-Oct	31-Oct	0.0	100.0	0.4	741.0	30.9	14.3	22.3	17.3
DRBC	1-Nov	30-Nov	0.0	100.0	0.1	719.5	30.0	8.8	14.6	12.2
DRBC	31-Mar	31-Mar	0.0	100.0	0.6	84.5	3.5	10.7	11.3	11.0
DRBC	1-Apr	30-Apr	0.0	100.0	0.1	719.5	30.0	10.5	15.9	12.5
DRBC	1-May	31-May	0.0	100.0	0.1	743.5	31.0	13.5	21.8	16.0
DRBC	1-Jun	30-Jun	0.0	100.0	0.1	719.0	30.0	21.3	25.8	23.6

Table 74. Gage 014670261 Temperature Summary Results by Maximum Criteria Period

Designated Use	Date range start	Date range end	% hrs. exceedance	% hrs. attaining	% hrs. flagged data	Total hrs. accepted data	Total days accepted data	Min.	Max.	Mean
DRBC	1-Jul	31-Jul	0.0	100.0	0.2	742.5	30.9	19.9	27.8	24.5
DRBC	1-Aug	31-Aug	0.0	100.0	4.2	712.5	29.7	25.8	28.0	26.7
DRBC	1-Sep	30-Sep	0.0	100.0	0.1	719.0	30.0	21.3	27.3	24.7
DRBC	1-Oct	31-Oct	0.0	100.0	0.5	740.0	30.8	13.5	22.0	16.5
DRBC	1-Nov	30-Nov	0.0	100.0	0.8	714.5	29.8	7.2	13.8	11.2
DRBC	1-Dec	31-Dec	0.0	100.0	0.5	739.5	30.8	4.3	12.3	8.7
DRBC	1-Jan	31-Jan	0.0	100.0	0.9	713.5	29.7	9.1	17.6	12.9
DRBC	1-Feb	28-Feb	0.0	100.0	0.0	696.0	29.0	13.2	23.6	16.5
DRBC	1-Mar	31-Mar	0.0	100.0	0.4	717.0	29.9	22.6	26.7	24.3
DRBC	1-Apr	30-Apr	0.0	100.0	0.2	742.5	30.9	19.9	27.8	24.5
DRBC	1-May	31-May	0.0	100.0	4.2	712.5	29.7	25.8	28.0	26.7
DRBC	1-Jun	30-Jun	0.0	100.0	0.1	719.0	30.0	21.3	27.3	24.7

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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 75. Gage 01467200 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	744.0	31.0	0.0	149.0	263.0	203.4
Aug-15	721.5	30.1	3.0	233.0	314.0	267.6
Sep-15	645.5	26.9	10.3	269.0	342.0	304.9
Oct-15	740.0	30.8	0.5	277.0	373.0	309.3
Nov-15	719.0	30.0	0.1	207.0	326.0	254.2
Mar-16	84.5	3.5	0.6	254.0	279.0	264.4
Apr-16	718.5	29.9	0.2	218.0	298.0	261.5
May-16	743.5	31.0	0.1	196.0	272.0	233.3
Jun-16	719.5	30.0	0.1	218.0	315.0	265.7

Table 76. Gage 014670261 Specific Conductance Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	Min.	Max.	Mean
Jul-15	743.0	31.0	0.1	137.0	260.0	197.4
Aug-15	712.5	29.7	4.2	205.0	285.0	242.3
Sep-15	718.5	29.9	0.2	239.0	309.0	260.7
Oct-15	740.0	30.8	0.5	236.0	320.0	266.1
Nov-15	713.5	29.7	0.9	179.0	311.0	210.8
Dec-15	739.0	30.8	0.5	165.0	292.0	230.9
Jan-16	714.0	29.8	0.8	192.0	315.0	238.5
Feb-16	743.5	29.0	0.1	186.0	290.0	220.5
Mar-16	716.5	29.9	0.5	219.0	280.0	239.5
Apr-16	743.0	31.0	0.1	137.0	260.0	197.4
May-16	712.5	29.7	4.2	205.0	285.0	242.3
Jun-16	718.5	29.9	0.2	239.0	309.0	260.7

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Turbidity

Turbidity guidelines at 014670261 were almost always exceeded throughout the year. Turbidity is not continuously measured at 01467200.

Table 77. Gage 014670261 Turbidity Summary Results by Month

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-15	743.0	30.9	0.1	96.1	3.9	1.8	5.60	8.0
Aug-15	712.5	29.7	4.2	94.6	5.4	1.5	32.0	6.1
Sep-15	718.5	29.9	0.2	93.7	6.3	1.7	27.0	5.6
Oct-15	733.5	30.6	1.4	99.5	0.5	2.5	38.0	7.0
Nov-15	712.5	29.7	1.0	100.0	0.0	2.9	41.0	9.0
Dec-15	729.5	30.4	1.9	99.8	0.2	1.2	100.0	10.7
Jan-16	709.0	29.5	4.7	99.8	0.2	1.4	76.0	9.7
Feb-16	670.0	27.9	0.3	100.0	0.0	3.6	200.0	20.0
Mar-16	738.5	30.8	0.6	100.0	0.0	3.4	53.0	8.9
Apr-16	718.0	29.9	0.3	99.0	1.0	1.8	40.0	7.0
May-16	742.0	30.9	0.3	99.1	0.9	2.4	45	7.2
Jun-16	716.0	29.8	0.6	97.8	2.2	2.1	46.0	7.2

Wet Weather and Dry Weather Results

Annual Summary, July 2015 - June 2016

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 78-79). The turbidity maximum guideline was also usually more frequently surpassed in wet weather (Tables 84-85). The pH maximum criterion was exceeded in both wet and dry weather (Tables 82-83). Temperature criteria were more likely to be exceeded at Trout Stocking Fishery (TSF) gages due to more stringent seasonal criteria (Tables 88-89).

Table 78. USGS Gage July 2015 - June 2016 Dissolved Oxygen Minimum Criterion Summary Results During Wet Weather

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining
01465798	WWF	4003.5	166.8	2.8	1.4	98.6
01467042	TSF	3979.5	165.8	1.3	0.1	99.9
01467048	TSF	4091.5	170.5	0.6	0	100
01467086	WWF	3862.5	160.9	4.1	2.1	97.9
01467087	WWF	3918.5	163.3	7.2	39.1	60.9
01467200*	DRBC	NA	NA	NA	NA	NA
01473900	TSF	4082	170.1	3.4	0.3	99.7
01474000	TSF	3877	161.5	5.7	0	100
01474500	WWF	4003	166.8	1.9	0.1	100
01475530	WWF	4015	167.3	0.2	0	100
01475548	WWF	3823.5	159.3	2.3	9.8	90.2
014670261*	DRBC	NA	NA	NA	NA	NA

*No minimum DO criterion applies at these locations.

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Table 79. USGS Gage July 2015 - June 2016 Dissolved Oxygen Minimum Criterion Summary Results During Dry Weather

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining
01465798	WWF	2225.5	92.7	0.2	0.2	99.8
01467042	TSF	2305	96.0	0.4	0	100
01467048	TSF	2226	92.8	0.2	0	100
01467086	WWF	2279	95.0	1.5	0.2	99.8
01467087	WWF	2091	81.1	0.8	24.6	75.4
01467200*	DRBC	NA	NA	NA	NA	NA
01473900	TSF	2116	88.2	0.3	0	100
01474000	TSF	2209	92.0	1.2	0	100
01474500	WWF	2248.5	93.7	0.8	0	100
01475530	WWF	2323	96.8	0.2	0	100
01475548	WWF	2165.5	90.2	4.4	3.3	96.7
014670261*	DRBC	NA	NA	NA	NA	NA

*No minimum DO criterion applies at these locations.

Table 80. USGS Gage July 2015 - June 2016 Dissolved Oxygen Daily Mean Criterion Summary Results During Wet Weather

Gage number	Designated Use	Total days accepted data	% days flagged data
01465798	WWF	153	5.0
01467042	TSF	156	1.3
01467048	TSF	161	0
01467086	WWF	151	4.4
01467087	WWF	152	10.1
01467200	DRBC	141	4.1
01473900	TSF	157	4.8
01474000	TSF	151	6.2
01474500	WWF	155	3.1
01475530	WWF	157	0
01475548	WWF	152	1.3
014670261	DRBC	167	0.6

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Table 81. USGS Gage July 2015 - June 2016 Dissolved Oxygen Daily Mean Criterion Summary Results During Dry Weather

Gage number	Designated Use	Total days accepted data	% days flagged data
01465798	WWF	82	0
01467042	TSF	84	0
01467048	TSF	81	1.2
01467086	WWF	84	2.3
01467087	WWF	81	0
01467200	DRBC	78	1.3
01473900	TSF	76	0
01474000	TSF	81	1.2
01474500	WWF	84	1.2
01475530	WWF	86	0
01475548	WWF	83	3.5
014670261	DRBC	82	1.2

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Table 82. USGS Gage July 2015 - June 2016 pH Criteria Summary Results During Wet Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining
01465798	3998	166.6	2.9	0.3	2.0	0	0	99.7	97.9
01467042	3979	165.8	1.3	0.9	4.7	0	0	99.1	95.3
01467048	3847.5	160.3	6.6	3.6	9.0	0	0	96.4	91.0
01467086	3895	162.3	3.3	3.5	12.3	0	0	96.5	87.7
01467087	3747.5	156.1	11.3	0	0	0	0	100	100
01467200	3624.5	151.0	1.3	0	0	0	0	100	100
01473900	4167	173.6	1.4	2.2	6.9	0	0	97.8	93.1
01474000	3875.5	161.5	5.8	0.1	1.0	0	0	99.9	98.9
01474500	3952.5	164.7	3.1	7.5	12.3	0	0	92.5	87.7
01475530	3954.5	164.8	1.7	0	0.5	0	0	100	99.5
01475548	3810.5	157.8	2.6	0.7	4.8	0	0	99.3	95.2
014670261	3822.5	159.3	11.9	0	0	0	0.5	100	99.5

Table 83. USGS Gage July 2015 - June 2016 pH Criteria Summary Results During Dry Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining
01465798	2225	92.7	0.3	0.7	3.3	0	0	99.3	96.7
01467042	2305	96.0	0.4	0.3	1.6	0	0	99.7	98.4
01467048	2164.5	90.2	3.0	2.4	7.8	0	0	97.6	92.2
01467086	2304	96	0.4	3.6	14.4	0	0	96.4	85.6
01467087	2029	84.5	3.8	0	0	0	0	100	100
01467200	2077	86.5	0.5	0	0	0	0	100	100
01473900	2116	88.2	0.3	2.3	7.8	0	0	97.7	92.2
01474000	2209	92.0	1.2	0	0	0	0	100	100
01474500	2248.5	93.7	0.8	11.0	21.7	0	0	89.0	78.3
01475530	2323	96.8	0.2	0	0	0	0	100	100
01475548	2214.5	92.3	2.3	0.2	1.7	0	0	99.8	98.3
014670261	2096	87.3	8.1	0	0	0.1	1.7	99.9	98.3

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Table 84. USGS Gage July 2015 - June 2016 Turbidity Summary Results During Wet Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline
01465798	4020.5	167.5	2.4	44.7	55.3
01467042	3456.5	144.0	14.3	30.7	69.3
01467048	4050	168.8	1.7	39.0	61.0
01467086*	NA	NA	NA	NA	NA
01467087*	NA	NA	NA	NA	NA
01467200*	NA	NA	NA	NA	NA
01473900	3907	162.8	7.5	56.8	43.2
01474000	3303.5	137.6	19.7	20.8	79.2
01474500	3999.5	166.6	1.9	66.7	33.3
01475530*	NA	NA	NA	NA	NA
01475548*	NA	NA	NA	NA	NA
014670261	4320.5	180.0	0.4	99.1	0.9

*Turbidity not continuously monitored at this location

Table 85. USGS Gage July 2015 - June 2016 Turbidity Summary Results During Dry Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline
01465798	2193	91.4	1.7	7.6	92.4
01467042	1937	80.7	16.3	5.9	94.1
01467048	2207.5	92.0	1.1	9.2	90.8
01467086*	NA	NA	NA	NA	NA
01467087*	NA	NA	NA	NA	NA
01467200*	NA	NA	NA	NA	NA
01473900	2078	86.6	2.1	28.6	71.4
01474000	1850.5	77.1	17.2	1.6	98.4
01474500	2251	93.8	0.7	58.1	41.9
01475530*	NA	NA	NA	NA	NA
01475548*	NA	NA	NA	NA	NA
014670261	2270.5	94.6	0.4	99.5	0.5

*Turbidity not continuously monitored at this location

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Table 86. USGS Gage July 2015 - June 2016 Specific Conductance Summary Results During Wet Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data
01465798	4055.5	168.9	1.5
01467042	3979	165.8	1.3
01467048	4092.5	170.5	0.6
01467086	3895	162.3	3.3
01467087	4194.5	174.8	0.7
01467200	3636	151.5	0.9
01473900	4217	175.7	0.2
01474000	3872.5	161.4	5.8
01474500	4003	166.8	1.9
01475530	3993.5	166.4	0.7
01475548	3862.5	160.9	1.3
014670261	4080.5	178.0	1.5

Table 87. USGS Gage July 2015 - June 2016 Specific Conductance Summary Results During Dry Weather

Gage number	Total hrs. accepted data	Total days accepted data	% hrs. flagged data
01465798	2225.5	92.7	0.2
01467042	2304	96	0.4
01467048	2223.5	92.6	0.3
01467086	2304	96	0.4
01467087	2098	87.4	0.5
01467200	2082	86.8	0.3
01473900	2115.5	88.1	0.3
01474000	2208.5	92.0	1.2
01474500	2248.5	93.7	0.8
01475530	2323	96.8	0.2
01475548	2238.5	93.3	1.2
014670261	2077.5	86.6	8.9

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Table 88. USGS Gage July 2015 - June 2016 Temperature Maximum Criteria Summary Results During Wet Weather

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. exceedance	% hrs. attaining
01465798	WWF	4055.5	168.9	1.5	12.1	87.9
01467042	TSF	3979	165.8	1.3	25.9	74.1
01467048	TSF	4092.5	170.5	0.6	31.2	68.8
01467086	WWF	3895	162.3	3.3	12.0	88.0
01467087	WWF	4194.5	174.8	0.7	15.8	84.2
01467200	DRBC	3659	152.5	0.3	0	100
01473900	TSF	4186.5	174.4	0.9	25.6	74.4
01474000	TSF	3879	161.6	5.7	29.1	70.9
01474500	WWF	4003	166.8	1.9	11.7	88.3
01475530	WWF	4014.5	167.3	0.2	9.7	90.3
01475548	WWF	3867	161.1	1.2	12.2	87.8
014670261	DRBC	4272.5	178.0	1.5	0	100

Table 89. USGS Gage July 2015 - June 2016 Temperature Maximum Criteria Summary Results During Dry Weather

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. exceedance	% hrs. attaining
01465798	WWF	2225.5	92.7	0.2	13.9	86.1
01467042	TSF	2305	96.0	0.4	24.1	75.9
01467048	TSF	2226	92.8	0.2	29.1	70.9
01467086	WWF	2304	96	0.4	16.5	83.5
01467087	WWF	2098	87.4	0.5	12.7	87.3
01467200	DRBC	2078.5	86.6	0.5	0	100
01473900	TSF	2108	87.8	0.7	20.1	79.9
01474000	TSF	2209	92.0	1.2	22.3	77.7
01474500	WWF	2248.5	93.7	0.8	19.8	80.2
01475530	WWF	2323	96.8	0.2	11.3	88.7
01475548	WWF	2236	96.2	1.3	16.6	83.4
014670261	DRBC	2267	94.5	0.5	0	100

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 I - 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 23 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 23 active sites that are monitored monthly. (Table 1, Figure 1). PWD is in the process of drilling additional wells on City-owned property in order to meet spatial distribution and other well network criteria. Of the 23 active wells, 9 are located within the Middle Atlantic Coastal Plain Ecoregion, while the remaining 14 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	Observations
USGS-395353075151501	PH 1052	39.898	-75.254	3/7/2011	51
USGS-395408075104001	PH 63	39.902	-75.177	9/14/1954	69
USGS-395416075150301	PH 1053	39.904	-75.251	4/24/2003	51
USGS-395516075113901	PH 1051	39.921	-75.194	--	53
USGS-395656075100401	PH 136	39.949	-75.167	12/6/1978	60
USGS-395859075085401	PH 1042	39.983	-75.148	2/14/2011	55
USGS-395942075144301	MG 2164	39.995	-75.245	2/14/2011	64
USGS-400211075093701	PH 1050	40.036	-75.16	--	64
USGS-400217075142101	PH 540	40.038	-75.239	3/29/1948	54
USGS-400229075104601	PH 1043*	40.041	-75.179	2/14/2011	63
USGS-400308074592201	PH 397	40.052	-74.989	1/4/1979	68
USGS-400311075101301	PH 1040	40.053	-75.17	2/17/2011	66
USGS-400327075152201	PH 1044	40.057	-75.256	3/16/2011	59
USGS-400424075104901	PH 550	40.073	-75.18	--/--/1906	59
USGS-400512075033401	PH 1045	40.087	-75.059	7/18/2011	60
USGS-400516075033201	PH 1046	40.088	-75.059	7/18/2011	53
USGS-400524075042601	MG 2195	40.09	-75.074	--	10
USGS-400527075042801	MG 2193	40.091	-75.074	--	53

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USGS-400527075042802	MG 2194	40.091	-75.074	--	59
USGS-400644074590801	PH 1041	40.112	-74.986	2/17/2011	64
USGS-400132075031001	PH 1056	40.026	-75.053	8/14/2014	22
USGS-400001075040301	PH 1057	40.00	-75.068	8/14/2014	22
USGS-400038075094601	PH 1058	40.011	-75.163	8/14/2014	22
USGS-395611075091301	PH 1059	39.936	-75.154	8/14/2014	23

* Philadelphia County observation well

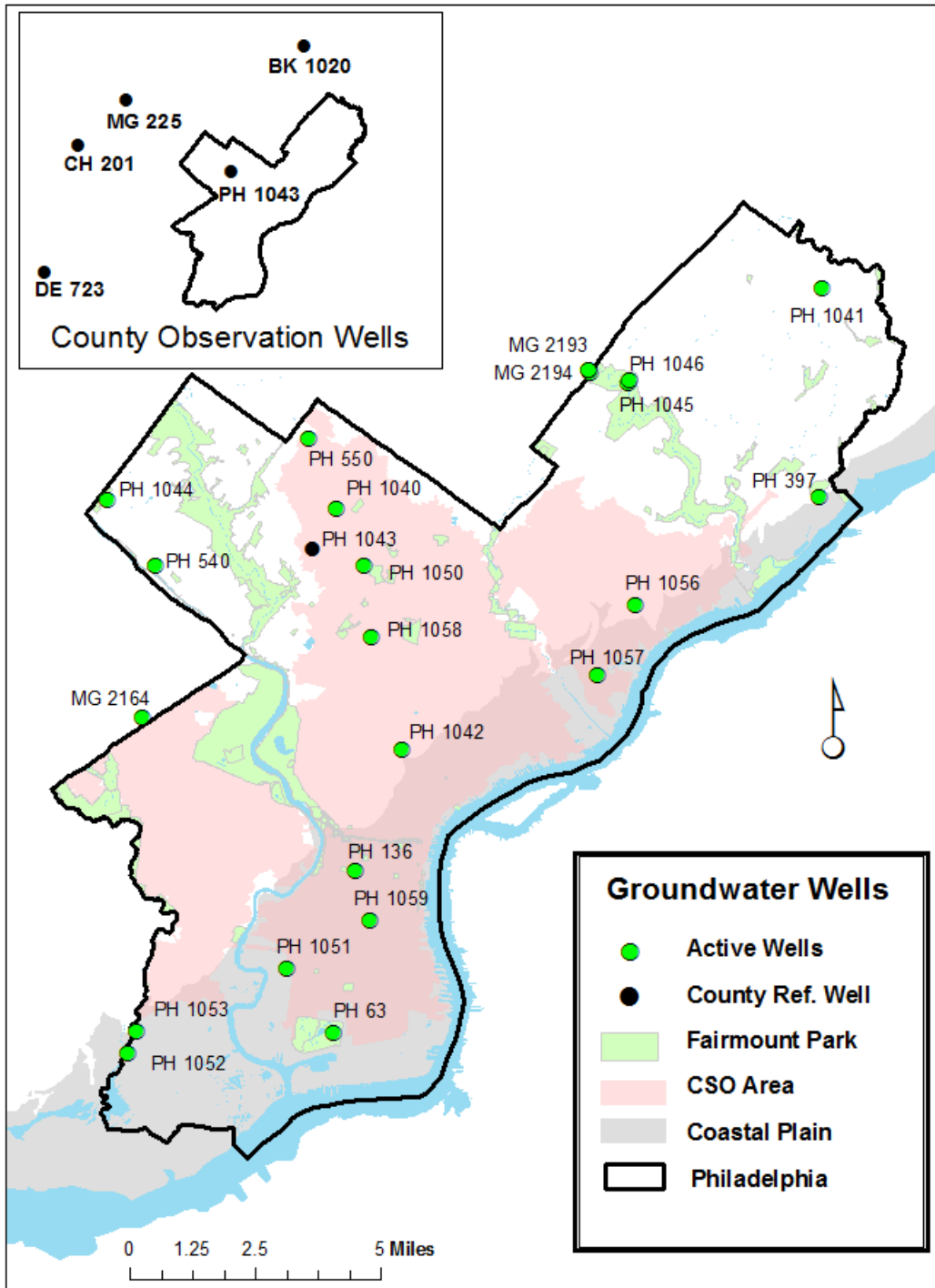


Figure 1. PWD-USGS Groundwater Monitoring Well Network Locations and (inset) County Reference Well Locations.

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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 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.

(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

Table 3. Regional County Observation Wells.

Site ID	Site Name	Lat.	Long.	Est.	Observations
USGS-400453075255601	CH 201 Chester County Observation Well	40.136	-75.351	06/19/1978	451
USGS-400808075210401	MG 225 Montgomery County Observation Well	40.199	-75.052	08/15/1956	164
USGS-401157075032001	BK 1020 Bucks County Observation Well	40.081	-75.432	04/13/1968	161
USGS-395512075293701	DE 723 Delaware County Observation Well	39.920	-75.493	1983	188

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

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 2015 to June 2016 (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).

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Table 4. PWD-USGS Groundwater Monitoring Well Data 7/2015-6/2016, Depth to Water Level (Feet below Land Surface).

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
395408075104001	5.22	5.79	6.22	5.98	5.50	5.60	6.00	6.02	5.41	5.49	5.30	5.33
395656075100401	31.15	31.43	31.46	31.37	31.61	31.36	31.36	31.18	31.05	31.44	31.47	
395859075085401	8.66	9.65	9.65	9.63	9.96	9.24	9.7	8.12	7.93	7.87	8.77	8.7
395942075144301	16.01	20.51	21.7	18.77	16.36	15.71	14.31	13.48	12.53	14.20	17.23	19.38
400229075104601	15.14	16.02	16.13	15.84	16.14	15.67	14.84	14.58	14.69	15.09	14.65	14.78
400308074592201	4.65	5.82	7.01	7.72	8.17	8.31	7.26	5.7	5.02	5.32	4.69	5.72
400311075101301	10.89	12.12	12.56	12.67	11.31	12.4	9.98	9.27	10.12	9.48	9.23	10.4
400327075152201	61.56	68.85	72.77	74.38	75.67	76	74.61	63.76	61.33	61.13	58.18	58.81
400424075104901	18.65	19.43	20.05	20.22	20.69	20.31	18.98	18.15	16.98	17.39	17.68	18.07
400512075033401	35.61	36.40	36.13	36.38	36.36	36.43	33.32	34.88	33.8	33.22	34.38	34.41
400516075033201	28.99	29.72	30.2	30.36	30.84	31.17	29.82	31.71	31.07	30.87	30.26	29.51
400644074590801	17.92	18.15	18.64	18.78	18.98	18.79	18.67	17.75	18.12	17.57	16.95	17.82
395353075151501	15.03	15.41	15.76	15.89	16.21	11.14	16.08	15.90	15.16	15.24	15.17	15.19
395416075150301	7.62	8.48	10.14	10.61	11.47	15.89	9.55	9.44	8.49	8.41	7.84	7.90
395516075113901	27.56	28	28.48	28.55	28.67	28.56	28.75	29	28.02	28	27.8	27.97
400211075093701	13.71	13.77	13.91	13.88	13.84	13.86	14.15	14.18	14.22	14.33	14.22	14.14
400217075142101	27.98	28.5	39.43	30.04	30.17	30.77	30.62	32.02	30.41	30.65	31.8	31.07
400527075042801	21	21.94	22.13	21.84	22.63	21.96	19.6	20.07	20.07	20.69	20.15	20.33
400527075042802	22.82	24.38	25.23	25.22	26	25.15	30.39	20.5	21.88	21.59	19.78	21.22
400132075031001	20.61	21.02	21.2	21.14	21.13	20.79	21.03	20.53	20.42	20.33	20.14	20.43
400001075040301	15.07	15.30	15.87	15.86	16.24	16.20	16.33	15.69	15.53	15.81	15.67	15.72
400038075094601	19.96	19.93	20.03	20.00	19.94	20.10	20.22	19.71	19.62	19.55	20.03	20.00
395611075091301	26.91	26.93	27.11	27.21	27.44	27.52	27.40	27.42	27.26	26.81	27.09	27.21

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Table 5. Regional County Observation Well Data 7/2015 - 6/2016.

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
400453075255601	21.02	22.57	23.82	23.62	23.54	22.9	20.05	17.98	19.03	20.45	20.03	21.57
400808075210401		10.87	13.38		13.12		9.53		7.42	9.73	9.69	
401157075032001		35.01	37.43		37.82	37.2	32.82		26.83	29.18	30.54	
395512075293701		7.29	8.09		7.65	7.83	6.98	6.59		6.68	6.84	

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Appendix J – 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

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Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

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 March 6 and March 21, 2014. PWD is not aware of any spills, discharges or unusual conditions that would tend to cause misleading results.

Table 1. PWD Proposed 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
2018	Poquessing Creek

* 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 8 USGS gage sites, 12 mainstem sites in the targeted Wissahickon watershed, and 2 randomly chosen sites from PWD's watershed assessment site network between 3/10/2015 and 4/2/2015 (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.

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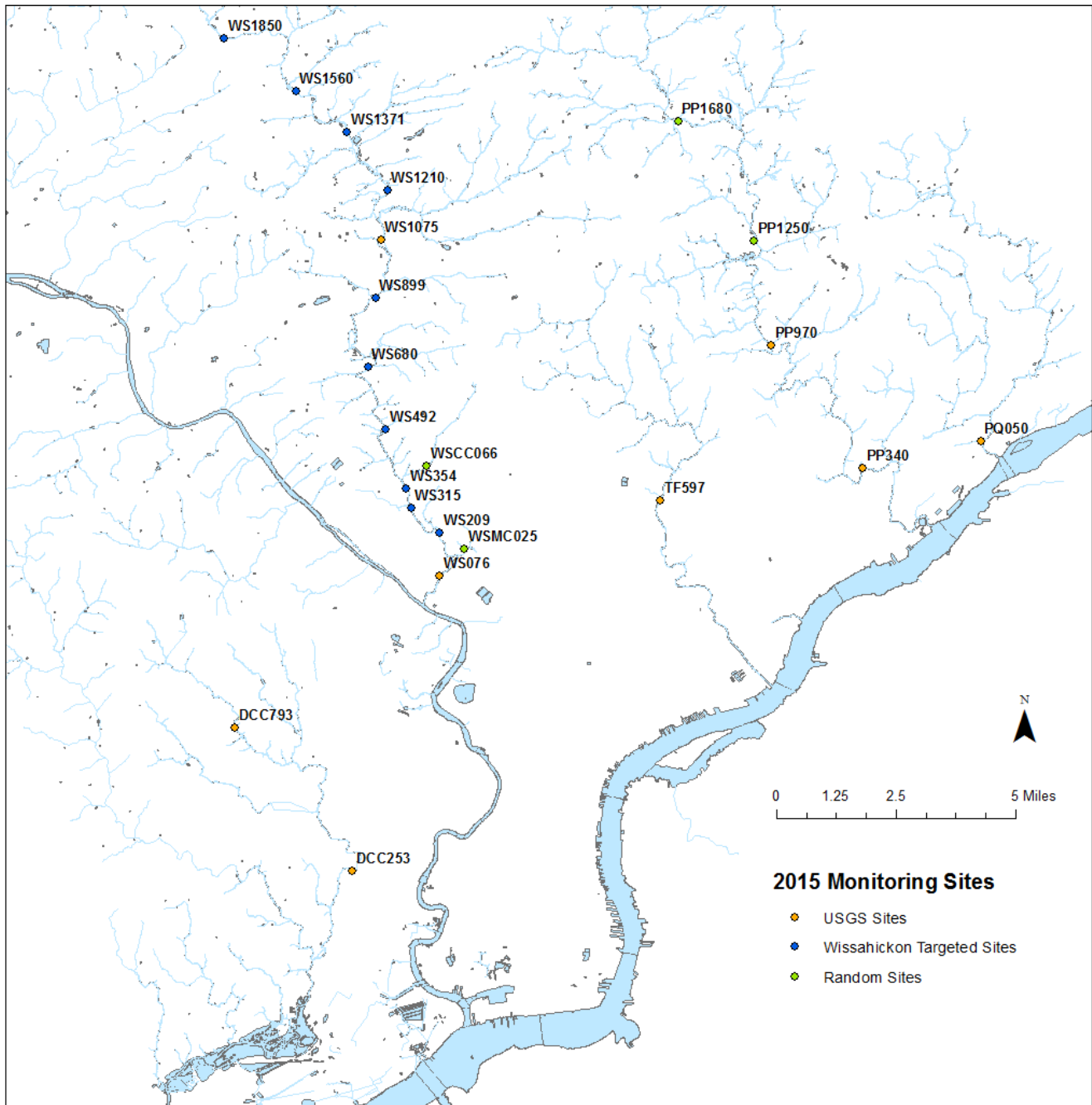


Figure 1. PWD Wadeable Streams Assessment Locations - Spring 2015

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Table 4. PWD-USGS Cooperative Monitoring Program Monitoring Locations

Site ID	USGS Gage	Site Description	Drainage Area (mi ²)
DCC253	01475548	Cobbs Creek at Mount Moriah Cemetery	19.78
DCC793	01475530	Cobbs Creek at City Line Ave.	4.6
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
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. Wissahickon Mainstem and Random Monitoring Sites, Spring 2016

Site ID	Site Description	Drainage Area (mi ²)
WS1210	250 ft DS of Morris Rd bridge	26.36
WS1371	700 ft DS of W. Mount Pleasant Ave bridge	0.189
WS1560	350 ft US of Penllyn Blue Bell Pike bridge	15.60
WS1850	350 ft US of Swedesford Rd bridge	7.71
WS209	930 ft US of Walnut Rd bridge	60.76
WS315	400 ft US of Mount Airy Rd bridge	59.90
WS354	500 ft DS of Livezy Rd dam	58.99
WS492	350 ft DS of Rex Ave bridge	54.76
WS680	Chestnut Hill College tennis courts; 650 ft US of Gtown Pk bridge	52.48
WS899	3000 ft US of Stenton Ave bridge (Wiss. Cricket Club)	45.32
PP1680	500 ft US of Davisville Rd bridge	15.43
WSCC066	100 ft US of McCallum St bridge	2.08
WSMC025	400 ft US of Rittenhousetown stone bridge	1.57
PP1250	300 ft DS of Old Welsh Rd bridge	27.26

Benthic Macroinvertebrate Monitoring Results - Spring 2015

A total of 4,829 benthic macroinvertebrates from 34 taxa were collected from the 22 sampling sites. When compared to PADEP ICE protocol metric reference conditions, all assessment sites were classified as impaired. Not one of the sites achieved 63% comparability of the reference IBI for attaining the designated use (Figure 2). All sites fell below 50% comparability, meaning that they are not meeting the Aquatic Life Use (ALU) designation. Percent comparability with the standard reference IBI score ranged from 19.2% to 33.2%. All sites were characterized by low taxa richness, low or absent modified EPT taxa, and elevated Hilsenhoff Biotic Index scores (Table 6, Figures 2-7).

Table 6. PADEP ICE Metric Scores

Site ID	Taxa Richness	EPT richness (PTV 0-4)	% Sensitive individuals	Beck's Index	HBI	Shannon Index	IBI score
PP1250	17	3	3.814	2	5.29	1.837	33.2
WS076	11	1	0.446	0	5.79	1.079	21.5
WS209	13	1	1.282	2	5.85	1.136	23.7
WS315	14	1	1.261	0	5.60	1.444	25.7
WS354	12	1	4.926	0	5.47	1.278	24.7
WS492	14	1	0.952	0	5.36	1.635	27.2
WS680	10	1	0.427	1	5.14	1.610	25.8
WS899	15	1	3.057	0	5.66	1.891	29.0
WS1075	13	0	2.817	0	5.71	1.278	23.4
WS1210	13	1	0.503	1	5.82	1.262	23.9
WS1371	16	1	0.490	1	5.58	1.320	26.3
WS1560	14	1	0.418	0	5.59	1.326	24.8
WS1850	16	1	0.000	0	6.53	1.544	25.1
WSMC025	8	1	1.702	0	5.92	0.961	19.2
WSCC066	13	2	3.376	3	5.64	1.229	26.4
PP970	13	1	6.335	1	5.20	1.724	29.0
DCC793	10	1	8.377	0	5.31	1.510	26.0
DCC253	19	1	4.188	2	6.02	1.927	31.6
PP340	15	1	2.500	1	5.82	1.396	26.1
PP1680	14	1	0.901	1	6.00	1.375	24.8
PQ054	15	1	9.140	0	5.51	1.893	30.5
TF597	13	1	3.000	0	5.61	1.453	25.5

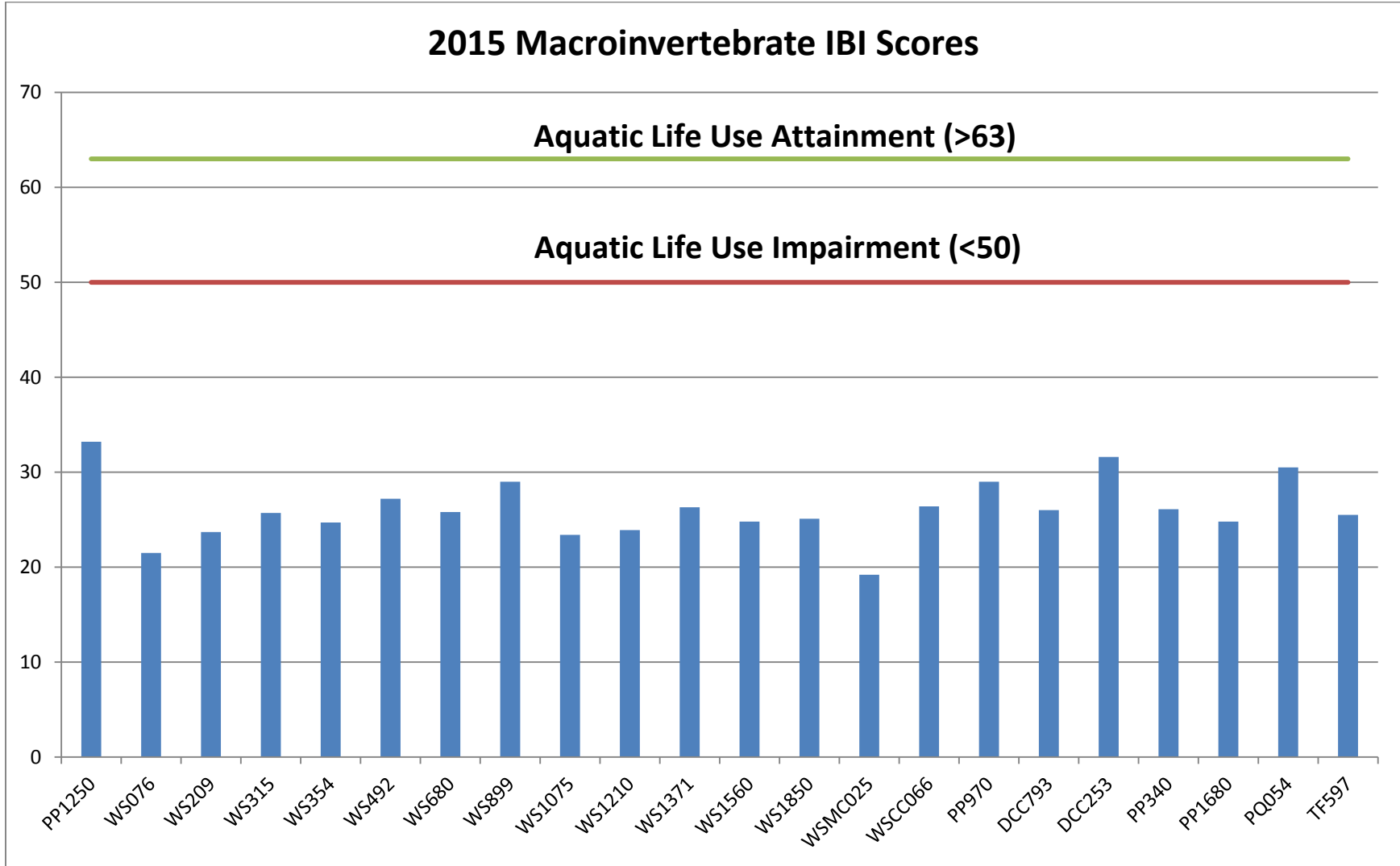


Figure 2. Macroinvertebrate IBI Scores - Spring 2015

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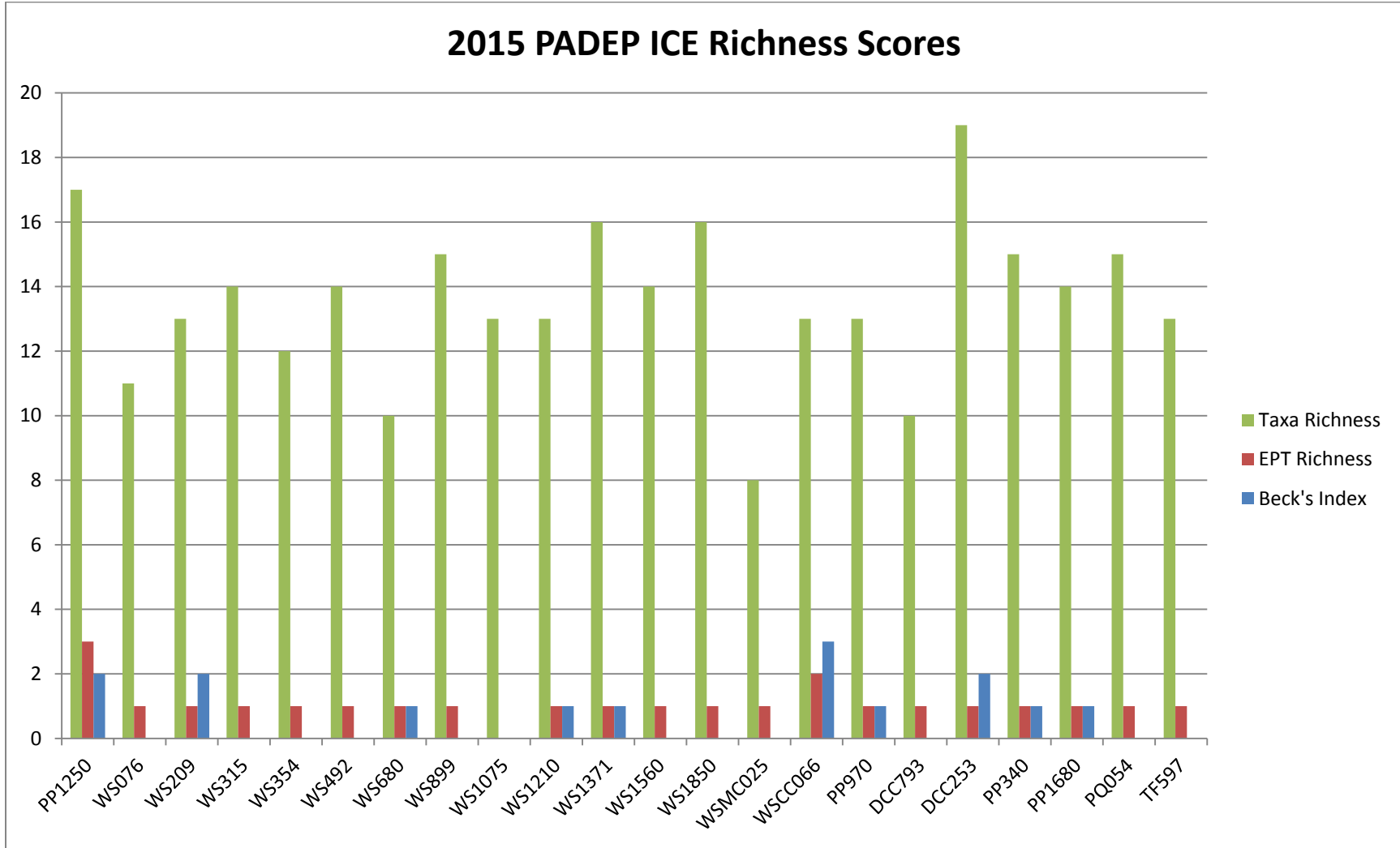


Figure 3. Macroinvertebrate ICE Richness Scores – Spring 2015

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Very sensitive taxa (pollution tolerance value ≤ 2) were present at only 4 of the 10 mainstem sites. Site WSCC066 upstream of McCallum St bridge had the highest Beck's Index score ($n=3$) and included one taxon with pollution tolerance values of zero: *Glossosoma* (Trichoptera; Glossosomatidae). 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 0.961 to 1.927, compared to the reference metric value of 2.86. The site with the greatest diversity was the Cobbs Creek at Mount Moriah Cemetery DCC253 (SDI=1.927), with a taxa richness ($n=19$), EPT taxa richness ($n=1$), and HBI (6.02).

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 5.65, and scores at the 22 assessment sites ranged from 5.14 to 6.53 (Figure 4).

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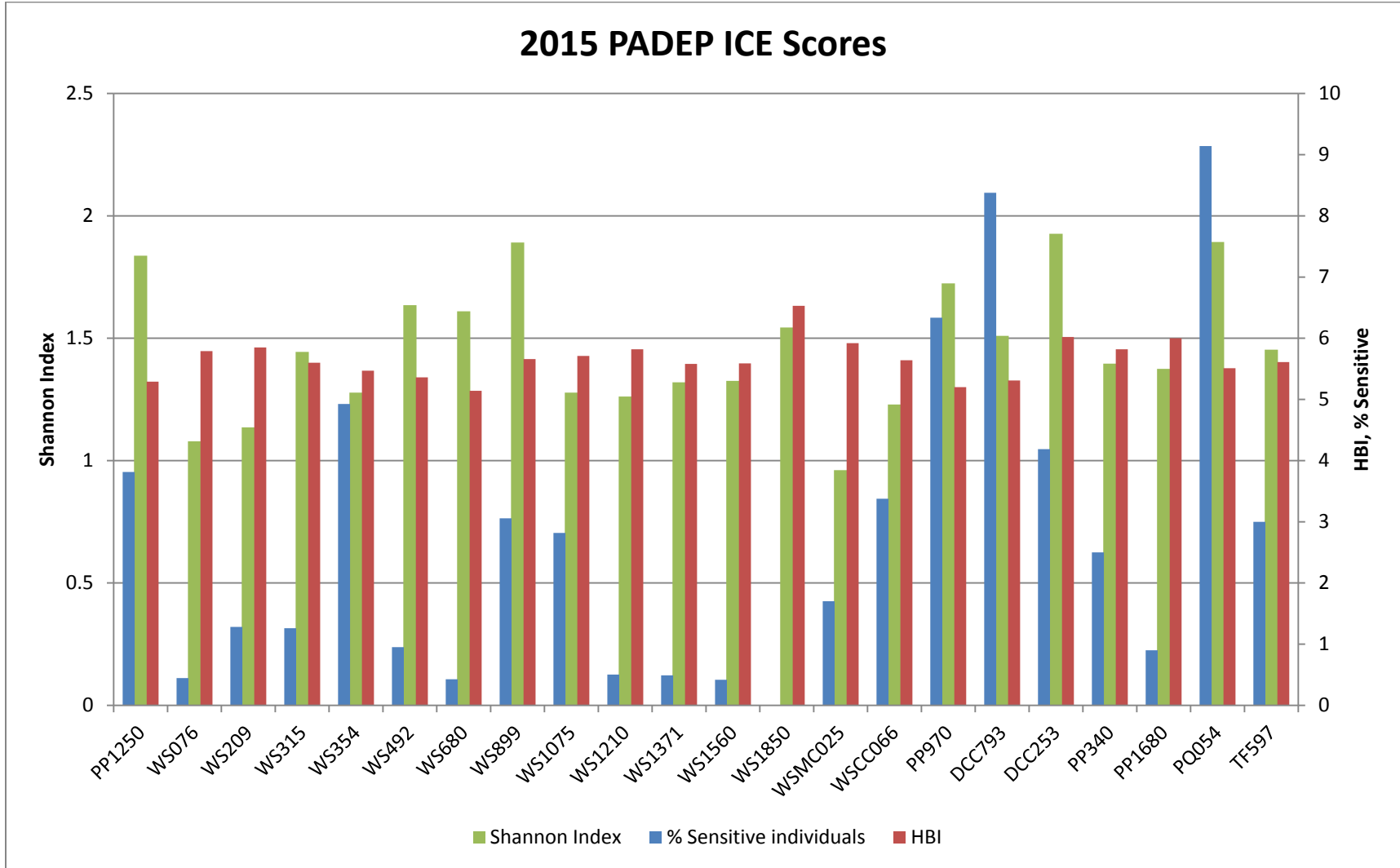


Figure 4. PADEP ICE Scores - Spring 2015

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In addition to metrics used to classify sites as being impaired with respect to regional or statewide reference conditions, additional attributes of macroinvertebrate community structure were also considered at the Wissahickon sites. With regard to trophic structure (*i.e.*, the distribution of feeding strategies), generalist feeders (64.07%) and filterers (28.31%) dominated at all Wissahickon assessment sites (Figure 5).

Specialized feeders—a group that is generally more sensitive to perturbation than generalist feeders—were absent or found in low abundance. Scrapers comprised only 5.92% of all taxa. The scrapers in question were usually not sensitive insect larvae but rather aquatic snails and *Stenelmis* (Coleoptera; Elmidae). Other functional feeding groups, predators (1.35%) and shredders (0.35%), were observed in the macroinvertebrate assessment but to a much lesser extent. Analysis of the aquatic trophic structure can indicate potential stressors such as sedimentation/siltation and eutrophication, and it may identify food resource limitations. However, it cannot distinguish between the interactions of the two factors.

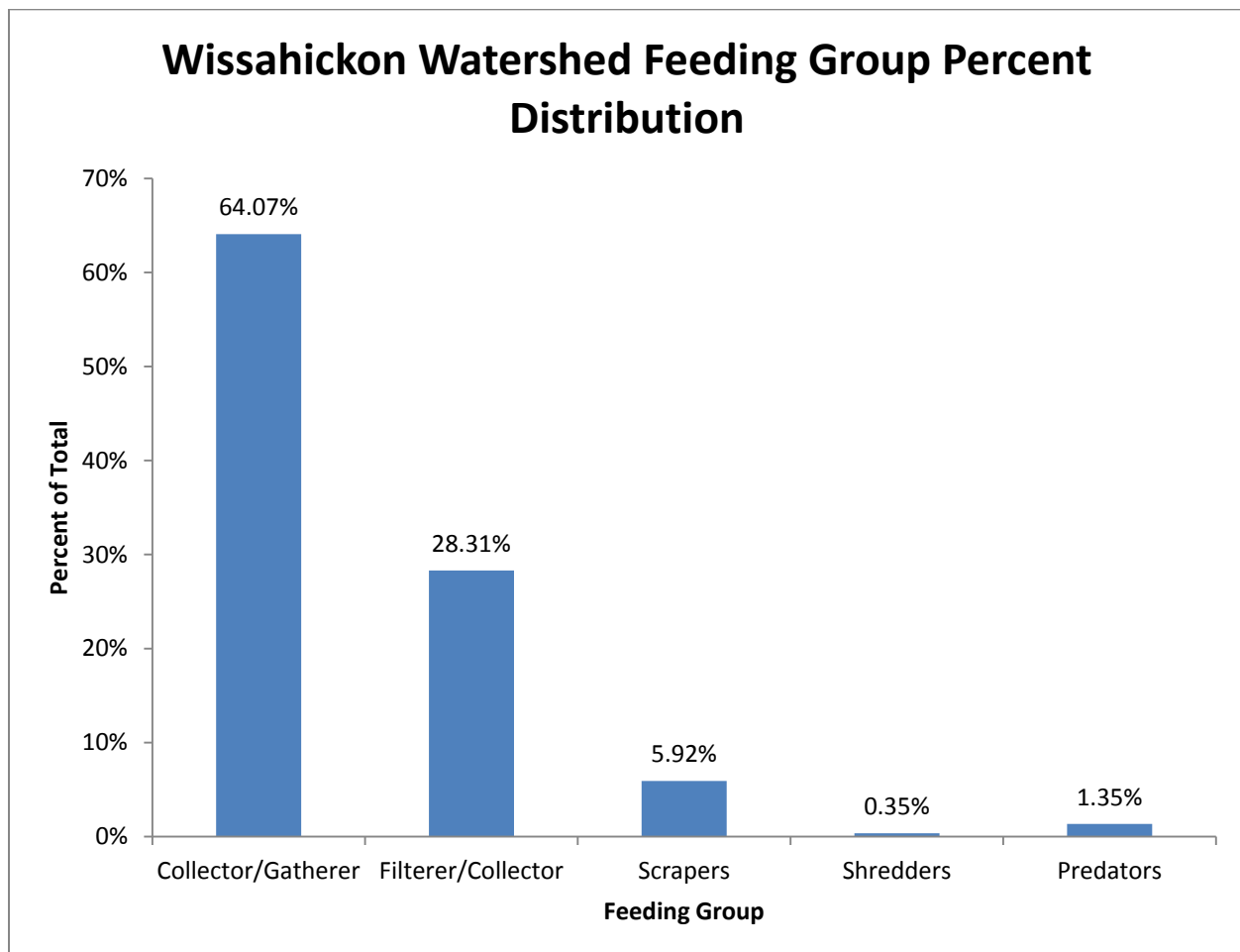


Figure 5. Feeding Group Percent Distribution - Spring 2015

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 averaged 81.29%, with a range of 65.24% to 95.48%. The site with the greatest proportion of moderately tolerant taxa was WS1210, with 95.48% dominance directly related to a high number of Chironomidae (n=123) found within the sorted sample (n=199). Overall, Chironomids (Figure 6) were the dominant taxon at all but one of the assessment locations (DCC253, where Chironomids were outnumbered by *Trichoptera hydropsyche*). 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 6. Chironomid, or non-biting midge
Photo: Simon Johnston

Tolerant taxa accounted for an average of 4.41% of all taxa, and the proportion of tolerant taxa at each monitoring site ranged from 0.43%-21.94%. Intolerant taxa were also poorly represented, averaging 14.29% of all taxa collected at the sites. The proportion of intolerant taxa at each site ranged from 2.51% to 30.48%.

Sensitive taxa (pollution tolerance values ≤ 3) were collected at 21 of the 22 sites (Table 7). The rarity of sensitive taxa 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*

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(Diptera; Tipulidae pollution tolerance value n=3) was found at 17 sites and was the most commonly collected sensitive taxon.

Table 7. Sensitive Taxa Collected

Site	Order	Family	Genus	HBI
PP1250	Diptera	Tipulidae	<i>Antocha</i>	3
PP1250	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
PP1250	Coleoptera	Elmidae	<i>Microcylleopus</i>	2
WS076	Diptera	Tipulidae	<i>Antocha</i>	3
WS209	Diptera	Tipulidae	<i>Antocha</i>	3
WS209	Coleoptera	Elmidae	<i>Macronychus</i>	2
WS209	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
WS315	Diptera	Tipulidae	<i>Antocha</i>	3
WS354	Diptera	Tipulidae	<i>Antocha</i>	3
WS492	Diptera	Tipulidae	<i>Antocha</i>	3
WS680	Coleoptera	Elmidae	<i>Microcylleopus</i>	2
WS899	Diptera	Tipulidae	<i>Antocha</i>	3
WS1075	Diptera	Tipulidae	<i>Antocha</i>	3
WS1210	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
WS1371	Diptera	Simuliidae	<i>Prosimulium</i>	2
WS1560	Diptera	Tipulidae	<i>Antocha</i>	3
WSMC025	Diptera	Tipulidae	<i>Antocha</i>	3
WSCC066	Trichoptera	Flossosomatidae	<i>Glossosoma</i>	0
WSCC066	Diptera	Tipulidae	<i>Antocha</i>	3
PP970	Diptera	Tipulidae	<i>Antocha</i>	3
PP970	Coleoptera	Elmidae	<i>Macronychus</i>	2
DCC793	Diptera	Tipulidae	<i>Antocha</i>	3
DCC253	Diptera	Tipulidae	<i>Antocha</i>	3
DCC253	Neuroptera	Sisyridae	<i>Sisyra</i>	1
PP340	Diptera	Tipulidae	<i>Antocha</i>	3
PP340	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
PP1680	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
PQ054	Diptera	Tipulidae	<i>Antocha</i>	3
TF597	Diptera	Tipulidae	<i>Antocha</i>	3
PP1250	Diptera	Tipulidae	<i>Antocha</i>	3
PP1250	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
PP1250	Coleoptera	Elmidae	<i>Microcylleopus</i>	2
WS076	Diptera	Tipulidae	<i>Antocha</i>	3
WS209	Diptera	Tipulidae	<i>Antocha</i>	3
WS209	Coleoptera	Elmidae	<i>Macronychus</i>	2
WS209	Coleoptera	Elmidae	<i>Ancyronyx</i>	2

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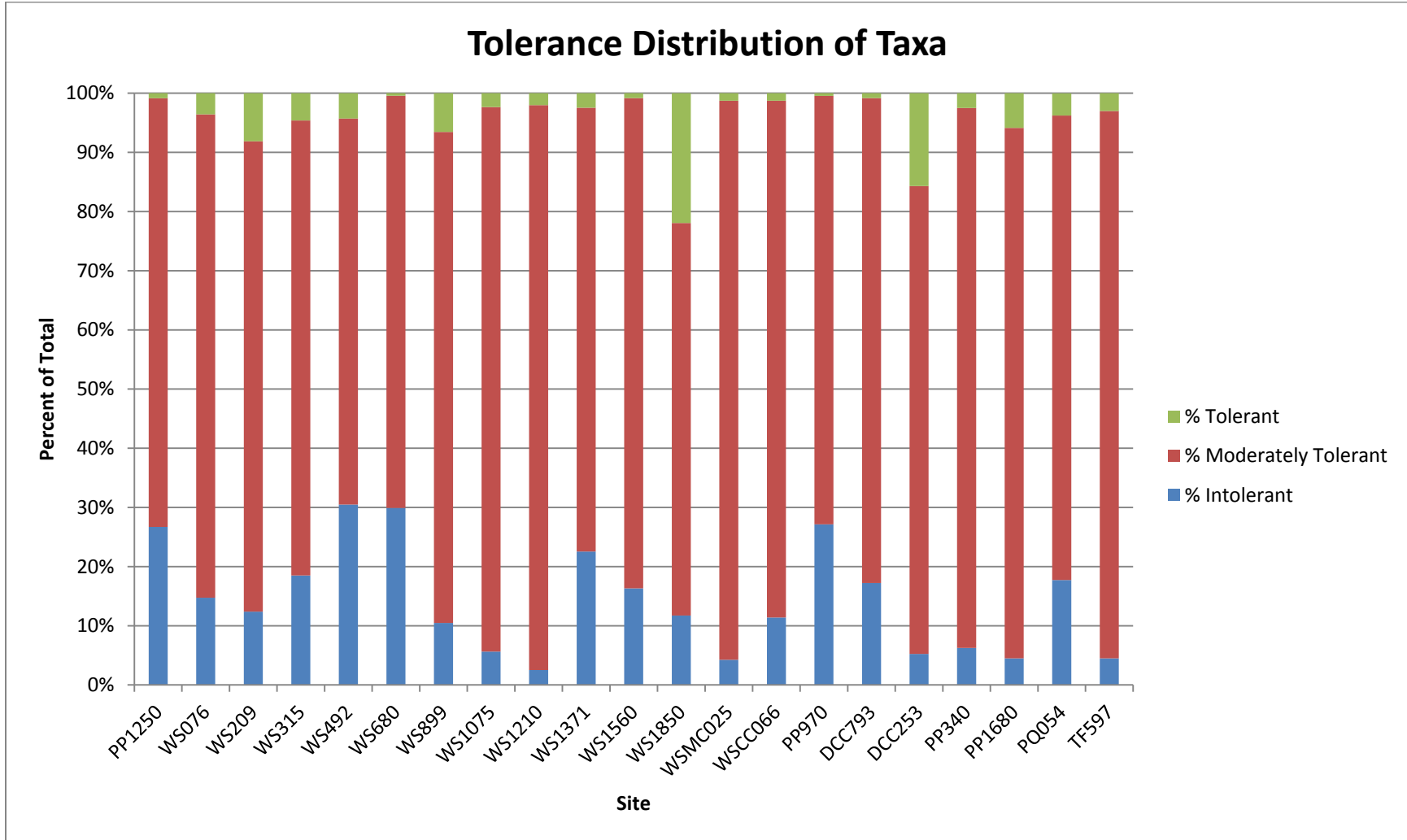


Figure 7. Tolerance Distribution of Taxa - Spring 2015

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Table 8. 2015

Benthic

Macroinvertebrate

Order	Family	Genus
Diptera	Chironomidae	<i>spp</i>
Amphipoda	Crangonyctidae	<i>Crangonyx</i>
Amphipoda	Gammaridae	<i>Gammarus</i>
Bivalvia	Corbiculidae	<i>Corbicula</i>
Coleoptera	Psephenidae	<i>Psephenus</i>
Coleoptera	Elmidae	<i>Stenelmis</i>
Coleoptera	Elmidae	<i>Ancyronyx</i>
Coleoptera	Elmidae	<i>Optioservus</i>
Coleoptera	Elmidae	<i>Microcylleopus</i>
Coleoptera	Elmidae	<i>Macronychus</i>
Coleoptera	Psephenidae	<i>Ectopria</i>
Coleoptera	Hydrophilidae	<i>Berosus</i>
Diptera	Tipulidae	<i>Tipula</i>
Diptera	Tipulidae	<i>Antocha</i>
Diptera	Chironomidae	<i>spp</i>
Diptera	Simuliidae	<i>Simulium</i>
Diptera	Empididae	<i>Hemerodromia</i>
Diptera	Tipulidae	<i>Molophilus</i>
Diptera	Simuliidae	<i>Prosimulium</i>
Ephemeroptera	Heptageniidae	<i>Stenacron</i>
Ephemeroptera	Baetidae	<i>Baetis</i>
Gastropoda	Planorbidae	<i>spp</i>
Gastropoda	Physidae	<i>spp</i>
Gastropoda	Physidae	<i>spp</i>
Hirudinea	n/a	<i>n/a</i>
Hydracarina	n/a	<i>n/a</i>
Isopoda	Asellidae	<i>Caecidotea</i>
Lepidoptera	Pryalidae	<i>Petrophila</i>
Lepidoptera	Pyralidae	<i>Petrophila</i>
Nematoda	n/a	<i>n/a</i>
Nemertea	n/a	<i>n/a</i>
Odonata/Zygoptera	Coenagrionidae	<i>Argia</i>
Oligochaeta	n/a	<i>n/a</i>
Ostracoda	n/a	<i>n/a</i>

Taxa List

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Physical Habitat Monitoring Results - Spring 2015

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). Only one site (PP1250) received an optimal score for embeddedness, and no sites received optimal status for sediment deposition for habitat (Table 9, Figure 10). The Cobbs Creek at Mt Moriah site DCC 253 had the worst total habitat scores of all sites, while Wissahickon site WS315 (upstream of Mt. Airy Rd Bridge) had the best scores for all sites.

Table 9. Physical Habitat Scores at All Monitoring Sites - Spring 2015

Site ID	Instream	Epifaunal	Embed	Veldep	Chanalt	Seddep	Riffreq	Chanflo	Bankcond	Vegpro	Graze	Ripveg	Total Score
DCC253	6.5	6.5	5.5	11	13	6	9	12.5	9.5	11	9.5	9	109
DCC793	14.5	9.5	12.5	16.5	16	8.5	11	9.5	9.5	15.5	16	14.5	153.5
WSMC025	5.5	6	11.5	6.5	8.5	10	12	9	13	15.5	7	9	113.5
WS076	15.5	13.5	14.5	17	7.5	13.5	6	13.5	11.5	5	9	8	134.5
PP340	14	13	13	16.5	15	9.5	12	11.5	12.5	16.5	17	17	167.5
PP970	16.5	14.5	13.5	17	17.5	9.5	12	7.5	9.5	14	11.5	14.5	157.5
PQ053	7	7.5	7	12	14.5	5.5	6.5	9	4.5	12	14.5	9.5	109.5
TF597	5.5	8.5	6	11	10	7	4.5	9	10	13	13	13.5	111
WS1075	6	9.5	6.5	11.5	13.5	8	9.5	13.5	7.5	14.5	16.5	17	133.5
WS1850	17	14	17	16.5	15	12.5	15.5	11.5	14	18	18	15.5	184.5
PP1680	16	11.5	8.5	16	14.5	7	9.5	8	5	12	8	9.5	125.5
PP1250	17.5	14	16.5	17.5	14	12.5	13	12.5	9	15	16.5	14	172
WS209	16	13	12.5	16	18	14	14.5	16.5	14.5	18	18.5	18.5	190
WS315	17	18	17	18	16	15	13	14	15	17.5	18.5	19	198
WS492	17.5	18.5	15	18	15	14	11.5	15	13.5	17	17.5	17.5	190
WS680	14	14.5	11	16	13.5	9.5	16	16	6.5	11	8.5	10	146.5
WS899	11.5	10	7.5	14	17.5	12	6	14.5	6.5	13	18	18.5	149
WS1210	13	12.5	9	13	14.5	13	12	14.5	7	12	13.5	13	147
WS1371	14.5	13	11.5	16	7	13	13	14.5	17	9	11.5	6.5	146.5
WS1560	8	10	13.5	10	17	13.5	16.5	16	16	17	18	17	172.5
WSCC066	13	10	12.5	11	13	13.5	13	9	9.5	14.5	16.5	16.5	152
WS354	18	18	15	18.5	13	14.5	16.5	14.5	18	16	17.5	17.5	197
DCC253	6.5	6.5	5.5	11	13	6	9	12.5	9.5	11	9.5	9	109
DCC793	14.5	9.5	12.5	16.5	16	8.5	11	9.5	9.5	15.5	16	14.5	153.5

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5 Critical Habitat Scores

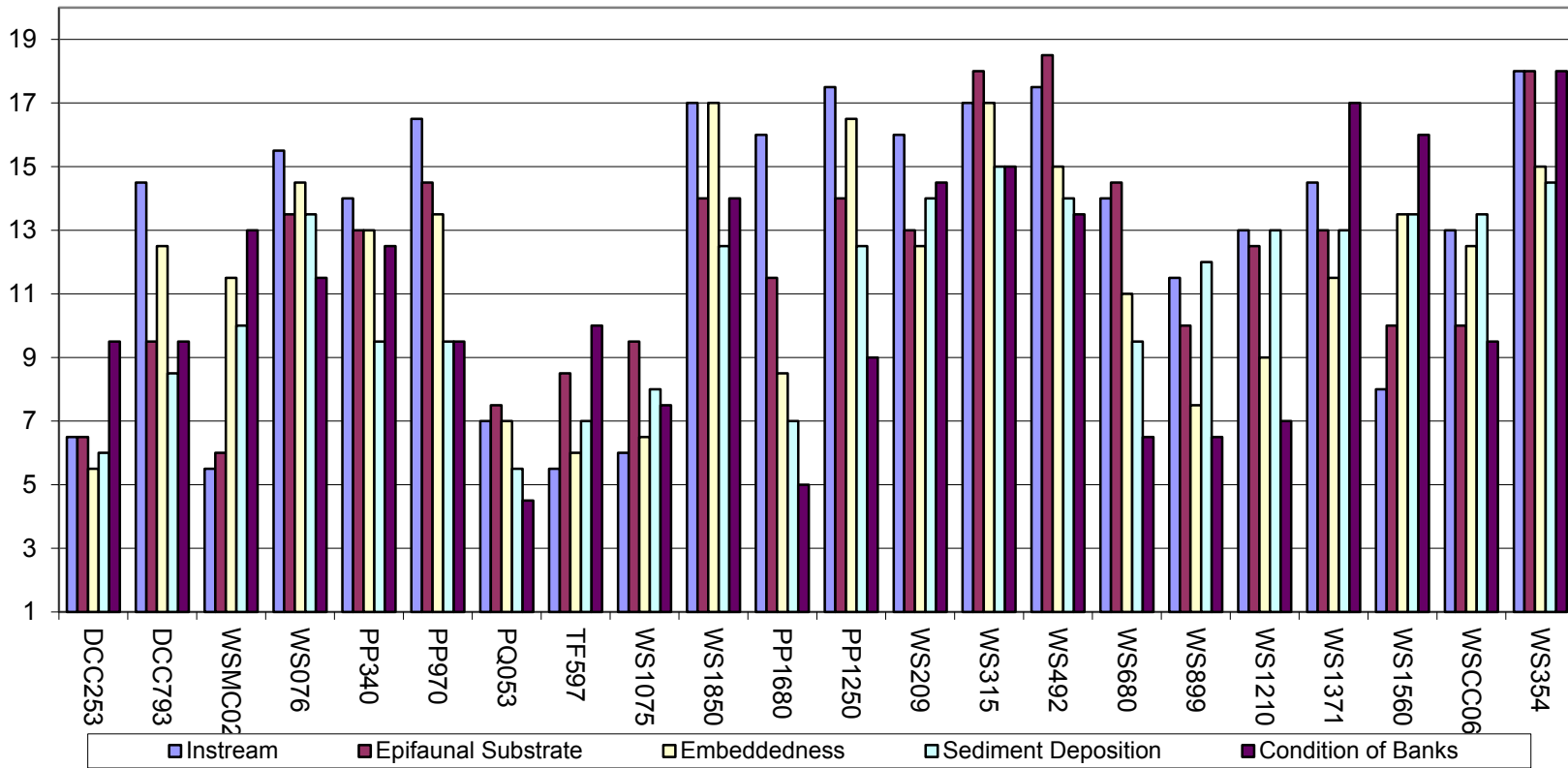


Figure 10. Critical Habitat Scores, Spring 2015

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Although it is much too early to draw conclusions regarding trends at the eight long-term PWD-USGS cooperative monitoring sites, embeddedness and sediment deposition results are shown below (Figures 11-12). Many factors contribute to interannual variability in the data, and it is hoped that future work will provide some insight into long-term trends.

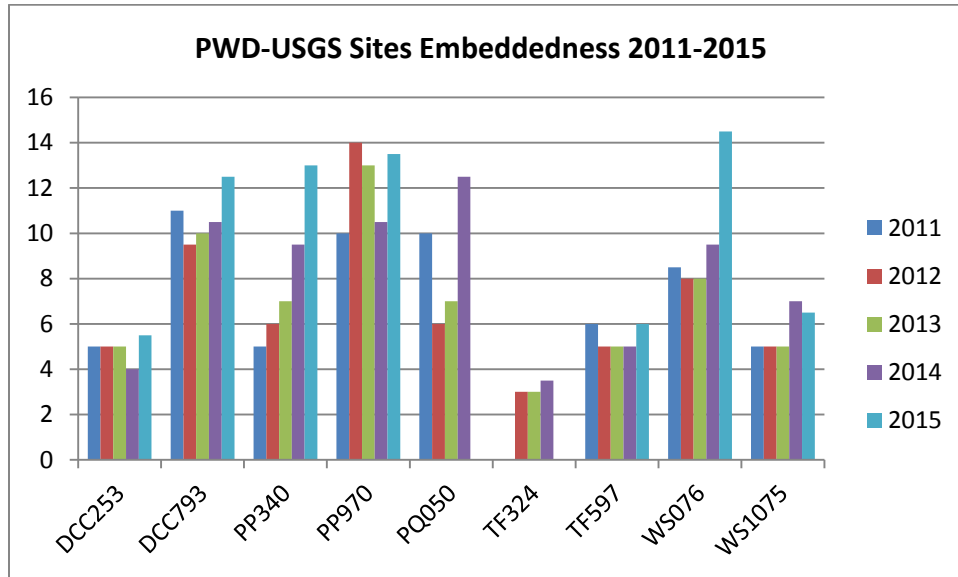


Figure 11. Comparison of PWD-USGS Sites Embeddedness Scores, 2011-2015*

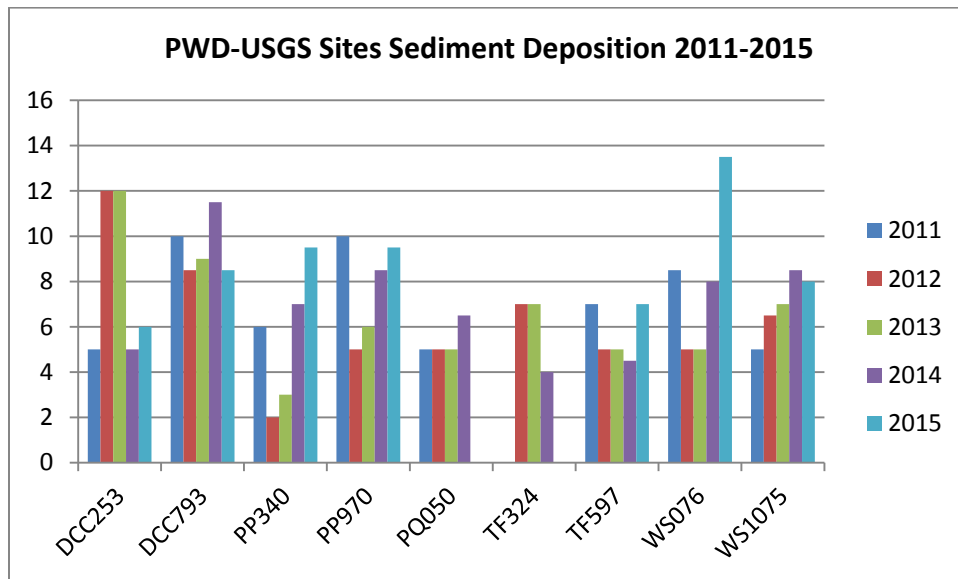


Figure 12. Comparison of PWD-USGS Sites Sediment Deposition Scores, 2011-2015*

*In 2013, samples for TF324 were taken from nearby site TF328. TF324 was not sampled in 2015.

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Appendix K – NPDES Industrial Stormwater Permitted Sites in Philadelphia County

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
PAG-03 General				
1035444	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	A&H AUTO PARTS PASSYUNK AVE FAC	Clean Water	6255 PASSYUNK AVE, PHILA, PA 19153
961161	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ABF FREIGHT SYS	Clean Water	4000 RICHMOND STREET, PHILADELPHIA, PA 19137
1100082	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ALLEGHENY IRON & METAL TACONY ST FAC	Clean Water	TACONY ST & ADAMS AVE, PHILADELPHIA, PA 19124
1144914	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ALLIED TRANSPORT W. INDIANA AVE FACILITY	Clean Water	1801 W. INDIANA AVE, PHILADELPHIA, PA 19132
1055936	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ALLIED TUBE & CONDUIT NORCOM RD PLT	Clean Water	11350 NORCOM RD, PHILADELPHIA, PA 19154
329442	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	AMER AUTO PARTS 61ST STREET FAC	Clean Water	3501 S 61ST ST, PHILADELPHIA, PA 19153
1072548	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ARCA ADVANCED PROC N DELAWARE AVE FAC	Clean Water	4301 N DELAWARE AVE, PHILADELPHIA, PA 19137
878137	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ARDEX LAB	Clean Water	2050 BYBERRY RD, PHILADELPHIA, PA 19116
1016261	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ATLANTIC AVIATION ENTERPRISE AVE FAC	Clean Water	8375 ENTERPRISE AVE, PHILA INT AIRPORT, PHILADELPHIA, PA 19153
1032035	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ATLANTIC USED AUTO PARTS ESSINGTON AVE FAC	Clean Water	6544 ESSINGTON AVE, PHILADELPHIA, PA 19153

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1041802	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	B & L AUTO PARTS 61ST STREET FAC	Clean Water	3404 S 61ST ST, PHILADELPHIA, PA 19153
1056853	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BEMIS HEALTHCARE PKG PHILA	Clean Water	9800 BUSTELTON AVE, PHILADELPHIA, PA 19115
1039992	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BIG HEAD AUTO SALVAGE CORP	Clean Water	3511 S 61ST ST, PHILADELPHIA, PA 19153-3522
1081872	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BILL'S AUTO PARTS PASSYUNK AVE FAC	Clean Water	6235 PASSYUNK AVE, PHILADELPHIA, PA 19153
856840	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BRITTON IND INC	Clean Water	8901 TORRESDALE AVE, PHILADELPHIA, PA 19154
325198	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	BUDD PHILA PLT	Clean Water	2450 HUNTINGPARK AVE, PHILADELPHIA, PA 19129
1041005	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	C&E AUTO PARTS ESSINGTON AVE	Clean Water	6796 ESSINGTON AVENUE, PHILADELPHIA, PA 19153
1137392	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CARTEL AUTO PARTS W PASSYUNK AVE FAC	Clean Water	6330 W PASSYUNK AVE, PHILA, PA 19153
1102641	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CLEAN EARTH OF PHILA FAC	Clean Water	3201 S 61ST ST, PHILADELPHIA, PA 19153-3502
868314	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CLEARFIELD RECYCLING CLEARFIELD ST FAC	Clean Water	547 W. CLEARFIELD ST, PHILADELPHIA, PA 19133
1002506	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	CSX INTERMODAL CHRISTOPHER COLUMBUS AVE FAC	Clean Water	3400 S. CHRISTOPHER COLUMBUS BLVD, PHILADELPHIA, PA 19148

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COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1020028	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DAVE'S DELAWARE VALLEY TOWING PASSYUNK AVE FAC	Clean Water	6159 PASSYUNK AVE, PHILADELPHIA, PA 19153
941310	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DELAVALU ROOSEVELT BLVD PLT	Clean Water	10101 ROOSEVELT BLVD, PHILADELPHIA, PA 19154
973172	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	DHL EXPRESS HOLSTEIN AVE FAC	Clean Water	7600 HOLSTEIN AVE, PHILADELPHIA, PA 19153
1086796	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ECO ENERGY PHILLY	Clean Water	3400 S CHRISTOPHER COLUMBUS BLVD PHILADELPHIA, PA 19148-5110
1033602	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ESSINGTON AVE AUTO PARTS FAC	Clean Water	6770 ESSINGTON AVE, PHILADELPHIA, PA 19153
1138130	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	EXELON RICHMOND GENERATING STA	Clean Water	3901 N DELAWARE AVE, PHILADELPHIA, PA 19137
970846	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FC HAAB SCHUYLKILL AVE TERM	Clean Water	1701 SCHUYLKILL AVE, PHILADELPHIA, PA 19145
383091	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FEDEX GREYS FERRY AVE FAC	Clean Water	3600 GRAYS FERRY AVE, PHILADELPHIA, PA 19146
1029239	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FEDEX TOWNSEND RD FAC	Clean Water	14300 TOWNSEND RD, PHILADELPHIA, PA 19154
329466	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	FIORES AUTO PARTS 61ST STREET FAC	Clean Water	3300 S 61ST ST, PHILADELPHIA, PA 19153
1008654	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	GREENWICH TERM S COLUMBUS BLVD FAC	Clean Water	3301 S COLUMBUS BLVD, PHILADELPHIA, PA 19148

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 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1040038	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	GYES AUTO PARTS	Clean Water	3405 S 61ST ST, PHILADELPHIA, PA 19153
813532	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	HAROLDS USED AUTO PARTS WHITBY AVE FAC	Clean Water	5347 WHITBY AVE, PHILADELPHIA, PA 19143
937481	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	HONEYWELL FRANKFORD PLT	Clean Water	4698 BERMUDA STREET, PHILADELPHIA, PA 19137
1047066	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JACK'S AUTO PARTS S 61ST ST FAC	Clean Water	3517-55 S 61ST ST, PHILADELPHIA, PA 19153
1033629	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JIM'S AUTO RECYCLING W PASSYUNK AVE FAC	Clean Water	6299 W PASSYUNK AVE, PHILADELPHIA, PA 19153
1098554	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	JT'S USED AUTO PARTS S 61ST ST FAC	Clean Water	3505 S 61ST ST, PHILADELPHIA, PA 19153
1056063	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	KANCO METALS INC	Clean Water	4601 BATH ST, PHILADELPHIA, PA 19137-2216
1057006	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	KINDER MORGAN POINT BREEZE TERM	Clean Water	6310 PASSYUNK AVE, PHILADELPHIA, PA 19153
885173	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	KUUSAKOSKI PHILADELPHIA ORTHODOX ST. FACILITY	Clean Water	3150 OTRHODOX STREET, PHILADELPHIA, PA 19137
918510	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	L3 COMMUNICATIONS ROOSEVELT BLVD FAC	Clean Water	13500 ROOSEVELT BLVD, PHILADELPHIA, PA 19116-4201
1035983	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	LKQ VENICE AUTO PARTS	Clean Water	3350 S. 61 ST, PHILADELPHIA, PA 19153

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
21593	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	METRO MACH OF PA SHIP REPAIR FAC	Clean Water	FOOT OF MORTON AVE, CHESTER, PA 19013
951531	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	MONDELEZ GLOBAL LLC	Clean Water	12000 E ROOSEVELT BLVD, PHILADELPHIA, PA 19116
1043263	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NAVAL FOUNDRY AND PROPELLER CTR	Clean Water	1701 KITTY HAWK AVE, PHILADELPHIA, PA 19112
1133700	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NORTHEAST PHILADELPHIA AIRPORT (PNE)	Clean Water	9800 ASHTON RD, PHILADELPHIA, PA 19114
1088603	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ORTHODOX AUTO UNRUH AVE FAC	Clean Water	5247 UNRUH AVE, PHILADELPHIA, PA 19135
1070573	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	OSCAR'S AUTO PARTS PASSYUNK AVE FAC	Clean Water	6145 W PASSYUNK AVE, PHILADELPHIA, PA 19153
326557	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG FT MIFFLIN FAC	Clean Water	BLDG 56 FORT MIFFLIN, 6400 HOG ISLAND RD, PHILADELPHIA, PA 19153
326472	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG OGONTZ OMS 14A	Clean Water	5350 OGONTZ AVE, PHILADELPHIA, PA 19141
326466	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PAARNG SOUTHAMPTON FAC	Clean Water	2734 SOUTHAMPTON RD, PHILADELPHIA, PA 19154
887155	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PASCO PASCHALL AVE FAC	Clean Water	7250 PASCHALL AVE, PHILADELPHIA, PA 19142
1135947	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PEPSI BOTTLING ROOSEVELT BLVD PLT	Clean Water	11701 ROOSEVELT BLVD, PHILADELPHIA, PA 19154-2108

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1101644	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA GAS WORKS PASSYUNK AVE PLT	Clean Water	3100 W. PASSYUNK AVE, PHILADELPHIA, PA 19145
459823	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT NE WPCP	Clean Water	3895 RICHMOND ST, PHILADELPHIA, PA 19137-1418
459790	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT SE WPCP	Clean Water	25 PATTISON AVE, PHILADELPHIA, PA 19148-5607
459812	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA WATER DEPT SW WPCP	Clean Water	8200 ENTERPRISE AVE, PHILADELPHIA, PA 19153-3813
929399	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	REPUBLIC SVC OF PA PORT RICHMOND HAULING FAC	Clean Water	3000 E HEDLEY ST, PHILA MARKET PLACE, PHILADELPHIA, PA 19137
931796	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	REPUBLIC SVC QUICKWAY TRANSFER STATION	Clean Water	2960 ORTHODOX ST, PHILADELPHIA, PA 19137
1084018	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	RICHARDS APEX MAIN ST FAC	Clean Water	4202-24 MAIN ST, PHILADELPHIA, PA 19127
1102712	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	S D RICHMAN SONS WHEATSHEAF LN FAC	Clean Water	2435 WHEATSHEAF LANE, PHILADELPHIA, PA 19137
836589	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SAVAGE SVC E OREGON AVE FAC	Clean Water	52 E OREGON AVE, PHILADELPHIA, PA 19148
1021396	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SEPTA ROBERTS AVE FAC	Clean Water	2705 ROBERTS AVE, PHILADELPHIA, PA 19129
701610	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SMALL TIME OPERATOR AUTO PARTS JAMES ST FAC	Clean Water	7342 JAMES ST, PHILADELPHIA, PA 19136

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
902993	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SPC PENROSE AVE FAC	Clean Water	26TH ST & PENROSE AVE, PHILADELPHIA, PA 19145
1044986	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	STEVE'S AUTO PARTS II S 61ST ST FAC	Clean Water	3331 SOUTH 61ST STREET, PHILADELPHIA, PA 19153
1081910	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SUN CHEM HUNTING PARK AVE PLT	Clean Water	3301 HUNTING PARK AVE, PHILADELPHIA, PA 19132
1107170	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SWEET OVATIONS TOMLINSON RD FAC	Clean Water	1741 TOMLINSON RD, PHILADELPHIA, PA 19116-3847
1017690	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	THE VANE BROTHERS CO PHILLY LAUNCH	Clean Water	THE NAVY YARD, 4700 BASIN BRIDGE ROAD, PHILADELPHIA, PA 19112
1107531	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TASTY BAKING	Clean Water	4300 SOUTH 26 TH ST PHILADELPHIA, PA 19112
1008765	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TJ COPE NORCOM RD FAC	Clean Water	11500 NORCOM RD, PHILADELPHIA, PA 19154
944198	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TRANSFLO TERM SVC MOORE ST FAC	Clean Water	36TH & MOORE ST, PHILADELPHIA, PA 19145
1011879	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TRANSRIVER PHILADELPHIA S 26TH ST FAC	Clean Water	3600 S 26TH ST, PHILADELPHIA, PA 19145
886506	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	TRC TRANSFER STATION COLUMBUS BLVD FAC	Clean Water	2904 S CHRISTOPHER COLUMBUS BLVD, PHILADELPHIA, PA 19148
1077422	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	UNITED COLOR MFG E TIOGA ST PLT	Clean Water	2940 E TIOGA ST, PHILADELPHIA, PA 19134

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1032066	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	UNITED METAL TRADERS COMLY ST FAC	Clean Water	5240 COMLY ST, PHILADELPHIA, PA 19135
921671	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	US POSTAL SVC LINDBERGH BLVD FAC	Clean Water	7500 LINDBERGH BLVD, PHILADELPHIA, PA 19176-9998
1011743	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	VANE LINE BUNKERING FT MIFLIN RD FAC	Clean Water	4925 FT MIFFLIN RD, CITY DOCK, PHILADELPHIA, PA 19153
1016842	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	WASTE MGMT BLEIGH AVE FAC	Clean Water	5245 BLEIGH AVE, PHILADELPHIA, PA 19136
1084122	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	WASTE MGMT OF PA GRAYS FERRY AVE FAC	Clean Water	3605 GREYS FERRY AVE, PHILADELPHIA, PA 19146
940066	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	WESTWAY TERM CO LLC	Clean Water	2900 EAST ALLEGHENY AVE, PHILADELPHIA, PA 19134
No Exposure				
1109160	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	API TECH CORP	Clean Water	2707 BLACK LAKE PLACE PHILADELPHIA, PA 19154-1008
1108533	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	COILPLUS BLEIGH AVE FAC	Clean Water	5135 BLEIGH AVE, PHILA, PA 19136

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
789973	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	DELAWARE RIVER STEVEDORES DELAWARE AVE FAC	Clean Water	3465 N DELAWARE AVE, PHILADELPHIA, PA 19134
888837	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	EFORCE COMPLIANCE	Clean Water	3115 WHARTON STREET, PHILADELPHIA, PA 19146
822026	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	EXELON GENERATION CO DELAWARE STA	Clean Water	1325 N BEACH ST, PHILA, PA 19125
711143	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	EXELON SCHUYLKILL GEN STA	Clean Water	3901 NORTH DELAWARE AVENUE, PHILADELPHIA, PA 19137
1098231	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	FIBREFLEX PACKING & MFG UMBRIA ST FAC	Clean Water	5101 UMBRIA ST, PHILADELPHIA, PA 19128-4345
1011652	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	HILLOCK ANODIZING TULIP ST	Clean Water	7363A TULIP STREET, PHILADELPHIA, PA 19136
1078315	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	INNOVATION PRINTING & COMMUNICATION	Clean Water	11601 CAROLINE RD PHILADELPHIA, PA 19154

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
979680	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	JOWITT & RODGERS STATE RD FAC	Clean Water	9400 STATE ROAD, PHILADELPHIA, PA 19114
1081311	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	MEDIMMUNE LLC	Clean Water	3001 RED LION RD, PHILADELPHIA, PA 19114
1078747	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	MUTUAL PHARM CO INC	Clean Water	7722 DUNGAN RD, PHILADELPHIA, PA 19111
1015693	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	MUTUAL PHARMACEUTICAL ORTHODOX ST FAC	Clean Water	1100 ORTHODOX ST, PHILADELPHIA, PA 19124
1077401	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	NATL PUB ROOSEVELT BLVD FAC	Clean Water	11311 ROOSEVELT BLVD, PHILA, PA 19154
1078353	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PACKAGING COORDINATORS INC	Clean Water	3001 RED LION RD, PHILADELPHIA, PA 19114
591838	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PEARL PRESSMAN LIBERTY	Clean Water	7625 SUFFOLK AVE, PHILADELPHIA, PA 19153

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1015912	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PENN MAID DUTTON RD PLT	Clean Water	10975 DUTTON RD, PHILADELPHIA, PA 19154
934036	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	RR DONNELLEY GANTRY RD FAC	Clean Water	9985 GANTRY RD, PHILADELPHIA, PA 19115
1023588	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SANDMEYER STEEL	Clean Water	10060 SANDMEYER LN, PHILADELPHIA, PA 19116
878099	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SMITH EDWARDS DUNLAP	Clean Water	2867 EAST ALLEGHENY AVE, PHILADELPHIA, PA 19134
1078324	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SOUTHERN GRAPHIC SYS ROBERTS AVE FAC	Clean Water	2781 ROBERTS AVE, PHILADELPHIA, PA 19129
874849	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	SPECTRUM MICROWAVE PHILADELPHIA OPERATIONS	Clean Water	2707 BLACK LAKE PLACE, PHILADELPHIA, PA 19154
1107824	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	TASTY BAKING	Clean Water	4300 S 26TH ST, PHILADELPHIA, PA 19112

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
579862	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	UNITED COLOR MFG E TIOGA ST PLT	Clean Water	2940 E TIOGA ST, PHILADELPHIA, PA 19134-6106
910907	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	US POSTAL SVC LINDBERGH BLVD FAC	Clean Water	7500 LINDBERGH BLVD, PHILADELPHIA, PA 19176-9998
1086399	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	USPS PHILA VEHICLE MAINTENANCE FACILITY	Clean Water	3201 SOUTH 74TH ST, PHILADELPHIA, PA 19153-9996
1049958	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	USPS VEHICLE MAINTENANCE FAC	Clean Water	1900 BYBERRY RD PHILADELPHIA, PA 19116-9997
1027714	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	VEOLIA ENV SVC HEDLEY ST FAC	Clean Water	3100 HEDLEY ST, PHILADELPHIA, PA 19135-1540
1137663	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI APPTec INC	Clean Water	4000 S 26TH ST PHILADELPHIA, PA 19112
1135081	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	WUXI APPTec INC	Clean Water	4751 LEAGUE ISLAND BLVD PHILADELPHIA, PA 19112

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
Individual				
901759	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	AKER PHILA SHIPYARD	Clean Water	2100 KITTY HAWK AVE, PHILADELPHIA, PA 19112-1808
921879	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	AMTRAK 30TH STREET STATION	Clean Water	30TH AND RACE STREETS, PHILADELPHIA, PA 19104-2898
1071327	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	EXXON ESSINGTON PLAINS PROD TERM LLC	Clean Water	6850 ESSINGTON AVENUE, PHILADELPHIA, PA 19153
874949	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	JDM MATERIALS CO BARTRAM BATCH PLT	Clean Water	PENROSE FERRY ROAD, PHILADELPHIA, PA 19153
874946	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	JDM MATERIALS GRANT AVE PLT	Clean Water	2750 GRANT AVE, PHILADELPHIA, PA 19114
1097211	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	NE ENERGY TERMINAL COLUMBUS AVE	Clean Water	3501 SOUTH CHRISTOPHER COLUMBUS AVE, PHILADELPHIA, PA 19148
1080980	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	METRO READY MIX & SUPPLY CASTOR AVE PLT	Clean Water	4455-65 CASTOR AVENUE, PHILADELPHIA, PA 19124
1129360	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PBF LOGISTICS PRODUCTS TERMINALS LLC	Clean Water	1630 S 51 ST ST PHILADELPHIA, PA 19154
1129339	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PBF LOGISTICS PRODUCTS TERMINALS LLC	Clean Water	6850 ESSINGTON AVE PHILADELPHIA, PA 19153-3413
882940	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA ENERGY SOLUTIONS REFINING & MKTG LLC	Clean Water	3144 W PASSYUNK AVE, PHILADELPHIA, PA 19145-5208

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
923728	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA INTL AIRPORT	Clean Water	8000 ESSINGTON AVE, PHILADELPHIA, PA 19153
963494	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	ROHM & HAAS PHILADELPHIA PLT	Clean Water	5000 RICHMOND ST, PHILADELPHIA, PA 19137
18834	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	SEPTA VICTORY AVE TERM	Clean Water	110 & 103 VICTORY AVE, UPPER DARBY, PA 19082
1072512	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	SUNOCO PARTNERS MKT & TERM FT MIFFLIN TERM	Clean Water	1801 MARKET ST, PHILADELPHIA, PA 19103-1628
985409	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	WHITE PINES PARTNERS GC	Clean Water	1 RED LION RD, PHILADELPHIA, PA 19115

Appendix L – Defective Connections Group FY16 Report

Sewer Maintenance Unit
Defective Connections Group
Fiscal Year 2016 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.

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 FY2016, 43 outfall inspections were conducted and 37 samples were taken due to observed dry-weather flow as part of the Priority Outfall Sampling program. During FY2016, 118 outfall inspections were conducted and 54 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 flow².

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 sewer³. 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 placed 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 toilet⁴. 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 inforamatory 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 miscellaneous 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 FY2016.

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Table 1.
Updated Progress on Dye Tests in Philadelphia MS4 Area

	Since Inception of the Program	During Fiscal 2016
Dye Tests Initiated	58,845	2,380
No Cross Connections Found	56,320	2,295
Cross Connections Identified	1,401	42
Completed Tests	57,721	2,337
Abatements Completed	1,386	39

Of the 39 abatements above (in FY2016), 32 were residential properties. The cost for these abatements was \$ 244,564.90. Additionally, 7 commercial properties were abated at a cost of \$ 2,950.00.

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	1,386
During FY2016	39
- Estimated gallons of Polluted Water Prevented from entering the stormwater outfalls⁵

Since Inception of the Program	194.8 million gallons per year
During FY2016	5.5 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 is as follows:

One Water Conveyance Supervisor

Two Field Representative Supervisors

One position vacant

Four SM Crew Chief Is / Science Technicians

One position vacant

Eight Utility Representatives

Three positions vacant

One Clerk 2

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:

Clerk 2: The C2 handles the intricacies of the DLS database, creation of various correspondences related to dye tests, and follows-up with the field staff.

The C2 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 FY2016, 11 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 M – City of Philadelphia Snow and Ice Operations Plan Winter 2015-2016

(Available upon request)

Appendix N – FY16 Sanitary Infiltration Events

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Report Date	Report Time	Problem Location	Spill Notes	Affected Outfall:	Abatement Date	Abatement Time	Abatement
8/7/2015	1:00 PM	Haldeman & Tomlinson Rd	Choked sewers-Found sanitary sewer choked	Q109-07	8/7/2015	3:20 PM	Flushed & removed grease & debris from sanitary sewer
9/1/2015	12:00 PM	Tustin & Frontenac	Choked sanitary sewer	P099-03	9/1/2015	2:30 PM	Used vector to remove grease and debris
9/5/2015	10:00 AM	2860 Walnut Hill	Choked sewer: Found sewage leaking through open joints at manhole connection	P100-11	9/5/2015	11:00 AM	Used vector to bust through choked sanitary. Damaged pipe was replaced on 9/8/2015
9/30/2015	9:40 AM	350 Krams Av	Choked sewer: sewage in basement of several properties	N/A	9/30/2015	10:00 AM	Flushed sewer to clear choke
1/11/2016	5:00 PM	Manhole P116-02-S0010	Choked sewer	P116-02	1/11/2016	10:00 PM	Flushed sewer and removed debris. Clean up of discharge into Pennypack creek by waterways unit
2/9/2016	10:20 AM	2301 N 50 th St	Choked sewer: Grease choked sewer discharge into creek and onto golf course	N/A	2/9/2016	8:50 PM	Flushed sewer to clear choke and repaired hole in pipe
2/12/2016	2:30 PM	Ridge Ave & Hermit St.	Choked sewer: sanitary discharge into storm sewer	S051-08	2/12/2016	8:00 PM	Flushed to clear choke and used degreaser. Sent to CCTV inspections
2/22/2016	1:30 PM	5454 Ridge Av	Choked sewer: Partial choke in 10" sanitary line	S051-08	2/22/2016	5:00 PM	Set up bypass pumping. Contractor excavated, relieved choke, repaired sanitary and installed new storm manhole
4/7/2016	Not Recorded	4507 Broad St.	Choked sewer: discharge on street at Broad and Langley	N/A	4/7/2016	4:00 PM	Cleared grease choke. Referred property to IWU for further investigation

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Report Date	Report Time	Problem Location	Spill Notes	Affected Outfall:	Abatement Date	Abatement Time	Abatement
4/20/2016	6:20 PM	Welsh Rd & Willits Rd	Choked sewer: sewer discharge	P100-08	4/20/2016	8:50 PM	Flushed sewer to clear choke. Discharge cleaned up by waterways unit
4/23/2016	5:30 PM	Neill Drive Pumping Station	Pump Station SSO: Switchgear tripped and wet well overflowed to Neill Creek via overflow pipe	N/A	4/23/2016	7:20 PM	Reset Main feeder to restore power to pump station
4/25/2016	4:30 PM	Greene St. & Duval	Choked sewer: Discharge of 1 gpm at manhole leaking to street	W068-05	4/25/2016	10:30 PM	Flushed choked sewer. Sent to design to be reconstructed
5/26/2016	4:00 PM	Manayunk & Osborn	Choked sewer: grey water in manhole	S052-05	5/26/2016	10:30 PM	Flushed to relieve choke. Sent to CCTV for further investigation
6/15/2016	11:00 AM	1239 Serota Pl	Choked sewer: choke in sewer by 9870 Bustleton Ave	P109-04	6/15/2016	3:00 PM	Flushed to relieve choke. Flushed storm with dechlorination tablets

Appendix O – Pollution Migration

CITY OF PHILADELPHIA
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
7/2/2015	Wadsworth & Mansfield Streets	Muddy water	Combined Sewer Service Area	An untreated discharge of muddy water was released from an excavation site near Wadsworth and Mansfield Streets prior to the IWU inspector's 12:50pm arrival. Inspector inquired with the workers and then later with the foreman, whether an active permit existed to perform the discharge. Neither workers nor the foreman had a permit for the work. After requesting cessation of the activity, the inspector assessed the effects on the inlets. Meanwhile, workers had moved the hose from the curb line into a manhole and continued the untreated discharge. The inspector again requested, and the foreman again refused to comply with the inspector's request to terminate the discharge. A PWD construction inspector arrived on site and the IWU inspector explained the situation. Construction inspector provided the phone number of the prime contractor. IWU inspector's determined the foreman had not requested a permit and they advised that a permit is needed for a discharge. The prime contractor advised they would check for the permit and return the call. They did not return the call.
7/8/2015	Girard Avenue & Palmer Street	Water discharge	Combined Sewer Service Area	While enroute to another activity, IWU inspector came upon illegal activity at 10:05am. Workers sprayed water from a hydrant to clear the street of debris in response to neighbor complaints. Also, they did not use a backflow preventer on the hose connection to the hydrant. Inspector stopped at the Girard Ave. and Palmer St. job site and directed the workers to cease their illegal activity. In response to the question "How were they supposed to clean the street if not with water" inspector advised drumming up the water and debris. Inspector attempted telephonic contact with the owner. The individual who answered his cell phone identified himself as only a worker at the job site. Inspector advised that he would receive a violation for illegal discharge to inlet and illegal fire hydrant connection.
7/14/2015	4268 Ridge Avenue	Sewer	Separate Sanitary Service Area	IWU inspector responded at 5:00pm to a report of residential sewer problems on River Road. After consultation with a plumber who worked on scene and a dye test, both individuals concluded 4268 Ridge Ave.'s connection to the sewage line on East River Road represented the problem's source. The inspector later advised the franchise owner that his sewage was flowing into the Schuylkill River at Midvale. Notification had already gone out to officials of the Pennsylvania Department of Environmental Protection.

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
7/16/2015	Castor Avenue between Wyoming Avenue & Wingohocking Street	Illegal carwash	Non Contributing	At 6:10pm, an IWU inspector arrived at a location on Castor Ave. between Wyoming Ave. and Wingohocking St. to investigate the report of an illegal car wash. The flow from the car wash went to a storm inlet near Frankford Creek. The inspector advised the operator to cease activity because of the proximity of the creek. Operator informed of Licenses & Inspection approval of the activity but could not present the permit. After the operator physically prevented notation of the truck's tag number, inspector summoned Philadelphia Police. P/O Scarpello arrived in car 2411 and stated the various citations that will be charged if the operator did not comply to cease activity and move on. The inspector observed no obvious effect on the Frankford Creek.
7/17/2015	Rock Run Outfall, Tacony Creek	Latex based paint	Non Contributing	A PWD employee reported a white milky-like substance on the Tacony Creek. An IWU inspector reported to the Rock Run Out Fall location of the creek at 3:00pm to investigate. The inspector believed someone had released at least a quart of white latex based paint into the water. This determination came as a result of footprints in the mud going up to the outfall. The inspector also checked the surrounding neighborhood for evidence of recent paint dumping but did not find any. No obviously adverse effect noted on the creek or its life. Flow Control would perform maintenance the following day and determine whether the substance leaked through the cofferdam or someone intentionally released it into the creek.
7/20/2015	Navy Yard	Diesel fuel	Separate Sanitary Service Area	An Industrial Waste Unit inspector responded to the Navy Yard at 12:05pm to investigate a reported oil spill into the Schuylkill River. The spill had occurred near the foundry when the power take-off shaft of a delivery truck broke and sliced open one of the truck's saddlebag fuel tanks. Navy Yard officials believed an estimated 10 to 15 gallons released from the tank with one gallon entering a nearby storm inlet. Work crews had already placed a boom at the inlet's opening and pumped the substance from the drain, prior to the inspector's arrival. The spill affected the drain's soil base and the crews placed oil absorbent wipes inside the inlet to remove any additional residue. The inspector also noticed a sheen on the basin. Navy Yard officials and the inspector could not determine whether this sheen resulted from the truck spill or existed prior to the incident. The inspector determined the basin sheen and the spill as not critical and having no effect on PWD activities as: first, the spill was small; second, the drain was not a PWD Department implement, and third, the drain and basin's distant location down river had no effect on the operation of PWD treatment functions

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
7/22/2015	1425 W. Lycoming Street	Various fluids	Combined Sewer Service Area	The butchery, located at 1425 W. Lycoming St., became the focus of an IWU inspector's visit at 4:09pm. The Municipal Dispatcher received a report of red fluid being dumped into a nearby inlet. The inspector checked nearby inlets and did not observe any discoloration or debris. The inspector and the owner discussed the report. Owner advised of the butchery's use of a disposal service, which removed the substance two or more times weekly. The removal receipts, which the owner presented, had a May 2015 date as the last pickup. While the inspector showed owner the water pooled at a nearby inlet and the congealed substance on its walls, an employee brought out a leaking bucket of blood. The inspector advised on the use of a dry cleaning method and not washing the blood into the street. Later during the visit, workers began cleaning the live animal holding area by pushing the water and debris out onto the street. The inspector instructed owner to stop the activity and advise the workers to push the material to the drain inside the building. The inspector advised owner that no water should leave the building and all water from cleaning must remain inside the facility.
7/24/2015	7525 Frankford Avenue	Wash water	Combined Sewer Service Area	At 2:55pm, an IWU inspector arrived at a driveway between Oakmont and Marple Streets. just off Frankford Ave. and noticed residue from wash water coming from 7525 Frankford Ave. The water from that location trailed to the driveways, area drains and garages at 4011, 4013 and 4015 Oakmont St. The inspector contacted the owner and described the situation and showed the problems caused by this soapy type of wastewater. Owner then inquired about having the water run onto the street. The inspector advised against this act. Owner then stated his workers could wash the cars indoors where a floor drain could absorb the wastewater. The inspector concurred with that activity and also instructed owner to direct his workers to wet-vac the pooled water from the driveway. Owner complied.
8/3/2015	Richmond & Westmoreland Streets	Diesel fuel	Combined Sewer Service Area	A tractor-trailer collided with a sedan, causing a diesel fuel spill at Richmond & Westmoreland Streets. Diesel fuel from the spill filled a nearby inlet. The tractor-trailer company hired Clean Venture to clean both the street and remove the fuel from the inlet.
8/19/2015	Memphis & Norris Streets	Greasy water	Combined Sewer Service Area	A chicken facility received a complaint about an individual from the unit dumping greasy water into a nearby inlet. The owner of the facility admitted to flushing into the inlet while he washed his sidewalk and street. The inspector advised against that activity in the future.
8/24/2015	Lock Street in Manayunk	Sewage	Non Contributing	A choked lateral, which served a restaurant and a nearby apartment complex, released sewage into the Manayunk Canal. Evidence of the overflow remained on the towpath from the initial point onward to the release location into the canal.

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2016 Combined Sewer and Stormwater Annual Reports

Appendix O – Pollutant Migration/Infiltration to the City of Philadelphia Sewer System

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
8/27/2015	2112 Mountain Street	Grease	Combined Sewer Service Area	A complainant called the IWU inspector and provided photo evidence of grease residue from a street vendor. The inspector visited the vendor later and advised of the illegality of dumping liquid substances into city inlets.
9/7/2015	Neill Drive	Transformer oil	Non Contributing	An IWU investigator responded to a report of a transformer that was discharging oil to nearby storm drains. PECO crews blocked the inlets, but some of the oil had made its way into the storm sewer. PSC was called by PECO to clear both the oil and debris from the inlet and the street. The inspector determined that none of the oil had reached the Delaware River thanks to the rapid response of the PECO crews.
9/8/2015	2501 S. Delaware Avenue	Oil	Combined Sewer Service Area	An unidentified type of oil, originating from an old PECO generating station, spilled onto the gravel-covered soil and into the nearby river. The inspector requested the removal of the oil from a pit underneath the electrical equipment after inspecting the facility.
9/9/2015	Factory & Unity Streets	Oil	Combined Sewer Service Area	Oil from a nearby tank on Unity street leaked onto the streets and into the nearby inlets. Clean Venture was called to clean the oil up, and no oil was found in the Baxter Water Treatment Plants or the NWPCP.
9/10/2015	Turner & Randolph Streets	Oil	Combined Sewer Service Area	A Municipal Dispatcher contacted the IWU to report oil flowing into an inlet on Turner and Randolph Streets. The rainwater caused the oil to flow into the inlet. A small drip from a remote fill line cause this sheen.
10/1/2015	11th & Vine Streets	Construction site rainwater	Combined Sewer Service Area	A construction site worker illegally was pumping rainwater from the basement of the site into a nearby inlet. After being made aware of the illegality of their actions, the worker removed the hose that was pumping into the inlet. The inspector followed up by forwarding a letter from IWU Engineering Support to the construction company.
10/8/2016	1453 W. Olney Avenue	Sewage	Combined Sewer Service Area	Sewage overflow, caused by a choked Fresh Air Inlet (FAI), flowed into a nearby storm inlet. The IWU inspector on site attempted to contact the residence with a solution, but there was no response. The inspector left a card in the door and referred the complaint to the department's Customer Service for issuance of a Notice of Defect.
10/10/2015	51st & Osage Streets	Transformer oil	Combined Sewer Service Area	An IWU inspector responded to a call involving a transformer oil spill. The PECO on-site coordinator advised the inspector that two nearby inlets took in an approximate 10 of the 42 gallons of oil. The debris and trash in the inlets appeared to have stopped the oil from migrating to the sewer.

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
10/26/2015	1532 Elbridge Street	Dog feces	Combined Sewer Service Area	An inspector investigated a report of a resident washing dog feces down a storm drain. This was confirmed when evident amounts of waste and dog's hairs were found at the discharge pipe. The inspector requested the forwarding of a warning letter to cease activity from IWU Engineering Support to the resident.
10/29/2015	535 Rising Sun Avenue	Grease blockage	Combined Sewer Service Area	Sewer Maintenance reported a grease blockage to IWU. The inspector that responded investigated a nearby restaurant to find two grease traps that had no records of cleaning or dumping. The inspector also identified grease in the FAI. The restaurant was issued a warning per the inspector's request.
11/7/2015	4008 N. Franklin Street	Heating oil	Combined Sewer Service Area	A recently refilled tank could not hold the weight of the new heating oil and subsequently broke. The oil spilled onto the basement floor, and was sucked up by a nearby sump pump used to pump rainwater from the basement. The inspector did not find an evidence of oil in the nearby manhole or any oil flow.
11/7/2015	134 N. 52nd Streets	Heating oil	Combined Sewer Service Area	Unified Dispatch relayed a report from the Philadelphia Fire Department's Hazardous Materials Unit on the release of heating oil to a sewer from a sump pump. The oil leak originated from a leaking 275-gallon tank in the basement of the building. The sump pump pumped the oil into the sewer, but the inspector determined that there was no measurable effect on the operations of the Water Department.
11/12/2015	40th & Haverford Streets	Greasy water	Non Contributing	An employee of a local mini mart was reported to have dumped grease onto the streets. When questioned by the IWU inspector, the employee revealed that it was not grease but mop water. The inspector gave the mini mart and the employee a warning to cease such activities in the future.
11/16/2015	Northeast Water Pollution Control Plant	Pink Substance	Combined Sewer Service Area	A pinkish substance was repeatedly reported in the NEWPCP and the river. The first and last report was on the final tanks, and the second report was on the river. The IWU inspector did not observe any color in any of the checked locations. The inspector discussed the analysis of samples taken with BLS and forwarded a reference concerning purple cyanobacteria and purple sulfur bacteria.
11/19/2015	9th & Winter Streets	Water discharge	Separate Sanitary Service Area	An IWU inspector received a report of a discharge from a pvc pipe. The pipe was directing what appeared to be possibly wash water runoff into the nearby alley. Dirt and debris could be seen between the surface of the alley and the pipe. The inspector planned to perform spot checks at a later visit, due to the lack of water discharge coming from the pipe in his initial visit.

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
11/27/2015	7th & Cheltenham	chlorine	Separate Sanitary Service Area	An IWU inspector came to the 7th and Cheltenham location to survey the outfall located there, and discovered that all the fish that were present in the previous trips were all dead. A chlorine sample from the channel rendered a reading of 0.84ppm. Further investigation led the inspector to a nearby PWD supervised construction site. There, the inspector found that the construction workers were pumping water from a broken water main into an MS4. The water itself was potable, chlorinated water. The inspector directed the supervisor of the site to pump the water into a sanitary manhole until the water main could be fixed. The inspector remained on site until the completion of the main's repair, and also requested an issuance of notice of violation be given to the construction company for discharge into the MS4 and receiving stream.
1/5/2016	Queen Lane WTP	Fecal matter	Separate Sanitary Service Area	An IWBC inspector arrived at the Queen Lane Influent and took samples for fecal monitoring. The sample taken at S-051-08 rendered a fecal count of greater than 98,000 mpn/100mL and location S-052-05 registered a count of greater than 240,000 mpn/100mL. The inspector noted the high influent fecal counts at Queen Lane indicated a problem with sewage discharge to the Schuylkill River in proximity to Queen Lane's intakes. Sewer maintenance later performed dye testing at the site to monitor the source.
1/14/2016	Wise's Run Mill Creek near Henry Avenue	Horse manure	Combined Sewer Service Area	The inspector began surveying the area in response to a complaint of horse manure odors. The resident of 800 Seffert St. had placed horse manure on the ground around an estimated 10 to 20 feet from the creek. Although no runoff occurred because of dry conditions the inspector noted the potential for the creek's contamination during a future heavy rain. The inspector notified the Pennsylvania Department of Environmental Protection of the situation.
1/15/2016	13th & Spruce Streets	Fluorescein dye byproduct	Non Contributing	The Philadelphia Fire Department requested assistance in identifying a green substance and called the IWBC for an inspector. The inspector checked the location with the daily dye test result and determined the substance resulted from fluorescein dye testing in the 3100 block of Stanwood ST. The resident who advised the inspector of the substance received result of dye inquiry to relieve concern.
1/15/2016	Domino Lane & Umbria Street	Orange colored stream	Separate Sanitary Service Area	A Streets Department engineer reported a stream running orange behind Domino Lane and Umbria St. The IWBC inspector arrived on scene and discussed the situation with the engineer. The two then traced the stream to groundwater infiltration along the stream bank approximately 25 feet below the point where the clear stream descended over rocks along the hill. The inspector suspected iron as the substance and took samples. The condition, from review of orthographic pictures, existed as far back as 2008. The inspector also took samples at the Domino Lane outfall along the Manayunk Canal during which a small amount of rust coloration existed at that site.

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
1/21/2016	16 Shawmont Avenue	Sewage	Separate Sanitary Service Area	An IWBC inspector reported to the rear of 16 Shawmont Ave. in response to a report of illegal sewage discharge. The complainant showed the inspector pictures of the sewage flow. The homeowner then received a visit and guidance. Homeowner advised he would summon a plumber to correct the lateral and stop the overflow. Inspector revisited the location on Friday, January 22nd and discovered the conditions corrected.
1/26/2016	7 Columbus Boulevard	Diesel fuel	Non Contributing	The IWBC inspector arrived in the marina at 7 Columbus Blvd. to address a report of an oil sheen at Pier 5. The spill resulted from the sinking of a sailboat. The inspector suspected diesel fuel as the substance in question because of its odor. The vessel had reportedly sunk before and its fuel drained during that event. The sheen, which remained confined between the two piers and the dock, did not pose any threat to PWD operations. Inspector notified the Pennsylvania Department of Environmental Protection who advised they would contact the Fish and Game Commission.
1/28/2016	Gorgas Lane Outfall	Muddy chlorinated water	Non Contributing	A water main break, which caused the discharge of muddy chlorinated water at the Gorgas Lane Outfall, required the response of an IWBC inspector. The inspector met with a representative from Sewer Maintenance. Muddy red-brown colored water also at the site caused suspicion of a secondary source other than the main break. Through coordination the two discovered the muddy red-brown water source as an individual at Ridge Ave. and Domino Lane washing the driveway of the YMCA. The inspector instructed the individual to cease activity. Upon return to the outfall inspector did not observe a slowdown of the discharge. Further detection efforts resulted in the discovery and confirmation of a water leak below the street surface of the 7300 block of Valley Ave. A sample of the water taken by the inspector at the Gorgas Run confluence with the Wissahickon Creek produced a reading of 0.04 ppm for chlorine.
2/1/2016	South Street Bridge	Oil	Separate Sanitary Service Area	Municipal Dispatch directed an anonymous 311 e-mail complaint regarding oil sheen on the Schuylkill River to IWBC. The IWBC inspector responded to the location, the South Street Bridge, at 5:50pm. The inspector walked the length of the span and observed a substance on the water's surface along the bulkheads on both sides of the river. The inspector detected a slight diesel odor on the west side along the Schuylkill banks boardwalk at the water's surface. Because of earlier rains washing runoff and the ongoing 24th St. oil spill remediation, the inspector believed those two events caused the appearance of this slick. The inspector performed a follow-up visit the following day and none of the substance remained. The slick had no effect on PWD operations.

CITY OF PHILADELPHIA
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
2/7/2016	8375 Enterprise Avenue	Jet A fuel	Combined Sewer Service Area	The report of 20 gallons of Jet A fuel spilling at Atlantic Aviation, located at 8375 Enterprise Ave., brought a visit by an IWBC inspector at 11:17am. The substance flowed into a storm drain. The facility operators hired Miller Environmental to clean the concrete and vacuum the storm drain. The inspector did not observe any noticeable effects on a nearby creek.
2/10/2016	7777 Essington Avenue	Oil	Non Contributing	Industrial Waste received an anonymous report of an oil spill into a storm drain at 7777 Essington Ave. The inspector contacted any employee who advised that heating oil spilled without effect to any inlet and cleanup had already occurred. The inspector advised the employee that a site visit would take place the following day. On the following day inspector received a call from a representative of the Pennsylvania Department of Environmental Protection (DEP). The DEP representative, while on the site of the spill, confirmed to the inspector the cleanup of the spill and no effect occurred to the inlet or Mingo Creek.
2/10/2016	Cottman Avenue & Tulip Street	Diesel fuel	Combined Sewer Service Area	The Hazardous Materials (HAZMAT) Unit contacted Industrial Waste to request assistance with a diesel spill on Cottman Ave. at Tulip St. The inspector responded to that location at 1:40pm where officials advised that a car struck the saddle tank of a tractor trailer. The release of approximately 90 gallons of diesel fuel then occurred onto the street and into a nearby storm drain. The inspector confirmed the drain's connection to a combined sewer and requested the assistance of an inlet cleaning crew to remove the grate. Meanwhile, the HAZMAT Unit pumped the tank's remaining fuel and diked the inlets. The inspector estimated the removal of an additional 50 gallons of diesel fuel with oil absorbing sweeps and wipes had occurred based on the dimension of the inlet and the stain on the street.
2/10/2016	4640 Roosevelt Boulevard	Muddy water	Combined Sewer Service Area	A Water Department Plan Review Group inspector reported the illegal discharge of muddy water to a combined sewer located at 4640 Roosevelt Blvd. An inspector from IWBC responded to the location at 1:00pm to verify the discharge had ceased. The inspector toured the stormwater control basin construction site with the contractor foreman and confirmed the cessation of pumping to the combined sewer. Contractor had begun using totes for storage and, in turn, non-sewer disposal of the waste water.
2/12/2016	Cherry & Clinton Streets	Grease	Combined Sewer Service Area	The Municipal Dispatcher contacted IWBC and directed the inspector's contact with a Water Conveyance supervisor. The conveyance supervisor advised of a grease packed inlet on the northwest corner of Cherry and Clinton Sts. Inspector arrived at 10:00am and observed the crew had excavated the inlet to gain access to the clogged pipe. A member of the crew advised people's unknown had completely filled the inlet with grease. The condition at the site indicated someone poured the substance into the inlet. The IWBC inspector initiated visits to five nearby food establishments to check for improper grease disposal. Evidence

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				to accurately identify the establishment responsible for the dumping could not be found. The inspector later provided a report of findings to the Water Conveyance supervisor.
3/2/2016	Summerdale & McKinley Streets	Transformer oil	Non Contributing	An IWBC inspector responded to Summerdale and McKinley Sts. at 5:35pm to monitor a transformer oil spill. The inspector met a PECO representative who reported the spill of 40 gallons. An estimated 20 gallons of the substance entered the storm inlet. The field test of the substance indicated no PCBs in the oil. PSC performed the cleanup effort which included removal of oil and contaminated debris from the inlet and decontamination of the inlet's walls and floor.
3/3/2016	Walnut Lane Bridge	Concrete slurry	Separate Sanitary Service Area	An IWBC inspector visited a construction site at the Walnut Lane Bridge at 11:30am. The company employees cutting concrete released slurry onto the banks and the Wissahickon Creek below. The inspector advised the foreman to cease operation and implement some type of sediment control. The inspector informed foreman the banks of the Wissahickon Creek below the bridge also required cleanup. The Pennsylvania Department of Transportation, the Pennsylvania Department of Environmental Protection and the Fish and Game commission received notification of the event at the Walnut Lane Bridge from the inspector.
3/3/2016	6101 Passyunk Avenue	Diesel fuel	Non Contributing	The Municipal Dispatcher forwarded a complaint of a diesel fuel spill at 6101 Passyunk Ave. Two IWBC inspectors responded at 5:15pm. EMS Environmental technicians arrived prior to the inspectors to clean the spill. An estimated two gallons of diesel entered a nearby separate system storm inlet. A vacuum truck would arrive the following day to clean the drain. The inspector returned the next day during the noon hour to confirm completion of the final cleanup.
3/3/2016	4455 Castor Avenue	Concrete	Non Contributing	The IWBC inspector responded to a PWD employee's report of concrete dumping into the Frankford Creek. The inspector arrived at 4455 Castor Ave. at 4:45pm. During worker's efforts to remove years of short dumped material adjacent to the creek, some had fallen into the stream. The inspector observed the workers removing all debris which fell into the stream. The workers performed this activity in preparation for the site of a greenway. The inspector contacted complainant the following day and confirmed the observations.

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3/7/2016	Belmont WTP	Ferric chloride	Separate Sanitary Service Area	At 9:45am the IWBC inspector received notification of the release of 6,000 pounds of ferric chloride from the Belmont Water Treatment Plant (WTP) into the sanitary sewer system. The inspector immediately contacted the Southwest Water Pollution Control Plant. Southwest received notice prior to the inspector's call and determined the potential effect to the plant as minimal. The inspector reported to the Belmont WTP at 10:15am where he received an explanation of the event. The individual who delivered the ferric chloride mistakenly coupled the wrong tank and began the fill. The overflow, 6,000 pounds, went down the drain and into the sanitary sewer. The Philadelphia Fire Department's Hazardous Materials Team arrived on site and also received an explanation.
3/11/2016	8400 Germantown Avenue	Greasy water	Separate Sanitary Service Area	The employees of a range cleaning contractor, received a visit by a IWBC inspector at 12:30am after they washed greasy water from a brewery at 8400 Germantown Ave. to a storm sewer on the property. Not enough residue remained from the activity and inspector required contact with Engineering Support to inquire on possible past issues/events with the contractor and brewery facility. This response is pending resolution for coordination with Engineering Support.
3/11/2016	2335 W heatsheaf Lane	Gasoline and oil	Combined Sewer Service Area	The 29th Street Emergency Desk contacted the IWBC inspector who responded to an industrial site fire at 2335 W heatsheaf Lane at 1:15pm. The equipment used to crush automobiles caught fire. Firefighters at the scene expressed concern for the gasoline and oil storage facilities becoming involved with the fire. The inspector noted no release from the chemical storage had occurred. Inspector also noticed runoff from the property but could not determine if it contained petroleum. Runoff which exited the bounds of the property entered the storm system along W heatsheaf Lane and discharged into the Frankford Creek via T-056-3. The inspector noted the manholes leading to the outfall emitted an odor and the appearance of "scumminess," a probable result of the fire runoff. No visible sheen observed in the substances at the outfall. The inspector notified the operators of the Northeast Water Pollution Control Plant of the situation although minimal effect, if any, would occur to that facility.
3/12/2016	I & Ramona Streets	Gasoline	Non Contributing	An IWBC inspector arrived at the T-14 CSO outfall near I and Ramona Sts. around 8:00am to investigate a report of strong gasoline odors at that location. Inspector checked the sewer lines leading to the location and did not detect a gasoline odor. The inspector walked 200 yards down the Tacony Creek Trail and detected a faint gasoline odor. The absence of manholes at this location prevented further inspection. The inspector then drove around nearby neighborhood streets for indicators of materials released into the inlets. None was found. A gasoline odor detected from upwind while walking the Tacony Creek Trail caught the inspector's attention. It originated from an idling car. The inspector concluded the vehicle as the probable source of the complainant's report and ended the activity.

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3/15/2016	7791 Essington Avenue	Waste dumping	Combined Sewer Service Area	The Department of Environmental Protection relayed a report of waste dumping at 7791 Essington Ave. The inspector arrived at the location at 10:55am and met the general manager. The inspector surveyed the car detail area, the car parking lot and the wash sinks. No evidence of paint dumping observed for any of the facility's drains or manholes. The inspector advised general manager of intent to issue a warning letter to serve as a reminder that storm drains are not used as intakes for car washing liquid.
3/16/2016	Linden Avenue Pumping Station	Grease	Separate Sanitary Service Area	The operator at the Linden Avenue Pumping Station reported "an excessive amount of grease" on the bar screens. The IWBC inspector arrived at 1:55pm. Inspector initiated checks of the manholes and did not find any additional grease. IWBC visited the only restaurant in the drainage area of the Linden Pumping Station, received a visit. Upon completion of the survey, inspector requested the management to initiate a grease trap cleanout log and detailed information on the grease trap. The inspector also requested the issuance of a warning letter in regard to the practice of collecting grease and placing it into the dumpster
3/16/2016	Guardian Avenue and Currie Boulevard	Fuel	Non Contributing	The fuel return system of the roof top generator atop the Stemmler Building on the University of Pennsylvania campus failed and released an estimated 15 to 20 gallons onto the roof. The IWBC inspector arrived at 9:55am and met the university's safety specialists. They advised that some of the fuel entered the drain which accesses the sanitary sewer. Technicians had already begun cleaning the roof with permission granted to flush the roof drain. Inspector also checked the sanitary manhole located at Guardian Ave. and Curie Blvd. The inspector observed a slight sheen in the flow.
3/18/2016	3801 Grant Avenue	Skeet and plastic refuse	Combined Sewer Service Area	At 2:00pm an IWBC inspector responded to 3801 Grant Ave. A complainant advised of skeet and plastic refuse littering the skeet shooting range near Byberry Creek. The inspector assessed the situation as having minimal to no effect on PWD operations but noted the possibility of surface and ground water quality issues because of the lead shotgun pellets scattered throughout the grounds.
3/20/2016	New Britain, Bucks County	Sewage	Non Contributing	The IWBC inspector received notice of a sewage spill in New Britain, Bucks County. Inspector contacted the Pennsylvania Department of Environmental Protection (PADEP). The PADEP representative provided the location of the spill and its severity ("minor in nature"). The inspector received advisement that the spill would take a day or possibly two to arrive at Baxter Water Treatment Plant's intakes. The inspector later determined the effect on PWD operations as minimal.

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3/25/2016	26th St. site near the Sunoco Refinery	Hazardous substance	Non Contributing	An IWBC inspector responded to the 26th St. site near the Sunoco Refinery at 1:30pm and met with the crew chief supervising the cleanup. The inspector took samples taken from the inlet on 26th St. and inlets at the fence line. Samples from the fence line registered -8 parts per million. One inlet rendered a reading of >150 parts per million. A contractor summoned by PES cleared the inlets of hazardous substances. The inspector provided notifications to the Southwest Water Pollution Control Plant Manager and Lab. Personnel at that location did not detect odors. The effect of this event on PWD operations assessed as minor.
3/26/2016	NEWPCP	Cumene	Combined Sewer Service Area	The Municipal Dispatcher contacted the IWBC inspector regarding a cumene complaint from the Northeast Water Pollution Control Plant (NEWPCP) around 6:00am. The inspector arrived at the plant around 7:30am and received details of the situation from the crew chief. Instrumentation employees in the bar screen area first detected the odor around 2:00am. After the inspector's arrival only faint odors remained. Upon checking other collectors, inspector discovered the odor's detection on the line which Honeywell discharges. Monitors at Honeywell advised they did not receive any unusual bihourly analytical reading for cumene. The inspector requested and later received from Honeywell their bihourly analytical results for cumene and other compounds for the period 24 hours before 2:00am through 10:00am on Saturday, March 26th. Inspector also surveyed the interceptor manhole downstream from M-Sewer and detected moderate cumene odors. PID samples taken rendered a 84 parts per million reading. This event had minor effect on PWD operations at the NEWPCP.
3/30/2016	Gaul & LeFevre Streets	Cumene	Combined Sewer Service Area	A transfer hose began leaking a cumene-contaminated condensate at Honeywell from its sump containment. The IWBC inspector responded to this event at 1:50pm. While enroute to Honeywell the inspector checked the manhole at Gaul and LeFevre Sts. for excessive cumene odors and took PID readings. Odor assessment deemed minimal with PID reading at 13.3 parts per million. The inspector received background information and assessment of the situation from a Honeywell representative upon arrival. The leak had occurred for an estimated two hours before discovery and leaked an estimated 73 gallons of the cumene-contaminated condensate into M-Sewer. M-Sewer's cumene detector did not detect any floating layers of the substance and no material became diverted back for treatment. The staff at the Northeast Water Pollution Control Plant did not detect or report cumene odors or observe excessive PID readings in any of the facilities.
3/30/2016	Ballard Brook at the Alburger Avenue bridge	Green discoloration	Separate Sanitary Service Area	A IWBC inspector responded to Ballard Brook from the Alburger Ave. bridge at 3:45pm. This response resulted from an e-mail complaint from a former PWD employee who cited a green discoloration in the creek at Pine Rd. and Pennypack Creek. After arrival the inspector did not observe any green discoloration in the Ballard Brook from the Alburger Ave. bridge or the Pennypack Creek from the Pine Road bridge. The

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				inspector did notice remnants of green discoloration of the Ballard Brook from the Morefield Ave. Bridge in a deep and slow moving section. The inspector collected a sample of the water and noted small fish in the water who seemed unaffected by the green tinted substance in the water.
4/4/2016	East Roosevelt Boulevard & Elbridge Street	Diesel fuel	Combined Sewer Service Area	An IWBC inspector responded to East Roosevelt Blvd and Elbridge St. at 9:35am. Unified Dispatch reported a diesel fuel spill with an undetermined amount entering a nearby inlet. Upon arrival the inspector contacted the on-site representative for the Fire Department's Hazardous Materials Administrative Unit (HMAU). The HMAU representative informed that a tractor-trailer – car accident occurred resulting in the release of an estimated 75 gallons of diesel fuel spilled to the street. The firefighters did not notice any of the diesel fuel entering inlet 105046 when they arrived. Soon afterward they placed a dike and oil dry at the mouth of this inlet. After removal of the truck the firefighters placed an oil/sand mixture on the street to absorb the fuel. They also contacted Clean Venture to remove the diesel fuel and debris from the street. The IWBC inspector assessed this incident as having minor effect upon PWD operations.
4/6/2016	Building 546, The Navy Yard	Propylene glycol	Separate Sanitary Service Area	The Navy Yard received a 1:20pm visit by an IWBC inspector. A glycol expansion tank relief valve failed and allowed the release of an estimated 30 gallons of a 70 / 30 water-glycol mixture inside Building 546, the Naval Foundry & Propeller Center. The inspector did not detect any glycol odors in any of the nearby sewer inlets. Ten gallons of glycol entered the sewers. The leakage had ceased by the time of the inspector's observations and the employees had placed a berm around the sanitary drain. The center managers advised they would determine the cause of the valve's failure and send a report to the permit administrator within five days.
4/8/2016	15th & W. Wingohocking Street	Paint odor	Non Contributing	A PWD sewer maintenance crew employee reported strong paint/thinner odors at a worksite located at 15th and W. Wingohocking Sts. The IWBC inspector arrived on location at 3:30pm. The sewer maintenance crew departed the site prior to the inspector's arrival. No odor detected initially. The inspector proceeded to take volatile organic compound (VOC) readings from eight manholes in the area. Manhole T14-008775 produced the highest VOC reading at 22 parts per million. The sample taken from this manhole rendered a slight turpentine-like odor. The inspector did not observe any sheen or floating surface layer. The upstream manhole (T14-008965) registered a VOC reading of 3.2 parts per million while the downstream manhole (T14-008960) gave 13 parts per million. The VOC readings decreased from the manholes located farther down 16th St. Inspector also checked fresh air inlets along 16th St. and all readings registered below 2 parts per million. Inspector could not determine the source of the odor or VOC readings during this visit. The inspector returned the following day to check the excavation and manholes at 15th, 16th and Blavis Sts. Each rendered readings of 3 parts per million with no odors detected.

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4/11/2016	4503 S. Broad Street	Sewage	Non Contributing	The IWBC inspector responded to a Sewer Maintenance employee's report of sewage overflow at 4503 S. Broad St. Inspector arrived around 1:00pm and confirmed the employee's report of a grease filled lateral. The overflow of an estimated 90 gallons, occurred during the prior week to Langley St. east of Broad St. No discharge occurred to the Delaware River because of the high tide. A check of the handling procedures and disposal showed activity occurred at regular intervals. The inspector believed the cleanout intervals did not occur frequently enough especially with the restaurant's use of non-automatic grease traps. The inspector requested the issuance of a Notice of Violation and cost recovery information from Engineering Support to the owner of Lo Spiedo Restaurant. Department officials assessed this incident as having a major effect of PWD operations.
4/13/2016	4700 Basin Bridge Road	Diesel fuel	Separate Sanitary Service Area	At 4:00pm the IWBC inspector initiated an information collection response on a diesel fuel spill of 10 gallons to the receiving stream at 4700 Basin Bridge Rd. The vessel Crystal Coast released the fuel and the crew worked to clean the spill. The inspector determined no negative effect to Belmont or Queen Lane operations because of the incident location below the dam at the Waterworks. Therefore, no effect occurred to PWD operations.
4/18/2016	Byberry Creek at the Torresdale Country Club	Green discoloration	Non Contributing	The report of bright green discolored Byberry Creek water resulted in an investigation by a IWBC inspector at 4:40pm. Due to the color, the inspector suspected dye testing using sodium fluorescein dye. The inspector checked the Defective Laterals Unit Daily Dye Testing Log and received confirmation that the affected outfalls to Byberry Creek appeared on the list for the day. The outfalls, Q-114-10; Q-114-12 and Q-110-13, discharged to Byberry Creek. This event did not negatively affect PWD operations.
4/20/2016	Trevoise Road Township sampling chamber	cleaner odor	Separate Sanitary Service Area	The Trevoise Road Township sampling chamber received a IWBC inspector visit at 8:40am after a IWBC unit member reported a strong orange cleaner odor. The inspector determined degreasing compound as the substance with quantity estimated at 10 gallons at that location. The inspector took a PID reading at the chamber which resulted in a reading of 14.9 parts per million. A check of nearby manhole covers resulted in yields of 6.9 parts per million and 20 parts per million at a larger manhole. The inspector collected a wastewater sample for organics analysis and performed a drive around the area for orange odor detection. This old fashioned sensory detection effort (smell) in the area proved unsuccessful.

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4/20/2016	NEWPCP	Vehicle fluids	Separate Sanitary Service Area	The Industrial Waste & Backflow Compliance chief contacted the IWBC inspector who responded to a car fire at the Northeast Water Pollution Control Plant at Wheatsheaf Lane and Richmond St. around 12:35pm. The inspector needed to determine whether chemicals from the automobile or the fire entered nearby inlets. Before arrival on site the inspector checked the stormwater outfall at Richmond St. and Frankford Creek (T-056-08) to determine any effect of the deluge water on the creek. The outfall showed no signs of debris or substances from the fire's deluge water. The inspector contacted a representative from the Philadelphia Fire Marshall's office after arrival on site. This individual advised the vehicle contained recently filled gas cylinders containing oxygen and acetylene when it caught fire. The thoroughly burned out vehicle sat directly in front of a stormwater inlet. The inspector took PID readings at this inlet which registered 1.1 parts per million for VOC. PID readings for the manhole downstream from the inlet registered 0.3 parts per million. The inspector did not detect any odor of hydrocarbons. Because of the PID readings the inspector believed the fire consumed all flammable substances (gasoline, engine oil, antifreeze, grease) which the vehicle previously contained. Department officials assessed the effect of this event on PWD operations as minimal.
4/20/2016	Maxwell Place & Maxwell Avenue	Sewage	Combined Sewer Service Area	The IWBC inspector received a phone call from a PWD employee who complained of a sewage odor coming from a stormwater outfall/tributary behind the home. The inspector responded to the outfall location (P100-08) at Maxwell Place and Maxwell Ave. at 3:15pm. Slightly gray water flowed from the outfall and cloudy gray water filled the plunge pool and outfall channel. The inspector estimated a release of 10,000 gallons of sewage occurred to the creek. The smell of sewage emanated from the water. The inspector proceeded to trace the blockage to a manhole at Willits and Northview Roads (manhole number P100-08-S0390). Upon return to the outfall the inspector noticed the substance turned to a solid light gray with the accumulation of scum on the surface and on the rocks. The inspector notified the PWD E-desk of the discharge which required the response of a sewer maintenance crew to clear the blocked sewer. This event, which carried a potential NPDES permit violation because of its possible effect on the creek and wildlife, assessed as having a minor effect on PWD operations.
4/22/2016	8920-8922 Maxwell Place	Underground leak	Combined Sewer Service Area	The IWBC inspector received a phone call from a Pennsylvania Department of Environmental Protection (PaDEP) official who received a high chlorine reading of 0.74 parts per million from the water flowing from outfall P100-08. The inspector arrived on site at 11:35am and took a sample for chlorine from the outfall which rendered a 1.26 parts per million reading. The inspector reported this finding to the PaDEP official and initiated the leak investigation. The inspector, via the sound of running water in the fresh air inlets and a nearby inlet, detected the location of an underground leak at 8920 - 8922 Maxwell Place. The PWD Emergency Desk received the inspector's report. The inspector performed follow-up visits to the outfall and

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				took samples on Wednesday, April 27th/1.48ppm and Thursday, April 28th/1.46ppm. The sound of flowing water in the fresh air inlets at Maxwell Place remained steady at both visits. Inspector requested a second evaluation and later met a leak detection crew on Friday, April 29th at the location. The crew successfully located the leak. This event deemed as having a minor effect on PWD operations.
4/25/2016	133 N. 11th Street	Sewage	Combined Sewer Service Area	An IWBC inspector arrived at 133 N. 11th St. to investigate the reported release of sewage from that restaurant's basement. The pumping of white-colored sewage continued as the inspector arrived at 1:45pm. The inspector spoke to an employee and the landlord who informed of a recent inspection by a city employee who did not advise of any problems. That employee did issue a Notice of Defect (NOD) of which the landlord claimed unawareness. The building's lateral remained collapsed from the Fresh Air Inlet (FAI) to the sewer on 11th St. The landlord discovered the sewage in the basement earlier in the day and sought to pump it out onto the street. A Health Department official from the Food Protection Unit arrived and after viewing the situation closed the restaurant until the lateral is cleared and the basement is cleaned. PWD also shut off water service to the building until the blockage becomes cleared from the lateral and the sewage flowed to the sewer and not the sidewalk.
4/25/2016	2407 E. Gordon Street	Water and glycerin	Separate Sanitary Service Area	The Municipal Dispatcher forwarded a hazardous material spill report and requested IWBC response to a warehouse at 2407 E. Gordon St. in the city's Kensington section. The inspector arrived at the location at 6:45pm and received a briefing from the on-site representative of the Philadelphia Fire Department's Hazardous Materials Unit. During a test of the sprinkler system a pressure relief valve on the roof failed and released an estimated 30 gallons of a water and glycerin mix. The substance entered two roof drains. One drained to a neighbor's patio and covered it with the fermented glycerin which smelled like decayed garbage. None of this substance reached a nearby storm drain. The second drain entered a storm stand pipe inside the building which directed to the combined sewer. The inspector determined less than 10 gallons of this substance reached and entered the combined sewer. The inspector assessed this event as having no effect on PWD operations.
4/29/2016	Frankford Bridge & Torresdale Bridge	Black color and foul odor	Non Contributing	The IWBC inspector received an e-mail forwarded in-turn from the IWBC chief which concerned the condition of Frankford Creek. The complainant's e-mail expressed concern about the creek's color (black), its malodorous nature during the summer months and the safety of Philadelphia's water. The inspector phoned complainant and pledged to visit the creek for observation. The inspector visited the creek at Frankford Bridge and Torresdale Bridge near Hunting Park Ave. at 1:45pm, Friday, April 29th. The creek appeared dark but the water had clarity. The inspector did not notice any unusual odors in the vicinity of the creek. This complaint had no effect on PWD operations.

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5/2/2016	Walnut Street Bridge	Oil Sheen	Non Contributing	The Municipal Dispatcher directed a report of oil sheen around the Walnut St. Bridge on the Schuylkill River. An IWBC inspector responded to that location at 5:20pm to begin observations and take volatile organic compound (VOC) readings at riverside of the tidegate, the manhole on 24th St. and at the regulator. Only the VOC readings taken riverside of the tidegate at S 12A produced results. Observers reported seeing the sheen at times as far north on the Schuylkill River as Market St. Inspector detected fuel odors in the area of Chestnut St. The Coast Guard representative advised on identifying a crack in the bulkhead under the Chestnut St. Bridge. The exact location of the oil's origin remained undetermined as the Coast Guard maintained surveillance of the area. Inspector performed followup visits to the location until noon, Friday, May 6, 2016. Inspector assessed this situation as having no effect on PWD operations.
5/2/2016	5731 Priscilla Street	Oil	Non Contributing	The owner of a small auto body shop at 5731 Priscilla St. received an 11:00am visit by an IWBC inspector. A complainant reported observing an individual pouring waste oil into an inlet located at West Coulter and Priscilla Sts. The inspector discussed the body shop's activities with the owner who advised that no waste oil is generated at the shop. The owner advised that "backyard mechanics" periodically perform maintenance across the street from the body shop. The inspector contacted the complainant who informed of witnessing the dumping on Wednesday, April 20th. The complainant described the individual and noted the time of the incident, 1:15pm. Complainant also presented photos taken at the time and place of the incident. At the time of the inspector's visit, no visible evidence of the oil remained at the inlet. This event assessed as having minor effect of PWD operations.
5/5/2016	NEWPCP	Purple Sheen	Combined Sewer Service Area	The Treatment Plant Operator at the Northeast Water Pollution Control Plant (NEWPCP) reported a purple sheen at the facility's c-lever. IWBC inspectors arrived on site at 8:00am and took samples at the primary tank. The purple color attached to some of the solids but did not appear in any appreciable amount in the wastewater. Upon further inquiries inspectors advised the substance originated from a slug discharge of wastewater from C Lever, Bensalem, PA caused by a tear in the filter press for the wastewater.
5/6/2016	I-95 Northbound	Diesel fuel	Non Contributing	The IWBC inspector responded to the HAZMAT Unit's service request, via the Municipal Dispatcher, for assistance with a 45-gallon diesel spill on Interstate 95 northbound. The inspector reported to the accident site at 7:40am amid heavy rain. Pennsylvania Department of Transportation employees had already placed a dike around the nearby inlet along with wet sand to absorb what remained the substance. A towing company had already removed the vehicle whose saddle tank ruptured. The inspector determined most of the diesel fuel had already entered the inlet because of the heavy rain but placed absorbent wipes to remove the fuel which remained. The inspector proceeded to the nearby Delaware River to look for sheen

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				on the water's surface – none observed. Inspector discussed the I-95 intake with a PWD technician and both concluded tidal conditions at the time of the accident, 6:00am – 6:30am, did not allow the river water to fill the raw water basin at PWD facilities downstream. Also - the heavy rain, in all probability, flushed the diesel fuel downstream.
5/6/2016	Belmont WTP	Hypo	Combined Sewer Service Area	At 11:43am the IWBC inspector received notification from another IWBC member of a Hypo leak to the sanitary sewer system at the Belmont Water Treatment Plant. Upon contact with the acting plant manager, inspector received notice of the leak's continuance over a period of time which "resulted in a calculated quantity to exceed the reportable quantity of 100#." Belmont's acting plant manager had already notified other affected organizations of their situation. The inspector arrived at Belmont around 12:35pm where the acting plant manager proceeded to show the affected sanitary sewer. The manager also advised the inspector of the leaking feed loop's removal from service. The inspector assessed no effect upon PWD operations.
5/7/2016	NEWPCP	Diesel fuel odor	Non Contributing	The report of strong diesel fuel odors in the bar screen area at the Northeast Water Pollution Control Plant resulted in an investigation by an IWBC inspector which began at 10:00am. Plant employees advised inspector the strong odor forced them to evacuate the building for one hour. The inspector proceeded to examine the building's lower level, pretreatment building grit area, the primary influent building, the primary sedimentation tank area, the primary effluent building, the aeration tank area and the incoming collectors. No odors or photo ionization detection (PID) readings experienced or noted in any of the areas. The inspector then advised the crew chief on duty of the findings. This event had minor effect on PWD operations.
5/9/2016	2024 Rittenhouse Square	Whitewall cleanup	Combined Sewer Service Area	Two IWBC inspectors responded to 2024 Rittenhouse Square at 12:00pm to investigate a report of a white substance dumped into the nearby inlet. The inspectors saw the substance in the inlet and determined it to be a cleanup from whitewall. The complainant informed the responsibility of the substance lay with the general contractor. The inspectors met and interviewed the manager who advised on the subcontracting arrangement of the work. The general contractor manager could not determine who should take responsibility for the inlet dumping. The inspectors advised the general contractor nothing should be poured into the inlet or onto the street. This incident assessed as having a minor effect on PWD operations.
5/12/2016	Manayunk Canal at Cotton Street	Whitish/blue scum	Combined Sewer Service Area	A PWD employee from Sewer Maintenance reported a situation on the Manayunk Canal at Cotton St. to IWBC. An inspector arrived on site at 11:25am and witnessed "a solid floating film (a whitish/blue scum) that was hanging primarily along the eastern bank of the Canal at Cotton Street and up to 50 feet upstream. The complainant directed the inspector to a pipe not owned by PWD located along the canal's east bank.

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Appendix O – Pollutant Migration/Infiltration to the City of Philadelphia Sewer System

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				The inspector and complainant contacted a representative of Brandywine Construction Management Maintenance Tech regarding the oil slick. This individual showed the trench drain which received water from the roof leaders. The trench drain, located behind a restaurant, became the source of considerable uncertainty as no one could determine whether the trench drain tied into the sanitary sewer on Main St. or Rector St. or drained into the Manayunk Canal. The material in this drain appeared similar to the whitish/blue scum substance seen earlier in the canal by the sewer maintenance employee. At the conclusion of the inspection the substance and sheen had disappeared and dissipated. The IWBC inspector arranged a follow-up visit to have a dye test on the area drains behind the restaurant to determine their discharge destination (sanitary sewer or Manayunk Canal).
5/16/2016	Castor & Frankford Avenue	Water discharge	Separate Sanitary Service Area	The IWBC inspector responded to an excavation site located at Castor and Frankford Aves. at 1:00pm. There the inspector investigated a report of two pumps being used by a contractor to remove water from the site to the street. The inspector contacted the owner of Seravalli Contruction who advised of the crew's replacement of a water main valve. The water on the street originated from the process of flushing the water main. The crew did not have a nearby inlet or manhole in which to pump directly. As a result, the water proceeded to inlets along Castor Ave. to Amber St. This situation presented no effect on PWD operations.
5/17/2016	901 Admiral Peary Way	Hydraulic Fluid	Separate Sanitary Service Area	The IWBC manager forwarded a Navy Yard hydraulic spill report and the IWBC inspector responded to the spill site located outside Building 77, 901 Admiral Peary Way at 12:20pm. Upon arrival inspector observed the cleanup, already underway around a forklift and nearby inlet. The fork lift lost an estimated 30 gallons of hydraulic fluid on the street to the inlet located 32' from Outfall S-007-20. The clogged inlet showed visible signs of the fluid. The cleanup crew placed absorbent pads in the inlets and the area around the inlets required surface cleaning. The inspector did not observe a sheen on the Schuylkill River. The Department of Environmental Protection notified the Coast Guard and the Pennsylvania Fish Commission of its findings. This incident had no effect on PWD activities.
5/17/2016	200 block of Bainbridge Street	Grease blockage	Non Contributing	The IWBC chief received an e-mail about a choked sewer in the 200 block of Bainbridge St. The inspector reported to that location at 4:30pm. Upon arrival the complainant advised inspector they suspected the only restaurant near the choked sewer, as the source of the problem. The inspector went to 627 S. 3rd St. to contact the owner and inspect the grease trap. The grease trap flowed directly to the Bainbridge St. sewer. The inspector departed and returned the following day, Wednesday, May 18th, to inspect the grease trap. One of the employees informed the trap is cleaned every three weeks. The previous cleanout, according to the log, occurred on Tuesday, April 12th. The inspector advised of the restaurant's potential

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				liability for cleanup of future sewer clogs because of grease trap neglect. This situation assessed as having a major effect on PWD operations.
5/18/2016	Terminals D and E, Philadelphia International Airport	Diesel fuel	Combined Sewer Service Area	The IWBC inspector responded just after 12-noon to a 30-gallon diesel fuel spill between Terminals D and E at Philadelphia International Airport. The inspector visited Mingo Creek surge basin and confirmed no diesel fuel reached that location. Upon arrival at the local between Terminals D and E, inspector viewed a 30' x 30' area blackened with spilled diesel fuel. Some of the fuel reached and entered the municipal separate storm sewer system (MS4) located 20' distant. The inlet possessed significant depth and no discharge of the fuel – water mix occurred. Maintenance crews removed three 55-gallon drums of diesel fuel-water mixture from the MS4 and planned the placement of sock booms around that inlet. The maintenance supervisor informed the inspector that a procedural review would occur to determine future incident prevention measures. This incident assessed as having no effect on PWD operations.
5/19/2016	NEWPCP	Sweet odor	Combined Sewer Service Area	Unified Dispatch forwarded a report of odor detection in the Junction chamber A fan area at the Northeast Water Pollution Control Plant. The plant's operations crew chief met the IWBC inspector upon their arrival at 10:50pm. The lower explosive limit (LEL) meter activated during an earlier shift at 20% LEL and the Junction Chamber A fan activated. The operator smelled a sweet odor later in the shift. Neither the operator nor the operations crew chief took air samples at this time. After arrival the inspector did not detect any odor in the Junction Chamber A fan area and the LEL meter rendered a 0% reading. The volatile organic compound (VOC) meter registered .2 parts per million. During a walk-through of the pre-treatment building (PTB) and grit dumpster areas the inspector did not detect any odors or elevated VOC readings. Neither the inspector nor the operations crew chief took samples as no detection of odors occurred during that time at the plant. However, the inspector reminded the operations crew chief to take a sample anytime an odor is detected. This event assessed as having minor effect upon PWD operations.
5/21/2016	3400 block N. 3rd Street	Dirt	Combined Sewer Service Area	IWBC received an e-mail complaint regarding improper erosion and sediment control in the 3400 block of N. 3rd St. The inspector reported to this water main replacement project site at 10:10am and noted a lack of sediment control devices at the inlets. None of the construction personnel remained at the site during the inspector's visit. Dirt from the work coated the streets of this multi-block project, filled the inlets and created a dust problem for the residents. The IWBC Inspector noted the construction inspector should require the immediate placement of sediment control devices. The inspector reported the site observations to PWD Customer Information for follow-up. The inspector noted this situation as having minor effect on PWD operations.

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/24/2016	1501 N. Broad Street	Diesel fuel	Separate Sanitary Service Area	The Municipal Dispatcher directed a request from the Hazardous Materials Unit for response to a dumping event into a sanitary sewer at 1501 N. Broad St. The IWBC inspector arrived at the location at 12:00pm. The saddle tank on a tractor trailer leaked diesel fuel at a loading dock and around the parking lot at Progress Plaza. The diesel fuel reached several storm inlets, however, none of them belonged to PWD. This event had no effect on PWD operations.
5/24/2016	5400 block Baynton Street		Combined Sewer Service Area	A PWD employee e-mailed a complaint of gasoline dumping on the 5400 block of Baynton St. to the IWBC. The inspector responded to that location at 1:30pm. The complainant noted observing the operator of a silver SUV dumping gasoline into the inlet and immediately leaving the area. The inspector took VOC readings which registered positive. Although none of the substance remained visible the area emitted a gasoline odor. Inspector opened the nearby hydrant to flush the remaining substance and odor from the inlet. This situation had minor effect on the inlet and no effect on PWD operations.
5/26/2016	5189 Ridge Avenue	Grease	Combined Sewer Service Area	A report of dumping into an inlet in front of 5189 Ridge Ave. warranted a visit by an IWBC inspector at 12:00pm. The inspector observed the inlet which had stains around it and a thick layer of grease within. Four businesses operated in the vicinity (two auto body shops, a construction company office and a pizza shop). The pizza shop had not opened and the inspector left a card in the door. The inspector contacted the auto body shop at 5134 Ridge Ave. The owner agreed to check his surveillance system for the previous two weeks for evidence. The inspector returned to the pizza shop later in the day and the owner explained the shop's handling of waste grease. Inspector directed a request to the PWD Customer Service section for the inlet cleaning to prevent the grease from escaping to the storm sewer.
5/31/2016	4423 Locust Street	Sewage	Combined Sewer Service Area	At 4:00pm an IWBC inspector visited the Best China Inn at 4423 Locust St. to investigate a report of sewage dumping into a nearby inlet from the restaurant. Upon arrival the inspector observed an oily residue on the street which led to the inlet. The inspector contacted the owner of the establishment and ordered the cessation of the pumping activity.
6/8/2016	1114 Shackamaxon Street	Cement	Separate Sanitary Service Area	The Unified Dispatch directed a report of an individual dumping cement into an inlet near 1114 Shackamaxon St. The inspector responded to this location at 7:11pm. Upon arrival inspector noticed puddles remained on the street from an earlier rain. Inspector checked the two inlets at the southeast corner of Wildey and Shackamaxon Sts. Neither inlet showed signs of concrete inside or around their areas. The contractor advised of the pumping of the wash water into the hole being filled with cement. The contractor also advised they would sweep the street in front of the job site. The inspector advised the

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				contractor of the requirement to keep all water on the job site contained in that area as concrete work on the foundation continued. This event had minor effect on PWD operations.
6/10/2016	11th & Filbert Streets	Greasy water	Combined Sewer Service Area	An individual received a 2:00pm visit by an IWBC inspector. A complainant reported the pumping of brownish greasy water into the street and inlet at 11th and Filbert Sts. The inspector did not notice dumping activity upon arrival but did observe the brownish greasy water in the gutter and at the bottom of the nearby inlet. The individual advised another worker working on the trash truck spilled the liquid while emptying his trash can. The inspector advised the individual the liquids should not go into the trash but into a separate container. The inspector checked the establishment's grease handling. The grease trap, although the individual informed of its weekly cleaning, did not look as if cleaned weekly. The inspector referred the establishment to Engineering Support for the possible issuance of a notice of violation.
6/11/2016	Aramingo Avenue & W heatsheaf Lane	Diesel fuel	Combined Sewer Service Area	The Municipal Dispatcher contacted the IWBC inspector at 4:00am for response to a motor vehicle accident which occurred around midnight involving a tractor trailer at Aramingo Ave. and W heatsheaf Lane. The inspector arrived on site at 4:35am and contacted Lt. Beatrice of the Hazardous Materials (HAZMAT) Unit. The truck's saddle tank leaked diesel fuel into the storm sewer on the southwest corner of Aramingo and W heatsheaf. HAZMAT's technicians pumped an estimated 110 gallons of diesel fuel from the inlet and another 55 gallons from the truck's saddle tanks. Use of the photo ionization detector at nearby storm sewers produced no unusual readings and supported the inspector's determination the inlet contained the diesel. A check of the storm sewers and Frankford Creek in the vicinity of T-56-02 showed no traces of that substance thereby confirming this assessment. The responsibility company, facilitated the cleanup.
6/15/2016	2014 Mascher Street	Water discharge	Separate Sanitary Service Area	A steady stream of water flowing down Mascher St. caught the attention of the IWBC inspector while driving in the area at 9:25am. The inspector traced the origin of the flow to a learning center at 2014 N. Mascher St. After arrival the director and the maintenance person informed the inspector the pumped water came from the basement where an underground stream periodically enters the building's basement. The inspector observed approximately 400 square feet of water of an undetermined depth which covered the lower side of the basement. The maintenance person pumped this water from the basement at a rate of 20 gallons per minute. The inspector estimated 500 gallons of this groundwater entered the storm inlet. The director and maintenance person received the inspector's advisement of the illegality of the discharge and the order to stop until the water could be tested and a discharge permit obtained. The inspector referred the situation to Engineering Support for permit assistance and enforcement action as needed.

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
6/15/2016	I-95 near the Girard Ave. exits	Diesel fuel	Non Contributing	The Municipal Dispatcher contacted the IWBC inspector around 10:00am and advised to contact the representative of the Pennsylvania Department of Environmental Protection (PADEP) regarding a diesel spill on Interstate 95. The inspector contacted the PADEP representative, Fire Department Communications and on to the Hazardous Materials Unit on-scene representative on Interstate 95 near the Girard Ave. exits. The inspector inquired on the status of the nearby storm inlet (plat #37 – a combined sewer) and the HAZMAT representative advised less than one gallon of the fuel entered the inlet. The inspector requested Clean Venture’s removal of the fuel from plat #37 and the HAZMAT representative agreed to request this activity. Later in the day the inspector visited the location and confirmed the completion of the inlet cleaning.
6/16/2016	3100 E. Venango Street	Expansion foam	Non Contributing	Five IWBC members responded to 3100 E. Venango St. at 11:45am for the report of a high expansion foam discharge into the inlets on Castor Ave. (D-17) and Venango St. (D-18). The inspectors took water samples to check for volatile organic compound, requested and received the placement of spill booms at both inlets. Both inlets led to the Delaware River so the inspectors checked the outfalls and the river for the presence of foam and did not find any.
6/22/2016	Pennypack Street near the Philadelphia Police Academy	Sewage	Separate Sanitary Service Area	The IWBC inspector reported to Pennypack St. near the Philadelphia Police Academy at 9:30am for the report of sewage spill to ground. Upon arrival the inspector witnessed a PWD vactor removing sewage from a uncovered structure which appeared to be a valve. This structure, later identified as a private line from the Philadelphia Fire Academy, did not appear on any Water Department records. Water and water stains appeared on the ground around the uncovered structure for a distance downgrade over 200 yards. After contacting the complainant, inspector took a sample for chlorine which rendered a reading of 0.00ppm. Samples were also taken for fluoride (with 0.549 results) and fecal coliform (with results greater than 2.4 million MPN). The complainant expressed amazement at the rapid growth of algae at the location and the inspector took a sample of that substance. Personnel from PWD’s Sewer Maintenance later successfully vactored the leak. Waterways performed a successful cleanup of the spill site on June 23, 2016.
6/22/2016	Passyunk Avenue Bridge	Diesel oil	Combined Sewer Service Area	IWBC inspector responded to the report of a collision of two trucks on the grated deck of the Passyunk Avenue Bridge. Inspector arrived around 12-noon and received event information from the on-scene fire battalion chief. Two vehicles, a tractor-trailer and a DHL delivery box truck, collided atop the westbound grated deck of the span. Technicians recovered approximately 30 gallons of a possible 150 of spilled diesel fuel from the tractor-trailer. The amount lost from the DHS truck remained undetermined as its removal had already occurred. Fuel stained the westbound lanes from the grated decking onward for 75 yards. Streets Department personnel used loaders to spread sand on the affected surfaces. Several of the roadway drains took some of the fuel and the inspector noticed a sheen on the water beneath the bridge and trailing in a wide spread down the Schuylkill River toward its mid-channel. The Coast Guard representative advised

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Appendix O – Pollutant Migration/Infiltration to the City of Philadelphia Sewer System

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				that the sheen on the river would not require cleanup and the light phase hydrocarbon would dissipate naturally. Clean Venture suggested the use of the Street Department's sweepers to remove the contaminated sand. Streets Department personnel took the contaminated sand to their 63rd and Eastwick Sts. facility and placed it into 55-gallon drums for disposal. Only two of the six drains on the span could be opened and cleaned. No area drains existed at the location. This event had no effect of PWD operations.
6/23/2016	1027 Welsh Road	Sewage	Combined Sewer Service Area	The inspector responded to Welsh Rd. around 9:15am and unsuccessfully attempted contact with the complainant. During a survey of Red Rambler Run behind complainant's home, inspector discovered a trail of gray shaded water. This water originated from a pipe below the surface of an embankment on the far side of the creek. The inspector detected a sewage odor and telephoned PWD headquarters for additional information on the complaint. During a sewer and lateral inspection technicians discovered an overflowing septic tank. The problem originated at 1027 Welsh Rd. The inspector contacted the owners who informed of having problems with their septic system which they pumped out months earlier. While conversing with the owners inspector observed a discharge of sewage from the pipe estimated in excess of 5 gallons per minute. The inspector advised of three items: the necessity to repair the system to prevent overflow to the creek, acquiring the services of a plumber to assess their system and the leach field and the necessity to contact Licenses and Inspections (L&I) about the situation. The inspector contacted L&I who advised they would send an inspector who would issue a violation to repair or connect to the city sewer. The owners of 1027 Welsh Rd. also informed of their scheduling of a pump out of the system during the following Monday.
6/24/2016	4140 N. Broad Street/Sunoco gas station	Oil	Combined Sewer Service Area	Fire Department Communications contacted the IWBC inspector and requested assistance for a PECO transformer oil leak to an inlet on the southwest corner of Broad St. and Hunting Park Ave. The inspector arrived at the location, 4140 N. Broad St./Sunoco gas station, at 7:49pm. Upon arrival the environmental coordinator from PECO provided details of the situation. An individual parking a car struck and knocked over a protective bollard which hit the transformer. The force knocked the transformer 2.5 feet and severed the connectors thereby allowing the release of an estimated 30 gallons of transformer oil. The oil flowed down the gas station's blacktop driveway approximately 50 feet toward Hunting Park Ave. and another 50 feet to inlet 57932 on the southwest corner of Hunting Park Ave. and Broad St. Vehicles departing the gas station then tracked the oil onto Hunting Park Ave. PECO's environmental coordinator took a lab sample (Result: PCB concentration of 2 ppm) and a wipe sample (Result: reading well below threshold of 10ug/100cm2). Responders estimated five gallons remained inside the inlet. The remediation company PSC had already arrived and started cleanup before the IWBC inspector's appearance. PSC removed nearly 30

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Date	Location	Pollutant	Drainage Type	Follow-up Actions
				gallons of debris and double power washed inlet 57932 with D-Limonene to complete its cleanup by 8:40pm. This event had minor effect on PWD operations.
6/28/2016	1836 Airdrie Street	Sewage	Combined Sewer Service Area	At 3:45pm the IWBC inspector responded to the 1800 block of Airdrie St. for an anonymous complaint of sewage on the street. The inspector observed sewage flowing from the fresh air inlet in front of 1836 Airdrie St. The substance flowed down Airdrie St. to Sedgley St. toward inlet 119073 and collected in the gutter. The inspector spoke to the resident of 1836 Airdrie who informed of the receipt of a low interest loan for the repair of the broken trap but continued to experience difficulty in directly contacting the plumber. The inspector telephoned the plumber and provided an urgent voice message regarding the repair. To wash the sewage from Airdrie St. the inspector opened the fire hydrant nearby. The resident received guidance from the inspector to flush the toilet often and use lots of water until the plumber completed repair of the trap.
6/29/2016	865 N. 48th Street	Waste dumping	Combined Sewer Service Area	A neighbor observed the resident of 865 N. 48th St. dumping waste from a motor home into the fresh air inlet. The inspector arrived at 12:10pm and did not notice any residue on the sidewalk or on the street. The inspector spoke with the resident of 865 N. 48th St. who advised on their cleanup of the motor home and discarding of the waste from the holding tank. The inspector informed the holding tank waste cannot be released into the fresh air inlet. The resident acknowledged understanding and explained they would discard the waste before returning from their upcoming trip. The complainant later telephoned on July 2, 2016 and informed of the mobile home owner's resumed pumping of the holding tank waste to the fresh air inlet. The complainant became ill from the odor. Inspector then completed a round of contacts (e-mail to 311; telephone to Health Department's Air Management Service; telephone to 311). The 311 operator advised the inspector to have the complainant telephone 911 - Philadelphia Police. The inspector telephoned the complainant and provided a voice message advising to call 911 when the occupants are present at the vehicle.

Appendix P – Defective Lateral Connection FY16 Status Reports

**STORM WATER MANAGEMENT PROGRAM
NPDES PERMIT NO. PA0054712**

**DEFECTIVE LATERAL CONNECTION STATUS REPORT
(Covering Period from October 1, 2015 to December 31, 2015)**

Submitted to

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER QUALITY MANAGEMENT**

By

**CITY OF PHILADELPHIA
PHILADELPHIA, PA**

February 14, 2016

DLC Program Update 4th Quarter 2015

I. INTRODUCTION

This Defective Lateral Connection Status Report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) as part of the reporting requirements of the City of Philadelphia NPDES Storm Water Management Permit No. PA 0054712. The report covers the three-month period beginning October 1, 2015 and ending December 31, 2015.

The body of this report will describe the recent activities of the City during the past quarter within the 1998 COA Priority Outfall areas and at other significant outfalls on the Stormwater Outfall Priority Score list. Additionally, goals for the next quarter will be listed.

Table 1 provides a summary of the program with respect to Complete tests, Cross-connections identified, and Abatements performed. Table 2 provides a listing of all laboratory analyses of samples taken at stormwater outfalls or within the stormwater system during the previous quarter. Table 3 provides a listing of properties with cross-connections outstanding greater than 120 days. Finally, Table 4 provides a listing of reported wastewater spills to the stormwater system or receiving streams.

II. PAST QUARTER REVIEW

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

DLC program activities have performed 2,831 Complete tests in this sewershed, identifying 132 Cross-connections, all of which have been Abated.

Eight (8) sites intercepting flow are listed below.

- | | | |
|----|--------|--|
| 1. | CFD-01 | Plymouth St. west of Pittsville St. |
| 2. | CFD-02 | Pittsville St. south of Plymouth St. |
| 3. | CFD-03 | Elston St. east of Bouvier St. |
| 4. | CFD-04 | Ashley St. west of Bouvier St. |
| 5. | CFD-05 | Cheltenham Ave. east of 19 th St. |
| 6. | CFD-06 | Verbena St. south of Cheltenham Ave. |
| 7. | CFD-07 | Cheltenham Ave. east of 7th St. |
| 8. | CFD-08 | 7th St. south of Cheltenham Ave. |

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	6	1	0
CFD-02	6	0	0
CFD-03	6	0	0
CFD-04	6	0	0
CFD-05	6	0	0
CFD-06	7	0	0
CFD-07	13	1	0
CFD-08	13	3	0

The most recent fecal sample value was 2909 MPN per 100 ml. at the outfall on October 7, 2015.

2. Monastery Ave. Outfall (W-060-01)

DLC program activities have performed 611 Complete tests in this sewershed, identifying 16 Cross-connections, all of which have been Abated.

Two (2) sites intercepting flow are listed below.

1. MFD-01 Jannette St. west of Monastery Ave.
2. MFD-02 Green La. north of Lawnton St.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
MFD-01	6	0	0
MFD-02	6	0	0

The most recent fecal sample value was 520 MPN per 100 ml. at the outfall on October 7, 2015.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

DLC program activities have performed 2,744 Complete tests in these sewershed areas, identifying 93 Cross-connections, all of which have been Abated. The majority of the efforts have been in the W-068-05 sewershed area which is by far the largest in terms of drainage area and properties served.

The most recent fecal sample value was 4884 MPN per 100 ml. at the W-068-05 outfall on October 7, 2015.

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

DLC program activities have performed 2,478 Complete tests in these sewershed areas, identifying 61 Cross-connections, all of which have been Abated. The majority of the efforts have been in the S-059-04 sewershed area.

The most recent fecal sample value was 1860 MPN per 100 ml. at the S-058-01 outfall, 19863 MPN per 100 ml. at the S-059-01 outfall, 241960 MPN per 100 ml. at the S-059-02 outfall, 1039 MPN per 100 ml. at the S-059-03 outfall, 216 MPN per 100 ml. at the S-059-04 outfall and 231 MPN per 100 ml. at the S-059-05 outfall all on October 8, 2015. The S-059-09 outfall was found dry on October 8, 2015.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

DLC program activities have performed 5,820 Complete tests in this sewershed, identifying 87 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

1. PFD-01 Sandyford Run (Brous and Lexington Aves.)

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
PFD-01	19	1	0

2. Franklin and Hasbrook Outfall (T-089-04)

DLC program activities have performed 1,016 Complete tests in this sewershed, identifying 46 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

1. CFD-01 Franklin and Hasbrook Aves.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	19	2	0

3. A current summary of additional outfalls from the Stormwater Outfall Priority Score list that the City has performed complete testing or abatements this quarter is as follows.

<u>Outfall #</u>	<u>Complete Tests</u>	<u>Cross-Connections</u>	<u>Abatements</u>
P-083-03	1	0	0
P-091-01	1	0	0
P-091-12	14	0	0
P-099-01	147	3	0
P-099-03	1	0	0
P-100-12	1	0	0
P-100-14	136	0	0
P-103-01	1	0	0
P-104-05	17	0	0
P-105-13	1	0	0
P-108-07	1	0	0
Q-101-04	177	1	0
Q-106-12	0	0	1
Q-106-13	62	0	0
Q-110-10	1	0	0
Q-110-18	12	3	0
Q-114-12	0	1	1
Q-117-02	64	3	8
Q-120-11	0	0	1
S-051-08	0	1	0
S-052-04	1	1	0
S-052-05	4	0	1

III. NEXT QUARTER GOALS

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

2. Monastery Ave. Outfall (W-060-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

Goals for the Quarter

- Continue sampling at outfall W-068-05 with dry-weather flow.

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

Goals for the Quarter

- Continue sampling at the outfalls with dry-weather flow.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

2. Franklin and Hasbrook Outfall (T-089-04)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

3. Continue to perform abatements of identified cross-connections within the following outfalls.

- P-099-01
- Q-101-04
- Q-110-18
- Q-117-02
- S-051-08
- S-052-04
- W-067-01

4. Continue to perform property testing within the following outfalls.

- P-091-11
- P-091-12
- P-100-14
- P-104-05
- Q-101-04
- Q-110-13
- Q-114-12
- W-067-01

Table 1
DLC Program Summary
October 1, 2015 to December 31, 2015

Complete Tests:

- 56,594 Complete tests have been performed under the DLC program
- **642 Complete tests were performed this past quarter**
- 1 Complete test was performed in outfall P-083-03
- 1 Complete test was performed in outfall P-091-01
- 14 Complete tests were performed in outfall P-091-12
- 147 Complete tests were performed in outfall P-099-01
- 1 Complete test was performed in outfall P-099-03
- 1 Complete test was performed in outfall P-100-12
- 136 Complete tests were performed in outfall P-100-14
- 1 Complete test was performed in outfall P-103-01
- 17 Complete tests were performed in outfall P-104-05
- 1 Complete test was performed in outfall P-105-13
- 1 Complete test were performed in outfall P-108-07
- 177 Complete tests were performed in outfall Q-101-04
- 62 Complete tests were performed in outfall Q-106-13
- 1 Complete test was performed in outfall Q-110-10
- 12 Complete tests were performed in outfall Q-110-18
- 64 Complete tests were performed in outfall Q-117-02
- 1 Complete test was performed in outfall S-052-04
- 4 Complete tests were performed in outfall S-052-05

Cross-Connections Found:

- 1,386 Cross-connections have been identified under the DLC program
- **13 Cross-connections were identified this past quarter**
- 3 Cross-connections were identified in outfall P-099-01
- 1 Cross-connection was identified in outfall Q-101-04
- 3 Cross-connections were identified in outfall Q-110-18
- 1 Cross-connection was identified in outfall Q-114-12
- 3 Cross-connections were identified in outfall Q-117-02
- 1 Cross-connection was identified in outfall S-051-08
- 1 Cross-connection was identified in outfall S-052-04

Abatements:

- 1,368 Abatements have been performed under the DLC program
- **12 Abatements were performed this past quarter**
- 1 Abatement was performed in outfall Q-106-12
- 1 Abatement was performed in outfall Q-114-12
- 8 Abatements were performed in outfall Q-117-02
- 1 Abatement was performed in outfall Q-120-11
- 1 Abatement was performed in outfall S-052-05

Outfall/Manhole Screening and Sampling:

- 11 outfall inspections were made as part of the Priority Outfall Inspection Program this past quarter
- 10 outfall samples were taken due to observed dry-weather flow during the above inspections

- 26 outfall inspections were made as part of the Permit Inspection Program this past quarter
- 5 outfall samples were taken due to observed dry-weather flow during the above inspections

Table 2
Lab Analysis of Water at Outfalls and/or in the Storm Sewers
October 1, 2015 to December 31, 2015

Outfall	Date	Time	Location	Sewer Size (in)	Flow (gph)	Fluoride (mg/l)	Fecal Count (MPN per 100 ml)	Comments
A. Priority Outfalls								
T-088-01	10/7/2015	11:30	Outfall: 7th & Cheltenham	84	NF	0.51	2909.0	
T-088-01	10/7/2015	11:30	Outfall: 7th & Cheltenham @ Bridge	84	NF	0.50	2803.0	
W-060-01	10/7/2015	12:40	Outfall: Monastery Lane	5'-0"x4'-4"		0.12	520.0	
W-068-05	10/7/2015	12:10	Outfall: Lincoln & Morris	90		0.38	4884.0	
S-058-01	10/8/2015	11:45	Outfall: Domino Lane	54	1800	0.24	1860.0	river influence
S-059-01	10/8/2015	12:00	Outfall: Parker	60	1500	0.22	19863.0	
S-059-02	10/8/2015	12:15	Outfall: Fountain	42	600	0.53	241960.0	
S-059-03	10/8/2015	12:25	Outfall: Wight	42	3000	0.12	1039.0	river influence
S-059-04	10/8/2015	12:40	Outfall: Levenington	51	NR	0.24	216.0	river influence
S-059-05	10/8/2015	12:42	Outfall: Levenington (east)	4'-0"x2'-8"	NR	0.17	231.0	river influence
S-059-09	10/8/2015	12:45	Outfall: Green Lane	36	NF	NS	NS	
B. Permit Inspection Program								
Q-115-01	10/23/2015		N of Balston & Acona Rds	54	NF	NS	NS	
Q-115-02	10/23/2015		Medford & Acona Rds	30	NF	NS	NS	
Q-115-03	10/23/2015		Acona & Tyrone Rds	21	NF	NS	NS	
Q-115-04	10/23/2015		E of Acona & Tyrone Rds	36	NF	NS	NS	
Q-115-05	10/23/2015		Calpine & Ramer Rds	27	NF	NS	NS	
Q-115-06	10/23/2015		Academy & Ramer Rd	30	NF	NS	NS	
Q-115-07	10/23/2015	12:20	SE of Calpine & Ramer Rds	24	6	0.64	241950.0	black coloration / murky
Q-115-08	10/23/2015		NE of Academy & Torrey Rds (S of creek)	36	NF	NS	NS	
Q-115-09	10/26/2015		SW of Vinton & Medford Rds	66	NF	NS	NS	
Q-115-10	10/26/2015		S of Vinton & Medford Rds (N of creek)	36	NF	NS	NS	
Q-115-11	10/27/2015		E of Vinton & Tejon Rds	42	NF	NS	NS	
Q-115-12	10/26/2015	11:50	N of Academy Rd & Nanton Dr	72	2	0.16	19863.0	
Q-115-13	10/23/2015		NE of Torrey & Academy Rds (N of creek)	27	NF	NS	NS	
Q-115-14	10/26/2015		S of Vinton & Medford Rds (S of creek)	36	NF	NS	NS	
Q-115-15	10/23/2015		Medford and Acona Rds	18	NF	NS	NS	
Q-115-16	10/27/2015		Galdi Ln & Cliffe Dr	21	NF	NS	NS	
Q-115-17	10/27/2015		McCarthy Cir & Cliffe Dr	24	NF	NS	NS	
Q-115-18	10/27/2015		Knight Rd & McCarthy Cir	24	NF	NS	NS	
Q-115-19	10/27/2015		McNulty & Mechanicsville Rds	27	NF	NS	NS	
Q-117-01	10/13/2015		Woodhaven Rd & Pandell Pl	27	NF	NS	NS	
Q-117-02	10/13/2015	12:00	N of Audubon Ave & Byberry Rd	7'-0"x6'-6"		0.15	17230.0	creek influence
Q-117-03	10/13/2015		NW of Audubon Ave & Byberry Rd	42	NF	NS	NS	
Q-117-04	10/16/2015	11:50	SE of Stevens Rd & Regina St	72	<1	0.11	325.5	
P-090-02	11/4/2015	13:00	S of Roosevelt Blvd & Brous Ave	156	NF	NS	NS	
T-089-04	11/9/2015	15:40	Outfall: W of Franklin Ave & County Line	3'-0"x5'-6"	NF	NS	NS	no flow from city side
W-067-01	12/21/2015	12:16	Outfall: Gorgas Lane	6'-0"x6'-6"	1200	0.10	2419.6	



Table 3 Residential Cross Connections Not Abated Within 120 Days

A. Properties Abated & Confirmed Prior to Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Abatement Confirmation Date	Comments
09990	Sandy	Rd	P-105-13	03-03-2015		07-02-2015	
04454	Tolbut	St	P-083-03	04-08-2015		08-18-2015	
00254	Kalos	St	S-052-05	04-16-2015		08-17-2015	
00246	Kalos	St	S-052-05	04-18-2015		08-17-2015	
00219	Osborn	St	S-052-05	05-02-2015		09-08-2015	
00319	Simms	St	Q-120-11	05-07-2015		11-09-2015	
00243	Kalos	St	S-052-05	06-09-2015		10-21-2015	
11713	Jeanes	St	Q-117-02	07-06-2015		11-30-2015	
11968	Dumont	Rd	Q-117-02	07-13-2015		11-19-2015	
12015	Ferndale	St	Q-117-02	07-27-2015		12-14-2015	
03589	Nottingham	La	Q-106-12	08-04-2015		12-04-2015	
00369	Larkspur	St	Q-117-02	08-08-2015		12-18-2015	

B. Properties Active As Of Reporting:

Address		Outfall Code	Complete Date	Admin. Action	Comments
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Table 4
Spills to Storm Sewers and/or Receiving Waters
October 1, 2015 to December 31, 2015

Date	Outfall	Address	Source Code	Material Involved	Completion Date	Remarks
10/13/15	P-091-06	Holme Avenue and Pennypack Creek Pennypack Creek	3009	Sewage	10/13/15	Industrial Waste unit investigated a reported discharge and referred it to the Sewer Maintenance unit. No active discharge found. Sewer Maintenance found no choked sewer. 10" diameter sanitary sewer was dye tested. No dye showed in storm sewer or at stormwater outfall.
11/27/15	T-088-01	Lawnton and Lakeside Avenues Mill Run (branch of Tacony Creek)	3009	Fresh water	11/27/15	Industrial Waste unit investigated a reported discharge. A contractor working for PWD was found to be pumping chlorinated water from an excavation pit to a storm sewer. The contractor was directed to pump the water into a sanitary sewer manhole.

Source Codes:

- 3008 - Spill to Ground Only**
- 3009 - Spill to Storm Sewer**

- 3010 - Spill to Sanitary Sewer**
- 3011 - Spill to Receiving Stream**

**STORM WATER MANAGEMENT PROGRAM
NPDES PERMIT NO. PA0054712**

**DEFECTIVE LATERAL CONNECTION STATUS REPORT
(Covering Period from July 1, 2015 to September 30, 2015)**

Submitted to

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER QUALITY MANAGEMENT**

By

**CITY OF PHILADELPHIA
PHILADELPHIA, PA**

November 13, 2015

DLC Program Update 3rd Quarter 2015

I. INTRODUCTION

This Defective Lateral Connection Status Report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) as part of the reporting requirements of the City of Philadelphia NPDES Storm Water Management Permit No. PA 0054712. The report covers the three-month period beginning July 1, 2015 and ending September 30, 2015.

The body of this report will describe the recent activities of the City during the past quarter within the 1998 COA Priority Outfall areas and at other significant outfalls on the Stormwater Outfall Priority Score list. Additionally, goals for the next quarter will be listed.

Table 1 provides a summary of the program with respect to Complete tests, Cross-connections identified, and Abatements performed. Table 2 provides a listing of all laboratory analyses of samples taken at stormwater outfalls or within the stormwater system during the previous quarter. Table 3 provides a listing of properties with cross-connections outstanding greater than 120 days. Finally, Table 4 provides a listing of reported wastewater spills to the stormwater system or receiving streams.

II. PAST QUARTER REVIEW

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

DLC program activities have performed 2,831 Complete tests in this sewershed, identifying 132 Cross-connections, all of which have been Abated.

Eight (8) sites intercepting flow are listed below.

- | | | |
|----|--------|--|
| 1. | CFD-01 | Plymouth St. west of Pittsville St. |
| 2. | CFD-02 | Pittsville St. south of Plymouth St. |
| 3. | CFD-03 | Elston St. east of Bouvier St. |
| 4. | CFD-04 | Ashley St. west of Bouvier St. |
| 5. | CFD-05 | Cheltenham Ave. east of 19 th St. |
| 6. | CFD-06 | Verbena St. south of Cheltenham Ave. |
| 7. | CFD-07 | Cheltenham Ave. east of 7th St. |
| 8. | CFD-08 | 7th St. south of Cheltenham Ave. |

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	5	3	0
CFD-02	6	1	0
CFD-03	6	0	0
CFD-04	6	0	0
CFD-05	6	0	0
CFD-06	6	0	0
CFD-07	22	7	0
CFD-08	22	1	0

The most recent fecal sample value was 2803 MPN per 100 ml. at the outfall on July 31, 2015.

2. Monastery Ave. Outfall (W-060-01)

DLC program activities have performed 611 Complete tests in this sewershed, identifying 16 Cross-connections, all of which have been Abated.

Two (2) sites intercepting flow are listed below.

1. MFD-01 Jannette St. west of Monastery Ave.
2. MFD-02 Green La. north of Lawnton St.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
MFD-01	6	0	0
MFD-02	6	0	0

The most recent fecal sample value was 187 MPN per 100 ml. at the outfall on August 25, 2015.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

DLC program activities have performed 2,744 Complete tests in these sewershed areas, identifying 93 Cross-connections, all of which have been Abated. The majority of the efforts have been in the W-068-05 sewershed area which is by far the largest in terms of drainage area and properties served.

The most recent fecal sample value was 2419 MPN per 100 ml. at the W-068-05 outfall on August 3, 2015.

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

DLC program activities have performed 2,478 Complete tests in these sewershed areas, identifying 61 Cross-connections, all of which have been Abated. The majority of the efforts have been in the S-059-04 sewershed area.

The most recent fecal sample value was 1989 MPN per 100 ml. at the S-058-01 outfall, 17329 MPN per 100 ml. at the S-059-01 outfall, 241960 MPN per 100 ml. at the S-059-02 outfall, 14670 MPN per 100 ml. at the S-059-03 outfall, 379 MPN per 100 ml. at the S-059-04 outfall and 386 MPN per 100 ml. at the S-059-05 outfall all on July 13, 2015. The S-059-09 outfall was found dry on July 13, 2015.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

DLC program activities have performed 5,820 Complete tests in this sewershed, identifying 87 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

- 1. PFD-01 Sandyford Run (Brous and Lexington Aves.)

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
PFD-01	24	0	0

2. Franklin and Hasbrook Outfall (T-089-04)

DLC program activities have performed 1,016 Complete tests in this sewershed, identifying 46 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

- 1. CFD-01 Franklin and Hasbrook Aves.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	23	3	1

3. A current summary of additional outfalls from the Stormwater Outfall Priority Score list that the City has performed complete testing or abatements this quarter is as follows.

<u>Outfall #</u>	<u>Complete Tests</u>	<u>Cross-Connections</u>	<u>Abatements</u>
P-083-03	0	0	1
P-100-08	(9)	0	0
P-100-11	9	0	0
P-103-01	11	0	0
P-104-08	4	0	0
P-105-02	1	0	0
P-105-13	4	0	1
P-108-06	1	0	0
P-113-04	(4)	0	0
Q-101-04	2	0	0
Q-101-09	(2)	0	0
Q-106-12	1	1	0
Q-106-13	22	0	0
Q-106-21	(6)	0	0
Q-107-02	1	0	0
Q-110-18	(13)	0	0
Q-114-11	1	0	0
Q-117-02	515	13	1
Q-117-05	4	0	0
Q-120-11	2	0	0
S-051-08	38	0	0
S-052-05	(17)	0	6
T-089-02	1	0	0

III. NEXT QUARTER GOALS

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

2. Monastery Ave. Outfall (W-060-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

Goals for the Quarter

- Continue sampling at outfall W-068-05 with dry-weather flow.

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

Goals for the Quarter

- Continue sampling at the outfalls with dry-weather flow.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

2. Franklin and Hasbrook Outfall (T-089-04)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

3. Continue to perform abatements of identified cross-connections within the following outfalls.

- Q-106-12
- Q-117-02
- Q-120-11
- S-052-05
- W-067-01

4. Continue to perform property testing within the following outfalls.

- Q-101-04
- Q-106-13
- Q-110-18
- Q-117-02
- S-052-05

Table 1
DLC Program Summary
July 1, 2015 to September 30, 2015

Complete Tests:

- 55,952 Complete tests have been performed under the DLC program
- **568 Complete tests were performed this past quarter**
- 2 Complete tests were performed in outfall P-090-02
- (9) Complete tests were performed in outfall P-100-08
- 9 Complete tests were performed in outfall P-100-11
- 11 Complete tests were performed in outfall P-103-01
- 4 Complete tests were performed in outfall P-104-08
- 1 Complete test was performed in outfall P-105-02
- 4 Complete tests were performed in outfall P-105-13
- 1 Complete test was performed in outfall P-108-06
- (4) Complete tests were performed in outfall P-113-04
- 2 Complete tests were performed in outfall Q-101-04
- (2) Complete tests were performed in outfall Q-101-09
- 1 Complete test was performed in outfall Q-106-12
- 22 Complete tests were performed in outfall Q-106-13
- (6) Complete tests were performed in outfall Q-106-21
- 1 Complete test was performed in outfall Q-107-02
- (13) Complete tests were performed in outfall Q-110-18
- 1 Complete test was performed in outfall Q-114-11
- 515 Complete tests were performed in outfall Q-117-02
- 4 Complete tests were performed in outfall Q-117-05
- 2 Complete tests were performed in outfall Q-120-11
- 38 Complete tests were performed in outfall S-051-08
- (17) Complete tests were performed in outfall S-052-05
- 1 Complete test was performed in outfall T-089-02

Cross-Connections Found:

- 1,373 Cross-connections have been identified under the DLC program
- **14 Cross-connections were identified this past quarter**
- 1 Cross-connection was identified in outfall Q-106-12
- 13 Cross-connections were identified in outfall Q-117-02

Abatements:

- 1,356 Abatements have been performed under the DLC program
- **9 Abatements were performed this past quarter**
- 1 Abatement was performed in outfall P-083-03
- 1 Abatement was performed in outfall P-105-13
- 1 Abatement was performed in outfall Q-117-02
- 6 Abatements were performed in outfall S-052-05

Outfall/Manhole Screening and Sampling:

- 10 outfall inspections were made as part of the Priority Outfall Inspection Program this past quarter
- 9 outfall samples were taken due to observed dry-weather flow during the above inspections

- 33 outfall inspections were made as part of the Permit Inspection Program this past quarter
- 16 outfall samples were taken due to observed dry-weather flow during the above inspections

Table 2
Lab Analysis of Water at Outfalls and/or in the Storm Sewers
July 1, 2015 to September 30, 2015

Outfall	Date	Time	Location	Sewer Size (in)	Flow (gph)	Fluoride (mg/l)	Fecal Count (MPN per 100 ml)	Comments
<u>A. Priority Outfalls</u>								
T-088-01	7/31/2015		Outfall: 7th & Cheltenham	84	4800	0.40	2803.0	
W-060-01	8/25/2015		Outfall: Monastery Lane	5'-0"x4'-4"	600	<0.10	187.0	
W-068-05	8/3/2015		Outfall: Lincoln & Morris	90	2700	0.37	2419.0	
S-058-01	7/13/2015		Outfall: Domino Lane	54	1200	0.20	1989.0	
S-059-01	7/13/2015		Outfall: Parker	60	1200	0.19	17329.0	
S-059-02	7/13/2015		Outfall: Fountain	42	420	0.18	241960.0	
S-059-03	7/13/2015		Outfall: Wright	42	3600	0.14	14670.0	
S-059-04	7/13/2015		Outfall: Leverington	51	NR	0.15	379.0	river influence
S-059-05	7/13/2015		Outfall: Leverington (east)	4'-0"x2'-8"	NR	0.15	386.0	river influence
S-059-09	7/13/2015		Outfall: Green Lane	36	NF	NS	NS	
<u>B. Permit Inspection Program</u>								
T-089-04	8/17/2015		Outfall: W of Franklin Ave & County Line	3'-0"x5'-6"	NF	NS	NS	no flow from city side
W-067-01	7/30/2015		Outfall: Gorgas Lane	6'-0"x6'-6"	1200	0.18	11060.0	
W-068-04	7/30/2015		Outfall: Lincoln Dr & Johnson St	12	120	0.11	187.0	
P-100-01	9/22/2015		Outfall: W of Woodward St & Winchester Ave	42	120	0.10	2419.6	
P-100-02	9/22/2015		Outfall: S of Roosevelt Blvd & Winchester Ave	42	NR	0.10	218.7	creek influence
P-100-03	9/22/2015		Outfall: Roosevelt Blvd & Winchester Ave	30	NR	0.10	313.0	creek influence
P-100-04	9/22/2015		Outfall: SW of Blue Grass Rd & Winchester Ave	48	<0.5	NS	NS	flow too low to sample
Q-118-01	9/14/2015		Outfall: NE of Roosevelt Blvd & Hornig Rd	36	600	0.66	132.0	
Q-118-02	9/14/2015		Outfall: SE of Roosevelt Blvd & Hornig Rd	42	NF	NS	NS	
Q-118-03	9/14/2015		Outfall: W of Byberry & Black Lake Rds	42	<1	NS	NS	flow too low to sample
Q-118-07	9/15/2015		Outfall: Kubach & Hornig Rds	42	NF	NS	NS	
Q-119-01	9/14/2015		Outfall: S of Townsend & Meeting House Rds	84	NF	NS	NS	
Q-119-02	9/14/2015		Outfall: Mechanicsville Rd & Poquessing Creek	18	NF	NS	NS	
Q-120-01	9/3/2015		Outfall: NW of Denise Dr & Depue Ave	18	NR	<0.10	984.0	creek influence
Q-120-02	9/3/2015		Outfall: S of Bustleton Ave & Petoni Pl	66	NR	0.26	486.0	creek influence
Q-120-03	9/3/2015		Outfall: SE of Petoni Pl & Bustleton Ave	54	NF	NS	NS	
Q-120-04	9/3/2015		Outfall: SE from Bustleton Ave & Petoni Pl	24	NF	NS	NS	
Q-120-05	9/4/2015		Outfall: NE of County Line Rd & Overhill Ave	36	NF	NS	NS	
Q-120-06	9/4/2015		Outfall: Poquessing Ave & Trevoise Rd	27	NF	NS	NS	
Q-120-07	9/4/2015		Outfall: Maple Ave & Trevoise Rd	24	NF	NS	NS	
Q-120-08	9/4/2015		Outfall: NW of Trevoise Rd & Edison Ave	60	NR	<0.10	866.4	creek influence
Q-120-09	9/4/2015		Outfall: NW of Trevoise Rd & Edison Ave	27	NR	0.10	1046.2	creek influence
Q-120-10	9/4/2015		Outfall: NW of Trevoise & Southampton Rds	36	NF	NS	NS	
Q-120-11	9/4/2015		Outfall: SE of Philmont Ave & Lukens St	60	NF	NS	NS	
Q-120-12	9/3/2015		Outfall: Laura Ln & Laura Pl	21	10	0.70	10.0	
Q-120-13	9/3/2015		Outfall: Bustleton Ave & Laura Ln	15	NF	NS	NS	
Q-120-14	9/3/2015		Outfall: Laura Ln & Bustleton Ave	18	NF	NS	NS	
Q-121-01	9/2/2015		Outfall: E of Ina Dr & Stevens Rd	54	60	<0.10	185.0	
Q-121-02	9/2/2015		Outfall: NE of Kovtas & Poquessing Creek Drs	48	NR	<0.10	2419.6	creek influence
Q-121-03	9/2/2015		Outfall: NE of Liberty Ln and Poquessing Creek Dr	36	NR	<0.10	2419.6	creek influence
Q-121-04	9/2/2015		Outfall: NE of Poquessing Creek Ln & Poquessing Creek Dr	36	NF	NS	NS	
Q-121-05	9/2/2015		Outfall: NE of Milford St & Poquessing Creek Dr	42	NR	<0.10	387.3	creek influence
Q-121-06	9/2/2015		Outfall: NE of Carter Rd & Poquessing Creek Dr	30	<1	<0.10	547.5	creek influence



Table 3 Residential Cross Connections Not Abated Within 120 Days

A. Properties Abated & Confirmed Prior to Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Abatement Confirmation Date	Comments
09742	Chapelcroft	St	P-105-13	12-06-2014		04-27-2015	
11812	Colman	Rd	Q-114-11	12-20-2014		05-21-2015	
00648	Colebrook	Rd	P-108-07	01-10-2015		05-26-2015	
09990	Sandy	Rd	P-105-13	03-03-2015		07-02-2015	
04454	Tolbut	St	P-083-03	04-08-2015		08-18-2015	
00254	Kalos	St	S-052-05	04-16-2015		08-17-2015	
00246	Kalos	St	S-052-05	04-18-2015		08-17-2015	
00219	Osborn	St	S-052-05	05-02-2015		09-08-2015	

B. Properties Active As Of Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Comments
00319	Simms	St	Q-120-11	05-07-2015		

Table 4
Spills to Storm Sewers and/or Receiving Waters
July 1, 2015 to September 30, 2015

Date	Outfall	Address	Source Code	Material Involved	Completion Date	Remarks
08/07/15	Q-109-07	Haldeman Avenue and Tomlinson Road Walton's Run	3009	Sewage	08/07/15	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 1 gpm discharge.
08/15/15		N. Delaware and E. Allegheny Avenues	3008	Sewage scum	08/15/15	Scum spilled to street due to damaged hose on Northeast WPCP vactor / flusher truck. Affected area cleaned. No scum reached the sewer system.
09/01/15	P-099-03	Tustin and Frontenac Streets Unnamed branch of Pennypack Creek	3009	Sewage	09/01/15	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 1 gpm discharge. Storm sewer flushed with dechlorinated water.
09/05/15	P-100-11	2860 Walnut Hill Street Wooden Bridge Run	3009	Sewage	09/05/15	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 2 gpm discharge. Storm sewer flushed with dechlorinated water. Damaged section of sanitary sewer repaired.
09/30/15	S-059-04	350 Krams Avenue Manayunk Canal	3008	Sewage	09/30/15	Sewer Maintenance unit flushed 8" diameter sanitary sewer causing W/C.

Source Codes:

3008 - Spill to Ground Only

3009 - Spill to Storm Sewer

3010 - Spill to Sanitary Sewer

3011 - Spill to Receiving Stream

**STORM WATER MANAGEMENT PROGRAM
NPDES PERMIT NO. PA0054712**

**DEFECTIVE LATERAL CONNECTION STATUS REPORT
(Covering Period from January 1, 2016 to March 31, 2016)**

Submitted to

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER QUALITY MANAGEMENT**

By

**CITY OF PHILADELPHIA
PHILADELPHIA, PA**

May 13, 2016

DLC Program Update 1st Quarter 2016

I. INTRODUCTION

This Defective Lateral Connection Status Report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) as part of the reporting requirements of the City of Philadelphia NPDES Storm Water Management Permit No. PA 0054712. The report covers the three-month period beginning January 1, 2016 and ending March 31, 2016.

The body of this report will describe the recent activities of the City during the past quarter within the 1998 COA Priority Outfall areas and at other significant outfalls on the Stormwater Outfall Priority Score list. Additionally, goals for the next quarter will be listed.

Table 1 provides a summary of the program with respect to Complete tests, Cross-connections identified, and Abatements performed. Table 2 provides a listing of all laboratory analyses of samples taken at stormwater outfalls or within the stormwater system during the previous quarter. Table 3 provides a listing of properties with cross-connections outstanding greater than 120 days. Finally, Table 4 provides a listing of reported wastewater spills to the stormwater system or receiving streams.

II. PAST QUARTER REVIEW

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

DLC program activities have performed 2,831 Complete tests in this sewershed, identifying 132 Cross-connections, all of which have been Abated.

Eight (8) sites intercepting flow are listed below.

- | | | |
|----|--------|--|
| 1. | CFD-01 | Plymouth St. west of Pittsville St. |
| 2. | CFD-02 | Pittsville St. south of Plymouth St. |
| 3. | CFD-03 | Elston St. east of Bouvier St. |
| 4. | CFD-04 | Ashley St. west of Bouvier St. |
| 5. | CFD-05 | Cheltenham Ave. east of 19 th St. |
| 6. | CFD-06 | Verbena St. south of Cheltenham Ave. |
| 7. | CFD-07 | Cheltenham Ave. east of 7th St. |
| 8. | CFD-08 | 7th St. south of Cheltenham Ave. |

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	6	0	0
CFD-02	6	2	0
CFD-03	6	0	0
CFD-04	6	1	0
CFD-05	6	1	0
CFD-06	6	0	0
CFD-07	13	2	0
CFD-08	15	1	0

The most recent fecal sample value was 6488 MPN per 100 ml. at the outfall on March 11, 2016.

2. Monastery Ave. Outfall (W-060-01)

DLC program activities have performed 611 Complete tests in this sewershed, identifying 16 Cross-connections, all of which have been Abated.

Two (2) sites intercepting flow are listed below.

1. MFD-01 Jannette St. west of Monastery Ave.
2. MFD-02 Green La. north of Lawnton St.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
MFD-01	5	0	0
MFD-02	7	0	0

The most recent fecal sample value was 55.4 MPN per 100 ml. at the outfall on March 23, 2016.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

DLC program activities have performed 2,745 Complete tests in these sewershed areas, identifying 93 Cross-connections, all of which have been Abated. The majority of the efforts have been in the W-068-05 sewershed area which is by far the largest in terms of drainage area and properties served.

The most recent fecal sample value was >2419.6 MPN per 100 ml. at the W-068-05 outfall on March 23, 2016.

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

DLC program activities have performed 2,478 Complete tests in these sewershed areas, identifying 61 Cross-connections, all of which have been Abated. The majority of the efforts have been in the S-059-04 sewershed area.

The most recent fecal sample value was >2419 MPN per 100 ml. at the S-058-01 outfall, 23590 MPN per 100 ml. at the S-059-01 outfall, 54750 MPN per 100 ml. at the S-059-02 outfall, >2419.6 MPN per 100 ml. at the S-059-03 outfall, 122.3 MPN per 100 ml. at the S-059-04 outfall and 57.3 MPN per 100 ml. at the S-059-05 outfall all on March 10, 2016. The S-059-06 and S-059-09 outfalls were found dry on March 10, 2016.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

DLC program activities have performed 5,820 Complete tests in this sewershed, identifying 87 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

1. PFD-01 Sandyford Run (Brous and Lexington Aves.)

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
PFD-01	26	1	0

2. Franklin and Hasbrook Outfall (T-089-04)

DLC program activities have performed 1,016 Complete tests in this sewershed, identifying 46 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

1. CFD-01 Franklin and Hasbrook Aves.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	18	5	2

3. A current summary of additional outfalls from the Stormwater Outfall Priority Score list that the City has performed complete testing or abatements this quarter is as follows.

<u>Outfall #</u>	<u>Complete Tests</u>	<u>Cross-Connections</u>	<u>Abatements</u>
P-091-01	1	0	0
P-091-11	52	1	0
P-091-12	15	0	0
P-099-01	14	0	1
P-100-11	1	1	0
P-100-14	45	0	0
P-104-05	10	0	0
P-108-09	4	0	0
P-108-11	36	0	0
Q-101-04	69	0	1
Q-101-14	8	0	0
Q-101-17	35	1	0
Q-106-08	6	0	0
Q-106-13	119	0	0
Q-106-14	28	0	0
Q-110-13	54	0	0
Q-110-18	1	0	1
Q-114-13	35	0	0
Q-117-02	2	0	4
S-046-06	(1)	0	0
S-051-08	1	1	1
S-052-04	0	0	1
S-052-05	1	0	0
W-067-01	0	1	1

III. NEXT QUARTER GOALS

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

2. Monastery Ave. Outfall (W-060-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

Goals for the Quarter

- Continue sampling at outfall W-068-05 with dry-weather flow.

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

Goals for the Quarter

- Continue sampling at the outfalls with dry-weather flow.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

2. Franklin and Hasbrook Outfall (T-089-04)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

3. Continue to perform abatements of identified cross-connections within the following outfalls.

- P-091-11
- P-099-01
- P-100-11
- Q-101-17
- Q-110-18
- Q-117-02
- S-051-08
- W-067-01

4. Continue to perform property testing within the following outfalls.

- P-091-04
- P-091-08
- P-099-01
- P-100-14
- P-108-09
- P-108-11
- Q-101-04
- Q-106-08
- S-052-05
- S-052-09

Table 1
DLC Program Summary
January 1, 2016 to March 31, 2016

Complete Tests:

- 57,131 Complete tests have been performed under the DLC program
- **537 Complete tests were performed this past quarter**
- 1 Complete test was performed in outfall P-091-01
- 52 Complete tests were performed in outfall P-091-11
- 15 Complete tests were performed in outfall P-091-12
- 14 Complete tests were performed in outfall P-099-01
- 1 Complete test was performed in outfall P-100-11
- 45 Complete tests were performed in outfall P-100-14
- 10 Complete tests were performed in outfall P-104-05
- 4 Complete tests were performed in outfall P-108-09
- 36 Complete tests were performed in outfall P-108-11
- 69 Complete tests were performed in outfall Q-101-04
- 8 Complete tests were performed in outfall Q-101-14
- 35 Complete tests were performed in outfall Q-101-17
- 6 Complete tests were performed in outfall Q-106-08
- 119 Complete tests were performed in outfall Q-106-13
- 28 Complete tests were performed in outfall Q-106-14
- 54 Complete tests were performed in outfall Q-110-13
- 1 Complete test was performed in outfall Q-110-18
- 35 Complete tests were performed in outfall Q-114-13
- 2 Complete tests were performed in outfall Q-117-02
- (1) Complete test was performed in outfall S-046-06
- 1 Complete test was performed in outfall S-051-08
- 1 Complete test was performed in outfall S-052-05
- 1 Complete test was performed in outfall W-060-10

Cross-Connections Found:

- 1,391 Cross-connections have been identified under the DLC program
- **5 Cross-connections were identified this past quarter**
- 1 Cross-connection was identified in outfall P-091-11
- 1 Cross-connection was identified in outfall P-100-11
- 1 Cross-connection was identified in outfall Q-101-17
- 1 Cross-connection was identified in outfall S-051-08
- 1 Cross-connection was identified in outfall W-067-01

Abatements:

- 1,378 Abatements have been performed under the DLC program
- **10 Abatements were performed this past quarter**
- 1 Abatement was performed in outfall P-099-01
- 1 Abatement was performed in outfall Q-101-04
- 1 Abatement was performed in outfall Q-110-18
- 4 Abatements were performed in outfall Q-117-02
- 1 Abatement was performed in outfall S-051-08
- 1 Abatement was performed in outfall S-052-04
- 1 Abatement was performed in outfall W-067-01

Outfall/Manhole Screening and Sampling:

- 11 outfall inspections were made as part of the Priority Outfall Inspection Program this past quarter
- 9 outfall samples were taken due to observed dry-weather flow during the above inspections

- 7 outfall inspections were made as part of the Permit Inspection Program this past quarter
- 6 outfall samples were taken due to observed dry-weather flow during the above inspections

Table 2
Lab Analysis of Water at Outfalls and/or in the Storm Sewers
January 1, 2016 to March 31, 2016

Outfall	Date	Time	Location	Sewer Size (in)	Flow (gph)	Fluoride (mg/l)	Fecal Count (MPN per 100 ml)	Comments
<u>A. Priority Outfalls</u>								
T-088-01	3/11/2016	12:10	Outfall: 7th & Cheltenham	84	5700	0.14	6488.0	
W-060-01	3/23/2016	11:35	Outfall: Monastery Lane	5'-0" x 4'-4"	160	<0.1	55.4	
W-068-05	3/23/2016	12:05	Outfall: Lincoln & Morris	90	3600	0.28	>2419.6	
S-058-01	3/10/2016	11:30	Outfall: Domino Lane	54	1200	0.19	>2419	river influence
S-059-01	3/10/2016	11:50	Outfall: Parker	60	1200	0.18	23590.0	
S-059-02	3/10/2016	12:00	Outfall: Fountain	42	900	0.47	54750.0	
S-059-03	3/10/2016	12:10	Outfall: Wright	42	1500	0.11	>2419.6	
S-059-04	3/10/2016	12:27	Outfall: Leverington	51	NR	0.28	122.3	river influence
S-059-05	3/10/2016	12:33	Outfall: Leverington (east)	4'-0" x 2'-8"	NR	0.19	57.3	river influence
S-059-06	3/10/2016	12:40	Outfall: Main & Krams	21	NF	NS	NS	river influence
S-059-09	3/10/2016	12:45	Outfall: Green Lane	36	NF	NS	NS	
<u>B. Permit Inspection Program</u>								
S-052-05	2/8/2016	11:30	Manhole: Sumac & Rochelle	42	1800	0.57	241960.0	manhole ID: 52-050-0008 (no access to outfall)
S-052-05	3/1/2016	11:50	Manhole: Sumac & Rochelle	42	1800	0.57	241960.0	manhole ID: 52-050-0008 (no access to outfall)
S-051-08	2/8/2016	12:25	Outfall: Main & Shurs	9'-0" x 7'-0"	NR	0.12	90.6	river influence
S-051-08	3/1/2016	12:15	Outfall: Main & Shurs	9'-0" x 7'-0"	NR	0.10	185.0	river influence
T-089-04	3/11/2016	12:29	Outfall: W of Franklin Ave & County Line	3'-0" x 5'-6"	NF	NS	NS	no flow from city side (flow only from township side)
P-090-01	3/18/2016	11:35	Outfall: NE of Roosevelt Blvd & Shelmire Ave	42	12	<0.1	15.8	
P-090-02	3/18/2016	11:20	Outfall: Brous & Lexington (Sandyford)	156	60	0.56	4.1	



Table 3 Residential Cross Connections Not Abated Within 120 Days

A. Properties Abated & Confirmed Prior to Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Abatement Confirmation Date	Comments
00319	Simms	St	Q-120-11	05-07-2015		11-09-2015	
00243	Kalos	St	S-052-05	06-09-2015		10-21-2015	
11713	Jeanes	St	Q-117-02	07-06-2015		11-30-2015	
11968	Dumont	Rd	Q-117-02	07-13-2015		11-19-2015	
12015	Ferndale	St	Q-117-02	07-27-2015		12-14-2015	
03589	Nottingham	La	Q-106-12	08-04-2015		12-04-2015	
11239	Jeanes	Pl	Q-117-02	08-08-2015		01-15-2016	
00369	Larkspur	St	Q-117-02	08-08-2015		12-18-2015	
11111	Ridgeway	St	Q-117-02	09-11-2015		01-14-2016	
00436	Regina	St	Q-117-02	09-12-2015		03-23-2016	
00413	Waring	St	Q-117-02	09-19-2015		04-08-2016	
11720	Gifford	Ave	Q-117-02	10-10-2015		02-29-2016	

B. Properties Active As Of Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Comments
00403	Selma	St	Q-117-02	11-09-2015		

Table 4
Spills to Storm Sewers and/or Receiving Waters
January 1, 2016 to March 31, 2016

Date	Outfall	Address	Source Code	Material Involved	Completion Date	Remarks
01/05/16	S-051-08	Queen Lane Raw Water Pumping Station Intake 4600 Kelly Drive Schuylkill River	3009	Sewage	02/23/16	Industrial Waste unit investigated report of higher than normal fecal coliform data at the intake and reported it to the Sewer Maintenance unit. Combined investigation led to the 4000 - 4100 blocks of Main Street. Testing found multiple cross connections at 4120-50 Main Street. Referred to the Plumbing Repair Programs unit for corrective action.
01/11/16	Q-110-11	3350 Byberry Road Byberry Creek	3009	Sewage	01/11/16	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 1 gpm discharge. Storm sewer flushed with dechlorinated water.
01/11/16	P-116-02	Lockhart Wastewater Pumping Station 10778 Lockhart Road Huntingdon Valley Creek	3009	Sewage	01/15/16	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 7 gpm discharge. Affected area cleaned.
01/28/16	W-067-01	Gorgas Lane and Henry Avenue unnamed branch of Wissahickon Creek	3009	Fresh water	01/30/16	Industrial Waste and Sewer Maintenance units investigated a reported discharge. Combined investigation led to a suspected sub-surface water main leak on the 7300 block of Valley Avenue. Distribution unit repaired leak on 8" diameter water main.
02/03/16		Northeast Water Pollution Control Plant 3900 Richmond Street Frankford Creek	3008	Plant water	02/04/16	Contractor installed cap on 12" diameter plant water line near final sedimentation tank set 1, access building 1. failed causing approximate 1,500 gpm discharge to excavation, plant drains and nearby street. Plant water pump shut down until contractor reinstalled and reinforced the cap.
02/09/16		Bala Golf Club 50th Street and Woodbine Avenue On-site pond	3008	Sewage	02/09/16	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 5 gpm discharge. Sewer section repaired.
02/10/16	W-067-01	Gorgas Lane and Henry Avenue unnamed branch of Wissahickon Creek	3009	Sewage	02/11/16	Industrial Waste unit investigated a reported discharge. No active overflow identified.
02/12/16	S-051-08	Ridge Avenue and Hermit Street Schuylkill River	3009	Sewage	02/12/16	Sewer Maintenance unit flushed 8" diameter sanitary sewer causing approximate 1 gpm discharge. De-greaser added to sewer.
02/22/16	S-051-08	5454 Ridge Avenue Schuylkill River	3009	Sewage	02/22/16	Sewer Maintenance unit identified an 8" diameter sanitary sewer causing approximate 1 gpm discharge. Bypass pump setup. Contractor excavated, cleared choke and repaired sanitary sewer.
03/28/16		Northeast Water Pollution Control Plant 3900 Richmond Street Frankford Creek	3008	Wet weather sewage flow	03/28/16	Excess wet weather flow caused an overflow from Diversion Chamber B, just inside the plant gate at Richmond Street and Wheatshaf Lane. At this time Diversion Chamber B handled flow from the 66" diameter Franford High Level sewer in Wheatshaf Lane. Corrective action taken at the O Street and Erie Avenue dispersion chamber ended the overflow.

Source Codes:

3008 - Spill to Ground Only

3009 - Spill to Storm Sewer

3010 - Spill to Sanitary Sewer

3011 - Spill to Receiving Stream

**STORM WATER MANAGEMENT PROGRAM
NPDES PERMIT NO. PA0054712**

**DEFECTIVE LATERAL CONNECTION STATUS REPORT
(Covering Period from April 1, 2016 to June 30, 2016)**

Submitted to

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER QUALITY MANAGEMENT**

By

**CITY OF PHILADELPHIA
PHILADELPHIA, PA**

August 12, 2016

DLC Program Update 2nd Quarter 2016

I. INTRODUCTION

This Defective Lateral Connection Status Report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) as part of the reporting requirements of the City of Philadelphia NPDES Storm Water Management Permit No. PA 0054712. The report covers the three-month period beginning April 1, 2016 and ending June 30, 2016.

The body of this report will describe the recent activities of the City during the past quarter within the 1998 COA Priority Outfall areas and at other significant outfalls on the Stormwater Outfall Priority Score list. Additionally, goals for the next quarter will be listed.

Table 1 provides a summary of the program with respect to Complete tests, Cross-connections identified, and Abatements performed. Table 2 provides a listing of all laboratory analyses of samples taken at stormwater outfalls or within the stormwater system during the previous quarter. Table 3 provides a listing of properties with cross-connections outstanding greater than 120 days. Finally, Table 4 provides a listing of reported wastewater spills to the stormwater system or receiving streams.

II. PAST QUARTER REVIEW

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

DLC program activities have performed 2,831 Complete tests in this sewershed, identifying 132 Cross-connections, all of which have been Abated.

Eight (8) sites intercepting flow are listed below.

- | | | |
|----|--------|--|
| 1. | CFD-01 | Plymouth St. west of Pittsville St. |
| 2. | CFD-02 | Pittsville St. south of Plymouth St. |
| 3. | CFD-03 | Elston St. east of Bouvier St. |
| 4. | CFD-04 | Ashley St. west of Bouvier St. |
| 5. | CFD-05 | Cheltenham Ave. east of 19 th St. |
| 6. | CFD-06 | Verbena St. south of Cheltenham Ave. |
| 7. | CFD-07 | Cheltenham Ave. east of 7th St. |
| 8. | CFD-08 | 7th St. south of Cheltenham Ave. |

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
CFD-01	10	2	0
CFD-02	11	1	0
CFD-03	7	0	0
CFD-04	8	1	0
CFD-05	7	2	0
CFD-06	10	0	0
CFD-07	19	3	0
CFD-08	15	3	0

The most recent fecal sample value was 906.0 MPN per 100 ml. at the outfall on May 9, 2016.

2. Monastery Ave. Outfall (W-060-01)

DLC program activities have performed 611 Complete tests in this sewershed, identifying 16 Cross-connections, all of which have been Abated.

Two (2) sites intercepting flow are listed below.

1. MFD-01 Jannette St. west of Monastery Ave.
2. MFD-02 Green La. north of Lawnton St.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
MFD-01	9	0	0
MFD-02	9	0	0

The most recent fecal sample value was 131.4 MPN per 100 ml. at the outfall on April 25, 2016.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

DLC program activities have performed 2,745 Complete tests in these sewershed areas, identifying 93 Cross-connections, all of which have been Abated. The majority of the efforts have been in the W-068-05 sewershed area which is by far the largest in terms of drainage area and properties served.

The most recent fecal sample value was >24196.0 MPN per 100 ml. at the W-068-05 outfall on April 25, 2016.

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

DLC program activities have performed 2,478 Complete tests in these sewershed areas, identifying 61 Cross-connections, all of which have been Abated. The majority of the efforts have been in the S-059-04 sewershed area.

The most recent fecal sample value was 38730.0 MPN per 100 ml. at the S-058-01 outfall on April 18, 2016, 32550.0 MPN per 100 ml. at the S-059-01 outfall on April 18, 2016, 57940.0 MPN per 100 ml. at the S-059-02 outfall on April 18, 2016, >2419.6 MPN per 100 ml. at the S-059-03 outfall on April 18, 2016, 547.5 MPN per 100 ml. at the S-059-04 outfall on April 26, 2016 and 152.9 MPN per 100 ml. at the S-059-05 outfall on April 26, 2016. The S-059-09 outfall was found dry on April 26, 2016.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

DLC program activities have performed 5,822 Complete tests in this sewershed, identifying 87 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

- 1. PFD-01 Sandyford Run (Brous and Lexington Aves.)

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
PFD-01	18	1	0

The most recent fecal sample value was 10.0 MPN per 100 ml. at the outfall on April 20, 2016.

2. Franklin and Hasbrook Outfall (T-089-04)

DLC program activities have performed 1,016 Complete tests in this sewershed, identifying 46 Cross-connections, all of which have been Abated.

One (1) site intercepting flow is listed below.

- 1. CFD-01 Franklin and Hasbrook Aves.

The number of inspections, blockages cleared and discharges noted during this quarter are listed below.

<u>Flap Gate</u>	<u>Inspections</u>	<u>Blockages</u>	<u>Discharges</u>
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CFD-01 16 0 0

The outfall was found dry on May 19, 2016.

3. A current summary of additional outfalls from the Stormwater Outfall Priority Score list that the City has performed complete testing or abatements this quarter is as follows.

<u>Outfall #</u>	<u>Complete Tests</u>	<u>Cross-Connections</u>	<u>Abatements</u>
P-091-08	42	1	0
P-091-11	1	0	0
P-091-12	1	0	0
P-099-01	71	1	2
P-099-03	2	0	0
P-100-14	8	2	0
P-103-01	4	0	0
P-104-05	12	0	0
P-105-13	1	0	0
P-108-09	7	1	0
P-108-11	33	1	0
Q-101-04	8	0	0
Q-101-14	2	0	0
Q-101-17	6	0	1
Q-106-04	18	0	0
Q-106-08	2	0	0
Q-106-13	6	0	0
Q-106-14	2	1	0
Q-106-19	9	0	0
Q-107-01	15	0	0
Q-110-13	9	0	0
Q-110-18	0	0	2
Q-114-03	1	0	0
Q-114-10	152	2	0
Q-114-13	3	0	0
Q-115-14	82	0	0
Q-117-02	5	0	3
S-046-06	1	0	0
S-052-05	87	1	0
T-080-02	2	0	0
T-089-02	1	0	0
W-067-01	1	0	0

III. NEXT QUARTER GOALS

A. Priority Outfalls

1. 7th & Cheltenham Outfall (T-088-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

2. Monastery Ave. Outfall (W-060-01)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatuses.
- Continue sampling at the outfall with dry-weather flow.

3. Monoshone Creek Outfalls (W-060-04, W-060-08, W-060-09, W-060-10, W-060-11, W-068-04 and W-068-05)

Goals for the Quarter

- Continue sampling at outfall W-068-05 with dry-weather flow.

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

Goals for the Quarter

- Continue sampling at the outfalls with dry-weather flow.

B. Other Outfalls

1. Sandyford Run Outfall (P-090-02)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

2. Franklin and Hasbrook Outfall (T-089-04)

Goals for the Quarter

- Continue to monitor the operation of the diversion apparatus.

3. Continue to perform abatements of identified cross-connections within the following outfalls.

- P-091-08
- P-091-11
- P-099-01
- P-100-11
- P-100-14
- P-108-09
- P-108-11

- Q-106-14
- Q-114-10
- S-051-08
- S-052-05
- W-067-01

4. Continue to perform property testing within the following outfalls.

- P-099-01
- P-100-14
- P-104-05
- P-108-16
- Q-101-15
- Q-106-04
- Q-106-19
- Q-110-11
- Q-114-10
- Q-115-14
- S-052-05

Table 1
DLC Program Summary
April 1, 2016 to June 30, 2016

Complete Tests:

- 57,721 Complete tests have been performed under the DLC program
- **590 Complete tests were performed this past quarter**
- 2 Complete tests were performed in outfall P-090-02
- 42 Complete tests were performed in outfall P-091-08
- 1 Complete test was performed in outfall P-091-11
- 1 Complete test was performed in outfall P-091-12
- 71 Complete tests were performed in outfall P-099-01
- 2 Complete tests were performed in outfall P-099-03
- 8 Complete tests were performed in outfall P-100-14
- 4 Complete tests were performed in outfall P-103-01
- 12 Complete tests were performed in outfall P-104-05
- 1 Complete test was performed in outfall P-105-13
- 7 Complete tests were performed in outfall P-108-09
- 33 Complete tests were performed in outfall P-108-11
- 8 Complete tests were performed in outfall Q-101-04
- 2 Complete tests were performed in outfall Q-101-14
- 6 Complete tests were performed in outfall Q-101-17
- 18 Complete tests were performed in outfall Q-106-04
- 2 Complete tests were performed in outfall Q-106-08
- 6 Complete tests were performed in outfall Q-106-13
- 2 Complete tests were performed in outfall Q-106-14
- 9 Complete tests were performed in outfall Q-106-19
- 15 Complete tests were performed in outfall Q-107-01
- 9 Complete tests were performed in outfall Q-110-13
- 1 Complete test was performed in outfall Q-114-03
- 152 Complete tests were performed in outfall Q-114-10
- 3 Complete tests were performed in outfall Q-114-13
- 82 Complete tests were performed in outfall Q-115-14
- 5 Complete tests were performed in outfall Q-117-02
- 1 Complete test was performed in outfall S-046-06
- 87 Complete tests were performed in outfall S-052-05
- 2 Complete tests were performed in outfall T-080-02
- 1 Complete test was performed in outfall T-089-02
- 1 Complete test was performed in outfall W-067-01

Cross-Connections Found:

- 1,401 Cross-connections have been identified under the DLC program
- **10 Cross-connections were identified this past quarter**
- 1 Cross-connection was identified in outfall P-091-08
- 1 Cross-connection was identified in outfall P-099-01
- 2 Cross-connections were identified in outfall P-100-14
- 1 Cross-connection was identified in outfall P-108-09
- 1 Cross-connection was identified in outfall P-108-11
- 1 Cross-connection was identified in outfall Q-106-14
- 2 Cross-connections were identified in outfall Q-114-10
- 1 Cross-connection was identified in outfall S-052-05

Abatements:

- 1,386 Abatements have been performed under the DLC program
- **8 Abatements were performed this past quarter**
- 2 Abatements were performed in outfall P-099-01
- 1 Abatement was performed in outfall Q-101-17
- 2 Abatements were performed in outfall Q-110-18
- 3 Abatements were performed in outfall Q-117-02

Outfall/Manhole Screening and Sampling:

- 11 outfall inspections were made as part of the Priority Outfall Inspection Program this past quarter
- 9 outfall samples were taken due to observed dry-weather flow during the above inspections

- 52 outfall inspections were made as part of the Permit Inspection Program this past quarter
- 27 outfall samples were taken due to observed dry-weather flow during the above inspections

Table 2
Lab Analysis of Water at Outfalls and/or in the Storm Sewers
April 1, 2016 to June 30, 2016

Outfall	Date	Time	Location	Sewer Size (in)	Flow (gph)	Fluoride (mg/l)	Fecal Count (MPN per 100 ml)	Comments
A. Priority Outfalls								
T-088-01	4/28/2016	11:00	Outfall: 7th & Cheltenham	84	6000	NS	NS	
T-088-01	5/9/2016	12:40	Outfall: 7th & Cheltenham	84	6000	0.14	906.0	
W-060-01	4/25/2016	12:45	Outfall: Monastery Lane	5'-0" x 4'-4"	120	0.10	131.4	
W-068-05	4/25/2016	12:05	Outfall: Lincoln & Morris	90	7200	0.31	>24196	
S-058-01	4/18/2016	12:05	Outfall: Domino Lane	54	5100	0.19	38730.0	
S-059-01	4/18/2016	12:20	Outfall: Parker	60	1800	0.19	32550.0	
S-059-02	4/18/2016	12:30	Outfall: Fountain	42	30	0.32	57940.0	
S-059-03	4/18/2016	12:45	Outfall: Wright	42	660	0.11	>2419.6	
S-059-04	4/26/2016	12:04	Outfall: Leverington	51	NR	0.23	547.5	river influence
S-059-05	4/26/2016	12:06	Outfall: Leverington (east)	4'-0" x 2'-8"	NR	0.21	152.9	river influence
S-059-09	4/26/2016	12:10	Outfall: Green Lane	36	NF	NS	NS	
B. Permit Inspection Program								
P-091-09	4/7/2016	10:30	Outfall: SE of Winchester Ave. & Welsh Rd. (N of creek)	36	95	0.65	1203.0	
P-091-10	4/7/2016	11:10	Outfall: SE of Winchester Ave. & Welsh Rd. (S of creek)	42	125	0.43	866.4	
P-091-11	4/7/2016	10:45	Outfall: Wintrop & Draper Sts.	30	5	0.34	92080.0	
P-090-02	4/20/2016	12:15	Outfall: Brous & Lexington (Sandyford)	156	120	0.48	10.0	
Q-114-01	5/9/2016	11:20	Outfall: NW of Byberry Rd. & Hilsbach St.	21	NF	NS	NS	
Q-118-05	5/9/2016	11:25	Outfall: Byberry Rd. & Evans St.	27	6	0.16	178.9	
Q-118-06	5/9/2016	11:50	Outfall: NE of Woodhaven Rd. & Evans St.	42	<6	NS	NS	flow too low to sample
Q-114-05	6/17/2016		Outfall: SW of Comly & Norcom Rds.	48	NF	NS	NS	
Q-114-06	6/17/2016		Outfall: NW of Comly & Thornton Rds.	54	NF	NS	NS	
Q-114-07	6/17/2016		Outfall: SW of Townsend & Thornton Rds.	66	NF	NS	NS	
Q-107-02	6/30/2016	11:55	Outfall: Deerpath Ln. & Parkdale Rd.	7'-0" x 8'-8"	2400	0.36	>2419.6	
Q-114-03	6/30/2016	12:30	Outfall: Comly & Nestor Rds.	42	15	0.57	>2419.6	
Q-114-04	6/30/2016	12:45	Outfall: Caroline & Comly Rds.	54	NF	NS	NS	
S-052-03	5/16/2016	12:00	Outfall: Kelly Dr. & Falls Bridge	42	120	0.17	2419.6	
S-052-04	5/16/2016	12:25	Outfall: Kelly Dr. & Midvale Ave.	5'-6" x 1'-0"	NR	<0.1	435.2	river influence
S-052-01	5/17/2016	10:15	Outfall: Lincoln Dr. & Gypsy Ln.	30	NF	NS	NS	
S-052-02	5/17/2016	11:50	Outfall: Kelly & Ridge	42	60	<0.1	3255.0	
S-052-05	5/16/2016	11:15	Manhole: Sumac & Rochelle	42	9000	0.57	241960.0	manhole ID: 52-050-0008 (no access to outfall)
S-052-05	6/2/2016	12:10	Manhole: Sumac & Rochelle	42	900	0.65	241960.0	manhole ID: 52-050-0008 (no access to outfall)
T-089-04	4/28/2016	10:45	Outfall: W of Franklin Ave. & County Line	3'-0" x 5'-6"	NF	NS	NS	no flow from city side (flow only from township side)
T-089-04	5/19/2016	15:00	Outfall: W of Franklin Ave. & County Line	3'-0" x 5'-6"	NF	NS	NS	no flow from city side (flow only from township side)
T-080-02	5/20/2016	13:12	Manhole: Comly & Newtown Rd.	4'-6" x 3'-3"	120	0.53	214961.0	manhole ID: T080-02-0015 (no access to outfall)
W-067-01	5/17/2016	12:05	Outfall: Gorgas Ln. & Henry Ave.	90	1200	<0.1	5794.0	
W-060-06	6/10/2016	13:36	Outfall: Hermit Ln. & Henry Ave.	18	NF	NS	NS	
W-060-07	6/10/2016	14:30	Outfall: Lincoln Dr. & Henry Ave.	18	NF	NS	NS	
W-068-01	6/13/2016	10:30	Outfall: N. Mount Pleasant & Greene	24	NF	NS	NS	

Table 2
Lab Analysis of Water at Outfalls and/or in the Storm Sewers
April 1, 2016 to June 30, 2016

Outfall	Date	Time	Location	Sewer Size (in)	Flow (gph)	Fluoride (mg/l)	Fecal Count (MPN per 100 ml)	Comments
W-068-02	6/13/2016	10:35	Outfall: S. Mount Pleasant & Greene	24	NF	NS	NS	
W-068-08	6/13/2016	10:45	Outfall: N. Mount Pleasant & Wissahickon	30	<1	NS	NS	flow too low to sample
W-060-12	6/13/2016	11:15	Outfall: Henry Ave. & Hermit St.	36	<6	NS	NS	flow too low to sample
W-068-03	6/13/2016	11:20	Outfall: Wissahickon & N. Mount Pleasant	21	NR	<0.1	248.9	creek influence
W-060-10	6/13/2016	12:00	Outfall: Lincoln Dr. & Rittenhouse	48	1800	0.15	2419.6	
W-060-04	6/13/2016	12:25	Outfall: Lincoln Dr. & Walnut Ln.	24	NF	NS	NS	
W-060-11	6/13/2016	12:40	Outfall: W of Lincoln Dr. & Harvey St.	36	300	0.13	307.6	
W-067-03	6/14/2016	10:00	Outfall: Henry & Gates	48	120	0.17	410.6	
W-067-04	6/14/2016	10:25	Outfall: Henry & Hermitage	24	120	<0.1	133.3	
W-067-05	6/14/2016	10:40	Outfall: Henry & Leverington	27	NF	NS	NS	
W-067-02	6/14/2016	11:00	Outfall: Henry & Fountain	36	300	0.44	>2419.6	
W-075-01	6/20/2016	11:40	Outfall: Henry Ave & Port Royal	66	300	0.19	>2419.6	
W-060-02	6/20/2016	12:20	Outfall: Walnut & Johnson	30	6	0.67	272.3	
W-060-08	6/20/2016	13:25	Outfall: Walnut & Kinsley	36	60	0.64	>241960	
W-076-04	6/21/2016		Outfall: Summit Ave. & Cadillac Ln.	27	NF	NS	NS	
W-076-05	6/21/2016		Outfall: NE of Summit Ave. & Cadillac Ln. (on Summit Ave.)	36	NF	NS	NS	
W-076-06	6/21/2016		Outfall: Summit Ave. & Cadillac Ln.	18	NF	NS	NS	
W-060-03	6/27/2016	11:25	Outfall: Forbidden Dr. & Walnut Ln.	45	NF	NS	NS	
W-060-05	6/27/2016	10:27	Outfall: Forbidden Drive & Rittenhouse St.	45	120	0.15	119.8	
W-067-06	6/27/2016	11:20	Outfall: Mt. Airy Ave. & Blue Bell Tr.	36	300	0.11	5.2	
W-068-07	6/27/2016	11:00	Outfall: Park Line Dr. & Hortter St.	33	1	<0.1	49.6	
W-068-04	6/27/2016	11:35	Outfall: Johnson St. & Lincoln Dr.	12	10	0.22	5.1	
W-075-02	6/27/2016		Outfall: Seffert & Lawnton Sts.	42	NF	NS	NS	
W-076-01	6/27/2016		Outfall: Cathedral Rd. & Wissahickon Ave.	48	NF	NS	NS	
W-076-02	6/27/2016		Outfall: Cathedral & Glenroy Rds.	36	NF	NS	NS	
W-076-03	6/27/2016		Outfall: Glenroy Rd. & Lomond Ln.	24	NF	NS	NS	



Table 3 Residential Cross Connections Not Abated Within 120 Days

A. Properties Abated & Confirmed Prior to Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Abatement Confirmation Date	Comments
11111	Ridgeway	St	Q-117-02	09-11-2015		01-14-2016	
00436	Regina	St	Q-117-02	09-12-2015		03-23-2016	
00413	Waring	St	Q-117-02	09-19-2015		04-08-2016	
11720	Gifford	Ave	Q-117-02	10-10-2015		02-29-2016	
03808	Brookview	Rd	Q-110-18	11-06-2015		04-19-2016	
00403	Selma	St	Q-117-02	11-09-2015		04-25-2016	
03811	Brookview	Rd	Q-110-18	11-14-2015		04-19-2016	
01206	Fuller	St	P-099-01	12-05-2015		04-08-2016	
00408	Regina	St	Q-117-02	12-07-2015		04-20-2016	
01109	Ripley	St	P-099-01	12-16-2015		04-28-2016	

B. Properties Active As Of Reporting:

Address			Outfall Code	Complete Date	Admin. Action	Comments
02775	Axe Factory	Rd	P-100-11	02-06-2016		
04150	Main	St	S-051-08	02-23-2016		

Table 4
Spills to Storm Sewers and/or Receiving Waters
April 1, 2016 to June 30, 2016

Date	Outfall	Address	Source Code	Material Involved	Completion Date	Remarks
04/07/16		Broad Street and Langley Avenue	3008	Sewage	04/07/16	Sewer Maintenance unit flushed 8" diameter sanitary sewer causing minor discharge to street.
04/20/16	P-100-08	Welsh and Willits Roads Unnamed branch of Pennypack Creek	3009	Sewage	04/20/16	Sewer Maintenance unit flushed 10" diameter sanitary sewer causing approximate 2 gpm discharge. Affected area cleaned.
04/23/16	S-046-05	Neill Drive Pumping Station Neill Drive and Falls Road Unnamed branch of Schuylkill River	3011	Sewage	04/23/16	Flow Control unit responded to power failure at site causing approximate 479 gpm discharge from wet well. Main feeder reset which restored power to station.
04/25/16	W-068-05	Greene and Duval Streets Monoshone Creek	3009	Sewage	04/25/16	Sewer Maintenance unit flushed 12" diameter sanitary sewer causing approximate 1 gpm discharge.
05/26/16	S-052-05	Manayunk Avenue and Osborn Street Schuylkill River	3009	Sewage	05/26/16	Sewer Maintenance unit flushed 8" diameter sanitary sewer causing approximate 2 gpm discharge. Limited area property dye tests found no cross-connections.
06/15/16	P-109-04	9870 Bustleton Avenue Paul's Run	3009	Sewage	06/15/16	Sewer Maintenance unit flushed 12" diameter sanitary sewer causing approximate 2 gpm discharge. Storm sewer flushed with dechlorinated water.
06/22/16		Police Academy 8501 State Road	3008	Sewage	06/23/16	Sewer Maintenance unit vactored approximate 5 gpm leak from a private sewer. Leak repaired on Fire Academy sewer.

Source Codes:
3008 - Spill to Ground Only
3009 - Spill to Storm Sewer

3010 - Spill to Sanitary Sewer
3011 - Spill to Receiving Stream