

# **PHILADELPHIA'S WET WEATHER MANAGEMENT PROGRAMS**

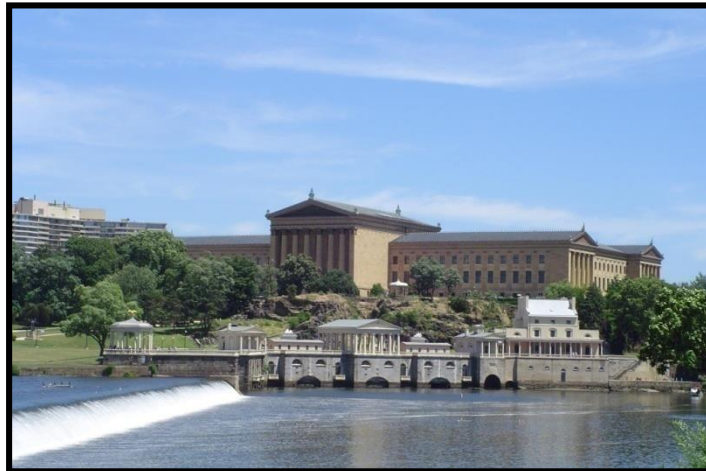
## **COMBINED SEWER MANAGEMENT PROGRAM ANNUAL REPORT**

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 1<sup>st</sup> 2014 to June 30<sup>th</sup> 2015



Submitted to:

**PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
Bureau of Water Quality Management

And

**ENVIRONMENTAL PROTECTION AGENCY – REGION III**  
Water Protection Division

**THIS PAGE LEFT INTENTIONALLY BLANK**



# Appendices

Appendix A – *Green City, Clean Water* 2015 Annual Report

Appendix B – Flow Monitoring

Appendix C – 2015 CSO Maintenance Program Annual report

Appendix D - FY2015 CSO Status Report

Appendix E – PCB Pollutant Minimization Plan – Eighth Annual Report

Appendix F – Monitoring Locations

Appendix G – PWD Quarterly Dry Weather Water Quality Monitoring Program

Appendix H – PWD-USGS Cooperative Water Quality Monitoring Program Annual Summary

Appendix I - PWD-USGS Groundwater Monitoring Program

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

Appendix K - NPDES Permitted Dischargers

Appendix L – FY 2015 Defective Lateral Quarterly Reports

Appendix M – City of Philadelphia – Snow and Ice Operations Plan Winter 2013-2014

Appendix N - FY 2015 Pollutant Migration/Infiltration Events to the MS4 System

Appendix O – FY 2015 Sanitary Infiltration Events

# 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<sup>st</sup> 2014 to June 30<sup>th</sup> 2015**

**THIS PAGE LEFT INTENTIONALLY BLANK**

# TABLE OF CONTENTS

- I Management and Control of CSOs.....1**
- II Implementation of the Nine Minimum Controls.....1**
- II.A Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs (NMC 1) ..... 1**
- II.A.1 Implement a Comprehensive Geographic Information system (GIS) of the City sewer system ..... 1
- II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP) ..... 1
- II.B Maximum Use of the Collection System for Storage (NMC 2)..... 2**
- II.B.1 Continue to Institutionalize a Comprehensive Monitoring and Modeling Program ..... 2
- II.B.2 Continue to Operate and Maintain a Network of Permanent and Temporary Flow Monitoring Equipment ..... 3
- II.B.3 Continue to Evaluate the Collection System to Ensure Adequate Transport Capacity for Dry and Wet Weather Flow ..... 3
- II.B.4 Fully Integrate the Real-Time Control Facility into the Operations of PWD..... 6
- II.B.5 Operate and Maintain In-Line Collection Storage System Projects Contained within the LTCP..... 6
- II.C Review and Modification of Pretreatment Requirements to Assure CSO Impacts are Minimized (NMC 3)..... 7**
- II.C.1 Expand the Pretreatment Program to Include Significant Industrial Users (SIUs) Whose Facilities Contribute Runoff to the Combined Sewer System ..... 7
- II.C.2 Incorporate Guidance on BMPs for Industrial Stormwater Discharges into Stormwater Management Regulations Guidance ..... 7
- II.C.3 Continue to Serve as a Member of the Philadelphia Inter-governmental Scrap and Tire Yard Task Force ..... 8
- II.D Maximization of Flow to the Publicly Owned Treatment Works (POTW) for Treatment (NMC 4) .....9**
- II.D.1 Continue to Analyze and Implement Non-Capital Intensive Steps To Maximize the Wet Weather Flow to the POTW..... 9
- II.D.2 Continue the Program which Requires Flow Reduction Plans in the Agreements to Treat Wastewater Flows from Satellite Collection Systems whgere Violations of Contractual Limits are observed..... 9
- II.D.3 Use Comprehensive Monitoring and Modeling Program to Identify Suburban Communities where Excessive Rainfall-dependent I/I Appear to be Occurring..... 11

<b>II.E</b>	<b>Prohibition of CSOs during Dry Weather (NMC 5)</b> .....	<b>11</b>
II.E.1	Optimize the Real-Time Control Facility to Identify and Respond to Blockages and (non-chronic) Dry Weather Changes .....	11
<b>II.F</b>	<b>Control of Solid and Floatable Materials in CSOs (NMC 6)</b> .....	<b>12</b>
II.F.1	Control the Discharge of Solids and Floatables by Cleaning Inlets and Catch Basins .....	13
II.F.2	Continue to Fund and Operate the Waterways Restoration Team (WRT).....	13
II.F.3	Continue to Operate and Maintain a Floatables Skimming Vessel .....	14
II.F.4	Other Initiatives .....	16
<b>II.G</b>	<b>Pollution Prevention (NMC 7)</b> .....	<b>16</b>
II.G.1	Continue to Develop and Share a Variety of Public Information Materials Concerning the CSO LTCP .....	16
II.G.2	Continue to Maintain Watershed Management and Source Water Protection Partnership Websites.....	17
II.G.3	Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications .....	21
II.G.4	Continue to Support the Fairmount Water Works .....	24
<b>II.H</b>	<b>Public Notification to Ensure that the Public Receives Adequate Notification of CSO Occurrences and CSO Impacts (NMC 8)</b> .....	<b>25</b>
II.H.1	Launch a Proactive Public Notification Program Using Numerous Media Sources.....	25
II.H.2	Expand the Internet-Based Notification System (RiverCast) to the Tidal Section of the Lower Schuylkill River.....	26
<b>II.I</b>	<b>Monitoring to Effectively Characterize CSO Impacts and the Efficacy of CSO Controls (NMC 9)</b> .....	<b>26</b>
II.I.1	Report on the Status and Effectiveness of Each of the NMCs in the Annual CSO Status Report .....	26
<b>III</b>	<b>Implementation of the LTCP</b> .....	<b>27</b>
<b>III.A</b>	<b>CSO LTCP Update – Report on the progress of the LTCP Update</b> .....	<b>27</b>
<b>III.B</b>	<b>Capital Improvements Projects</b> .....	<b>27</b>
III.B.1	On-going Capital Improvements Projects.....	28
III.B.2	New Capital Improvement Projects to be Included in the LTCPU .....	31
<b>III.C</b>	<b>Watershed-Based Management – Continue to Apply the Watershed Management Planning Process and Produce and Update the Watershed Implementation Plans</b> .....	<b>33</b>



<b>III.C.1</b>	LAND: Wet-Weather Source Control .....	37
<b>III.C.2</b>	Water Ecosystem Restoration and Aesthetics.....	40
<b>III.C.3</b>	Other Watershed Projects .....	44
<b>III.C.4</b>	Monitoring and Assessment .....	47

## **LIST OF TABLES**

<b>II.A.2-1</b>	Monthly TV Inspections .....	2
<b>II.B.3-1</b>	South Philadelphia SFR Sewer Improvement Projects .....	5
<b>II.B.3-2</b>	Northern Liberties SFR Sewer Improvement Projects .....	5
<b>II.D.2-1</b>	Listing of Wholesale Wastewater Customer Contracts and Capacities.....	10
<b>II.F.1-1</b>	Inlet Cleaning Statistics.....	13
<b>II.F.2-1</b>	Waterways Restoration Team – Annual Activity Summary FY 2008-2015.....	14
<b>II.F.3-1</b>	Debris Collected and Days of Operation by R.E. Roy Skimming Vessel .....	15
<b>II.F.3-2</b>	FY2015 Pontoon Vessel Collection Metrics .....	16
<b>II.G.2-1</b>	2015 Schuylkill Action Network Project Progress.....	18
<b>II.G.4-1</b>	Fairmount Water Works – Education Center Attendance.....	25
<b>III.B-1</b>	Summary of 1997 CSO LTCP Capital Projects .....	27
<b>III.C.1-2</b>	Planning by Watershed.....	36
<b>III.C.1.5-1</b>	Stormwater Billing Rates through Fiscal Year 2015.....	39
<b>III.C.1.6-1</b>	Pennsylvania Horticulture Society’s Tree Plantings Events/Activities.....	40
<b>III.C.3-1</b>	River Conservation Plan References .....	45
<b>III.C.4.2-1</b>	Annual Status CSO Report References.....	47

## **List of Figures**

<b>Figure III.C.2.5-1: Catch-Per-Unit-Effort (CPUE) and Fish Passage of American Shad (2004-2014).....</b>	<b>43</b>
--	-----------

**THIS PAGE LEFT INTENTIONALLY BLANK**

## 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 the time period of July 1st, 2014 through June 30th, 2015, 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 Philadelphia Water'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. Philadelphia Water 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 Proper Operation and Regular Maintenance Programs for the Sewer System and the CSOs (NMC 1)

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

In 2005, Philadelphia Water completed a data conversion project that resulted in the creation of GIS coverages for all of the City's water, sewer, and high pressure fire infrastructure. To ensure Philadelphia Water'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. The development and progress of GIS coverage of the City's sewer system has been discussed in full detail in previous reports. For additional information on the implementation that was started in 2005, please refer to Section II.A.1 Implement a Comprehensive GIS of the City Sewer System on page 5 of the CSO-Stormwater FY 2008 Annual Report.

During FY 2015, GIS layers created for Green Infrastructure and Ecological Restoration assets have continued to be updated and maintained. These layers will be maintained and leveraged in the same way as the traditional infrastructure. In particular, they will be instrumental in the maintenance and reporting for these assets and will integrate into our GIS-based work order management system.

#### 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 2014 – June 2015, the Collector Systems division inspected 36.06 miles in length of sewer via CCTV, averaging about 3.01 miles a month as shown in **Table II.A.2-1 Monthly TV Inspections**.

Additional information on the program’s development progress and goals have been provided in previous reports; please refer to Section II.A.2 Implement a Comprehensive Sewer Assessment Program on page 6 of the CSO-Stormwater FY 2008 Annual Report.

**Table II.A.2-1 Monthly TV Inspections**

<b>Date</b>	<b>Collector Systems (Miles Inspected)</b>
Jul-14	3.39
Aug-14	3.06
Sep-14	3.73
Oct-14	3.63
Nov-14	2.81
Dec-14	2.70
Jan-15	2.57
Feb-15	2.24
Mar-15	2.41
Apr-15	3.18
May-15	2.82
Jun-15	3.52
<b>Average</b>	<b>3.01</b>
<b>Total</b>	<b>36.06</b>

## II.B Maximum Use of the Collection System for Storage (NMC 2)

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

#### *Monitoring*

Philadelphia Water 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

Philadelphia Water 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*

Philadelphia Water 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 FY 2015, 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 720 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**.

The implementation of this TELOG System initiated in FY 2008 has been described in detail in previous reports; please refer to page 18 of the CSO-Stormwater FY 2012 Annual Report for a description of the implementation.

### *Temporary Flow Monitoring Program*

Philadelphia Water 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 FY 2015, PWD monitored 105 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**.

Additional details on the temporary flow-monitoring program have been discussed in the previous reports; please refer to Section II.B.2.2 Temporary Flow Monitoring Program on page 18 of the CSO-Stormwater FY 2012 Annual Report.

## 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. PC-30 Relief Sewer** on page 31.

### *Storm Flood Relief*

Flooding is an on-going concern, as intense rain storms can result in riverine, street and surface flooding, basement backups, and property damage. Philadelphia Water has initiated a comprehensive flooding and sewer overflow mitigation 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 conducting sewer system hydraulic and hydrologic analysis to predict flooding-prone areas. These individual efforts have been discussed in detail in previous reports; please refer to Section II.B.3.3 Storm Flood Relief on pages 21-26 of the FY 2010 CSO-Stormwater Annual Report for more information.

### *Flood Relief Project Summary*

The three main areas of focus for storm flood relief efforts include: South Philadelphia, Northern Liberties and Germantown. The goal of these efforts is to improve the conveyance of stormwater by targeting peak and volume reduction depending on the identified problem, which will ultimately reduce the potential for flooding. The hydraulic model indicates that sewer system improvements or source reduction can greatly reduce the frequency and severity of flooding events. Philadelphia Water will continue to refine the mitigation solutions in order to optimize, however, additional qualitative assessments will be evaluated to minimize negative impacts to the communities. During FY 2015, PWD, created a separate Flood Risk Management Program which is solely dedicated to evaluating and recommending flood mitigation alternative solutions.

In addition, Philadelphia Water continues the Basement Protection Program, which involves the installation of backwater valves in homes that request and are approved for them. To date, more than 468 properties have been retrofitted.

### *South Philadelphia*

Philadelphia Water previously completed two SFR projects in South Philadelphia, Porter St in 2010 and Snyder Ave Phase 1 in 2007. During FY 2015, the Moore Street project continued to refine the final design plan and design plans continued on the Weccacoe Avenue and Snyder Avenue Phase 2 projects. Philadelphia Water has been modeling possible tunnel sizes in order to evaluate their inclusion in the overall project area. Once this process is complete, the tunnel will be able to be included in the final flooding improvement options. The following table (**Table II.B.3-1**) outlines a status of the current South Philadelphia SFR projects that are being evaluated.

**Table II.B.3-1 South Philadelphia SFR Sewer Improvement Projects**

Project Name	Location	Project Status
Snyder Avenue – Phase 1	Snyder Ave	Construction Complete
Porter Street	Porter, 10th to Broad	Construction Complete
Moore Street	Moore St. ROW, Christopher Columbus Blvd. to Delaware River	Design 90% complete
Weccacoe Avenue	Weccacoe Avenue, Wolf Street and Oregon Avenue	Design Started
Snyder Avenue – Phase 2	Snyder Ave from Front to 4th	Design Started

### *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. Phase 1 was completed in August of 2010. **Table II.B.3-2** demonstrates the status of the current Northern SFR projects that are being implemented.

**Table II.B.3-2 Northern Liberties SFR Sewer Improvement Projects**

Project Name	Location	Project Status
Northern Liberties Phase 1	Delaware Avenue and Laurel Street	Construction Complete
Northern Liberties Phase 2	Canal Street Chamber	Under Construction
Northern Liberties Phase 3	Delaware Ave to River (Undertaken by Sugar House)	Under Construction
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.	Design 90% Complete

### *Germantown*

The East Germantown section of the City is being modeled, which was impacted by flooding from intense rainstorms, such as Hurricane Irene (8/27/11) and Tropical Storm Lee (9/7/11). The 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 feasibility will be evaluated in greater detail as more options are being eliminated.

### *Eastwick*

At the beginning of FY 2015, Philadelphia Water began to review the completed technical report regarding the US Army Corps of Engineer (USACE) work on stream modeling for the Eastwick Flood Evaluation. Upon completion of review, Philadelphia Water decided to continue working with USACE

through the 205 program. Towards the end of FY 2015, Pennsylvania Senator Robert Brady signed a formal support letter for the continuation of the Eastwick Flood Mitigation evaluation.

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

The construction of the Collector System Real Time Control (RTC) Center building was completed in the summer of 2003. The RTC Center became fully operational in September 2006. For full details on the development and features of this facility, please refer to Section II.B.4 Fully Integrate the Real-Time Control Facility into the Operations of PWD on page 22 of the CSO-Stormwater FY 2008 Annual Report.

##### *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 33 MG annually. PWD is currently having the tide gates on the Main Relief stormwater outfall pipe re-installed by a contractor to ensure prevention of tidal inflow at this location.

The full extent of Main Relief has been discussed in previous reports. For more information on Main Relief Sewer Relief Project, please refer to Section II.B.5.1 Main Relief on page 26 of the CSO-Stormwater FY 2012 Annual Report.

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

Construction was completed on this project in July of 2011 and the site was placed in service in November of 2011 following acceptance testing. The T-14 storage sewer system is currently operating under automated control and storing wastewater during wet weather events. Philadelphia Water is incrementally increasing the storage volume in the trunk sewer to the full design capacity. This approach enables Philadelphia Water to analyze the performance of the system and optimize controls in a safe and systematic manner.

Additional information on T-14 relief sewer project has been discussed in previous reports; please refer to Section III.B.1.5.1 Construction and Implementation of Tacony Creek Park (T-14) on page 72 of the CSO-Stormwater FY 2012 Report.



### *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. During FY 2015, PWD completed modification of the upstream diversion chamber located at 7<sup>th</sup> and Nedro Streets to further increase CSO capture during storm events. The modification consisted of the installation of stop logs spanning the main trunk sewer. The Rock Run storage system is currently operating as designed. Philadelphia Water is incrementally increasing the storage volume in the trunk sewer to the full design capacity.

Additional information on Rock Run Relief has been discussed in previous reports; please refer to Section III.B.1.4.2 Construction and Implementation of Rock Run Relief (R-15) on page 72 of the CSO-Stormwater FY 2012 Annual Report.

## **II.C Review and Modification of Pretreatment Requirements to Assure CSO Impacts are Minimized (NMC 3)**

### **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 Philadelphia Water'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 124 SIUs that discharge to the sanitary system. During FY 2015, only 115 SIU inspections were conducted, and the remainder of the 124 SIUs was inspected during the FY2014. 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>.

Additional information on this program expansion was reported in previous years; please refer to Section II.C.1 on page 27 of the CSO-Stormwater FY 2012 Annual Report.

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

A Stormwater Management Guidance Manual was developed to assist developers in meeting the requirements of the Stormwater Regulations. The manual is revised when necessary to incorporate new information, such as updated forms or specific section details when stormwater management requirements change. The current version of the Stormwater Management Guidance Manual is available at: <http://www.pwdplanreview.org/manual-info/guidance-manual>.

Additional information on the development and contents of this guidance manual has been provided in previous reports; please refer to Section II.C.2 Incorporate Guidance on BMPs for Industrial Stormwater

Discharges into Stormwater Management Regulations Guidance on page 28 of the CSO-Stormwater FY 2012 Annual Report.

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

The Scrap Yard Task Force (SYTF) was created to address numerous complaints about the operation of scrap metal and auto salvage businesses, which may cause polluted runoff to enter the City's sewers, blight in City neighborhoods, and contribute to short dumping and other environmental hazards to area waterways.

The SYTF is in its seventh year of operation since it was reorganized in September of 2008. Inspections and meetings normally take place once a month, inspecting about four (4) scrap facilities each month, in an effort to bring more scrap yards into compliance. The SYTF will occasionally inspect facilities that do not fit the strict definitions of either junkyard or metal recycler but present the potential for negative impact on the environment and surrounding area. Some of these sites are: tire accumulations; other recycling facilities; and shipping operations. The SYTF also responds to community complaints having to do with facilities or properties that are considered a nuisance or problematic in a given neighborhood.

The core agencies involved in the SYTF are PWD, PADEP's Solid Waste division, Department of License and Inspections (L&I), Philadelphia Police Auto Squad, Philadelphia SPCA and the Philadelphia Fire Dept. Haz-mat Administration Unit. Each attending agency performs specific tasks as dictated by their primary regulatory mission. For example, PWD also inspects sites for water and sewer violations, as well as violations that may be referred to the PADEP Clean Water division. PWD is the coordinating entity that designates the facilities to be visited.

Generally more than 75% of the facilities inspected do not present direct sewer contamination potential. The vast majority of the sites inspected are graded in such a way that there is no runoff from the property but water flows toward the center of the parcel. On occasion where potential is discovered, the sites are referred to PWD's IWU or PADEP Water Quality as appropriate. Fewer than 25% of facilities inspected have water or sewer service.

During FY 2015, the SYTF held 8 meetings resulting in 30 facilities being inspected. A few monthly SYTF meetings were not held in FY2015 due to inclement weather or significant task force unavailability. Violation notices of varying types from different agencies were issued to several sites, mainly consisting of minor infractions such as improper labeling. No sites were shut down and the incidence of stolen vehicles and parts was moderate. Following the February 2015 Inspection, SYTF members have worked with local and township law enforcement to recover stolen items discovered at Green Dog Recycling.

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

### 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. For a full description of this plan, please refer to Section II.D.1 Modified Regulator Plan on page 27 of the CSO-Stormwater FY 2008 Annual 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. As a continuation of the NE FCP, Philadelphia Water will complete a comprehensive Wet Weather Facility Plan prior to June of 2016, which will provide details including schedule, cost and anticipated performance for each project presented in the NE FCP. 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](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

Philadelphia Water provides wastewater service to some of its neighboring communities. Communities that exceed their contractual limits must develop flow reduction plans, under Philadelphia Water review. The following progress has been achieved with the following municipalities/counties during FY 2015.

#### *Abington Township*

A new contract was executed on October 9, 2014. The new contract includes sections that specify exceedance charges for excessive flows and requires a plan of action from the Township to eliminate the excessive flows within one year from the date that the Township receives approval of a corrective action plan. In addition, the proposed contract will require the Township to pay its proportionate share of Philadelphia Water's Long Term Control Plan Update (LTCPU) to reduce combined sewer overflows.

#### *Bucks County Water & Sewer Authority*

Under the terms of a negotiated agreement in 2008, the Bucks County Water & Sewer Authority (BCWSA) installed meters at all connection points not previously monitored. In addition, BCWSA agreed

to construct a 1.8 million gallon surge tank and pump station in early 2012 to address high peak flows to Philadelphia Water’s system. In FY 2015 Philadelphia Water requested technical drawings and flow data from BCWSA in order to evaluate the effectiveness of the tank and continues to monitor the flow monitoring data along the city border to ensure contact exceedances do not occur.

*Cheltenham Township*

An amendment to Cheltenham’s contract was executed and signed in April of 2014. The amendment requires the Township to pay their proportionate share of the LTCP and construct additional sewer capacity within the City or build a storage tank to temporarily hold excessive flows during periods of high flow or develop alternative scenarios to address flows in excess of contract limits. The Township has until March of 2016 to evaluate its hydraulic conditions and decide on best option to control excess flows.

*Delaware County Regional Water Quality Control Authority (DELCORA)*

A 15-year contract with DELCORA was executed effective April 1, 2013. As part of the contract, DELCORA agreed to pay its proportionate share of the City’s LTCPU to reduce combined sewer overflows. If DELCORA has excessive flows, they are required to develop a PWD-approved plan of action to eliminate them within a one year period. If DELCORA does not address continued exceedances of flow limits, the contract allows for Philadelphia Water to terminate the agreement.

*Springfield Township*

A new contract with the Township was signed in 2014 and includes a provision requiring the Township to correct excessive flows within one year from receiving City approval of the Township’s plan of action, and to pay its proportionate share of the LTCPU. Philadelphia Water has begun the process of assessing the Township’s flow characteristics to determine what flow reductions, if any, will be required by the Township. Once this assessment is complete, any required flow reductions will be incorporated into the existing contract, along with revised penalties for flow exceedances, charges for any modifications to the Philadelphia Water collector system required to accommodate flows from Springfield, and a commitment from the Township to correct any excessive flows within one year from receiving an approval of a corrective action plan.

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**

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.)
<b>Northeast Plant</b>					
Abington		4.45	9.54		
Bensalem	6.13		11.74	5,340	3,734
Bucks	21.33	33.00	74.26	13,400	13,400
Cheltenham	13.38		31.75		
Lower Moreland	1.90	2.85	5.88	729	966

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.)
Lower Southampton	7.14	9.28	15.79	5,500	6,000
<b>Southwest Plant</b>					
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		4.60	1,050	1,200
Upper Darby	17.00		35.00	6,831	7,348
<b>Southeast Plant</b>					
Springfield (Wyndmoor)	1.00		1.93	155	200

### II.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 Philadelphia Water 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 107 connections and 2 connections are 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.

## II.E Prohibition of CSOs during Dry Weather (NMC 5)

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

Regular inspections reactive inspections, and maintenance of 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. Philadelphia Water utilizes a remote monitoring network system daily to help identify locations showing abnormal flow patterns.

#### *CSO Regulator Inspection & Maintenance Program*

Philadelphia Water maintains 175 combined sewer 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

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712  
 FY 2015 Combined Sewer and Stormwater Annual Reports

detailed in **Section III.C.4.2 NPDES – Annual CSO Status Report** on page 48 and any changes are discussed below.

Philadelphia Water instituted a policy of conducting next day follow-up inspections at sites that experience a dry weather discharge. The effectiveness of these twice-weekly dry weather discharge inspections is being evaluated. During FY 2015, 5,128 inspections were completed on 201 CSO regulator sites and storm relief diversion chambers. There were 4 dry weather discharges and a total of 160 blocks cleared to prevent a possible discharge from developing. Details of the inspections during the past fiscal year can be found beginning on page 12 of **Appendix C – 2015 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 FY 2015, CSO tide gate preventative maintenance was completed at 20 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 – 2015 CSO Maintenance Program Annual Report**, which documents the locations of tide gate preventative maintenance performed in FY 2015.

#### *Somerset Grit Chamber Cleaning*

During FY 2014, the Somerset grit chamber was removed from service because the upstream regulator was being relocated. This project remained active during FY 2015. 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 FY 2015 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*

Philadelphia Water performs specialized maintenance activities at the Central Schuylkill Pump Station (CSPS). An upstream siphon conveys wastewater flow from the interceptors on the East side of the Schuylkill River to the West side. The siphon grit pockets are located on the downstream side of the siphon where sewers enter the Central Schuylkill Pumping Station. During FY 2015, the two grit pockets at the CSPS siphon were cleaned four times, and a total of 90 cubic yards of grit with an approximate weight of 150 tons were removed to ensure proper functionality of the site. Additional information on the CSPS cleaning activities conducted in FY 2015 is available on page 22 of **Appendix C – 2015 CSO Maintenance Program Annual Report**.

## **II.F Control of Solid and Floatable Materials in CSOs (NMC 6)**

The ultimate goal of NMC 6 is to, where feasible, reduce or eliminate the discharge of floatables and coarse solids from combined sewer overflows to the receiving waters by relatively simple means. Various technologies can be used to control solids and floatables entering the receiving waters from CSOs, ranging from simple devices that remove material from the CSO flow stream to devices that

remove floatables from the receiving water after they are discharged.

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

Philadelphia Water is responsible for inspecting and cleaning approximately 72,000 active stormwater inlets within the City. There are thirty-two 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 functioning. 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 FY 2015, Philadelphia Water performed 126,557 inlet inspections and cleaned 94,776 inlets. The average amount of debris removed from each cleaned inlet was 199 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 FY 2015 can be found in **Table II.F.1-1**.

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

	<b>FY2015</b>
Total Inlet Inspections	126,557
Total Inlets Cleaned	94,776
Total Covers Replaced	190*
Total Covers Retrieved	50*
Total Covers Chained	5,021
Tons of Debris Removed	9,452
Avg. Lbs./ Inlet	199

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

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

Philadelphia Water'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 FY 2015, WRT conducted 369 stream examinations and removed a total of 918 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
Total Tons Removed	326	657	1438	750	741	1416	710	918
Cars Removed	80	15	12	11	14	4	4	9
Tires Removed	861	924	1062	1392	1256	4756	1428	427
Shopping Carts Removed	72	268	102	89	50	27	20	67
# of Stream Site Cleanups	178	375	335	459	434	467	686	645
# of Stream Site Exams	*	*	*	*	*	*	438	369

\*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 Philadelphia Water currently has two (2) skimming vessels; a large marine vessel, the R.E. Roy, and a smaller pontoon vessel.

#### *Floatables Skimming Vessel – R.E. Roy*

In 2006, Philadelphia Water implemented an aquatic floatables control strategy that included the skimmer vessel, the R.E Roy to manage floatable and other debris along the tidal portions of the Delaware and tidal Schuylkill Rivers in the City. The 39-foot skimmer vessel is operated for approximately five days per week, for about 7 months out of the year, or more as weather and boat maintenance allows.. 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 128 days of on-water operation in FY 2015, a total of 13.6 tons (198.8 cubic yards) of debris and floatables material were removed from the Delaware and Schuylkill Rivers (**Table II.F.3-1**). Also during the FY 2015 season, the R.E. Roy began sorting and separating recyclable material, which equated to 16.5 cubic yards or approximately 1,800 lbs. This new recycling procedure included acquiring a four cubic yard receptacle to contain the collected recyclables until it is collected by the Street’s Department for proper disposal.



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

Date	Tons Removed*	Cubic Yards Collected	Days in Operation	Days on Schuylkill	Days on Delaware
July 2014	-	30	18	10	8
August 2014	3.15	30	17	11	6
September 2014	3.24	35	18	8.5	9.5
October 2014	-	35	23	15.5	7.5
November 2014	3.29		17	12.5	4.5
December 2014	0.51	3.83	2	1	1
January 2015	RE Roy Out of Service (Dry-docked & Winterized) for Winter Season				
February 2015					
March 2015					
April 2015	Out of Service for Mechanical Maintenance				
May 2015	-	10	11	2.5	6.5
June 2015	3.44	20	22	11	11
<b>FY 2015 Total</b>	<b>13.6</b>	<b>198.8</b>	<b>128</b>	<b>72.0</b>	<b>56.0</b>

\* 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.

*Floatables Pontoon Vessel*

Philadelphia Water also operates and maintains a small pontoon skimming vessel that is used along the Schuylkill River within Philadelphia to retrieve floating trash and debris from the waterways. In rare instances, weather permitting, the pontoon skimming vessel has been deployed in tidal portions of the Delaware and Schuylkill rivers to accomplish special requests by the Department or public. 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. The pontoon vessel can be utilized in tight spaces found in marinas, among piers, and in near shore (shallow) areas. This vessel however, is not equipped or safety rated to handle large river systems, such as the Delaware.

In FY 2015, the pontoon skimming vessel was operational from July – October 2014 and April- June 2015, equating to 15 deployments. During this period, the pontoon skimming vessel removed a total of 23.5 cubic yards of material, comprised of 13.9 cubic yards of recyclable material including bottles, plastic, paper; 4.9 cubic yards of mixed trash and 4 tires (**Table II.F.3-2**). The pontoon skimming vessel was in active operation for a total of 94 hours in FY2015, which equated to an operational cost of \$14,182 including labor cost, overhead and vessel usage approximations (e.g., gas, preventative maintenance, etc.). This cost does not include management cost which is still being estimated and will be available next year. The pontoon vessel has been discussed in detail in previous reports; please refer to Section II.F.3 Floatables Pontoon Vessel on page 38 of the CSO-Stormwater FY 2012 Annual Report for additional information on the vessel.

**Table II.F.3-2 FY2015 Pontoon Vessel Collection Metrics**

Date	# of Collections Events	Total Volume Collected (gal)	Total Weight Collected (lbs)	Total Volume of Recyclables	Total Volume of Mixed Trash
July 2014	2	352	*422	176	176
August 2014	-	-	-	-	-
September 2014	1	88	*77.8	44	44
October 2014	3	836	*826.3	594	594
November 2014	Skimming Vessel Dry-Docked for Winterization Period				
December 2014					
January 2015					
February 2015					
March 2015					
April 2015	6	1227	*1111.3	717.5	504.9
May 2015	4	685	733.2	421	261.8
June 2015	5	890	1160	453.5	436.6
<b>Total</b>	<b>15</b>	<b>4078 Gal</b>	<b>4330.6 lbs*</b>	<b>2,406 Gal</b>	<b>1,665 Gal</b>
<b>Total CuYd/Tons</b>	<b>15 Events</b>	<b>23.5 CuYds</b>	<b>2.2 tons*</b>	<b>13.9 CuYds</b>	<b>9.6 CuYds</b>

\*Actual weighing of collected material did not start until May 2015, values provided in July-April are estimations based on collection trends

#### 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 FY 2015, 7 debris grill maintenance events were completed. The list of the debris grill preventative maintenance activities is available on page 22 of **Appendix C – 2015 CSO Maintenance Program Annual Report**.

#### II.G Pollution Prevention (NMC 7)

Most of the city ordinances related to NMC 7 are housekeeping practices that help to prohibit litter and debris from being deposited on the streets and within the watershed area. As pollutant parameters accumulate within the watershed practices such as, regular maintenance of catch basins can help to reduce the amount of pollutants entering the combined system and ultimately, the receiving water.

##### 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 FY 2015 for the *Green City, Clean Waters* program which is the City’s vision for addressing CSO reductions has been provided in **Section 7.0 - Public Outreach and Participation** starting on page 34 of **Appendix A – Green City, Clean Waters FY 2015 Annual Report** and **Section II.G.3 Continue to Provide Annual Information to City Residents about Programs via Traditional PWD Publications** on page 21 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 Philadelphia Water 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 Philadelphia Water or partners. Daily activity on the site has increased compared to the previous year, according to Google Analytics, from 149,030 visitors in FY 2014 to 170,221 in FY 2015.

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 27.

The website also hosts information for various Philadelphia Water initiatives and programming. The page for the Soak it Up Adoption Program, for example, allows groups 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 FY 2015, there were 95 posts and the blog was viewed at least 3,264 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](http://www.phillyrivercast.org)) is the first operable web-based recreational warning system in the United States. Using near real-time flow, precipitation, and turbidity data, the RiverCast algorithm translates the 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 help 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 750,000 users have visited the Philly RiverCast website since it was first released 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 12 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: 2015 Schuylkill Action Network Project Progress**

Agriculture	Abandoned Mine Drainage (AMD)	Stormwater
<ul style="list-style-type: none"> <li>• Secured \$13 million in USDA federal funding designated for agriculture restoration and protection work in the Delaware River Basin</li> <li>• Hosted several workshops for farmers teaching them what they can do on their farms to promote stream health</li> <li>• 1 Comprehensive Nutrient Management Plans completed</li> <li>• 7 manure storage facilities completed</li> <li>• 6 barnyard repairs completed</li> <li>• 6 stream crossings installed</li> </ul>	<ul style="list-style-type: none"> <li>• Improvements to existing AMD treatment system</li> <li>• Water quality monitoring in two sub-watersheds and construction and maintenance cost estimates for development of Qualified Hydrologic Unit Plan</li> <li>• Project planning for restoration of flood plains, including coal silt removal</li> <li>• Design and construction of systems to prevent stream base-flow from getting into the underground mine pool (West Creek)</li> </ul>	<ul style="list-style-type: none"> <li>• Organized a workshop on design process, costs, challenges, and lessons for implementing green infrastructure</li> <li>• Formed a subcommittee to create a stormwater management outreach plan for shopping malls</li> <li>• 4 schools in the watershed took steps to manage stormwater on their campuses by installing rain gardens, and planting meadows, riparian buffers, and trees</li> <li>• 1 land transaction assistant project completed, adding 2.88 acres of priority watershed land to an existing 650 acres of preserved land</li> </ul>

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](http://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](http://Phillywatersheds.org), provides data and reports from the source water assessments for the Schuylkill River. For additional information on the SAN, please refer to Section II.G.2.3 on page 41 of the CSO-Stormwater FY 2012 Annual Report.

*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 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.

During FY 2015, a total of 11 unique water quality events were reported to the EWS. The EWS was also awarded the 2015 Governor's Award for Environmental Excellence. Additional outreach events throughout FY 2015 expanded the EWS user base, which is currently comprised of more than 300 individual users from 50 organizations.

EWS has been discussed in further detail in previous reports; for additional information on this system please refer to Section II.G.2.4 on page 37 of the CSO-Stormwater FY 2012 Annual Report.

#### *Other PWD Related Websites and Social Media*

##### **Philadelphia Water Main Web Site**

[www.phila.gov/water](http://www.phila.gov/water)

The official website for Philadelphia Water 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](http://www.phila.gov/water/wu/stormwater) clocked 3000 active visitors to the site during FY 2015, and visitors spent an average of 3 minutes on the page, with many going on to visit other pages on both the [phila.gov/water](http://www.phila.gov/water) and [phillywatersheds.org](http://phillywatersheds.org) websites.

Stormwater billing web resources grew in FY 2015 with the development of the Stormwater Credits Explorer located at <http://water.phila.gov/swexp>. This map based web app allows users to install virtual stormwater management practices to visualize the reduction of stormwater fees on non-residential properties. The app provides explanations and graphics of green tools used to retrofit non-residential properties and gives dollar estimates of reductions to stormwater billing charges. As well, the *Credits Explorer* helps users visualize reductions in impervious drainage area. Users are encouraged to export results of their exploration and are directed to call the Stormwater Retrofits team to discuss how to move forward with Green Infrastructure improvements. The existing *Stormwater Parcel Viewer* continues to be used as a map application showing the stormwater charges for every property in Philadelphia as well as helpful documents and forms regarding the stormwater fees. Customers are encouraged to explore and get more information about their stormwater charges and information concerning PWD's Appeals, Credits or CAP programs. This information can help property owners reduce

the amount of storm water entering the sewer system. For more information on the stormwater billing program please refer to **Section III.C.1.5 – Parcel-based Stormwater Billing** on page 39.

The site continues to provide resources such as current news, recent reports, important programs and other facts concerning water that are helpful to consumers.

#### Development Review Program Website

Philadelphia Water's Development Review Program has a website that provides guidance on the Philadelphia Stormwater Regulations, explains the plan review process, and allows developers to submit applications online. Much time was spent in FY 2015 designing transformations to coincide with upcoming release of changes to the stormwater regulations. These improvements include a web first approach to access of the Stormwater Management Guidance Manual which provides for much better version control. The website employs responsive design which allows full functionality and optimized display from any device. This site can be found at: <http://www.pwdplanreview.org/>. For more information on the activities conducted by Development Review Program please refer to the MS4 Annual Report **Section F.5 – Monitor and Control Storm Water from Construction Activities** on page 26.

#### Philadelphia Water 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 Philadelphia Water's connections with other institutions around the City. The sections below describe the City's social media:

##### Facebook

Philadelphia Water 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 2000 fans.

##### Twitter

Twitter has become an important tool for resolving customer complaints, providing helpful hints, and providing news concerning the department, education and water in general. Both Philadelphia Water 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 75 tweets per month, up from 65 tweets per month in FY14. In addition, @PhillyH2O has 3876 followers, up from 2558 in 2013. Including the @FairmountWW followers, Philadelphia Water has over 5500 followers.

#### Philadelphia Water Department Videos

Philadelphia Water 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 link:

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

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

Between the two platforms, the videos have been viewed over 5000 times between July 1, 2014 and June 30, 2015. This is up from 4500 views in FY 2014. These represent the number of full views of videos three to fifteen minutes in length.

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

Philadelphia Water 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 components have been shared with the public during FY 2015:

#### *Billstuffers*

##### *Rate Increase Billstuffer – July 2014*

A billstuffer was distributed to explain to customers about the third and final phase of a three-phase change to rates spread over a two-and-a-half-year period.

##### *Tap Water Billstuffer – August 2014*

The Food Trust – in partnership with the city of Philadelphia Department of Public Health’s *Get Healthy Philly* initiative, Philadelphia Water and other local partners – will increase the availability and marketing of water in Philadelphia corner stores, schools, farmers’ markets and Night Market events, reaching more than half a million residents with the message that water is a healthy and easy choice. This billstuffer is part of a far-reaching campaign to increase consumption of water and educate children and families on the importance of drinking water every day.

##### *Keep Your Water Flowing – March 2015*

A billstuffer was distributed to alert customers that the moratorium (or suspension) for water shutoffs ends on April 1, 2015; the different methods of payment, locations of approved WRB payment centers and customer’s rights and responsibilities as water customers.

##### *A New Chapter is Beginning for Philadelphia Water - March 2015*

A billstuffer was distributed to alert customer that the Philadelphia Water Department updated our brand and logo to reflect our vision for the future.

##### *New Bill Design – April 2015*

A billstuffer highlighting the new design features of the water/sewer/stormwater bill was distributed. The new features include an easier to read format, updated usage graph, updated message section and new payment agreement history.

#### *Publications*

##### *2015 Water Quality Report (with 2014 Data) – May 2015*

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 transitioned to make this report available electronically this year.



### *Media Advisories*

July 16, 2014 – Cutting Edge Stormwater Innovations Highlighted at Cardone Industries; Upgrades Result in 50 Greened Acres and Protects Tacony Creek Water Quality

July 21, 2014 – Mayor Nutter to Highlight City’s Permeable Paving Pilot Project; Results to Help Advance Philadelphia’s Renowned Green City, Clean Waters Plan

October 6, 2014 – “Rap Master” and Young Performers Hail Opening of Venice Island; Home of City’s New Performing Arts and Recreation Center & Model Green Infrastructure

November 28, 2014 – Philadelphia Cuts Ribbon on One of Its Largest Green Stormwater Management Projects; Announces New Grant Program for Owners Across Multiple Properties

April 20, 2015 – Mayor Nutter, Superintendent Hite and U.S. EPA Regional Administrator Cut Green Ribbon; Introducing National Model for Stormwater Management and Education

May 12, 2015 – What’s the Value of Water? The Pennsylvania Story; Forum on Regional Water Resources, Infrastructure, and Investment Open to the Public

### *Press releases*

July 18, 2014 – Cardone Industries Completes City’s Largest Stormwater Management Renovations; Site Improvements Result in 50 Greened Acres and Create Industry Model

July 22, 2014 – Mayor Nutter and EPA Highlight City’s Permeable Paving Pilot Project; Results to Help Advance City’s Renowned Green City, Clean Waters Plan

August 4, 2014 – Delaware River Dye Study to Take Place August 5 - 8

October 7, 2014 – Venice Island Underground Storage Tank Groundbreaking and Press Conference

November 19, 2014 – City of Philadelphia Receives EPA Green Power Leadership Award; National Awards Honor Leading Green Power Users

December 1, 2014 – W&W Realty Co. Awarded \$2.7 Million Grant for Stormwater Management Project; New Green Stormwater Infrastructure Improvements Results in 30 Greened Acres

December 10, 2014 – PWD and PIDC Award \$8.25 Million in Grants to Promote Green Stormwater Management Practices on Private Properties, Resulting in the Planned Development of 92 Green Acres

January 12, 2015 – Yorktown Neighborhood Streets Made Greener and Safer for Pedestrians and Bicyclists with \$800,000 Grant

March 23, 2015 – Philadelphia Water Hosts Region’s Water/Wastewater Industry Leaders for Meeting and Facility Tour

March 31, 2015 – Philadelphia’s Green City, Clean Waters Receives National Planning Award

April 7, 2015 – Howard Neukrug Receives 2015 Arbor Day Award



April 22, 2015 – George W. Nebinger School “Goes Green”; Mayor Nutter, US EPA Regional Administrator and Dr. Hite Cut Ribbon on National School Model of Stormwater Management

June 2, 2015 – Philadelphia Water Presents Fresh Tools for a Greener City with Retrofit Guide and New App

### *Advertisements*

- A paid advertisement was placed in the Water Resources Association’s Awards Program marking the Fairmount Water Works celebration of 200 years of Ingenuity, Innovation and Beauty. – April, 2015
- Paid advertisements were placed in the following newspapers to alert the public that the 2015 Water Quality Report (featuring 2014 tap water quality results) was available electronically at [www.phila.gov/2015waterquality](http://www.phila.gov/2015waterquality):

The Philadelphia Inquirer – May 21, 2015

The Philadelphia Daily News – May 21, 2015

### *Events*

#### *Cardone Industries Stormwater Management Ribbon Cutting and Tour*

July 18, 2014 – Cardone Industries received a \$3.4 million Stormwater Management Incentives Program (SMIP) grant to complete a model, large-scale stormwater management retrofit that will protect the water quality of the Tacony Creek. A ribbon-cutting and tour was held to highlight five new stormwater management features that will treat runoff from all of the impervious areas on their property, amounting to approximately 50 greened acres.

#### *Permeable Pavement Pilot Project Ribbon-Cutting and Tour*

July 22, 2014 – A ribbon-cutting and tour of the Southwest Water Pollution Control Plant’s new permeable paved employee parking lot. Six different types of permeable pavement have been installed and will be tested, including porous asphalt and several forms of pervious concrete and permeable paver products. Mayor Nutter, U. S. EPA Regional Water Director, Jon Capacasa and Councilman Oh participated in a ribbon-cutting and tour of the stormwater management features.

#### *Venice Island Ribbon Cutting*

October 7, 2014 – Mayor Nutter, Deputy Mayor of Transportation and Utilities, Rina Cutler, Deputy Mayor for Environmental and Community Resources Michael DiBerardinis, U.S. Congressman Chakah Fattah, Councilman Curtis Jones Jr., Councilman Oh, Manayunk Development Corporation Executive Director Jane Lipton, the Manayunk community and students from CAPA participated in a ribbon cutting and tour of the Venice Island project. This project included an underground storage basin, state-of-the-art recreation and performing arts center, pump house green roof and stormwater tree trenches.

#### *W&W Realty Co., Dependable Distribution Services Inc. Ribbon Cutting and Tour*

December 1, 2014 – W&W Realty Company was awarded a \$2.7 million Stormwater Management Incentives Program (SMIP) grant to implement green stormwater management upgrades that will manage more than 800,000 gallons of stormwater, significantly reducing the property’s burden on the City’s sewer system. A ribbon-cutting and tour was held to highlight their new stormwater management

features, including an 11,000 square foot underground infiltration basin, and 86,000 square foot underground infiltration basin and a 70,000 square foot above-ground bio-infiltration basin.

#### *George W. Nebinger School "Green" Ribbon-Cutting*

April 22, 2015 – George W. Nebinger School received a \$400,000 grant from the US EPA and Philadelphia Water to install green stormwater infrastructure features, including a below-ground basin, rain garden, bioswale and porous pavers to be used as tools in the classrooms, field and laboratory, serving as a demonstration opportunity for students and the community. Mayor Nutter, US EPA Region III Administrator Shawn Garvin, Councilman Squilla and School District of Philadelphia Superintendent William Hite participated in a ribbon-cutting to mark the completion of the project.

#### *PWD Employee Memorial Tree Grove Ceremony*

June 8, 2015 - Water Commissioner Howard Neukrug and several PWD Divisions collaborated on the 3<sup>rd</sup> Annual Memorial Tree Grove ceremony that commemorates the PWD employees who have passed away within the last year.

#### *Videos*

The Public Relations Unit produced educational videos to be used on its website to make Philadelphia residents aware of how activities such as washing their car, using fertilizer on their garden and picking up their pet's waste can impact the quality of the local rivers and streams.

Car Wash: <https://vimeo.com/133775467>

Toxic Free Yards: <https://vimeo.com/129711038>

Pet waste: <https://vimeo.com//phillywatersheds/petwaste>

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

Opened in 1815 as the sole water pumping station for the City of Philadelphia, the Fairmount Water Works was one of the city's most recognizable landmarks. Since opening its doors in 2003 as an environmental education center and the public classroom of Philadelphia Water, the site has served as a destination for more than 520,000 visitors, and is dedicated to fostering stewardship of shared water resources by encouraging informed decisions about the use of land and water.

What makes the Fairmount Water Works unique among environmental centers is its location at the river's edge and in the center of the fifth largest city in the nation. It tells the story of the Schuylkill River and its human connections throughout history. Innovative exhibits and interactive educational programs meld the history, technology and science, providing education on the many issues facing the region's urban watersheds. Out-of-school time programs for all ages include a speakers series, weekend hands-on science programs for families, and school and summer programs for pre-k to college age students.

The Fairmount Water Works also offers guided tours of the landmark and its surroundings that explore its past, present, and future impact. Heavy rains and subsequent flooding in late April 2014 forced the Fairmount Water Works to be closed to the public for several months and reduced attendance by more than 10%.

As detailed in **Table II.G.4-1**, during FY 2015, 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**

<b>Types of Attendance</b>	<b>Number Attended</b>
General FWW Visitors	15,808
School Groups, Camps and Recreational Center	7,173
Tours	3,235
Special Events	2,539
Outreach Efforts	2,936
<b>Fiscal Year 2015 Total Visitors</b>	<b>31,691</b>

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

Philadelphia Water 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, Philadelphia Water 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

Philadelphia Water 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. Additional information on outfall signage was provided in previous reports; please refer to page 125 of the CSO-Stormwater FY 2012 Annual Report

#### *CSO Identification Signage*

Signage was installed at each of Philadelphia’s CSO outfalls, with the exception of 8 difficult to reach sites. The CSO outfalls now have identification signs displaying their outfall ID number. These signs allow for the identification of outfalls when the public is reporting a problem.

Additional information on this CSO identification signage was provided in previous reports; please refer to page 125 of the CSO-Stormwater FY 2012 Annual Report

### *Other Notification Measures*

Philadelphia Water 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 17.

## 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, Philadelphia Water developed another internet-based notification system called CSOcast in 2008, which reports on the overflow status of outfalls in every CSO shed. The purpose of this notification system is to alert the public of possible CSOs from Philadelphia’s combined sewer system outfalls. When a combined sewer outfall is overflowing, and for up to a period of 24 hours following a rainfall event, conditions may be unsafe for recreational activities in the water body due to possible pollutant contamination. The CSOcast notification system can be accessed through:

[http://www.phillywatersheds.org/what\\_were\\_doing/documents\\_and\\_data/live\\_data/csocast](http://www.phillywatersheds.org/what_were_doing/documents_and_data/live_data/csocast).

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. Philadelphia Water 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 FY 2015, CSOcast reported on the 164 CSO outfalls twice a day and the CSOcast webpage has been viewed 7,712 times by 3,286 unique visitors.

Occasionally the CSOcast site is brought down for maintenance, typically over a weekend. When known outages are anticipated or observed, a message is displayed on the website informing the public about the status of the CSOcast site. Although Philadelphia Water’s general message is that whenever there is a perceivable rainfall, the CSO outfalls may be discharging, and people should stay out of the waterways during and immediately following rain storms. The CSOcast was developed to inform people of the locations of the CSOs while aiming to make sure that the basic messaging is understood in all of the affected stream systems. For more information that has been provided in previous reports, please refer to Section II.H.2 page 61 of the FY 2012 Annual Report.

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

### 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

#### III.A CSO LTCP Update - Report on the progress of the LTCP Update

The full Philadelphia Combined Sewer Overflow LTCP report can be found at the following address: <http://www.phillywatersheds.org/ltcp>.

An amended Consent Order & Agreement was signed by Philadelphia Water 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 LTCP 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 FY 2015 Annual Report** for an update on implementation progress.

#### III.B Capital Improvement Projects

The Capital Improvement’s phase of Philadelphia Water’s CSO strategy is focused on technology-based capital improvements to the City’s sewerage system that will further increase its ability to store and treat combined sewer flow, reduce inflow to the system, eliminate flooding due to system surcharging, decrease CSO volumes and improve receiving body water quality. Philadelphia Water will continue to operate CSO capital improvement projects that were planned during the previous permit cycle to increase the capture and treatment of combined sewage. **Table III.B-1** provides a status update on the 17 capital projects selected by PWD in the 1997 LTCP to provide significant CSO load reduction.

**Table III.B-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
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.B.1 On-going Capital Improvement Projects

#### *Completion and Operation of the Real-time Control Center and Rehabilitate and Maintain the Monitoring Network*

Since the center was completed in 2003, Philadelphia Water has connected to the RTC Center to collector system components, providing access to real time information and controls through the RTC telecommunication system. For information pertaining to this topic, please refer to **Section II.B.4 - Fully Integrate the Real-Time Control Facility into the Operations of PWD** on page 7 of this report.

Philadelphia Water continues to maintain and, when necessary, rehabilitate the monitoring network. For details on FY 2015 maintenance of monitoring network, please refer to **SECTION II.B.2 - Continue to Operate and Maintain a Network of Permanent and Temporary Flow Monitoring Equipment** on page 4 of this report.

#### *WPCP Wet Weather Treatment Maximization (NE)*

Philadelphia Water has evaluated and implemented options listed within the January 2000 Stress Testing Report. The plant stress-testing project allowed for a determination of existing and future optimum flows, loads, and operations of the various unit processes. Modifications were made to each of the three WPCPs through Capital Improvement Projects (CIPs). This topic has been discussed in previous reports; for more information and additional details on the evaluation process and potential upgrade options, please 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*

Analysis of the Wet Weather Treatment Alternatives listed within the Stress Test Report for the three WPCPs was completed in March of 2009. Several wet weather treatment technologies were evaluated, including Vortex Swirl Concentrators, Conventional Clarifiers, Chemically Enhanced Primary Treatment with Conventional Clarifiers, and Ballasted Flocculation. Section 8 option I-35 of the LTCPU document summarizes the wet weather expansion capacity at each of the WPCPs in more detail. These three reports conducted for each of the WPCPs were submitted as part of the LTCPU under the Supplemental Documentation Volumes 9 through 11, are available on-line at: <http://www.phillywatersheds.org/ltcpu>. Additional information has been provided in previous reports; please 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*

Options 1, 2 and 4 have been completed as of January 2006, fulfilling all permit obligations on this portion of the project. For previously reported information, please 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*

Options 5 & 7 were completed and the modified conduits configurations are currently in service as of February and August 2012, respectively. Additional details on the implementation of these two options have been provided in previous reports; please 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*

Several options on increasing the preliminary treatment, primary treatment, and final effluent disinfection treatment capacities in excess of the existing secondary treatment capacity at the NE WPCP have been explored. These options were discussed in further detail, including design and construction performance standards within the NE WPCP Facility Concept Plan. This plan was originally submitted to the PADEP on June 1, 2013. The NE Facility Concept Plan was revised based on comments from PADEP and re-submitted on December 31, 2013. This plan is available on-line through the following website: [http://phillywatersheds.org/doc/NE%20Facility%20Concept%20Plan%20-%20Final\\_FINAL.pdf](http://phillywatersheds.org/doc/NE%20Facility%20Concept%20Plan%20-%20Final_FINAL.pdf)

*Initiate the Facility Planning and Design for the By-pass Conduit*

On February 26, 2009, PWD submitted to the PADEP a letter documenting the evaluation of capturing an additional 100 MGD and greater of combined sewer wet weather flows at the Northeast plant by bypassing secondary processes when flows exceed secondary treatment capacity. The PADEP responded to this letter on April 1, 2009, approving the bypass of secondary treatment for 100 MGD of additional wet weather flow. The allowance of additional higher flows would be approved following a demonstration project for bypass flows in excess of 100 MGD. 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*

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*

PWD submitted a technical memo documenting the 85% capture in the Pennypack Watershed in August 2008. For previously reported details, please 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)*

Information on PWD's in-line system storage projects have been collectively 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 7.

*Real Time Control (RTC) and Flow Optimization for the Southeast Drainage (SE)*

Since no project with this name exists, this may actually be referring to content contained within **Section III.B.1: Real Time Control and Flow Optimization for the Southwest Drainage** which is discussed on page 31 of this report.

*WPCP Wet Weather Treatment Maximization (SW)*

*Implementation of the Southwest Plant Stress Test Report Option 1*

The December 2001 SW WPCP Stress Test identified 7 potential upgrade options at the Southwest WPCP. PWD has evaluated the upgrade options to determine which improvements are necessary to



meet PWD's operation commitment to treat wet weather flow of 490 MGD to achieve the CSO control goals stated in the LTCPU and its supplements. 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](http://phillywatersheds.org/doc/SW%20Facility%20Concept%20Plan%20-%20Final_FINAL.pdf).

Additional information on this permit commitment has been provided in previous annual reports; please refer to Section III.B.1.6.1 Implementation of the Southwest Plant Stress Test Report Option 1 on page 74 of the CSO-Stormwater FY 2012 Annual Report.

#### Analyze wet weather treatment capacity expansion as part of LTCPU

Please refer to **Section III.B.1 Evaluate Stress Test Report Options in the LTCPU** on page 29 of this report for information on how wet weather treatment capacity expansion was analyzed as part of the LTCPU.

#### 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

A number of inter-related projects in the Southwest Drainage District (SWDD) were determined to enhance the operation of the high-level and low-level collection systems and consequently maximize capture and treatment of wet-weather flows at the SWWPCP. As of April 2010, PWD has completed several modifications to the SWDD collection system in order to improve capacity and reduce the frequency and volume of CSO discharges.

These modifications include enlarging the DWO pipe and raising the diversion dam at the C17 regulator, and modifying the operation of CSPS based on the level in the Cobbs Creek High Level (CCHL) interceptor. Additional modifications include opening of all the barrels from 70<sup>th</sup> & Dicks to the SW WPCP, and decreasing overflows in the LSWS interceptor by enlarging the S45 DWO pipe.

More information on these projects was provided in previous reports; please 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

Please refer to **Section II.B.5 Main Relief** on page 7 of this report for information pertaining to this topic.

#### Eliminate CSO/Dobsons Run Project (SW) - Construction and Implementation of the Dobson's Run Project

Phase I (Stokely & Roberts – R22) of the Dobson's Run Reconstruction was completed in 1998. Phase II (Kelly Drive – S01T) of this project consisted of the sewer reach from Henry Ave. to Kelly Drive and eliminated branch sewer contributions of sanitary sewage from reaching temporary CSO S01T. Phase III eliminated all CSO discharge from occurring at S01T. Phases II & III were completed in February of 2011. Additional information on this project has been provided in previous reports; please 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*

The Upper Schuylkill East Side Interceptor Sewer (USES), located along the Schuylkill River adjacent to the Manayunk Canal in the northwest section of Philadelphia, conveys sewage from collection systems which serve the northwest section of the City. During extreme wet weather events, the USES exceeded its capacity and overflows occurred at relief point R-20 into a storm sewer upstream of storm water outfall S-052-5. To abate the hydraulic overload conditions in the USES, PWD finished constructing a four million gallon offline storage tank in May of 2013, which captures and stores excess flows, eliminating surcharges and preventing overflow conditions at relief point R-20. The four million gallon concrete storage tank, head house building, and a performing arts center were constructed on Venice Island, an artificial island between the Manayunk Canal and the Schuylkill River. The storage tank accommodates sanitary sewer overflow (SSO) and returns it to collection system for transmission to PWD's Southwest WWTP when sufficient capacity returns.

The Venice Island Storage Facility is currently in service and operating as designed. In FY 2015, the facility successfully captured six major storms, storing a total of approximately 2.2 MG of sanitary wastewater. There were zero overflows at relief point R-20 during FY 2015.

PWD performs periodic grit surveys of the USES Interceptor to better understand grit type and accumulation frequency, and how these factors will impact performance of the Venice Island Facility. By taking a proactive approach, PWD can schedule necessary flushing and sewer cleaning to maximize the Venice Island Facility's storage capacity. During FY 2015, PWD completed a grit survey of the USES Interceptor and is currently bidding a sewer cleaning contract. Once awarded, this contract will ensure 4,700 linear feet of the USES Interceptor in the vicinity of the Venice Island facility are cleaned of grit and debris.

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

#### *Asset and Capacity Management Program - Implement a Comprehensive Geographic Information System (GIS) of the City sewer system, Implement a Comprehensive Sewer Assessment Program (SAP), and Continue to Institutionalize a Comprehensive Monitoring and Modeling Program*

PWD maintains a comprehensive asset and capacity management program. Please refer to the following sections for more information on our programs.

Please refer to **Section II.A.1 Implement a Comprehensive Geographic Information System (GIS) of the City sewer system** on page 2 for more information on the City's GIS program.

Please refer to **Section II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP)** on page 2 for more information on SAP.

Please refer to **II.B.1 Continue to Institutionalize a Comprehensive Monitoring and Modeling Program** on page 3 for more information on Monitoring and Modeling.

### *Inflow/Infiltration (I/I) Controls*

PWD continues to evaluate our sewer system for instances of inflow and infiltration. PWD's approaches to I/I Controls have been discussed in the previous annual reports. Please refer to Section III.B.2.2 Inflow/Infiltration Controls on page 81 in the CSO-Stormwater FY 2008 Annual Report.

### *Tide Inflow*

This program was completed in 1999, and PWD continues to inspect and maintain all tide gates to ensure their correct performance. For additional details on this program, please refer to Section 2.1.2 Corrective Actions – Tide Inflow on page 28 of the 2001 CSO Annual Status Report.

### *Sewer Assessment Program*

The SAP is one of the tools used to identify and remediate areas of I/I as well as guide the capital improvement program to ensure that the existing sewer systems are adequately maintained, rehabilitated, and reconstructed. Please refer to **Section II.A.2 Implement a Comprehensive Sewer Assessment Program (SAP)** on page 2 of this report for more information on this program.

### *Infrastructure Assessments*

As of FY2008, infrastructure assessments have been completed for all watersheds within the City, and PWD continues to monitor and inspect for problem areas. For additional details on these assessments, please 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 for the relining of the entire length of interceptor within Philadelphia in the Cobbs Creek and Tookany/Tacony-Frankford Watersheds. 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 FY 2014 Annual Report** on page 24.

### *PC-30 Parallel Relief Sewer*

The project and all stipulations of the COA regarding the parallel relief sewer were completed on 12/27/11. As of July 2013, the parallel relief sewer and all appurtenances have been operating as designed.

During fiscal year 2015, there were no overflow events at manhole PC-0030. Detailed information regarding PC-30 can be found in the reports submitted to PADEP each month. As part of the PC-30 area work a Derry Terrace sewer lining project was started but has since transitioned to a sewer reconstruction project after it was identified the sewer could not be relined. For additional details on this project reported in previous reports, please refer to Section III.B.2.1.1 PC-30 Relief Sewer on page 80 of the CSO-Stormwater FY 2012 Report.

### *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 FY 2015, PEC dedicated more of the Alliance's resources to the implementation of the Upstream Philadelphia Cluster. These efforts resulted in the engagement of 243 municipal staff and officials as well as the coordination of 425 volunteers across 6 partnership events. The Alliance also continued to promote workshops focusing on education and outreach, water quality monitoring, public land stewardship, financing for stormwater management and stormwater control measure programs. Approximately 380 stakeholders and municipal officials attended 8 events.

### **Tookany/Tacony-Frankford Watershed Partnership**

In 2000, the PWD launched the Tookany/Tacony-Frankford Watershed (TTF) Partnership as an effort to connect diverse stakeholders as neighbors and stewards of the watershed. In 2005, under PWD's leadership, the Partnership formally incorporated as an independent 501(c)(3) non-profit organization. This partnership elects a Board of Directors each year and has received its tax exempt status as the first multi-municipal watershed partnership in the region. In 2014, TTF joined the Upstream Philadelphia Cluster of the William Penn Foundation's Delaware Watershed Protection Initiative, focusing on implementing stream restoration projects along the headwaters of the Tookany Creek. In FY 2015, the TTF Watershed Partnership held 57 outreach events with approximately 2,556 participants in attendance. For previously reported information on this partnership, please refer to Section III.C.1 on page 86 of the CSO-Stormwater FY 2012 Report.

### **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. Additionally, the Partnership organized many activities during FY 2015, including various

workshops, municipal meetings, and greening efforts. The main topics of focus were large landowner GSI outreach, rain gardens, Mowing to Meadows, citizen stream monitoring and MS4 permit compliance. For previously reported information on this partnership, please refer to Section III.C.1 on page 87 of the CSO-Stormwater FY 2012 Report.

### **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 FY2015, 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 steam 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 FY 2015, the Partnership undertook a campaign to expand their education, outreach, membership and programming capabilities. These efforts culminated in a 25<sup>th</sup> Anniversary Science Fair attracting 50 participants, as well as 5 stewardship events attracting 53 volunteers. 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**

During FY 2015, the Partnership was focused on 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. Similarly, the partnership collaborated with PEC and Philadelphia Parks and Recreation on a shore restoration effort along the Bridesburg Waterfront. The partnership has also collaborated on outreach and education for the Spring Garden Greenway including public meetings and bike tours. Approximately 100 people participated in 11 events.

### **Wissahickon Creek Watershed Partnership**

PWD continued to participate in the Wissahickon Partnership during FY 2015 in hopes that the Partnership will develop a watershed-wide restoration vision. The Partnership organized many activities during FY 2015, including various workshops, municipal meetings, and greening efforts. The main topics of focus were Act 167 Planning, TMDLs, MS4 Multi-Municipal Outreach, William Penn Foundation's Delaware Watershed Initiative, Rain Gardens and the Wissahickon Valley Watershed Association (WVWA) Committee. PEC and the partnership also collaborated on a larger town meeting centered on current conditions in the Wissahickon, which was attended by over 200 watershed residents and stakeholders. The Wissahickon Watershed Act 167 plan was completed and approved on July 10, 2015.

### **Schuylkill River Watershed Partnership (Philadelphia-Based Partnership)**

PWD continues to support 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. More information on the SAN can be found in **Section II.G.2** on page 18 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](http://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](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](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**

<b>Watershed</b>	<b>Preliminary Reconnaissance</b>	<b>Watershed Monitoring Program</b>	<b>River Conservation Plan</b>	<b>Watershed Management Plan</b>	<b>Implementation Commitment Status</b>
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 is planning Stormwater Regulation changes 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 FY 2015 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 Regulation are triggered when a project disturbs 15,000 or more square feet of earth. PWD is considering additional ways to improve and strengthen its stormwater programs during the LTCPU process. A significant update to the Stormwater Management Regulations is scheduled for implementation in FY2016.

PWD's Stormwater Management Regulations are available at <http://www.phila.gov/water/PDF/PWDregCH6.pdf>

Please refer to MS4 Annual Report **Section F.5.b Post-Construction Stormwater Management in New Development** on page 31 for more information on the Stormwater Management Regulations.

#### III.C.1.2 Conduct workshops on LID

PWD staff in charge of Stormwater Regulation implementation holds weekly walk-in hours. The development community is encouraged to attend the walk-in hours, no appointment necessary, to discuss general and technical details about their projects. Guidance is provided by PWD staff on project applicability as well as a stormwater management implementation and approach.



PWD staff also conducted four focus groups with the Philadelphia development community to discuss upcoming changes and improvements to PWD's Stormwater Regulations. Over 90 participants attended providing detailed feedback and insight on how the requirements are incorporated into land development projects.

### 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 FY 2015 Annual Report** for a detailed description on the City's implementation of GSI during FY 2015.

### 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 FY 2015, please refer to **Section II.F.1 Control the Discharge of Solids and Floatables by Cleaning Inlets and Catch Basins** on page 14.

### 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 the stormwater runoff from large impervious tracts of land using many different approaches such as a parcel-based stormwater billing system, related incentives and plan review for new and redevelopment.

#### *Parcel-based Stormwater Billing*

Beginning July 1, 2010, PWD began a 4-year phase-in for parcel-based stormwater charges. Residential properties pay a flat fee based on the average gross and impervious area of all residential properties in the city, and non-residential properties pay a variable charge based on the property's specific gross area and impervious area. As of July 1, 2014, all properties in the City have fully transitioned to a parcel-based stormwater fee. In conjunction, Philadelphia Water offers stormwater credits to non-residential property owners who have stormwater management best practices that meet the city's stormwater requirements. These credits provide incentive to property owners to maintain their stormwater BMPs and also encourage property owners to retrofit their properties for stormwater management. **Table III.C.1.5-1** below provides information on the rates applicable to PWD's residential and non-residential customers through FY 2015.

Additional information on the transition to parcel-based stormwater billing has been provided in previous reports; please refer to Section III.C.1.5 Parcel-based Stormwater Billing on page 105 of the CSO-Stormwater FY 2012 Annual Report.



**Table III.C.1.5 – 1: Stormwater Billing Rates through Fiscal Year 2015**

Fiscal Year	GA Charge / 500 sq.ft.	IA Charge / 500 sq.ft.	Residential Stormwater Charge	Residential Billing & Collection Charge	Non Residential Billing & Collection Charge
2014	\$0.56	\$4.50	\$11.80	\$1.65	\$2.15
2015	\$0.59	\$4.75	\$12.46	\$1.69	\$2.19

*Stormwater Management Regulations*

Under Philadelphia’s Stormwater Regulations, development and redevelopment is helping to significantly reduce the amount of directly-connected impervious cover.

**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. Philadelphia Water has been planting trees as part of the GSI projects. Please refer to **Appendix A – Green City, Clean Waters FY 2014 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, Philadelphia Water 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 FY 2015, 924 trees were planted through this contract. Due to performance issues with a vendor last fall and also re-bidding the planting contract in January led to lower street tree numbers this fiscal year. At this time, PPR has a new contract in place and hopes to increase the number of trees planted in the next fiscal year.

*TreePhilly Yard Tree Program*

*TreePhilly* is a new greening initiative led by PPR, in partnership with Wells Fargo 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 FY15 the program distributed approximately 3,000 trees.

*Tree Vitalize and Pennsylvania Horticultural Society’s Tree Plantings*

Philadelphia Water 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 FY 2015, PHS tree planting events resulted in 1939 trees planted in Philadelphia.

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

# of Trees Planted	Pennsylvania Horticultural Society’s Tree Plantings Event
1011	Philadelphia Tree Tenders street and yard trees
19	Philadelphia Housing Authority - Richard Allen Homes yard trees
250	Phillies Red Goes Green tree giveaway
125	Phillies “Home Runs for Trees”
40	Philadelphia Public Landscapes, mostly Stadium District
137	Philadelphia LandCare vacant lands trees
357	Partnered with University of Pennsylvania on Creating Canopy tree giveaway
<b>1939</b>	<b>TOTAL</b>

### 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 FY 2015, 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 14 for information pertaining to the Waterways Restoration Team’s activities during FY 2015.

#### 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 FY 2015, 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 14 for information pertaining to the Waterways Restoration Team’s activities during FY 2015.

#### 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

Philadelphia Water 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. Additional information on PWD’s NSCD technique has been provided in previous reports; please refer to Section III.C.2.3 Cobbs Creek Stream Restoration on page 136 of the CSO-Stormwater FY 2011 Annual Report.

#### *Cobbs Creek Stream Restoration*

During FY 2015, Philadelphia Water has made some progress toward acquiring easements for the private properties on the Delaware County side of the stream. A meeting with Upper Darby indicated that their municipal staff is amenable to the project, however, in order to provide a resolution and

commit to supporting the project, it must be approved by Upper Darby's Town Council. Philadelphia Water will be presenting to Upper Darby Town Council in September 2015. Upon securing agreements with the largest landowners within the project reach, Philadelphia Water will reinitiate design of the stream channel and corridor improvements.

For additional information on this project reported in previous reports, please refer to Section III.C.2.3 Cobbs Creek Stream Restoration on page 108 of the CSO-Stormwater FY 2012 Annual Report.

#### *Tacony Creek Stream Restoration*

Philadelphia Water, in partnership with PPR, initiated plans to begin the design phase on multiple reaches of Tacony Creek in FY 2011. During FY 2015, joint permit application was submitted and subsequently withdrawn by the Mitigation Banking Interagency Review Team (IRT) so that the mitigation bank prospectus for Tacony could be reviewed and any changes to the design can be included in the joint permit application. The IRT is still reviewing the prospectus and should be providing information to Philadelphia Water that will help the City establish the first urban mitigation bank in Pennsylvania. With more specific direction on the mitigation bank, PWD plans to continue to finalize plans and specifications for this project and obtain the requisite permitting. When completed, this project will accomplish almost 8,000 feet of stream corridor restoration. For a full history on this project discussed in previous reports, please refer to Section III.C.2.3 Tacony Creek Stream Restoration on page 136 of the CSO-Stormwater FY 2011 Annual Report.

#### *Indian Creek Stream Daylighting & CSO Storage Project*

During FY 2015, Philadelphia Water continued to monitor the site and will generate a report during FY 2016 to document the findings of the study. For a full history on this project discussed in previous reports, please refer to Section III.C.2.4 Indian Creek Stream Daylighting & CSO Storage Project on page 146 of the CSO-Stormwater FY 2010 Report.

#### *Wissahickon TMDL Stream Restoration Projects*

As part of the Wissahickon Sediment TMDL Implementation Plan, Philadelphia Water 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)
- Wisers Mill Run (Construction Completed in 2012)
- Gorgas Run (Design Completed in 2012, Construction starting October 2015)

Because these projects were completed as part of the Wissahickon Sediment TMDL Implementation Plan, a more detailed description of Philadelphia Water's efforts has been provided in **Section D - Wissahickon Sediment TMDL Monitoring plan implementation** on page 5.

### 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 6.

#### *Watershed Mitigation Registry*

Philadelphia Water 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. Philadelphia Water generated a mitigation bank draft prospectus which was submitted in May 2015 to the Mitigation Banking Interagency Review Team (IRT), 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.

### III.C.2.5 Fish Passage Projects

#### *Fish Passage on Cobbs Creek*

During 2014, USACE revised its designs to include partial dam removal, natural stream channel design and in-stream habitat improvements. During FY 2015 the project approached 90% design completion. There are a few properties that require easements on the Darby side of the stream. AEG has surveyed the property boundaries and PWD will be contacting the landowners to acquire easements.

Additional information on the history of this project has been reported on in previous years. Please refer to Section III.C.2.5 Fish Passage on Cobbs Creek on page 118 of the CSO-Stormwater FY 2012 Annual Report.

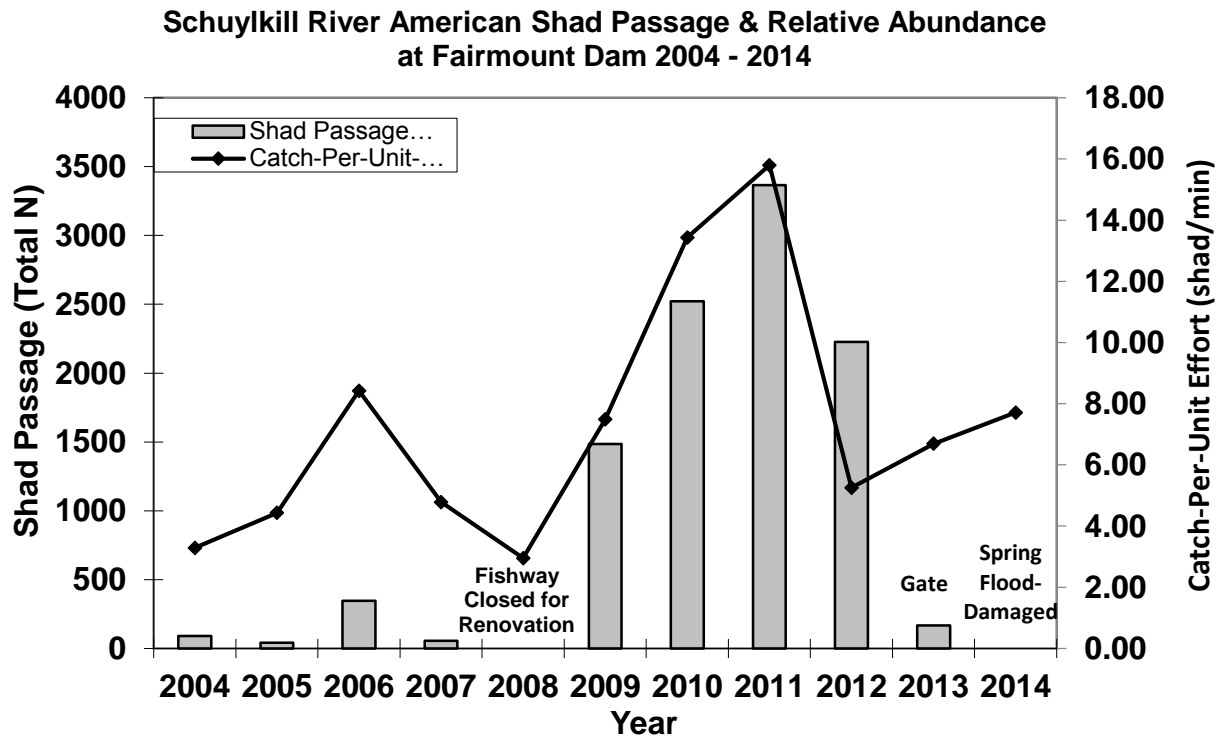
#### *Fairmount Fish Ladder*

The Fairmount Dam Fishway located on the western side of the Fairmount Dam, was completed in 1979. During 2014 however, the Fairmount Fishway experienced a full malfunction, rendering the entrance gate inoperable for the entire migration period.

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 2014 was 7.71 fish/minute, a value similar to relative abundance numbers measured in 2009 and 2012 where total shad passage was 1485 and 2227, respectively. However, due to devastating river flooding during the 2014 spring migration, passage numbers for American Shad could not be accurately accounted for because of damage to the electrical service and the monitoring/viewing room at the Fairmount Fishway. The fifth largest flood in the history of the Schuylkill River (USGS discharge measured at 90,000 cubic feet per second) caused river flow to rise 30-times the normal spring discharge (3,000 cubic feet per second). As a result, all monitoring equipment was evacuated prior to the flood, and could not be re-installed due to destruction of the electrical

service. During the peak of the flood, river levels rose significantly above the height of the Fairmount Dam, and as such, migrating fishes could swim above Fairmount Dam without the use of the Fishway. The Fairmount Fishway was re-opened and remained operational following the flood; however, video monitoring of fish passage could not take place. Due to the same factors, boat electrofishing crews could not access the river for several weeks following the flood, and 2014 had the second lowest sampling effort in the history of the Philadelphia Water survey. Despite the environmental constraints, Catch-Per-Unit Effort measurements were above the median value of 6.69 fish/minute, indicating shad populations during the 2014 season were present and at acceptable levels.

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. Philadelphia Water 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 2015. PWD will continue to monitor the fishway in 2015. Additional information on the history of this project has been provided in previous reports; please refer to Section III.C.2.5 PWD Sanitary Line Natural Rock Ramp Fishway on page 121 of the CSO-Stormwater FY 2012 Annual Report.

**Dam Removal Projects**

### *Juniata Golf Course Dam Removal*

Philadelphia Water has completed the review of the 30% Design Plans and Specifications for the removal of the dam. Over the next fiscal year Philadelphia Water plans to continue to move forward with design plans. Philadelphia's 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 for fish passage.

### *Woodland Dam Removal*

Philadelphia Water received the USACE draft re-submission of the 90% design plans for the dam removal. Philadelphia Water provided comments to the USACE on their design and met with them on discussing future work items such as the specifications and erosion and sediment control measures. Philadelphia Water had serious concerns regarding some key elements in the design including the positioning of the low flow channel. Another re-submission of the 90% design is scheduled for delivery at the end of August 2015.

## III.C.2.6 Riparian Buffer Creation and Enhancement

### *Environment, Stewardship & Education Division*

Philadelphia Water continues to support PPR, 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 41 and **Section III.C.2.4 Wetland Enhancement and Construction** on page 43 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, Philadelphia Water 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 FY2015, 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](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 32 and **Section II.H.2 Expand the Internet-Based Notification System (River cast) to the Tidal Section of the Lower Schuylkill River** on page 49 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

Philadelphia Water 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 17 for details about these communication and water quality monitoring systems.



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

Please refer to **Section II.H.2 Expand the Internet-based Notification System (Rivercast) to the Tidal Section of the Lower Schuylkill River** on page 27 for information pertaining to this topic.

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

*Green Stormwater Infrastructure and Restoration Locations Signage*

Philadelphia Water conducted the second phase of the interpretive *Green City, Clean Waters* permanent signage process, which involved fabrication and implementation of the first wave of signage. This process also included site visits, coordination with property owners/partners, and promotion of the signage. More details on these projects have been provided in previous reports; please refer to Section III.C.3.5 on page 153 of the CSO-Stormwater FY 2011 Annual Report. Additional information on the *Green City, Clean Waters* Signage Program can be found within **APPENDIX A- Green City, Clean Waters FY 2015 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

Philadelphia Water 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 20 and **Section II.G.4 Continue to Support the Fairmount Water Works** on page 25 for more information on activities done in FY 2015 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

Act 167 provides for the regulation of land and water use for flood control and stormwater management purposes. It imposes duties, confers powers to the PADEP, municipalities and counties, and provides for enforcement and appropriations.

The City of Philadelphia signed a Phase 1 Agreement with PADEP in July, 2008 committing to the completion of a City-wide Act 167 planning process. This City-wide Act 167 will account for the City of Philadelphia Stormwater Regulations and will lay the groundwork for additional watershed-basin specific planning to follow. A Phase 2 agreement was conformed in April, 2009 which helped to outline a schedule for completing basin specific Act 167 plans for each of the watersheds that drain to the City, including (note: the Schuylkill and Delaware River drainage areas of the City will be covered by the county-wide implementation of the Act 167 program): Cobbs Creek, Darby Creek, Pennypack Creek, Poquessing Creek, Tacony/Frankford Creek, and Wissahickon Creek. 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 37 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 FY 2015, PWD reviewed 813 “Sewage Facilities Planning Module Application Mailers” for projects requiring building permits within Philadelphia County. During the same period, PWD issued 58 sanitary sewer capacity certifications for projects in tributary municipalities. Additional information on sewage facility planning activities conducted by PWD has been discussed in the previous reports; please refer to Section III.C.3.8 on page 130 of the CSO-Stormwater FY 2012 Annual Report.

### III.C.4 Monitoring and Assessment

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

Philadelphia Water 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 FY 2015, four DMRs were submitted within the 45 day timeframe, these reports 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 2014 – June 30 2015 as required in the NPDES Permit. Please refer to **Table 1 in Appendix D – NPDES – FY 2015 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.

Annual CSO Status Report Content	FY15 CSO Status Report reference (Appendix D)
a. Annual summary of the frequency and volume of CSO discharges	Table 2 on page 8
b. Update of the CSO frequency and volume for a typical hydrologic year	Table 3 on page 13
c. Summary of the in-stream impacts and effectiveness of CSO controls and restoration projects.	As CSO controls and stream restoration projects are implemented, PWD expects improvement of existing biological and physical stream impairments. The extent of these improvements will be measured through regular monitoring to establish the overall effectiveness of these interventions.

Annual CSO Status Report Content	FY15 CSO Status Report reference (Appendix D)
<p>d. An annual summary of the information provided in the Special Discharge Monitoring report including:</p> <ul style="list-style-type: none"> <li>i. Rainfall data - total inches (to the nearest 0.01 inch) that fell each day and month for the period of the reports.</li> <li>ii. The total number of regulator inspections conducted during the period of the report.</li> <li>iii. A list of blockages (if any) corrected or other interceptor maintenance performed, including location, date and time corrected, and any discharges to the stream observed.</li> </ul>	<p>Tables 4-27 on pages 18-41 of Appendix D – CSO Status Report</p> <p>Page 4 of Appendix C – 2015 CSO Maintenance Program Annual Report</p> <p>Page 5 of Appendix C – 2015 CSO Maintenance Program Annual Report</p>
<p>e. Dry-weather overflows - for all dry weather overflows, indicate the location, date and time discovered, date and time corrected/ceased, and action(s) taken to prevent their re-occurrence.</p>	<p>page 21 of Appendix C – 2015 CSO Maintenance Program Annual Report</p>
<p>f. Wet-weather overflows - using calibrated models of the combined sewer system, provide a summary of the annual CSO frequency, volume, and percent capture of combined sewer flows.</p>	<p>Table 2 of Appendix D – 2015 CSO Status Report</p>
<p>g. Chronic or continuous discharges - Provide the status and corrective actions taken at all sites identified as being chronic or continuous discharges, including an estimate of flow and duration.</p>	<p>Table 29 of Appendix C – CSO Status Report</p> <p>Section III.B.1 on page 28</p>
<p>h. Documentation showing the continued implementation of the Nine Minimum Controls.</p>	<p>Section II on page 1</p>
<p>i. Long Term Control Plan Implementation - The permittee shall submit information that describes the efforts to update and implement the CSO LTCP. The permittee shall continue to update implementation schedules as part of the Annual CSO status report.”</p>	<p>Section III.A on page 27</p>

**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 Philadelphia Water 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 13 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<sup>st</sup> 2014 to June 30<sup>th</sup> 2015**

**THIS PAGE LEFT INTENTIONALLY BLANK**

# TABLE OF CONTENTS

<b>Part I Permit Conditions</b> .....	1
<b>Section A</b> Applicability And Limitations On Coverage.....	1
<b>Section B</b> Legal Authority .....	1
<b>Section D</b> Sediment Total Maximum Daily Load (TMDL) for Wissahickon Creek .....	1
Conduct a Wissahickon Sediment TMDL Feasibility study and submit report.....	1
Wissahickon Sediment TMDL Monitoring plan implementation .....	2
<b>Section E</b> Pollutant Minimization Plan (PMP) for Polychlorinated Biphenyls (PCBs) in the City’s Municipal Separate Storm Sewer System (MS4) .....	2
<b>Section F</b> Stormwater Management Program.....	3
<b>F.1. Source Identification</b> .....	3
<b>F.2. Discharge Management, Characterization, and Watershed-Based Assessment And         Management Program</b> .....	8
Step 1. Preliminary Reconnaissance: Permit Issuance Through End of Year 2.....	8
Step 2. Watershed Plan Development: Permit issuance through end of year 4 .....	17
Step 3. Watershed Plan Implementation and Performance Monitoring: Permit issuance through expiration .....	17
<b>F.3. Detection, Investigation, and Abatement of Illicit Connection         and Improper Disposal</b> .....	22
a. Prevention of Illicit Discharges .....	22
b. Investigation of Illicit Discharge Sources .....	22
d. Abatements .....	23
e. Defective Connection Program Reporting.....	24
<b>F.4. Monitor and Control Pollutants from Industrial Sources</b> .....	25
a. Applications/Permits .....	25
b. Inspections .....	25
c. Monitoring/Enforcement.....	25
<b>F.5. Monitor and Control Stormwater from Construction Activities</b> .....	26
a. Construction Site Runoff Control.....	27
b. Post-Construction Stormwater Management in New Development and Redevelopment.....	31
c. Applications/Permits.....	31
d. Inspections .....	34
e. Monitoring/Enforcement .....	34
f. NPDES Permit Requests.....	34
g. Storm Water BMP handbook and Construction Site BMP Sediment & Erosion Control Checklist .....	35
<b>F.6. Watershed, Combined Sewer Overflow (CSO), and Source Water Protection    Programs</b> 35	
<b>F.7. Miscellaneous Programs and Activities</b> .....	36
a. Pollutant Migration/Infiltration to the MS4 System .....	36
b. Public Education and Awareness.....	36
c. Pesticides, Herbicides, and Fertilizer Controls .....	36
d. Snow Management Plan .....	37
e. Municipal/Hazardous Waste, Storage, Treatment, and Processing Facilities.....	37

<b>F.8. BEST MANAGEMENT PRACTICES (BMPs)</b> .....	<b>37</b>
a. Submit storm sewer discharge ordinance.....	37
b. Commercial and Residential Source Controls.....	37
c. Development plans review .....	38
d. Street Cleaning Program .....	39
e. Animal Waste and Code Enforcement.....	40
f. Flood Management and Flood Control Devices .....	40
g. Sanitary Infiltration Controls.....	41
h. Spill Prevention and Response .....	42
i. Public Reporting of Illicit Discharges, Improper Disposal .....	42
j. Used Oil and Toxic Material Disposal.....	43
k. Storm Water Inlet Labeling/Stenciling.....	43
 <b>Section G Assessment of Controls</b> .....	 <b>43</b>
 <b>Section H Fiscal Resources</b> .....	 <b>45</b>
Maintain adequate program funding .....	45
Annually submit fiscal analysis.....	45

## LIST OF TABLES

### Section F

<b>F.1-1</b>	Description of MS4 Infrastructure .....	3
<b>F.1-2</b>	GIS Data Feature Classes within geodatabase named – FY15_GISlayers.mdb.....	4
<b>F.1-3</b>	GIS Data Feature Classes within Geodatabase named – StormwaterDataConversion.mdb .....	8
<b>F.2-1</b>	Ovierview of PWD Proposed Watershed Monitoring Activities 2010-2016.....	10
<b>F.2-2</b>	Proposed Watershed Monitoring Timeline 2010-2016 .....	11
<b>F.2-3</b>	Proposed Benthic Invertebrate Monitoring Timeline 2010-2016.....	14
<b>F.2-4</b>	Proposed Fish Monitoring Timeline 2010-2015.....	14
<b>F.2-5</b>	Stormwater Outfall Inspection Program.....	18
<b>F.2-6</b>	7 <sup>th</sup> & Cheltenham Ave FY 2015 Summary .....	18
<b>F.2-7</b>	7 <sup>th</sup> & Cheltenham Ave FY 2015 Fecal Coliform Sampling Results.....	19
<b>F.2-8</b>	Monastery Ave Dry Weather Diversion Devices FY 2015 Summary.....	19
<b>F.2-9</b>	W-060-01 FY 2015 Fecal Coliform Sampling Results.....	19
<b>F.2-10</b>	W-068-05 FY 2015 Fecal Coliform Sampling Results.....	20
<b>F.2-11</b>	Manayunk Canal FY 2015 Fecal Coliform Sampling Results .....	20
<b>F.3-1</b>	Cross Connection Repair Program FY2015 Summary .....	23

F.3-2	Summary of Abatement FY 2005 – FY2015 .....	23
F.5-1	Approved Stormwater Plan Location Summary by Contributing Area.....	31
F.5-2	Approved Stormwater Plan Location Summary by Watershed.....	31
F.5-3	Active Construction Inspection Site Location Summary .....	34

## Section H

H-1	Description of MS4 Infrastructure .....	48
-----	---	----

## List of Figures

<b>Figure F.1-1</b>	City of Philadelphia Stormwater Outfalls.....	5
<b>Figure F.5.a-1</b>	Active Construction Site Inspections.....	30
<b>Figure F.5.c-1</b>	Locations of Approved Post-Construction Stormwater Management Plans.....	33

# Errata

---

1. The errata submitted on January 13, 2015 includes a replacement for page 37.



**THIS PAGE LEFT INTENTIONALLY BLANK**

## 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 progress completed in order to comply with the requirements during the reporting period from July 1, 2014 to June 30, 2015.

### **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 eighth year of the PCB PMP, the following tasks were accomplished:

- Fifty-four (54) of the three hundred ninety-nine (399) sites listed by EPA or other agencies as housing PCB containing devices were inspected.
  - Additional information on the PCB site selection process have been provided in previous reports; please refer to Section E.3/E.4 – Investigation of Suspected Location of PCB Releases/Containments on page 143 of the CSO-Stormwater FY 2012 Annual Report.
- Wet-weather PCB sampling and analysis of the 3 WPCPs' effluent was performed as required by the WPCP NPDES permits.

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

- 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:

- 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 last year’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 FY 2015. 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 F – PCB Pollutant Minimization Plan: Eighth 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**.

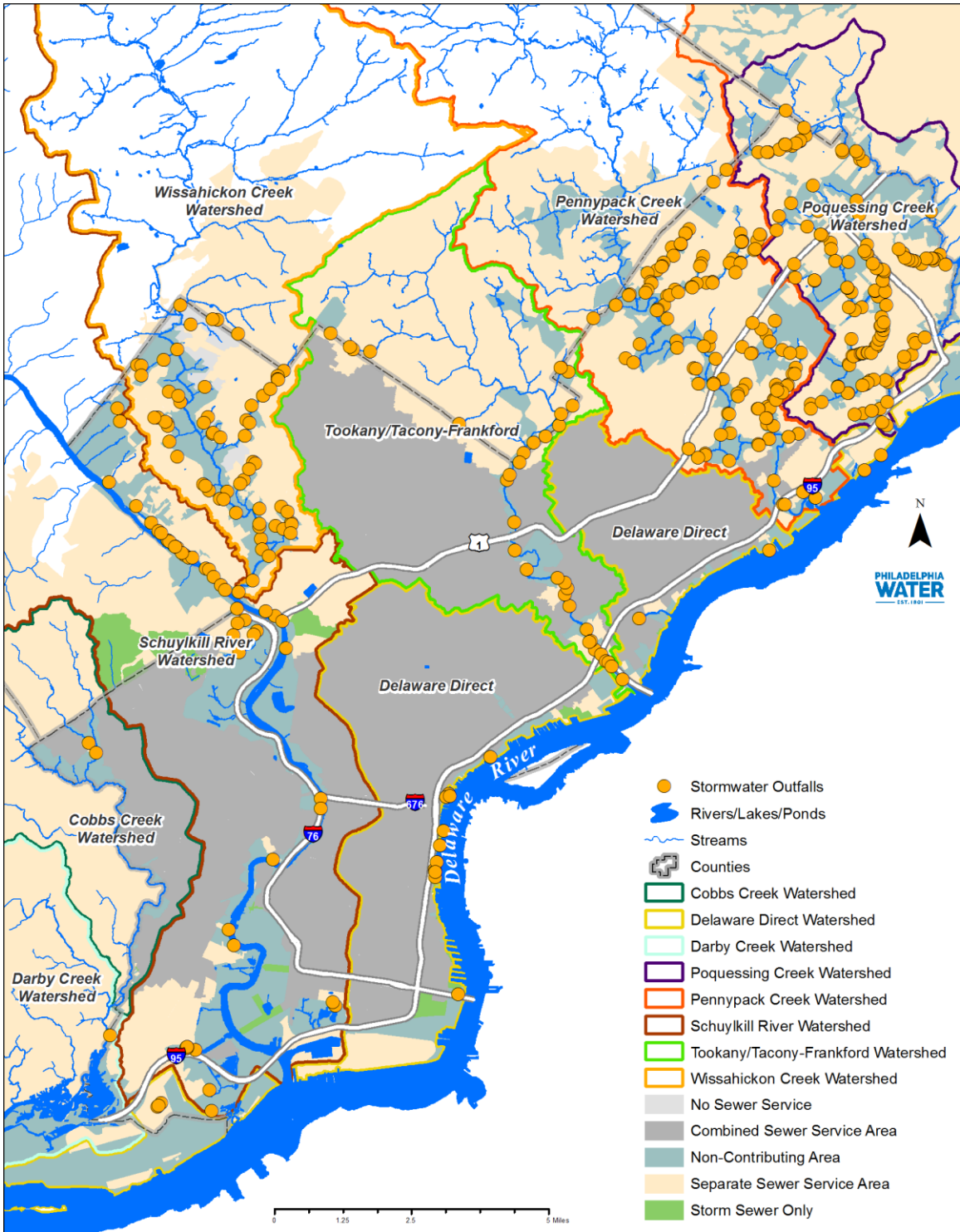
**Table F.1-1 Description of MS4 Infrastructure**

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
<b>Total</b>	<b>39.56</b>	<b>773.53</b>	<b>764.74</b>	<b>1538.27</b>	<b>434</b>	<b>205</b>

GIS Data Layers have been submitted within a geodatabase, **PWD\_Annual\_Report\_GIS\_Data\_2015.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 - FY15\_GISlayers.mdb**

<ul style="list-style-type: none"> <li>• All_PWD_Monitoring_FY15</li> <li>• FY15_IWU_Pollution_Migration_Events</li> <li>• FY15_Sanitary_Infiltration_Events</li> <li>• FY15_GSI_Monitored_Locations</li> <li>• FY15_GSI_Projects</li> <li>• FY15_PD_Citywide_RegulationVerified</li> <li>• FY15_PD_Citywide_RetrofitVerified</li> <li>• FY15_PD_Active_Construction_Sites</li> <li>• FY15_PD_Technical_Approvals</li> <li>• Hydro_Line</li> <li>• Hydro_Poly</li> <li>• Land_Use_PCPC_2015</li> <li>• PCB_Locations_Known_Historical</li> <li>• Permitted_Dischargers_FY2015</li> </ul>	<ul style="list-style-type: none"> <li>• Philadelphia_Detention_Basins</li> <li>• Philadelphia_Impervious</li> <li>• Philadelphia_Major_Watersheds</li> <li>• Philadelphia_only_Major_Watersheds</li> <li>• Philadelphia_Sewer_Sheds_2015</li> <li>• PhiladelphiaCensus_Blocks_2010</li> <li>• Stormwatersheds_Pennypack_2015</li> <li>• Stormwatersheds_Poquessing_2015</li> <li>• Stormwatersheds_Wissahickon_2015</li> <li>• Stormwater_Outfalls</li> <li>• Wissahickon_Point_Source</li> </ul>
--	--



**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\_2015*

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.

#### *FY15\_GSI\_Monitored\_Locations*

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

#### *FY15\_GSI\_Projects*

This layer presents the locations of existing and planned publically implemented green stormwater infrastructure projects sorted by their current status (Complete and Planned) within Philadelphia County.

#### *FY15\_PD\_Active\_Construction*

This layer presents the locations of active construction private development projects within Philadelphia in FY 2015. The contents of this layer are discussed in **Section F.5 –Stormwater From Construction Activities** on page 29.

#### *FY15\_PD\_Citywide\_Retrofit\_Regulation*

This layer presents the locations of constructed and verified private development projects, either retrofit projects or 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.

#### *FY15\_PD\_TA\_Approvals*

This layer presents the locations of projects issued technical approvals by PWD in FY 2015. The contents of this layer are discussed in **Section F.5.b - Post Construction Stormwater Management** on page 33.

#### *FY15\_IWU\_Pollution\_Migration\_Events*

This layer presents the locations of spills documented by PWD Industrial Waste Unit within Philadelphia in FY 2015. The contents of this layer are discussed in **Section F.7.a – Pollutant Migration/Infiltration** on page 37.

#### *FY15\_Sanitary\_Infiltration\_Events*

This layer presents the locations of Sewage Pollution Incidents documented by PWD within Philadelphia in FY 2015. 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\_2015*

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.

### *PermittedDischargers*

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\_2014*

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.

### *PhiladelphiaBlocks2010*

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



### *Stormwater\_Outfall*

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

### *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 6, 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 Flash Drive**.

## 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 2015, 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, fish, and physical habitat monitoring activities in the Wissahickon Watershed tributaries in spring and summer 2014. This data will be processed and analyzed with results presented in an Integrated Watershed Management Plan indicator status update in 2016. Assessments targeting mainstem sites in the Wissahickon Creek Watershed were completed in spring of 2015 (**Table F.2.Step 1.b-1**).

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.Step1.b-1 Overview of PWD Proposed Watershed Monitoring Activities 2010-2016**

<b>Watershed/Geographic Area</b>	<b>Activity</b>	<b>Period</b>
PWD/USGS Gages	Continuous Water Quality Monitoring	2010-2016
PWD/USGS Gages	Quarterly Water Quality Grab Samples	2010-2016
Philadelphia Area Watersheds	Stormwater BMP Monitoring	2010-2016
Philadelphia Area Watersheds	Stream Restoration Project Monitoring	2010-2016
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

### Monitoring Timeline 2010-2015

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. Although Philadelphia Water’s *Comprehensive Watershed Monitoring Program: Proposed Strategy 2010-2015* nominally covers 2010-2015, the assessment of the Wissahickon Creek Watershed spans 2015-2016 and is thus included here.

The proposed strategy for watershed assessments includes resuming watershed-scale bioassessment activities at several stations within targeted watersheds. This program resumed in the Wissahickon Creek Watershed’s tributaries in 2014 and continued in the Wissahickon Creek Watershed’s mainstem sites in 2015. (**Table F.2.Step 1.b-2 PROPOSED Watershed Monitoring Timeline 2010-2016**). These watershed scale re-assessment and subsequent indicator status update reports 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 watersheds.

**Table F.2.Step1.b-2 Proposed Watershed Monitoring Timeline 2010-2016**

Watershed	Program Components	2010				2011				2012				2013				2014				2015				2016			
		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
	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																												
	Annual WQ Summary			B				B				B				B				B				B				B	
	Bioassessment									O	O	O	O																
	Bioassessment Data Analysis									G	G	G	G																
	IWMP Indicator Status Update													C	C	C	C												
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																												
	Annual WQ Summary			B				B				B				B				B				B				B	
	Bioassessment													O	O	O	O												
	Bioassessment Data Analysis													G	G	G	G												
	IWMP Indicator Status Update																	C	C	C	C								
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																												
	Annual WQ Summary			B				B				B				B				B				B				B	
	Tributary Assessment																	O	O	O	O								
	Tributary Data Analysis																	G	G	G	G								
	Bioassessment																					O	O	O	O				
	Bioassessment Data Analysis																					G	G	G	G				
	IWMP Indicator Status Update																									C	C	C	C

## 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 2014 through November 2014 and March 2015 through June 2015. The sampling and monitoring sites are presented in **Appendix G - 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 H- 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 and three locations in the tidal Schuylkill by boat in July and September 2014. Samples are collected at low tide to ensure that water samples adequately represent spatial variability in water quality that may be present. PWD plans to sample the Delaware and Schuylkill locations on a regular basis until adequate data have been accumulated for each river. 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*

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 FY 2015 are presented in **Appendix I - 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. Models 6600, 6600 EDS, 600XLM) in the tidal Schuylkill River and Frankford Creek from April-November 2014. Tidal sondes were deployed again in April 2015, with the intention of collecting data through November 2015.

Long-term continuous monitoring for Wissahickon Creek TMDL compliance and building a long-term water quality data record for the aforementioned watersheds will be accomplished in 2010-2016 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.

### *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, 2015 are presented in **Appendix J – 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 tributaries in spring 2014. (**Table F.2.Step 1.b-3 Proposed Benthic Invertebrate Monitoring Timeline 2010-2016**).

**Table F.2.Step 1.b-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 (12**); USGS gage samples (9); 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 2014, PWD conducted Rapid Bioassessment Protocols (RBP III) at 25 (n=25) locations within Philadelphia area watersheds. Sampling was conducted at 9 USGS gages in the PWD/USGS Cooperative Monitoring program, 15 tributary sites in the Wissahickon Creek Watershed, and 1 randomly selected site. These data are presented in **Appendix K – 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 2016. In spring 2015, PWD sampled 9 USGS gages, 12 mainstem sites in the Wissahickon Creek Watershed, and 4 randomly chosen sites.

### ***Fish Assessments***

Because 2014 monitoring efforts focused on Wissahickon tributaries, fish assessments were not performed in that year. Targeted watershed assessments resumed in June and July 2015 when fish assessments were conducted at mainstem sites within the Wissahickon 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 a Wissahickon Creek Watershed Integrated Watershed Management Plan Indicator Status Update in 2016.

**Table F.2.Step 1.b-4 Proposed Fish Monitoring Timeline 2010-2015**

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. Beginning in 2011, PWD began collecting 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).



Beginning in 2012, PWD began collecting phytoplankton samples from monitoring location SC470 (Navy Yard) on the Schuylkill River. Samples are 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.

### *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 25 locations within Philadelphia area watersheds. Sampling was conducted at 9 USGS gages in the PWD/USGS Cooperative Monitoring program, 15 tributary sites in the targeted Wissahickon Creek Watershed, and 1 randomly selected site. These data are presented in **Appendix K – 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 2016. In spring 2015, PWD sampled 9 USGS gages, 12 mainstem sites in the Wissahickon Creek Watershed, and 4 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 FY 2015, PWD initiated follow-up stream cross-section monitoring for implemented projects along tributaries to the Wissahickon Creek. Data collected will be used to evaluate the effectiveness of specific projects in reducing stream bank erosion as a source of sedimentation to the Wissahickon Creek. A stream corridor-based PWD infrastructure assessment effort was also initiated during FY 2015.



### *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 G – 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 110 NPDES permitted dischargers in Philadelphia, as shown in **Appendix L – FY2015 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>. Only 59 of these dischargers are located in MS4 areas, with the remaining dischargers located in the CSO areas or areas of direct drainage to a waterway.

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](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

The Act 167 Plans for the Pennypack and Poquessing Creek Watersheds were completed and submitted to the PADEP in December 2012 and approved in July 2013 and August 2013, respectively. The Wissahickon Act 167 Plan completed and is currently in the approval process. For more information on the status of the Act 167 plans, please refer to the CSO Annual Report **Section III.C.3.7 Basin-Specific Stormwater Management Plans (ACT 167)** on page 47.

## 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 permit 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 13 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 monitoring system in compliance with the MS4 permit issued by the Department. All 434 of the City's permitted stormwater outfalls have been inspected at least once per this current permit cycle as part the Permit Inspection Program. Those with dry weather discharges are sampled for fecal coliform and fluoride analysis. The results of these samples are reported on a quarterly basis and summarized in this annual report.

During FY2015, 47 outfall inspections were conducted and 43 samples were taken due to observed dry-weather flow as part of the Priority Outfall Sampling program. During FY 2015, 4 routine outfall inspections were conducted and 4 samples were taken due to observed dry-weather flow. These samples are used to evaluate priorities for the Defective Lateral Detection and Abatement Program. A summary table (**TABLE F.2.Step 3.A.IV-1**) of the progress of the Defective Lateral Detection and Abatement Program from FY 2005 - FY 2015 as well as a summary work completed in the priority areas

is provided below. The full details of the program accomplishments for Fiscal Year 2015 can be found in **Appendix M – FY 2014 Defective Lateral Quarterly Reports.**

**Table 3.a -1: Stormwater Outfall Inspection Program**

Fiscal Year	Permit Inspection Program		Priority Outfall Program	
	Inspections:	Samples:	Inspections:	Samples:
2005	73	69	83	74
2006	97	56	90	81
2007	46	33	46	31
2008	56	30	30	30
2009	8	8	56	56
2010	237	121	44	44
2011	79	39	43	43
2012	24	20	44	40
2013	2	2	45	40
2014	6	6	45	40
2015	4	4	47	43
<b>Total</b>	<b>608</b>	<b>368</b>	<b>529</b>	<b>482</b>

### Defective Lateral Program - Priority Outfall Sampling

Outfalls are prioritized for investigative work by the Defective Lateral and Abatement Program. In addition, outfalls identified as priority outfalls under the MS4 permit are sampled quarterly and summarized annually.

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

As of June 30, 2015 2,831 properties have had complete tests as defined by the MS4 permit in this priority outfall area. Of these properties, 132 (4.7%) have been found to have defective laterals and all have been abated.

The locations of dry weather diversion devices, the number of inspections, blockages, and discharges found in FY 2015 are listed below:

**Table 3.a -2: 7<sup>th</sup> & Cheltenham Ave FY 2015 Summary**

Location	ID #	Inspections	Blockages	Discharges
Plymouth St. west of Pittsville St.	CFD-01	28	5	0
Pittsville St. south of Plymouth St.	CFD-02	25	4	0
Elston St. east of Bouvier St.	CFD-03	24	2	0
Ashley St. west of Bouvier St.	CFD-04	23	0	0
Cheltenham Ave. east of 19th St.	CFD-05	22	1	0
Verbena St. south of Cheltenham Ave.	CFD-06	21	0	0
Cheltenham Ave. east of 7th St.	CFD-07	68	21	1
7th St. south of Cheltenham Ave.	CFD-08	66	5	1

Fecal coliform sampling at this outfall continues quarterly. Results for the outfall samples during FY 2015 are listed below:

**Table 3.a-3: 7<sup>th</sup> & Cheltenham Ave FY 2015 Fecal Coliform Sampling Results**

Date	Outfall (Fecal Colonies per 100 ml)
7/31/2014	5172
12/1/2014	331
3/13/2015	31
4/28/2015	85

*W-060-01 (Monastery Avenue)*

As of June 30, 2015, 611 properties have had complete tests as defined by the MS4 permit in this priority outfall area. Of these properties, 16 (2.6%) have been found to have defective laterals. All 16 have been abated.

Additionally, two (2) dry weather diversion devices were installed to intercept contaminated flow within the storm system and redirect the flow into the sanitary system. These devices are inspected regularly by the City’s Collector System Flow Control Unit. The locations of these devices and the number of inspections, blockages, and discharges in FY 2014 are listed below:

**Table 3.a-4: Monastery Ave Dry Weather Diversion Devices FY 2015 Summary**

Location	ID#	Inspections	Blockages	Discharges
Jannette St. west of Monastery Ave.	MFD-01	18	0	0
Green La. North of Lawnton St.	MFD-02	18	1	0

Fecal coliform sampling at this outfall continues quarterly. Results for the outfall samples are listed below:

**Table 3.a-5: W-060-01 FY 2015 Fecal Coliform Sampling Results**

Date	Fecal Colonies (per 100 ml)
7/31/2014	331
12/1/2014	341
3/13/2015	145
4/28/2015	697

*Monoshone Creek Outfalls*

As of June 30, 2015, 2,744 properties have had complete tests as defined by the MS4 permit in this priority outfall area. Of these properties, 93 (3.4%) have been found to have defective laterals and all have been abated.

The entire Monoshone Creek Study and additional information on the area was provided in FY 2012, please refer to Section F.2.step 3.a.v. on page 182 of the FY 2012 CSO-Stormwater Annual Report.

Fecal coliform sampling at these outfall continues quarterly. A listing of the results for the W-068-05 outfall samples in FY 2015 are listed below:

**Table 3.a-6: W-068-05 FY 2015 Fecal Coliform Sampling Results**

Date	Fecal Colonies (per 100 ml)
7/31/2014	3654
12/1/2014	141360
3/24/2015	26130
4/28/2015	111990

*Manayunk Canal Outfalls*

Of the 13 stormwater outfalls that discharge into the Manayunk Canal, the City is focusing on 7 that have recorded dry weather flow with some amount of fecal contamination. The results of FY 2015 fecal sampling at these are listed below:

**Table 3.a-7: Manayunk Canal FY 2015 Fecal Coliform Sampling Results**

Outfall	Fecal Colonies (per 100 mL)			
	8/18/2014	10/7/2014	3/18/2015	5/11/2015
S-058-01	132	457	17890	1145
S-059-01	1904	6488	155300	4352
S-059-02	43520	>241960	1119900	241960
S-059-03	364	8664	3990	4884
S-059-04	9804	689	2419600	2359
S-059-05	2589	262	3100	336
S-059-09	NF	NF	NF	NF

Note: NF indicates “no flow” observed

As of June 30, 2015, 2,478 properties have had complete tests as defined by the MS4 permit in the areas surrounding these 7 outfalls. Of these properties, 67 (2.5%) have been found to have defective laterals and all have been abated.

*P-090-02 (Sandyford Run)*

As of June 30, 2015 5,818 properties have had complete tests as defined by the MS4 permit in this priority outfall area. Of these properties, 87 (1.5%) have been found to have defective laterals and all have been abated.

PWD has previously installed a dry weather diversion device to intercept contaminated flow within the storm system and redirect the flow into the sanitary system. This device is inspected regularly by PWD and continues to function properly. See Table for the FY 2015 summary.

### *Franklin and Hasbrook Outfall (T-089-04)*

As of June 30, 2015 1,016 properties have had complete tests as defined by the MS4 permit in this priority outfall area. Of these properties, 46 (4.5%) have been found to have defective laterals and all have been abated.

PWD has previously installed a dry weather diversion device to intercept contaminated flow within the storm system and redirect the flow into the sanitary system. This device is inspected regularly by PWD and continues to function properly. During FY 2015, there were 88 inspections of this site, and 11 blockages and 3 discharges were reported in total.

Please refer to **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 22 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. Closure of the defective laterals effort in a certain outfall area shall be as provided in the "Framework for Screening, Finding, and Abating Stormwater Pollution." During FY 2014, no outfalls were removed from the priority area designation; therefore no priority outfall closure testing was conducted. Please reference **Section F.3 - Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal** on page 22 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 47 for a detailed discussion on 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. Additional information on NSCD has been provided in previous reports; please refer to Section E.3.3.2 on page 228 of the CSO-Stormwater FY 2008 Annual Report.

### *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 B Green City, Clean Waters 2015 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 41 and **III.C.2.4 Wetland Enhancement and Construction** starting on page 43.

#### *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 FY2015 are documented within **Appendix A Green City, Clean Waters 2014 Annual report Section 6.1** on page 34.

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 FY 2015 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 41 and **III.C.2.4 Wetland Enhancement and Construction** starting on page 43. Maintenance activities during FY 2015 on PWD's GSI projects can be found in **Appendix A Green City, Clean Waters 2015 Annual Report Section 5.1** on page 27.

## **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. Philadelphia Water reviewed 1177 new sewer and storm connections during FY 2015. 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. All 434 of the City's permitted stormwater outfalls have been inspected at least once during the permit cycle. 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 the 2004 Framework document. Priority Outfalls are sampled on a quarterly basis. Refer to **page 21** of this report for FY2015 priority outfall summaries.

### Investigate dry weather flow to identify sewer lateral defects

During FY 2015, PWD staff performed 2,629 dye tests. Of these tests, 2,564 were unique connections and the remaining dye tests were revisits to certain connections. Of those connections, 44 (1.8 %) were found defective and resulted in 43 abatements being completed. The total cost for the abatements performed in FY 2015, both residential and commercial, was \$357,289.12. Results of this fiscal year’s program can be observed in **TABLE F.3.B.II-1**.

**Table F.3-1: Cross Connection Repair Program FY2015 Summary**

Quarter	2014-3	2014-4	2015-1	2015-2	Total
Date Coverage	Jul14-Sep14	Oct14-Dec14	Jan15-Mar15	Apr15-Jun15	<b>FY 2015</b>
Completed Tests *	695	675	543	695	2608
Confirmed Connections	681	667	531	685	2564
Cross Connection Identified	14	8	12	10	44
% of Defective Connections	2.1%	1.2%	2.3%	1.5%	1.8%
Abatements **	9	14	10	10	43

\*Completed Tests includes revisits of connections

\*\*Cross connections abated may have been identified in the prior fiscal year

PWD also investigates all potential reports of an illicit discharge from the stormwater system through either the Industrial Waste Unit or the Sewer Maintenance Unit. During FY 2015, PWD investigated 20 reported sewage discharges. Refer to Appendix P – Sanitary Infiltration Events for reported sewage discharges during FY 2015.

During FY 2015, no updates were made to the Defective Lateral SOP.

### d. Abatements

#### Written notice about sewer lateral defects

55 Notices of Defect for the Cross Connections were issued to the property owners in FY 2015. In addition to these letters, other customer communications (follow-up letters, telephone or on-site conversations) may have been made in reference to the sewer lateral defects.

#### Abatements of Cross Connections

Since 2005, PWD has abated 712 cross connections at a cost of \$3,989,886.50. The progress made each fiscal year is show in **Table F.3.d.i -1** Summary of Abatements FY 2005- FY 2015.



**Table F.3.d.i-1 Summary of Abatement FY 2005-FY 2015**

Fiscal Year	# Cross Connections Abated		Total Cost of Abatements
	Residential	Commercial	
2005	48	5	\$169,955.00
2006	66	3	\$333,094.00
2007	78	0	\$388,844.00
2008	45	8	\$ 187,539.00
2009	88	13	\$395,249.00
2010	42	5	\$280,970.00
2011	74	9	\$527,984.50
2012	51	11	\$389,249.61
2013	59	6	\$517,598.50
2014	47	11	\$442,113.77
2015	39	4	\$357,289.12
Total	637	75	\$3,989,886.50

### Residential Properties Cross Connections Abatement

The City requires abatement of all residential defective connections upon discovery. During the FY 2015 reporting period, PWD funded abatement of 39 residential cross connections at an average cost of \$8,997.57, for a total cost of \$350,905.12.

### Commercial and Industrial Properties Cross Connections Abatement

PWD requires prompt abatement of all commercial and industrial defective connections upon discovery, and maintains the legal authority to take administrative action to cease the pollution condition. During the FY 2015 reporting period, PWD funded abatement of 4 commercial cross connections at an average cost of \$1,596.00, for a total cost of \$6,384.00.

### Residential Properties Cross Connections abatement schedule

When PWD goes out to a property to perform a dye test where a cross connection result is found, this information (location, date, and site description) is entered into an electronic database which later used to notify the property owner of defect. All defects are expected to be completed within 120 days of notice. During FY 2015, there were 17 properties that exceeded the 120 day requirement.

### Cross Connections abatement confirmation testing

All abatements conducted during FY 2015 had confirmation testing showing abatement were installed 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 FY 2015, and **Appendix M – FY 2015 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 have not changed in FY 2015. Please refer to Section F.3.e.ii on page 275 of the CSO-Stormwater FY 2010 Annual Report to view the complete description of report contents.

## **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 L – 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 PPC plan and reviewing any other information contained within the Tier II report. During FY2015, PFD personnel inspected 99 facilities of the 429 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 FY 2009 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 as 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 FY 2015, 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 FY 2015 activities include the following:

- Continued coordination efforts with multiple City departments, including Department of Public Property and Parks and Recreation, to help streamline review and ensure cost effective project designs.
- 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.
- Worked with PADEP to better formalize coordination between the two agencies as well as document a communication strategy. Hold bi-annual coordination meetings with PADEP NPDES permit review staff to facilitate collaboration between the two review programs. Attend quarterly meetings with PADEP and southeast regional conservation districts where information is shared regarding active projects as well as various permit and regulatory requirements.
- 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 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 stop work orders, requiring continued coordination through L&I.

- Continued to hold quarterly Development Services Committee meetings to gather feedback from the development community regarding improvements to the stormwater plan review program. In FY 2015, focus was placed on upcoming regulatory and programmatic changes scheduled for implementation in FY2016. The goal is to implement changes to support transparency and flexibility for a business-friendly process and promote development, while maximizing water quality in the City. 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.

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.

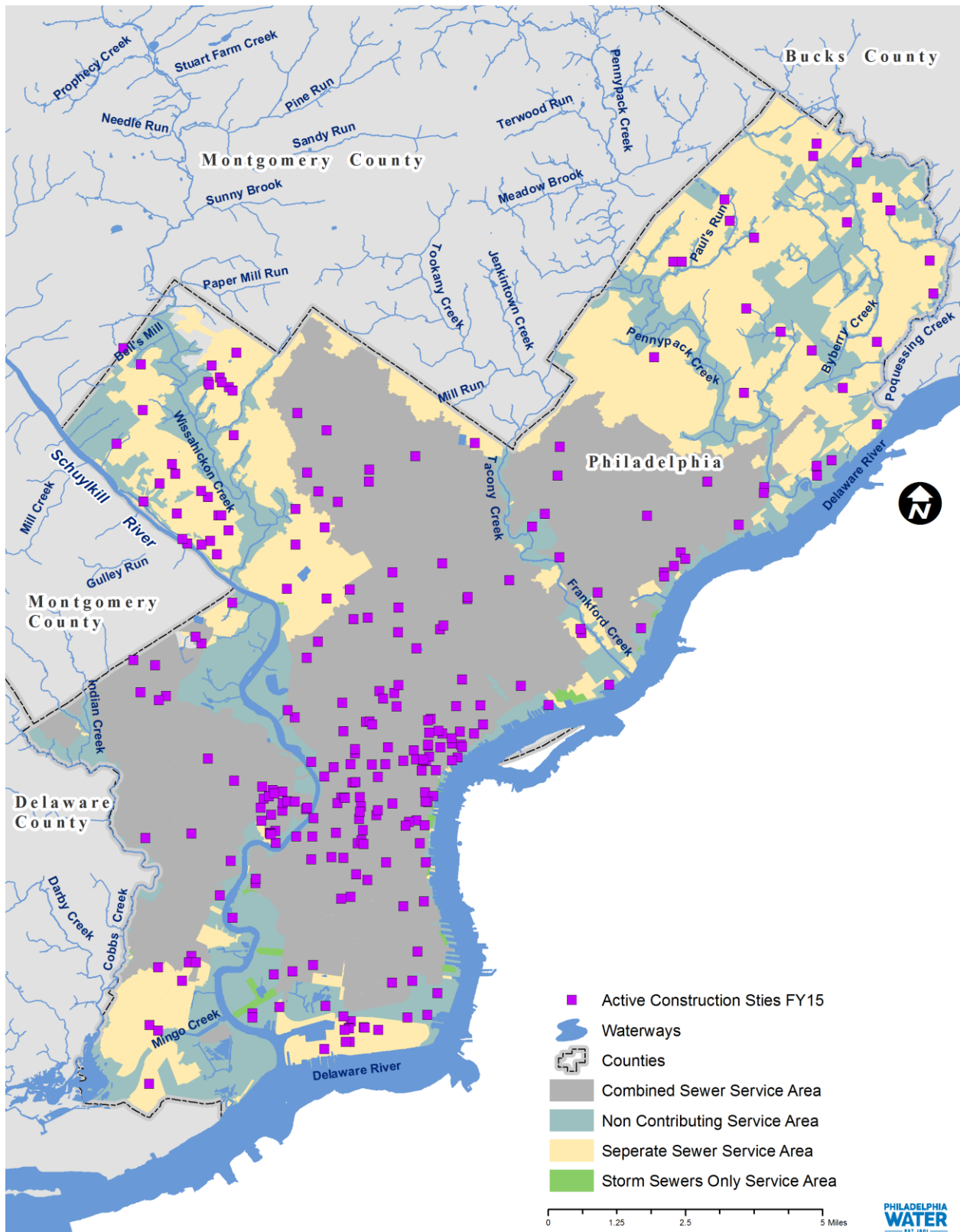
A summary of all plan review activities City-wide in FY 2015 is presented in **Table F.5-1**.

#### a. Construction Site Runoff Control

PWD reviews E&S Plans for sites disturbing more than 15,000 square feet of earth citywide while following policies and practices as provided within the PADEP E&S Control Manual. As a result of plan review and coordination with the State, scheduled site inspections as well as timely responses to active construction site complaints have continued as part of the stormwater management program during FY 2015. The E&S process, including inspections, has been described in detail in previous reports; please refer to Section F.5.A. of the CSO Stormwater FY 2013 Annual Report on page 198. 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**.

	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	FY 15 Total
<b>Conceptual Review Stage</b>													
Approvals	19	2	13	10	8	4	6	12	14	11	7	12	118
Rejections	39	26	38	33	28	32	41	52	62	34	48	53	486
Reviews	58	28	50	43	36	36	47	64	76	45	55	65	603
New Project Submittals	27	20	23	26	21	26	34	36	28	27	30	62	360
Average Review Time (days)	3.0	3.0	3.7	3.4	3.3	3.3	3.7	4.5	4.4	3.8	3.3	3.4	3.6
<b>Post Construction Stormwater Management Plan Review Stage</b>													
Administrative Screenings	27	8	12	8	10	15	7	9	19	12	10	8	145
Technical Approvals Issued	15	7	11	12	5	4	6	7	8	5	6	8	94
Rejections	30	37	28	25	22	22	23	18	14	27	19	17	282
Full Technical Reviews	61	71	60	56	43	43	48	40	39	58	40	48	607
New Project Submittals Received	59	30	15	17	14	13	11	11	13	17	11	9	220
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)	201	141	154	182	90	87	167	96	144	218	130	173	157
Acres of Earth Disturbance Approved	169.3	10.9	44.4	30.0	3.6	4.6	4.6	51.7	10.6	43.3	9.7	6.7	389.3
Acres of Green Roofs Approved	0.8	0.2	0.6	0.5	0.4	0.1	0.3	0.0	0.0	0.0	0.1	0.3	3.3
Acres of Porous Pavement Approved	1.7	1.6	1.3	0.5	0.5	0.1	0.1	0.1	0.3	0.5	0.5	0.1	7.3
<b>DEP Reviews</b>													
New Coordinated Reviews	9	4	8	6	3	2	3	2	2	5	2	2	48
<b>Erosion and Sedimentation Plan Review</b>													
Defer to DEP	2	0	0	0	0	0	0	0	0	0	0	0	2
Approved	5	10	5	14	6	14	6	4	5	9	11	7	96
Rejected	16	22	23	19	13	17	10	12	10	18	17	11	188
Not Applicable	17	8	10	10	12	10	10	13	18	7	18	14	147
<b>Total Inspections</b>													
New Sites Inspected	129	35	47	31	17	13	8	11	17	31	29	17	385
Total Inspections	327	316	353	370	285	388	377	380	457	509	456	475	4693
Active Construction Inspections at Project Sites with MS4 Sewers	91	78	51	63	44	61	67	78	97	129	122	115	996
Post Construction Inspections at Project Sites with MS4 Sewers	7	11	4	7	3	2	3	4	3	15	7	1	67
Total Inspections at Project Sites with MS4 Sewers	98	90	55	72	47	64	70	83	100	144	129	116	1068
Active Construction Inspections at Project Sites with Combined Sewers	168	191	226	251	197	273	255	252	323	308	277	305	3026
Post Construction Inspections at Project Sites with Combined Sewers	7	2	36	12	8	6	2	6	2	23	9	15	128
Total Inspections at Project Sites with Combined Sewers	175	193	262	263	206	281	257	259	326	330	286	319	3157

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.a-1 Active Construction Sites**

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

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

The adoption of the Philadelphia Stormwater Management Regulations on January 1, 2006 enabled Philadelphia to review plans for both new and redevelopment sites ensuring that water quality and quantity are part of the management plan. Details on the technical components of the Stormwater Management Regulations have been provided in previous years; please refer to Section F.5.b on page 200 of the CSO Stormwater FY 2013 Annual Report. The Philadelphia Stormwater Management Regulations are available online at <http://www.phila.gov/water/PDF/PWDregCH6.pdf>.

Implementation of the Stormwater Management Regulations will continue to improve stormwater quality and quantity impacts as redevelopment and development continues across the City. PWD is tracking the stormwater management practices implemented by private development to address the regulations.

## c. Applications/Permits

Across the entire city during FY 2015, 360 unique projects were submitted to PWD for conceptual review through the program’s website.

PWD approved 94 full technical plans during FY 2015 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 FY 2015, 48 coordinated permit applications citywide were submitted to PADEP that underwent a joint stormwater management review as shown in **Table F.5-1**.

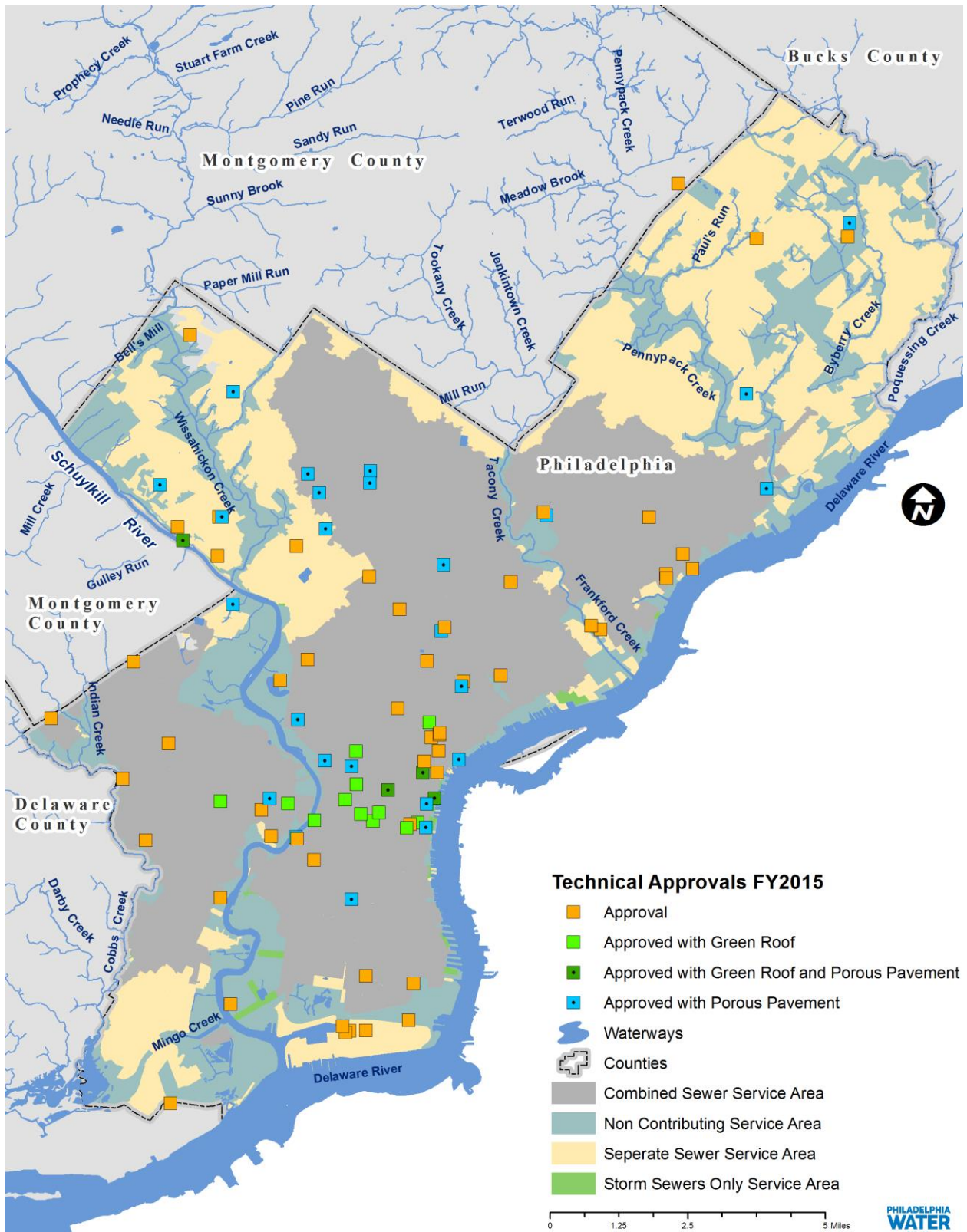
**Table F.5.c-1 Approved Stormwater Plan Location Summary by Contributing Area**

Drainage Type	Number of Locations
Combined Sewer Area	63
Non-Contributing Area	13
Separate Sewer Area	18
<b>Total</b>	<b>94</b>

**Table F.5.c-2 Approved Stormwater Plan Location Summary by Watershed**

Drainage Watershed	Number of Locations
Delaware River	41
Poquessing Creek	2
Pennypack Creek	4
Schuylkill River	30
Tacony/Frankford Creek	10
Wissahickon Creek	4
Darby-Cobbs Creek	3
<b>Total</b>	<b>94</b>





**Figure F.5.c-1 Locations of Approved Post-Construction Stormwater Management Plans**

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports



## d. Inspections

PWD requires a pre-construction meeting prior to commencement of earth moving activities. In FY 2015, PWD conducted 100 pre-construction meetings citywide for development projects. During the pre-construction meeting, both the Erosion and Sedimentation Pollution (E&S) Control Plan and the Post Construction Stormwater Management Plan (PCSMP) are discussed. Post Construction Stormwater Management inspections are discussed in **Section F.8.b** Existing privately owned structural controls on page 39.

The inspection program continued in FY 2015 by conducting inspections of stormwater structural controls on private development sites. PWD stormwater plan review inspectors conducted site visits for 266 active sites citywide during FY 2015. 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 on-site contractor.

During FY 2015, PWD inspectors had the task of inspecting the installation of SMPs and erosion & 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 996 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.d-1 Active Construction Inspection Site Location Summary**

<b>Drainage Type</b>	<b>Number of Locations</b>
Combined Sewer Area	168
Non-Contributing Area	33
Separate Sewer Area	65
<b>Total</b>	<b>266</b>

## e. Monitoring/Enforcement

PWD issues a Notice of Violation to sites when issues with E&S controls or the installation of required SMPs are not addressed in a timely manner. In FY2015, PWD issued a total of 18 Notice of Violations to projects under construction citywide. These notices 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 three sites were issued Stop Work Orders citywide. 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 was developed in 2006 to accompany the new Stormwater Regulations that went into effect the same year. The manual is intended to be a dynamic document allowing updates as needed with the most recent version available for electronic download at <http://www.pwdplanreview.org/manual-info/guidance-manual>.

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

PWD, through the Planning and Environmental Services Division (PESD), strives to reduce the amount of point and non-point discharges entering regional waterways and improve the environmental health of the region so that all waters are fishable and swimmable. The main programs within PESD, in addition to the Stormwater Management Program, that work together to improve regional ecological health, water quality, and sustainability are: 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.1** on page 63 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 Program staff work closely with PWD 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 Section F.6 on page 288 of the CSO-Stormwater FY 2010 Report.

### [Schuylkill Action Network](#)

Please refer the CSO Annual Report **Section II.G.2 – Schuylkill Action Network** on page 18 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 19 for information about this topic.

### [RiverCast](#)

Please refer the CSO Annual Report **Section II.G.2 – RiverCast** on page 18 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 2 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 43 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 FY 2015 is presented in **Appendix O – Pollutant Migration/Infiltration to the MS4**.

### 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 17 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 Removal 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 33 of the Plan describes the Streets Dept. Salting Policy. The current Snow and Ice Removal Operations Plan for winter 2013-2014 is provided in **Appendix P - Winter 2013-2014 - Snow and Ice Removal Operations Plan**. An updated Snow and Ice Removal Operations Plan is planned for release in November 2015.

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

PWD conducted inspections of the City's Waste Transfer facilities in 2010, and the inspection form used by PWD staff was altered to fit inspection protocol more appropriately. Please refer to Section F.7.e on page 212 of the CSO-Stormwater FY 2012 Annual Report for more information on these inspections.

A re-inspection of the Domino Lane and Umbria St. Waste Transfer station, located in the MS4 area is scheduled for September 2015 and will be reported on in next year's annual report.

### **F.8. Best Management Practices (BMPs)**

#### a. Submit storm sewer discharge ordinance

The Storm Sewer Discharge Ordinance was submitted during FY 2006. In support of this policy change, PWD has added documentation and notifications 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. Additional information on activities to support the sewer discharge ordinance has been provided in previous reports; please refer to Section F.8.a. on page 297 of the CSO-Stormwater FY 2010 Annual Report for more information on this topic.

#### b. Commercial and Residential Source Controls

### *b.i. Mingo Creek Surge Basin*

PWD is currently working with the Philadelphia International Airport (PHL), as part of the Green Airport Committee, to enhance the water quality of the stormwater discharges generated from the 28% of the Mingo Creek Surge Basin drainage area owned by PHL. During the Fall of 2013, PWD conducted a Bathymetric Survey to evaluate storage potential and its effects on the upstream stormwater conveyance system. PWD is still in the process of evaluating results from that survey. 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 through the Stormwater Management Regulations, 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 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. Since the Regulations were enacted, over 530 O&M Agreements have been recorded against the land deed of the developed properties citywide.

**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 inspection to assess the performance of these 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, and wet weather inspections. 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 suspending the stormwater billing credit (if the customer is enrolled in the credits program), issuance of notice of violations, fines, court action, and/or a nuisance abatement and lien by the City.

## **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 29 for additional information.

#### d. Operate and maintain public roadways

##### i. Deicing Practices and Salt Storage

The current Snow and Ice Removal Operations Plan for winter 2013-2014 is provided in **Appendix M - Winter 2013-2014 - Snow and Ice Removal Operations Plan**. An updated Snow and Ice Removal Operations Plan is planned for release in November 2015.

##### ii. Street and Inlet Cleaning Program

###### *Street Cleaning*

During FY 2015, 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 FY 2014 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 FY2015, a total of 725 miles were cleaned and 104 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. More information regarding the City's street maintenance programs has been provided in previous years; please refer to Section F.8.d.ii on page 303 of the CSO-Stormwater FY 2010 Annual Report.

###### *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 FY 2015 Clean Block season, 5,241 blocks were cleaned by 33,211 volunteers; 653.35 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 sixth 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. Between 2014 and 2015 (to date), approximately 24,000 tickets were issued.

More information on litter control has been provided in previous reports, please refer to Section 7 on page 7-1 of the Updated Nine Minimum Controls Report submitted to the PADEP on June 1, 2013 which is available on-line at <http://phillywatersheds.org/doc/Updated%20NMC%20Report.pdf>.

### *Inlet Cleaning*

PWD continues to maintain all city-owned storm sewer inlets. Please refer to the CSO portion of the Annual Report **Section II.F.1 – Control of Discharge of Solids and Floatables by Cleaning of Inlet and Catch Basins on page 13** for information on this program and activity conducted during FY 2015.

## 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](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 two eco-friendly dogs and their caretakers to help educate their bark park buddies on keeping Philadelphia’s waterways clean. In FY 2015 one dog was chosen from each of two source water protection neighborhoods, J Juniata and Lower Moyamensing neighborhoods with a combined total of over 22 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 close to 14,710 hits. More information can be found at the following website: <http://www.phillywatersheds.org/spokesdog>. The competition has been discussed fully in the past as well; please refer to Section F.8.e.i on page 305 of the CSO-Stormwater FY 2010 Report.

## 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 floodproofed such that plan complies to 14-1606 and any special Building Code



requirements. The number of zoning and building permits issued in FY 2015 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 5 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 41 for information pertaining to streambank restoration.

Please refer to the CSO Annual Report **Section III.C.2.4 – Wetland Enhancement and Construction** on page 43 for information pertaining to wetland enhancement.

### **g. Sanitary Infiltration Controls**

#### *Limit sanitary infiltration*

As part of the Cross Connection Repair Program, PWD has conducted 1,347 abatements to correct cross connection in sewer laterals since 1994; 43 abatements were completed in FY 2015 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. We estimate that these abatements and dry weather diversion devices have prevented over 189.3 million gallons of contaminated flow from entering our waterways since the inception of the program and about 6.0 million gallons during FY 2015. 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 full 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 2015 Annual Report Section 3.5 Interceptor Rehabilitation Program** on page 20 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 31 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 are caused by a combination of various factors which influence the hydraulic carrying capacity of the Poquessing Creek Interceptor during wet weather events. In FY 2015, PWD continued to monitor the effectiveness this relief sewer. There are also several sewer lining projects being 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 FY 2015 are found within in **Appendix P – FY2015 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 Philadelphia Local Emergency Planning Committee. PWD is represented on this committee. The plan for spill response in Philadelphia is the Citywide Hazmat Response Plan - Annex F to the City's Emergency Operations Plan, found in the Additional Documents folder on the **Supplemental Flash Drive**.

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 FY 2015 is presented in **Appendix O – Pollutant Migration/Infiltration to the MS4**.

### **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](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 26,729 service requests being conducted during FY 2015. 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 FY2015, Philly 311 transferred 1,303 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. <http://www.philadelphiastreet.com/hazardous-waste>

## **k. Storm Water Inlet Labeling/Stenciling**

PWD has kits of storm drain marking supplies available for volunteers to help educate the public about reducing 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 FY 2015, over 300 stormwater inlet labels were distributed. PWD continues to support stormwater inlet labeling program and encourages communities to get involved each year. 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 90<sup>th</sup> 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 (future date used as some projects are in construction or have only been just approved) it is projected that approximately 0.91 square miles (582 acres) of directly connected impervious area will be tributary to green stormwater infrastructure. This is about 4.4% of the impervious area.

## Section H Fiscal Resources

### Maintain adequate program funding

During FY 2015, 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 both the reporting year as well as the upcoming fiscal year.

**Table H.1-1 Fiscal Resources**

<b>Program</b>	<b>FY 2015 Budget (\$ Millions)</b>	<b>FY 2016 Budget (\$ Millions)</b>
Office of Watersheds	\$16.08	\$19.13
Collector Systems Support	\$0.81	\$0.90
Sewer Maintenance and Flow Control	\$23.45	\$23.69
Inlet Cleaning	\$4.39	\$4.82
Abatement of Nuisances	\$8.66	\$8.66
Sewer Reconstruction	\$30.10	\$30.10
Public Affairs and Education	\$11.48	\$12.24
<b>Total</b>	<b>\$94.97</b>	<b>\$99.54</b>

### 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

### 2015 Annual Report

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

Reporting period July 1, 2014 – June 30, 2015

---

Submitted to

The Commonwealth of Pennsylvania

Department of Environmental Protection

And

The United States Environmental Protection Agency

By Philadelphia Water

September 30, 2015



# Table of Contents

---

## 1.0 Introduction

1.1	Water Quality Based Effluent Limit (WQBEL) Performance Standards .....	1
1.2	First Five-Years of Deliverables to PADEP .....	1

## 2.0 Implementation Tracking, Reporting, and Adaptive Management

2.1	Reporting Implementation Progress.....	3
2.2	<i>Green City, Clean Waters</i> Program Tracking System .....	3
2.2.1	Reporting Metrics .....	4

## 3.0 Capital Projects

3.1	Public Green Stormwater Infrastructure .....	8
3.1.1	Planning Approaches for Green Stormwater Infrastructure Implementation .....	8
3.1.2	Design Approaches .....	11
3.1.3	Construction .....	11
3.2	Green Stormwater Infrastructure through Private Redevelopment .....	12
3.2.1	Philadelphia Stormwater Management Regulations.....	12
3.2.2	Incentives for Private Property Owners to Implement Green Stormwater Infrastructure .....	13
3.3	Waterfront Disconnection .....	14
3.3.1	Delaware River Waterfront Stormwater Planning.....	14
3.3.2	I-95 Reconstruction Project .....	14
3.4	Interceptor Rehabilitation Program.....	17



## 4.0 Streamlining

4.1	Tracking Federal and State Policy Developments.....	19
4.2	Coordination with other City and Non-City Agencies to Achieve Policy Goals .....	19
4.2.1	Green Streets and Transportation Partnerships.....	19
4.2.2	Schools .....	20
4.2.3	Parks and Recreation .....	22
4.2.4	Vacant Lots.....	23

## 5.0 Operation and Maintenance

5.1	Public Green Stormwater Infrastructure Maintenance Program .....	25
5.1.1	Inspection Regime .....	26
5.1.2	Maintenance Regime .....	28
5.2	Maintenance of Private Facilities.....	30

## 6.0 Data Collection and Analysis

6.1	Green Stormwater Infrastructure Monitoring.....	32
6.2	Green Stormwater Infrastructure Pilot Program.....	32

## 7.0 Public Outreach and Participation

7.1	Green Stormwater Infrastructure Notification & Outreach Process for Green Programs .....	34
7.2	Public Education and Outreach Programs .....	35
7.3	Green Homes Initiatives.....	38

# List of Tables

---

## 1.0 Introduction

<b>Table 1-1</b>	COA Deliverables .....	2
------------------	------------------------	---

## 2.0 Implementation Tracking, Reporting, and Adaptive Management

<b>Table 2-1</b>	Status Updates for existing databases and systems used for program tracking...	3
------------------	--	---

<b>Table 2-2</b>	Public Project Tracking Metrics and Reporting Format .....	4
------------------	--	---

<b>Table 2-3</b>	SMP Definitions.....	5
------------------	----------------------	---

## 3.0 Capital Projects

<b>Table 3-1</b>	2015 Summary of Public Green Stormwater Infrastructure Projects.....	12
------------------	--	----

<b>Table 3-2</b>	2015 Summary of Greened Acres by Private Development Green Stormwater Infrastructure Projects .....	12
------------------	--	----

<b>Table 3-3</b>	2015 Reporting Year SMIP/GARP Awardees.....	13
------------------	---	----

<b>Table 3-4</b>	2015 Summary of Greened Acres by SMIP and GARP Green Stormwater Infrastructure Projects .....	13
------------------	--	----

<b>Table 3-5</b>	I-95 Construction Section Limits and Expected Year of Completion .....	15
------------------	--	----

<b>Table 3-6</b>	Interceptor Lining 2015 Reporting Year Status.....	18
------------------	--	----

## 5.0 Operation and Maintenance

<b>Table 5-1</b>	Philadelphia Water SMP Types Maintained in the 2015 Reporting Year .....	25
------------------	--	----

<b>Table 5-2</b>	Number of inspections and number referrals for follow-up maintenance .....	27
------------------	--	----

<b>Table 5-3</b>	Summary of Maintenance Events by Type in the 2015 Reporting Year .....	29
------------------	--	----

<b>Table 5-4</b>	PowerCorps PHL Trash Removal in the 2015 Reporting Year.....	30
------------------	--	----

## 7.0 Public Outreach and Participation

<b>Table 7-1</b>	Soak It Up Adoption Pilot Program Metrics for the 2015 Reporting Year .....	37
------------------	---	----

<b>Table 7-2</b>	Rain Check Program Metrics for the 2015 Reporting Year .....	40
------------------	--	----

# List of Figures

---

<b>Figure 3-1</b>	Stadium District Green Mosaic Alternative.....	10
<b>Figure 3-2</b>	Current GSI Planning Study Areas.....	12
<b>Figure 3-3</b>	Green Stormwater Infrastructure Projects in Philadelphia County .....	16
<b>Figure 3-4</b>	I-95 Reconstruction Project Design Sections .....	17

# Appendices

---

<b>Appendix 1:</b>	Completed Public Green Stormwater Infrastructure Projects
<b>Appendix 2:</b>	Planned Public Green Stormwater Infrastructure Projects
<b>Appendix 3:</b>	Complete Redevelopment and Incentivized Green Stormwater Infrastructure Projects
<b>Appendix 4:</b>	Green Stormwater Infrastructure Monitoring Status Report
<b>Appendix 5:</b>	Green Stormwater Infrastructure Groundwater Monitoring Report

# Errata

---

1. The errata submitted on December 14, 2015 include replacements to pages 5 and 6 of Section 2.0 Implementation Tracking, Reporting and Adaptive Management.

# 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
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
MOTU	Mayor's Office of Transportation and Utilities
MS4	Municipal Separate Storm Sewer System
NMCs	Nine Minimum Controls
NOAA	National Oceanic and Atmospheric Association
NPDES	National Pollutant Discharge Elimination System
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
RDA	Redevelopment Authority
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
Streets Department	Philadelphia Streets Department
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
PWD	Philadelphia Water
WPCP	Water Pollution Control Plant
WQBEL	Water Quality-Based Effluent Limit
ZCC	Zoning Code Commission

# 1.0 Introduction

---

The Consent Order and Agreement (COA) signed by the City of Philadelphia (City) and the Pennsylvania Department of Environmental Protection (PADEP), and the Administrative Order for Compliance on Consent (AOCC) with the United States Environmental Protection Agency (USEPA), formalized the regulatory approval of the *Green City, Clean Waters* program and amended the 2009 CSO Long Term Control Plan Update. This is the fourth Annual Report submitted under the requirements of the COA. The 2015 reporting year covers the City's *Green City, Clean Waters* implementation progress activities that occurred between July 1, 2014 and June 30, 2015.

## 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 LTCPU 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) implementation performance standards are defined in the COA Appendix I page 3.

## 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**). The final two deliverables and one report were submitted to PADEP and the USEPA during the reporting period from July 1, 2014 to June 30, 2015:

**The Tidal Waters Water Quality Model for Dissolved Oxygen and The Tidal Waters Water Quality Model for Bacteria** were submitted to the PADEP and USEPA as one report on May 29, 2015. The Tidal Waters Water Quality Model - Bacteria and Tidal Waters Water Quality Model - Dissolved Oxygen were submitted as one report to the PADEP by June 1, 2015. The report describes the methods, and provides the results, of a project to model the receiving water quality in the tidal Delaware River and the tidal Schuylkill River.

**The Outlying Communities Report** was submitted to the PADEP and USEPA on May 29, 2015. The Outlying Communities Report was submitted to the PADEP by June 1, 2015. The report describes the activities conducted by PWD to analyze, quantify and characterize the dry weather and wet weather flows conveyed from outlying community points of connection to the City's combined and separate sewer systems.

**Table 1-1: COA Deliverables**

	<b>Deliverable Name</b>	<b>Deliverable Due Date</b>	<b>Status</b>
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



## 2.0 Implementation Tracking, Reporting, and Management Adaptive

---

### 2.1 Reporting Implementation Progress

Paragraph 3d 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. Progress of the projects identified in the Approved LTCPU can be found in Section 3.3 Facility Concept Plan Updates of this report. 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.

### 2.2 Green City, Clean Waters Program Tracking System

Currently the existing databases and systems track program implementation and support data requests for internal and external reporting. The development of the *Green City, Clean Waters* program tracking system will integrate this data from the existing Water Department systems to streamline the process.

During the 2015 reporting year, several milestones were achieved in the development of the *Green City, Clean Waters* program tracking system. A database architect worked with the project team to identify system business requirements, document existing systems and reporting processes, and make recommendations regarding software solutions most suited to meet the project’s business requirements.

Philadelphia Water continues to update existing databases and systems that will be integrated within the program tracking system and will enhance Philadelphia Water's ability to track data and report information. Status updates on the existing databases and systems are provided in **Table 2-1**.

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

Component Systems	Status
<b>PlanIT</b>	Philadelphia Water’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 conceptual design. PlanIT version 2.0 was released in the summer of 2015 and edits to the mapping features are on-going.
<b>GreenIT</b>	Philadelphia Water’s tracking system for all public green stormwater infrastructure projects from the concept through construction phases, GreenIT, tracks designated compliance metrics. Version 2.0 was released in the summer of 2015, adding key fields for better tracking

Component Systems	Status
	and compliance. New fields have been added to Section 2.2.1 Reporting Metrics, below.
<b>Plan Review Database</b>	Philadelphia Water’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.
<b>CAPIT</b>	Philadelphia Water’s Capital Project Tracking System will be upgraded to meet Philadelphia Water’s growing needs. In April 2015, a contract was conformed and implementation services and working meetings have begun with the selected vendor.
<b>Geographic Information System (GIS) Asset Tracking</b>	GIS is used to track all Water Department assets including green infrastructure.
<b>Maintenance Management Systems</b>	Green stormwater infrastructure maintenance activities have been fully incorporated into Philadelphia Water’s Cityworks work order management system, which is linked to the City’s GIS and provides tools to track and manage work performed on Philadelphia Water’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 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 Plan Review Database is used to produce reporting outputs for the private complete projects as described in **Appendix 3**.

**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

**Project Name**

For Philadelphia Water initiated and/or a public property project, the project name typically is the name of the associated school, park, playground, or streets.

**Status**

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

## Storage Volume

The volume of runoff managed by the system. For infiltration systems, the entire depth of the system 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 up to two inches of the storm water runoff from that acre.

## 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. Updated definitions are included in **Table 2-3**.

**Table 2-3: SMP Definitions**

SMP Type Definition	
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).

SMP Type Definition	
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. Green roofs are effective in reducing the volume and rates of stormwater runoff.
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.

SMP Type Definition	
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 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.

## **Program**

Current public programs which a green project 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

## 3.0 Capital Projects

---

This section describes the programs that make up each of the components of the *Green City, Clean Waters* program that had progress in the 2015 reporting year. The projects described include those associated with public and private property green stormwater infrastructure, waterfront disconnection, and interceptor rehabilitation.

### 3.1 Public Green Stormwater Infrastructure

The *Green City, Clean Waters* programmatic strategies for achieving public Greened Acres is benchmarked in three phases: planning, design, and construction. The following three sub sections describe the progress made during the 2015 reporting year for each of these phases. **Table 3-1** summarizes Public GSI projects and Greened Acres in the three phases for the 2015 reporting year.

**Table 3-1: 2015 Summary of Public Green Stormwater Infrastructure**

Project Phase	In Design	In Contract Development	In Construction	Completed
Number of Projects	172	26	19	124
Potential Number of Greened Acres*	TBD	35	23	151

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

#### 3.1.1 Planning Approaches for Green Stormwater Infrastructure Implementation

Over the past year the Department has continued to refine the three main planning approaches discussed in the last report; SMEDs, Areas Opportunity Analysis (AOA), and Centralized GSI Facilities. Those planning approaches are described in more detail below. **Figure 3-2** displays the planning study areas.

##### Stormwater Planning Districts (SMEDs)

Last year, Philadelphia Water provided a specific update on each of the 5 original SMED study areas; Temple University, American Street, Village of Arts and Humanities, Yorktown/Ludlow, and the Stadium District. The first round of physical planning analysis is complete for these areas and ongoing coordination with critical partners is now the focus. Yorktown/Ludlow and the Village of Arts and Humanities have be re-designated as AOAs since implementation in those areas is following a more standard planning process. The department does not anticipate following the SMED process for new areas moving forward. Lessons learned from the first SMED areas have been utilized to refine the AOA and Centralized Facility approaches.



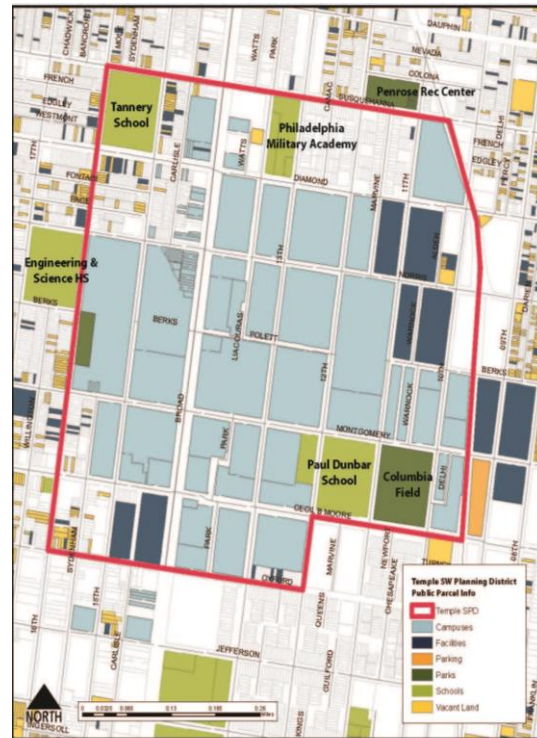
## Temple University

**Watershed:** Delaware

**Total Acreage of Study Area:** 240 (72% impervious)

### Status Update

Over the past year, the department has continued to work through various partnership opportunities with Temple University. During the development of the Landscape Master Plan, creative stormwater management solutions were incorporated which lay out major opportunities for partnership potential. As the university implements each piece of their long term master plan the department will work through options for adding additional stormwater management facilities where feasible. In addition to the early action projects that were identified last year, the partnership has made progress on the pilot of blue roofs, streetscaping, and the redevelopment of another sports field. Over the coming years the goal is to continue to develop this partnership and think creatively about GSI implementation, credits, banking/trading, and research opportunities together.



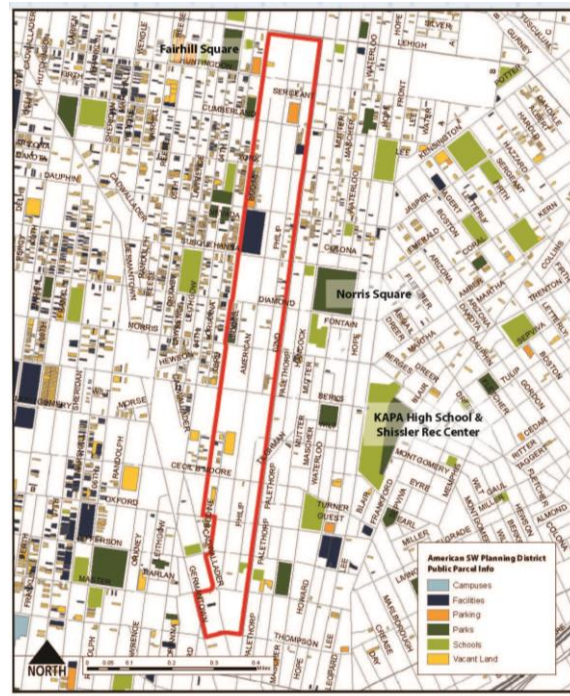
## American Street

**Watershed:** Delaware

**Total Acreage of Study Area:** 109 (67% impervious)

### Status Update

Philadelphia Water finalized a first round of planning analysis for the area surrounding American Street in the past year. Momentum has continued to build for realizing improvements along the corridor itself. The Department has been coordinating with other city agencies on a regular basis in an effort to align funding and schedules. Coordination has included but is not limited to pursuing major grant opportunities such as TIGER.





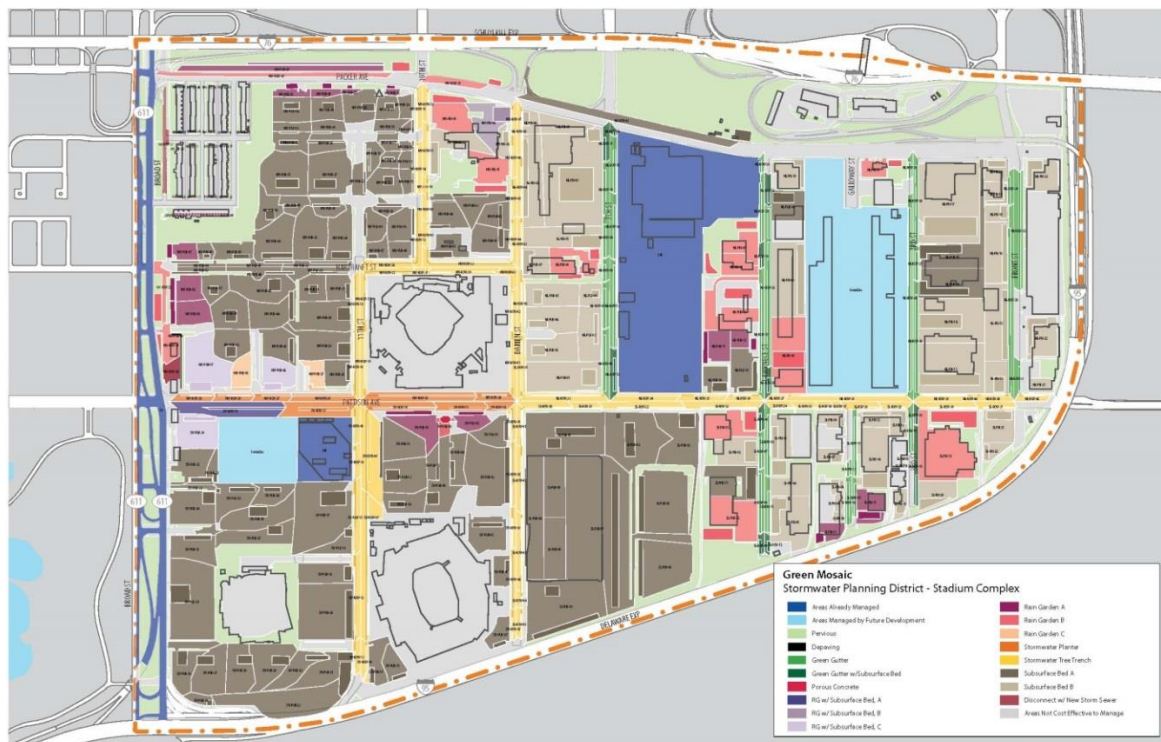
## Stadium District

**Watershed:** Delaware

**Total Acreage of Study Area:** 622 acres (77% impervious)

### Status Update

Four alternative strategies have been developed for the Stadium District; a green mosaic, sewer separation, separation with pre-treatment, and a hybrid approach. As mentioned in previous reports, any approach chosen will result in a multi-year phased implementation because of the scale and potential disruption. Philadelphia Water is continuing to seek maximum cost-effectiveness, visibility, and alignment with partner interests. Before an approach can be chosen, further refinement of a proposed separation solution is needed and is underway now. Unknown factors such as the details of a new casino and other redevelopment plans in the area add another layer of complexity to the department's long term strategy in this area of the city.



**Figure 3-1: Stadium District Green Mosaic Alternative**

### Area Opportunity Analysis (AOAs)

The purpose of the AOA process is to evaluate areas of varying size using a standardized planning and engineering approach. Over the past year the planning group has made significant progress in refining the AOA process to both maximize planned green acres and record information for long term implementation. Study areas continue to be identified across the city where there is a concentration of publicly owned land, potentially large drainage area capture, or partnership opportunities. Taking a

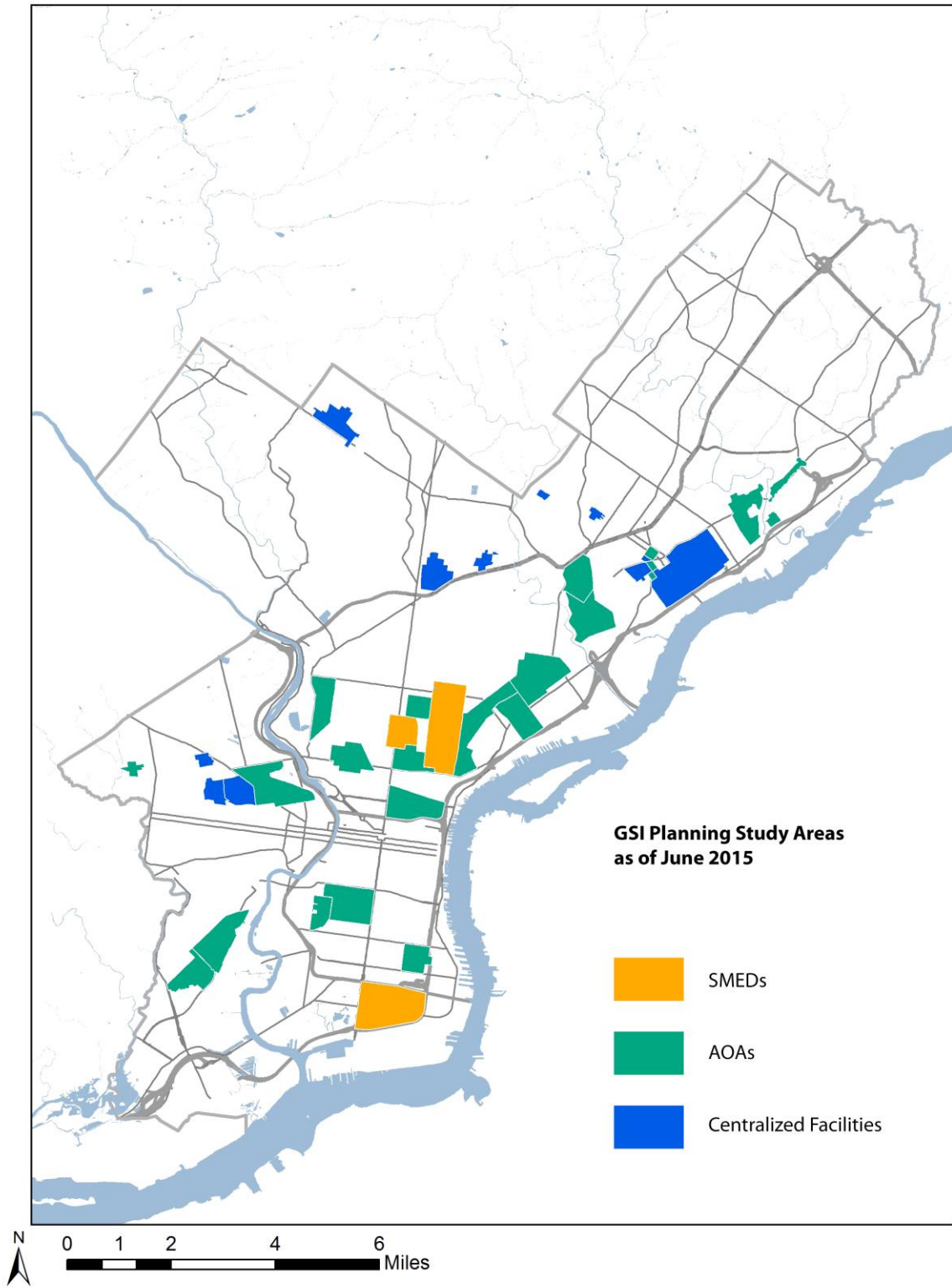
geographic approach to analysis and implementation has allowed the Department to make concentrated and interconnected investments in GSI while leveraging coordination and cost sharing.

Each AOA follows a standardized process consisting of: base plan preparation, evaluation of planning initiatives, drainage area mapping and categorization, evaluation of potential GSI locations, site visits, and recommendations. Each study results in a list of potential projects sent to design to be implemented in the short and long term. To date, Philadelphia Water has over 20 AOAs that have been initiated for full analysis and many more areas that have been analyzed at a lower level of detail in-house.

#### **Area Wide Disconnection to GSI Centralized Facility Evaluation**

Large publicly owned parcels are sometimes situated at an ideal elevation in comparison to surrounding neighborhoods where a centralized storage/infiltration facility may be the best GSI solution. During the 2015 reporting year, Philadelphia Water has completed several planning level studies and will continue to highlight parcels where these types of projects are feasible.

Figure 3-2: GSI Planning Study Areas



### **3.1.2 Design Approaches**

New engineers were hired, and teams were assigned to assist planners to provide technical guidance through the planning process, manage the development of construction documents, and support inspectors during construction. This reorganization resulted in the ability to initiate an increased number of projects into design, and added capacity to design projects in-house. In addition, GSI Design continues to work on numerous partner projects (Section 4) with other city agencies to increase GSI opportunities and make GSI more cost effective.

#### **Development of GSI Design Guidance**

In May of 2015 an update of the GSI Design Requirements and Guidelines Packet was released. The updated guidelines emphasize the importance of surface practices for water quality improvements. The guidelines provide updated SMP preferences that focus on system function and maximizing surface flow into vegetated features. Loading ratio guidelines, inlet guidelines, and storage calculations were also clarified.

In the past year, GSI Design made significant improvements to design standards and details, including downspout disconnections, green inlet, energy dissipation, drainage wells, infiltration columns, and structural soils. These developments apply to several current projects in design. GSI Design continues to work on developing the GSI Design Requirements and Guidelines Packet and standard details into a comprehensive Planning and Design Manual that will cover the entire process from planning through design.

### **3.1.3 Construction**

A working group including designers, construction inspectors and maintenance staff have been focused on improving and formalizing the Department's standard specifications for construction of green stormwater infrastructure. Improvements to the specification included updates and additions to stormwater storage materials and structures, porous surfacing materials, soils characteristics and placement, landscaping, as-builts, and construction site management. In addition to improving the technical aspects of the specifications we have reformatted the specifications such that they are more easily adapted to partner projects with other City agencies.

## 3.2 Green Stormwater Infrastructure through Private Redevelopment

### 3.2.1 Philadelphia Stormwater Management Regulations

The City's Stormwater Management Regulations were revised in January of 2006, providing the foundation of the private sector's role in the *Green City, Clean Waters* program. Post Construction Stormwater Management Plans are reviewed for compliance with the Stormwater Management Regulations and the installations of SMPs are inspected during construction. During the 2015 reporting year, Philadelphia Water conducted 3,044 inspections during active construction in the combined sewer area.

**Table 3-2** summarizes private development projects included in this year's Greened Acre total that were derived from constructed projects in the combined sewer area. A full list of complete private development projects can be found in **Appendix 3**.

**Table 3-2: 2015 Summary of Greened Acres by Watershed from Private Development Green Stormwater Infrastructure**

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Total
Stormwater Regulations Greened Acres	7.29	160	3.69	37.04	121.38	329.40

The Water Department continued with a verification process to assess each project prior to counting Greened Acres toward compliance totals. A key component is an ongoing inspection verification initiative to gather documentation of all approvals that have not otherwise been verified. A focus of this effort has been the creation of record drawings to document the constructed conditions of the project sites. For newly constructed projects, the Water Department requires record drawings to be submitted by the property owner and/or project engineer prior to project verification. The record drawings allow the Water Department to verify SMP installation and function. Complete Stormwater Management Regulations and Retrofit green stormwater infrastructure projects are displayed in **Figure 3-3**.

#### Green Project Review

Philadelphia Water provides an expedited review for development projects able to disconnect 95% or more of the post-construction Directly Connected Impervious Area (DCIA) by utilizing features such as green roofs, porous pavement, and new tree canopy. Projects that are eligible for a Green Project Review will receive a review response from Philadelphia Water within 5 days, instead of the typical 15 calendar day review time. In the 2015 reporting year, 19 projects qualified for an expedited Green Project Review.

## 3.2.2 Incentives for Private Property Owners to Implement Green Stormwater Infrastructure

### Stormwater Management Incentives Program & Greened Acre Retrofit Program

Philadelphia Water 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. Philadelphia Water, 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 price for qualified non-residential PWD customers and contractors to design and install stormwater best management practices. **Table 3-3** is a summary table of SMIP and GARP awards made during the 2015 reporting year. SMIP and GARP projects that are completed are listed in Table 2 of **Appendix 3**.

**Table 3-3: 2015 Reporting Year SMIP/GARP Awardees**

Project	Grant Type	Grant Amount (\$)	Proposed GAs
MINK 1143 LLC	SMIP	94,860	0.74
Wolf Investments	SMIP	183,152	11.84
Northeast Tower Center	SMIP	1,435,000	14.57
Lutheran Settlement House	SMIP	20,000	0.12
ISS Management, LLC	GARP	8,333,200	87.91
<b>Total</b>		<b>\$10,066,212</b>	<b>115.18</b>

A summary of constructed Greened Acres from SMIP and GARP projects by watershed are listed below in **Table 3-4: Constructed Green Acres from SMIP and GARP Projects by Watershed**

Watershed	Darby-Cobbs	Delaware	Pennypack	Tookany-Tacony/ Frankford	Schuylkill	Total
<b>SMIP/Incentives Greened Acres</b>	0	61.69	0	16.91	53.05	131.65

### Stormwater Design Assistance

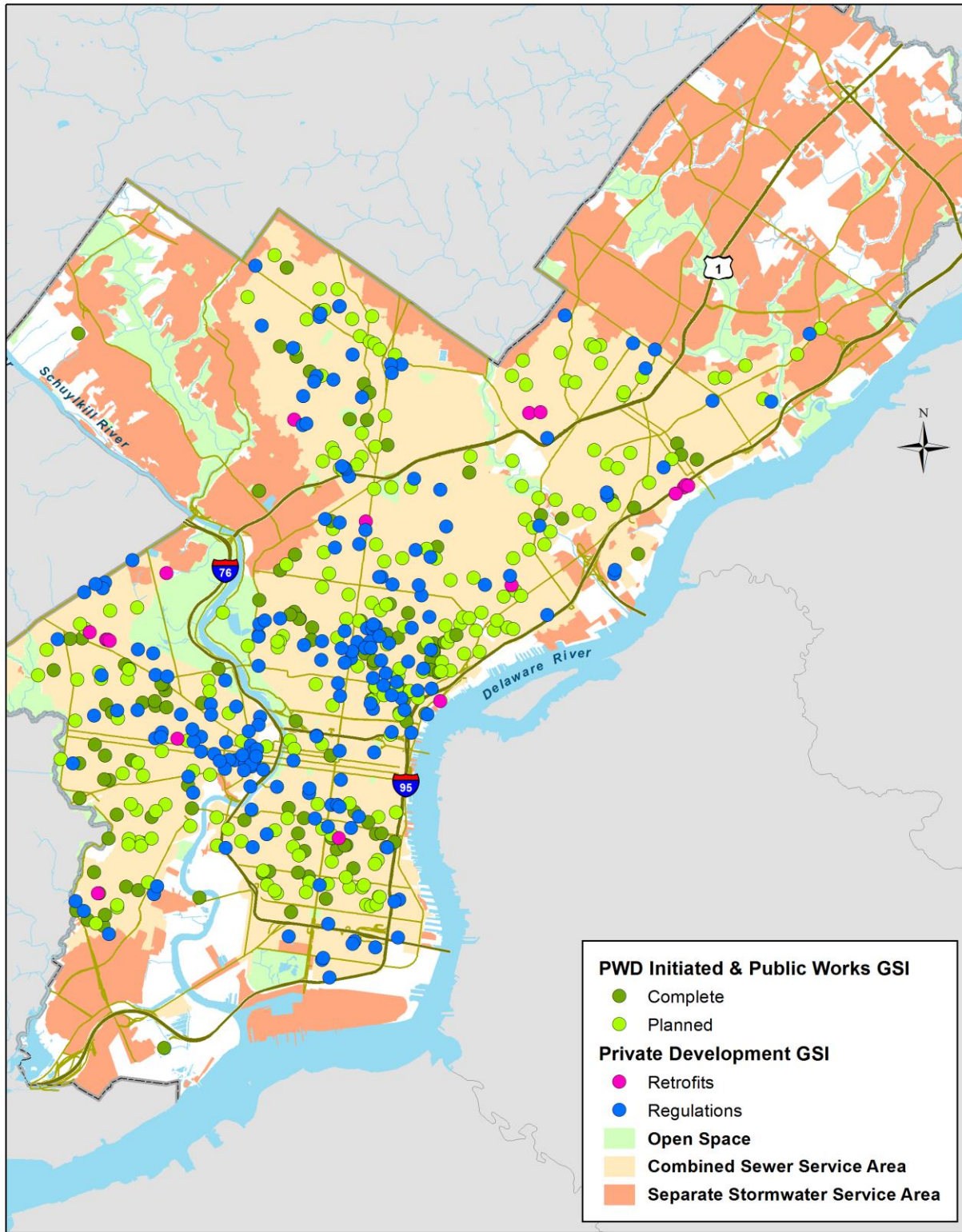
Since July 2009, Philadelphia Water has offered site evaluation and concept planning services at no cost to customers interested in retrofitting their properties for stormwater management. This assistance provides preliminary concept plans, cost benefit analyses and helps the property owner understand the types of stormwater management practices suitable for their property. At the close of this reporting year, through this program, Philadelphia Water has worked with nearly 250 property owners

### Stormwater Credits

Non-residential property owners are eligible for stormwater credits, a direct reduction to the monthly stormwater charge. Stormwater credits can be earned as a result of the construction, operation, and maintenance of privately owned stormwater management practices that reduce a parcel's contribution of stormwater 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. Philadelphia Water approved or renewed 265 stormwater billing credit applications during the reporting period.



Figure 3-3: Green Stormwater Infrastructure Projects in Philadelphia County



As of 8/6/2015

0 1.25 2.5 5 Miles

### 3.3 Waterfront Disconnection

#### 3.3.1 Delaware River Waterfront Stormwater Planning

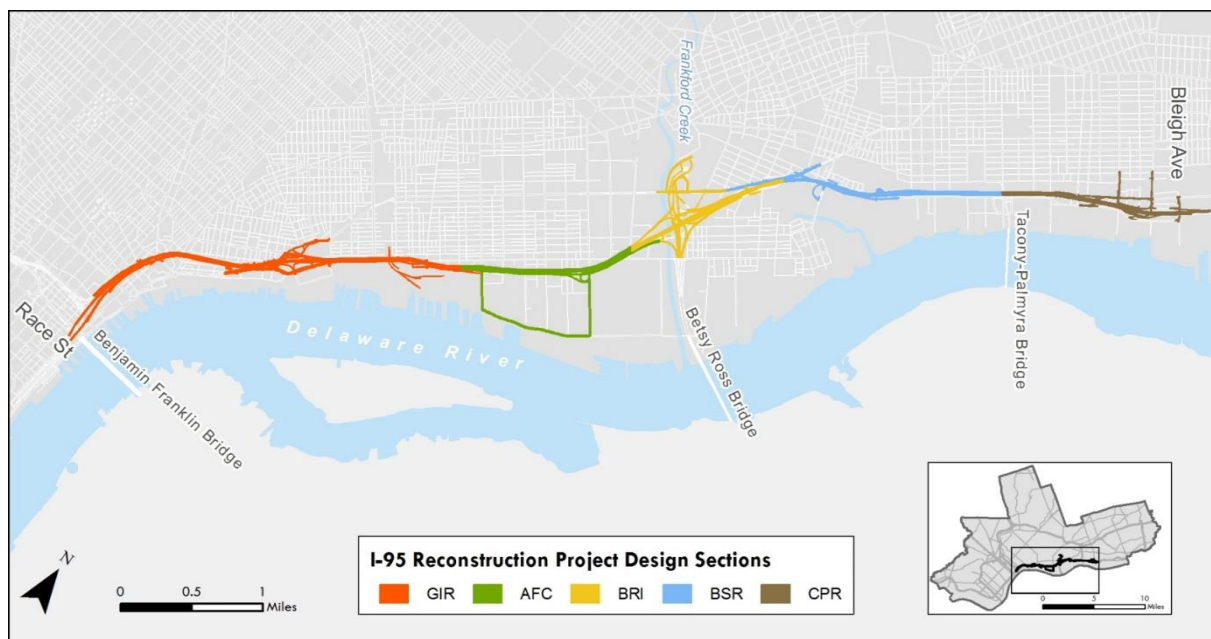
The target area for stormwater planning along the Delaware River is bounded roughly by the Pennypack Creek to the north, the Philadelphia Naval Yard to the south, I-95 to the west, and the Delaware River to the east. Stormwater management planning for the target area incorporates three components: 1) 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 street right-of-way.

#### 3.3.2 I-95 Reconstruction Project

Throughout much of 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 phases between Bleigh Avenue and Race Street. This 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.

##### I-95 Reconstruction Sections

The I-95 Reconstruction Project is divided into five (5) major design sections, moving from south to north: GIR, AFC, BRI, BSR, and CPR. Each of these sections is further subdivided into a total of 25 construction subsections. A map of the I-95 Reconstruction Project Design Sections is featured below in **Figure 3-4**.





The project limits and expected year of completion dates for the construction subsections are summarized in **Table 3.5**. Sections with significant design or construction progress in the 2015 reporting year are discussed in detail below.

**Table 3-5: I-95 Construction Section Limits and Expected Year of Completion**

SECTION	LIMITS	EXPECTED YEAR OF COMPLETION
<b>GIR</b>	<b>Race Street to Ann Street</b>	
GR0	I-95 NB between Delaware Avenue and York Street; I-95 SB near Girard Avenue	Completed, 2010
GR1	Richmond Street from Schirra Drive to Ann Street; Girard Avenue Bridge over Aramingo Avenue	2016
GR2	I-95 NB/SB between Shackamaxon Street and Columbia Avenue	2015
GR3	I-95 NB from Columbia Avenue to Ann Street; Delaware Avenue between Columbia and Aramingo Avenues	2018
GR4	I-95 SB from Columbia Avenue to Ann Street	2022
GR5	I-95 NB from Race to Shackamaxon Streets	2023
GR6	I-95 SB from Race to Shackamaxon Streets	2020
GR8	To be determined	2024
GR9	To be determined	2029
<b>AFC</b>	<b>Ann Street to Frankford Creek</b>	
AF1	Richmond Street, Ann Street to Westmoreland Street	2018
AF2	Allegheny, Delaware, and Castor Avenues east of I-95	2019
AF3	I-95 SB from Ann Street to Wheatsheaf Lane	2022
AF4	I-95 NB from Ann Street to Wheatsheaf Lane	2026
<b>BRI</b>	<b>Frankford Creek to Margaret Street</b>	
BR0	Portions of Betsy Ross Interchange	2018
BR2	Portions of Betsy Ross Interchange; Aramingo Avenue between Frankford Creek and Duncan Street	2018
BR3	I-95 NB between Wheatsheaf Lane and Margaret Street	2021
BR4	I-95 SB between Wheatsheaf Lane and Margaret Street	2025
BR5	Bridge replacement over Thompson Street	To be determined
BR6	To be determined	To be determined
<b>BSR</b>	<b>Margaret Street to Levick Street</b>	
BS1	I-95 NB/SB between Carver and Levick Streets	2020
BS2	I-95 NB/SB between Margaret and Carver Streets	2021
BS3	Aramingo Avenue between Church Street and Amtrak overpass	2024
BS4	Aramingo Avenue between Wheatsheaf Lane and Church Street, and Betsy Ross Interchange Ramps on west side of Aramingo	2016
<b>CPR</b>	<b>Levick Street to Bleigh Avenue</b>	
CP1	I-95 NB/SB between Levick Street and Bleigh Avenue	Completed, 2013
CP2	Cottman and Princeton Avenues, State Road, Milnor Street	2017

## **Section BRI (Betsy Ross Interchange Area)**

### ***BRO***

Final design for this section was completed in June 2014, and construction is underway. Philadelphia Water 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 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 completed or under construction. Pipes have been completed in Cottman, Princeton, and Magee; work is nearly finished in Disston and Unruh Streets; and work is underway for 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.

### 3.4 Interceptor Rehabilitation Program

The WQBEL Performance Standards requires 2 miles of interceptor lining by the end of year 5 (2016). As of July 2015, Philadelphia Water is well ahead of that target with 7.5 miles completed. Additionally there are 3.0 miles in construction or in contract management, and 4.6 miles in design. (**Table 3-6**). The total miles of interceptor lined required for WQBEL compliance by year 25 is 14.5 miles cumulatively.

**Table 3-6: Interceptor Lining 2015 Reporting Year Status**

Project Name	Extents	Length (Miles)
<b>Construction Complete</b>		
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
<b>In Contract Management</b>		
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
<b>In Design</b>		
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
<b>Total Anticipated Miles of Interceptor Lined</b>		<b>15.1</b>

## 4.0 Partnerships and Policy

---

To achieve the Performance Standards included in the WQBEL, Philadelphia Water has developed partnerships with external agencies to coordinate and collaborate on stormwater management projects.

### 4.1 Tracking Federal and State Policy Developments

Philadelphia Water 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 Philadelphia Water are reviewed and then imported into a policy tracking database.

### 4.2 Coordination with other City and Non-City Agencies to Achieve Policy Goals

Philadelphia Water 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 all capital investments. Philadelphia Water has solidified and codified many of these partnership project identification processes with primary agency partners such as the Streets Department, Parks Department and Department of Public Property.

Philadelphia Water continues to cultivate new partnerships with agencies and institutions such as SEPTA, Temple, Philadelphia Parking Authority, Philadelphia Housing Authority and a variety of city agencies, such as Police, Fire, Free Library, Art Museum, Prisons, Zoo, Fleet, Health and Office of Supportive Housing.

In new partnerships, Philadelphia Water utilizes a pilot-based approach to coordination with partners, identifying various partnership scenarios and executing such partnership projects in order to develop protocols for project management responsibilities, project review workflows, cost shares, maintenance responsibilities, land access and project permanency. As these pilots are accomplished, Philadelphia Water documents and codifies the policies established as templates that can be applied to all future projects of the same type.

The primary agency partnerships are described below.

#### 4.2.1 Green Streets and Transportation Partnerships

Philadelphia Water has advanced development of the Philadelphia Green Streets Program through the continued integration of planning and partnerships with the Streets Department, Southeastern Pennsylvania Transportation Authority (SEPTA), the Mayor's Office of Transportation and Utilities, PennDOT and others. To that end the Department and partners such as the Streets Department and SEPTA have signed Memorandums of Understanding (MOU). The MOU's have standardized

coordination initiatives, and created the framework for ongoing pilot initiatives, respectively. As the result of these efforts, the Department has initiated more inter-agency projects that serve multiple ends: managing stormwater and advancing City goals of promoting traffic safety and economic development.

In the past year, several green stormwater infrastructure projects were able to be coordinated with current Philadelphia Water or partner projects. Working with partners in the Streets Department, Philadelphia Water has integrated stormwater infrastructure into major projects to be funded by the federally-funded Transportation Improvement Program (TIP) such as the American Street Streetscape Project, to Allegheny Ave Safety Improvements and the JFK Boulevard Bridges (3) Over 21st/22nd/23rd Streets. The Water, Streets, and Commerce Departments, among others, applied for TIGER funding to initiate a multi-modal and green infrastructure project along American Street. Work with the Streets Department has seen the initiation and design of integrated Safe Routes to Schools projects with GSI integrated and developed multi-modal green infrastructure projects such as the Yorktown Green and Complete Streets project and the Lower Germantown Green and Complete Streets project.

Pilot and partnership projects with partners from SEPTA to PennDOT have advanced from planning to design and construction stages, and potential new opportunities for incorporating GSI into transportation-related sites and projects have been identified with an expanded series of partners such as the Commerce Department and Philadelphia Parking Authority. SEPTA pilot projects, such as the Washington Lane / Clearview Project manage stormwater from SEPTA parking lots in PWD rain gardens, while the PennDOT projects have integrated GSI in to bridge and street resurfacing projects.

Policy and strategic planning improvements continue to make coordinating the design and construction of such projects more feasible. The Green Streets Design and Alignment committees met on a regular basis during the 2015 reporting year. Their work has served to facilitate project and pilot reviews, and has increased the breadth and scope of intergovernmental coordination and green infrastructure investment.

#### 4.2.2 Schools

Philadelphia Water is collaborating with the School District of Philadelphia, private and charter school operators to implement green stormwater infrastructure projects on school property. Philadelphia Water has three models of project implementation that are applied as necessary in accordance with individual school circumstances of project management, fundraising and maintenance capacity:

**Philadelphia Water-Initiated Model** follows Philadelphia Water's capital projects procedures where Philadelphia Water manages design and construction. The George Nebinger School was the first test case for this coordination model. Five additional school projects have been in development for Philadelphia Water Initiated Model at the following schools: Horatio B. Hackett, W.D. Kelley, William McKinley, James G. Blaine and Tanner Duckrey. Philadelphia Water worked with each school to apply for Community Design Collaborative grants to undergo a master planning process that would integrate green stormwater infrastructure with existing and future amenities. Three schools, Hackett, McKinley and Kelly completed their master plans in spring of 2014. Blaine and Duckrey are currently going through the master planning process. For all five schools, the school community, community groups, and SDP were intimately involved in this process. Philadelphia Water has begun the design phase for

the green stormwater infrastructure for Hackett, McKinley and Kelley. Philadelphia Water hopes to initiate design for Blaine and Duckrey after master planning process is completed. Stormwater from each school yard and some adjacent street drainage areas will be managed by rain gardens at all five sites

**The School Initiated Model** goes through a school's capital improvement process and is funded via the SMIP Grant program. Philadelphia Water had been piloting this model with both public and private school operators.

The School District of Philadelphia was awarded a first round SMIP Grant to build green stormwater infrastructure at five school sites. The five schools selected were Lowell Elementary School, Martin Luther King High School, Mayfair Elementary School, Samuel Powel Elementary and Warren G. Harding Middle School. Unfortunately, the improvements at Powel School were canceled due to the property being slated for redevelopment. Philadelphia Water worked closely with the School District to develop concept plans that reduce stormwater runoff both on the school sites and in the surrounding public right of way, maximizing Philadelphia Water's investment. The School District is finalizing designs for all four sites and expects to start construction -soon. The School District will be utilizing a variety of stormwater management practices, including rain gardens and porous pavers. Philadelphia Water has also worked with a three private schools, Greene Street Friends, Settlement Music School and the Philadelphia Montessori School, to fund the design and construction of GSI on their properties. The Greene Street Friends project was constructed in the 2013 reporting year. The Settlement Music School project has started construction. The plan is to disconnect both the roof and surface impervious area into a large rain garden to be built on a former parking lot. The construction of the stormwater management practices will help to resolve ongoing standing water. The Philadelphia Montessori School is in the early planning phases and is looking to depave portions of the schoolyard.

**The Third Party Model** employs interested non-profits to manage design and construction on behalf of Philadelphia Water and the School operator. It allows the third party to leverage Philadelphia Water's investment to fundraise for other schoolyard improvements. Philadelphia Water has been piloting this model with a number of entities, including the Trust for Public Land (TPL), through the Green2015 Partnership and by awarding SMIP grants to school-related non-profits for schoolyard green stormwater infrastructure projects.

Philadelphia Water partnered with the TPL at the William Dick School, where a large rain garden was built in conjunction with comprehensive playground improvements. This coupling of improvements allowed for a total site transformation and provided a unique educational opportunity for the students of William Dick. TPL utilized a collaborative design process, where the elementary school students were educated about the benefits of stormwater management and students helped to site and select the playground elements. PWD has pledged support to four other TPL school projects, William Cramp, Taggart, EM Stanton and Patterson. Construction has started at William Cramp and PWD is funding depaving throughout the schoolyard. The other sites are in the early planning and design phases.

Philadelphia Water has funded three other public school projects via school related non-profit organizations. The nonprofit group Friends of Chester Arthur was awarded a SMIP Grant to construct

stormwater management features at the Chester Arthur School, as part of their larger school yard master plan effort. Friends of Chester Arthur School is still in the planning stages for the project but the construction of a large rain garden is anticipated. The rain garden will be fully integrated with the other playground elements and serves as an educational tool for staff, students and the community.

Philadelphia Water awarded a SMIP Grant to the West Philly Coalition for Neighborhood Schools to design and construct green stormwater infrastructure at the Lea School. The design includes a large rain garden and underground detention system, which would capture both roof and surface runoff. Similar to the Friends of Chester Arthur project, the stormwater improvements will be incorporated into a larger renovation of the school yard. During the summer of 2014, PWD funded the installation of porous play surface at the school as an early implementation project.

Philadelphia Water awarded a SMIP Grant to Drexel University for the design and construction of green stormwater infrastructure at Morton McMichael School in west Philadelphia. This project is in the early planning phases; concept plans for the site include a rain garden and swale. The stormwater improvements will serve as an educational tool. In addition to the development of the three partnership models described above, Philadelphia Water has also taken steps to formalize its partnership with the School District. Monthly meetings have been established with key District staff that serve to advance the numerous green school projects and has helped to streamline communication between the agencies. The School District is also working to develop guidelines to assist third parties in applying for SMIP Grants for School District properties. Finally, PWD in partnership with the local nonprofit Community Design Collaborative, developed the Transforming Philadelphia Schoolyards Guide as an outreach tool for community members interested in greening their schoolyards. A copy of the guide can be found here: <http://www.cdesignc.org/uploads/files/547129531651180934-collaborative-transforming-philadelphias-schoolyards-guide.pdf>

### **4.2.3 Parks & Recreation**

There are currently over 100 GSI projects either in or adjacent to park sites with green stormwater infrastructure that have been either initiated or completed thus far. Approximately 43% are constructed, with 26% initiated in design within the last year. As one of the largest land stewards in the City, the Philadelphia Department of Parks & Recreation (PPR) is a key partner to Philadelphia Water. PWD and PPR continue to work together to prioritize and address challenges to comprehensive green stormwater infrastructure implementation on Parks land. PWD, PPR and Department of Public Property staff meet monthly at Stormwater Review Team meetings with the goals of reviewing and approving PWD-initiated parks projects, identify PPR-led projects that PWD could coordinate with for green stormwater infrastructure, discuss technical design issues, identify shared grant opportunities, and determine where PPR needs and resources are directed. PWD staff also attends a monthly Parks Collaboration meeting administered by PPR, which bring together staff from multiple departments within PPR (Operations, Programs, Skilled Trades, TreeKeepers, PowerCorps PHL, Farm Philly, etc.) and external partners (PWD, Fairmount Park Conservancy, Department of Public Property, etc.) and similar parks and recreation stakeholders to inform all staff of issues and topics, problem solve and share resources of neighborhood parks.

Aligning resources and capital investments into a shared design and construction process on partnership parks is another key goal of the PPR partnership. PWD has collaborated with PPR and Public Property staff to integrate design and/or construction under one scope, sharing costs for approximately 10 projects, with an anticipated 5-10 projects planned in the coming year. Partnership projects provide PWD with opportune locations for managing large volumes of stormwater in a cost-efficient way. Additionally, the existing stewardship provided by the PPR and community stewardship groups on these sites support overall maintenance needs of PWD GSI systems, provide a secure and permanent space for PWD green stormwater infrastructure and ensure public access and awareness of the City's stormwater management efforts.

PWD has continued the Green2015 partnership with Trust for Public Lands (TPL), scheduled to close at the end of the 2015 calendar year, as well as the Neighborhood Parks Program (NPP) with the Pennsylvania Horticulture Society (PHS). Smaller-scale model partnerships are being investigated, with one partnership with Urban Roots recently started. Urban Roots is assisting PWD with site identification, planning, and community outreach, to leverage and mitigate the cost of city investments in stormwater infrastructure on public lands, especially parks and recreation facilities, in Philadelphia.

Following up on the *Living the Partnership* retreat of PPR and PWD staff members in 2010, PWD is in the process of planning a fall 2015 visioning session of key staff members from both departments to align goals as they've evolved. At this time, a draft maintenance agreement between departments is being developed.

#### **4.2.4 Vacant Lots**

Philadelphia Water continued its pilot initiatives on vacant lands, via analysis of both public and private vacant lots, and continued partnership development to implement its vacant lands program. Specifically, Philadelphia Water has continued to build relationships with the Department of Public Property (DPP), Philadelphia Redevelopment Authority (PRA), City Council, and similar stakeholders to streamline the process to utilize vacant lots for green stormwater infrastructure systems. Staff has met with key Council members to identify and implement GSI on key vacant lots.

PWD has integrated the investigation and identification of vacant lot projects into the Area of Opportunity Analysis (AOA) process. These projects will be further vetted according to internal vacant land review protocol for land use history, market value, community prioritization and political support in order to identify those vacant lots that are ideal for GSI implementation.

In order to implement current and future GSI projects on City-owned vacant lots, PWD staff collaborated with DPP to establish a Memorandum of Understanding identifying the transfer of land use and maintenance responsibility of these sites to PWD. Four signed MOUs have been documented for the initial pilot vacant lot projects, two of which are going to construction in Fall of 2015.

PWD is in the process of evaluating the transfer of identified PRA publicly-owned lots and private lots identified for City acquisition via the Philadelphia Land Bank for construction of GSI. The identification of tax-delinquent privately-owned vacant lots with high stormwater management potential has been integrated into the AOA planning process. PWD has worked with Council representatives and various



community groups to request acquisition of three private, tax-delinquent lots into the Land Bank by the City for construction and maintenance of GSI by PWD.

Tools that have been developed in the past year to facilitate the vacant land planning process include: an internal project workflow, criteria of physical attributes for site selection, established process of review for economic and environmental conditions that affect a vacant lot, promotional materials and program goals. The vacant land team has advanced the vacant land identification and review process, including a review of historic land uses to determine any possible environmental concerns of a site. Philadelphia Water, in partnership with the Philadelphia Redevelopment Authority (PRA), the Mayor's Office of Sustainability (MOS), and the Philadelphia Parks & Recreation Department (PPR) FarmPhilly program, was awarded a \$200,000 EPA Brownfields Assessment Grant. This grant will be utilized to conduct Phase I and II Environmental Assessments for approximately 10-20 vacant parcels with land use histories of concern in preparation for urban agriculture and/or green stormwater infrastructure community use(s). This will provide the framework to seek subsequent EPA Clean Up funding for the subject sites.

Philadelphia Water has three early pilot sites ready to go to construction in fall 2015, with other vacant lots under review. The three pilot vacant lot sites include a rain garden covering a traffic triangle that was formerly a gas station site and had been remediated by the City; a rain garden covering a vacant lot that had formerly had been tended to by the Tookany/Tacony-Frankford Watershed Partnership; and a vacant lot where a councilmember has been working with the community to develop a public green space including seating areas and a community garden.

## 5.0 Operation and Maintenance

---

In order to ensure the function and sustainability of stormwater management infrastructure investments, Philadelphia Water continues to maintain Green Stormwater Infrastructure and develop Operation & Maintenance Agreements and protocols.

### 5.1 Public Green Stormwater Infrastructure Maintenance Program

As the GSI maintenance program continues to expand its scope, the number and complexity of SMP's continues to increase. **Table 5-1** provides a list of SMP types and the total number currently maintained by Philadelphia Water.

**Table 5-1: Philadelphia Water SMP Types Maintained in the 2015 Reporting Year**

SMP Types	Total Number of SMP's
Green Roof	1
Infiltration/Storage Trench	43
Stormwater Trees	86
Pervious Paving	8
Rain Garden	59
Stormwater Basin	1
Stormwater Bumpout	16
Stormwater Planter	25
Stormwater Tree Trench	173
Swale	7
Total Number of SMP's	420

Philadelphia Water maintains GSI according to the frequencies and activities outlined in the Green Stormwater Infrastructure Maintenance Manual. The SMP-specific maintenance regimes detailed in the Manual were designed to be scalable.

In addition, Philadelphia Water has created several tools and strategies intended to relay lessons learned in the field to entities responsible for the design and construction of GSI. For all projects constructed by PWD, GSI Maintenance staff review design plans at the 70% complete phase. Maintenance reviews allow for GSI Maintenance to adapt and modify maintenance strategies in

instances where pilot technologies are planned. In addition, it provides an opportunity to relay critical field-based observations to design professionals which is aimed at reducing maintenance costs and aligning project-specific design elements with existing maintenance protocols and procurement strategies for equipment, tools and other associated materials.

In the spring of 2014, Philadelphia Water drafted an internal guidance document entitled the "PWD Inspector's Planting Manual" which was aimed at providing Water Department Construction Inspectors, as well as contractors, additional guidance with regards to planting trees, shrubs and herbaceous vegetation. The document also provides guidance on identifying issues and factors that should prompt inspectors to reject vegetation delivered from nurseries should they not meet Philadelphia Water standards and specifications. The release of this internal document was followed with tree planting and corrective pruning demonstrations by Philadelphia Water's GSI maintenance staff. Following the creation of that document, PWD also created the "Green Stormwater Infrastructure Landscape Design Guidebook" which was intended to assist design professionals in selecting site and context appropriate vegetation palettes for use in PWD GSI projects. Guidance provided in this document was based on vegetation survival data and field research conducted by PWD and provides not only recommended arrangements and species but also examples of and solutions for potential design challenges that may be encountered in the diverse Philadelphia landscape.

### 5.1.1 Inspection Regime

#### Surface Elements

The objective of the surface inspection program is to inspect each SMP to: ensure the integrity of exposed structural components (i.e. domed inlet grates, trench drains, inlet pretreatment devices, weirs etc.); detect issues that may impact the optimal conditions for the survival of vegetation within all vegetated areas; determine if there exists potential impacts to aesthetic quality; and determine if localized disturbances (e.g. erosion and sedimentation associated with construction or utility repairs) have the potential to impact overall hydraulic performance. These routine visual and semi-quantitative inspections are a valuable tool in regards to informing timely preventative and corrective maintenance activities. Inspectors also routinely take photographs from standardized photo-monitoring points which allow PWD to document seasonal variation or acute impacts at SMP's.

Inspections are denoted as wet weather inspections or dry weather inspections; wet weather inspections although less frequent have proven beneficial, especially identifying bypass issues. A total of 1,442 inspections were conducted during reporting year 2015. Procedure dictates that any issue identified during a routine inspection will be referred for follow-up maintenance. Table 5-2 below shows the number of inspections and number referrals for follow-up maintenance. A total of 367 referrals were initiated from the inspection program.

**Table 5-2: Number of Inspections and Referrals for Follow-up Maintenance**

Inspections	
Types	# of Inspections
Dry Weather	1,172
Wet Weather	270
<b>Total FY15 Inspections</b>	<b>1,442</b>
Follow-up Maintenance	
Referral Types	# of Events
Aesthetic	24
Subsurface	20
Standard Priority Routine	311
High Priority Routine	12
<b>Total FY15 Referrals</b>	<b>367</b>

### Surface Inspection Training

Inspection Staff accumulated a total of 33hours of training in the following professional training programs:

- Rutgers’ Introduction to Wetland Plant Identification
- National Stormwater Center ‘s Certified Stormwater Inspector – Municipal
- Pennsylvania Horticultural Society’s Tree Tenders

Inspection Program and ancillary staff (other PWD field staff that have field duties that frequently place them in vicinity of PWD GSI) meet quarterly to review standard operating procedures and coordination tactics. A total of 21 individuals have participated in such meetings.

### 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. Maintenance inspections are performed in dry weather conditions as capturing discernable video during wet weather conditions is difficult. Every SMP with subsurface components is inspected a minimum of once a year.

Components typically assessed include the perforated distribution pipes that distribute stormwater to systems, the perforated underdrains that slow-release stormwater into the combined sewer system and all associated access structures. Using a video monitor connected to a push camera, annotated video

and photos are taken of all subsurface features and NASSCO-formatted assessment summaries are recorded.

Subsurface inspections are essential for assessing the degree to which floatable debris associated with stormwater runoff occlude the cross-sectional area of these pipes and the subsequent determination as to whether any follow-up maintenance is required. Routine inspections are also essential in the assessment of the structural integrity of pipe networks associated with GSI which is a critical factor in prioritizing the long-term management of PWD linear assets.

294 SMP's and a total of 131,882 linear feet of pipe were inspected during reporting year 2015.

### **Subsurface Inspection Training**

Inspection staff are 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.

### **5.1.2 Maintenance Regime**

Philadelphia Water's GSI maintenance program operates through three types of maintenance activities in order to adequately address the maintenance needs of Philadelphia Water's GSI. "Surface Maintenance", "Subsurface Maintenance" and "Aesthetic Maintenance" activities are managed through a GIS-based work order management system called CityWorks and are defined below:

**Routine surface maintenance** tasks include activities such as plant care (e.g., pruning, watering, vegetation control, replanting, etc.), cleaning (e.g., trash/ sediment/ organic debris removal), structural upkeep and repairs (e.g., winterizing, concrete and masonry repair, replacement of grates, access covers etc.). The frequency of maintenance and the tasks performed at green stormwater infrastructure projects are dependent on the type of SMPs implemented at a given location. Green stormwater infrastructure projects with abundant herbaceous vegetation such as rain gardens, stormwater planters, basins, swales and stormwater bump-outs are maintained monthly to ensure plant health and survival and overall optimal system function. Other SMP types that lack herbaceous vegetation, such as tree trenches and infiltration/storage trenches require a more intermittent routine maintenance schedule and are maintained bi-monthly. Pervious pavement maintenance has been folded into the surface maintenance regime and those SMPs are maintained twice a year during the spring and fall. Pervious pavement maintenance consists of vacuuming pervious surfaces to remove fine sediment and other debris using regenerative air technologies.

**Routine subsurface maintenance** activities include tasks such as jet-rodding, high-pressure flushing and vacuuming of sediment, trash and debris within inlets and control structures, as well as distribution and underdrain pipe elements. During subsurface maintenance, debris is also removed from pretreatment devices and sediment, trash and debris are removed from the curb gutter. Routine maintenance of all subsurface components associated with constructed SMPs (i.e. pipes and inlets) is performed at a minimum of once per year; however, some SMP's are subject to high sediment, trash and debris loading and are thus maintained at more frequent intervals.

**Aesthetic Maintenance** consists of sediment, debris and trash removal from planting beds and conveyance structures such as swales, stone conveyance channels and trench drains. Aesthetic maintenance activities are often initiated in response to tour requests or to maintain optimal site aesthetics in between surface maintenance events - particularly at SMP's with abundant herbaceous vegetation. Aesthetic maintenance has emerged as a key undertaking with respect to keeping plantings beds in an aesthetically pleasing state - a factor which has emerged as key to garnering public acceptance of GSI.

Average maintenance cycles and tasks by SMP type have been developed through observation of field data over multiple maintenance seasons to maintain safe and effective SMPs. The frequency of certain maintenance are subject to change based on various factors that are evaluated as sites begin to mature and further experience is gained. Prior to receiving the full design flows, conveyance to systems via curb cuts, trench drains, end walls or inlets is restricted until Water Department staff determines the SMP has well-established vegetation. Similarly, systems with very well established vegetation (i.e. 2-3 years post-construction) are taken off of a watering regiment given these systems tend to be less sensitive to seasonal drought conditions. Modifications to maintenance protocols can also include an increase in the frequency of maintenance events in order to address specific needs (i.e. public events, follow-up maintenance actions, pre or post-storm maintenance).

Maintenance events associated with surface maintenance, aesthetic maintenance and subsurface maintenance are summarized in **Table 5-3**.

**Table 5-3 Summary of Maintenance Events by Type in the 2015 Reporting Year**

Maintenance Work Order Type	Number of 2015 Events
Surface Maintenance	473
Subsurface Maintenance	428
Inlet Cleaning	274
Aesthetic	909
Porous Pavement	16
Total	2,100

### PowerCorps PHL Aesthetic Maintenance Program

Over the past decade, PWD has created, tested and 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 Philadelphia Water's GSI aesthetic maintenance responsibilities, Philadelphia Water entered a three year strategic partnership with PowerCorpsPHL, an innovative AmeriCorps initiative designed to address environmental stewardship, workforce development and violence prevention for at-risk youth in Philadelphia.

Through the implementation of the *PowerCorps GSI Aesthetic Maintenance Program*, PowerCorps members are helping to grow Philadelphia’s GSI maintenance community and provide new career pathways for local youth. Since March 2014, PowerCorps members have been working alongside Water Department staff, receiving training and education in GSI maintenance practices, Philadelphia Water’s *Green City, Clean Waters* program and the City’s sustainability goals.

Integral to the GSI Aesthetic Maintenance Program, PowerCorps members learn how to maintain GSI across the City to maximize systems functionality and aesthetics. Their efforts in the removal of trash, sediment and debris from GSI sites, as well as reporting site observations during their efforts, have increased Philadelphia Water’s capacity to maintain GSI systems and help to educate residents on the roles they can play in preserving our watersheds. The 2015 reporting year was the program’s first complete fiscal year. **Table 5-4** summarizes the type and amount (in pounds) of material collected by PowerCorps PHL in the 2015 reporting year.

**Table 5-4 PowerCorps PHL Trash Removal in the 2015 Reporting Year**

Type of material collected	Amount collected (in pounds)	Amount collected (in tons)
Residential garbage	17,432	8.71
Leaves and organic debris	49,786	24.89
Construction/commercial debris	23,686	11.84
Other (e.g. tires, appliances, short-dumping)	4,174	2.09
Total	95,078	47.49

## 5.2 Maintenance of Private Facilities

To ensure ongoing SMP maintenance of private facilities through the Stormwater Management Regulations, 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 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.

**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

inspection to assess the performance of these 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, and wet weather inspections. In FY 2015, the Water Department performed 128 post-construction inspections in the combined sewer areas of the city. 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 suspending the stormwater billing credit (if the customer is enrolled in the credits program), issuance of notice of violations, fines, court action, and/or a nuisance abatement and lien by the City.



## 6.0 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 Philadelphia Water's implementation of the GSI Monitoring components of the CMP are included in Sections 6.1 below, **Appendix 4 GSI Monitoring Status Report**, and **Appendix 5 GSI Groundwater Monitoring Report**. Other components of the CMP and the associated 2015 reporting year updates can be referenced in **Section F.2 Step 1.b. page 10 of the Stormwater Management Program Annual Report**.

### 6.1 Green Stormwater Infrastructure Monitoring

Monitoring and testing green stormwater infrastructure is essential to evaluate its effectiveness in managing stormwater and reducing combined sewer overflows. Philadelphia Water uses post-construction monitoring and post-construction testing at the SMP and system levels to evaluate the performance of stormwater management practices and to provide information for improvements to design and maintenance. Since November 2012, Philadelphia Water 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**.

### 6.2 Green Stormwater Infrastructure Pilot Program

Philadelphia Water has selected 128 sites to be included in the 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. Since grants were awarded in January 2014, Water Department staff has worked closely with grant awardees to try to focus their efforts on tasks of high value to Philadelphia Water, provide data and coordinate site selection for instrumentation of GSI systems and SMPs. It is expected that these monitoring partnerships will provide valuable data complementing monitoring results from Philadelphia Water's own monitoring programs. The following is a brief summary of each university's research focus:

- **Swarthmore College:** Subsurface monitoring of Philadelphia Water GSI sites; multi-objective, spatial optimization model for GSI placement

- **Villanova University:** Monitoring and analysis of Philadelphia Water 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:** Possible assistance to neighborhood groups seeking to implement GSI; possible controlled experiments on GSI installations built to Philadelphia Water specifications

## 7.0 Public Outreach and Participation

---

Philadelphia Water continues to strive to develop the best methods and preferred tools for engaging a broad range of stakeholders. In the 2015 reporting year, the Philadelphia Water engaged approximately 60,830 citizens through a variety of public education, outreach and participation initiatives. The following includes updates on current programs and projects.

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

Public outreach that helps increase public acceptance and support of green stormwater infrastructure should occur over the course of a project, from site identification to design and from construction to post- construction. The Water Department's multi-layer notification process will evolve as new areas are targeted for stormwater management. Tasks vary depending on the land use where the GSI is located. Generally, Philadelphia Water conducts outreach to property owners and site users; meetings with partners and presentations at community meetings and events; solicitation of design feedback (at times); coordination of public education and resources (i.e., environmental education curriculum in classroom or during after care at recreation center); event planning for ribbon-cuttings (for select sites); partnership development with users of the site; and coordination for adoption opportunities and more.

Over the past fiscal year, public education and outreach for green stormwater infrastructure in Philadelphia's neighborhoods grew with the number of projects going into the ground. . During fiscal year 2014, approximately 2,180 representatives participated in 48 community meetings and at 32 events (such as tours, walks and festivals) to learn about green infrastructure projects in neighborhoods across the city. Also, approximately 1,040 individuals participated in Rain Check, 50 participated in downspout planter block builds through Rebuilding Together Philadelphia and 55 participated in Soak It Up, Adoption.

Furthermore, approximately 57,512 program attendees 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 Philadelphia Water educators and Fairmount Water Works educators
- Environmental education programming offered by PP&R educators

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

## 7.2 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 the Water Department. As of July, 2015, there are 2,684 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

Philadelphia Water conducted the second phase of the interpretive *Green City, Clean Waters* permanent signage process, which involved fabrication and implementation of the first wave of 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>

### Online Community Input Form

The Water Department continues to encourage the public to submit locations for consideration through the Community Input Form, an on-line tool that accepts community input on the identification of potential green stormwater infrastructure projects at schools, recreation centers, parks, public spaces, parking lots, vacant lots and on streets. The Water Department is also accepting neighborhood-wide submissions for potential green stormwater infrastructure opportunities. Submissions do not guarantee that a project will be selected for implementation, however, each submission is reviewed and submitters are notified of the results of the review of their project within a six week period. The community input form may be accessed at [www.phillywatersheds.org/CIF](http://www.phillywatersheds.org/CIF).

### Stormwater Art

The Water Department uses art as an educational tool. Sample projects that the Water Department has previously completed include yarn bombing (temporary knitted yarn art) of stormwater tree trenches; rain barrel wrap original designs created by local students; and a temporary public street art community project with artist, Stacy Levy, which highlights water in our neighborhoods.

In the 2014 reporting year, the Water Department and the Mural Arts Program developed *Uncover the Green* - the City's 1st medallion and manhole cover design competition. *Uncover the Green* targeted undergraduate and graduate art students at local universities in Philadelphia. The goal was to raise public awareness of green stormwater infrastructure in the City while securing medallion designs and manhole cover designs to help the Water Department brand GSI on the City's sidewalks and streets. The competition required the submission of two designs, specifically: one design to celebrate green stormwater infrastructure for an inset medallion marker and an accompanying design that recognizes the City's waterways and the strength of the infrastructure beneath the City for a manhole cover that the Water Department hopes to place near GSI. During this reporting period, the Water Department led

the second phase of *Uncover the Green*. PWD took the results of the design competition a step further by determining how to implement the winning design. We led the implementation process – selected a final design, secured a fabricator, tested a prototype; and lined up the final product, which resulted in a designed inlet cover and medallion for installation.

Furthermore, the Philadelphia Water also worked with Mural Arts and artist Eurhi Jones on the creation of a temporary street art decal template. The result of the pilot was “Waterways”, which is a temporary art signature site that informs the decal branding template for all future Philadelphia Water green projects. To learn more visit <http://www.phillywatersheds.org/phillywaterart>.

### **Transforming Philadelphia’s Schoolyards Guide**

The Philadelphia Water Department and the Community Design Collaborative produced the *Transforming Philadelphia’s Schoolyards Guide* to help both schools and communities who seek design grants from the Collaborative for a schoolyard project or who want to learn how to green their school yard. Case studies, design elements and steps to greening are covered in the document. A successful Schoolyards Guide kick-off event also occurred with over 165 participants in attendance. For more information, please visit: <http://www.cdesignc.org/guides/schoolyards>.

### **Soak It Up Adoption**

Soak It Up Adoption is an innovative pilot program designed to build capacity for community-based maintenance of green stormwater infrastructure. Managed by Philadelphia Water, the program is coordinated by the Pennsylvania Environmental Council in partnership with the Philadelphia Industrial Development Corporation. Adoptees receive an annual grant and assume responsibility for the care of one or more green stormwater infrastructure sites. Responsibilities include helping to make sure that the site is litter free and that the surface of inlets and other components are free of leaves and other debris. Beyond helping with monitoring and aesthetic maintenance, participants are charged with helping PWD engage their community about their adopted infrastructure. Participants are required to participate in an introductory training session, perform weekly site inspections of their adopted green infrastructure sites, and document their experience throughout the duration of their grant.

In fiscal year 2015, seven new organizations were accepted into the program, increasing the total number of participants to fourteen organizations with 55 individuals acting as Adoption representatives. Throughout the year, adoptees completed a number of community events highlighting their adopted infrastructure. These events included: guided tours, interactive presentations at local public schools and seasonal replanting activities. 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 7-1:** Provides metrics used by Philadelphia Water 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 7-1: Soak It Up Adoption Pilot Program Metrics for the 2015 Reporting Year**

Adoptee	Number of SMPs Adopted	Amount of Residential Waste Collected in FY'15 (LBS)
New Kensington CDC	9	63
East Falls Development Corporation	6	182
Frankford CDC	2	615
JAS Tech Development Corp	4	N/A*
NorthEast Treatment Center	6	337
Northern Liberties Neighbors Association	8	265
Passyunk Square Civic Association	12	N/A*
Southwest CDC	13	3007
Newbold CDC	6	889
UC Green	7	257
Urban Tree Connection	11	573
Mill Creek Farm	2	N/A*
Asociacion Puertorriquenos en Marcha	5	133
Chew & Belfield Neighbors Club	11	479
TOTAL	102	6800lbs

\*Adoptee has outstanding reporting from FY'15

### Philadelphia Watershed and Stormwater Tours

Philadelphia Water 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, Philadelphia Water hopes to inspire others to replicate similar stormwater management projects. During this reporting period, Philadelphia Water led nine Stormwater Tours (focused on green stormwater), catered to diverse audiences, including representatives from Arlington National Cemetery; Detroit Design CDC; Rutgers & Drexel Universities; The Nature Conservancy, The China Conservation Program; University of Pennsylvania (SAS Facilities); and the EPA. Approximately 92 tour attendees participated in stormwater tours over the past year.

### Green City, Clean Waters Art Contest

The Partnership for the Delaware Estuary and the Water Department sponsored an art contest for Philadelphia public, private and home-schooled students, grades K-12. The theme was "Green City, Clean Waters." The contest creates an opportunity to educate school children about stormwater runoff pollution, but also provides City residents with information on how to protect waterways. Students are asked to create an original piece of artwork that shows how Philadelphians can help prevent stormwater runoff pollution. Alternatively, participants can create an original 30-second video showcasing what pet waste does to our water and how pet owners can help by picking up after their pets. Winning artwork is used to promote pollution prevention messages on SEPTA buses and in a calendar. Along with the drawings, the calendar contains monthly tips to help reduce water pollution. Winning videos are posted on the Partnership for the Delaware Estuary YouTube channel, and can be accessed at:

<http://www.youtube.com/user/DEESTUARY>. The 2013 contest brochure was distributed to over 750

schools, libraries, teachers, and miscellaneous informal educators and educational institutions. Over 1,397 entries were received! Furthermore 4 of the winning drawings were made into large street art decals that will be placed throughout the City of Philadelphia.

### **Urban Waters Curriculum & GreenSTEM Network**

The Fairmount Water Works (FWW) continues to advance the Urban Waters Curriculum Guide. Having received a grant from William Penn, FWW was able to offer teacher trainings to nine fellowship schools with 60 hours of professional development plus a two day workshop.

The greenSTEM Network also continues to connect students to the environment by monitoring and mining data from gardens, green roofs, and various other green stormwater infrastructure. Over the past year, three schools participated in the innovative STEM program.

## **7.3 Green Homes Initiatives**

### **Green Homes Technical Evaluation and Improvement**

The Water Department is piloting, monitoring and evaluating residential green tools and tracking technology improvements for these tools.

### **Downspout Planter Technology Improvements**

The Water Department is working with Shift Design to improve on a prototype 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 planters and is easy to assemble and install. Several prototypes have been designed and fabricated and are currently undergoing testing at Drexel University buildings. Improvements to the design this past year included improve materials to increase drainage, increased soil depth for plants, and easier assembly and installation.

### **Philadelphia Water Facility Residential Pilot Projects**

Installation, inspection, maintenance, and evaluation of downspout planters and other pilot residential tools are conducted at Water Department facilities. This project also provides an opportunity to strengthen communication between Water Department employees.

Pilot stormwater tools are located at the following Water Department facilities:

- Belmont – Lumber downspout planters and Aqualock ground level bioswales
- Fox Street – Lumber downspout planters

### Rebuilding Together Philadelphia Downspout Planters

The Water Department has worked with Rebuilding Together Philadelphia since 2010 to conduct “Block Builds” in underserved neighborhoods in the combined sewer section of Philadelphia. These Block Builds involve completing critical home repairs, adding energy efficient upgrades, and home modifications for multiple homeowners at a time – generally on a block scale. Exterior work, such as tree planting, sidewalk remediation and block cleanups, is also completed throughout the participating blocks to tie the residential projects together and to further galvanize the community to continue improvements. Rebuilding Together Philadelphia offers downspout planters and the installation of the planters free of charge during Block Builds.

During the 2015 reporting year, there were 17 downspout planters built and installed through Block Builds by Rebuilding Together Philadelphia, including 12 in Mantua, 1 in Overbrook, 3 in Wynnfield and 1 in Frankford. Approximately 50 individuals participated.

### Rain Check Program

Rain Check, which was established by the Water Department in June 2012, is a pilot program designed to incentivize homeowners to install landscape improvements that manage stormwater. The program has three broad objectives: first, to educate Philadelphia homeowners about the importance of stormwater management and the value of implementing the *Green City, Clean Waters* plan; second, to evaluate the use of incentives to motivate residential customers to manage stormwater on their properties; and third, to determine the feasibility of managing large amounts of stormwater runoff through residential green infrastructure.

In FY 15, the Water Department combined our Rain Check program with our Rain Barrel program into one program called “Rain Check.” In addition to combining the programs, PWD altered the structure of the program so that every participant is required to attend a one-hour Rain Check workshop that provides valuable education about pollution from stormwater runoff and how individuals can manage stormwater on their properties. The Department also started offering the program to all residents in the City, including those outside the combined sewer area. Lastly, PWD has significantly improved resources available for contractors who are interested in “green jobs” through Rain Check.

The Water Department will use ongoing tracking to evaluate the effectiveness of using these public outreach efforts to achieve Greened Acres and meet our COA commitments. **Table 7-2** provides metrics that the Water Department uses to track the progress of the Rain Check program.



**Table 7-2: Rain Check Program Metrics for the 2015 Reporting Year**

	FY 15
Workshops Hosted	42
Workshop Attendees	1,009
Contractor Training Participants	31
Rain Barrels Installed	468
Downspout Planters Installed	16
Rain Gardens Installed	5
Permeable Paving Installed	6
Depaving Installed	7

**Definition of Metrics**

**Workshop Attendees:**

This represents the total number of people who attended a Rain Check workshop. Many of these people went had tools installed this fiscal year. People who attended a workshop late in June, will have their tools installed in FY 16.

**Installations Completed:**

The Water Department installed 468 rain barrels by the conclusion of the reporting year, and 34 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 (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Benjamin Franklin Parkway from 21st St to 23rd St	6/1/2001	3561	0	29605	0.981	Infiltration Storage Trench	Streets	Partner-project, no capital investment by the PWD	Fairmount Park Commission	Schuylkill	<input type="checkbox"/>
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 the PWD	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Recreation	Schuylkill	<input type="checkbox"/>
West Mill Creek Farm Swales	5/1/2006	360	4	13942	0.099	Rain Garden, Swale	Streets	\$58,000	Pennsylvania Department of Environmental Protection, Philadelphia Water Department, Pennsylvania Horticulture Society	Schuylkill	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Mill Creek Playground Basketball Court	6/2/2006	1870	0	9350	0.429	Pervious Pavement	Open Space	\$414,000**	Councilwoman Blackwell, Pennsylvania Department of Environmental Protection, Philadelphia Department of Parks & Recreation	Schuylkill	<input type="checkbox"/>
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	<input type="checkbox"/>
Cliveden Park	10/1/2007	4378	0	52355	1.206	Rain Garden	Open Space	\$175,000	Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	TTF	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
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	<input type="checkbox"/>
Jefferson Square Raingarden	6/1/2008	347	3	3565	0.096	Rain Garden	Streets	Cost not available		Delaware	<input type="checkbox"/>
McMahon St (Waterview Recreation Center)	7/1/2008	2108.24	8	13368	0.581	Stormwater Tree Trench, Stormwater Planter, Pervious Pavement	Streets	\$50,000	Pennsylvania Horticulture Society, Philadelphia Department of Recreation	TTF	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Liberty Lands	6/1/2009	849	24	8000	0.234	Rain Garden	Open Space	\$283,000	Northern Liberties Neighborhood Association, Pennsylvania Department of Environmental Protection, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Delaware	<input type="checkbox"/>
Bus Shelter Green Roof	1/1/2010	0	0	0	0.002	Green Roof	Streets	Partner-project, no capital investment by the PWD	Environmental Protection Agency, Philadelphia Water Department, Southeastern Transportation Authority, Philadelphia Streets Department, Mayors Office of Transportation & Utilities, National Oceanic and Atmospheric Administration	Schuylkill	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Sepviva St from Susquehanna Ave to Dauphin St	1/27/2010	1601.2	17	27425	0.441	Infiltration Storage Trench, Storm Water Tree	Streets	\$1,158,000**		Delaware	<input checked="" type="checkbox"/>
Columbus Square	5/26/2010	1061	0	7908	0.288	Stormwater Planter, Infiltration Storage Trench	Streets	\$175,000	Department of Public Property, Department of Recreation, Friends of Columbus Square	Delaware	<input type="checkbox"/>
Shissler Playground	10/10/2010	3427.2	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	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Lancaster Ave from N 58th St to N 63rd St	11/1/2010	6673.3	17	41671.24	1.807	Stormwater Tree Trench, Stormwater Bump-out, Rain Garden, Swale	Streets	Partner-project, no capital investment by the PWD	Environmental Protection Agency, Philadelphia Department of Commerce, Philadelphia Industrial Development Corporation	Schuylkill	<input type="checkbox"/>
7th St, 8th St, and Cumberland St (Hartranft School)	11/10/2010	3556	6	44524	0.980	Stormwater Tree Trench	Streets	\$402,000	Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Palmer St from Frankford Ave to Blair St (Shissler Playground)	11/10/2010	1272.8	5	9250	0.343	Stormwater Tree Trench	Streets		New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
16th St between Passyunk Ave and Jackson St	11/10/2010	609.4	8	14735	0.168	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>



Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Rockland St	4/8/2011	7352.2	42	178850	2.025	Infiltration Storage Trench, Storm Water Tree	Streets	\$3,476,000**		TTF	<input checked="" type="checkbox"/>
Bureau of Laboratory Services	5/14/2011	4597.8	13	52339	0.374	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets	\$704,000		TTF	<input checked="" type="checkbox"/>
Percy St from Catharine St to Christian St	7/18/2011	657	0	4740	0.181	Pervious Pavement	Streets	\$992,000**		Delaware	<input type="checkbox"/>
Belfield Ave from Chew Ave to Walnut Ln	9/23/2011	5846	24	68465	1.61	Stormwater Tree Trench	Streets	\$313,000	Tookany/Tacony-Frankford Watershed Partnership	TTF	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Blair St (Shissler Playground)	11/4/2011	0	5	0	0	Stormwater Tree Trench	Streets	\$173,000	Department of Recreation, New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Hewson St from Blair St to Trenton Ave (Shissler Playground)	11/4/2011	0	0	0	0	Stormwater Tree Trench	Streets		Department of Recreation, New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Montgomery Ave, Shissler Playground	11/4/2011	2597.86	9	38210	0.716	Stormwater Tree Trench, Infiltration Storage Trench	Streets		Department of Recreation, New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Reese St	11/5/2011	831.8	4	4829	0.222	Stormwater Tree Trench	Streets	Partner-project, no capital	Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Earl St (Hetzell Playground)	11/5/2011	826.95	4	6930	0.228	Stormwater Tree Trench	Streets	investment by the PWD	Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>
8th St	11/5/2011	1154.31	4	9361	0.318	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>
Front St	11/5/2011	1180.09	6	17972	0.325	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>
9th St	11/5/2011	1108.13	4	9100	0.305	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>
Diamond St	11/5/2011	1415.87	4	12538	0.390	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input type="checkbox"/>
Madison Memorial Park	12/16/2011	401	13	7015	0.11	Infiltration Storage Trench	Open Space	Partner-project, no capital investment by the PWD	City Play, Digsau, Northern Liberties Neighborhood Association, Philadelphia Department of Parks & Recreation	Delaware	<input type="checkbox"/>
Eadom Parking Lot	5/2/2012	11705	20	85827	2.999	Rain Garden	Parking	All done in house by PWD Crews, No bid costs	Department of Public Property	Delaware	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Womrath Park	9/27/2012	4293.13	7	46080	1.183	Rain Garden, Infiltration Storage Trench, Swale	Open Space	\$540,000	Tookany/Tacony-Frankford Watershed Partnership, Philadelphia Department of Parks & Recreation, Frankford Civic Association	TTF	<input checked="" type="checkbox"/>
Herron Playground	10/2/2012	3986	12	14480	0.665	Rain Garden, Infiltration Storage Trench, Pervious Pavement	Open Space	\$191,000	Philadelphia Capital Program Office, Philadelphia Department of Parks & Recreation	Delaware	<input type="checkbox"/>
Baltimore Ave Island from S 60th St to Wharton St	11/23/2012	3251.22	4	22684	0.896	Stormwater Tree Trench	Streets	\$952,000	Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
52nd St, 53rd St, Pine St, and Osage St (Samuel B. Huey Elementary School)	11/23/2012	3996.03	15	34558	1.101	Stormwater Tree Trench	Streets		Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Christian St, Webster St, 56th St (Christy Recreation Center)	11/23/2012	5456.14	19	43007	1.503	Stormwater Tree Trench	Streets		Department of Recreation, Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
William Harrity School	11/23/2012	2976.82	9	19364	0.819	Stormwater Tree Trench	Streets			Cobbs-Darby	<input checked="" type="checkbox"/>
60th St, 61st St, Cedar Ave, and Hazel Ave (Bryant Elementary School)	11/23/2012	5727.19	16	45432	1.578	Stormwater Tree Trench	Streets		Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
Harper's Hollow Park	12/4/2012	6256.67	0	24542	1.127	Stormwater Basin	Open Space	\$474,000	Philadelphia Department of Parks & Recreation	TTF	<input checked="" type="checkbox"/>
Wakefield Park	12/4/2012	3819.91	55	38710	1.052	Rain Garden	Open Space		Philadelphia Department of Parks & Recreation	TTF	<input checked="" type="checkbox"/>
21st St from Venango to Pacific	12/6/2012	1380.85	6	15237	0.380	Stormwater Tree Trench	Streets	Partner-project, no capital investment by the PWD		Delaware	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
58th St, 59th St, and Walnut St (Sayre High School)	12/13/2012	7130.73	42	64720	1.964	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$1,659,000	Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
Haverford Ave, 57th St and Vine St (Shepard Recreation Center)	12/13/2012	8574.08	27	64212	2.301	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out	Streets		Pennsylvania Environmental Council	Schuylkill	<input checked="" type="checkbox"/>
Pine St, Frazier St, and 57th St (Andrew Hamilton School)	12/13/2012	3913.02	14	44332	1.078	Stormwater Tree Trench, Stormwater Planter	Streets		Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
56th St, 57th St, Race St, and Vine St (Daroff School)	12/13/2012	8709.4	39	79396	2.399	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out	Streets		Pennsylvania Environmental Council	Cobbs-Darby	<input checked="" type="checkbox"/>
Belgrade St and Marlborough St	12/20/2012	1263	1	14700	0.348	Infiltration Storage Trench	Streets	\$2,114,000**		Delaware	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Norris St, Van Pelt St, and Berks St (Frederick Douglass Elementary School)	12/24/2012	4528.4	34	32100	1.247	Stormwater Tree Trench	Streets	\$611,000		Delaware	<input checked="" type="checkbox"/>
Philadelphia Military Academy	12/24/2012	2370.88	25	20275	0.653	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
22nd St, Cecil B Moore Ave (Martin Luther King Recreation Center)	12/24/2012	6707.1	10	42040	1.751	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
Berks, Mascher (Towey Recreation Center)	12/24/2012	3943.9	8	20800	0.955	Stormwater Tree Trench	Streets		Fairmount Park Commission, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Sepviva	12/27/2012	1005.6	35	0	0.277	Storm Water Tree	Streets	\$1,351,000**		Delaware	<input type="checkbox"/>
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	\$200,000		Cobbs-Darby, Schuylkill	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
4th St and Cambridge St (Bodine High School)	2/8/2013	2616.6	11	33496	0.721	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets	\$469,000	City Play, Mural Arts Program, Northern Liberties Neighborhood Association	Delaware	<input checked="" type="checkbox"/>
3rd St and Fairmount Ave Intersection	2/8/2013	1360.8	7	15630	0.375	Stormwater Tree Trench, Stormwater Bump-out	Streets		Northern Liberties Neighborhood Association	Delaware	<input checked="" type="checkbox"/>
Passyunk Ave	3/5/2013	10945	0	56500	1.019	Stormwater Bump-out	Streets	Partner-project, no capital investment by the PWD	Philadelphia Streets Department	Schuylkill	<input type="checkbox"/>
Welsh School	4/23/2013	2097.8	7	23419	0.578	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets	\$833,000	Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Wakisha Charter School	4/23/2013	3076.8	19	31812	0.848	Stormwater Tree Trench	Streets		Department of Recreation	Delaware	<input checked="" type="checkbox"/>
Diamond St from 25th St to Stillman St	4/23/2013	973.6	7	9178	0.268	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>



Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Poplar St from 8th St to Franklin St	4/23/2013	783.6	4	8242	0.216	Stormwater Tree Trench	Streets		Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
10th St and Jefferson St (Dendy Recreation Center)	4/23/2013	2350.8	7	24057	0.648	Stormwater Tree Trench	Streets		Department of Recreation	Delaware	<input checked="" type="checkbox"/>
22nd, Carpenter, Montrose (Julian Abele Park)	5/16/2013	2418.48	7	22487	0.666	Stormwater Tree Trench	Streets	\$1,336,000	Department of Public Property	Schuylkill	<input checked="" type="checkbox"/>
Oakford, 30th (Donald Finnegan Playground)	5/16/2013	2619.48	23	29513	0.722	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
24th St and Wolf St (Smith Playground)	5/16/2013	7035.62	18	55510	1.938	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
23rd St, 24th St, and Jackson (E.H. Vare Middle School)	5/16/2013	3680.8	20	32228	1.014	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
Stephen Girard School	5/16/2013	1425	6	9315	0.393	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Southwark School	5/16/2013	1917	4	16658	0.528	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
Woolston Ave, Walnut Ln, Rodney St (Simons Recreation Center)	5/21/2013	7572.3	43	61647	2.086	Stormwater Tree Trench	Streets	\$1,503,000	Department of Recreation	TTF	<input checked="" type="checkbox"/>
Morris Leeds Middle School	5/21/2013	30578.6	83	229748	8.424	Stormwater Tree Trench	Streets			TTF	<input checked="" type="checkbox"/>
Philadelphia Zoo	5/29/2013	7279.4	5	52446	1.954	Stormwater Planter, Rain Garden, Infiltration Storage Trench	Streets	\$400,000	Philadelphia Department of Parks & Recreation, Philadelphia Zoo	Schuylkill	<input type="checkbox"/>
Penn Street Trail	6/13/2013	2265	25	38203	0.624	Rain Garden	Streets	Partner-project, no capital investment by the PWD	DRWC	Delaware	<input type="checkbox"/>
33rd & Dauphin SEPTA Bus Stop Loop	7/31/2013	481.17	2	3510	0.133	Stormwater Tree Trench, Infiltration Storage Trench	Streets	Partner-project, no capital investment by the PWD	Southeastern Transportation Authority	Schuylkill	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
George W. Nebinger School	9/8/2013	6994	10	46815	1.927	Rain Garden, Infiltration Storage Trench, Pervious Pavement, Swale	Schools	\$361,000	Environmental Protection Agency	Delaware	<input type="checkbox"/>
Preston St, 41st St, Brown St, and Aspen St (Belmont School)	9/9/2013	5171	29	47758	1.425	Stormwater Tree Trench	Streets	\$1,547,000		Schuylkill	<input checked="" type="checkbox"/>
49th St, Parrish St, and Ogden St (James Rhoads School)	9/9/2013	2856	13	24384	0.787	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
Sister Clara Muhammad School	9/9/2013	2764	15	26407	0.761	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
47th St, 48th St, Wyalusing Ave (Muhammed Square)	9/9/2013	5675	39	57043	1.563	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
53rd St and Peach St (Mastery Charter School)	9/9/2013	2712	4	23751	0.747	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Kenmore Rd, Haddington St, and Atwood Rd (Cassidy Elementary School)	9/9/2013	5066.95	9	42141	1.396	Stormwater Tree Trench	Streets			Cobbs-Darby	<input checked="" type="checkbox"/>
62nd St and Lebanon (Overbrook Elementary)	9/9/2013	2536	3	26530	0.699	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
Old Cathedral Cemetery	9/9/2013	2294	12	25301	0.632	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
12th St and Reed St (Columbus Square)	9/17/2013	1919.38	0	19690	0.529	Rain Garden, Infiltration Storage Trench	Streets	\$873,000	Department of Recreation, Passyunk Square Civic Association	Delaware	<input checked="" type="checkbox"/>
12th St from Dickinson St to Tasker St	9/17/2013	2499.45	5	24020	0.689	Stormwater Tree Trench, Stormwater Planter	Streets		Passyunk Square Civic Association	Delaware	<input checked="" type="checkbox"/>
10th St from Wilder St to Reed St	9/17/2013	1111.8	5	9400	0.306	Stormwater Tree Trench	Streets		Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
18th St, 19th St, Ellsworth St, and Washington Ave (Chew Playground)	9/17/2013	4870.6	13	41940	1.341	Stormwater Tree Trench, Stormwater Bump-out	Streets		Department of Recreation	Delaware, Schuylkill	<input checked="" type="checkbox"/>
Passyunk Ave from Dickinson St To Reed St	9/17/2013	1353.56	3	11620	0.373	Stormwater Planter, Infiltration Storage Trench	Streets		Department of Recreation, Passyunk Square Civic Association, South Philadelphia Older Adult Center	Delaware	<input checked="" type="checkbox"/>
Thompson St and Columbia Ave	9/20/2013	3921.08	4	34905	1.080	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench	Streets	\$581,000	New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Trenton Ave and Norris St	9/20/2013	4238.3	3	30943	1.168	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets		New Kensington Community Development Corporation, Pennsylvania Horticulture Society	Delaware	<input checked="" type="checkbox"/>
Bridesburg Recreation Center/ Bridesburg School	9/30/2013	7715.65	3	51638	1.959	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets	\$1,786,000	Philadelphia Department of Parks & Recreation, Tacony Civic Association	Delaware	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
White Hall Commons/Carmella Playground/Gambrell Recreation Center/Warren G Harding School	9/30/2013	10873.55	76	88542	2.995	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	<input checked="" type="checkbox"/>
Hegerman St, Magee Ave, and Helleman St (Dorsey Playground)	9/30/2013	3830	35	35604	1.055	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	<input checked="" type="checkbox"/>
Helleman St, Cottage St, and Levick St (Roosevelt Playground)	9/30/2013	6195	42	55435	1.707	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench	Streets		Roosevelt Playground Park Advisory Council, Tacony Civic Association	Delaware	<input checked="" type="checkbox"/>
Magnolia Cemetary	9/30/2013	1968.4	9	11861	0.542	Stormwater Tree Trench	Streets		Tacony Civic Association	Delaware	<input checked="" type="checkbox"/>
18th St, 19th St, and Bigler St (Barry Playground)	10/14/2013	10513.1	36	110367	2.755	Stormwater Tree Trench	Streets	\$975,000	Department of Recreation	Schuylkill	<input checked="" type="checkbox"/>
13th St, Porter St, and Moyamensing Ave (A.S. Jenks School)	10/22/2013	2572.75	18	22520	0.709	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$1,129,000	Lower Moyamensing Civic Association	Delaware	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
4th St, 5th St, Federal St, and Washington Ave (Sacks Playground)	10/22/2013	6569.25	13	47775	1.810	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
Smith Elementary School	10/22/2013	2905.3	20	23700	0.800	Stormwater Tree Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
St Thomas Aquinas School	10/22/2013	4723	19	42170	1.301	Stormwater Tree Trench, Infiltration Storage Trench	Streets			Schuylkill	<input checked="" type="checkbox"/>
Franklin St from Diamond St to Norris St	10/24/2013	6121	22	62625	1.686	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$1,911,000**		Delaware	<input type="checkbox"/>
Blue Bell Inn Triangle Park	10/31/2013	2189	6	25911	0.603	Rain Garden	Open Space	\$278,000	Fairmount Park Commission, Pennsylvania Horticulture Society, Philadelphia Department of Parks & Recreation	Cobbs-Darby	<input checked="" type="checkbox"/>
Little Sisters of the Poor	1/13/2014	8935	33	75556	2.461	Stormwater Tree Trench	Streets	\$1,212,000	Snyderville Community Development Corporation	Schuylkill	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
57th St and Pentridge St (Longstreth School)	1/13/2014	3621	13	35058	0.998	Stormwater Tree Trench, Stormwater Planter	Streets		Snyderville Community Development Corporation	Cobbs-Darby	<input checked="" type="checkbox"/>
McCreesh Playground / Catharine Elementary School	1/13/2014	8294.9	12	63651	2.271	Stormwater Tree Trench, Infiltration Storage Trench	Streets		Snyderville Community Development Corporation	Cobbs-Darby	<input checked="" type="checkbox"/>
Springfield Ave and Cobbs Creek Island	1/13/2014	3819.15	6	33640	1.052	Rain Garden, Infiltration Storage Trench	Streets		Snyderville Community Development Corporation	Cobbs-Darby	<input checked="" type="checkbox"/>
Chalmers (29th and Chalmers Playground)	4/25/2014	2308.6	5	27710	0.636	Stormwater Tree Trench, Stormwater Bump-out	Streets	\$631,000	Philadelphia Department of Parks & Recreation	Delaware	<input checked="" type="checkbox"/>
27th St from Indiana to Toronto	4/25/2014	1189.35	2	9000	0.328	Stormwater Tree Trench	Streets		Philadelphia Department of Parks & Recreation	Delaware	<input checked="" type="checkbox"/>
William Cramp School	4/25/2014	3723.75	11	36565	1.026	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
Rosehill St (Barton School)	4/25/2014	4884.55	5	38500	1.346	Stormwater Tree Trench	Streets			TTF	<input checked="" type="checkbox"/>



Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
William Dick Elementary	6/13/2014	7833.27	9	65171	2.158	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Schools	\$207,000	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	Delaware	<input type="checkbox"/>
Stenton Avenue and Washington Lane, NE Intersection	7/8/2014	2566	0	12340	0.567	Rain Garden, Infiltration Storage Trench	Streets	Partner-project, no capital investment by the PWD	Philadelphia Streets Department, Ogontz Avenue Revitalization Corporation, Mayors Office of Transportation & Utilities	TTF	<input type="checkbox"/>
William Gray Youth Center	8/1/2014	3411.2	9	38946	0.940	Stormwater Tree Trench, Infiltration Storage Trench	Streets	\$883,000		Delaware	<input checked="" type="checkbox"/>
Parking Lot - 12th St, Marvine St, and Diamond St	8/1/2014	7081	21	48344	1.932	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
24th St and Diamond St (Dick Elementary School)	8/1/2014	4639.2	11	26669	1.181	Stormwater Tree Trench	Streets			Delaware	<input checked="" type="checkbox"/>
Alder St from Norris St to Diamond St	8/1/2014	1525	1	14662	0.420	Stormwater Tree Trench	Streets		Philadelphia Housing Authority	Delaware	<input checked="" type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Kemble Park	1/21/2015	37176	69	227049	10.239	Rain Garden, Stormwater Basin, Infiltration Storage Trench, Swale	Open Space	\$2,248,000	Philadelphia Department of Parks & Recreation	TTF	<input type="checkbox"/>
Wister Woods Park	1/21/2015	35078	7	207638	8.379	Rain Garden, Stormwater Basin	Open Space		Philadelphia Department of Parks & Recreation	TTF	<input type="checkbox"/>
73rd and Grays	2/3/2015	6512	8	73799	1.794	Stormwater Tree Trench	Streets	\$2,570,000		Cobbs-Darby	<input type="checkbox"/>
72nd, Buist, 71st, Dicks (Elmwood Park)	2/3/2015	13959	9	134010	3.845	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Streets		Philadelphia Department of Parks & Recreation	Schuylkill	<input type="checkbox"/>
Buist Ave, 70th, Elmwood, Holbrook (Patterson School)	2/3/2015	4111	6	40863	1.133	Stormwater Tree Trench, Infiltration Storage Trench	Streets			Schuylkill	<input type="checkbox"/>
Elmwood, 64th, Grays, 65th (Connell Park)	2/3/2015	6606	17	70873	1.820	Stormwater Tree Trench	Streets			Schuylkill	<input type="checkbox"/>

Project Name	Construction Complete Date	Storage Volume (cf)	New Trees	Drainage Area (sq. ft)	Greened Acre (acres-inches)	SMP Types	Program	Construction Cost	Partner(s)	Watershed	PENNVEST Project
Buist, 63rd, Chelwynde, 64th (Mother Mary of Peace School)	2/3/2015	4448.5	8	49418	1.225	Stormwater Tree Trench	Streets			Schuylkill	<input type="checkbox"/>
St. James Episcopal Church of Kingessing	2/3/2015	11300	18	123075	3.113	Stormwater Tree Trench	Streets			Cobbs-Darby, Schuylkill	<input type="checkbox"/>
Panati Playground	7/1/2015	6252.5	37	37113	1.704	Rain Garden, Infiltration Storage Trench	Open Space	\$204,000	Department of Public Property, Philadelphia Department of Parks & Recreation	Delaware	<input type="checkbox"/>

\*Projects are grouped for bidding purposes therefore project construction costs are based on groups of projects.

\*\* GSI projects were added to water/sewer projects and there is no current mechanism to separate the total cost of the GSI component of the project.



## **Appendix 2**

---

### **Public Planned Green Stormwater Infrastructure Projects**

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Yorktown Park	Delaware	Streets	In Design	Stormwater Planter, Infiltration Storage Trench		TBD	2018	TBD
John F Kennedy Blvd from 30th St to 32nd St	Schuylkill	Streets	In Design	Stormwater Tree Trench	Drexel University, University of Pennsylvania, University City District	TBD	2018	TBD
Tacony Creek Reaches 4/5	TTF	Open Space	In Design	Rain Garden	Tookany/Tacony-Frankford Watershed Partnership, Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Atlantic, Tioga (Kenderton Field Park)	Delaware	Streets	In Design	Stormwater Tree Trench	Fairmount Park Commission, Pennsylvania Horticulture Society	TBD	2018	TBD
Sedgley Ave, 22nd St (Cecil B Moore Recreation Center, Reyburn Park)	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out	Fairmount Park Commission, Pennsylvania Horticulture Society	TBD	2018	TBD
16th St, Sydenham St, and Cumberland St (HM Stanton School)	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	Delaware	Streets	In Design	Infiltration Storage Trench		TBD	2018	TBD
Hunting Park from Old York Rd to Roosevelt Blvd	TTF	Streets	In Design	Other		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Morris Park	Cobbs-Darby	Open Space	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Drexel College of Media Arts & Design	Schuylkill	Streets	In Design	Stormwater Tree Trench	Drexel University	TBD	2018	TBD
Marshall St from Hunting Park Ave to Cayuga St	TTF	Streets	In Design	Infiltration Storage Trench, Pervious Pavement		TBD	2018	TBD
Windrim Ave from Wayne Ave to Germantown Ave	TTF	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench	Philadelphia Planning Commission, Southeastern Transportation Authority, Nicetown Community Development Corporation	TBD	2018	TBD
Taggart School	Delaware	Streets	In Design	Stormwater Tree Trench	Community Design Collaborative	TBD	2018	TBD
Wayne Ave and Abbottsford Ave	TTF	Streets	In Design	Infiltration Storage Trench		TBD	2018	TBD
Clearview and Washington	TTF	Vacant Land	In Design	Rain Garden, Infiltration Storage Trench	Tookany/Tacony-Frankford Watershed Partnership	TBD	2018	TBD
Adams Ave from Ruan to Factory	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
40th and Baltimore	Schuylkill	Streets	In Design	Stormwater Tree Trench	Southeastern Transportation Authority, University City District	TBD	2018	TBD
Ruscomb, 17th, Ogontz (Logan School)	TTF	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Sedgwick Station	TTF	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench	Southeastern Transportation Authority	TBD	2018	TBD
Woodcrest, Graham, Malvern, 59th (Beeber Middle School)	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Ridgewood - 55th to 54th	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Marston St, Eyre St, and Taney St	Schuylkill	Streets	In Design	Pervious Pavement		TBD	2018	TBD
65th, 18th, Cheltenham, Ogontz (Mt. Airy School of God in Christ)	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		TBD	2018	TBD
Cheltenham Hills Cemetery	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench, Swale		TBD	2018	TBD
Ivy Hills Cemetery	TTF	Streets	In Design	Swale		TBD	2018	TBD



Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Thouron Ave, Mohican St, Rugby St, W Washington Ln (Pennypacker School)	TTF	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Mercer, Indiana, Ann, Almond (Powers Park)	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Thompson, Elkhart, Edgemont, Indiana (Stokley Playground)	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Westmoreland and Tulip	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Wolf St (Sharswood School and Our Lady of Carmel School)	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
St. Monica Manor	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Frankford from Placid to Ellie	Pennypack, Poquessing	Streets	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Planning Commission	TBD	2018	TBD
St. Dominic School	Pennypack	Streets	In Design	Stormwater Tree Trench	Philadelphia Planning Commission	TBD	2018	TBD
Pine, Larchwood, 51st (Malcolm X Park)	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench	Philadelphia Planning Commission, Philadelphia Department of Parks & Recreation	TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Upland Way	Schuylkill	Streets	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench, Swale	American Cities Foundation	TBD	2018	TBD
Guerin Recreation Center	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Pervious Pavement	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Thompson, Conestoga	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Ross Park	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Department of Public Property, Philadelphia Department of Parks & Recreation, Councilwoman Sanchez	TBD	2018	TBD
Ferko Playground	TTF	Open Space	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Old York Rd (Skevchenko Park)	TTF	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench	Department of Public Property	TBD	2018	TBD
Hunting Park	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Cloud St from Church St to Wain St	TTF	Streets	In Design	Pervious Pavement		TBD	2018	TBD
Kinsey from Tackawanna St to Torresdale St	TTF	Streets	In Design	Other		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Park Ave	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Cobbs Creek Park Reaches 6-8	Cobbs-Darby	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Swale	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Luzerne, Dungan, L, Lycoming (Francis Hopkinson Little School House)	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		TBD	2018	TBD
Erie Shopping Center	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		TBD	2018	TBD
Summerdale, Longshore, Tyson (J. Hampton Moore School)	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Strawberry Mansion		Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Black Coyle and McBride Playground	Delaware	Open Space	In Design	Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Moss Playground	Delaware	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Smith Playground	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Collins, Tulip, and Agate	Delaware	Streets	In Design	Stormwater Tree Trench, Other		TBD	2018	TBD
Warrington - 54th to 55th	Cobbs-Darby	Streets	In Design	Stormwater Bump-out		TBD	2018	TBD
59th, Vodges	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		TBD	2018	TBD
9th St, Hoffman St, Mifflin St, Percy St, Pierce St	Delaware	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		TBD	2018	TBD
Hirst, Ludlow, Robinson	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench, Pervious Pavement		TBD	2018	TBD
52nd, 53rd, Gainor, and Diamond	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Philadelphia Protestant House	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Har Nebo Cemetery - Algon and Oxford Intersection	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Pennway, Longshore, Algon, Knorr	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Rowland Ave - Ryan to Vista	Delaware	Streets	In Design	Infiltration Storage Trench		TBD	2018	TBD
Glenwood from Pacific to Castor	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Gaul, Weikel, Witte	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Mole, Bancroft	Schuylkill	Streets	In Design	Pervious Pavement		TBD	2018	TBD
Cleveland, Gratz, Greene, Roberts	TTF	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Stenton Park	TTF	Open Space	In Design	Infiltration Storage Trench, Swale	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Carmella Playground	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Mariana Bracetti Academy Charter School	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Infiltration Storage Trench		TBD	2018	TBD
Carnell School - Langdon	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Fotterall Square	Delaware	Open Space	In Design	Pervious Pavement	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Crispin St - Ryan to Lansing	Delaware, Pennypack	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Crispin St - Hartel to Rhawn	Pennypack	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
37th & Mt Vernon Playground	Schuylkill	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Lanier Playground	Schuylkill	Open Space	In Design	Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Conestoga Community Playground	Schuylkill	Open Space	In Design	Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Kingsessing Recreation Center	Schuylkill	Open Space	In Design	Rain Garden, Swale	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Palmer Cemetery	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		TBD	2018	TBD
Almond St - York to Boston	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Amber St, Lehigh Ave, Collins St	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Lehigh Ave - Martha to Trenton	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
St. Anne Rectory	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Thompson St and Huntingdon St	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Morris Estates	TTF	Open Space	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Francis Myers Recreation Center	Cobbs-Darby	Open Space	In Design	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Hackett School	Delaware	Schools	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia School District, Pennsylvania Horticulture Society	TBD	2018	TBD
McKinley School	Delaware	Schools	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench	Philadelphia School District	TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Kelley, William D. : 1601-49 N 28TH ST	Schuylkill	Schools	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia School District	TBD	2018	TBD
Master / Wanamaker / Hobart	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Penn Treaty School - Moyer St	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
50th, Walton, Rodman	Cobbs-Darby ,Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Bridge/Creston/Darrah/Penn	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Wissinoming Park	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
15th & Carlisle	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Berks, 17th, Arlington & Bouvier	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Hestonville Neighborhood Disconnection SMP	Schuylkill	Open Space	In Design	Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD



Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Hagert Playground	Delaware	Open Space	In Design	Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Adaire, Alexander	Delaware	Schools	In Design	Rain Garden	Department of Public Property	TBD	2018	TBD
Osage Ave. from 42nd St to 43rd St	Schuylkill	Streets	In Design	Stormwater Planter, Pervious Pavement		TBD	2018	TBD
Malvern Ave from Atwood Rd to 65th St	Cobbs-Darby	Streets	In Design	Drainage Well		TBD	2018	TBD
Algon Ave from Glenview St to Longshore Ave	Delaware	Streets	In Design	Drainage Well		TBD	2018	TBD
Dewey St from Lindbergh Blvd to Buist Ave	Schuylkill	Streets	In Design	Drainage Well		TBD	2018	TBD
Pemberton St from Front St to 2nd St	Delaware	Streets	In Design	Drainage Well		TBD	2018	TBD
Warnock St from Fitzwater St to Bainbridge St	Delaware	Streets	In Design	Drainage Well		TBD	2018	TBD
Unruh Ave between Summerdale and Frontenac	Delaware	Streets	In Design	Drainage Well		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
E Rockland St from B St to C St	TTF	Streets	In Design	Drainage Well		TBD	2018	TBD
Pennsgrove St between 39th St and 40th St	Schuylkill	Streets	In Design	Drainage Well		TBD	2018	TBD
Bailey, Oxford, Turner, 26th & 30th	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		TBD	2018	TBD
35th St, Earp St	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
East Poplar Playground	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench, Swale		TBD	2018	TBD
East Poplar Field	Delaware	Open Space	In Design	Rain Garden, Swale		TBD	2018	TBD
Darien St from Poplar St to Girard Ave	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Kingsessing Recreation Streets Locations	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Stenton Streets Locations	TTF	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Francis Myers Streets Locations	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench, Swale		TBD	2018	TBD
Carroll Park Streets	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Fotterall Square Streets	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Vandergrift Park - Danny Boyle Park	Delaware	Open Space	In Design	Rain Garden	Philadelphia School District	TBD	2018	TBD
Botanic Ave from 49th St to 51 St	Schuylkill	Streets	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench		TBD	2018	TBD
Ashville/Ditman/Rhawn etal	Delaware, Pennypack	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Crowson/Stokes/Woodlawn	TTF	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Street Crossings Pilot - Aramingo, Cedar, Cambria, Almond	Delaware	Streets	In Design	Stormwater Tree Trench, Rain Garden		TBD	2018	TBD
Nicholas, 28th, Myrtlewood	Schuylkill	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Gillespie, Cottage, Ditman, Devereaux	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Parrish, Union, 41st	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
8th & Poplar	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Race, Vodges, 55th	Cobbs-Darby	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Cement Park Streets Locations	Delaware	Streets	In Design	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench		TBD	2018	TBD
Cement Park (Northern Liberties Recreation Center)	Delaware	Open Space	In Design	Rain Garden, Infiltration Storage Trench, Pervious Pavement		TBD	2018	TBD
McPherson Square	Delaware	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden		TBD	2018	TBD
McPherson Square Streets Locations	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Cohocksink Playground	Delaware	Open Space	In Design	Rain Garden, Stormwater Basin, Infiltration Storage Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
McIlvain Playground	Delaware	Open Space	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Mount Sinai Streets Locations	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Allegheny Ave Safety Corridor Improvement Project Street Locations	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		TBD	2018	TBD
Trenton & Auburn Playground	Delaware	Open Space	In Design	Infiltration Storage Trench		TBD	2018	TBD
Lawncrest Streets Southeast	Delaware, TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD
Duckrey - Safe Routes to Schools	Delaware	Streets	In Design	Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD
Weinberg Street Locations	Delaware	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Weinberg Park	Delaware	Open Space	In Design	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Watkins / Fernon / McClellan	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Berks / Montgomery / 6th	Delaware	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
48th St. Osage to Ludlow	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Warriner Post Park	Schuylkill	Streets	In Design	Stormwater Tree Trench, Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Stephen Girard Park - Porter St, 21st St, Shunk St, 22nd St	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Girard Park and Warriner Post Park Streets	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		TBD	2018	TBD
McClellan, Morris at 18th	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out		TBD	2018	TBD
Media	Schuylkill	Streets	In Design	Stormwater Planter, Stormwater Bump-out, Green Gutter		TBD	2018	TBD
Moore St. 34th to 35th	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Cantrell, Jackson at 5th	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter		TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Rising Sun/Germantown/Ontario Intersection	Delaware	Streets	In Design	Stormwater Bump-out	Philadelphia Streets Department, Mayors Office of Transportation & Utilities	TBD	2018	TBD
Cedar Ave, Yewdall St	Cobbs-Darby	Streets	In Design	Stormwater Planter		TBD	2018	TBD
Max Myers - Park	Delaware	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden, Infiltration Storage Trench, Swale		TBD	2018	TBD
Max Myers - Streets	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD
Lawncrest Streets Southwest	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Infiltration Storage Trench		TBD	2018	TBD
Wharton Square Greening Improvement	Schuylkill	Open Space	In Design	Rain Garden, Infiltration Storage Trench		TBD	2018	TBD
PHA/Blumberg Green Streets	Schuylkill	Streets	In Design	Stormwater Tree Trench		TBD	2018	TBD
Lawncrest Rec Center	TTF	Open Space	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden	Philadelphia Department of Parks & Recreation	TBD	2018	TBD

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Buist Avenue Green Streets and Park Improvements	Schuylkill	Streets	In Design	Stormwater Bump-out, Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	TBD	2018	TBD
Buist Park Improvements	Schuylkill	Open Space	In Design	Stormwater Tree Trench, Stormwater Bump-out		TBD	2018	TBD
Passyunk Avenue Medians Improvements	Cobbs-Darby, Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out, Rain Garden		TBD	2018	TBD
Glenwood Streets Improvements	Delaware	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		TBD	2018	TBD
Loudon, Carlisle	TTF	Streets	In Design	Stormwater Tree Trench, Infiltration Storage Trench		TBD	2018	TBD
Loudoun Park Green Streets Improvements	TTF	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Stormwater Bump-out		TBD	2018	TBD
Loudoun Park	TTF	Open Space	In Design	Stormwater Tree Trench, Rain Garden		TBD	2018	TBD
Nelson Playground and Hissey Playground Green Improvements	Delaware	Open Space	In Design			TBD	2018	TBD
Mantua Greenway	Schuylkill	Streets	In Design			TBD	2018	TBD



Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Nelson Playground and Hissey Playground Green Improvements	Delaware	Open Space	In Design			TBD	2018	TBD
Parkside Edge	Schuylkill	Streets	In Design			TBD	2018	TBD
Point Breeze Vacant Lots	Schuylkill	Vacant Land	In Design	Rain Garden		TBD	2018	TBD
Point Breeze Vacant Lots	Schuylkill	Vacant Land	In Design	Rain Garden		TBD	2018	TBD
Point Breeze Vacant Lots	Schuylkill	Streets	In Design	Stormwater Tree Trench, Stormwater Planter, Rain Garden		TBD	2018	TBD
Weccacoe Playground	Delaware	Open Space	In Contract Management	Rain Garden, Infiltration Storage Trench, Depaving	Philadelphia Department of Parks & Recreation	0.411	2017	\$121,000
Ingersoll Commons Park	Delaware	Open Space	In Contract Management	Rain Garden, Infiltration Storage Trench, Swale	Community Ventures, Department of Public Property, Philadelphia Department of Parks & Recreation	3.185	2017	\$1,162,000
29th & Cambria PWD Facility Employee Parking Lot	Delaware	Streets	In Contract Management	Stormwater Tree Trench		2.890	2017	\$758,000
Mole St from Fitzwater to Catharine St and Webster St from 16th to 17th	Delaware	Streets	In Contract Management	Pervious Pavement		0.297	2017	\$1,408,000**

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Federal St, Wharton St, Columbus Square	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.556	2017	\$3,016,000**
Ontario St from A St to 6th St	Delaware	Streets	In Contract Management	Stormwater Tree Trench		1.240	2017	\$2,210,000**
20th, Limekiln, Ridley, and 65th (Kinsey School)	TTF	Streets	In Contract Management	Stormwater Tree Trench		1.641	2017	\$1,030,000
National Cemetery	TTF	Streets	In Contract Management	Rain Garden, Infiltration Storage Trench, Swale		0.442	2017	
19th, Haines (Rowen William School)	TTF	Streets	In Contract Management	Stormwater Tree Trench		0.898	2017	
Wagner Louis Middle School	TTF	Streets	In Contract Management	Stormwater Tree Trench		1.277	2017	
Harrowgate Park	Delaware	Open Space	In Contract Management	Rain Garden	Southeastern Transportation Authority, Philadelphia Department of Parks & Recreation	3.507	2017	\$906,000
Galloway, Howard, & Hancock	Delaware	Streets	In Contract Management	Stormwater Tree Trench		0.190	2017	\$4,001,000**

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Collazo Park	Delaware	Open Space	In Contract Management	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Pervious Pavement	Philadelphia School District, Philadelphia Department of Parks & Recreation, Trust for Public Land	2.370	2017	\$275,000
Germantown Ave SFR - Phase 5	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		0.224	2017	\$8,232,000**
Camac St, Iseminger St, Juniper St, McClellan St, Pierce St, Watkins St	Delaware	Streets	In Contract Management	Pervious Pavement		1.545	2017	\$3,553,000**
Callowhill Stormwater Trees	Delaware	Streets	In Contract Management	Other, Storm Water Tree	Philadelphia Streets Department	0.075	2017	\$77,000
Fairmount, Corinthian, 20th, Ridge	Delaware, Schuylkill	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		2.694	2017	\$1,687,000**
Ellsworth, 22nd, 20th, 18th	Delaware, Schuylkill	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		1.514	2017	\$2,132,000**
43rd St & 45th St	Schuylkill	Streets	In Contract Management	Stormwater Tree Trench		0.109	2017	\$1,499,000**
Brandywine St, Melon St, Synedum St	Delaware, Schuylkill	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		0.180	2017	\$2,044,000**
Leithgow / Cambridge	Delaware	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		0.521	2017	\$2,289,000**

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Mansfield Ave	TTF	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		2.060	2017	\$1,878,000**
Grays Ferry Neighborhood Disconnection SMP	Schuylkill	Open Space	In Contract Management	Stormwater Basin	Philadelphia Department of Parks & Recreation	0.000	2017	\$3,795,000
Medary Ave from 13th to Broad	TTF	Streets	In Contract Management	Infiltration Storage Trench		0.681	2017	\$510,000**
Wynnefield, Monument	Schuylkill	Streets	In Contract Management	Stormwater Tree Trench, Infiltration Storage Trench		4.127	2017	\$3,075,000**
Frankford Ave	Delaware, TTF	Streets	In Contract Management	Infiltration Storage Trench, Other		2.053	2017	\$2,066,000**
Moyamensing Ave and Morris St (Dickinson Square)	Delaware	Streets	In Construction	Stormwater Tree Trench, Stormwater Bump-out, Infiltration Storage Trench	Department of Recreation, Friends of Dickinson Park, Southeastern Transportation Authority	0.895	2016	\$963,000
Jackson St, Tree St, 13th St (Epiphany of Our Lord School)	Delaware	Streets	In Construction	Infiltration Storage Trench	Lower Moyamensing Civic Association	0.138	2016	
8th St, Wolf St, and Mildred St (Francis Scott Key School)	Delaware	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench	Lower Moyamensing Civic Association	0.782	2016	
Duval St, Crittenden St, and Johnson St (Anna B. Day School)	TTF	Streets	In Construction	Stormwater Tree Trench	Tookany/Tacony-Frankford Watershed Partnership	2.715	2016	

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Germantown Ave SFR - Phase 4 - Laurel to Wildey	Delaware	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench, Other		0.619	2016	\$19,371,000**
Benjamin Franklin Pkwy from 16th St to 19th St	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench	Department of Public Property, Philadelphia Department of Parks & Recreation	3.459	2016	TBD
Dauphin from Frankford to Tulip	Delaware	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench, Pervious Pavement		1.221	2016	\$1,776,000**
Haverford Triangle	Schuylkill	Vacant Land	In Construction	Stormwater Tree Trench, Rain Garden, Infiltration Storage Trench, Swale		1.426	2016	\$760,000
Hope St from Master to Jefferson	Delaware	Streets	In Construction	Pervious Pavement		0.318	2016	\$1,497,000**
Hope St from Berks to Norris	Delaware	Streets	In Construction	Pervious Pavement		0.351	2016	
Woodland Ave (Tiger III)	Cobbs-Darby, Schuylkill	Streets	In Construction	Stormwater Tree Trench	Philadelphia Streets Department	1.437	2016	\$453,000
Bustleton Ave (Tiger III)	Delaware	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench	Philadelphia Streets Department	0.689	2016	\$174,000
56th from Greenway to Paschall	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Infiltration Storage Trench		0.580	2016	\$3,209,000**

Project Name	Watershed	Program	Status	Estimated SMP Type(s)	Potential Partner(s)	Greened Acre Estimate (acre-inches)	Completion Date Estimate	Estimated Construction Cost*
Benson Park	Delaware	Open Space	In Construction	Stormwater Tree Trench, Infiltration Storage Trench, Pervious Pavement	Department of Public Property, Philadelphia Department of Parks & Recreation	0.608	2016	\$171,000
Baker Playground	Schuylkill	Open Space	In Construction	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.390	2016	\$760,000
Heston Lot	Schuylkill	Open Space	In Construction	Rain Garden, Infiltration Storage Trench	Department of Public Property, Philadelphia Department of Parks & Recreation	1.002	2016	
Ralph Brooks Park	Schuylkill	Open Space	In Construction	Rain Garden, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation, Councilman Johnson, Urban Roots	0.591	2016	\$180,000
Stinger Square	Schuylkill	Open Space	In Construction	Rain Garden, Stormwater Basin, Infiltration Storage Trench	Philadelphia Department of Parks & Recreation	0.836	2016	\$232,000
JFK, 20th to 23rd Street	Schuylkill	Streets	In Construction	Stormwater Tree Trench, Stormwater Basin, Infiltration Storage Trench		5.049	2016	\$1**

\*Projects are grouped for bidding purposes therefore project construction costs are based on groups of projects.

\*\* GSI projects were added to water/sewer projects and there is no current mechanism to separate the total cost of the GSI component of the project.



## **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-COMM-328-01	Combined	Verified	Cobbs Creek	19139	Subsurface detention, porous pavement	0.93
2007-THEC-538-01	Combined	Verified	Cobbs Creek	19143	Green roof, porous pavement	0.55
2009-PASC-1226-01	Combined	Verified	Cobbs Creek	19142	Subsurface infiltration, porous pavement	3.25
2010-PASC-1238-01	Combined	Verified	Cobbs Creek	19142	Subsurface infiltration, porous pavement	2.17
2010-5526-1348-01	Combined	Verified	Darby Creek	19139	Subsurface infiltration, porous pavement	0.39
2006-0057-01	Combined	Verified	Delaware Direct	19123	Subsurface detention	0.14
2006-0063-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	1.76
2006-0110-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration, subsurface detention	0.68
2006-777L-326-01	Combined	Verified	Delaware Direct	19147	Subsurface infiltration, porous pavement	2.28
2006-9349-349-01	Combined	Verified	Delaware Direct	19123	Subsurface detention	0.10
2006-94-01	Combined	Verified	Delaware Direct	19148	Subsurface detention	2.25
2006-BCRC-246-01	Combined	Verified	Delaware Direct	19134	Subsurface infiltration	0.21
2006-BRID-200-01	Combined	Verified	Delaware Direct	19137	Subsurface infiltration	0.70
2006-CCPO-276-01	Combined	Verified	Delaware Direct	19122	Surface infiltration/detention	4.58
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	0.24
2006-FRON-290-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration	0.48
2006-HOPE-447-01	Combined	Verified	Delaware Direct	19122	Porous pavement	0.49
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	0.83
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-PILG-444-01	Combined	Verified	Delaware Direct	19111	Subsurface infiltration	0.80
2006-PREF-176-01	Combined	Verified	Delaware Direct	19148	Subsurface detention	1.26
2006-PROG-400-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	3.65
2006-SAFE-234-01	Combined	Verified	Delaware Direct	19134	Subsurface detention	0.61
2006-SOLI-300-01	Combined	Verified	Delaware Direct	19149	Subsurface infiltration	1.99
2006-TEMP-210-01	Combined	Verified	Delaware Direct	19122	Subsurface detention	1.04
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
2007-HACE-731-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration	0.55

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2007-HERR-690-01	Combined	Verified	Delaware Direct	19147	Porous pavement	0.42
2007-HOWI-498-01	Combined	Verified	Delaware Direct	19123	Subsurface detention, disconnected impervious area	0.44
2007-MCDO-558-01	Combined	Verified	Delaware Direct	19133	Subsurface detention	0.09
2007-MTTA-480-01	Combined	Verified	Delaware Direct	19123	Green roof, porous pavement	0.38
2007-PRAD-489-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	1.45
2007-SOUT-557-01	Combined	Verified	Delaware Direct	19148	Subsurface detention	0.14
2007-WARN-646-01	Combined	Verified	Delaware Direct	19133	Subsurface infiltration	2.04
2007-WARN-651-01	Combined	Verified	Delaware Direct	19133	Subsurface infiltration	1.29
2007-WASH-642-01	Combined	Verified	Delaware Direct	19146	Subsurface infiltration	0.99
2007-WILL-699-01	Combined	Verified	Delaware Direct	19134	Subsurface detention	5.01
2008-1600-898-01	Combined	Verified	Delaware Direct	19122	Bioretention	0.46
2008-CAST-875-01	Combined	Verified	Delaware Direct	19149	Subsurface detention	0.27
2008-FRAN-994-01	Combined	Verified	Delaware Direct	19130	Subsurface infiltration, porous pavement	1.11
2008-MART-980-01	Combined	Verified	Delaware Direct	19147	Subsurface infiltration/detention	0.64
2008-NEWK-958-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration, porous pavement, bioinfiltration, green roof, cistern	4.58
2008-NEWL-778-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration	0.40
2008-NEWL-839-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration	0.46
2008-ROTE-960-01	Combined	Verified	Delaware Direct	19148	Bioretention, subsurface detention, porous pavement	1.58
2008-SHER-926-01	Combined	Verified	Delaware Direct	19122	Green roof, porous pavement	0.24
2008-WALG-838-01	Combined	Verified	Delaware Direct	19146	Subsurface detention	0.22
2009-2007-1090-01	Combined	Verified	Delaware Direct	19148	Subsurface infiltration/detention	17.72
2009-7149-1186-01	Combined	Verified	Delaware Direct	19135	Subsurface infiltration	0.37
2009-CONG-1210-01	Combined	Verified	Delaware Direct	19133	Subsurface infiltration, porous pavement	2.80
2009-FRAN-1130-01	Combined	Verified	Delaware Direct	19137	Subsurface infiltration	2.77
2009-HAWT-1102-01	Combined	Verified	Delaware Direct	19147	Porous pavement	0.30
2009-IATS-1023-01	Combined	Verified	Delaware Direct	19148	Subsurface detention, green roof	0.50
2009-LAWR-1044-01	Combined	Verified	Delaware Direct	19140	Subsurface infiltration, porous pavement	1.67
2009-PHIL-1205-01	Combined	Verified	Delaware Direct	19148	Porous pavement	14.08
2009-TDBA-1072-01	Combined	Verified	Delaware Direct	19149	Subsurface infiltration, bioinfiltration	1.05
2009-TEMP-1077-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	0.90
2009-TEMP-1096-01	Combined	Verified	Delaware Direct	19122	Subsurface detention	1.24
2009-THEM-1167-01	Combined	Verified	Delaware Direct	19121	Green roof, porous pavement	0.40
2009-WALM-1045-01	Combined	Verified	Delaware Direct	19148	Direct discharge	7.99

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2010-411W-1300-01	Combined	Verified	Delaware Direct	19122	Subsurface detention	0.15
2010-AGIL-1461-01	Combined	Verified	Delaware Direct	19121	Subsurface infiltration	1.36
2010-ARCH-1393-01	Combined	Verified	Delaware Direct	19122	Green roof	0.20
2010-NORR-1475-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration, porous pavement	2.85
2010-PHIL-1362-01	Combined	Verified	Delaware Direct	19148	Bioretention	2.17
2010-PHIL-1469-01	Combined	Verified	Delaware Direct	19148	Bioretention, bioinfiltration, subsurface detention pipe	4.64
2010-PSDC-1234-01	Combined	Verified	Delaware Direct	19147	Subsurface infiltration	0.79
2010-TEMP-1302-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration, cistern	3.22
2010-WATE-1343-01	Combined	Verified	Delaware Direct	19123	Porous pavement	3.09
2011-CHRI-1545-01	Combined	Verified	Delaware Direct	19147	Subsurface infiltration, green roof, porous pavement	0.81
2011-DIAM-1617-01	Combined	Verified	Delaware Direct	19140	Subsurface detention, green roof	0.44
2011-FAIR-1488-01	Combined	Verified	Delaware Direct	19130	Subsurface detention, green roof	0.32
2011-JWSD-1674-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	1.75
2011-MONT-1516-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	2.61
2011-NEWN-1620-01	Combined	Verified	Delaware Direct	19123	Subsurface infiltration, green roof, porous pavement	0.88
2011-STMA-1508-01	Combined	Verified	Delaware Direct	19147	Subsurface infiltration, subsurface detention, green roof, porous pavement	0.52
2011-TEMP-1622-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration, green roof, porous pavement, blue roof	2.12
2012-412N-1844-01	Combined	Verified	Delaware Direct	19123	Subsurface infiltration, porous pavement, green roof	0.75
2012-701W-2002-01	Combined	Verified	Delaware Direct	19133	Hybrid infiltration/detention, subsurface detention	4.70
2012-915N-1854-01	Combined	Verified	Delaware Direct	19123	subsurface infiltration, porous pavement	0.96
2012-CENT-1791-01	Combined	Verified	Delaware Direct	19122	Porous pavement	1.34
2012-LINC-2012-01	Combined	Verified	Delaware Direct	19148	Bioretention, porous pavement	1.80
2012-SPRU-1813-01	Combined	Verified	Delaware Direct	19107	Subsurface detention, green roof	0.10
2012-SYSC-1931-01	Combined	Verified	Delaware Direct	19148	Bioretention	3.94
2013-9THS-2075-01	Combined	Verified	Delaware Direct	19123	Subsurface infiltration	4.60
2013-EDBE-2293-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration, bioinfiltration	4.21
2014-STJO-2424-01	Combined	Verified	Delaware Direct	19122	Subsurface infiltration	5.56
2005-0099-01	Combined	Verified	Lower Schuylkill River	19131	Hybrid bioinfiltration/bioretention	37.40
2006-0017-01	Combined	Verified	Lower Schuylkill River	19142	Subsurface infiltration, porous pavement	1.15

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2006-0074-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface infiltration/detention	0.81
2006-30TH-236-01	Combined	Verified	Lower Schuylkill River	19104	Bioinfiltration	0.39
2006-96-01	Combined	Verified	Lower Schuylkill River	19140	Subsurface detention	0.04
2006-ANGE-268-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration	1.04
2006-ANNE-209-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention	0.12
2006-OVER-462-01	Combined	Verified	Lower Schuylkill River	19151	Subsurface infiltration	1.77
2006-PROP-233-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface infiltration	1.60
2006-STJO-273-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface infiltration, porous pavement	1.55
2006-UNIO-235-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, porous pavement	1.05
2006-WALN-251-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention, green roof, porous pavement	0.68
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	0.45
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	2.17
2007-POWE-679-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement	0.31
2007-SAIN-553-01	Combined	Verified	Lower Schuylkill River	19131	Porous pavement	3.58
2007-THEM-495-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface detention, surface detention	7.68
2007-UNIV-633-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, bioinfiltration	0.36
2008-20UN-767-01	Combined	Verified	Lower Schuylkill River	19104	Green roof	0.32
2008-2116-992-01	Combined	Verified	Lower Schuylkill River	19103	Subsurface detention, green roof, bioinfiltration	0.45
2008-CLAS-765-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, porous pavement	0.34
2008-DREX-788-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, bioinfiltration, porous pavement	1.83

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
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	1.17
2008-NORT-1012-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, disconnected impervious area	1.11
2008-PROP-824-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface infiltration, porous pavement	3.54
2008-STRA-799-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface infiltration, porous pavement	0.46
2008-STRA-802-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface infiltration, porous pavement	0.35
2008-WOOD-864-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement	0.51
2009-GLOB-1016-01	Combined	Verified	Lower Schuylkill River	19131	Bioretention, subsurface infiltration	1.40
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-MANT-1033-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration	3.06
2009-NEWH-1079-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface infiltration	0.47
2009-PARK-1197-01	Combined	Verified	Lower Schuylkill River	19104	Disconnected impervious area	0.11
2009-PECO-1133-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface infiltration	2.86
2009-PENN-1019-01	Combined	Verified	Lower Schuylkill River	19104	Bioretention, subsurface detention, tree credits, direct discharge	3.94
2009-PENN-1144-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement, green roof, subsurface detention	0.49
2009-PRIN-1147-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface infiltration	0.47
2009-SIST-1062-01	Combined	Verified	Lower Schuylkill River	19103	Disconnected pavement	0.15
2009-SIST-1131-01	Combined	Verified	Lower Schuylkill River	19103	Subsurface infiltration, green roof, disconnected impervious area	0.32
2009-STRA-1050-01	Combined	Verified	Lower Schuylkill River	19121	Subsurface infiltration	0.23
2009-THEP-1173-01	Combined	Verified	Lower Schuylkill River	19140	Green Roof	0.09
2010-1800-1260-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface infiltration	0.84

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2010-3737-1331-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention, green roof	0.28
2010-4109-1277-01	Combined	Verified	Lower Schuylkill River	19104	Green roof, porous pavement	0.28
2010-DREX-1399-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention, green roof	1.49
2010-EARL-1460-01	Combined	Verified	Lower Schuylkill River	19146	Subsurface infiltration, tree credits	0.40
2010-GEST-1346-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface detention, subsurface infiltration	1.19
2010-STJO-1239-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface infiltration, bioinfiltration, green roof	1.14
2010-UNIV-1312-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention, green roof	0.72
2010-UNIV-1385-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface detention, bioretention	1.41
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	0.93
2011-CONV-1491-01	Combined	Verified	Lower Schuylkill River	19107	Subsurface detention, green roof	0.26
2011-DREX-1638-01	Combined	Verified	Lower Schuylkill River	19104	Green roof, bioretention	0.74
2011-HAMI-1518-01	Combined	Verified	Lower Schuylkill River	19104	Subsurface infiltration, green roof	1.60
2011-KARA-1505-01	Combined	Verified	Lower Schuylkill River	19139	Subsurface infiltration, porous pavement	3.96
2011-LOCU-1503-01	Combined	Verified	Lower Schuylkill River	19104	Tree credits	0.20
2011-PENN-1664-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement	0.19
2011-PROP-1662-01	Combined	Verified	Lower Schuylkill River	19130	Subsurface infiltration, bioinfiltration	3.68
2012-1900-1754-01	Combined	Verified	Lower Schuylkill River	19145	Porous pavement, green roof	0.59
2012-RIVE-2027-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement, disconnected impervious area, tree credit	3.33
2012-SENI-1900-01	Combined	Verified	Lower Schuylkill River	19145	Subsurface detention, bioretention	0.42
2012-UNIV-1848-01	Combined	Verified	Lower Schuylkill River	19104	Bioinfiltration, porous pavement, green roof, subsurface detention	1.56
2013-HELP-2241-01	Combined	Verified	Lower Schuylkill River	19153	Bioinfiltration	1.69

Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2014-DREX-2457-01	Combined	Verified	Lower Schuylkill River	19104	Porous pavement	2.32
2006-NEWF-343-01	Combined	Verified	Pennypack Creek	19136	Subsurface infiltration	2.63
2010-8828-1321-01	Combined	Verified	Pennypack Creek	19136	Subsurface infiltration	1.06
2006-PASQ-416-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface detention	0.52
2006-PIZZ-242-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface infiltration	0.16
2006-TEMP-197-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface detention, porous pavement	0.23
2007-AROU-626-01	Combined	Verified	Tacony-Frankford Creek	19144	Porous pavement, green roof, subsurface infiltration	0.48
2007-EYEI-616-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface detention	0.49
2007-GAMB-624-01	Combined	Verified	Tacony-Frankford Creek	19124	Porous pavement	3.72
2007-GAMB-701-01	Combined	Verified	Tacony-Frankford Creek	19124	Bioretention, porous pavement	1.55
2007-GERM-647-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface detention, bioretention, green roof, bioretention, vegetated swale	0.88
2007-LASA-593-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface infiltration, porous pavement, tree credits	11.38
2007-SIMO-496-01	Combined	Verified	Tacony-Frankford Creek	19138	Bioretention, porous pavement	0.52
2008-ROLA-813-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface infiltration, green roof	0.21
2009-NICE-1136-01	Combined	Verified	Tacony-Frankford Creek	19140	Bioretention, subsurface detention	0.41
2009-PRES-1037-01	Combined	Verified	Tacony-Frankford Creek	19150	Subsurface infiltration, porous pavement	1.76
2009-WOLC-1169-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface detention, bioretention, disconnected impervious area	1.26
2010-BROA-1347-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface infiltration	0.77
2010-ESPE-1288-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface infiltration, tree credits	0.86
2010-PLEA-1444-01	Combined	Verified	Tacony-Frankford Creek	19119	Subsurface detention, green roof	0.16
2010-PNKW-1360-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface infiltration, porous pavement	2.26
2011-3343-1653-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface infiltration, porous pavement	0.70



Tracking Number	Sewer Type	Category	Watershed Type	Zip	SMP Types	Greened Acres
2011-BOTT-1646-01	Combined	Verified	Tacony-Frankford Creek	19124	Subsurface detention, bioretention	2.91
2011-DOLL-1636-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface infiltration	0.53
2011-NICE-1728-01	Combined	Verified	Tacony-Frankford Creek	19140	Subsurface infiltration, porous pavement	0.30
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
2011-PROP-1483-01	Combined	Verified	Tacony-Frankford Creek	19144	Subsurface infiltration, porous pavement	1.44
2012-PROP-1883-01	Combined	Verified	Tacony-Frankford Creek	19138	Subsurface infiltration	1.07
2013-PROP-2163-01	Combined	Verified	Tacony-Frankford Creek	19141	Subsurface infiltration	0.86
<b>Total Greened Acres:</b>						<b>329.40</b>

**Table 2: SMIP & Retrofit Complete 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	0.08
2011-2150-1616-01	Combined	Verified	Delaware Direct	19134	Subsurface infiltration	1.50
2012-6225-1857-01	Combined	Verified	Delaware Direct	19135	Bioinfiltration	0.31
2012-NEWM-1776-01	Combined	Verified	Delaware Direct	19135	Cistern	1.01
2012-ROOF-1869-01	Combined	Verified	Delaware Direct	19125	Disconnected impervious area	0.43
2013-1148-2105-01	Combined	Verified	Delaware Direct	19127	Subsurface infiltration, bioinfiltration, green roof	0.56
2013-6225-2400-01	Combined	Verified	Delaware Direct	19135	Subsurface infiltration	3.20
2013-CARD-2076-01	Combined	Verified	Delaware Direct	19124	Subsurface detention, bioretention	52.99
2014-SITE-2550-01	Combined	Verified	Delaware Direct	19135	Subsurface infiltration	1.61
2011-RETR-001-01	Combined	Verified	Lower Schuylkill River	19142	Disconnected impervious area	0.26
2012-THEE-1746-01	Combined	Verified	Lower Schuylkill River	19139	Green roof	0.06
2013-METH-2117-01	Combined	Verified	Lower Schuylkill River	19131	Bioinfiltration	1.52
2013-SITE-2387-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface infiltration	5.15

2013-SITE-2401-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface infiltration	3.41
2014-SITE-2501-01	Combined	Verified	Lower Schuylkill River	19131	Bioinfiltration	35.53
2014-SITE-2682-01	Combined	Verified	Lower Schuylkill River	19131	Subsurface detention, bioretention	7.12
2012-GSFS-2028-01	Combined	Verified	Tacony-Frankford Creek	19144	Bioretention	1.04
2013-CARD-2220-01	Combined	Verified	Tacony-Frankford Creek	19124	Surface detention	15.87
<b>Total Greened Acres:</b>						<b>131.65</b>



## **Appendix 4**

---

### **Green Stormwater Infrastructure Monitoring Status Report**



# GSI Monitoring Status Report

---

## 1.0 Introduction

During the reporting period of July 1, 2014 to June 30, 2015, 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 proof of concept phase 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, 2014 to June 30, 2015, 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	27	184	15%
Stormwater Planter	7	25	28%
Stormwater Bump-out	1	18	6%
Rain Garden	2	51	4%
Stormwater Basin	0	1	0%
Infiltration/Storage Trench	11	46	24%
Pervious Paving	5	8	63%
Swale	0	7	0%
Stormwater Wetland	0	0	n/a
Green Roof	0	1	0%
Other	0	86	0%
<b>Total</b>	<b>53</b>	<b>427</b>	<b>12%</b>

## 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, 2014 through June 30, 2015.

### 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 2014/2015 62 HOBO U20-001-04 water level loggers (Onset Computer Corp, Bourne MA) have been deployed in 50 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, 20 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	20	548
Water Level Sensor	62	703

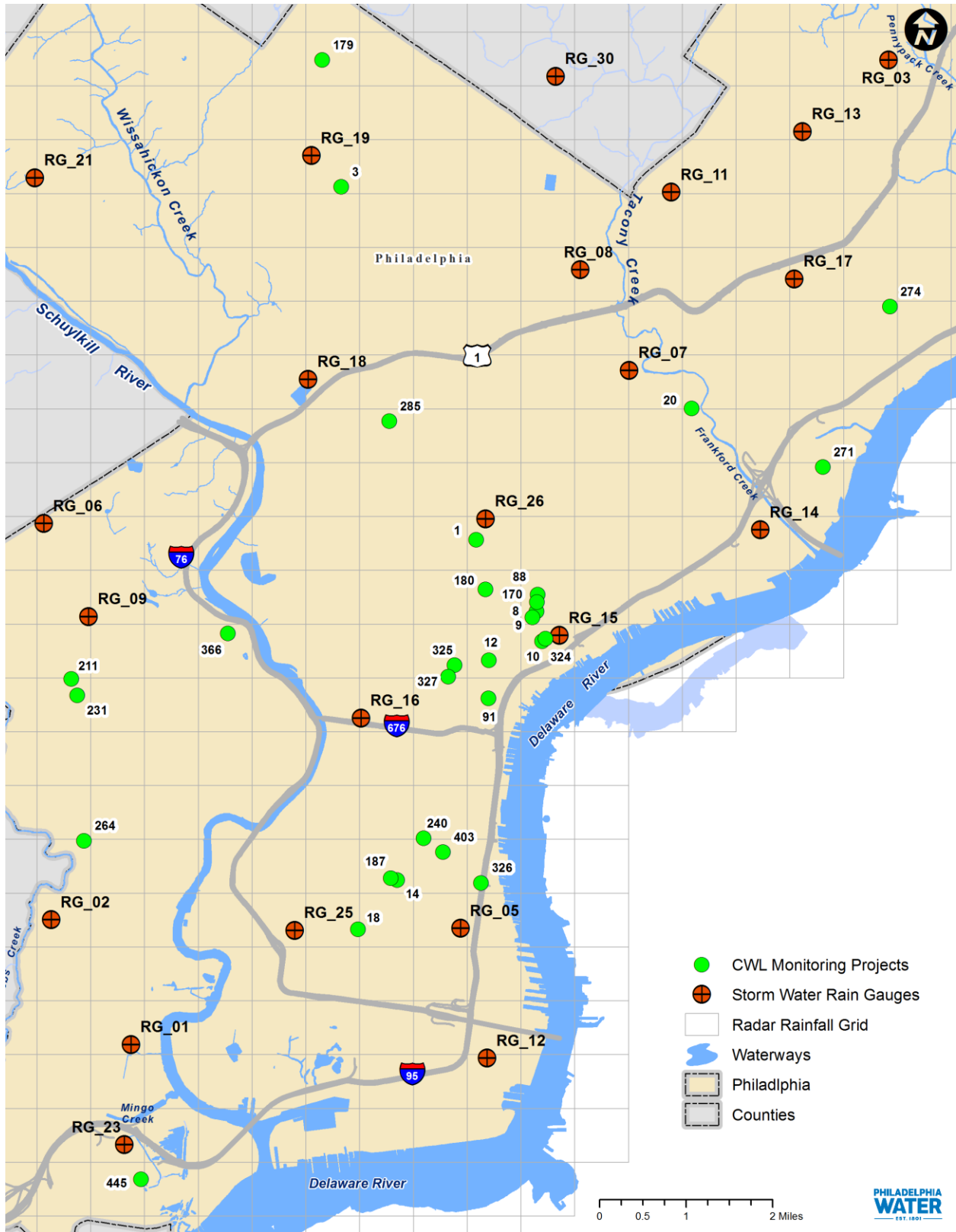
To implement continuous water level monitoring sensors, several new pieces of equipment were acquired. Ten new HOBO U20-001-04, and Thirty new HOBO U20L-04 Water Level Loggers were acquired. Deployment of new equipment is in progress.

**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
14-1-1	Rain Garden	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



<b>20-2-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 2
<b>20-3-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 3
<b>20-4-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 4
<b>20-5-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 5
<b>20-6-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 6
<b>20-7-1</b>	Planter	Bureau of Laboratory Services	Hunting Park Planter 7
<b>20-8-1</b>	Infiltration/Storage Trench	Bureau of Laboratory Services	Hunting Park Infil. Trench H1
<b>88-1-1</b>	Infiltration/Storage Trench	Trenton Ave and Norris St	SWT-A2, SWT-B2, RG-D2
<b>91-1-1</b>	Tree Trench	3rd St and Fairmount Ave Intersection	S-7, S-8, S-9
<b>170-1-1</b>	Tree Trench	Shissler Playground	Blair St.- SWT-A2
<b>170-2-1</b>	Tree Trench	Shissler Playground	Hewson St.- SWT-A4
<b>180-1-1</b>	Tree Trench	Reese St	Reese St Tree Trench
<b>187-3-3</b>	Infiltration/Storage Trench	Columbus Square	Infiltration Planters 3 & 4
<b>211-1-1</b>	Bumpout	Haverford Ave, 57th St and Vine St (Shepard Recreation Center)	SWT2-1
<b>231-2-1</b>	Tree Trench	56th St, 57th St, Race St, and Vine St (Daroff School)	SWT1-2 & SWT1-3
<b>240-1-1</b>	Pervious Paving	Percy St from Catharine St to Christian St	Percy St
<b>264-1-1</b>	Tree Trench	57th St and Pentridge St (Longstreth School)	S-2A & B
<b>271-1-1</b>	Infiltration/Storage Trench	Bridesburg Recreation Center/Bridesburg School	RG1
<b>274-4-1</b>	Infiltration/Storage Trench	Hellerman St, Cottage St, and Levick St (Roosevelt Playground)	SP13&14
<b>285-1-1</b>	Tree Trench	21st St from Venango to Pacific	Tree Trench
<b>324-1-1</b>	Tree Trench	Earl St (Hetzell Playground)	Earl Street Tree Trench
<b>325-1-1</b>	Tree Trench	8th St	8th Street
<b>326-1-1</b>	Tree Trench	Front St	Front St
<b>327-1-1</b>	Tree Trench	9th St	9th Street Tree Trench
<b>366-2-2</b>	Infiltration/Storage Trench	Philadelphia Zoo	RG-B2/SWT-A2
<b>366-9-1</b>	Infiltration/Storage Trench	Philadelphia Zoo	SWT-A7
<b>366-10-3</b>	Infiltration/Storage Trench	Philadelphia Zoo	P-A8/P-B8/P-C8/SWT-D8/SWT-E8
<b>403-1-3</b>	Infiltration/Storage Trench	George W. Nebinger School	Rain Garden
<b>403-1-4</b>	Rain Garden	George W. Nebinger School	Rain Garden
<b>403-2-1</b>	Infiltration/Storage Trench	George W. Nebinger School	Underground Stormwater Basin
<b>445-1-1</b>	Pervious Paving	Southwest Treatment Plant Parking Lot	Parking Lot
<b>179-5-1</b>	Tree Trench	Morris Leeds Middle School	MIT-5



**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 seven GSI systems for July 1 st 2014 to June 30<sup>th</sup> 2015. 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)**

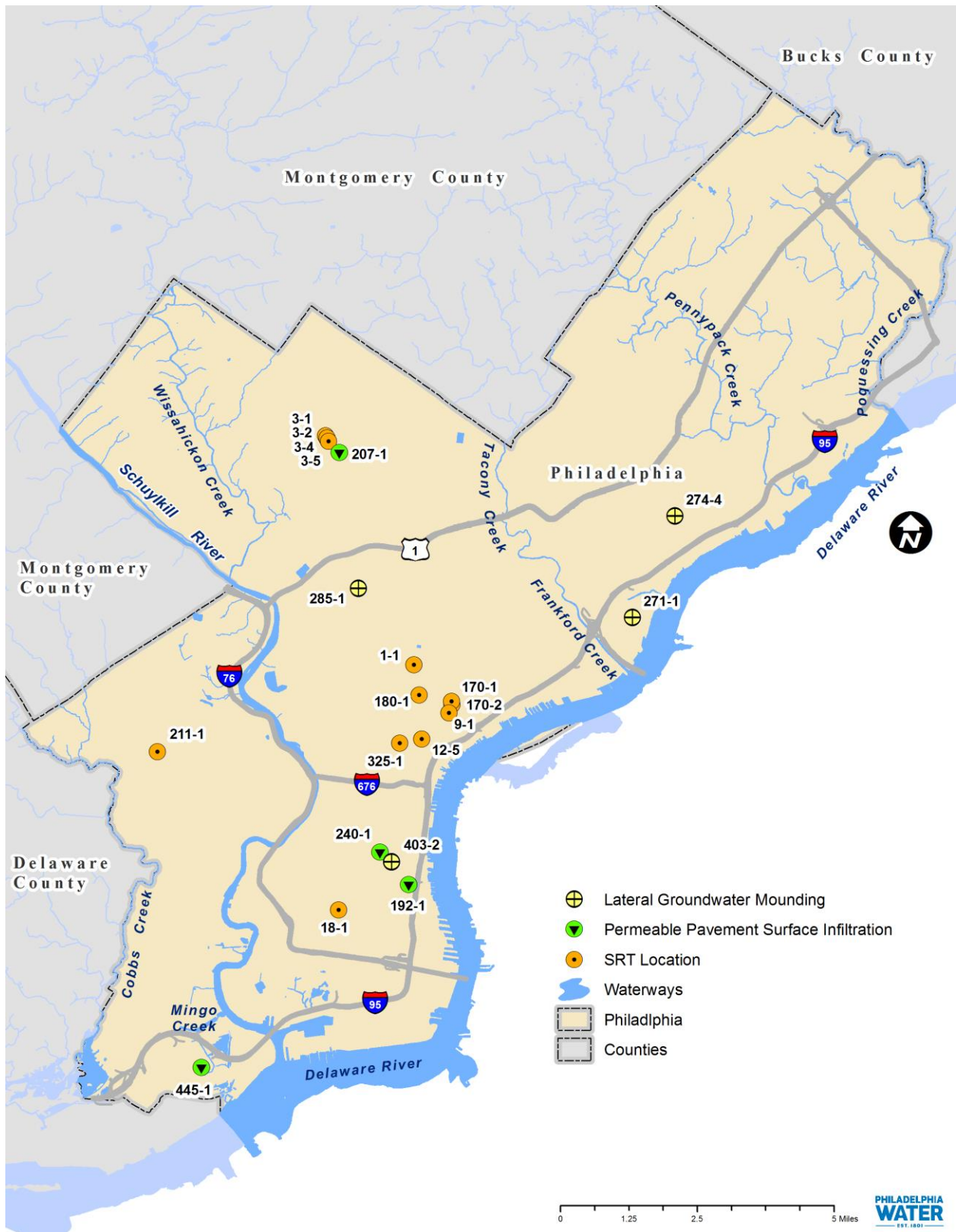
SMP ID	SMP Type	Project Name	System Name	Test Date
9-2-1	Tree Trench	Palmer St from Frankford Ave to Blair St (Shissler Playground)	SWT-A4	7/18/2014
9-1-1	Tree Trench	Palmer St from Frankford Ave to Blair St (Shissler Playground)	SWT-B4	7/22/2014
403-2-1	Infiltration/Storage Trench	George W. Nebinger School	Underground Stormwater Basin	7/30/2014
403-2-2	Infiltration/Storage Trench	George W. Nebinger School	Underground Stormwater Basin	11/11/2014
3-4-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	4	5/1/2015
3-5-1	Tree Trench	Belfield Ave from Chew Ave to Walnut Ln	5	4/30/2015
12-5-1	Tree Trench	4th St and Cambridge St (Bodine High School)	S-5	5/5/2015

### 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. Five SMPs have been selected for surface infiltration rate testing. Monitoring locations are shown in **Table 3-4** and **Figure 3-2**. Twenty nine different surface infiltration rate tests of porous surfaces have been performed.

**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
192-2-1	Herron Playground Basketball Court	Porous Asphalt	9	1
207-1-3	McMahon St (Waterview Recreation Center)	Pervious Concrete	3	1
240-1-1	Percy St from Catharine St to Christian St	Porous Asphalt	3	1
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Porous Asphalt	4	2
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Pervious Concrete	4	2
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Stamped Pervious Concrete	3	2
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Permeable Interlocking Paver (Aqua-Bric)	3	2
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Modular Porous Concrete (Stormcrete)	3	2
445-1-1	Southwest Water Pollution Control Plant Parking Lot	Articulating Concrete Block Mat (Pave Drain)	3	2
197-1-1	Mill Creek Basketball Court	Porous Asphalt	6	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. The construction of several Modified Philip-Dunne permeameters is currently underway using methods developed at The University of Minnesota (Gulliver & Anderson, 2007).

### 3.5 Lateral Groundwater Mounding

The Water Department installed 16 groundwater monitoring wells in close proximity to six SMPs and four groundwater monitoring wells away from SMPs to act as control wells. Additional sites have been identified and groundwater well establishment is ongoing for these sites. 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	4
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 <sup>st</sup> and Venango Streets	Tree Trench	2
403-2-1	Infiltration/Storage Trench	George W. Nebinger School	SWT-2	4
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	21	494

### 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 June 2014, 19 wells have been established from which water level measurements are made on a monthly basis. Results of groundwater monitoring are presented in **Appendix J 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 19 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

During the winter months of 2014/2015 several barometric pressure sensors were found to be impacted by snow and ice. The sensors were found frozen or otherwise impaired that had in previous winters demonstrated no significant impacts from freezing conditions. Sensor locations have been revised on a case by case basis to remove the concern of freezing. Redundancy from other sensors in the barometric pressure sensor network were used to replace data lost when freezing impacted data integrity.

Data analysis and validation of data sets generated during SRT application proved to be time intensive. SRT procedures generated large data sets with many sensors. These data sets were analyzed in partnership with a Drexel University graduate student's master's thesis work. The algorithm developed from this research partnership is currently being applied to PWD SRT data sets.

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 program has been successful in acquiring the needed equipment, deploying water level sensors to GSI systems, and performing a limited number of simulated runoff and permeable pavement infiltration tests. The GSI Monitoring team has also been successful in 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. As part of the investigations, un-saturated zone modeling was pursued, with Pilot Program staff leading. These modeling efforts were pursued to investigate and validate assumptions regarding horizontal movement of water in various urban conditions.

One challenge faced during this initial period of establishing the monitoring network is that rainfall is not always uniformly distributed over the contributing drainage area in each storm event. Additionally, green inlets and other stormwater inflow points to SMPs may be temporarily clogged with leaves and trash debris reducing the inlet efficiency. Systems with "highway grate" style inlets appear to be more susceptible to bypass if the grate is offset from the curb and pavement on the curb side is not graded



toward the inlet. In many cases, a simulated runoff test can provide valuable information for interpreting continuous water level data. The Water Department has continued to work with the EPA STAR grant awardees to instrument a number of GSI systems with more sophisticated instruments capable of measuring flows in and out of GSI systems. PWD has deployed a Rain Gauge at a STAR grant site to compare rainfall data used from off site sources and onsite rain gauge observations. PWD has also purchased 2 additional rain gages (HOBO Rain Gauge Data Logger - RG3) to rotate to each site for validating rainfall data sources.

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. Toward this end, GSI monitoring staff have made comments on individual as-built submittals and worked with GSI implementation and PWD design staff on revising the standard detail for observation wells as well as providing comments during specification development processes.

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.

PWD staff noticed hydraulic inefficiencies in some inlet structures providing inflows to GSI, in the course of fieldwork and in some cases data analysis. To more conclusively assess these observations, GSI monitoring staff developed qualitative procedures to rapidly assess inlet function in the field. After repair work these test procedures were deployed again to verify that the issue had been resolved.

## **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.

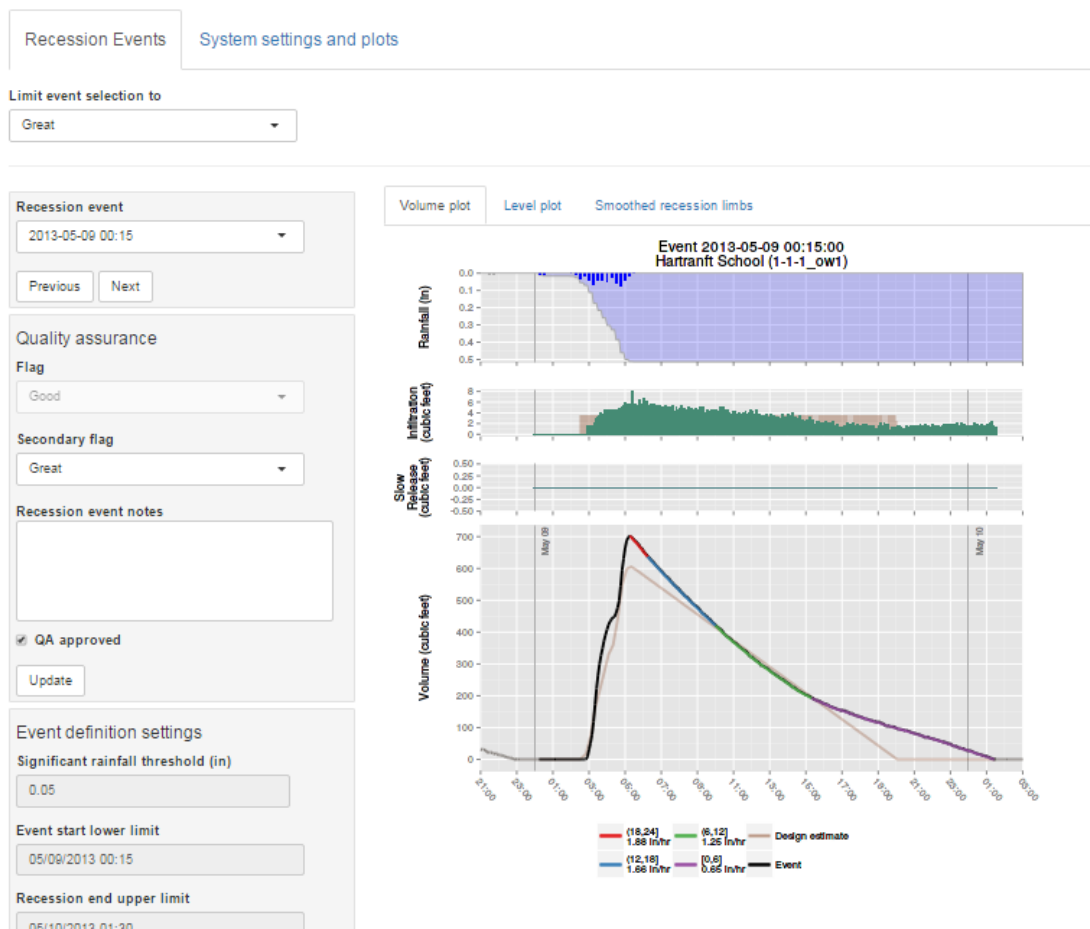


Figure 1: Example of water level and rainfall data from a 0.51 inch storm plotted in PilotDB

### 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 (ft<sup>3</sup>),

Infiltration = infiltration into surrounding soil or fill (ft<sup>3</sup>),

Slow Release = volume released to the combined sewer system at a controlled rate (0 for infiltration-only systems) (ft<sup>3</sup>),

Bypass/Overflow = volume of runoff that exceeds available storage capacity in the system (ft<sup>3</sup>),

Change in Storage = difference between storage at beginning and end of event, if any (applies to back-to-back events) (ft<sup>3</sup>), and

Error = a term incorporating all sources of error and uncertainty in the system (ft<sup>3</sup>), 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 (ft<sup>2</sup>),  $g$  is the acceleration due to gravity (32.2 ft/s<sup>2</sup>), 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.

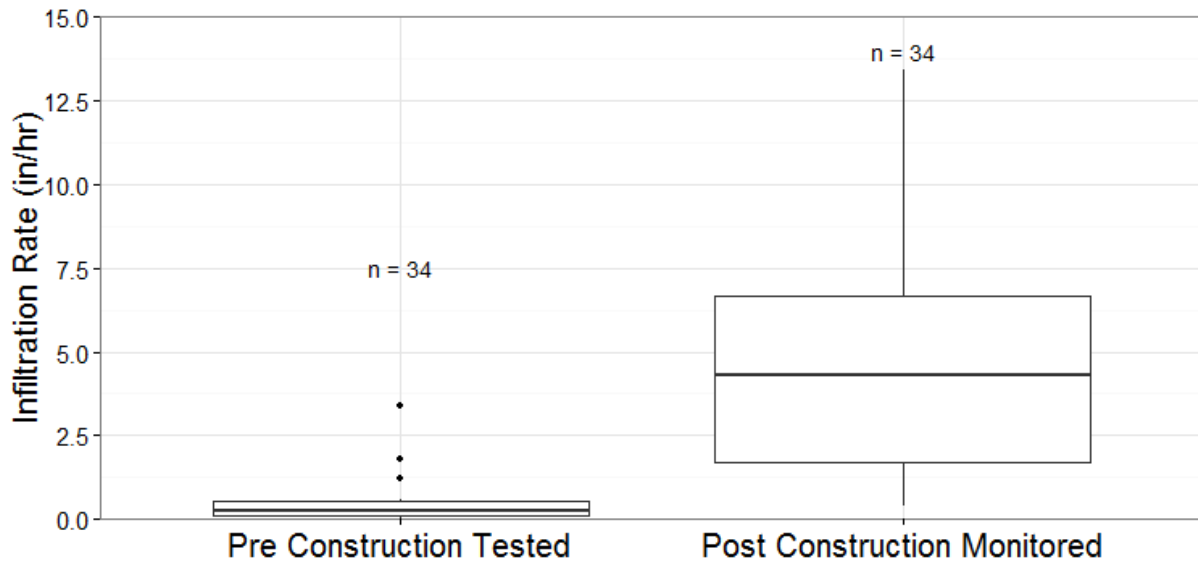
$$\Delta \text{Storage} = \text{Infiltration} + \text{Slow Release} \quad \text{Equation 3}$$

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***

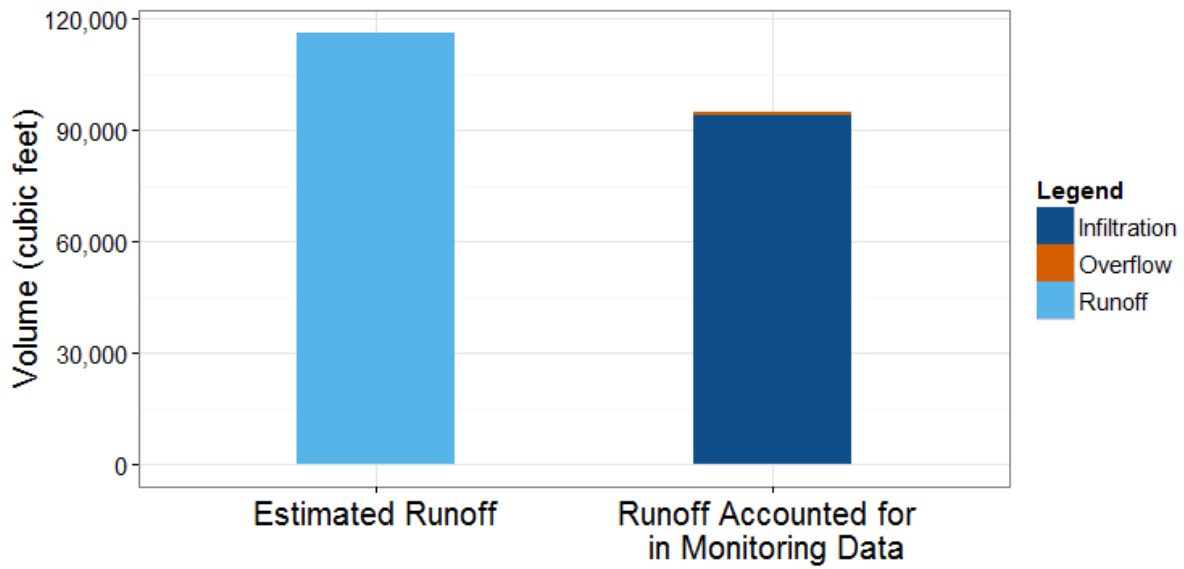
Infiltration rates are being calculated for each system using the steps described in the Methods section. An early example result of this analysis is shown in Figure 2. Figure 2 summarizes the ranges in infiltration rates estimated from pre-construction site investigation testing and from post-construction 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**

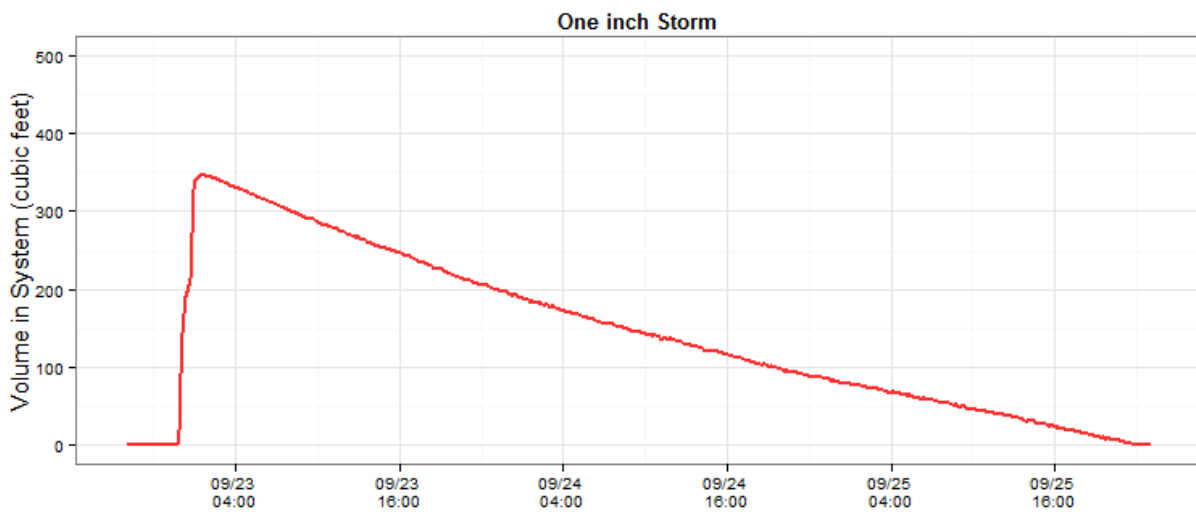
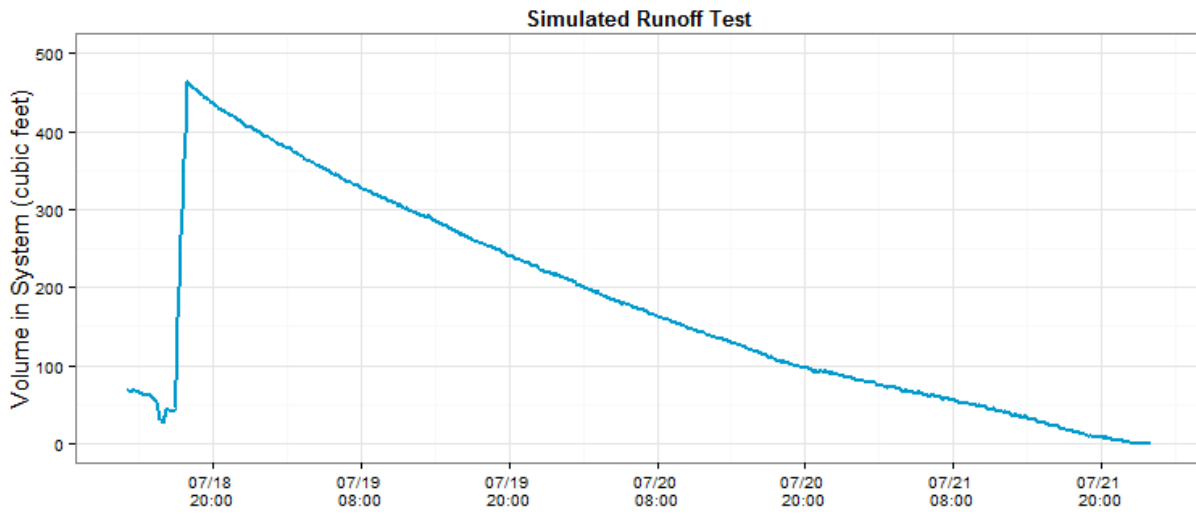
***Water Budget Analysis Example Results***

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
<b>Error Term (%)</b>	<b>18%</b>	<b>31%</b>

## 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.

## Table of Contents

[Table 1](#): Variables and levels, definitions, and number of systems tagged

[Table 2](#): Work number, project name, SMP name, status, system type, number of variables

[Table 3](#): Pilot land use type variables

[Table 4](#): Drainage area characteristics

[Table 5](#): GSI system type

[Table 6](#): GSI Design elements

[Table 7](#): System surface/subsurface status, loading ratios, static storage volume, vegetation status

[Table 8](#): Pretreatment type

[Table 9](#): Inflow type, street crossing, rooftop disconnection

[Table 10](#): Other GSI design elements

[Table 11](#): Materials

[Table 12](#): Physical conditions

[Table 13](#): Policy/partnership type

[Table 14](#): Implementation strategy

[Table 15](#): Health and safety impacts

[Table 16](#): GSI visibility

[Table 17](#): GSI location ownership



**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
<b>Pilot Land Use Type</b>		
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
<b>Drainage Area Characteristics</b>		
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
<b>GSI System Type</b>		
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
<b>GSI Design Elements</b>		
<b>Inlet Type</b>		
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
<b>System Surface/Subsurface Status</b>		
Surface	The system is open to the surface.	156
Subsurface	The system is entirely subsurface.	284
<b>Loading Ratio</b>		
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
<b>Static Storage Volume</b>		
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
<b>Vegetation Status</b>		

<b>Variable</b>	<b>Definition</b>	<b>Number of Systems</b>
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
<b>Pretreatment Type</b>		
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
<b>Inflow Type</b>		
Surface Inflow	Runoff enters the system at the surface.	175
Subsurface Inflow	Runoff enters the system through subsurface piping.	274
<b>Street Crossing</b>		
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
Standard Subsurface Crossing	Subsurface piping is used to convey stormwater across a street to a GSI practice.	77
<b>Rooftop Disconnection</b>		

Variable	Definition	Number of Systems
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
Tiered Surface Features	Long surface feature in a sloped area with check dams to separate ponding areas of different elevations.	18
<b>Vegetated Surface Mowability</b>		
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

Variable	Definition	Number of Systems
Not Mowable	A surface system in an open space park site that is planted with herbaceous species, shrubs, and occasionally trees.	149
<b>Materials</b>		
<b>Storage Type</b>		
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
<b>Permeable Pavement Type</b>		
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
<b>Soil Type</b>		
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
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
<b>Physical Conditions</b>		

Variable	Definition	Number of Systems
<b>Physiographic Province</b>		
Piedmont	The site is located in the Piedmont Physiographic Province.	216
Coastal Plain	The site is located in the Coastal Plain Physiographic Province.	222
<b>Tested Soil Infiltration Rate</b>		
< 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
<b>Slope</b>		
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
<b>Policy/Partnership Type</b>		
LEED / Sustainable Sites Initiative	GSI is implemented either adjacent to a development seeking LEED certification, or as part of the LEED certification requirements.	5
<b>Public Agency</b>		
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
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

Variable	Definition	Number of Systems
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
<b>Implementation Strategy</b>		
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 challenges.	18
<b>Problematic Subsurface Conditions</b>		
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



Variable	Definition	Number of Systems
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
<b>Health and Safety Impacts</b>		
<b>Pedestrian Impacts</b>		
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
<b>Bicyclist Impacts</b>		
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
<b>Driver Impacts</b>		
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
<b>GSI Visibility</b>		
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
<b>GSI Location</b>		
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 Harrity School - Webster St and Frazier St	S-6	Closed	Tree trench	19
50027	William Harrity 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

<b>Work Number</b>	<b>Project Name</b>	<b>SMP Name</b>	<b>Status</b>	<b>System Type</b>	<b>Number of Variables</b>
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	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	Design 70 percent Complete	Infiltration/storage trench	23
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	Design 70 percent Complete	Bumpout	24
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	Design 70 percent Complete	Bumpout	24
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	Design 70 percent Complete	Bumpout	24



<b>Work Number</b>	<b>Project Name</b>	<b>SMP Name</b>	<b>Status</b>	<b>System Type</b>	<b>Number of Variables</b>
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

<b>Work Number</b>	<b>Project Name</b>	<b>SMP Name</b>	<b>Status</b>	<b>System Type</b>	<b>Number of Variables</b>
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														

Pilot Land Use Type

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										

Pilot Land Use Type

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	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	
	Ave to Jackson St, Ditman St 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-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									

Pilot Land Use Type

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									
50032	8th St	8th St					1									

Pilot Land Use Type

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	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										
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-E4					1										
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-A5/SWT-A5					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	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	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								

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	380-09					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	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 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	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	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												

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	416-9			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												
50075	William Dick Elementary - 24th, Diamond, 25th St	Rain Garden	1													
40735	Germantown Ave SFR - Phase 5 - Wildey to Girard	System 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		
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												
50091	Stinger Square	589-1		1												
50091	Stinger Square	589-2		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		
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												
50069	Callowhill St from 2nd to 7th	Tree 1 thru 10					1									
50083	Weccacoe Playground	untitled		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		
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									
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									

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		
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	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		
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													

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		
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													
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								



Pilot Land Use Type

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		
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									
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	

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
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						
50003	Bodine High School - 4th St and Cambridge St	S-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
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						
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	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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					

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-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						
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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						



Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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					
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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					
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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						

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	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						
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5	1	1	1					
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					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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					
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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						



Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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 Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-04	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-05	1	1						
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-06	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-07	1	1						
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-10	1	1	1					
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-11	1	1						
50052	Cheltenham Cemetery - Lowber, Upsal, Woolston, Washington	380-12	1	1	1					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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					

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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				
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

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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					
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			

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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			

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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							
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			

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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						
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	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						



Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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			
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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			
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						

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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		
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

Work Number	Project Name	SMP Name	Drainage Area Characteristics							
			Street	Sidewalk	Street Crossing	Parking Lot	School Yard/Playground	Rooftop	Bridge	Park
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					
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**

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
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										

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-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										
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						

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-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 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	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										



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	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	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-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										

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-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												

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
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										

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 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										

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
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 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	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	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	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										



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	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									

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 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										

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	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									

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	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										
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										

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
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										
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	TT8-SW					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 Torresdale Ave to Jackson St, Ditman St 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-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 Helleman St	TT4					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	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										

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	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							



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	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 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-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							

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
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										

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
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							
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-1											1				
50048	National Cemetery - Andrews, Rodney, Haines, Limekiln	377-2											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
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									

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	380-11						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 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	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	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
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						



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
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								
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													

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
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 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
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	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
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									

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
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, Cheltenham, Ogontz	S-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
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									
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	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
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							

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
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											



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
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	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	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						

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	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		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**

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		
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											

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	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								
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										

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		
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								
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											

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-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										
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										

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		
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
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								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		
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	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											

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		
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										
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											

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	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										
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										

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	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	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											

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		
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											
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	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-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											
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											

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	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							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											

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		
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						
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										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											



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		
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												
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								

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		
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			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										

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		
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											
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			

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		
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							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								

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	416-6				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												
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											

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	488-2	1											
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								
50112	Botanic Ave from 49th St to 51 St	49th St				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	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
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-5A and S-5B		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
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
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

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-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
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

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-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			
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



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-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			
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			

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	
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
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

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-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
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

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	
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
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			

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	
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
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

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
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	
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

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	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
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

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	
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
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



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		
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 Hellerman St	TT4		1	1					1					1
50042	Dorsey Playground - Hegerman St, Magee Ave, and Hellerman St	TT5		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	
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
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	

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
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
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

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	
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
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			

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-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
40669	Hope St from Berks to Norris	Hope St. from Berks to Norris		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	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
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

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	
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		
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		

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	380-10		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
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



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	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			
50079	Guerin Recreation Center	401-1		1											1
50079	Guerin Recreation Center	401-2		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	
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		
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-3		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		
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		
50033	Lancaster Ave from N 58th St to N 63rd St	Bioswales @ Tustin Rec Center	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	
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			
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			

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
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	
50086	East Fairmount Park - Kelly Drive	641-2	1		1				1			1	
50086	East Fairmount Park - Kelly Drive	641-3	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
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
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

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
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		
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		

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
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
50087	Pennway, Longshore, Algon, Knorr	G-5	1		1				1				1
50089	Glenwood from Pacific to Castor	SMP 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	
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	
50089	Mariana Bracetti Academy Charter School - Torresdale, Hunting Park, Jasper	SMP 3	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	
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		
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

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 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			
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			

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		
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											
50079	Smith Playground	488-2	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	
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							
50086	East Fairmount Park - Kelly Drive	641-3					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		
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											
40775	Kinsey from Tackawanna St to Torresdale St	Kinsey 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	
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
50119	Cement Park Streets Locations	25143						1						
50119	Cement Park Streets Locations	25141						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	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									
50100	Hestonville Neighborhood Disconnection SMP	1013-1		1									
50034	Thompson St and Columbia Ave	SWT-A5		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	
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					
50001	12th St and Reed St (Columbus Square)	Columbus Square	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	
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
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									
			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 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								
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 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	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								
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-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	
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								
50023	Herron Playground Permeable Basketball Court	Porous Paving	1									
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-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	
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								
50009	Bureau of Laboratory Services	Castor Tree Trench		1								
50020	Welsh School - 4th St and Dakota St	4th St. Rain Garden	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	
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								
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								

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	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 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 (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								
40736	Germantown Ave SFR - Phase 6 - 3rd St, Germantown Ave, and Master St	System 6		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 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
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					

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-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								
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								

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	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								
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									
			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-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									
50042	Magnolia Cemetery - Cottage St and Levick St	TT11		1								
50067	29th & Cambria PWD Facility Employee Parking Lot	276-1		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	
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								
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 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	
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
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

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-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								
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 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	
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	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01		1				1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	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
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							
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									
			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	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					
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	

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	400-4	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
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



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	416-7	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								
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								

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	
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
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

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	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
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 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	
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
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								

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	
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									
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									

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	
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
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

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	
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									
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								

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		
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
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													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													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						

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	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 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
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	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-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															
50029	Morris Leeds Middle School - Mt. Pleasant Ave, Sedgwick St, Gorgas Ln, Rodney St, Lowber Ave, and Woolston Ave	MIT-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
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															

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
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															
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		



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
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															
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															

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
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															
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 Harry School - Webster St and Frazier St	S-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
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															

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
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	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
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																
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																

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
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	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															

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-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															

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	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 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 System 2													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
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																
50032	Front St	Front 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	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 34th	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	Tiered Surface Features
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
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				

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-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														
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					

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	Washington at 18th	1											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										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 Bigler St	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
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
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 Diamond St	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
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														
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	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	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														
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														

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	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														
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														

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	
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							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	
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															
50045	Benjamin Franklin Pkwy from 16th St to 19th St	PIT-5	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
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
50032	9th St	9th St	1														1
40669	Hope Street from Master to Jefferson	Hope St. from Master to Jefferson	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
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														
50047	Philadelphia Zoo - Girard from 39th to 34th	SWT-A7	1														
50065	Panati Playground, 2119-29 Clearfield St	SMP 4				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		
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															
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-09	1												1				
50052	Chelten Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-10	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	380-11	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														
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														

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	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					
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					

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
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											
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			

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	416-7	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															
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	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	
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 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				

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
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														
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														

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	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									
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



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	
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															
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					
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															

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	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									
50084	Carmella Playground	SMP #1											1					
50084	Carmella Playground	SMP #2											1					
50084	Carmella Playground	SMP #3											1					
50084	Carmella Playground	SMP #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		
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
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															

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
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				
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											
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									

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%)
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							
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					

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	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	
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	

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	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, Little's 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								
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		



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-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					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	

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-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					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								

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%)
50010	Barry Playground - 18th St, 19th St, and Bigler St	SRS-2		1	1							
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							
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									

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%)
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			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							

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-8	1				1							1
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								

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	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					
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							

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 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		
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								

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-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								
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						
50036	Barton School - Rosehill St from Wyoming Ave to Courtland St	Barton School	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%)
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	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							

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%)		
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										
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		

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%)		
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-E8	1						1					
50047	Philadelphia Zoo - Girard from 39th to 34th	RG-B2/SWT-A2	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%)		
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	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-01	1		1									
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-02	1			1								
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-03	1				1							
50052	Cheltenham Hills Cemetery - Lowber, Upsal, Woolston, Washington	380-04	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	380-05	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									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 15		1	1									
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 16		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 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							
50055	Upland Way - Redfield to 59th	400-2	1				1						
50055	Upland Way - Redfield to 59th	400-3	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%)			
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												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-2	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%)		
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											
50062	Woodland Ave from 43rd to 72nd	Trench 1	1			1								
50062	Woodland Ave from 43rd to 72nd	Trench 2	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%)		
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									
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								

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%)		
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		
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								

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	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								
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			

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%)
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								
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									

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%)	
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									
40827	Mole, Bancroft	Mole St from Porter St to Ritner St		1									
40827	Mole, Bancroft	Bancroft 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%)		
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										
50097	Amber St, Lehigh Ave, and Collins St	30% G-14		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	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									

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%)		
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										
50119	Cement Park Streets Locations	25143		1										
50119	Cement Park Streets Locations	25141		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	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	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							
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					
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	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							
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	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			
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											
50063	Eadom Parking Lot - 5312-50 Eadom St	Rain Garden S-1				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							
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						
50004	Belfield Ave from Chew Ave to Walnut Ln	B-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	
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											
50051	Elmwood Park - 72nd, Buist, 71st, Dicks	System 18			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 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, Schiller	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		
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												
50060	Hunting Park - Old York Rd, 9th St, Cayuga St, Hunting Park Ave	416-7			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	416-9			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										
50062	Woodland Ave from 43rd to 72nd	Trench 3					1										
50062	Woodland Ave from 43rd to 72nd	Trench 4					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		
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											
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						

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		
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												
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	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	
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											
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

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-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										
50099	Conestoga Community Playground	Porous basketball court			1										
50101	Kingsessing Recreation Center	GSI System 8			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								
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							
50119	Cement Park (Northern Liberties Recreation Center)	485			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	
			5	10	140	23	6	0	12	18	100	53	6	2	8
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 - 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						
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	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			

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, 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
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	

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		
50003	Bodine High School - 4th St and Cambridge St	S-5	1		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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 Kingsessing Ave	S-3	1		
50041	Little Sisters of the Poor - 53rd St, 54th St, Chester Ave, and Kingsessing Ave	S-4	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-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		
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	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-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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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		

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 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		
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 Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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 Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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	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	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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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 Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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 Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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		
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	



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 #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
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	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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, 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		
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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		

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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	
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	

Work Number	Project Name	SMP Name	GSI Location Ownership		
			Public Right-of-Way	Public Parcel	Private Parcel
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 5**

---

# **Lateral Groundwater Mounding Investigations**





## Lateral Groundwater Mounding Investigations by Philadelphia Water

Water table mounding beneath and within the immediate vicinity of Green Stormwater Infrastructure (GSI) is a potential risk to adjacent buildings and other infrastructure. As described in Section 4 of the City of Philadelphia’s Comprehensive Monitoring Plan, Philadelphia Water has begun collecting data from lateral groundwater mounding wells in order to evaluate the potential for groundwater mounding and to determine whether design guidelines are sufficient to prevent the infiltration of stormwater into nearby structures.

Twenty one monitoring wells were installed at 4 sites throughout the City to evaluate lateral groundwater mounding due to various GSI. The sites are shown on **Figure 1** and listed in **Table 1**. As shown in the table, the three major geologic strata within Philadelphia are represented. For each system, at least 1 well was installed immediately adjacent to the GSI. In order to account for background water table fluctuations in response to rainfall events, a “control” well was also installed at each site. The control well is located at least 200 feet away from the system, well outside the influence of the GSI. All wells were screened across the water table, from approximately 1 to 2 feet above to 8 to 10 feet below the water table.

**Table 1**

**Summary of Sites with Monitoring Wells for Lateral Groundwater Mounding Analyses**

Project Site	GSI Type	Number of Wells	Geology	Approx. Depth to Groundwater (ft below surface)
21 <sup>st</sup> Street from Venango to Pacific	Infiltration Trench	2	Wissahickon Schist (weathered)	19 - 20
Bridesburg Recreation Center & Bridesburg School	Rain Garden with Subsurface Storage	4	Alluvium/Trenton Gravel	11 - 15
George W. Nebinger School	Subsurface Basin & Rain Garden	11 <sup>1</sup>	Alluvium/Trenton Gravel	25 - 27
Roosevelt Playground	Planter with Subsurface Storage	4	Pennsauken	10 - 20

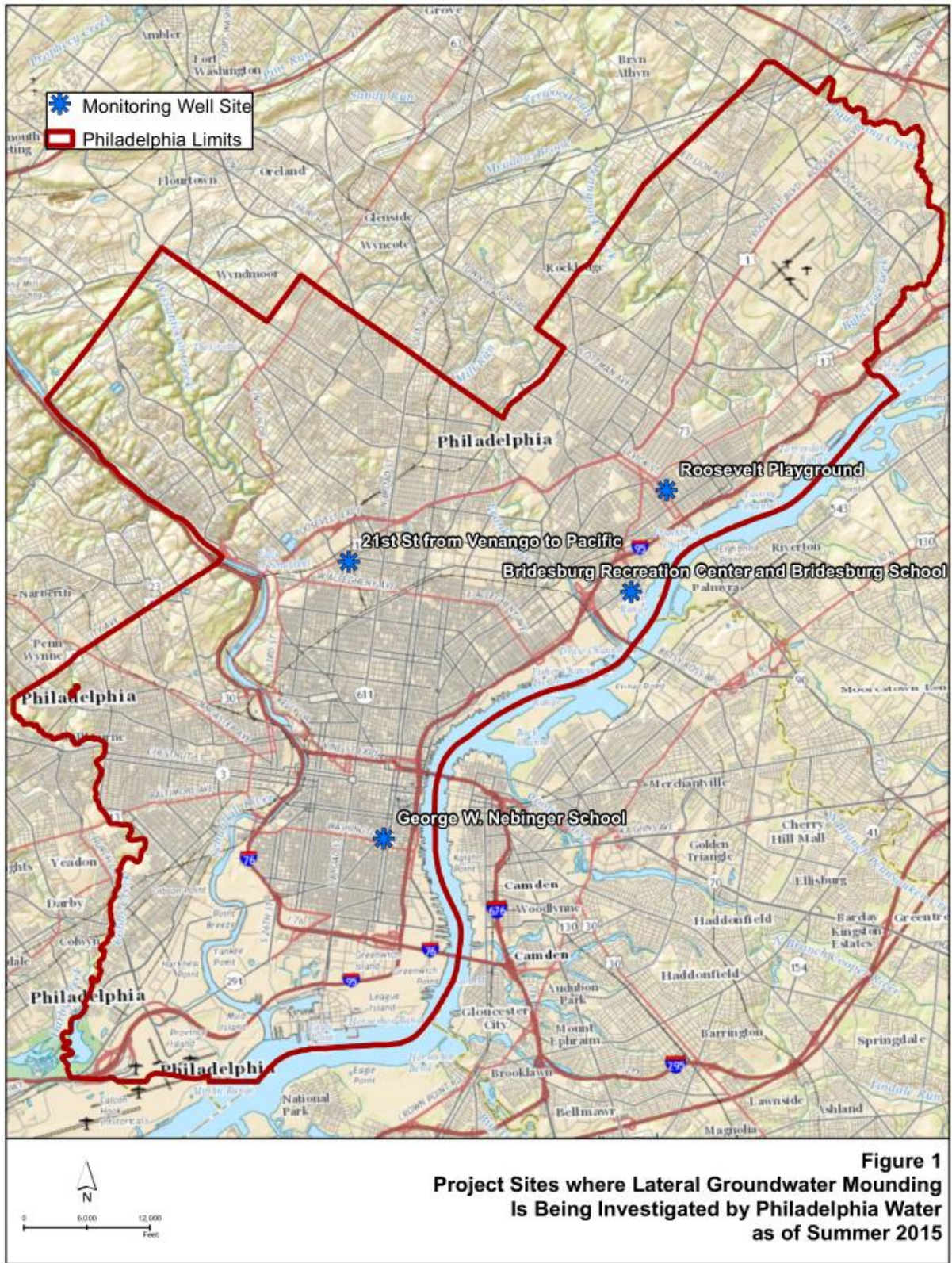
Note:

1. Two of the wells were screened completely within the unsaturated zone.

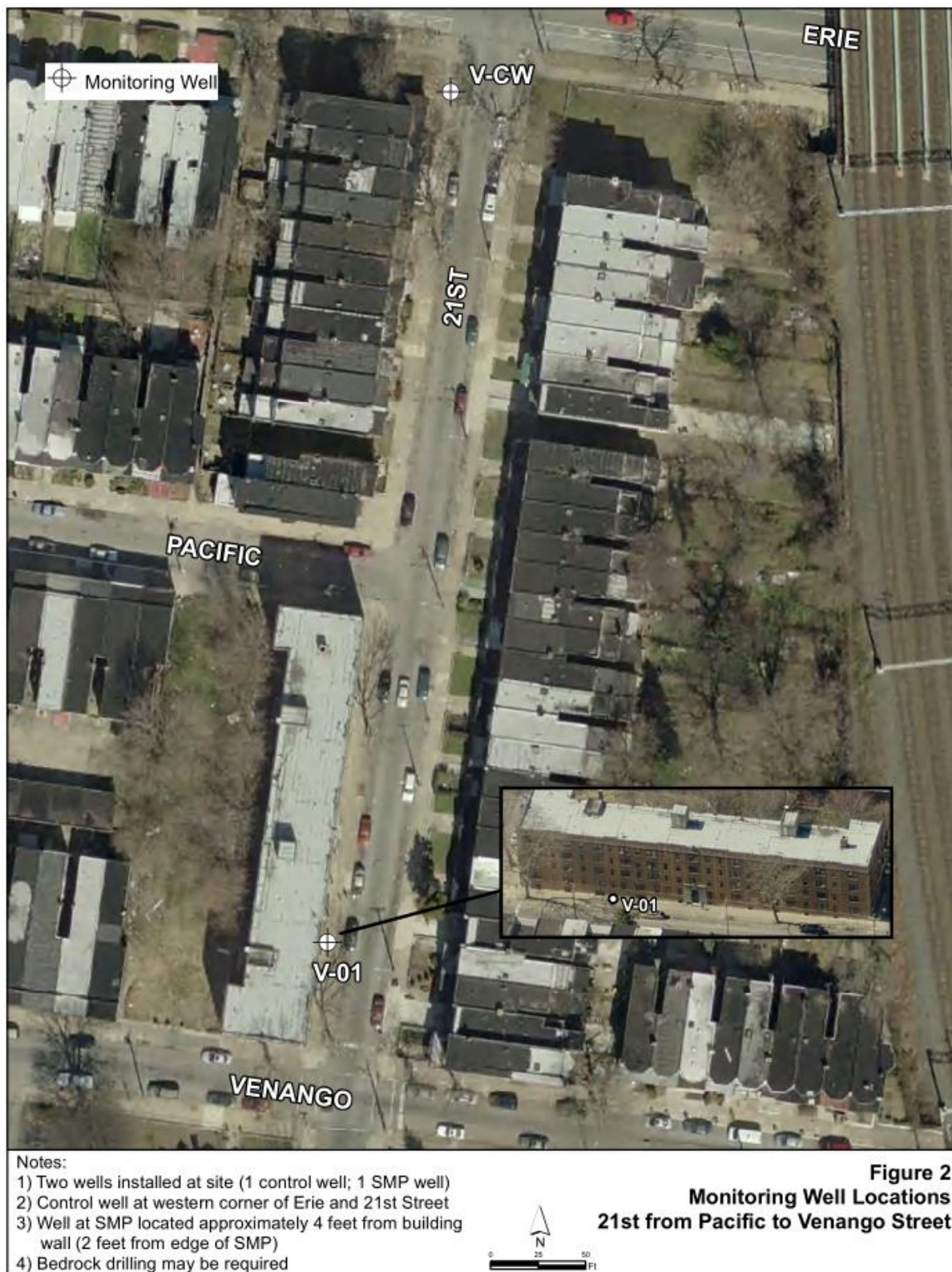
A pressure transducer was installed in each monitoring well and programmed to collect a water level every 5 minutes.

### *21<sup>st</sup> Street from Venango to Pacific*

Two groundwater monitoring wells were installed along 21<sup>st</sup> Street in northwest Philadelphia (**Figure 2**). There is a long (137 feet) infiltration tree trench that is installed directly adjacent to an apartment building along the west side of 21<sup>st</sup> Street between Pacific and Venango Streets. Due to space limitations, a single well was installed between the GSI and the building (approximately 2 feet from the system). A control well was installed outside of any influence from the system at the corner of 21<sup>st</sup> Street and Erie Avenue.







Water level data and rainfall data at the closest Philadelphia Water gage are shown on **Figure 3**. The water level within the wells vary by approximately 1 foot, but there does not seem to be a strong response in the well immediately adjacent to the infiltration trench. In fact, the response is very

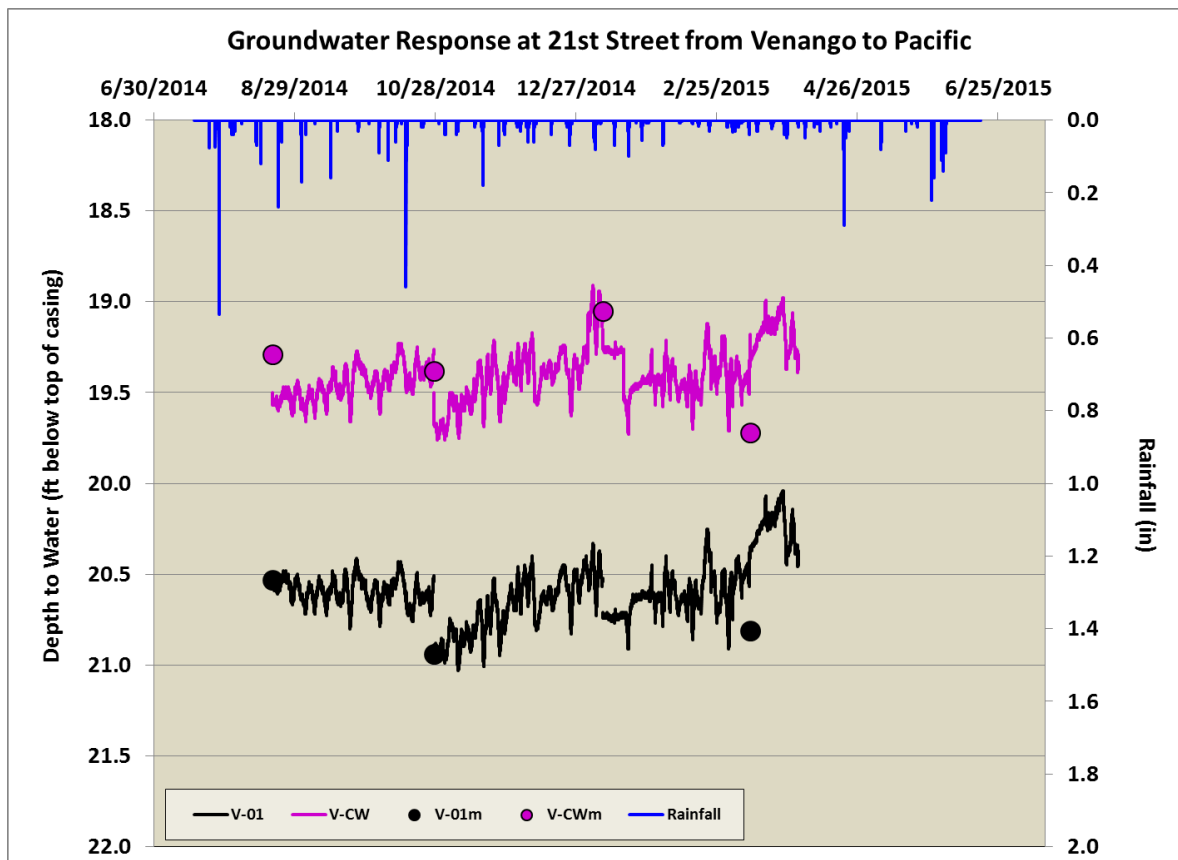
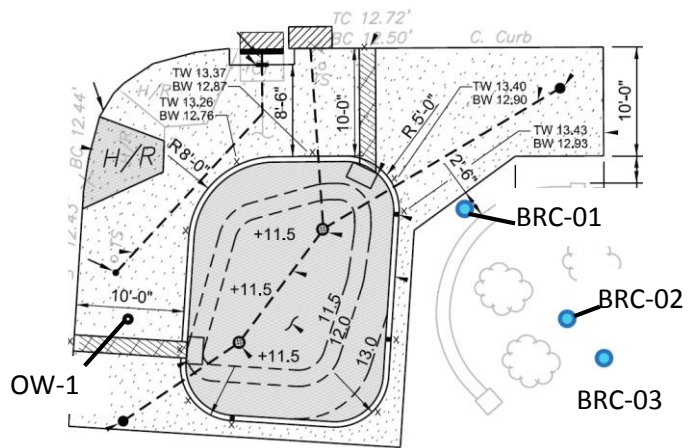


Figure 3 Water level data collected from the 21<sup>st</sup> Street site. Rainfall data collected from Philadelphia Water gage 18. The “m” indicates a manual measurement.

similar to the control well located at 21<sup>st</sup> and Erie. The lack of response at this well may be attributable to the slow release orifice being open or to the approximately 20 feet of unsaturated zone which may be absorbing the infiltrated water prior to it reaching the water table. It is likely that both of these factors result in a limited water table response from the infiltration trench.

#### *Bridesburg Recreation Center & Bridesburg School*

Four groundwater monitoring wells were installed at Bridesburg Recreation Center to monitor groundwater table mounding in response to infiltration from the rain garden and subsurface storage system. A location map and a schematic of the system is shown on **Figure 4**. Three wells are located adjacent to the system and a control well is located more than 400 feet from the system.



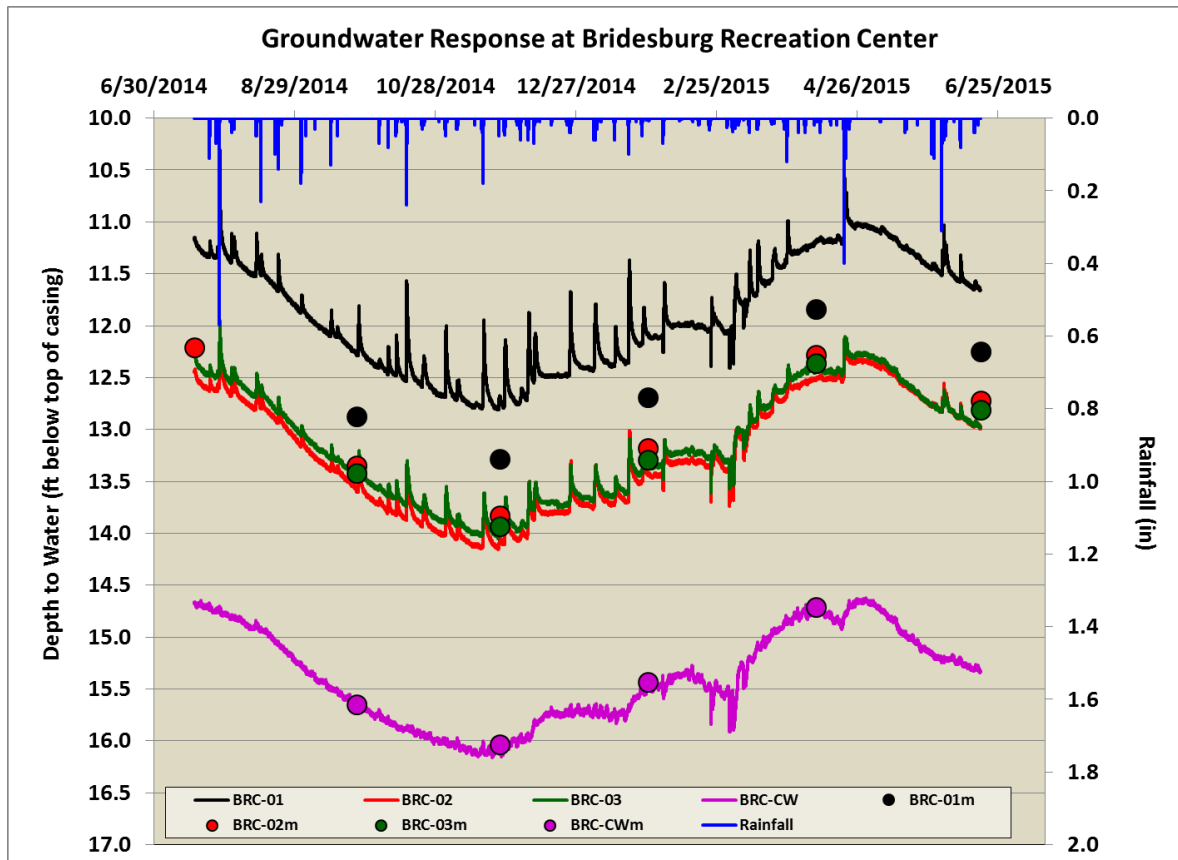
**Figure 4** Monitoring well layout at the rain garden installed at Bridesburg Recreation Center at the intersection of Richmond and Buckius. Monitoring well locations are approximate.

The rain garden accepts stormwater through two trench drains and a highway grate inlet directs stormwater directly to the subsurface stone storage. A pair of domed risers directs water from the rain garden to the subsurface stone storage once the ponding exceeds approximately 8 inches. Otherwise, stormwater infiltrates the rain garden soil through to the subsurface storage.

Continuous water level data from the observation wells is shown on **Figure 5**. Unlike the 21<sup>st</sup> Street site, the groundwater monitoring wells within the vicinity of the system show a response to rainfall / infiltration events. The groundwater monitoring wells show a response within a few hours, with mounding up to nearly 1 foot above antecedent conditions. The control well shows a very limited response to rain events, on the order of only a few hundredths of a foot. It should be noted that the manual measurements are consistently lower than the transducer data. This could be due to a change in datum or transducer error. The discrepancy is currently being investigated.

Water table elevations vary by approximately 1.75 feet at this location due solely to seasonal variations. As a result, mounding that occurs during dry seasons is not likely to exceed the height of the wet season water table. Conversely, mounding that occurs during the wet season will have a compounding effect.

A single event that occurred on July 28, 2014 is highlighted on **Figure 6**. The event lasted approximately 3.8 hours and 1.18 inches of precipitation were recorded at the nearby rain gauge. The full duration of this event from the start of rainfall to the full recession of the water table mound was approximately 2.5 days.



**Figure 5** Depth to the water table from the groundwater monitoring wells located adjacent to the rain garden at Bridesburg Recreation Center. The ‘m’ designation indicates manual measurements prior to recovering the transducer for data upload.

*George W. Nebinger School*

Eleven wells were installed at George W. Nebinger School (**Figure 7**). Although not shown on **Figure 7**, the north side of the property has a rain garden along the property line, which is evident in more recent aerial photographs (**Figure 8**). As the subsurface basin beneath the parking lot on the south side of the parcel has been disconnected for some time due to ongoing maintenance, only the rain garden is discussed here.

There are 5 monitoring wells within the vicinity of the rain garden. GW-01, GW-02 and GW-03 are 1, 5 and 10 feet from the edge of the system, respectively. GW-04 and GW-05 are located on the western side of the system, adjacent to the home at 925 E Passyunk Avenue. GW-05 is fully screened within the unsaturated zone above a clay layer which may promote a perched water table. Data from that well are currently being interpreted.

Groundwater levels within the monitoring wells adjacent to the rain garden and the control well are shown on **Figure 9**. As shown on the figure, there has been no observed response in the water table



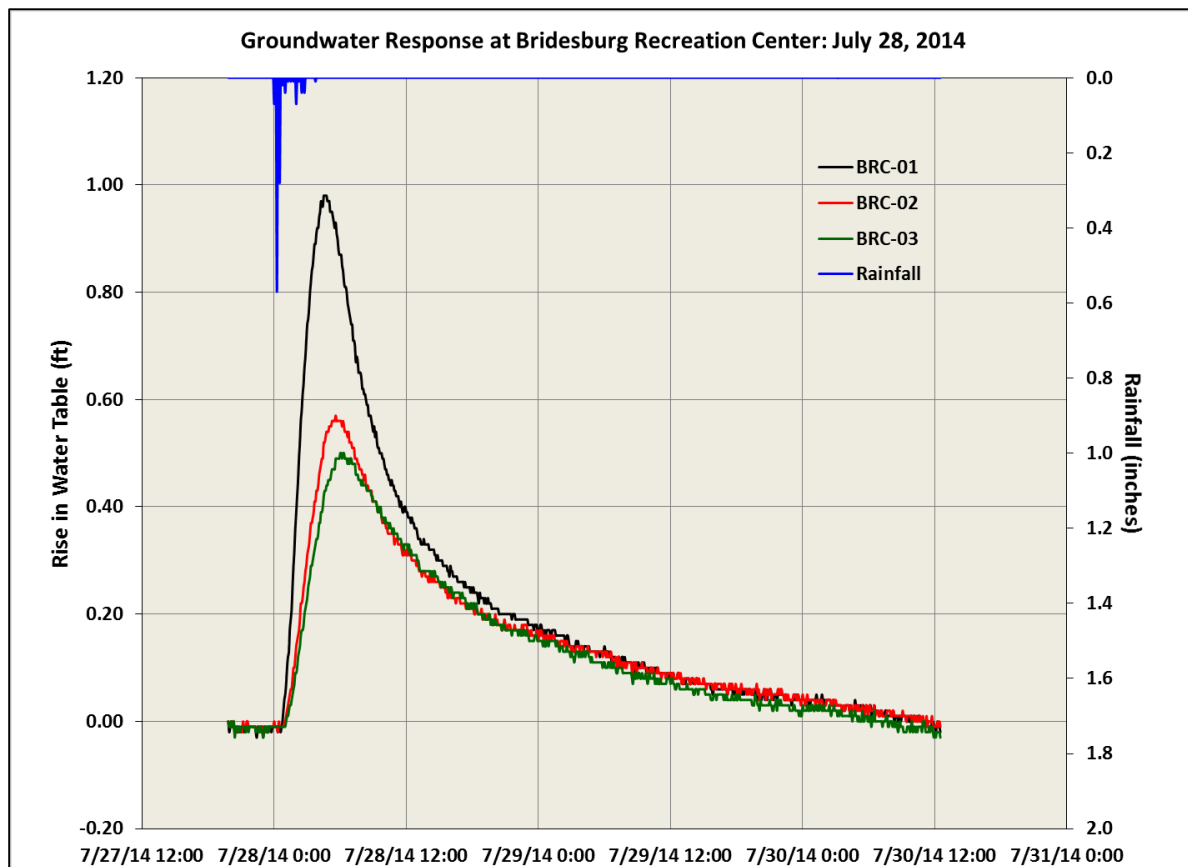


Figure 6 Water table response to 1.18 inch rain event on July 28, 2014.

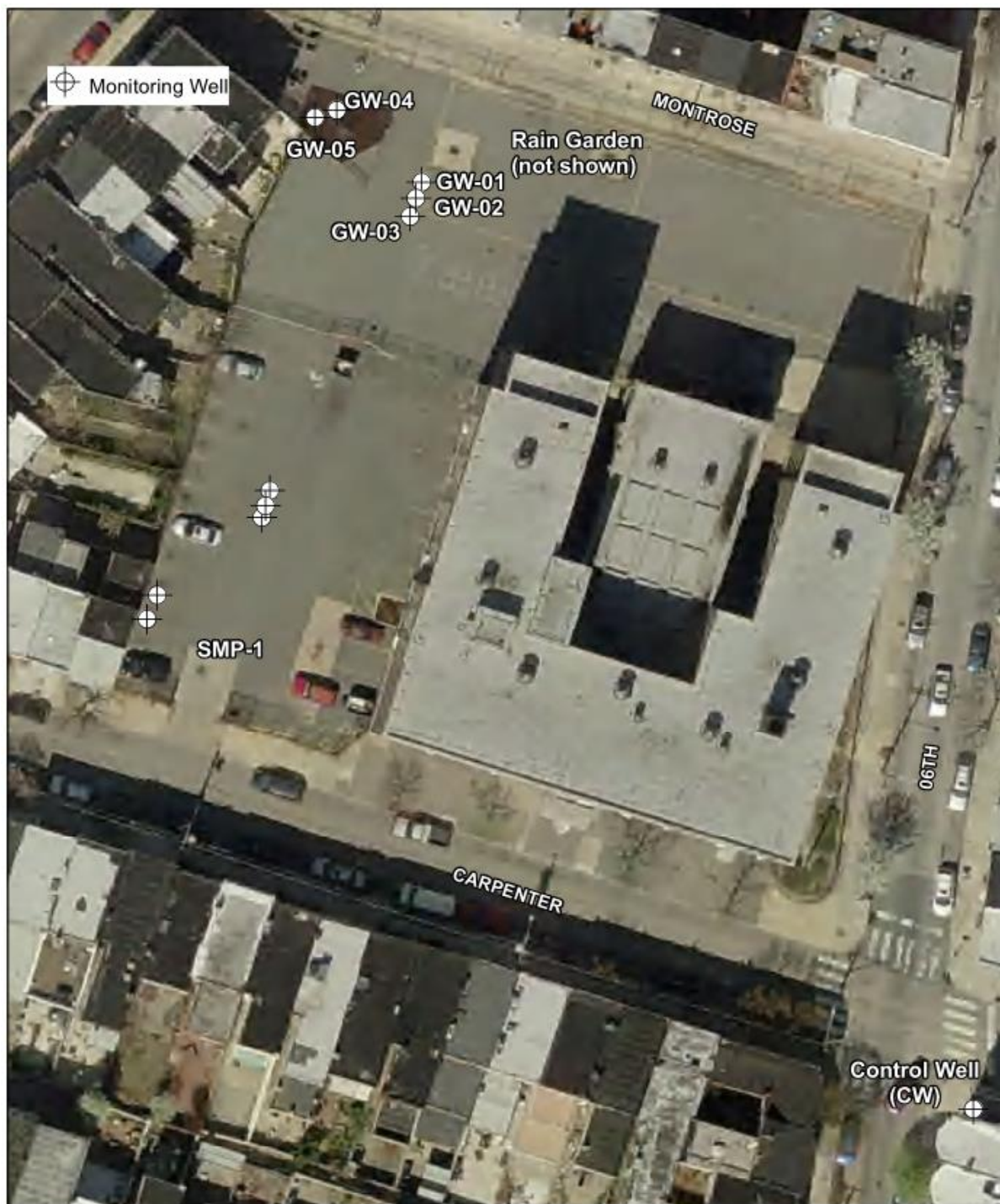
from individual rain events or to the infiltration that is occurring beneath the rain garden. This lack of response is likely attributable to the relatively thick (25+ feet) unsaturated zone.

#### *Roosevelt Playground*

Three groundwater monitoring wells were installed perpendicular to the GSI (stormwater planters) located along Hellerman Street between Walker and Cottage Streets. Monitoring wells were installed approximately 5 feet (GW-01), 10 feet (GW-02) and 15 feet (GW-03) from the planters. A fourth well was installed as a control well on the corner of Hellerman and Cottage Streets and is approximately 200 feet from the planters (**Figure 10**). The depth to water at the planter location is approximately 10 feet below the ground surface. Groundwater levels collected from the monitoring wells are shown on **Figure 11**.

As shown on **Figure 11**, there is little response in the groundwater monitoring wells to rain events. Due to the shallow depth of the water table (approximately 10 feet), it was anticipated that infiltration from the GSI would be reflected in the groundwater monitoring wells, similar to the response observed at Bridesburg Recreation Center. However, it is possible that the system is not functioning as intended and limited infiltration is causing a lack of response to rain events in the monitoring wells. For this reason, the system is currently being investigated.





Notes:

- 1) Nine wells installed at site (1 control well; 8 SMP wells)
- 2) Locations are approximate.



**Figure 7**  
**Monitoring Well Locations**  
**George W. Nebinger School**



Figure 8 Recent aerial photograph showing the rain garden and surrounding wells at George W. Nebinger School (from Google, 2015).



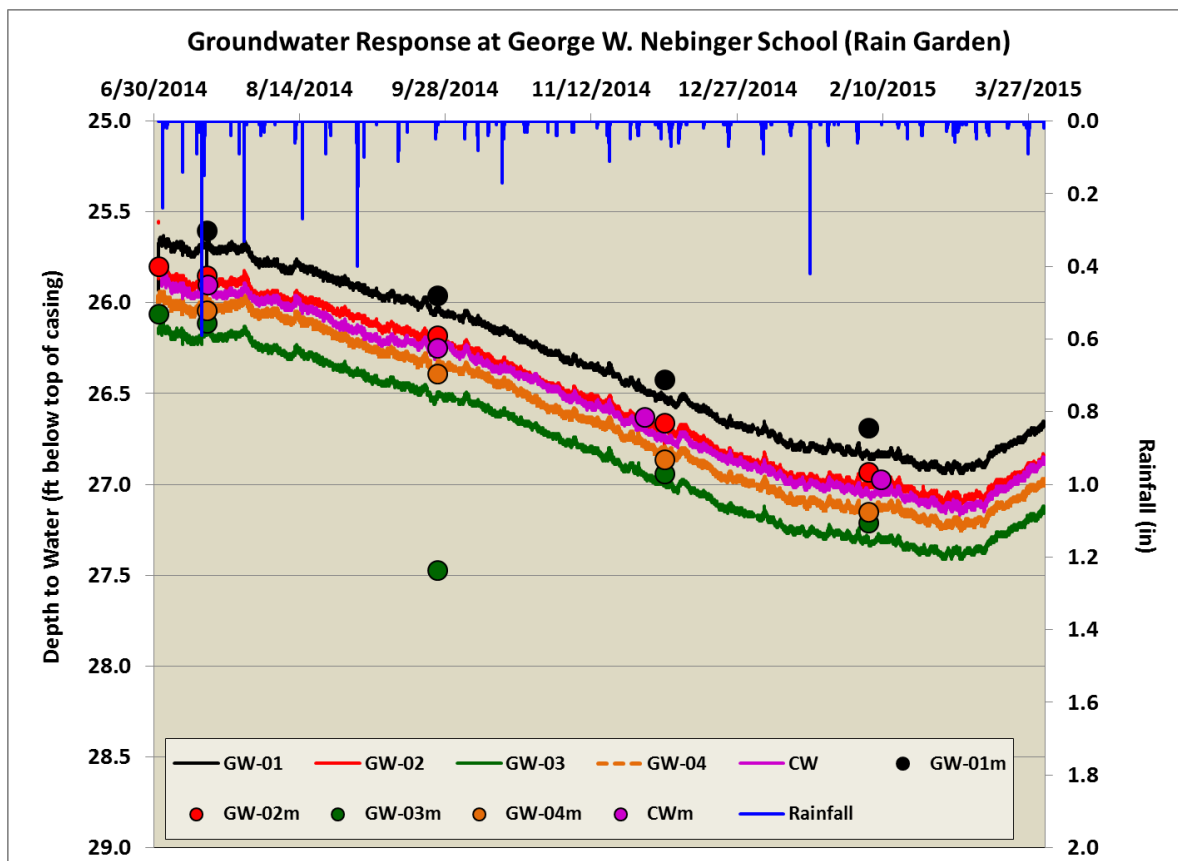


Figure 9 Groundwater levels collected from water table monitoring wells adjacent to the rain garden at George W. Nebinger School.

## Summary

Lateral groundwater mounding is currently being investigated by Philadelphia Water at 4 locations. In general, preliminary data suggest that the water table does not respond to infiltration from GSI when the depth to water is greater than 20 feet below the surface. In these cases, the vadose zone has presumably absorbed the infiltrated water and halted its downward movement. Since the rate of infiltration through the vadose zone is dependent on the water content in the unsaturated zone pores, storm-generated water table mounding will vary based on initial conditions. Once trapped in soil pores, the vadose zone moisture is expected to either infiltrate slowly to the water table, combine with new rainfall-induced infiltration to rapidly infiltrate to the water table or evapotranspire. To date, water content measurements have not be part of the monitoring program. Groundwater mounding in response to GSI is evident at Bridesburg Recreation Center with mounding decreasing away from the GSI. The control well indicates that the water table in those areas does not typically respond to individual rain events.

The system at Roosevelt Playground is currently being investigated. Due to the shallow water table at that location, it was anticipated that groundwater would respond to infiltration from the GSI. As the transducer within the GSI observation well also shows no response to rainfall, it is possible that only a small portion of the designed infiltration is actually occurring, perhaps due to inlet hydraulics.



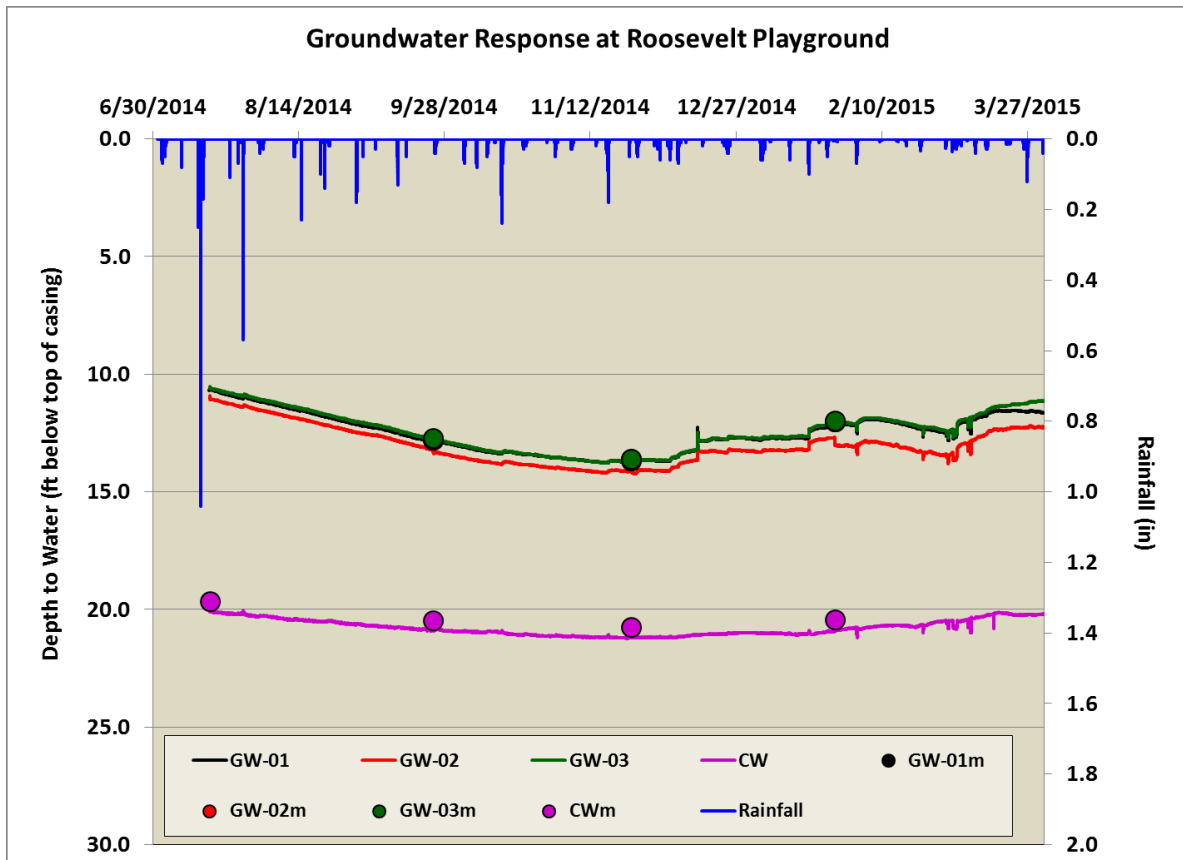


Figure 11 Water levels collected from monitoring wells installed at Roosevelt Playground.

In order to verify that all systems are functional and the groundwater response is representative, simulated runoff tests should be conducted. Assuming that the response is in fact representative of actual conditions, future sites for groundwater mounding analyses should focus on areas that have a relatively shallow depth to water.

**APPENDIX B –**  
**FLOW MONITORING**

	Page
Table 1 - Summary of All Monitors .....	2
Table 2 - Listing of Monitored Outlying Community Connections .....	3
Table 3 - Listing of Combined/Separate Sewer Monitors.....	7
Table 4 - Listing of all Rain Gages (7/1/2014 - 6/30/2015).....	20
Table 5 - Listing of All Pumping Station Monitors.....	21
Table 6 - Listing of all Temporary Flow Monitors Deployed by Projects .....	25
Table 7 - Listing of all Outlying Community Contract Limits .....	29

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	105	-
Outlying Community Monitors	127	-	2
Pumping Stations	82	-	-
Rain Gages	35	-	-
<b>Total</b>	<b>713</b>	<b>105</b>	<b>2</b>

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

**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



CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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		Bensalem	UNMONITORED	
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
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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Site ID	Connection Type	Township	Measurement Name	Measurement Type
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
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

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

---

Site ID	Connection Type	Township	Measurement Name	Measurement Type
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  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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



CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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 (7/1/2014 - 6/30/2015)**

Rain Gage	Location	Percent Working
RG_1	70th and Essington Ave	96.35%
RG_2	66th and Regent St	95.42%
RG_3	Fox Chase Rd. and Castor Ave	100.00%
RG_4	State Rd and Pennypack St	98.67%
RG_5	3rd and Mifflin St	99.98%
RG_6	Cardinal Ave and City Line Ave	100.00%
RG_7	G St. and E Annsbury St	99.98%
RG_8	N Water St. and E Clarkson Ave	85.36%
RG_9	54th and Lancaster Ave	100.00%
RG_10	Pine Rd and Susquehanna Rd	99.99%
RG_11	Rising Sun Ave and Lardner St	94.79%
RG_12	Pattison Ave and Columbus Blvd	100.00%
RG_13	Glendale Ave and Algon Ave	99.99%
RG_14	Delaware Ave and Lewis St	100.00%

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

---

RG_15	E Montgomery Ave and Thompson St	86.16%
RG_16	19th and Wood St	100.00%
RG_17	Saul St. and Benner St	100.00%
RG_18	Fox St. and Roosevelt Blvd	92.76%
RG_19	Chew Ave and Sharpnack St	99.81%
RG_20	Woodhaven Rd and Knights Rd	99.98%
RG_21	Shawmont Ave and Eva St	99.82%
RG_22	N 67th and Callowhill St	92.32%
RG_23	Penrose Ave and Mingo Ave	99.96%
RG_24	Lockart Rd and Lockart Ln	96.99%
RG_25	24 <sup>th</sup> and Wolf St	89.28%
RG_26	621 Lehigh Ave	80.71%
RG_27	Grant Ave and Ashford Rd	99.99%
RG_28	1350 Southampton Rd	99.98%
RG_29	Springfield Way and PaperMill Rd	68.36%
RG_30	7609 Montgomery Ave	100.00%
RG_31	Valley Rd and Old Valley Rd	98.26%
RG_32	Rozel Ave and Crushmore Rd	99.97%
RG_33	Jackson St and E Broadway Ave	99.97%
RG_34	Lawrence Rd and Chester Ave	98.97%
RG_35	Hagysford Rd and Tower Lane	84.35%

CITY OF PHILADELPHIA  
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)



CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

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)

CITY OF PHILADELPHIA  
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	

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

---

<b>Monitor ID</b>	<b>Type of Pumping Station</b>	<b>Measurement Name</b>	<b>Measurement Type</b>	<b>Address</b>
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)

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

**Table 6 - Listing of all Temporary Flow Monitors Deployed by Projects**

Site Name	Start	End	Maintained By	Project
S10-000030	12/13/2012	7/9/2014	CSL	CSO model calibration
S24-000045	8/26/2013	9/3/2014	CSL	CSO model calibration
S20-000012	8/29/2013	9/3/2014	CSL	CSO model calibration
S024-01-0020	6/5/2014	9/3/2014	CSL	I/I
S01-000477	8/29/2013	9/4/2014	CSL	CSO model calibration
FCHL-0090	9/8/2014	10/10/2014	CSL	CSO model calibration
S01-000045	5/30/2013	1/12/2015	CSL	CSO model calibration
S50-011535	5/30/2013	1/12/2015	CSL	CSO model calibration
S50-003755	5/31/2013	1/15/2015	CSL	CSO model calibration
D22-000190	1/29/2014	2/4/2015	CSL	CSO model calibration
D21-000035	1/30/2014	2/4/2015	CSL	CSO model calibration
D21-000100	1/31/2014	2/4/2015	CSL	CSO model calibration
UDLL-0270	10/4/2012	2/5/2015	CSL	CSO model calibration
PP-0065	1/24/2014	2/5/2015	CSL	CSO model calibration
D45-000085	3/14/2014	3/24/2015	CSL	CSO model calibration
S11-000080	4/2/2014	3/24/2015	CSL	CSO model calibration
S50-011300	2/7/2014	3/26/2015	CSL	CSO model calibration
WBR-0375	5/23/2014	6/3/2015	CSL	I/I
P100-08-S0015	4/14/2015	6/4/2015	CSL	I/I
Q101-09-S0100	4/17/2015	6/4/2015	CSL	I/I
USE-0920	4/24/2015	6/5/2015	CSL	I/I
Q109-07-S0025	12/10/2012	6/8/2015	CSL	I/I
WBR-B0585	5/27/2014	6/8/2015	CSL	I/I
Q101-09-M0185	4/16/2015	6/8/2015	CSL	I/I
Q101-09-S0030	4/16/2015	6/8/2015	CSL	I/I
Q101-09-S0220	4/16/2015	6/8/2015	CSL	I/I
Q120-11-S0065A	4/16/2015	6/8/2015	CSL	I/I
Q120-11-S0065B	4/16/2015	6/8/2015	CSL	I/I
F07-000010	5/22/2014	6/9/2015	CSL	CSO model calibration
F25-001135	6/5/2014	6/9/2015	CSL	CSO model calibration
S046-06-S0025	5/23/2014	6/10/2015	CSL	I/I
T088-01-S1870	4/14/2015	6/10/2015	CSL	I/I
T088-01-S2255	4/14/2015	6/10/2015	CSL	I/I
T088-01-S0295	4/15/2015	6/10/2015	CSL	I/I

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Site Name	Start	End	Maintained By	Project
T14-003035	5/28/2014	6/11/2015	CSL	CSO model calibration
T08-002245	6/3/2014	6/11/2015	CSL	CSO model calibration
S03A-000010	4/16/2015	6/11/2015	CSL	I/I
USE-B1100	4/23/2015	6/11/2015	CSL	I/I
S50-002195	5/22/2014	6/12/2015	CSL	CSO model calibration
M005-05-S0050	5/23/2014	6/12/2015	CSL	I/I
C11-000030	5/27/2014	6/12/2015	CSL	CSO model calibration
S33-000070	5/27/2014	6/12/2015	CSL	CSO model calibration
PP-B0720	5/4/2015	6/30/2015	CSL	I/I
S05-000012	3/30/2011	Present	CSL	CSO model calibration
P083-03-S0050	10/11/2011	Present	CSL	I/I
S45-001110	10/13/2011	Present	CSL	I/I
D63-000035	10/14/2011	Present	CSL	CSO model calibration
BC-0055	11/30/2011	Present	CSL	I/I
C17-003360	12/13/2011	Present	CSL	CSO model calibration
IALL-B0355	12/13/2011	Present	CSL	I/I
PC-0010	1/30/2012	Present	CSL	I/I
T14-013875	1/30/2012	Present	CSL	CSO model calibration
M005-07-0070	9/27/2012	Present	CSL	Eastwick Level Monitoring
M005-09-0140	9/27/2012	Present	CSL	Eastwick Level Monitoring
BC-B0755	12/10/2012	Present	CSL	I/I
P090-02-S0590	12/10/2012	Present	CSL	I/I
D47-000065	12/12/2012	Present	CSL	CSO model calibration
F21-000145	12/12/2012	Present	CSL	CSO model calibration
WHL-0065	3/7/2013	Present	CSL	I/I
WLL-0565	3/7/2013	Present	CSL	I/I
USE-0020	8/12/2013	Present	CSL	I/I
PC-0040	1/21/2014	Present	CSL	I/I
UDLL-0125	1/24/2014	Present	CSL	I/I
T08-000015	1/27/2014	Present	CSL	CSO model calibration
D45-000015	5/8/2014	Present	CSL	CSO model calibration
LDLL-0115	5/15/2014	Present	CSL	CSO model calibration
LFL-0015	5/28/2014	Present	CSL	CSO model calibration
LSE-0015	5/29/2014	Present	CSL	CSO model calibration
UDLL-0045	5/29/2014	Present	CSL	CSO model calibration
UFLL-0010	5/29/2014	Present	CSL	CSO model calibration

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix B - Flow Monitoring

Page 24 of 28

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Site Name	Start	End	Maintained By	Project
USE-0365	5/29/2014	Present	CSL	I/I
USE-0400	5/29/2014	Present	CSL	I/I
SOM-0040	5/30/2014	Present	CSL	CSO model calibration
D25-001285	6/20/2014	Present	CSL	CSO model calibration
SWMG-B0265	6/24/2014	Present	CSL	CSO model calibration
UDLL-0085	6/25/2014	Present	CSL	CSO model calibration
SOM-0220	6/26/2014	Present	CSL	Temperature Monitoring
T15-000025	7/17/2014	Present	CSL	CSO model calibration
CSE-0030	7/18/2014	Present	CSL	CSO model calibration
SWMG-0065	7/21/2014	Present	CSL	CSO model calibration
UDLL-0275	9/19/2014	Present	CSL	I/I
S36A-000035	12/16/2014	Present	CSL	CSO model calibration
IALL-0230	3/2/2015	Present	CSL	I/I
PP-0065	3/2/2015	Present	CSL	GSI Level Monitoring
IALL-0080	3/3/2015	Present	CSL	I/I
IALL-0210	3/3/2015	Present	CSL	I/I
T06-000010	3/3/2015	Present	CSL	CSO model calibration
S50-000185	3/9/2015	Present	CSL	CSO model calibration
D07-000015	3/10/2015	Present	CSL	CSO model calibration
WLL-0650	3/10/2015	Present	CSL	I/I
D48-000030	3/11/2015	Present	CSL	CSO model calibration
IALL-0195	3/12/2015	Present	CSL	I/I
OA-0020	3/12/2015	Present	CSL	CSO model calibration
LSW-0077	3/13/2015	Present	CSL	CSO model calibration
S50-000030	3/13/2015	Present	CSL	CSO model calibration
WLL-0675	3/13/2015	Present	CSL	I/I
FCHL-0175	3/16/2015	Present	CSL	CSO model calibration
T088-01-S0220	4/14/2015	Present	CSL	I/I
THL-0085	4/14/2015	Present	CSL	CSO model calibration
Q120-11-S0015	4/15/2015	Present	CSL	I/I
USE-0855	4/15/2015	Present	CSL	I/I
PP-B0650	4/17/2015	Present	CSL	I/I
T088-01-S0155	4/17/2015	Present	CSL	I/I
BC-B0675	4/23/2015	Present	CSL	I/I
Yeadon	4/27/2015	Present	CSL	CSO model calibration

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						
<b>Abington Total</b>				9.542	6.168	4.453
MB1				74.26	47.996	33
<b>Bucks Total</b>						
MBE1						
MBE2						
MBE3						
MBE4						
MBE5						
MBE6						
MBE7						
MBE8						
MBE9						
MBE10						
MBE11						
MBE12						
MBE13						
MBE14						
MBE15						
MBE16						
<b>Bensalem Total</b>				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						

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
<b>Cheltenham Total</b>				20.75	13.411	13.380
MD1	155	100.179	50	155	100	50
<b>DELCORA Total</b>				155	100	50
ML1			5.474			
ML2			1.48			
ML3						
ML4			10.264			
ML5			1.848			
ML6			0.252			
ML7			0.84			
<b>Lower Merion Total</b>				31.57	20.404	14.5
MLM1						
MLM2	3.71	2.4	1.8			
MLM3						
MLM4						
MLM5						
MLM6						
MLM7						
<b>Lower Moreland Total</b>				5.88	3.80	2.85
MS1						
MS2						
MS3						
MS4						
MS5						
MS6						
MS7						
MS8						
<b>Springfield Total</b>				6.53	4.22	4.2
MSH1						
MSH2						
MSHX_1						
MSHX_2						
<b>Southampton Total</b>				15.79	10.205	7.14
MUD-N						
MUD-S						
MUD-O						
MUD-1						



CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

---

Metered	Contract Limits					
Standardized	Instantaneous		Daily Max	Township Total		
Site ID	CFS	MGD	MGD	Inst. CFS	Inst. MGD	Daily Max MGD
<b>Upper Darby Total</b>				35	22.621	17

## **Appendix C – FY15 CSO Program Maintenance Annual Report**

---



# PWD COLLECTOR SYSTEMS - FLOW CONTROL UNIT

## 2015 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 2015 fiscal year highlights follows.

### **CSO REGULATOR MAINTENANCE GROUP**

Nineteen interceptor maintenance personnel inspect and service the combined sewer overflow regulating and diversion chambers. 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 Dams
Static Dams	Water Hydraulic Sluice Gates
Slot type regulators	Computer Controlled Crest Gates

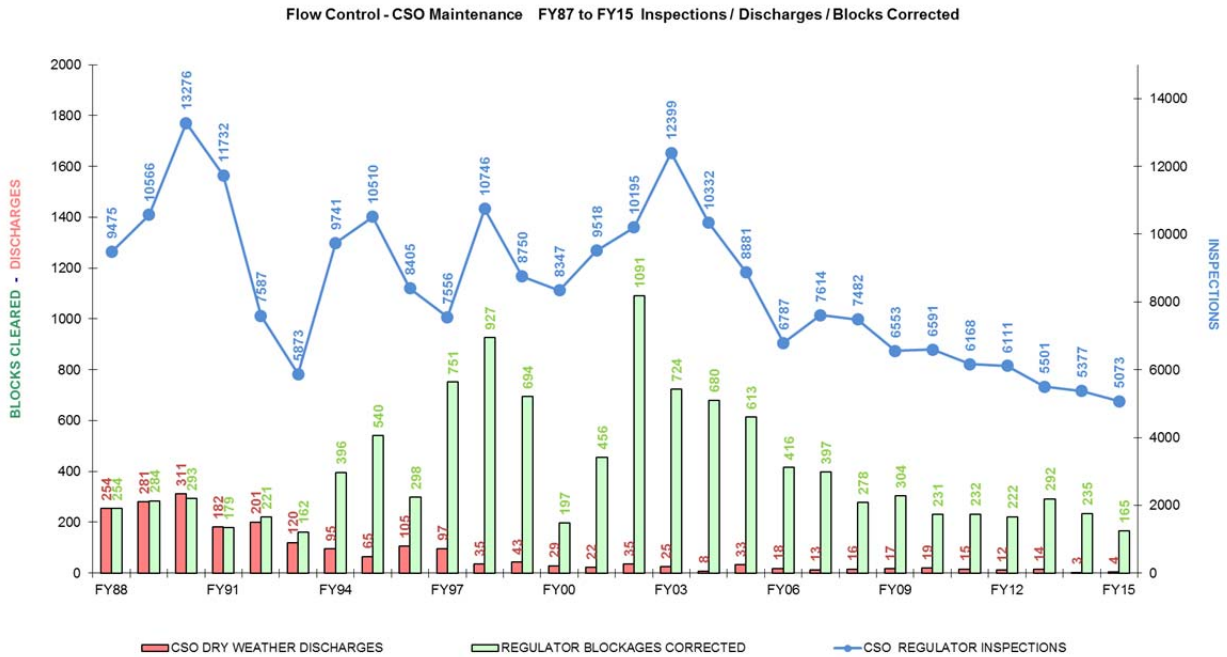
Mechanical or operational malfunctions of the regulators and tide gates can cause dry weather discharges and stream inflow. These types of events can have a major impact on the Wastewater and Fresh Water Treatment Plant's performance, stream water quality and affect the recreational use of our local 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 5,128 inspections of the regulating chambers in FY2015. 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 FY2015, the crews cleared 160 regulator blockages before they developed into a CSO dry weather discharge. There were only four CSO dry weather discharges for this fiscal year. This continues the trend to reduce these discharges since the peaking in 1990 with 311 discharges for the 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 98.1% of the time in FY2015. 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.

2015 Flow Control Main Pump Unit Out of Service Report						
DATE/TIME OUT	DATE/TIME IN	STATION	UNIT	TYPE	REASON	TOTAL DAYS OUT
Tue - 6/2/15 - 9:00 AM	Sat - 6/20/15 - 2:00 PM	42ND ST	1	BD	BAD OVERLOAD CARD-MDH	18
Thu - 5/7/15 - 9:00 AM	Sat - 5/9/15 - 12:00 PM	RENNARD ST	2	OV	OVERHAUL	2
Mon - 4/13/15 - 8:00 AM	Mon - 4/13/15 - 3:00 PM	BUCKS HYPO	1	PM	REPLACED	0
Fri - 11/21/14 - 10:00 AM	Sat - 11/22/14 - 2:00 PM	RENNARD ST	1	OV	OVERHAUL	1
Thu - 11/6/14 - 9:00 AM	Thu - 11/6/14 - 11:00 AM	NEILL DRIVE	1	PM	CHANGED OUT PUMP WITH REBUILT UNIT	0
Sat - 9/13/14 - 9:00 AM	Sat - 9/13/14 - 2:00 PM	LINDEN AVE	1	OV	OVERHAUL	0
Thu - 8/7/14 - 9:00 AM	Thu - 8/7/14 - 4:00 PM	PNBC-603	4	OV	OVERHAUL	0
Fri - 7/25/14 - 10:00 AM	Sat - 7/26/14 - 10:00 PM	FORD ROAD	1	OV	OVERHAUL	1
Wed - 7/17/13 - 1:00 PM		MINGO CREEK	4	BD	BAD LEAD IN MOTOR	713
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 1,248,158 gallons in FY2015, 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 36.06 miles of sewer inspections in FY2015.

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.

FY 2015 Flow Control Service Level Goals					
Month	<u>CSO Discharges</u>	<u>% Metering</u>	<u>% CSO Level</u>	<u>CCTV</u>	<u>Wastewater Pumping FY 15 Main Pump</u>
	<u>per 100</u>	<u>Chambers</u>	<u>Meters</u>	<u>Inspections</u>	<u>Monthly Availability</u>
	<u>Inspections</u>	<u>Operational</u>	<u>Operational</u>	-	-
<b>Goal --&gt;</b>	<b>0</b>	<b>80% or Higher</b>	<b>80% or Higher</b>	<b>12.5 Miles</b>	<b>95% or Higher</b>
July - 2014	0.3	89.0%	87.0%	3.39	98.2%
August - 2014	0.0	89.0%	85.0%	3.06	98.2%
September - 2014	0.3	89.0%	85.0%	3.73	98.2%
October - 2014	0.0	88.0%	88.0%	3.63	98.2%
November - 2014	0.0	94.0%	88.0%	2.81	98.2%
December - 2014	0.0	93.0%	88.0%	2.70	98.2%
January - 2015	0.0	95.0%	87.0%	2.57	98.2%
February - 2015	0.0	94.0%	86.0%	2.24	98.2%
March - 2015	0.0	89.0%	84.0%	2.41	98.2%
April - 2015	0.0	83.0%	90.0%	3.18	98.2%
May - 2015	0.2	87.0%	90.0%	2.82	98.1%
June - 2015	0.0	89.0%	92.0%	3.52	97.1%
<b>Year Avg or Total</b>	<b>0.1</b>	<b>89.9%</b>	<b>87.5%</b>	<b>36.06</b>	<b>98.1%</b>

## **APPENDICES**

- Appendix A - FY 2015 Annual CSO Report Spreadsheets
- Appendix B - FY 2015 Annual CSO Miscellaneous Maintenance Report
- Appendix C - FY 2015 Main Pump Availability Chart
- Appendix D - Historical CSO Charts

**Appendix A - FY 2015 Annual CSO Report Spreadsheets**

PART 1		PHILADELPHIA WATER DEPARTMENT											Section 1	
DRY WEATHER STATUS		WASTE AND STORM WATER COLLECTION												
REPORT		FLOW CONTROL UNIT											FY2015 Annual CSO Report	
COLLECTOR	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Totals	
<b>UPPER PENNYPACK - 5 UNITS</b>														
INSPECTIONS	6	5	6	12	5	11	10	14	11	6	10	16	112	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	0	0	1	0	0	0	0	0	0	0	0	1	
<b>UPPER DELAWARE LOW LEVEL - 12 UNITS</b>														
INSPECTIONS	17	25	24	24	21	23	25	38	21	26	28	25	297	
DISCHARGES	0	0	0	0	0	1	0	0	0	0	0	0	1	
BLOCKS CLEARED	1	1	2	2	2	0	0	1	1	1	1	3	15	
<b>LOWER FRANKFORD CREEK - 6 UNITS</b>														
INSPECTIONS	11	12	8	13	13	14	18	14	33	21	14	22	193	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	3	0	1	0	0	2	2	2	0	0	4	15	
<b>LOWER FRANKFORD LOW LEVEL - 10 UNITS</b>														
INSPECTIONS	17	22	16	23	17	18	30	24	37	37	40	31	312	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	1	0	1	
BLOCKS CLEARED	1	0	0	0	1	0	0	1	1	0	1	0	5	
<b>FRANKFORD HIGH LEVEL - 14 UNITS</b>														
INSPECTIONS	24	29	37	36	29	24	26	26	40	33	35	48	387	
DISCHARGES	1	0	0	0	0	0	0	0	0	0	0	0	1	
BLOCKS CLEARED	0	0	0	0	0	0	0	1	1	0	2	1	5	
<b>SOMERSET - 9 UNITS</b>														
INSPECTIONS	22	14	14	11	10	16	11	27	31	22	20	32	230	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	0	0	0	0	0	1	2	2	0	1	0	6	
<b>LOWER DELAWARE LOW LEVEL - 33 UNITS</b>														
INSPECTIONS	47	51	45	55	33	43	80	79	84	57	59	86	719	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	2	0	1	1	2	2	0	0	0	4	0	0	12	
<b>CENTRAL SCHUYLKILL EAST - 18 UNITS</b>														
INSPECTIONS	49	35	43	72	68	64	56	71	71	63	54	57	703	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	13	0	6	3	6	0	2	0	0	5	2	9	46	
<b>LOWER SCHUYLKILL EAST - 9 UNITS</b>														
INSPECTIONS	9	18	16	18	15	18	14	15	20	26	20	31	220	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	2	1	0	0	0	1	1	1	0	1	4	12	
<b>CENTRAL SCHUYLKILL WEST - 9 UNITS</b>														
INSPECTIONS	20	16	21	16	18	14	18	14	24	22	20	23	226	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	3	1	2	0	0	0	0	0	0	2	0	2	10	
<b>SOUTHWEST MAIN GRAVITY - 10 UNITS</b>														
INSPECTIONS	22	19	19	30	11	23	26	20	24	29	23	32	278	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	1	3	0	0	0	0	0	0	0	2	1	4	11	
<b>LOWER SCHUYLKILL WEST - 4 UNITS</b>														
INSPECTIONS	8	10	10	13	13	21	10	12	18	15	12	6	148	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	1	1	0	2	0	1	0	0	0	1	0	6	
<b>COBBS CREEK HIGH LEVEL - 23 UNITS</b>														
INSPECTIONS	55	48	46	59	55	70	51	46	61	45	49	60	645	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	2	0	1	2	1	2	0	0	0	2	3	1	14	
<b>COBBS CREEK LOW LEVEL - 13 UNITS</b>														
INSPECTIONS	20	28	21	27	25	18	19	20	27	12	24	31	272	
DISCHARGES	0	0	1	0	0	0	0	0	0	0	0	0	1	
BLOCKS CLEARED	0	1	1	1	0	0	0	0	0	0	0	3	6	
<b>RELIEF SEWERS - 26 UNITS</b>														
INSPECTIONS	25	25	26	25	25	24	27	36	25	25	35	33	331	
DISCHARGES	0	0	0	0	0	0	0	0	0	0	0	0	0	
BLOCKS CLEARED	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>TOTALS / MONTH for 201 REGULATOR UNITS</b>													Totals	
TOTAL INSPECTIONS	352	357	352	434	358	401	421	456	527	439	443	533	5073	
TOTAL DISCHARGES	1	0	1	0	0	1	0	0	0	0	1	0	4	
TOTAL BLOCKS CLEARED	25	12	15	11	14	4	7	8	8	16	13	31	164	
AVER. # of INSP. / BC	14	30	23	39	26	100	60	57	66	27	34	17	41	
DISC / 100 INSPECTIONS	0.3	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.1	

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
<b>UPPER PENNYPACK 5 NEWPC UNITS</b>															
P01	1	1	1	2	1	2	2	3	2	1	2	3	21	1.8	17.4
P02	1	1	1	2	1	2	2	3	2	1	2	3	21	1.8	17.4
P03	1	1	1	3	1	2	2	2	2	1	2	3	21	1.8	17.4
P04	2	1	2	3	1	3	2	3	3	2	2	4	28	2.3	13.0
P05	1	1	1	2	1	2	2	3	2	1	2	3	21	1.8	17.4
<b>UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS</b>															
D02	3	2	4	3	2	4	3	3	3	3	2	4	36	3.0	10.1
D03	1	3	4	2	2	3	2	3	2	2	2	3	29	2.4	12.6
D04	2	2	3	3	2	4	3	4	3	3	4	2	35	2.9	10.4
D05	1	2	3	2	5	2	2	3	2	2	4	2	30	2.5	12.2
D06	1	2	2	2	1	2	2	3	2	2	2	2	23	1.9	15.9
D07	1	2	2	2	1	1	2	3	2	2	2	2	22	1.8	16.6
D08	2	2	1	2	1	2	2	4	2	2	2	2	24	2.0	15.2
D09	1	2	1	2	2	1	2	3	1	2	2	2	21	1.8	17.4
D11	1	2	1	2	1	1	2	3	1	2	2	2	20	1.7	18.2
D12	2	2	1	2	1	1	2	3	1	2	2	1	20	1.7	18.2
D13	1	2	1	1	1	1	2	3	1	2	2	1	18	1.5	20.3
D15	1	2	1	1	2	1	1	3	1	2	2	2	19	1.6	19.2
<b>LOWER FRANKFORD CREEK 6 NEWPC UNITS</b>															
F13	1	2	2	3	3	3	3	3	6	6	4	6	42	3.5	8.7
F14	3	2	2	3	4	3	6	3	7	7	2	5	47	3.9	7.8
F21	1	2	1	1	1	2	2	2	5	1	2	2	22	1.8	16.6
F23	2	2	1	2	2	2	3	2	5	3	2	4	30	2.5	12.2
F24	3	2	1	1	2	2	2	2	5	2	2	3	27	2.3	13.5
F25	1	2	1	3	1	2	2	2	5	2	2	2	25	2.1	14.6
<b>LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS</b>															
F03	1	2	1	2	1	3	3	2	6	2	2	2	27	2.3	13.5
F04	1	2	1	2	3	3	3	2	4	2	2	2	27	2.3	13.5
F05	1	2	3	2	1	2	3	2	4	2	2	2	26	2.2	14.0
F06	1	2	1	1	1	2	4	3	3	2	3	1	24	2.0	15.2
F07	2	2	1	1	3	1	3	2	4	2	2	1	24	2.0	15.2
F08	1	2	1	2	1	1	3	2	2	2	2	1	20	1.7	18.2
F09	2	2	2	3	2	2	4	3	3	3	3	3	32	2.7	11.4
F10	1	2	2	3	2	1	2	2	3	2	2	2	24	2.0	15.2
F11	5	5	2	6	2	1	3	3	6	19	19	15	86	7.2	4.2
F12	2	1	2	1	1	2	2	3	2	1	3	2	22	1.8	16.6
<b>FRANKFORD HIGH LEVEL 14 NEWPC UNITS</b>															
T01	1	2	1	1	1	2	2	2	2	2	2	1	19	1.6	19.2
T03	1	2	1	2	2	1	2	3	4	4	3	4	29	2.4	12.6
T04	3	3	6	5	3	4	3	2	4	5	4	4	46	3.8	7.9
T05	1	2	1	1	2	2	2	2	2	1	2	2	20	1.7	18.2
T06	1	2	1	2	2	1	2	2	3	1	2	2	21	1.8	17.4
T07	1	2	1	2	2	1	3	2	2	1	2	1	20	1.7	18.2
T08	1	2	5	2	4	3	3	2	5	3	2	1	33	2.8	11.1
T09	1	2	4	5	2	3	2	2	3	4	2	6	36	3.0	10.1
T10	5	2	5	6	4	2	1	2	4	4	6	8	49	4.1	7.4
T11	4	2	5	3	3	1	1	2	4	4	2	8	39	3.3	9.4
T12	1	2	1	3	1	1	1	1	2	1	2	5	21	1.8	17.4
T13	2	2	2	2	1	1	1	2	2	1	2	4	22	1.8	16.6
T14	1	2	2	1	1	1	1	1	2	1	2	2	17	1.4	21.5
T15	1	2	2	1	1	1	2	1	1	1	2		15	1.4	24.3
3 TOTAL DISCHARGES FOR NE & SE DISTRICTS      DTR = DAYS TO RETURN TO SITE 0.3 AVERAGE DISCHARGES PER MONTH              I/D/C = INSPECTIONS PER DAY PER CREW 15.1 AVER. DAYS BEFORE RETURNING TO SITE      I/D = INSPECTIONS PER DISCHARGE 3.1 AVER. INSPECTIONS PER DAY PER CREW															

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR	
<b>SOMERSET LOW LEVEL 9 NEWPC UNITS</b>																
D17	2	2	1	1	1	2	1	3	3	2	3	3	24	2.0	15.2	
D18	2	2	1	1	1	2	2	3	3	2	3	2	24	2.0	15.2	
D19	2	2	1	2	1	3	1	3	5	4	2	5	31	2.6	11.8	
D20	3	1	2	2	1	4	1	3	4	5	2	7	35	2.9	10.4	
D21	4	1	1	1	1	1	1	3	3	2	2	3	23	1.9	15.9	
D22	2	2	5	1	1	1	1	3	3	1	2	2	24	2.0	15.2	
D23	2	2	1	1	1	1	2	3	4	3	2	6	28	2.3	13.0	
D24	3	1	1	1	1	1	1	3	3	2	2	2	21	1.8	17.4	
D25	2	1	1	1	2	1	1	3	3	1	2	2	20	1.7	18.2	
<b>LOWER DELAWARE LOW LEVEL 33 SEWPC UNITS</b>																
D37	3	2	1	3	1	2	2	3	5	1	4	4	31	2.6	11.8	
D38	3	2	1	2	1	5	2	3	3	3	3	3	31	2.6	11.8	
D39	2	2	1	3	1	1	2	3	2	1	3	3	24	2.0	15.2	
D40	3	1	1	7	2	1	5	3	2	1	2	4	32	2.7	11.4	
D41	2	1	3	2	1	1	6	3	4	8	2	6	39	3.3	9.4	
D42	1	1	1	1	1	1	2	3	2	1	2	3	19	1.6	19.2	
D43	1	1	1	1	1	1	1	3	3	2	1	2	3	20	1.7	18.2
D44	1	1	1	1		1	2	3	2	1	1	2	16	1.5	22.8	
D45	1	2	1	1	1		2	3	2	1	2	2	18	1.6	20.3	
D46	2	2	1	1	1	3	1	3	2	1	2	2	21	1.8	17.4	
D47	1	2	2	1	1	2	3	2	3	1	2	2	22	1.8	16.6	
D48	3	2	2	3	3	2	3	2	4	6	2	6	38	3.2	9.6	
D49	3	3	1	1	1	2	3	3	2	1	2	2	24	2.0	15.2	
D50	1	2	1	1	2	2	4	2	2	1	2	2	22	1.8	16.6	
D51	1	3	1	2	1	1	4	2	3	1	2	4	25	2.1	14.6	
D52	1	2	1	1	1	1	4	2	2	1	2	2	20	1.7	18.2	
D53	1	2	1	1	1	1	3	2	3	1	1	1	18	1.5	20.3	
D54	1	2	1	1	1	2	3	2	2	1	2	2	20	1.7	18.2	
D58	2	2	3	1	1	1	3	5	3	3	2	2	28	2.3	13.0	
D61	1	1	1	1	1	1	2	3	3	1	2	2	19	1.6	19.2	
D62	1	1	1	1	1	1	2	2	2	1	2	2	17	1.4	21.5	
D63	1	1	1	2	1	1	2	2	2	4	2	4	23	1.9	15.9	
D64	1	1	2	1	1	1	2	2	2	2	2	2	19	1.6	19.2	
D65	1	1	1	2	1	1	2	2	3	2	2	3	21	1.8	17.4	
D66	1	1	1	1	1	1	2	2	3	1	2	2	18	1.5	20.3	
D67	1	2	1	1	1	1	2	3	3	1	1	2	19	1.6	19.2	
D68	1	1	2	3	1	1	1	1	2	1	1	2	17	1.4	21.5	
D69	1	1	2	2	2	1	1	2	3	4	1	2	22	1.8	16.6	
D70	1	1	4	3	1	1	1	2	3	1	1	4	23	1.9	15.9	
D71	1	1	2	2		1	1	2	4	1	1	2	18	1.6	20.3	
D72	1	1	1	1		1	1	2	1	2	1	2	14	1.3	26.1	
D73	1	1	1	1			1	2	2	1		1	11	1.2	33.2	
	1	2					1	3		1		1				
TOTAL	144	158	150	174	128	149	200	222	257	202	206	260	2250			
I/D/C	2.4	2.6	2.5	2.9	2.1	2.4	3.3	3.6	4.2	3.3	3.4	4.3				
UP	6	5	6	12	5	11	10	14	11	6						





SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
<b>UPPER PENNYPACK 5 NEWPC UNITS</b>													
P01													0
P02													0
P03				1									1
P04													0
P05													0
<b>UPPER DELAWARE LOW LEVEL 12 NEWPC UNITS</b>													
D02													0
D03		1	1										2
D04			1		1							1	3
D05													0
D06				1	1						1	1	4
D07				1									1
D08								1	1	1		1	4
D09													0
D11													0
D12													0
D13	1												1
D15													0
<b>LOWER FRANKFORD CREEK 6 NEWPC UNITS</b>													
F13			1									1	2
F14	1	1					2	1	1				6
F21													0
F23		1		1				1	1			2	6
F24													0
F25												1	1
<b>LOWER FRANKFORD LOW LEVEL 10 NEWPC UNITS</b>													
F03	1												1
F04													0
F05													0
F06								1	1				2
F07					1								1
F08													0
F09													0
F10													0
F11										1			1
F12													0
<b>FRANKFORD HIGH LEVEL 14 NEWPC UNITS</b>													
T01													0
T03													0
T04												1	1
T05													0
T06								1	1				2
T07													0
T08													0
T09													0
T10											2		2
T11													0
T12													0
T13													0
T14													0
T15													0

4.917 AVERAGE BLOCKAGES PER MONTH

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
<b>SOMERSET LOW LEVEL 9 NEWPC UNITS</b>													
D17													0
D18													0
D19											1		1
D20								1	1				2
D21													0
D22													0
D23							1	1	1				3
D24													0
D25													0
<b>LOWER DELAWARE LOW LEVEL 33 NEWPC UNITS</b>													
D37													0
D38													0
D39													0
D40					1								1
D41													0
D42													0
D43													0
D44													0
D45													0
D46													0
D47													0
D48	1				2	1				2			6
D49	1					1							2
D50													0
D51													0
D52													0
D53													0
D54													0
D58													0
D61													0
D62													0
D63										1			1
D64				1									1
D65										1			1
D66													0
D67													0
D68													0
D69													0
D70													0
D71													0
D72													0
D73													0
D75													0
													<b>TOTAL</b>
													59
<b>UPPER PENNYPACK</b>													
UP	0	0	0	1	0	0	0	0	0	0	0	0	1
UDLL	1	1	2	2	2	0	0	1	1	1	1	3	15
LFC	1	3	0	1	0	0	2	2	2	0	0	4	15
LFLL	1	0	0	0	1	0	0	1	1	0	1	0	5
FHL	0	0	0	0	0	0	0	1	1	0	2	1	5
SLL	0	0	0	0	0	0	1	2	2	0	1	0	6
LDLL	2	0	1	1	2	2	0	0	0	4	0	0	12

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
<b>CENTRAL SCHUYLKILL EAST SIDE 18 SWWPC UNITS</b>															
S05	2	1	3	5	4	4	3	3	5	5	3	3	41	3.4	8.9
S06	3	1	3	3	5	4	3	3	5	5	3	4	42	3.5	8.7
S07	2	1	3	3	5	4	3	3	5	6	3	3	41	3.4	8.9
S08	5	2	4	5	5	6	2	3	5	2	3	2	44	3.7	8.3
S09	7	4	5	7	8	7	4	5	5	7	3	7	69	5.8	5.3
S10	1	4	1	2	2	3	3	3	4	1	2	2	28	2.3	13.0
S12	2	2	2	4	3	4	4	5	4	3	4	2	39	3.3	9.4
S12A	2	2	2	4	3	4	4	4	4	3	3	2	37	3.1	9.9
S13	2	2	2	3	2	4	2	2	2	1	2	2	26	2.2	14.0
S15	2	2	2	3	5	4	3	4	6	3	3	3	40	3.3	9.1
S16	2	2	1	3	3	3	4	5	3	2	3	2	33	2.8	11.1
S17	1	1	1	2	1	3	3	4	4	2	3	2	27	2.3	13.5
S18	7	3	3	8	6	4	5	6	3	7	5	7	64	5.3	5.7
S19	2	2	2	3	2	3	2	5	4	3	3	2	33	2.8	11.1
S21	2	2	2	1	1	2	3	5	5	3	2	2	30	2.5	12.2
S23	3	2	3	5	2	2	2	5	2	5	3	5	39	3.3	9.4
S25	2	1	2	8	8	2	3	3	3	4	3	5	44	3.7	8.3
S26	2	1	2	3	3	1	3	3	2	1	3	2	26	2.2	14.0
<b>LOWER SCHUYLKILL EAST SIDE 9 SWWPC UNITS</b>															
S31	1	1	2	2	1	2	2	2	2	1	2	1	19	1.6	19.2
S35	1	1	1	2	1	2	2	2	2	1	2	1	18	1.5	20.3
S36	1	1	1	1		1	2	1	1	1	2	1	13	1.2	28.1
S36A	1	1	1	2	1	2	2	1	2	1	2	1	17	1.4	21.5
S37	1	1	1	1		1	1	1	1	1	2	1	12	1.1	30.4
S42	1	6	4	4	6	3	2	3	5	12	4	12	62	5.2	5.9
S42A	1	4	3	4	5	2	1	3	4	8	3	12	50	4.2	7.3
S44	1	1	1	1		1	1	1	1	1	2	1	12	1.1	30.4
S46	1	2	2	1	1	4	1	1	2		1	1	17	1.5	21.5
<b>CENTRAL SCHUYLKILL WEST 9 SWWPC UNITS</b>															
S01	1	1	1	2	2	1	1	2	4	2	2	3	22	1.8	16.6
S02	1	1	1	2	2	1	1	2	4	2	2	3	22	1.8	16.6
S03	1	2	1	2	1	1	1	2	3	2	3	2	21	1.8	17.4
S04	1	2	3	1	1	1	2	2	3	2	2	2	22	1.8	16.6
S11	2	1	2	1	1	2	2	2	3	5	3	2	26	2.2	14.0
S14	2	2	3	1	2	2	2	1	2	1	2	2	22	1.8	16.6
S20	2	1	3	1	1	2	3	1	1	2	2	3	22	1.8	16.6
S22	6	3	3	3	4	2	3	1	2	3	2	3	35	2.9	10.4
S24	4	3	4	3	4	2	3	1	2	3	2	3	34	2.8	10.7
<b>SOUTHWEST MAIN GRAVITY 10 SWWPC UNITS</b>															
S27	1	1	1	1	1	5	4	3	2	3	2	2	26	2.2	14.0
S28	1	2	1	1	1	2	4	1	3	3	2	2	23	1.9	15.9
S30	1	2	1	1	1	2	4	2	3	3	2	2	24	2.0	15.2
S34	2	2	2	2	2	1	4	2	6	3	2	2	30	2.5	12.2
S39	2	1	2	3		1	3	2	2	2	2	2	22	2.0	16.6
S40	2	1	1	1		1	2	2	2	2	2	2	18	1.6	20.3
S43	2	2	2	1	1	1	1	2	2	1	3	2	20	1.7	18.2
S47	3	2	2	3	1	1	1	2	1	1	2	2	21	1.8	17.4
S50	6	5	4	12	4	7	2	2	2	9	4	13	70	5.8	5.2
S51	2	1	3	5		2	1	2	1	2	2	3	24	2.2	15.2
<b>LOWER SCHUYLKILL WEST SIDE 4 SWWPC UNITS</b>															
S32	3	3	3	5	3	6	2	3	6	4	2	2	42	3.5	8.7
S33	2	4	3	3	5	6	3	3	5	6	3	2	45	3.8	8.1
S38	2	2	3	2	3	5	3	3	5	4	3	1	36	3.0	10.1
S45	1	1	1	3	2	4	2	3	2	1	4	1	25	2.1	14.6

SITE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL	AVER	DTR
<b>COBBS CREEK HIGH LEVEL 24 SWWPC UNITS</b>															
C01	2	1	2	2	2	3	2	2	3	2	2	2	25	2.1	14.6
C02	2	1	2	2	1	3	2	2	3	2	2	2	24	2.0	15.2
C04	2	1	2	4	2	3	2	2	3	2	2	2	27	2.3	13.5
C04A	2	1	2	3	2	3	2	2	2	2	2	2	25	2.1	14.6
C05	2	2	1	3	2	3	3	2	3	2	2	2	27	2.3	13.5
C06	3	3	2	4	4	4	3	2	2	2	2	3	34	2.8	10.7
C07	3	3	2	4	3	3	3	2	2	2	2	3	32	2.7	11.4
C09	3	3	2	3	2	4	2	2	2	2	2	3	31	2.6	11.8
C10	2	3	1	2	2	3	2	2	3	2	2	2	26	2.2	14.0
C11	2	3	3	1	2	3	2	2	2	2	2	3	27	2.3	13.5
C12	2	3	1	1	2	1	2	2	1	2	2	3	22	1.8	16.6
C13	2	2	1	1	1	1	1	1	3	2	2	2	19	1.6	19.2
C14	4	4	3	4	6	7	2	2	3	3	2	2	42	3.5	8.7
C15	2	1	1	2	1	3	1	1	2	3	2	2	21	1.8	17.4
C16	4	2	1	3	2	3	2	2	3	3	2	3	30	2.5	12.2
C17	2	2	1	2	3	3	2	2	2	2	2	2	25	2.1	14.6
C18	2	3	1	3	4	3	3	3	2	2	1	2	28	2.3	13.0
C31	3	2	3	2	1	2	2	2	3	2	2	4	28	2.3	13.0
C32	1	1	1	3	2	4	2	2	2	1	2	2	23	1.9	15.9
C33	3	1	3	3	3	2	2	2	3	1	2	3	28	2.3	13.0
C34	1	1	3	2	2	2	3	2	3	1	2	2	24	2.0	15.2
C35	2	1	3	2	3	2	2	2	3	1	2	3	26	2.2	14.0
C36	2	2	3	1	2	2	2	2	3	2	2	4	27	2.3	13.5
C37	2	2	2	2	1	3	2	2	3	1	2	2	24	2.0	15.2
<b>COBBS CREEK LOW LEVEL 12 SWWPC UNITS</b>															
C19	2	3	1	2	3	2	2	2	2	1	2	5	27	2.3	13.5
C20	2	2	4	4	3	3	2	2	3	1	2	3	31	2.6	11.8
C21	2	2	2	2	2	1	2	2	2	1	2	2	22	1.8	16.6
C22	2	2	2	2	2	1	2	2	2	1	2	2	22	1.8	16.6
C23	2	2	1	2	1	1	2	2	2	1	2	2	20	1.7	18.2
C24	1	3	2	3	3	2	2	2	4	1	2	3	28	2.3	13.0
C25	3	4	2	2	4	2	2	3	3	1	2	4	32	2.7	11.4
C26	1	2	1	2	3	1	1	1	2	1	2	2	19	1.6	19.2
C27	1	2	2	2	1	2	1	1	1	2	1	2	19	1.6	19.2
C28A	1	2	2	2	1	1	1	1	1	1	1	2	17	1.4	21.5
C29	2	2	1	2	1	1	1	1	1	2	1	2	18	1.5	20.3
C30	1	2	1	2	1	1	1	1	1	2	1	2	17	1.4	21.5
<b>TOTAL</b>															
TOTAL	183	174	176	235	205	228	194	198	245	212	202	240	2492		
I/D/C	2.0	1.9	1.9	2.6	2.2	2.5	2.1	2.2	2.7	2.3	2.2	2.6			
<b>CSES</b>															
CSES	49	35	43	72	68	64	56	71	71	63	54	57	703	3.3	10.0
<b>LSES</b>															
LSES	9	18	16	18	15	18	14	15	20	26	20	31	220	2.1	20.5
<b>CSW</b>															
CSW	20	16	21	16	18	14	18	14	24	22	20	23	226	2.1	15.1
<b>SWMG</b>															
SWMG	22	19	19	30	11	23	26	20	24	29	23	32	278	2.4	15.0
<b>LSW</b>															
LSW	8	10	10	13	13	21	10	12	18	15	12	6	148	3.1	10.4
<b>CCHL</b>															
CCHL	55	48	46	59	55	70	51	46	61	45	49	60	645	2.2	13.9
<b>CCLL</b>															
CCLL	20	28	21	27	25	18	19	20	27	12	24	31	272	1.9	16.9

1 TOTAL DISCHARGES IN SW DISTRICT DTR = DAYS TO RETURN TO SITE  
 0.1 AVERAGE DISCHARGES PER MONTH I/D/C = INSPECTIONS PER DAY PER CREW  
 14.5 AVER. DAYS BEFORE RETURNING TO SITE I/D = INSPECTIONS PER DISCHARGE  
 2.3 AVER. INSPECTIONS PER DAY PER CREW







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													
	7	5	6	9	7	7	5	3	5	10	9	11	84
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE													
	2	2	2	2	1	1	4	2	4	1	2	5	28
T-088-01-CFD-02 PITTVILLE ST. SOUTH OF PLYMOUTH ST.													
	2	2	2	2	1	1	3	2	3	1	2	4	25
T-088-01-CFD-03 ELSTON ST. E. OF BOUVIER ST.													
	1	2	2	2	1	1	3	2	3	1	2	4	24
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.													
	1	2	2	2	1	1	2	2	3	1	2	4	23
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.													
	1	1	3	2	1	1	2	2	3	1	2	3	22
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.													
	1	2	2	2	1	1	2	1	3	1	2	3	21
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.													
	1	1	1	2	1	2	1	1	3	1	2	2	18
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.													
	1	1	1	2	1	2	1	1	3	1	2	2	18
T-089-04-CFD-01 FRANKLIN & HASBROOK													
	8	6	9	10	10	7	8	3	10	11	9	13	104
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
	4	6	8	7	5	6	4	1	4	8	4	11	68
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
	4	6	8	7	5	6	4	1	4	8	3	10	66
Totals	33	36	46	49	35	36	39	21	48	45	41	72	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				2		1			1	5
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
												1	1
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
												1	1
Totals	0	0	1	0	0	0	2	0	1	0	0	3	7

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													
													0
T-088-01-CFD-01 PLYMOUTH ST. WEST OF PITTVILLE													
	1	1							1				3
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.													
	1									1			2
T-088-01-CFD-04 ASHLEY ST. W. OF BOUVIER ST.													
													0
T-088-01-CFD-05 CHELTENHAM AVE. E. OF 19TH ST.													
										1			1
T-088-01-CFD-06 VERBENA ST. S. OF CHELTENHAM AVE.													
													0
W-060-01-MFD-01 JANNETTE ST. WEST OF MONASTERY AVE.													
													0
W-060-01-MFD-02 GREEN LANE NORTH OF LAWNTON ST.													
										1			1
T-089-04-CFD-01 FRANKLIN & HASBROOK													
	1	1		1		2	2						7
T-088-01-CFD-07 CHELTENHAM E. OF 7 TH ST.													
	2	1	1		1	1	1	1	1	1	2	2	13
T-088-01-CFD-08 7 TH ST. S. OF CHELTENHAM													
				1	1		1		1				4
Totals	6	4	1	2	2	3	4	3	3	4	2	0	34

**FY 2015 CSO Dry Weather Discharge Listing**

Discharge Observed		Discharge Stopped		Last Inspection		Site ID	Collector	Type Unit	Location	Comment
Date	Time	Date	Time	Date	Time					
5/5/2015	12:20 PM	5/5/2015	1:30 PM	4/29/2015	8:40 AM	F-11	LFLL	WH-S	Paul St. S of Vandyke St.	DWO PIPE BLOCKAGE
1/21/2015	8:30 AM	1/21/2015	9:40 AM	1/5/2015	9:20 AM	D-02	UDLL	CC-S	Cottman St. SE of Milnor St.	SWO GATE STUCK OPEN ONE INCH
9/19/2014	11:00 AM	9/19/2014	11:10 AM	9/5/2014	10:20 AM	C-20	CCLL	DAM	65th St. & Cobbs Creek Parkway	DEBRIS IN SLOT
7/18/2014	11:00 AM	7/18/2014	12:50 PM	7/12/2014	9:40 AM	T-10	FHL	SLOT	Roosevelt Blvd. E of Tacony Creek	DWO PIPE WAS BLOCKED

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 2015 Annual CSO Miscellaneous Maintenance Report**



**Collector System - Flow Control Unit - FY 2015 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
------	------

Out of Service for sewer rehabilitation

DATE	TOTAL WEIGHT
------	--------------

Discontinued 12/31/2012

DATE	SITE
------	------

DATE	SITE
------	------

DATE	SITE
------	------

DATE	CJ. YARDS
------	-----------

DATE	SITE
------	------

DATE	SITE
------	------

DATE	SITE
------	------

7/3/2014	S-6
7/7/2014	S-6
7/30/2014	D-37
7/30/2014	D-38
7/30/2014	S-6
7/30/2014	S-5
7/30/2014	S-7
7/31/2014	S-8
7/31/2014	S-9
7/31/2014	S-16
7/31/2014	D-41
7/31/2014	D-39
8/23/2014	S-42A
8/23/2014	S-42
8/23/2014	S-33
10/25/2014	S-18
10/25/2014	S-22
10/25/2014	S-24
11/13/2014	D-50
11/15/2014	D-48
11/15/2014	S-1
11/15/2014	S-2
11/15/2014	S-25
11/24/2014	S-43
11/24/2014	S-47
12/12/2014	D-20
1/10/2015	D-47
1/10/2015	D-48
1/10/2015	D-49
1/31/2015	D-51
1/31/2015	D-52
1/31/2015	D-65
2/21/2015	D-58
2/21/2015	D-62
2/21/2015	S-19
2/21/2015	S-23
2/27/2015	D-67
2/27/2015	D-4
4/11/2015	S-18
4/11/2015	S-22
4/11/2015	S-24
5/9/2015	S-38
5/9/2015	S-31
6/13/2015	D-68
6/13/2015	D-64
6/13/2015	D-69

7/12/2014	F-11
7/25/2014	F-11
7/26/2014	S-42
7/26/2014	F-11
7/29/2014	F-11
7/29/2014	F-11
7/30/2014	D-37
7/30/2014	S-5
7/31/2014	D-39
7/31/2014	S-8
8/5/2014	S-33
8/11/2014	S-5
8/12/2014	S-5
8/14/2014	S-5
8/23/2014	S-42
8/23/2014	S-42
11/13/2014	F-10
11/13/2014	F-11
11/13/2014	S-6
11/13/2014	S-7
11/14/2014	S-8
11/14/2014	S-15
11/15/2014	S-2
1/10/2015	D-47
1/17/2015	D-67
1/31/2015	D-41
1/31/2015	D-43
2/21/2015	D-61
2/21/2015	S-16

7/1/2014	D-2
9/6/2014	D-2
9/6/2014	D-3
9/20/2014	D-5
9/27/2014	D-5
9/29/2014	D-5
9/30/2014	D-5

7/22/2014	30
10/27/2014	20
12/12/2014	20
3/11/2015	20

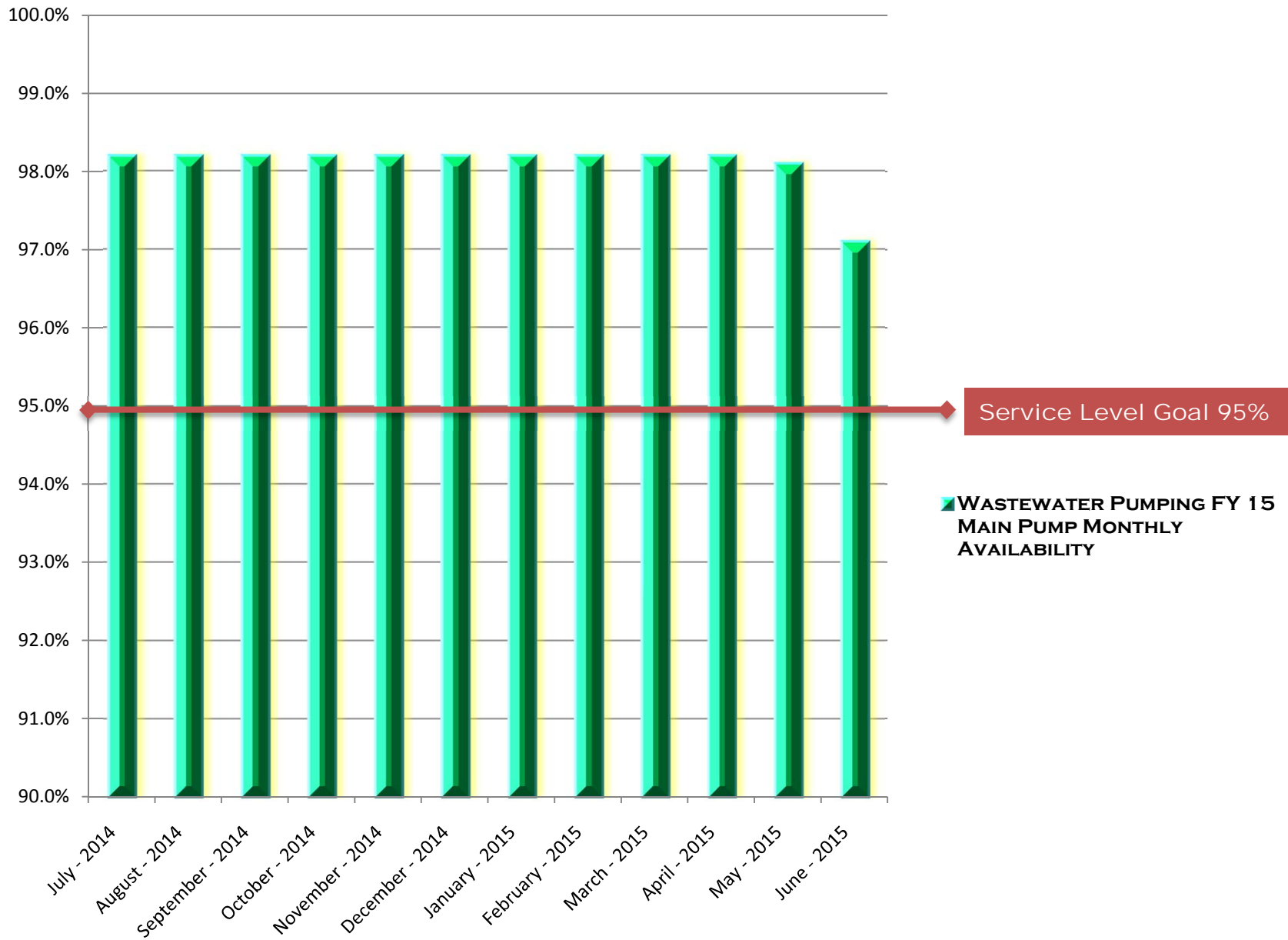
7/9/2014	D-2
7/9/2014	D-3
7/21/2014	D-5
7/11/2014	D-7
7/11/2014	D-9
7/23/2014	D-11
7/24/2014	D-15
7/30/2014	H-35
7/23/2014	H-29
7/31/2014	T-14
8/4/2014	D-5
8/8/2014	D-7
8/8/2014	D-15
8/18/2014	D-11
8/18/2014	D-2
8/21/2014	D-3
8/21/2014	F-25
8/21/2014	T-14
8/21/2014	Fish Ladder
8/22/2014	Rock Run
8/22/2014	MRDS
8/25/2014	D-9
9/8/2014	Rock Run
9/9/2014	D-7
9/9/2014	D-11
9/10/2014	D-15
9/11/2014	D-5
9/15/2014	Venice
9/18/2014	D-2
9/18/2014	D-3
9/19/2014	MRDS
9/19/2014	T-14
9/22/2014	F-25
9/22/2014	D-9
9/24/2014	Fish Ladder
9/24/2014	Venice
10/8/2014	D-15
10/8/2014	F-25
10/9/2014	D-9
10/9/2014	D-11
10/15/2014	T-14
10/16/2014	Venice
10/23/2014	MRDS
10/23/2014	D-7
10/27/2014	D-5
10/28/2014	Rock Run
10/28/2014	D-2
10/29/2014	D-3
11/3/2014	D-5
11/3/2014	D-7
11/4/2014	Venice

11/5/2014	F-25
11/5/2014	MRDS
11/7/2014	D-9
11/7/2014	D-11
11/10/2014	MRDS
11/10/2014	D-15
11/12/2014	D-9
11/14/2014	D-2
11/14/2014	D-3
11/17/2014	Rock Run
11/20/2014	T-14
11/21/2014	Venice
11/24/2014	State Road
12/4/2014	D-9
12/5/2014	D-3
12/11/2014	D-15
12/18/2014	T-14
12/24/2014	D-2
12/26/2014	D-5
12/26/2014	D-11
12/27/2014	D-7
12/27/2014	MRDS
12/29/2014	F-25
12/30/2014	Rock Run
12/31/2014	State Road
1/5/2015	D-15
1/7/2015	D-9
1/7/2015	D-11
1/8/2015	D-2
1/9/2015	D-3
1/9/2015	D-5
1/12/2015	T-14
1/13/2015	Venice
1/14/2015	H-35
1/14/2015	H - 29
1/15/2015	State Road
1/22/2015	D-7
2/4/2015	Venice
2/6/2015	H-35
2/9/2015	T-14
2/11/2015	D-15
2/12/2015	D-11
2/12/2015	F-25
2/13/2015	D-2
2/13/2015	D-7
2/19/2015	D-5
2/19/2015	D-9
2/20/2015	D-3
2/20/2015	H - 29
2/23/2015	State Road
3/2/2015	D-11

3/9/2015	D-15
3/11/2015	H-35
3/12/2015	D-2
3/12/2015	D-3
3/13/2015	Venice
3/17/2015	T-14
3/18/2015	D-5
3/18/2015	D-7
3/19/2015	D -9
3/19/2015	F-25
3/25/2015	Fish Ladder
3/26/2015	H - 29
4/6/2015	D-2
4/8/2015	F-25
4/9/2015	D-3
4/9/2015	D-5
4/10/2015	Fish Ladder
4/13/2015	State Road
4/14/2015	D-9
4/14/2015	D-11
4/22/2015	Venice
4/23/2015	T-14
4/24/2015	D-7
4/24/2015	D-15
4/27/2015	H-35
4/30/2015	H - 29
5/7/2015	D-11
5/8/2015	D-7
5/8/2015	D-15
5/11/2015	D-2
5/11/2015	D-3
5/13/2015	Fish Ladder
5/14/2015	D-5
5/14/2015	D-9
5/18/2015	F-25
5/20/2015	Venice
5/20/2015	H - 29
5/27/2015	H-35
5/28/2015	T -14
5/29/2015	State Road
6/3/2015	H-35
6/5/2015	Venice
6/8/2015	D-11
6/10/2015	D-5
6/17/2015	F-25
6/24/2015	D-2
6/24/2015	D-3
6/25/2015	D-7
6/25/2015	D-9
6/25/2015	D-15
6/30/2015	State Road

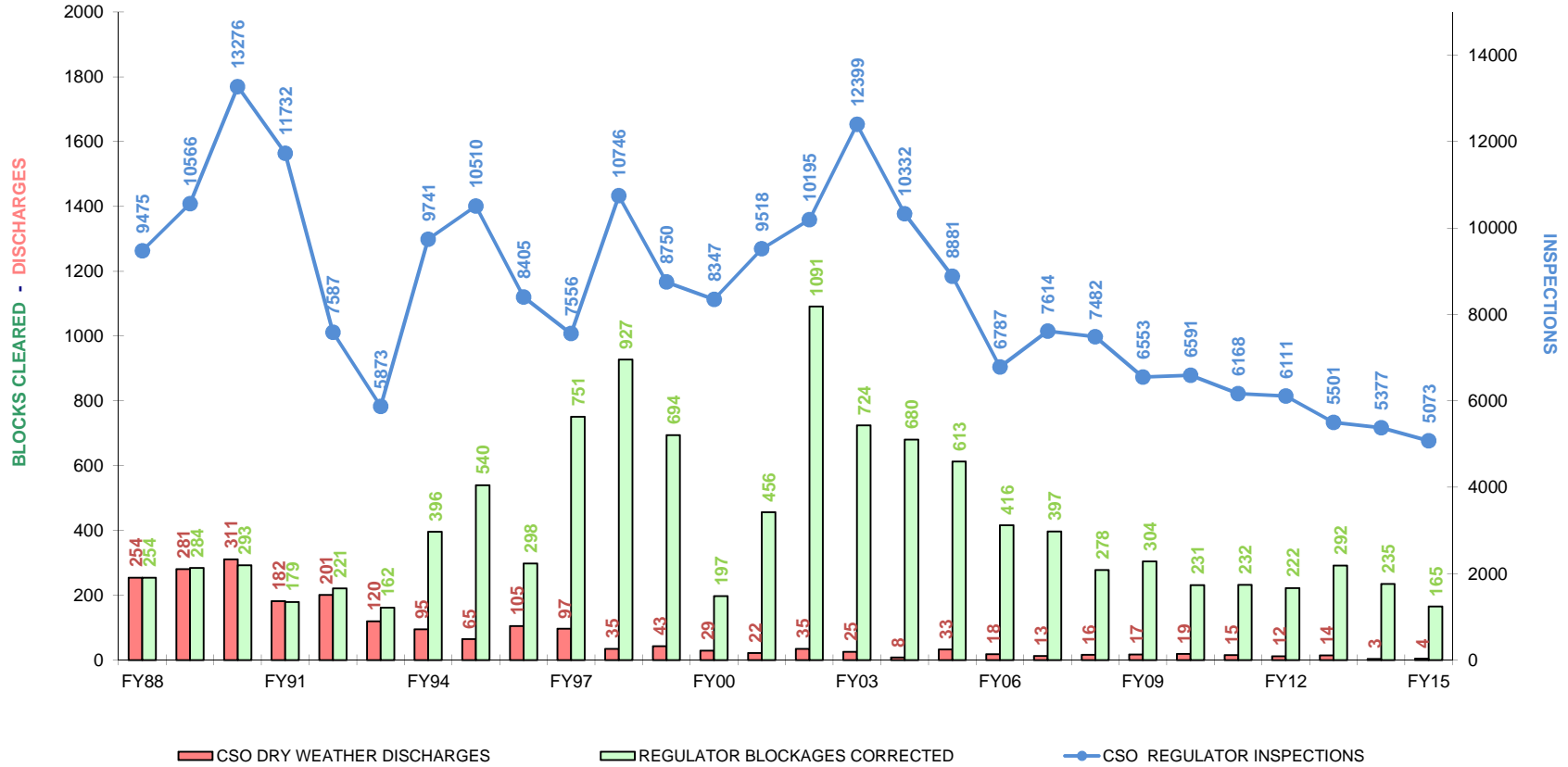
**Appendix C - FY 2015 Main Pump Availability Chart**

# Wastewater-Pumping FY 15 Main Pump Monthly Availability

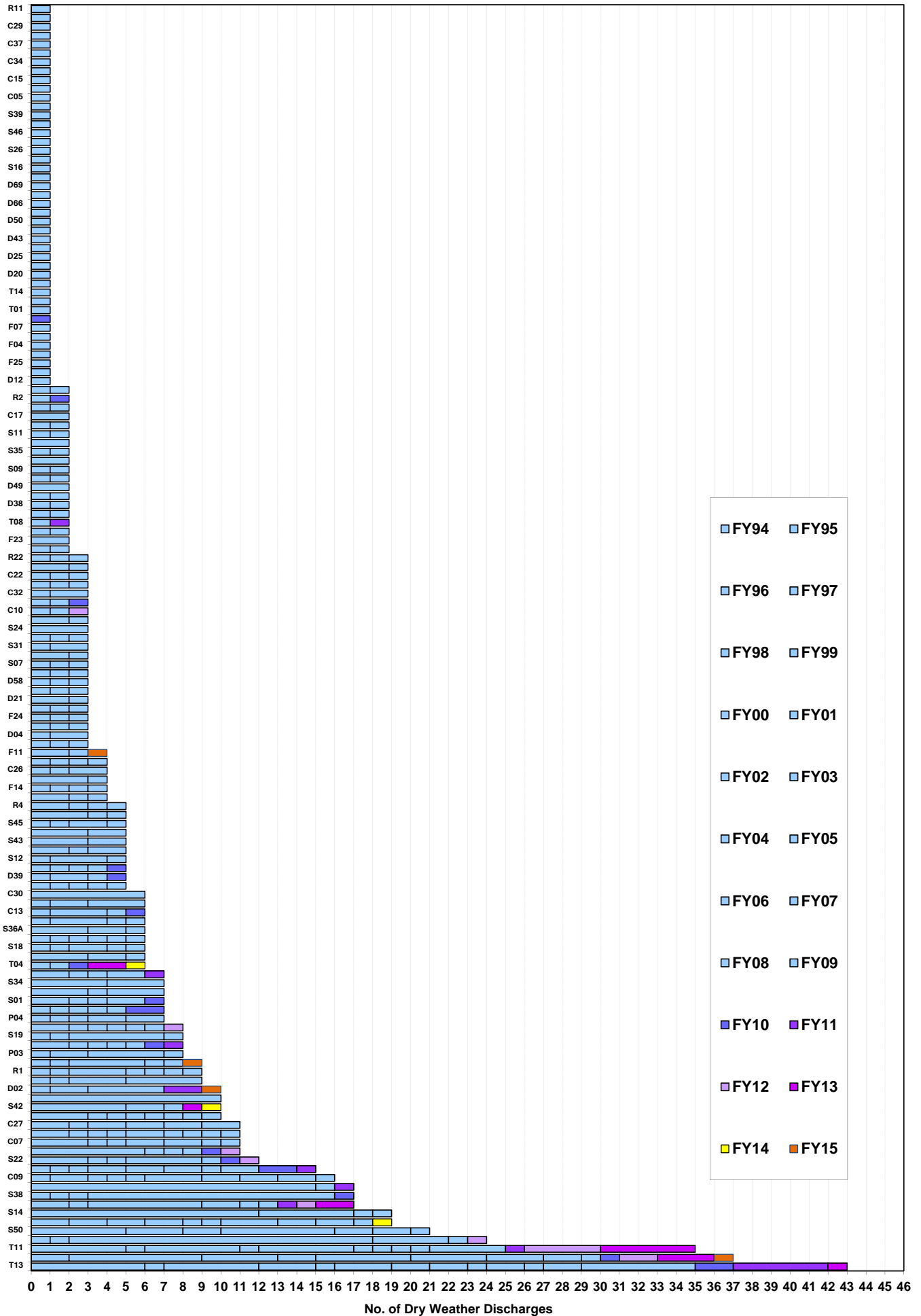


**Appendix D - Historical CSO Maintenance Charts**

Flow Control - CSO Maintenance FY87 to FY15 Inspections / Discharges / Blocks Corrected

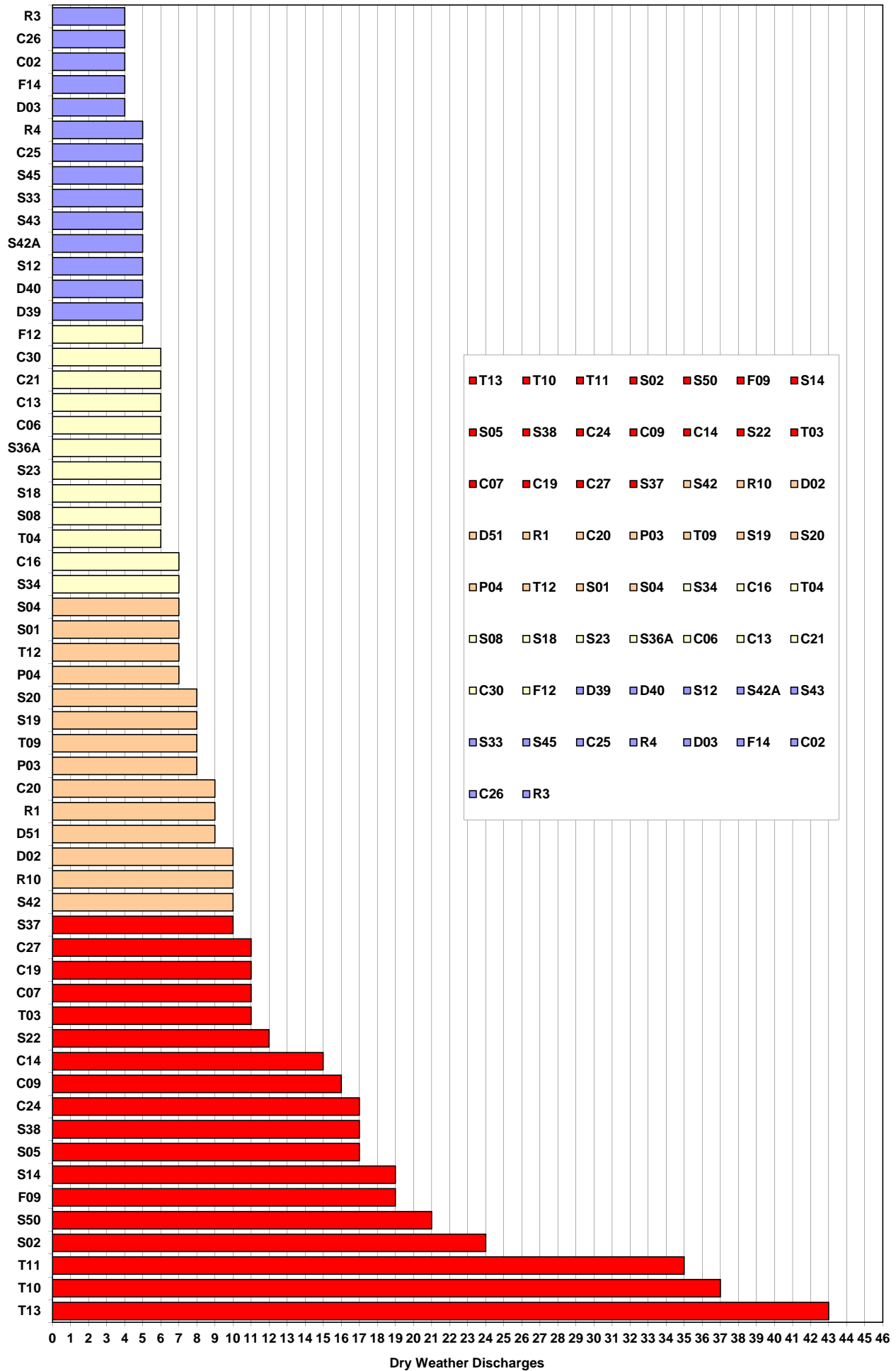


PWD FLOW CONTROL - CSO DISCHARGE HISTORY - FISCAL YEAR 1994 TO 2015

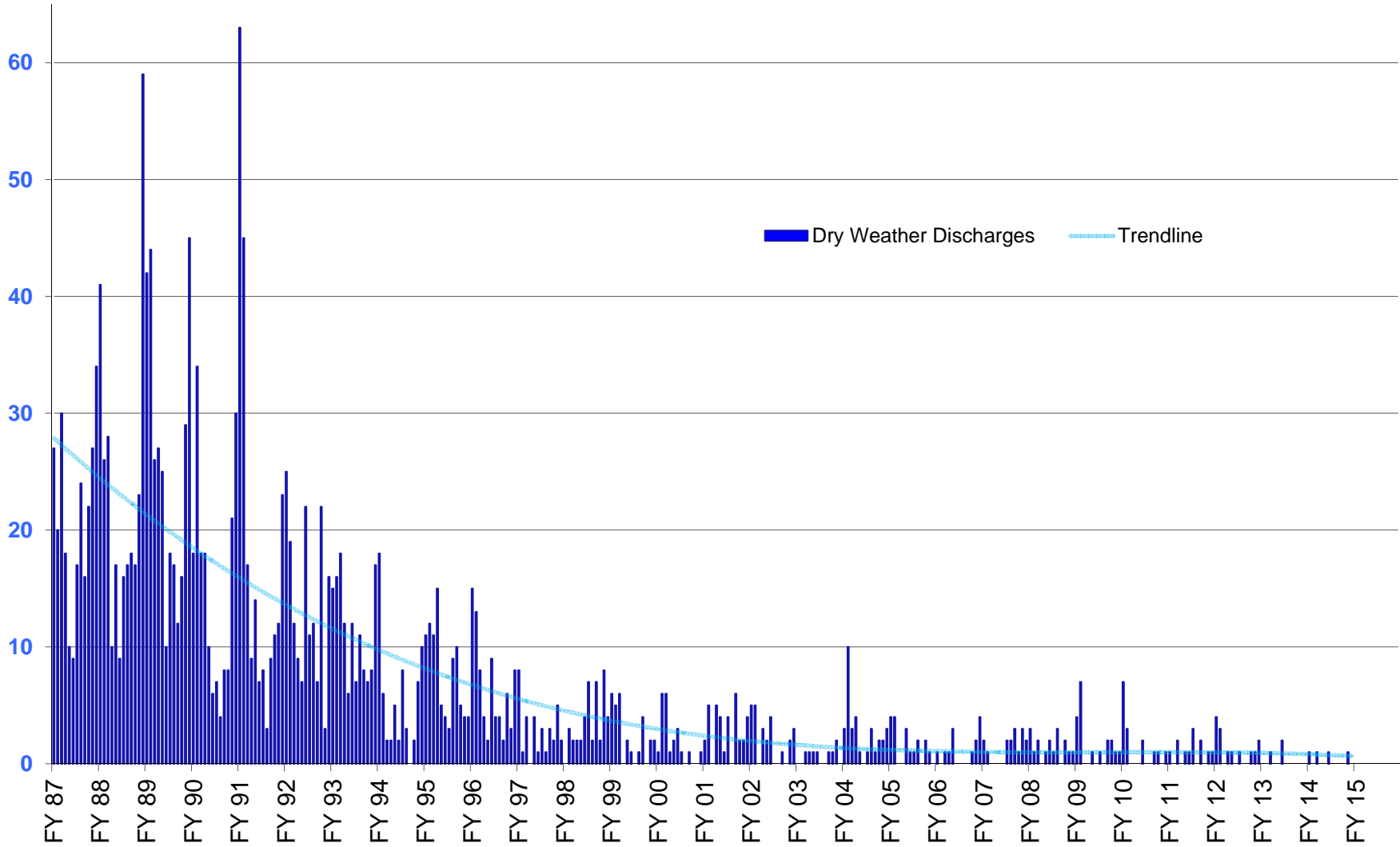


No. of Dry Weather Discharges

### CSO Sites With 4 or More Dry Weather Discharges Since FY 1994



### Flow Control - CSO Maintenance FY87 to FY15 Dry Weather Discharges





**APPENDIX D –**  
**NPDES ANNUAL CSO STATUS REPORT FY 2015**

	Page
TABLE 1 - LISTING OF ALL CSO PERMITTED OUTFALLS .....	2
TABLE 2 - OVERFLOW SUMMARY FOR 7/1/14 – 6/30/2015 .....	8
TABLE 3 - OVERFLOW SUMMARY FOR TYPICAL YEAR PRECIPITATION .....	13
TABLE 4 - JULY 2014 PWD RAIN GAGE RECORDS .....	18
TABLE 5 - JULY 2014 PWD RAIN GAGE RECORDS .....	19
TABLE 6 – AUGUST 2014 PWD RAIN GAGE RECORDS .....	20
TABLE 7 - AUGUST 2014 PWD RAIN GAGE RECORDS .....	21
TABLE 8 – SEPTEMBER 2014 PWD RAIN GAGE RECORDS .....	22
TABLE 9 - SEPTEMBER 2014 PWD RAIN GAGE RECORDS .....	23
TABLE 10 - OCTOBER 2014 PWD RAIN GAGE RECORDS .....	24
TABLE 11 - OCTOBER 2014 PWD RAIN GAGE RECORDS .....	25
TABLE 12 - NOVEMBER 2014 PWD RAIN GAGE RECORDS .....	26
TABLE 13 - NOVEMBER 2014 PWD RAIN GAGE RECORDS .....	27
TABLE 14 – DECEMBER 2014 PWD RAIN GAGE RECORDS .....	28
TABLE 15 - DECEMBER 2014 PWD RAIN GAGE RECORDS .....	29
TABLE 16 - JANUARY 2014 PWD RAIN GAGE RECORDS.....	30
TABLE 17 - JANUARY 2015 PWD RAIN GAGE RECORDS.....	31
TABLE 18 – FEBRUARY 2015 PWD RAIN GAGE RECORDS .....	32
TABLE 19 - FEBRUARY 2015 PWD RAIN GAGE RECORDS .....	33
TABLE 20 – MARCH 2015 PWD RAIN GAGE RECORDS.....	34
TABLE 21 - MARCH 2015 PWD RAIN GAGE RECORDS .....	35
TABLE 22 - APRIL 2015 PWD RAIN GAGE RECORDS.....	36
TABLE 23 – APRIL 2015 PWD RAIN GAGE RECORDS .....	37
TABLE 24 – MAY 2015 PWD RAIN GAGE RECORDS .....	38
TABLE 25 - MAY 2015 PWD RAIN GAGE RECORDS .....	39
TABLE 26 - JUNE 2015 PWD RAIN GAGE RECORDS .....	40
TABLE 27 - JUNE 2015 PWD RAIN GAGE RECORDS .....	41
TABLE 28 - RAIN GAGE RECORDS BY YEAR AND MONTH FOR FY14-15 .....	42
TABLE 29 - SSO STATISTICS FOR PERIOD JULY 1 2014 – JUNE 30 2015 .....	43

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
<b>NPDES Permit #0026689 - Northeast</b>						
2	39d 58m 50s	75d 4m 58s	Castor Ave. and Balfour St.	Delaware River	Somerset	D_17
3	39d 58m 45s	75d 5m 6s	Venango St. NW of Casper St.	Delaware River	Somerset	D_18
4	39d 58m 41s	75d 5m 15s	Tioga St. NW of Casper St.	Delaware River	Somerset	D_19
5	39d 58m 43s	75d 5m 28s	Ontario St. NW of Casper St.	Delaware River	Somerset	D_20
6	39d 58m 44s	75d 5m 41s	Westmoreland St. NW of Balfour St.	Delaware River	Somerset	D_21
7	39d 58m 42s	75d 5m 53s	Allegheny Ave. SE of Bath St.	Delaware River	Somerset	D_22
8	39d 58m 38s	75d 6m 12s	Indiana Ave. SE of Allen St.	Delaware River	Somerset	D_23
10	39d 58m 38s	75d 6m 28s	Cambria St. E of Melvale St.	Delaware River	Somerset	D_25
11	40d 1m 18s	75d 1m 44s	Cottman St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_02
12	40d 1m 14s	75d 2m 0s	Princeton Ave SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_03
13	40d 1m 8s	75d 2m 13s	Disston St. SE of Wissinoming St.	Delaware River	Upper Delaware Low Level	D_04
14	40d 0m 58s	75d 2m 34s	Magee St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_05
15	40d 0m 53s	75d 2m 46s	Levick St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_06
16	40d 0m 44s	75d 3m 5s	Lardner St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_07
17	40d 0m 38s	75d 3m 13s	Comly St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_08
18	40d 0m 34s	75d 3m 18s	Dark Run La and Milnor St.	Delaware River	Upper Delaware Low Level	D_09
19	40d 0m 21s	75d 3m 28s	Sanger St. SE of Milnor St.	Delaware River	Upper Delaware Low Level	D_11
20	40d 0m 2s	75d 3m 43s	Bridge St. Se of Garden St.	Delaware River	Upper Delaware Low Level	D_12
21	39d 59m 53s	75d 3m 47s	Kirkbride St. and Delaware Ave.	Delaware River	Upper Delaware Low Level	D_13
22	39d 59m 24s	75d 4m 4s	Orthodox St. and Delaware Ave.	Delaware River	Upper Delaware Low Level	D_15
23	40d 2m 36s	75d 1m 15s	Frankford Avenue & Ashburner Street	Pennypack Creek	Pennypack	P_01
24	40d 2m 36s	75d 1m 16s	Frankford Avenue & Holmesburg St.	Pennypack Creek	Pennypack	P_02
25	40d 2m 13s	75d 1m 19s	Torresdale Ave. NW of Pennypack Ck.	Pennypack Creek	Pennypack	P_03
26	40d 2m 23s	75d 1m 21s	Cottage Avenue & Holmesburg Avenue	Pennypack Creek	Pennypack	P_04
27	40d 2m 2s	75d 1m 21s	Holmesburg Ave SE of Hegerman St	Pennypack Creek	Pennypack	P_05
28	40d 4m 34s	75d 9m 44s	Williams Avenue SE of Sedgewick	Tacony Creek	Frankford High Level	T_01
29	40d 2m 28s	75d 6m 56s	Complost Ave West of Tacony Creek	Tacony Creek	Frankford High Level	T_03
30	40d 2m 11s	75d 6m 48s	Rising Sun Ave East of Tacony Creek	Tacony Creek	Frankford High Level	T_04
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
<b>NPDES Permit # 0026662 – Southeast</b>						
2	39d 58m 9s	75d 7m 19s	Dyott Street & Delaware Ave.	Delaware River	Lower Delaware Low Level	D_38

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix D- NPDES Annual CSO Status Report FY 2015

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

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
<b>NPDES Permit # 0026671 - Southwest</b>						
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 7/1/14 – 6/30/2015**

District	Regulator	Frequency	Duration (hours)	Volume (ft <sup>3</sup> )
Northeast	D_FRW	48	322.25	14,748,841
Northeast	D02	47	818.5	59,495,359
Northeast	D03	47	792	15,644,539
Northeast	D04	38	706.5	970,212
Northeast	D05	58	794.5	107,198,707
Northeast	D06	37	472	4,113,088
Northeast	D07	37	426.75	31,289,389
Northeast	D08	47	564.25	3,524,220
Northeast	D09	4	267	216,193
Northeast	D11	26	385.5	6,988,034
Northeast	D12	44	315.75	171,861
Northeast	D13	6	273.5	249,379
Northeast	D15	7	268.5	778,354
Northeast	D17	45	426.75	5,957,160
Northeast	D18	47	336	4,771,728
Northeast	D19	52	394	3,901,637
Northeast	D20	26	324.5	2,124,671
Northeast	D21	39	329.25	4,519,866
Northeast	D22	79	612.25	28,157,361
Northeast	D23	38	236.25	216,914
Northeast	D25	70	536.25	116,345,455
Northeast	F_FRFG	66	619.25	168,877,522
Northeast	F03	30	331	2,451,961
Northeast	F04	69	390	7,481,049
Northeast	F05	71	380.5	888,980
Northeast	F06	11	65.5	599,893
Northeast	F07	37	281	1,980,379
Northeast	F08	36	305.25	1,059,491
Northeast	F09	63	397	801,861
Northeast	F10	69	484.75	2,754,179
Northeast	F11	73	544.75	14,263,866
Northeast	F12	19	301	526,911
Northeast	F13	47	332.25	1,195,862
Northeast	F21	71	521.5	96,262,340
Northeast	F23	43	333.25	1,345,838
Northeast	F24	42	283.5	589,184
Northeast	F25	4	263.5	2,528,283



CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft <sup>3</sup> )
Northeast	P01	17	287	417,722
Northeast	P02	51	322.5	5,467,224
Northeast	P03	44	509	5,109,352
Northeast	P04	36	430.75	24,808,041
Northeast	P05	42	608.5	77,124,975
Northeast	T_FRRR	48	548.5	25,028,013
Northeast	T01	65	422	4,837,899
Northeast	T03	59	312.75	3,015,411
Northeast	T04	57	352.5	2,071,281
Northeast	T05	42	270	1,093,792
Northeast	T06	39	306.25	7,136,488
Northeast	T07	7	207.5	158,997
Northeast	T08	70	458.5	56,794,886
Northeast	T09	42	269.25	828,679
Northeast	T10	70	409.5	2,621,899
Northeast	T11	53	298.75	1,239,992
Northeast	T12	5	205	74,804
Northeast	T13	67	343.25	4,696,392
Northeast	T14	61	523.25	145,015,237
Northeast	T15	56	376.25	5,970,784
Southeast	D37	58	278.75	23,284,283
Southeast	D38	46	176.5	22,327,007
Southeast	D39	55	223	28,662,499
Southeast	D40	65	302.25	1,654,331
Southeast	D41	43	106	1,751,895
Southeast	D42	15	11.5	175,176
Southeast	D43	11	12.25	147,567
Southeast	D44	45	108.5	6,369,559
Southeast	D45	41	90.25	36,822,293
Southeast	D46	17	21	503,005
Southeast	D47	80	378	9,355,926
Southeast	D48	50	96.75	15,769,685
Southeast	D49	2	1.5	48,265
Southeast	D50	11	7	157,415
Southeast	D51	81	687.5	3,217,755
Southeast	D51A	63	206.5	1,564,307
Southeast	D52	19	18	303,940
Southeast	D53	5	4	1,223,939
Southeast	D54	18	23	5,532,629

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft <sup>3</sup> )
Southeast	D58	24	34.25	731,387
Southeast	D61	48	56	623,427
Southeast	D62	27	26.25	216,249
Southeast	D63	31	48.25	8,496,163
Southeast	D64	27	33.75	132,962
Southeast	D65	31	43.75	5,229,683
Southeast	D66	42	78.75	6,105,430
Southeast	D67	37	56.5	2,764,120
Southeast	D68	54	241.75	24,439,720
Southeast	D69	26	43	4,026,960
Southeast	D70	11	21.25	3,817,969
Southeast	D71	45	127	6,834,213
Southeast	D72	30	82.5	4,380,412
Southeast	D73	45	162.5	13,651,024
Southwest	C_FRA	10	5	395,081
Southwest	C_FRTR	89	519	20,479,557
Southwest	C01	14	8.25	150,066
Southwest	C02	3	2.5	8,346
Southwest	C04A	17	16.75	1,109,137
Southwest	C05	11	8.75	242,349
Southwest	C06	67	169.5	4,464,567
Southwest	C07	20	23.5	921,065
Southwest	C09	34	46.25	1,292,832
Southwest	C10	11	19.25	130,631
Southwest	C11	48	109.75	10,937,063
Southwest	C12	45	92.25	1,843,366
Southwest	C13	36	57	1,169,290
Southwest	C14	40	84	2,923,711
Southwest	C15	25	39	376,411
Southwest	C16	3	3.5	38,488
Southwest	C17	65	281.25	50,859,239
Southwest	C18	41	71.5	3,863,780
Southwest	C19	18	10.75	624,661
Southwest	C20	16	11.5	339,989
Southwest	C21	18	14.5	444,992
Southwest	C22	39	62.25	1,674,925
Southwest	C23	6	13	162,143
Southwest	C25	23	41.5	2,148,898
Southwest	C28A	42	41.75	275,153

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

District	Regulator	Frequency	Duration (hours)	Volume (ft <sup>3</sup> )
Southwest	C29	60	197.5	2,095,147
Southwest	C30	38	119.75	968,846
Southwest	C31	45	73.25	1,048,108
Southwest	C32	31	37.5	930,247
Southwest	C33	18	11.75	285,261
Southwest	C34	11	6.75	158,531
Southwest	C35	7	6	67,073
Southwest	C36	6	4.75	55,195
Southwest	C37	12	7.5	85,835
Southwest	S_FRM	3	2.75	6,766,300
Southwest	S01	49	118	11,150,017
Southwest	S01T	36	52.75	2,055,053
Southwest	S02	59	143.5	1,089,117
Southwest	S03	10	4.75	94,754
Southwest	S04	83	368	2,738,974
Southwest	S05	75	327.75	30,945,713
Southwest	S06	79	309.75	15,094,009
Southwest	S07	20	23	1,229,489
Southwest	S08	41	51.75	173,074
Southwest	S09	41	55	5,426,914
Southwest	S10	69	191.75	2,544,892
Southwest	S11	67	141.5	713,716
Southwest	S12A	54	60	683,533
Southwest	S13	19	7.75	274,841
Southwest	S14	74	278.75	2,289,988
Southwest	S15	23	18.5	226,468
Southwest	S16	78	222.25	1,161,845
Southwest	S17	22	22.25	480,414
Southwest	S18	65	169.5	5,820,800
Southwest	S19	25	22.25	220,917
Southwest	S20	84	503.25	20,850,046
Southwest	S21	23	14.75	124,705
Southwest	S22	43	65	1,985,233
Southwest	S23	66	153.75	1,283,268
Southwest	S24	40	61.25	624,578
Southwest	S25	49	84.5	1,419,708
Southwest	S26	76	366.5	16,459,047
Southwest	S30	3	2.25	76,633
Southwest	S31	60	132.5	3,760,695



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 2015 Combined Sewer and Stormwater Annual Reports

Appendix D- NPDES Annual CSO Status Report FY 2015

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%

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

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%



CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

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%

**Note: For the 2013 NPDES Annual CSO Status Report, the models used to simulate the typical year precipitation were updated to reflect the conditions that were assumed to exist during the second quarter of 2013.**

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Table 4 - July 2014 PWD Rain Gage Records

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7/1/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/2/2014	0.41	0.3	0.6	0.7	0.4	0.4	0.4	0.48	0.5	0.3	0.5	0.1	0.3	0.8	0.82	0.7	0.2	0.63	0.7	0.5	1.0	0.4	0.1	0.18
7/3/2014	0.08	0.3	0.3	0.1	0.0	0.2	0.3	0.43	0.5	0.7	0.6	0.0	0.3	0.0	0.1	0.2	0.1	0.30	0.27	0.1	0.2	0.5	0.0	0.48
7/4/2014	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.04	0.0	0.0	0.05	0.07	0.0	0.0	0.0	0.1	0.02
7/5/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/6/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/7/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/8/2014	0.18	0.1	0.0	0.0	0.1	0.1	0.1	0.10	0.1	0.1	0.0	0.1	0.0	0.0	0.15	0.1	0.0	0.13	0.15	0.2	0.1	0.1	0.1	0.12
7/9/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/10/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/11/2014	0	0.0	0.0	0	0	0.0	0	0.00	0.0	0	0.0	0	0.0	0	0	0.0	0	0	0.01	0	0	0.0	0.0	0.00
7/12/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/13/2014	0.11	0.3	0.0	0.0	0.0	0.1	0.1	0.07	0.1	0.0	0.0	0.1	0.0	0.0	0.01	0.3	0	0.14	0.19	0	0.2	0.1	0.0	0.03
7/14/2014	1.54	2.1	2.3	3.0	1.4	1.3	2.8	2.45	1.5	1.6	2.0	1.0	2.3	2.6	3.11	2.5	3.3	1.86	1.59	2.6	1.2	1.3	1.4	1.24
7/15/2014	0.38	0.3	0.9	0.5	0.5	0.8	0.6	0.64	0.9	0.3	0.7	0.7	0.8	0.3	0.42	0.3	0.5	0.52	0.47	0.8	0.2	0.4	0.5	0.34
7/16/2014	0.01	0.0	0.0	0	0.0	0.0	0	0.00	0.0	0.0	0	0.0	0	0.0	0.01	0.0	0	0.00	0.01	0	0.0	0.0	0.0	0.01
7/17/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/18/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/19/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/20/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/21/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/22/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/23/2014	0.16	0.0	0.3	0.3	0.0	0.2	0.3	0.32	0.1	0.3	0.3	0.0	0.3	0.2	0.17	0.1	0.2	0.24	0.34	0.3	0.2	0.1	0.0	0.56
7/24/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0.01
7/25/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/26/2014	0.13	0.1	0.2	0.1	0.1	0.1	0.1	0.20	0.1	0.2	0.2	0.0	0.2	0.0	0.09	0.0	0.1	0.16	0.24	0.1	0.2	0.1	0.2	0.11
7/27/2014	0	0.0	0.0	0.0	0	0.2	0.0	0.04	0.4	0.3	0.0	0	0.1	0.1	0.08	0.1	0.0	0.26	0.37	0.1	0.7	0.6	0	0.21
7/28/2014	1.07	0.9	1.4	1.0	1.0	1.1	1.3	1.36	0.6	1.1	1.5	1.4	1.3	0.7	0.99	0.9	1.1	1.03	1.2	1.2	0.5	0.3	1.5	0.69
7/29/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/30/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7/31/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 5 - July 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
7/1/2014	0	0	0	0	0	0	0	0	0	0	0
7/2/2014	0.416	0.722	0.55	0.87	0.666	0.52	0.25	0.36	0.38	0.36	0.97
7/3/2014	0.123	0.156	0.21	0.31	0.365	0.64	0.57	0.58	0.42	0.17	0.23
7/4/2014	0.078	0.044	0.02	0.06	0.061	0.04	0.07	0.05	0.03	0.08	0.07
7/5/2014	0	0	0	0	0	0	0	0	0	0	0
7/6/2014	0	0	0	0	0	0	0	0	0	0	0
7/7/2014	0	0	0	0	0	0	0	0	0	0	0
7/8/2014	0.18	0.147	0.11	0.15	0.14	0.25	0.08	0.04	0.15	0.06	0.08
7/9/2014	0	0	0	0	0	0	0	0	0	0	0
7/10/2014	0	0	0	0	0	0	0	0	0	0	0
7/11/2014	0.006	0	0	0	0.004	0	0	0	0.07	0	0.01
7/12/2014	0	0	0	0	0	0	0	0	0	0	0
7/13/2014	0.156	0.06	0	0.06	0.157	0.14	0.01	0	0.3	0.2	0.31
7/14/2014	1.635	2.04	2.68	1.38	1.616	1.64	1.56	1.09	1.43	1.418	1.04
7/15/2014	0.507	0.54	0.9	1.58	0.465	0.62	0.38	0.3	0.28	0.464	0.22
7/16/2014	0.009	0	0	0.01	0.016	0.01	0.01	0.01	0.01	0.013	0.03
7/17/2014	0	0	0	0	0	0	0	0	0	0	0
7/18/2014	0	0	0	0	0	0	0	0	0	0	0
7/19/2014	0	0	0	0	0	0	0	0	0	0	0
7/20/2014	0	0	0	0	0	0	0	0	0	0	0
7/21/2014	0	0	0	0	0	0	0	0	0	0	0
7/22/2014	0	0	0	0	0	0	0	0	0	0	0
7/23/2014	0.17	0.16	0.41	1.02	0.324	0.33	0.45	0.69	0.09	0.16	0.18
7/24/2014	0	0	0.01	0	0	0	0	0	0.01	0.01	0.01
7/25/2014	0	0	0	0	0	0	0	0	0	0	0
7/26/2014	0.13	0.09	0.21	0.09	0.218	0.24	0.13	0.05	0.07	0.09	0.21
7/27/2014	0.043	0.07	0.04	0.17	0.36	0.19	0.25	0.26	0.26	0.79	0.65
7/28/2014	1.092	1	1.4	0.85	1.013	1.11	0.59	0.64	0.74	0.82	0.66
7/29/2014	0	0	0	0	0	0	0	0	0	0	0
7/30/2014	0	0	0	0	0	0	0	0	0	0	0
7/31/2014	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 6 – August 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8/1/2014	0.07	0.1	0.0	0.0	0.0	0.0	0.0	0.11	0.0	0.5	0.2	0.0	0.1	0.0	0.05	0.1	0.0	0.06	0.03	0.4	0.0	0.0	0.1	0.31
8/2/2014	0.36	0.4	0.3	0.4	0.3	0.4	0.3	0.36	0.4	0.3	0.3	0.3	0.3	0.3	0.34	0.3	0.3	0.4	0.42	0.3	0.4	0.4	0.3	0.38
8/3/2014	0.24	0.1	0.2	0.2	0.2	0.1	0.2	0.19	0.1	0.1	0.1	0.2	0.2	0.2	0.21	0.2	0.2	0.22	0.15	0.2	0.1	0.1	0.2	0.14
8/4/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/5/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/6/2014	0.01	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0	0.0	0.01	0.0	0	0.01	0	0	0.0	0.0	0.0	0.01
8/7/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/8/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/9/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/10/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/11/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/12/2014	0.9	1.0	0.5	0.5	0.7	0.9	0.6	0.66	0.9	0.7	0.7	0.8	0.6	0.5	0.69	0.8	0.5	0.87	0.84	0.5	0.8	0.9	0.9	0.57
8/13/2014	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.03	0.1	0.0	0.0	0.1	0.0	0.0	0.05	0.0	0.0	0.06	0.04	0.0	0.0	0.1	0.0	0.04
8/14/2014	0.35	0.3	0.0	0.3	0.3	0.3	0.4	0.26	0.4	0.0	0.1	0.1	0.0	0.2	0.36	0.4	0.2	0.14	0.05	0.2	0.0	0.3	0.5	0.08
8/15/2014	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
8/16/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/17/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/18/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/19/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/20/2014	0	0	0.1	0.0	0	0	0.1	0.08	0	0.0	0.0	0	0.1	0	0.00	0	0.2	0	0	0	0	0	0	0
8/21/2014	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0
8/22/2014	0.4	0.3	0.2	0.4	0.1	0.2	0.4	0.30	0.3	0.1	0.0	0.2	0.1	0.6	0.62	0.1	0.2	0.83	0.09	0.4	0.0	0.1	0.1	0.53
8/23/2014	0.22	0.2	0.1	0.1	0.1	0.1	0.1	0.11	0.1	0.1	0.1	0.2	0.0	0.0	0.08	0.1	0.0	0.14	0.11	0.1	0.1	0.1	0.2	0.15
8/24/2014	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
8/25/2014	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/26/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/27/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/28/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/29/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/30/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8/31/2014	1.04	0.9	0.0	0.1	1.1	0.1	0.4	0.05	0.2	0.0	0.0	0.9	0.0	0.2	0.44	0.5	0.2	0.08	0.03	0.0	0.0	0.2	1	0.05

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 7 - August 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
8/1/2014	0.071	0.04	0.1	0.71	0.128	0.23	0.66	0.05	0.03	0.16	0.05
8/2/2014	0.358	0.34	0.37	0.34	0.408	0.38	0.36	0.39	0.47	0.48	0.44
8/3/2014	0.251	0.2	0.25	0.19	0.164	0.15	0.13	0.12	0.16	0.18	0.19
8/4/2014	0	0	0	0	0	0	0	0	0	0	0
8/5/2014	0	0	0	0	0	0	0	0	0	0	0
8/6/2014	0.016	0.013	0	0	0.005	0.01	0	0	0.02	0.01	0.01
8/7/2014	0	0	0	0	0	0	0	0	0	0	0
8/8/2014	0	0	0	0.01	0	0	0	0	0	0	0
8/9/2014	0	0	0	0	0	0	0	0	0	0	0
8/10/2014	0	0	0	0	0	0	0	0	0	0	0
8/11/2014	0	0	0	0	0	0	0	0	0	0	0
8/12/2014	0.848	0.67	0.54	0.49	0.79	0.75	0.75	0.59	1.09	1.02	0.84
8/13/2014	0.07	0.06	0.05	0.05	0.043	0.02	0.03	0.05	0.16	0.12	0.05
8/14/2014	0.48	0.38	0.19	0.16	0.02	0.05	0.05	0.12	0.3	0.35	0.21
8/15/2014	0	0	0.01	0	0	0	0.01	0.01	0.01	0	0
8/16/2014	0	0	0	0	0	0	0	0	0	0	0
8/17/2014	0	0	0	0	0	0	0	0	0	0	0
8/18/2014	0	0	0	0	0	0	0	0	0	0	0
8/19/2014	0	0	0	0	0	0	0	0	0	0	0
8/20/2014	0	0	0.04	0	0	0	0	0	0	0	0
8/21/2014	0	0	0	0	0	0	0	0	0	0	0
8/22/2014	0.29	0.75	0.27	0.86	0.17	0.11	0.46	1.06	0.1	0.17	0.76
8/23/2014	0.22	0.08	0.13	0.14	0.11	0.1	0.12	0.22	0.35	0.51	0.27
8/24/2014	0	0	0	0	0	0	0	0	0	0	0.01
8/25/2014	0	0	0	0	0	0	0	0	0	0	0
8/26/2014	0	0	0	0	0	0	0	0	0	0	0
8/27/2014	0	0	0	0	0	0	0	0	0	0	0
8/28/2014	0	0	0	0	0	0	0	0	0	0	0
8/29/2014	0	0	0	0	0	0	0	0	0	0	0
8/30/2014	0	0	0	0	0	0	0	0	0	0	0
8/31/2014	0.64	0.31	0.05	0.04	0.03	0.02	0.05	0.03	0.72	0.16	0.073

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 8 – September 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9/1/2014	0.37	0.2	0.4	0.5	0.3	0.2	0.2	0.4	0.1	0.4	0.7	0.0	0.6	0.0	0.23	0.2	0.2	0.3	0.2	0.2	0.6	0.1	0.0	0.1
9/2/2014	0.18	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.07	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
9/3/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/4/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/5/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/6/2014	0.01	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
9/7/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
9/8/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
9/9/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/10/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/11/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/12/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/13/2014	0.45	0.4	0.3	0.3	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.39	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4
9/14/2014	0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0	0.0	0.0	0	0	0
9/15/2014	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/16/2014	0.06	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.19	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0
9/17/2014	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/18/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/19/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/20/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/21/2014	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
9/22/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/23/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/24/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/25/2014	0.78	0.6	0.5	0.7	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.69	0.6	0.5	0.4	0.5	0.6	0.5	0.5	0.6	0.5
9/26/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/27/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/28/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/29/2014	0.00	0.0	0	0	0	0.0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0
9/30/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 9 - September 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
9/1/2014	0.29	0.305	0.3	0.14	0.38	0.42	0.23	0.12	0.16	0.31	0.513
9/2/2014	0	0.068	0.16	0	0	0.18	0.06	0.02	0.19	0.15	0.032
9/3/2014	0	0	0	0	0	0	0	0	0	0	0
9/4/2014	0	0	0	0	0	0	0	0	0	0	0
9/5/2014	0	0	0	0	0	0	0	0	0	0	0
9/6/2014	0	0	0.09	0.14	0.02	0.03	0.11	0.18	0	0	0.013
9/7/2014	0	0	0	0	0	0	0	0	0	0	0
9/8/2014	0	0	0	0	0	0	0	0	0	0	0
9/9/2014	0	0	0	0	0	0	0	0	0	0	0
9/10/2014	0	0	0	0	0	0	0	0	0	0	0
9/11/2014	0	0	0	0	0	0	0	0	0	0	0
9/12/2014	0	0	0	0	0	0	0	0	0	0	0
9/13/2014	0.439	0.409	0.36	0.4	0.407	0.43	0.42	0.4	0.46	0.44	0.425
9/14/2014	0	0	0	0.01	0.003	0	0.01	0	0.01	0.01	0.006
9/15/2014	0	0	0	0	0	0	0	0	0	0	0
9/16/2014	0.07	0.158	0.07	0.03	0.011	0.08	0.01	0.14	0.16	0.07	0.085
9/17/2014	0	0	0	0	0	0	0	0	0	0	0
9/18/2014	0	0	0	0	0	0	0	0	0	0	0
9/19/2014	0	0	0	0	0	0	0	0	0	0	0
9/20/2014	0	0	0	0	0	0	0	0	0	0	0
9/21/2014	0	0	0.01	0	0.02	0	0	0	0	0.01	0
9/22/2014	0	0	0	0	0	0	0.01	0	0	0	0.01
9/23/2014	0	0	0	0	0	0	0	0	0	0	0
9/24/2014	0	0	0	0	0	0	0	0	0	0	0
9/25/2014	0.75	0.62	0.57	0.61	0.55	0.51	0.48	0.54	0.7	0.65	0.56
9/26/2014	0	0	0	0	0	0	0	0	0	0	0
9/27/2014	0	0	0	0	0	0	0	0	0	0	0
9/28/2014	0	0	0	0	0	0	0	0	0	0	0
9/29/2014	0	0	0	0	0.03	0.02	0.03	0.01	0.04	0.05	0.05
9/30/2014	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 10 - October 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10/1/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/2/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/3/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/4/2014	0.272	0.27	0.39	0.29	0.26	0.42	0.34	0.41	0.4	0.4	0.4	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.3	0.5	0.3	0.2	0.3
10/5/2014	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/6/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/7/2014	0.262	0.23	0.19	0.17	0.18	0.15	0.2	0.17	0.17	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1
10/8/2014	0.135	0.15	0.2	0.18	0.14	0.18	0.16	0.19	0.18	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
10/9/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/10/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/11/201	0.49	0.47	0.53	0.65	0.47	0.55	0.54	0.48	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.3
10/12/201	0	0	0.01	0	0	0	0	0	0	0.0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0.0	0.0
10/13/201	0.01	0.03	0.02	0.03	0.01	0.04	0.02	0.03	0.03	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/14/201	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/15/201	0.94	0.55	0.86	1.2	0.52	0.53	0.65	0.59	0.57	0.7	0.6	0.5	0.6	0.6	0.6	1.1	0.7	1.1	1.0	0.9	0.6	0.5	0.6	0.7
10/16/201	0.18	0.3	0.32	0.35	0.16	0.35	0.14	0.16	0.35	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.3	0.4	0.2	0.3
10/17/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/18/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
10/19/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/20/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/21/201	0	0	0	0.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0
10/22/201	0.41	0.43	0.65	0.74	0.38	0.47	0.53	0.52	0.43	0.6	0.5	0.3	0.6	0.4	0.4	0.4	0.5	0.3	0.4	0.6	0.4	0.3	0.4	0.5
10/23/201	0.08	0.09	0.24	0.21	0.14	0.18	0.18	0.2	0.15	0.2	0.2	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
10/24/201	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/25/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/26/201	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/27/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/28/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10/29/201	0.02	0.03	0.03	0.04	0.05	0.02	0.02	0.02	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10/30/201	0	0.01	0.01	0.01	0	0.01	0.01	0	0	0.0	0.0	0	0.0	0	0	0	0	0	0.0	0.0	0.0	0.0	0	0
10/31/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0



CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 11 - October 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
10/1/2014	0	0	0	0	0	0	0	0	0	0	0
10/2/2014	0	0	0	0	0	0	0	0	0	0	0
10/3/2014	0	0	0	0	0	0	0	0	0	0	0
10/4/2014	0.29	0.346	0.41	0.41	0.53	0.43	0.42	0.48	0.37	0.5	0.47
10/5/2014	0	0.001	0	0	0	0	0	0	0	0	0
10/6/2014	0	0	0	0	0	0	0	0	0	0	0
10/7/2014	0.27	0.229	0.18	0.15	0.1	0.14	0.15	0.18	0.18	0.1	0.1
10/8/2014	0.15	0.176	0.21	0.18	0.27	0.17	0.18	0.22	0.18	0.18	0.2
10/9/2014	0	0	0	0	0	0	0	0	0	0	0
10/10/2014	0	0	0	0	0	0	0	0	0	0	0
10/11/2014	0.5	0.506	0.52	0.47	0.52	0.45	0.41	0.51	0.53	0.47	0.47
10/12/2014	0	0	0	0	0.01	0	0	0	0	0	0.01
10/13/2014	0.02	0.021	0.02	0.01	0.01	0.02	0.02	0.01	0.04	0.03	0.01
10/14/2014	0	0	0	0	0	0.01	0	0	0	0	0.01
10/15/2014	1.11	0.749	1.22	1.22	1.12	0.64	0.61	0.75	0.59	0.46	0.59
10/16/2014	0.21	0.143	0.37	0.34	0.24	0.15	0.18	0.3	0.4	0.48	0.37
10/17/2014	0	0	0	0	0	0	0	0	0	0	0
10/18/2014	0	0	0	0	0	0	0	0	0	0	0
10/19/2014	0	0	0	0	0	0	0	0	0	0	0
10/20/2014	0	0	0	0	0	0	0	0	0	0	0
10/21/2014	0	0	0.02	0	0	0	0	0	0	0	0
10/22/2014	0.51	0.469	0.65	0.66	0.533	0.52	0.56	0.74	0.43	0.36	0.48
10/23/2014	0.13	0.15	0.2	0.23	0.182	0.2	0.21	0.22	0.12	0.16	0.22
10/24/2014	0	0.001	0	0	0	0	0	0	0	0	0
10/25/2014	0	0	0	0	0	0	0	0	0	0	0
10/26/2014	0	0.001	0	0	0	0	0	0	0	0	0
10/27/2014	0	0	0	0	0	0	0	0	0	0	0
10/28/2014	0	0	0	0	0	0	0	0	0	0	0
10/29/2014	0.04	0.01	0.02	0.01	0.024	0.02	0.03	0.04	0.02	0.03	0.02
10/30/2014	0	0	0.01	0.01	0.01	0	0	0	0.01	0	0.01
10/31/2014	0	0	0	0	0.01	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 12 - November 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11/1/201	0.85	0.96	0.8	1.17	0.7	0.95	0.9	0.85	0.95	0.97	0.8	0.71	0.83	0.82	0.89	0.9	0.79	0.73	0.9	1.1	1.08	0.84	0.85	0.84
11/2/201	0	0	0	0.01	0	0.02	0.0	0	0.01	0.01	0.0	0	0.01	0.01	0.01	0.0	0.01	0	0.0	0	0.01	0	0	0
11/3/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/4/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/5/201	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/6/201	0.44	0.45	0.4	0.44	0.4	0.49	0.4	0.46	0.5	0.48	0.4	0.46	0.48	0.39	0.45	0.4	0.43	0.49	0.4	0.4	0.52	0.47	0.46	0.43
11/7/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/8/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/9/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/10/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/11/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/12/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/13/20	0.18	0.19	0.2	0.19	0.1	0.19	0.2	0.20	0.19	0.20	0.2	0.19	0.21	0.2	0.19	0.1	0.20	0.20	0.2	0.1	0.20	0.19	0.19	0.18
11/14/20	0.01	0.01	0.0	0.02	0.0	0.00	0.0	0.01	0.00	0.05	0.0	0.01	0.01	0.01	0.01	0.0	0.01	0.00	0	0.0	0.04	0.00	0.00	0.03
11/15/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/16/20	0.09	0.1	0.1	0.13	0.1	0.08	0.1	0.11	0.08	0.1	0.1	0.11	0.11	0.1	0.11	0.1	0.12	0.08	0.0	0.0	0.07	0.09	0.12	0.08
11/17/20	1.15	1.14	1.1	1.19	1.0	1.1	1.1	1.18	1.17	1.21	1.1	1.21	1.18	1.06	1.24	1.3	1.22	1.17	1.0	1.3	1.2	1.11	1.09	1.22
11/18/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/19/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/20/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/21/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/23/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/24/20	0.35	0.39	0.3	0.33	0.3	0.56	0.3	0.37	0.49	0.44	0.3	0.36	0.35	0.28	0.33	0.3	0.32	0.45	0.5	0.3	0.68	0.51	0.36	0.44
11/25/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/26/20	1.11	1.11	1.2	1.23	1.1	1.11	1.1	1.20	1.11	1.22	1.2	1.11	1.23	1.17	1.12	1.1	1.22	1.11	1.0	1.2	1.09	1.11	1.11	1.22
11/27/20	0.00	0.00	0.0	0.01	0.0	0.00	0	0	0.00	0.02	0	0.00	0.02	0.00	0.00	0.0	0.00	0.00	0	0	0	0.00	0.00	0.01
11/28/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/29/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11/30/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 13 - November 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
11/1/2014	0.91	0.91	0.88	1.26	0.915	0.88	0.85	1.06	0.91	0.94	1.02
11/2/2014	0.01	0.01	0.01	0	0.01	0.02	0.01	0	0.01	0.01	0.03
11/3/2014	0	0	0	0	0	0	0	0	0	0	0
11/4/2014	0	0	0	0	0	0	0	0	0	0	0
11/5/2014	0	0	0	0	0	0	0	0	0.01	0	0
11/6/2014	0.47	0.44	0.41	0.42	0.476	0.43	0.43	0.49	0.5	0.48	0.507
11/7/2014	0	0	0	0	0	0	0	0	0	0	0
11/8/2014	0	0	0	0	0	0	0	0	0	0	0
11/9/2014	0	0	0	0	0	0	0	0	0	0	0
11/10/2014	0	0	0	0	0	0	0	0	0	0	0
11/11/2014	0	0	0	0	0	0	0	0	0	0	0
11/12/2014	0	0	0	0	0	0	0	0	0	0	0
11/13/2014	0.19	0.197	0.192	0.179	0.201	0.206	0.192	0.181	0.192	0.194	0.2
11/14/2014	0.01	0.01	0.021	0.024	0.011	0.01	0.042	0.069	0.009	0.008	0.027
11/15/2014	0	0	0	0	0	0	0	0	0	0	0
11/16/2014	0.11	0.1	0.09	0.08	0.087	0.1	0.098	0.07	0.1	0.07	0.074
11/17/2014	1.17	1.07	1.23	1.17	1.102	1.04	1.112	1.22	1.16	1.03	1.169
11/18/2014	0	0	0	0	0	0	0	0	0	0	0
11/19/2014	0	0	0	0	0	0	0	0	0	0	0
11/20/2014	0	0	0	0	0	0	0	0	0	0	0
11/21/2014	0	0	0	0	0	0	0	0	0	0	0
11/22/2014	0	0	0	0	0	0	0	0	0	0	0
11/23/2014	0	0	0	0	0	0	0	0	0	0	0
11/24/2014	0.35	0.32	0.32	0.35	0.487	0.39	0.49	0.57	0.56	0.68	0.622
11/25/2014	0	0	0	0	0	0	0	0	0	0	0
11/26/2014	1.107	1.153	1.231	1.236	1.097	1.225	1.214	1.224	1.123	1.127	1.105
11/27/2014	0.01	0.003	0.015	0	0	0	0.015	0.009	0.008	0.005	0.002
11/28/2014	0	0	0	0	0	0	0	0	0	0	0
11/29/2014	0	0	0	0	0	0	0	0	0	0	0
11/30/2014	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 14 – December 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
12/1/2014	0.04	0.04	0.1	0.08	0.04	0.05	0.04	0.05	0.04	0.08	0.06	0.03	0.08	0.04	0.03	0.03	0.05	0.04	0.08	0.14	0.09	0.02	0.07	0.05	
12/2/2014	0.17	0.19	0.23	0.21	0.2	0.22	0.21	0.22	0.22	0.27	0.23	0.2	0.24	0.17	0.16	0.18	0.2	0.19	0.22	0.19	0.25	0.17	0.18	0.2	
12/3/2014	0.18	0.17	0.16	0.16	0.15	0.15	0.16	0.15	0.16	0.2	0.16	0.12	0.16	0.17	0.18	0.2	0.18	0.16	0.15	0.18	0.19	0.15	0.16	0.19	
12/4/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/5/2014	0.09	0.1	0.07	0.1	0.09	0.08	0.07	0.07	0.09	0.08	0.07	0.09	0.07	0.07	0.08	0.1	0.07	0.07	0.07	0.07	0.08	0.09	0.07	0.1	
12/6/2014	0.98	0.95	0.98	1.12	0.99	0.87	0.97	0.97	0.96	0.94	0.98	1.1	1.01	1.01	0.96	1.04	0.92	0.86	0.79	1.02	0.87	0.88	0.95	0.83	
12/7/2014	0.01	0	0.01	0.02	0.01	0.01	0	0	0	0.01	0	0.01	0.01	0	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	
12/8/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/9/2014	0.79	0.84	1.06	1.24	0.76	0.87	0.94	0.92	0.87	1.06	1.01	0.58	1.11	0.88	0.85	0.88	0.97	0.65	0.81	1.23	0.86	0.74	0.59	0.87	
12/10/2014	0	0	0.01	0.01	0	0.02	0.01	0.02	0.01	0.01	0.01	0	0.02	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
12/11/2014	0.01	0.04	0.03	0.01	0.02	0.01	0.01	0.01	0.02	0.05	0.02	0.04	0.03	0	0	0	0.03	0	0.01	0.02	0.02	0.01	0.05	0.06	
12/12/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/13/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/14/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/15/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/16/2014	0.11	0.12	0.11	0.08	0.1	0.14	0.12	0.14	0.12	0.13	0.14	0.08	0.12	0.08	0.12	0.13	0.1	0.17	0.14	0.08	0.13	0.11	0.12	0.11	
12/17/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/18/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/19/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/20/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/21/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/22/2014	0.01	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.01	0.03	0.01	0.02	0.03
12/23/2014	0.09	0.1	0.13	0.13	0.09	0.15	0.09	0.1	0.14	0.15	0.1	0.02	0.14	0.08	0.05	0.09	0.08	0.14	0.16	0.07	0.15	0.12	0.07	0.11	
12/24/2014	0.8	0.86	0.77	1.06	0.97	0.79	0.75	0.82	0.86	0.81	0.76	0.85	0.76	0.88	0.84	0.85	0.8	0.94	0.76	0.95	0.74	0.86	0.73	0.74	
12/25/2014	0.03	0.06	0.07	0.05	0.05	0.07	0.06	0.06	0.07	0.08	0.07	0.06	0.07	0.05	0.05	0.06	0.06	0.05	0.07	0.06	0.1	0.05	0.05	0.08	
12/26/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/27/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/28/2014	0	0.01	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0.02	0	
12/29/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/30/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/31/2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 15 - December 2014 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
12/1/2014	0.07	0.04	0.1	0.08	0.074	0.09	0.06	0.09	0.03	0.06	0.09
12/2/2014	0.19	0.2	0.2	0.24	0.222	0.24	0.23	0.26	0.2	0.24	0.233
12/3/2014	0.21	0.16	0.17	0.17	0.16	0.16	0.18	0.19	0.15	0.15	0.175
12/4/2014	0	0	0	0	0	0	0	0	0	0	0
12/5/2014	0.09	0.08	0.08	0.09	0.075	0.08	0.09	0.13	0.1	0.08	0.08
12/6/2014	1.06	0.96	0.93	0.92	0.844	0.78	0.82	0.84	0.91	0.86	0.874
12/7/2014	0.01	0	0.01	0.01	0.003	0	0.01	0.02	0.02	0.01	0.009
12/8/2014	0	0	0	0	0	0	0	0	0	0	0
12/9/2014	0.9	0.98	1.06	1.27	0.867	0.89	0.95	1.12	0.81	0.93	0.85
12/10/2014	0	0.02	0.02	0.01	0.01	0.01	0	0	0.01	0.01	0.011
12/11/2014	0.03	0	0.02	0.03	0.018	0.04	0.04	0.05	0.05	0	0.014
12/12/2014	0	0	0	0	0	0	0	0	0	0	0
12/13/2014	0	0	0	0	0	0	0	0	0	0	0
12/14/2014	0	0	0	0	0	0	0	0	0	0	0
12/15/2014	0	0	0	0	0	0	0	0	0	0	0
12/16/2014	0.12	0.12	0.09	0.09	0.136	0.15	0.15	0.15	0.13	0.13	0.12
12/17/2014	0	0	0	0	0	0	0	0	0.01	0	0
12/18/2014	0	0	0	0	0	0	0	0	0	0	0
12/19/2014	0	0	0	0	0	0	0	0	0	0	0
12/20/2014	0	0	0	0	0	0	0	0	0	0	0
12/21/2014	0	0	0	0	0	0	0	0	0	0	0
12/22/2014	0.02	0.03	0.02	0.02	0.029	0.03	0.03	0.03	0.02	0.03	0.03
12/23/2014	0.08	0.1	0.1	0.11	0.148	0.16	0.19	0.26	0.15	0.14	0.13
12/24/2014	0.84	0.75	0.9	0.78	0.778	0.78	0.79	0.74	0.89	0.8	0.75
12/25/2014	0.05	0.06	0.05	0.06	0.076	0.07	0.09	0.1	0.06	0.07	0.1
12/26/2014	0	0	0	0	0	0	0	0	0	0	0
12/27/2014	0	0	0	0	0	0	0	0	0	0	0
12/28/2014	0.01	0	0	0	0	0	0	0	0.01	0	0
12/29/2014	0	0	0	0	0	0	0	0	0	0	0
12/30/2014	0	0	0	0	0	0	0	0	0	0	0
12/31/2014	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 16 - January 2014 PWD Rain Gage Records**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/3/2015	0.	0.72	0.8	0.76	0.73	0.78	0.7	0.8	0.75	0.85	0.8	0.67	0.88	0.68	0.67	0.7	0.67	0.82	0.7	0.8	0.76	0.69	0.67	0.73
1/4/2015	0.	0.34	0.4	0.44	0.41	0.39	0.3	0.39	0.38	0.43	0.3	0.4	0.37	0.35	0.36	0.4	0.41	0.36	0.3	0.4	0.42	0.38	0.4	0.42
1/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/6/2015	0.	0.08	0	0.03	0.09	0.07	0.0	0.05	0.08	0.01	0.0	0.08	0.01	0.04	0.07	0.0	0.05	0.06	0.0	0.0	0.05	0.08	0.08	0.06
1/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/8/2015	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/9/2015	0	0	0	0	0	0.01	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0
1/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/12/2015	0.	0.68	0.6	0.63	0.62	0.66	0.6	0.67	0.67	0.65	0.6	0.65	0.66	0.59	0.66	0.7	0.63	0.64	0.5	0.5	0.61	0.65	0.63	0.62
1/13/2015	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/16/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/17/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/18/2015	1.	1.79	2.0	2.2	1.79	1.84	1.8	1.91	1.89	1.96	1.9	1.77	2.09	1.78	1.95	2	1.95	1.83	1.7	2.1	1.66	1.71	1.78	1.92
1/19/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/20/2015	0	0	0.0	0.01	0	0	0	0.01	0	0.02	0.0	0	0.02	0	0	0	0	0	0.0	0.0	0.01	0	0	0.01
1/21/2015	0.	0.02	0.0	0.03	0.03	0.03	0.0	0.04	0.03	0.04	0.0	0.03	0.04	0.03	0.03	0.0	0.04	0.04	0.0	0.0	0.03	0.03	0.03	0.04
1/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/23/2015	0.	0.15	0.0	0.08	0.15	0.12	0.0	0.06	0.14	0.08	0.0	0.14	0.07	0.07	0.13	0.1	0.05	0.08	0.0	0.0	0.08	0.13	0.14	0.09
1/24/2015	0.	0.65	0.6	0.68	0.64	0.65	0.6	0.67	0.65	0.67	0.7	0.65	0.68	0.65	0.64	0.6	0.69	0.64	0.6	0.7	0.64	0.64	0.64	0.64
1/25/2015	0.	0.00	0	0.00	0.01	0.00	0.0	0.01	0.00	0.00	0.0	0.00	0.00	0.01	0.00	0.0	0.00	0.00	0	0	0.00	0.00	0.00	0
1/26/2015	0	0	0.0	0.00	0	0.01	0.0	0.01	0.00	0.01	0.0	0.00	0.01	0.00	0.00	0	0.01	0.02	0.0	0	0.02	0.00	0.00	0.03
1/27/2015	0.	0.01	0.0	0.01	0.01	0.01	0.0	0.03	0.00	0.02	0.0	0.01	0.02	0.02	0.01	0.0	0.03	0.01	0.0	0	0.00	0.01	0.01	0.06
1/28/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1/30/2015	0	0	0	0.00	0	0	0	0	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01
1/31/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 17 - January 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
1/1/2015	0	0	0	0	0	0	0	0	0	0	0
1/2/2015	0	0	0	0	0	0	0	0	0	0	0
1/3/2015	0.7	0.704	0.84	0.81	0.66	0.76	0.73	0.77	0.77	0.79	0.76
1/4/2015	0.42	0.369	0.38	0.38	0.52	0.39	0.36	0.4	0.36	0.36	0.42
1/5/2015	0	0	0.01	0	0	0	0	0	0	0	0
1/6/2015	0.09	0.063	0.041	0.066	0.055	0.056	0.045	0.059	0.078	0.073	0.064
1/7/2015	0	0	0	0	0	0	0	0	0	0	0
1/8/2015	0	0.001	0	0	0	0	0	0	0	0	0
1/9/2015	0	0	0.01	0	0	0	0	0	0.01	0	0.01
1/10/2015	0	0	0	0	0	0	0	0	0	0	0
1/11/2015	0	0	0	0	0	0	0	0	0	0	0
1/12/2015	0.67	0.651	0.61	0.61	0.59	0.58	0.58	0.56	0.7	0.63	0.58
1/13/2015	0	0	0	0	0	0.01	0	0	0	0	0
1/14/2015	0	0	0	0	0	0	0	0	0	0	0
1/15/2015	0	0	0	0	0	0	0	0	0	0	0
1/16/2015	0	0	0	0	0	0	0	0	0	0	0
1/17/2015	0	0	0	0	0	0	0	0	0	0	0
1/18/2015	1.88	1.75	1.87	1.99	1.61	1.63	1.69	1.82	1.83	1.46	1.64
1/19/2015	0	0	0	0	0	0	0	0	0	0	0
1/20/2015	0	0	0.02	0.02	0.02	0.02	0.02	0.02	0	0	0.01
1/21/2015	0.03	0.037	0.03	0.028	0.038	0.04	0.039	0.04	0.032	0.034	0.039
1/22/2015	0	0	0	0	0.01	0	0	0	0	0	0
1/23/2015	0.159	0.104	0.085	0.084	0.079	0.052	0.083	0.088	0.136	0.115	0.091
1/24/2015	0.646	0.653	0.691	0.692	0.647	0.694	0.659	0.65	0.651	0.651	0.648
1/25/2015	0.01	0.01	0	0	0.001	0.008	0.001	0	0.008	0.007	0.003
1/26/2015	0	0.007	0.007	0.012	0.025	0.011	0.021	0.027	0.004	0.011	0.023
1/27/2015	0.01	0.025	0.014	0.024	0.013	0.033	0.045	0.054	0.012	0.015	0.016
1/28/2015	0	0	0	0	0	0	0	0	0	0	0
1/29/2015	0	0	0	0	0	0	0	0	0	0	0
1/30/2015	0	0	0.001	0.004	0	0	0.006	0.009	0	0	0
1/31/2015	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 18 – February 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	19	20	21	22	23	24
2/1/2015	0.01	0.01	0.0	0.01	0.02	0.02	0.0	0.01	0.01	0.02	0.0	0.01	0.01	0.01	0.01	0.0	0.01	0.01	0.0	0	0.01	0.01	0.01	0.0
2/2/2015	1.10	1.10	1.1	1.20	1.1	1.11	1.1	1.15	1.10	1.16	1.2	1.10	1.18	1.12	1.10	1.1	1.18	1.14	1.1	1.2	1.14	1.11	1.10	1.1
2/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/5/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/9/2015	0.01	0.01	0.0	0.01	0.01	0.01	0.0	0.01	0.01	0.01	0.0	0.00	0.01	0.01	0.01	0.0	0.01	0.01	0.0	0.0	0.01	0.01	0.01	0.0
2/10/201	0	0	0	0	0	0.00	0.0	0.00	0	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0
2/11/201	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/12/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/13/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/14/201	0.03	0.03	0.0	0.02	0.03	0.03	0.0	0.03	0.03	0.02	0.0	0.03	0.02	0.02	0.03	0.0	0.02	0.03	0.0	0.0	0.02	0.03	0.03	0.0
2/15/201	0	0	0	0	0	0.00	0.0	0.00	0	0	0	0.00	0	0.00	0.00	0	0.00	0.00	0	0	0	0.00	0.00	0
2/16/201	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/17/201	0.17	0.17	0.1	0.20	0.18	0.16	0.1	0.18	0.17	0.17	0.1	0.18	0.18	0.18	0.18	0.1	0.18	0.14	0.1	0.2	0.12	0.17	0.17	0.1
2/18/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/19/201	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/20/201	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/21/201	0.45	0.45	0.5	0.49	0.45	0.44	0.5	0.49	0.45	0.48	0.3	0.45	0.47	0.55	0.48	0.4	0.44	0.42	0.3	0.5	0.39	0.44	0.45	0.4
2/22/201	0.54	0.54	0.2	0.34	0.57	0.44	0.2	0.34	0.52	0.26	0.5	0.54	0.31	0.26	0.47	0.5	0.40	0.28	0.2	0.4	0.24	0.50	0.52	0.2
2/23/201	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/24/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/25/201	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/26/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03	0
2/27/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2/28/201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 19 - February 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
2/1/2015	0.02	0.013	0.01	0.007	0.01	0.011	0.018	0.019	0.018	0.015	0.011
2/2/2015	1.101	1.118	1.206	1.204	1.151	1.199	1.138	1.122	1.112	1.128	1.146
2/3/2015	0	0	0	0	0	0	0	0	0	0	0
2/4/2015	0	0	0	0	0	0	0	0	0	0	0
2/5/2015	0	0	0	0	0	0	0	0	0	0	0
2/6/2015	0	0	0	0	0	0	0	0	0	0	0
2/7/2015	0	0	0	0	0	0	0	0	0	0	0
2/8/2015	0	0	0	0	0	0	0	0	0	0	0
2/9/2015	0.01	0.011	0.011	0.014	0.018	0.019	0.018	0.02	0.012	0.014	0.017
2/10/2015	0	0.006	0	0	0	0.001	0	0	0.001	0.001	0.001
2/11/2015	0	0	0	0	0	0	0	0	0	0	0
2/12/2015	0	0	0	0	0	0	0	0	0	0.02	0
2/13/2015	0	0	0	0	0	0	0	0	0	0	0.01
2/14/2015	0.039	0.033	0.023	0.032	0.029	0.031	0.037	0.047	0.037	0.035	0.033
2/15/2015	0	0.006	0	0	0	0.001	0	0	0.001	0.001	0.001
2/16/2015	0	0	0	0	0	0	0	0	0	0	0
2/17/2015	0.179	0.184	0.207	0.21	0.128	0.17	0.167	0.167	0.17	0.163	0.143
2/18/2015	0	0	0	0	0	0	0.01	0	0	0	0.01
2/19/2015	0	0	0	0	0	0	0	0	0	0	0
2/20/2015	0	0	0	0	0	0	0	0	0	0	0
2/21/2015	0.45	0.522	0.493	0.49	0.392	0.391	0.468	0.472	0.451	0.442	0.412
2/22/2015	0.576	0.366	0.351	0.391	0.249	0.446	0.289	0.285	0.494	0.416	0.298
2/23/2015	0	0	0	0	0	0	0.01	0	0	0	0.01
2/24/2015	0	0	0	0	0	0	0	0	0	0	0
2/25/2015	0	0	0	0	0	0	0	0	0	0	0
2/26/2015	0	0	0	0	0	0	0	0	0	0	0
2/27/2015	0	0	0	0	0	0	0	0	0	0	0
2/28/2015	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 20 – March 2015 PWD Rain Gage Records**

<b>Date/RG</b>	0.52	0.52	0.4	0.46	0.54	0.48	0.4	0.46	0.51	0.44	0.4	0.53	0.45	0.46	0.51	0.5	0.46	0.41	0.3	0.4	0.38	0.51	0.52	0.4
<b>3/1/2015</b>	0.01	0.01	0	0.00	0.02	0.01	0.0	0.00	0.01	0.00	0	0.01	0	0.00	0.01	0.0	0.00	0.01	0.0	0	0.00	0.01	0.01	0.0
<b>3/2/2015</b>	0.54	0.55	0.4	0.51	0.55	0.51	0.4	0.48	0.54	0.48	0.5	0.55	0.48	0.46	0.53	0.5	0.49	0.45	0.4	0.5	0.43	0.53	0.54	0.5
<b>3/3/2015</b>	0.58	0.58	0.4	0.49	0.59	0.54	0.5	0.52	0.57	0.5	0.5	0.57	0.47	0.54	0.57	0.5	0.50	0.5	0.4	0.4	0.47	0.57	0.57	0.8
<b>3/4/2015</b>	0.56	0.56	0.4	0.51	0.57	0.52	0.5	0.59	0.56	0.47	0.6	0.57	0.48	0.58	0.58	0.5	0.58	0.44	0.3	0.5	0.38	0.55	0.57	0.6
<b>3/5/2015</b>	0.03	0.03	0.0	0.09	0.02	0.06	0.2	0.20	0.04	0.08	0.1	0.03	0.09	0.2	0.07	0.0	0.17	0.10	0.0	0.0	0.09	0.05	0.04	0.1
<b>3/6/2015</b>	0.05	0.05	0.0	0.02	0.06	0.04	0	0	0.05	0.02	0	0.05	0.02	0.00	0.04	0.0	0.00	0.02	0.0	0.0	0.01	0.05	0.04	0.0
<b>3/7/2015</b>	0	0	0	0.00	0	0.00	0.0	0.01	0	0.03	0.0	0.00	0.00	0.00	0.00	0	0.00	0.00	0	0	0.00	0.00	0.00	0
<b>3/8/2015</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/9/2015</b>	0.64	0.65	0.5	0.54	0.64	0.61	0.5	0.57	0.64	0.6	0.5	0.74	0.58	0.53	0.62	0.7	0.53	0.55	0.5	0.5	0.56	0.65	0.68	0.6
<b>3/10/201</b>	0.06	0.05	0.0	0.11	0.07	0.09	0.0	0.11	0.07	0.1	0.1	0.05	0.09	0.09	0.08	0.0	0.1	0.11	0.0	0.1	0.08	0.07	0.04	0.1
<b>3/11/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/12/201</b>	0.01	0.02	0	0	0.01	0.01	0	0	0.01	0	0	0.02	0	0	0	0.0	0	0	0	0	0	0.02	0.03	0
<b>3/13/201</b>	1.02	0.96	0.9	0.88	1	0.96	0.9	0.98	0.97	0.97	0.9	1.08	0.95	0.93	0.99	1.0	0.91	0.99	0.8	0.9	0.96	0.95	0.99	0.9
<b>3/14/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/15/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/16/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/17/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/18/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/19/201</b>	0.72	0.73	0.8	0.73	0.73	0.70	0.7	0.53	0.72	0.70	0.2	0.73	0.65	0.69	0.73	0.7	0.44	0.68	0.7	0.7	0.68	0.72	0.72	0.4
<b>3/20/201</b>	0.02	0.02	0	0.05	0.02	0.05	0.0	0.28	0.02	0.07	0.6	0.02	0.17	0.10	0.04	0.0	0.4	0.08	0.0	0.0	0.05	0.03	0.03	0.1
<b>3/21/201</b>	0	0	0	0	0	0	0.0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/22/201</b>	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/23/201</b>	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/24/201</b>	0.06	0.06	0.1	0.13	0.07	0.1	0.1	0.11	0.09	0.16	0.1	0.07	0.13	0.08	0.08	0.0	0.11	0.1	0.1	0.1	0.14	0.06	0.05	0.0
<b>3/25/201</b>	0.18	0.22	0.2	0.35	0.23	0.29	0.3	0.25	0.35	0.23	0.2	0.24	0.28	0.19	0.23	0.2	0.32	0.21	0.2	0.2	0.32	0.29	0.2	0.1
<b>3/26/201</b>	0.31	0.35	0.3	0.39	0.36	0.39	0.3	0.37	0.37	0.35	0.3	0.23	0.34	0.34	0.33	0.3	0.3	0.28	0.3	0.3	0.36	0.3	0.32	0.3
<b>3/27/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/28/201</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>3/29/201</b>	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0.0	0	0	0	0
<b>3/30/201</b>	0.09	0.11	0.1	0.15	0.08	0.14	0.1	0.11	0.11	0.14	0.1	0.06	0.14	0.13	0.11	0.1	0.13	0.12	0.0	0.1	0.07	0.08	0.07	0.0
<b>3/31/201</b>	0.52	0.52	0.4	0.46	0.54	0.48	0.4	0.46	0.51	0.44	0.4	0.53	0.45	0.46	0.51	0.5	0.46	0.41	0.3	0.4	0.38	0.51	0.52	0.4

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 21 - March 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
3/1/2015	0.539	0.484	0.468	0.476	0.388	0.461	0.449	0.453	0.506	0.472	0.413
3/2/2015	0.02	0.013	0.002	0.008	0.008	0.002	0.012	0.018	0.016	0.013	0.011
3/3/2015	0.559	0.493	0.522	0.542	0.441	0.495	0.499	0.513	0.532	0.504	0.462
3/4/2015	0.589	0.557	0.491	0.597	0.476	0.498	0.677	0.779	0.567	0.539	0.497
3/5/2015	0.579	0.583	0.517	0.59	0.4	0.566	0.573	0.627	0.552	0.511	0.431
3/6/2015	0.022	0.146	0.079	0.108	0.098	0.165	0.132	0.145	0.053	0.078	0.093
3/7/2015	0.06	0.019	0.028	0.022	0.016	0.002	0.012	0.012	0.044	0.035	0.025
3/8/2015	0	0.007	0	0	0.015	0.016	0.12	0.02	0.003	0.006	0.004
3/9/2015	0	0	0	0	0	0	0	0	0	0	0
3/10/2015	0.66	0.57	0.54	0.59	0.61	0.54	0.64	0.62	0.7	0.62	0.49
3/11/2015	0.06	0.09	0.09	0.1	0.1	0.08	0.09	0.06	0.06	0.07	0.09
3/12/2015	0	0	0	0	0	0	0	0	0	0	0
3/13/2015	0.01	0	0	0	0	0	0	0	0.03	0.02	0
3/14/2015	1.04	0.94	0.86	0.89	0.97	0.86	0.95	0.96	1.05	0.92	0.88
3/15/2015	0	0	0	0.01	0	0	0	0	0	0	0.01
3/16/2015	0	0	0	0	0	0	0	0	0	0	0
3/17/2015	0	0	0	0	0	0	0	0	0	0	0
3/18/2015	0	0	0	0	0	0	0	0	0	0	0
3/19/2015	0	0	0	0	0	0	0	0	0	0	0
3/20/2015	0.74	0.718	0.754	0.662	0.665	0.372	0.544	0.502	0.713	0.69	0.686
3/21/2015	0.02	0.081	0.02	0.052	0.083	0.465	0.124	0.092	0.046	0.089	0.081
3/22/2015	0	0	0	0	0	0	0	0	0	0	0
3/23/2015	0	0	0	0	0	0	0	0	0	0	0
3/24/2015	0	0	0	0	0	0	0	0	0	0	0
3/25/2015	0.08	0.09	0.15	0.14	0.11	0.14	0.13	0.12	0.06	0.1	0.11
3/26/2015	0.2	0.31	0.31	0.2	0.36	0.24	0.23	0.26	0.37	0.32	0.36
3/27/2015	0.36	0.35	0.31	0.34	0.37	0.34	0.36	0.36	0.37	0.36	0.37
3/28/2015	0	0	0	0	0	0	0	0	0	0	0.01
3/29/2015	0	0	0	0	0	0	0	0	0	0	0
3/30/2015	0	0	0	0	0	0	0	0	0	0	0
3/31/2015	0.1	0.16	0.14	0.14	0.1	0.13	0.13	0.15	0.1	0.1	0.11

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 22 - April 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	19	20	21	22	23	24
4/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/3/2015	0.1	0.12	0.09	0.07	0.11	0.09	0.07	0.09	0.07	0.04	0.1	0.15	0.08	0.07	0.07	0.09	0.08	0.08	0.03	0.12	0.02	0.05	0.15	0.03
4/4/2015	0	0.02	0.08	0.05	0	0.06	0.04	0.06	0.05	0.05	0.06	0.01	0.05	0.03	0.02	0.03	0.04	0.03	0.06	0.07	0.08	0.05	0	0.02
4/5/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/6/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/7/2015	0.15	0.14	0.03	0.06	0.2	0.08	0.1	0.04	0.13	0.06	0.04	0.12	0.04	0.14	0.14	0.13	0.04	0.04	0.06	0.02	0.05	0.11	0.14	0.02
4/8/2015	0.12	0.14	0.06	0.63	0.18	0.07	0.05	0.05	0.1	0.08	0.05	0.02	0.1	0.06	0.05	0.09	0.06	0.05	0.05	0.05	0.06	0.13	0.08	0.06
4/9/2015	0.02	0.03	0.02	0.03	0.03	0.05	0.04	0.02	0.02	0.03	0.02	0.01	0.04	0.03	0.02	0.02	0.03	0.04	0.03	0.02	0.04	0.02	0.02	0.02
4/10/2015	0.06	0.03	0.05	0.06	0.05	0.05	0.1	0.08	0.07	0.07	0.07	0.05	0.09	0.06	0.03	0.04	0.08	0.07	0.04	0.06	0.06	0.06	0.05	0.06
4/11/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/12/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/14/2015	0.12	0.17	0.1	0.14	0.15	0.12	0.12	0.12	0.13	0.09	0.08	0.17	0.11	0.12	0.12	0.14	0.13	0.12	0.11	0.09	0.08	0.12	0.16	0.08
4/15/2015	0.01	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/16/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/17/2015	0.11	0.12	0.19	0.2	0.13	0.11	0.16	0.15	0.12	0.17	0.13	0.19	0.19	0.13	0.16	0.15	0.17	0.09	0.13	0.2	0.12	0.13	0.17	0.13
4/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/19/2015	0	0.02	0.01	0.01	0	0.01	0.01	0.01	0.01	0.01	0.01	0	0.01	0.01	0	0.01	0.01	0.01	0.01	0	0.01	0.01	0.01	0.01
4/20/2015	2.06	1.88	2.13	2.1	1.94	1.79	1.78	1.9	1.95	1.97	1.49	2.4	2.14	1.82	1.81	2.2	1.87	1.96	1.9	1.91	1.88	1.77	1.81	2.09
4/21/2015	0.7	0.43	0.48	0.45	0.51	0.44	0.54	0.59	0.41	0.6	0.45	0.53	0.55	0.44	0.62	0.59	0.49	0.47	0.43	0.48	0.49	0.41	0.82	0.58
4/22/2015	0.05	0.09	0.12	0.12	0.04	0.16	0.15	0.13	0.16	0.14	0.06	0.03	0.1	0.1	0.07	0.11	0.1	0.09	0.14	0.1	0.15	0.13	0.04	0.14
4/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/27/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/28/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0
4/30/2015	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 23 – April 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
4/1/2015	0	0	0	0	0	0	0	0	0	0	0
4/2/2015	0	0	0	0	0	0	0	0	0	0.01	0
4/3/2015	0.11	0.05	0.1	0.04	0.04	0.03	0.04	0.06	0.08	0.02	0.02
4/4/2015	0.01	0.05	0.06	0.05	0.05	0.08	0.06	0.03	0.05	0.05	0.09
4/5/2015	0	0	0	0	0	0	0	0	0	0	0
4/6/2015	0	0	0	0	0	0	0	0	0	0	0
4/7/2015	0.13	0.14	0.03	0.03	0.09	0.05	0.06	0.03	0.13	0.07	0.07
4/8/2015	0.1	0.07	0.12	0.11	0.05	0.06	0.07	0.1	0.14	0.1	0.04
4/9/2015	0.02	0.04	0.02	0.02	0.03	0.04	0.03	0.03	0.04	0.04	0.03
4/10/2015	0.08	0.05	0.08	0.11	0.05	0.05	0.08	0.06	0.04	0.04	0.05
4/11/2015	0	0	0	0	0	0	0	0	0	0	0
4/12/2015	0	0	0	0	0	0	0	0	0	0	0
4/13/2015	0	0	0	0	0	0	0	0	0	0	0
4/14/2015	0.15	0.12	0.08	0.07	0.05	0.1	0.07	0.06	0.16	0.11	0.1
4/15/2015	0	0	0	0	0	0	0	0	0	0	0
4/16/2015	0	0	0	0	0	0	0	0	0	0	0
4/17/2015	0.14	0.13	0.2	0.13	0.1	0.15	0.11	0.1	0.14	0.11	0.11
4/18/2015	0	0	0	0	0	0	0	0	0	0	0
4/19/2015	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01
4/20/2015	2.01	1.95	2.03	2.13	1.87	1.75	1.93	2.03	1.88	1.703	1.86
4/21/2015	0.77	0.51	0.41	0.43	0.48	0.43	0.5	0.52	0.4	0.29	0.45
4/22/2015	0.06	0.12	0.1	0.11	0.13	0.13	0.16	0.16	0.14	0.12	0.17
4/23/2015	0	0	0	0	0	0	0	0	0	0	0
4/24/2015	0	0	0	0	0	0	0	0	0	0	0
4/25/2015	0	0	0	0	0	0	0	0	0	0	0
4/26/2015	0	0	0	0	0	0	0	0	0	0	0
4/27/2015	0	0	0	0	0	0	0	0	0	0	0
4/28/2015	0	0	0	0	0	0	0	0	0	0	0
4/29/2015	0	0	0	0	0	0	0	0	0	0	0
4/30/2015	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 24 – May 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	19	20	21	22	23	24
5/1/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/2/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/3/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/5/2015	0	0	0.02	0.07	0	0	0.12	0.07	0	0	0.0	0	0.0	0.1	0	0	0.0	0.1	0.0	0	0.1	0	0	0
5/6/2015	0.12	0.09	0	0	0.05	0.04	0.02	0	0.06	0	0	0.0	0	0.1	0	0.0	0	0.1	0.0	0	0.0	0.01	0	0
5/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/8/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/9/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/11/2015	0	0	0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
5/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/14/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/15/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/16/2015	0.27	0.41	0.01	0.01	0.41	0.15	0.19	0.09	0.26	0	0.0	0.7	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0	0.0	0.24	0.3	0
5/17/2015	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0.0	0
5/18/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/19/2015	0	0.01	0	0.01	0	0.02	0	0	0.01	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0.0	0.01	0.0	0.0
5/20/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/21/2015	0.14	0.13	0.15	0.16	0.27	0.12	0.17	0.16	0.12	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.11	0.1	0.0
5/22/2015	0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0
5/23/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/25/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/26/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/27/2015	0.26	0.02	0.09	0.18	0.96	0.26	0.28	0.12	0.49	0.3	0.0	0.6	0.0	0.2	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.40	0.5	0.2
5/28/2015	0	0	0	0.07	0.03	0	0.29	0.22	0	0.0	0.0	0	0.0	0.0	0	0	0.2	0.2	0.0	0	0.0	0.00	0	0
5/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/30/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5/31/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 25 - May 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
5/1/2015	0	0	0	0	0	0	0	0	0	0	0
5/2/2015	0	0	0	0	0	0	0	0	0	0	0
5/3/2015	0	0	0	0	0	0	0	0	0	0	0
5/4/2015	0	0	0	0	0	0	0	0	0	0	0
5/5/2015	0	0.04	0	0	0	0.03	0	0	0	0	0.04
5/6/2015	0.09	0.13	0	0	0	0	0	0	0.05	0.03	0.1
5/7/2015	0	0	0	0	0	0	0	0	0	0	0
5/8/2015	0	0	0	0	0	0	0	0	0	0	0
5/9/2015	0	0	0	0	0	0	0	0	0	0	0
5/10/2015	0	0	0	0	0	0	0	0	0	0	0
5/11/2015	0	0	0.02	0.02	0	0	0	0.01	0	0	0
5/12/2015	0	0	0	0	0	0	0	0	0	0	0
5/13/2015	0	0	0	0	0	0	0	0	0	0	0
5/14/2015	0	0	0	0	0	0	0	0	0	0	0
5/15/2015	0	0	0	0	0	0	0	0	0	0	0
5/16/2015	0.25	0.104	0	0.01	0.02	0.02	0	0.03	0.61	0.13	0.07
5/17/2015	0	0	0	0	0	0	0	0.01	0.01	0.01	0.01
5/18/2015	0	0	0	0	0	0	0	0	0	0	0
5/19/2015	0	0	0	0	0	0	0	0.01	0.01	0.02	0.02
5/20/2015	0	0	0	0	0	0	0	0	0	0	0
5/21/2015	0.15	0	0.13	0.09	0.02	0.1	0.07	0.06	0.12	0.08	0.08
5/22/2015	0.01	0	0	0	0	0	0.01	0	0	0.01	0
5/23/2015	0	0	0	0	0	0	0	0	0	0	0
5/24/2015	0	0	0	0	0	0	0	0	0	0	0
5/25/2015	0	0	0	0	0	0	0	0	0	0	0
5/26/2015	0	0	0	0	0	0	0	0	0	0	0
5/27/2015	0.56	0.163	0.12	0.06	0.12	0.34	0.22	0.11	0.24	0.2	0.18
5/28/2015	0	0	0	0	0.11	0.02	0	0.02	0	0	0.04
5/29/2015	0	0	0	0	0	0	0	0	0	0	0
5/30/2015	0	0	0	0	0	0	0	0	0	0	0
5/31/2015	0	0	0	0	0	0	0	0	0	0	0

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 26 - June 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	19	20	21	22	23	24
6/1/2015	1.7	1.78	1.3	1.3	1.6	2.3	1.3	1.4	2.0	1.4	0.76	1.5	1.3	1.2	1.4	1.5	1.4	1.6	1.6	1.5	1.5	2.07	1.8	1.3
6/2/2015	0.5	0.54	0.4	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.38	0.2	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.2	0.37	0.4	0.3
6/3/2015	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0.02	0.0	0.0
6/4/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/5/2015	0.0	0.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.01	0	0.0	0	0.0	0.0	0	0.0	0.0	0.4	0.0	0	0.0	0.0
6/6/2015	0.1	0.11	0.0	0	0.0	0	0.0	0.0	0	0.0	0.01	0	0.0	0	0	0.1	0.0	0	0.0	0	0	0	0.0	0.0
6/7/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/8/2015	0.5	0.54	0.6	0.4	0.5	0.7	0.5	0.6	0.4	0.7	0.60	0.5	0.5	0.4	0.6	0.6	0.5	0.6	0.4	0.5	0.7	0	0.6	0.7
6/9/2015	0.1	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.13	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.01	0.1	0.1
6/10/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/11/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/12/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0	0	0
6/13/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/14/2015	0.3	0.29	0.2	0.4	0.3	0.0	0.1	0.1	0.0	0.1	0.14	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.06	0.2	0.1
6/15/2015	0.0	0	0	0.0	0.0	0.1	0.0	0.0	0.1	0	0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0	0.0	0.0	0.11	0	0
6/16/2015	0.0	0	0	0.0	0	0.0	0.0	0.0	0	0	0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.3	0.0	0.00	0	0.2
6/17/2015	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0
6/18/2015	0.6	0.65	0.3	0.3	0.6	0.6	0.5	0.4	0.6	0.4	0.45	0.5	0.4	0.5	0.6	0.7	0.4	0.5	0.4	0.4	0.4	0.62	0.6	0.4
6/19/2015	0.0	0.09	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.17	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.08	0.1	0.0
6/20/2015	0.1	0.14	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.07	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.07	0.1	0.0
6/21/2015	0.5	0.53	0.4	0.4	0.6	0.5	0.4	0.5	0.6	0.5	0.49	0.5	0.4	0.4	0.6	0.6	0.4	0.7	0.4	0.4	0.4	0.41	0.6	0.5
6/22/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/23/2015	0.4	0.32	0.1	0.2	0.6	0.5	0.6	0.5	0.3	0.2	0.38	0.4	0.1	0.5	0.2	0.3	0.3	0.5	0.2	0.0	0.4	0.21	0.5	0.0
6/24/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/25/2015	0.1	0.17	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.27	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.11	0.1	0.2
6/26/2015	0	0.01	0.0	0	0	1.1	0.0	0.0	0.3	0.0	0.01	0	0	0.0	0	0.1	0	0.2	0.1	0	0.6	0	0	0
6/27/2015	1.5	1.37	1.6	1.8	2.2	1.9	1.6	1.7	1.6	1.6	1.69	1.2	1.7	1.6	1.8	1.8	1.6	1.7	1.8	1.5	2.3	0.94	1.1	1.3
6/28/2015	0.3	0.09	0.3	0.2	0.3	0.0	0.3	0.1	0.0	0.1	0.19	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.3	0.1	0.05	0.3	0.1
6/29/2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6/30/2015	1.0	1.91	0.3	0.3	0.4	1.4	0.3	0.2	1.5	0.2	0.33	0.3	0.2	0.5	0.9	0.9	0.3	1.0	0.7	0.1	0.1	0.84	0.4	0.2



CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

---

**Table 27 - June 2015 PWD Rain Gage Records**

Date/RG	25	26	27	28	29	30	31	32	33	34	35
6/1/2015	1.664	1.474	1.43	1.51	1.33	1.16	1.49	1.7	2.09	2.39	1.59
6/2/2015	0.462	0.398	0.39	0.41	0.41	0.3	0.38	0.33	0.52	0.33	0.27
6/3/2015	0.01	0.05	0	0	0.01	0.01	0	0.01	0.01	0.04	0.01
6/4/2015	0	0	0	0	0	0	0	0	0	0	0
6/5/2015	0.04	0.03	0.08	0.2	0.05	0.01	0.02	0.03	0.07	0.14	0.04
6/6/2015	0.12	0	0	0.01	0.01	0.01	0.01	0.13	0.01	0.01	0
6/7/2015	0	0	0	0	0	0	0	0	0	0	0
6/8/2015	0.63	0.55	0.54	0.82	0.97	0.61	0.6	0.81	0.53	0.55	0.66
6/9/2015	0.14	0.12	0.21	0.12	0.12	0.16	0.13	0.14	0.24	0.18	0.13
6/10/2015	0	0	0	0	0	0	0	0	0	0	0
6/11/2015	0	0	0	0	0	0	0	0	0	0	0
6/12/2015	0	0	0	0	0	0	0	0	0	0	0
6/13/2015	0	0	0	0	0	0	0	0	0	0	0
6/14/2015	0.42	0.09	0.17	0.15	0.13	0.14	0.18	0.16	0.13	0.05	0.08
6/15/2015	0.04	0.12	0.02	0	0.01	0	0	0.01	0.04	0.14	0.06
6/16/2015	0.02	0.06	0.14	0.32	0	0.01	0.05	0.04	0.07	0	0.22
6/17/2015	0	0	0	0	0	0	0	0	0	0	0
6/18/2015	0.63	0.54	0.35	0.45	0.5	0.41	0.52	0.43	0.73	0.63	0.49
6/19/2015	0.09	0.05	0.04	0.02	0.11	0.16	0.15	0.01	0.11	0.08	0.07
6/20/2015	0.14	0.09	0.06	0.03	0.1	0.08	0.07	0.05	0.2	0.18	0.1
6/21/2015	0.62	0.54	0.39	0.45	0.39	0.51	0.49	0.47	0.82	0.54	0.45
6/22/2015	0	0	0	0	0	0	0	0	0	0	0
6/23/2015	0.37	0.5	0.13	0.03	0.26	0.39	0.17	0.05	0.46	0.35	0.47
6/24/2015	0	0	0	0	0	0	0	0	0	0	0
6/25/2015	0.18	0.259	0.2	0.14	0.36	0.3	0.3	0.14	0.19	0.21	0.29
6/26/2015	0.03	0.048	0	0.01	0.13	0.03	0.01	0.01	0.04	0	1.76
6/27/2015	1.55	1.772	1.46	1.57	1.22	1.69	1.84	1.75	1.81	2.38	2.26
6/28/2015	0.31	0.243	0.21	0.24	0.48	0.09	0.09	0.1	0.1	0.09	0.11
6/29/2015	0	0	0	0	0	0	0	0	0	0	0
6/30/2015	1.08	0.799	0.2	0.17	0.07	0.77	0.48	0.15	1.66	0.19	0.22

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

**Table 28 - Rain Gage records by year and month for FY14-15**

Date/RG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Jul14	4.155	5.03	6.5	6.18	4.09	5	6.27	6.18	5.29	5.5	6.3	3.87	6.21	5.28	6.006	5.84	6.12	5.369
Aug14	3.63	3.61	1.9	2.58	3.32	2.62	2.89	2.206	2.94	2.14	1.88	3.2	1.78	2.54	2.9	2.92	2.24	2.81
Sep14	1.854	1.71	1.7	2.01	1.71	1.62	1.4	1.63	1.45	1.66	2.09	1.35	1.93	1.3	1.653	1.77	1.51	1.48
Oct14	2.799	2.56	3.45	3.97	2.31	2.9	2.82	2.77	2.8	3.26	3.05	2.13	3.2	2.63	2.74	3.3	3.01	3.14
Nov14	4.201	4.369	4.4	4.732	4.01	4.522	4.4	4.387	4.526	4.715	4.49	4.177	4.442	4.048	4.367	4.59	4.338	4.235
Dec14	3.31	3.5	3.75	4.29	3.49	3.46	3.45	3.55	3.59	3.9	3.64	3.22	3.84	3.46	3.36	3.61	3.51	3.31
Jan15	4.435	4.466	4.72	4.909	4.502	4.594	4.47	4.669	4.62	4.76	4.74	4.426	4.883	4.269	4.561	4.85	4.553	4.535
Feb15	2.345	2.342	2.13	2.282	2.375	2.243	2.25	2.27	2.322	2.159	2.35	2.352	2.205	2.198	2.313	2.38	2.278	2.06
Mar15	5.451	5.503	5.15	5.466	5.585	5.531	5.58	5.61	5.666	5.384	5.56	5.623	5.359	5.362	5.551	5.83	5.482	5.085
Apr15	3.5	3.19	3.36	3.92	3.34	3.03	3.23	3.24	3.22	3.31	2.56	3.68	3.5	3.01	3.11	3.6	3.1	3.05
May15	0.79	0.66	0.32	0.5	1.72	0.59	1.07	0.66	0.94	0.47	0.32	1.69	0.32	0.74	0.37	0.55	0.71	0.98
Jun15	8.55	8.758	6.53	7.03	8.95	10.58	7.27	7.17	8.92	6.86	6.207	6.34	6.5	6.6	7.88	8.81	6.7	8.52
<b>Total</b>	<b>45.02</b>	<b>45.698</b>	<b>43.91</b>	<b>47.869</b>	<b>45.402</b>	<b>46.69</b>	<b>45.1</b>	<b>44.342</b>	<b>46.284</b>	<b>44.118</b>	<b>43.187</b>	<b>42.058</b>	<b>44.169</b>	<b>41.437</b>	<b>44.811</b>	<b>48.05</b>	<b>43.551</b>	<b>44.574</b>
Date/RG	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	
Jul14	5.616	6.2	5.02	4.36	4.36	4.012	4.545	5.029	6.54	6.55	5.405	5.73	4.35	4.07	4.24	4.635	4.67	
Aug14	1.76	2.56	1.88	2.52	3.67	2.26	3.244	2.843	2	2.99	1.868	1.82	2.62	2.64	3.41	3.16	2.903	
Sep14	1.53	1.55	1.8	1.43	1.51	1.23	1.549	1.56	1.56	1.33	1.421	1.67	1.36	1.41	1.72	1.69	1.694	
Oct14	3.29	3.54	3.07	2.62	2.62	3.01	3.23	2.802	3.83	3.69	3.559	2.75	2.77	3.45	2.87	2.77	2.96	
Nov14	4.29	4.75	4.893	4.339	4.205	4.461	4.337	4.213	4.399	4.719	4.386	4.301	4.453	4.893	4.582	4.544	4.756	
Dec14	3.3	4.04	3.53	3.23	3.1	3.39	3.68	3.5	3.75	3.88	3.44	3.48	3.63	3.98	3.55	3.51	3.466	
Jan15	4.28	4.86	4.324	4.356	4.407	4.64	4.615	4.374	4.609	4.72	4.268	4.284	4.279	4.497	4.591	4.146	4.304	
Feb15	1.93	2.5	1.962	2.307	2.364	2.1	2.375	2.259	2.301	2.348	1.977	2.269	2.155	2.132	2.296	2.235	2.092	
Mar15	4.77	5.51	5.036	5.469	5.466	5.52	5.638	5.611	5.281	5.467	5.21	5.372	5.672	5.691	5.772	5.447	5.133	
Apr15	2.99	3.12	3.04	2.99	3.46	3.24	3.59	3.24	3.24	3.24	2.95	2.88	3.12	3.2	3.21	2.673	3	
May15	0.33	0.49	0.53	0.783	1.08	0.38	1.06	0.437	0.27	0.18	0.27	0.51	0.3	0.25	1.04	0.48	0.54	
Jun15	7.16	7.01	7.98	6.005	7.51	6.05	8.546	7.733	6.02	6.65	6.66	6.84	6.98	6.52	9.83	8.48	9.28	
<b>Total</b>	<b>41.246</b>	<b>46.13</b>	<b>43.065</b>	<b>40.409</b>	<b>43.752</b>	<b>40.293</b>	<b>46.409</b>	<b>43.601</b>	<b>43.8</b>	<b>45.764</b>	<b>41.414</b>	<b>41.906</b>	<b>41.689</b>	<b>42.733</b>	<b>47.111</b>	<b>43.77</b>	<b>44.798</b>	

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

---

**Table 29 - SSO Statistics for Period July 1 2014 – June 30 2015**

<b><u>Main &amp; Shurs</u></b>					
<b>Event No.</b>	<b>Start of Overflow Date Time</b>	<b>End of Overflow Date Time</b>	<b>Event Duration (hours:mins)</b>	<b>Flow Volume (ft^3)</b>	<b>Flow Volume (Millions of gallons)</b>
0			0	0	0

<b><u>PC-30</u></b>					
<b>Event No.</b>	<b>Start of Overflow Date</b>	<b>End of Overflow Date</b>	<b>Event Duration (hours:mins)</b>	<b>Flow Volume (ft^3)</b>	<b>Flow Volume (Millions of gallons)</b>
0			0	0	0

## **Appendix E – PCB PMP 8th Annual Report**

---



# PCB

## Pollutant Minimization Plan

---

### Eighth Annual Report

## Table of Contents

<i>Section</i>	<i>Page No.</i>
1 PMP Achievement Executive Summary	1
2 Facility and Contact Information	3
3 Revisions to PMP	4
4 Material and Process Modifications	5
5 Measures to Address Known, Probable and and Potential Sources	6
6 Incremental and Cumulative Changes from the Baseline Loading	9
7 Tabular Summary	10
Attachment A Data Graphs	12
Attachment B Potential Sources and Inspection Findings	25

# 1 *PMP Achievement Executive Summary*

The Philadelphia Water Department (PWP) 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, and Seventh Annual Reports for information on PMP efforts during Years 1, 2, 3, 4, 5, 6, and 7.

During the eighth year of our five-year PCB PMP, the following tasks were performed:

- Fifty-four (49) 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: Keith Houck  
Manager, Industrial Waste  
1101 Market St., 4th Floor  
Philadelphia, PA 19107

Phone: 215-685-4910  
Fax: 215-685-6232  
Email: [keith.houck@phila.gov](mailto:keith.houck@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 8

### 3 *Revisions to PMP*

During Year 8, no revisions were made to the PMP.

## 4 *Material and Process Modifications*

During Year 8 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 A 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 8 of the PMP, PWD's Industrial Waste Unit inspected twenty-one (21) of the NEWPCP-related sites, eight (8) of the SEWPCP-related sites and twenty-five (25) 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 B). 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. The software required to move forward with implementation is being tested for compatibility with the current Pretreatment database software (i.e. LINKO). Vendors have been brought in to review the status and provide updates.

### **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 are currently being 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). The monitoring performed at these township connections includes annual 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 8, 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:** Keith Houck  
**Phone:** 215-685-4910  
**Email:** keith.houck@phila.gov

**Date of Completeness Determination:**  
**Date of Initiation of PMP:**

January 12, 2006  
 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)						
<b>Discharger Computed Baseline</b>						
NEWPCP	11,510					
SEWPCCP	7,559					
SWWPCCP	10,970					
		N/A			N/A	
<b>2007</b>	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	
<b>2009</b>	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
SEWPCCP	3,435	4,287	4,124	3,272	54.6	43.3
SWWPCCP	7,334	5,690	3,636	5,280	33.1	48.1
<b>2010</b>	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
SEWPCCP	2,155	2,736	5,404	4,823	71.5	63.8
SWWPCCP	2,948	5,027	8,022	5,943	73.1	54.2
<b>2011</b>	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
SEWPCCP	4,135	1,368	3,424	6,191	45.3	81.9
SWWPCCP	10,270	4,280	700	6,690	6.4	61.0
<b>2012</b>	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
SEWPCCP	5,659	1,296	1,900	6,263	25.1	82.9
SWWPCCP	5,766	2,663	5,204	8,307	47.4	75.7
<b>2013</b>	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
SEWPCCP	2,803	2,599	4,756	4,960	62.9	65.6
SWWPCCP	3,673	3,040	7,297	7,930	66.5	72.3
<b>2014</b>	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
SEWPCCP	6,370	1,827	1,189	5,732	15.7	75.8
SWWPCCP	2,939	2,882	8,031	8,088	73.2	73.7

### 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 26, 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	
Inspections of "Potential Source" sites (Phila. Health Dept. list)	October 30, 2006	March 21, 2007	363 Completed
			31 of 31 Completed



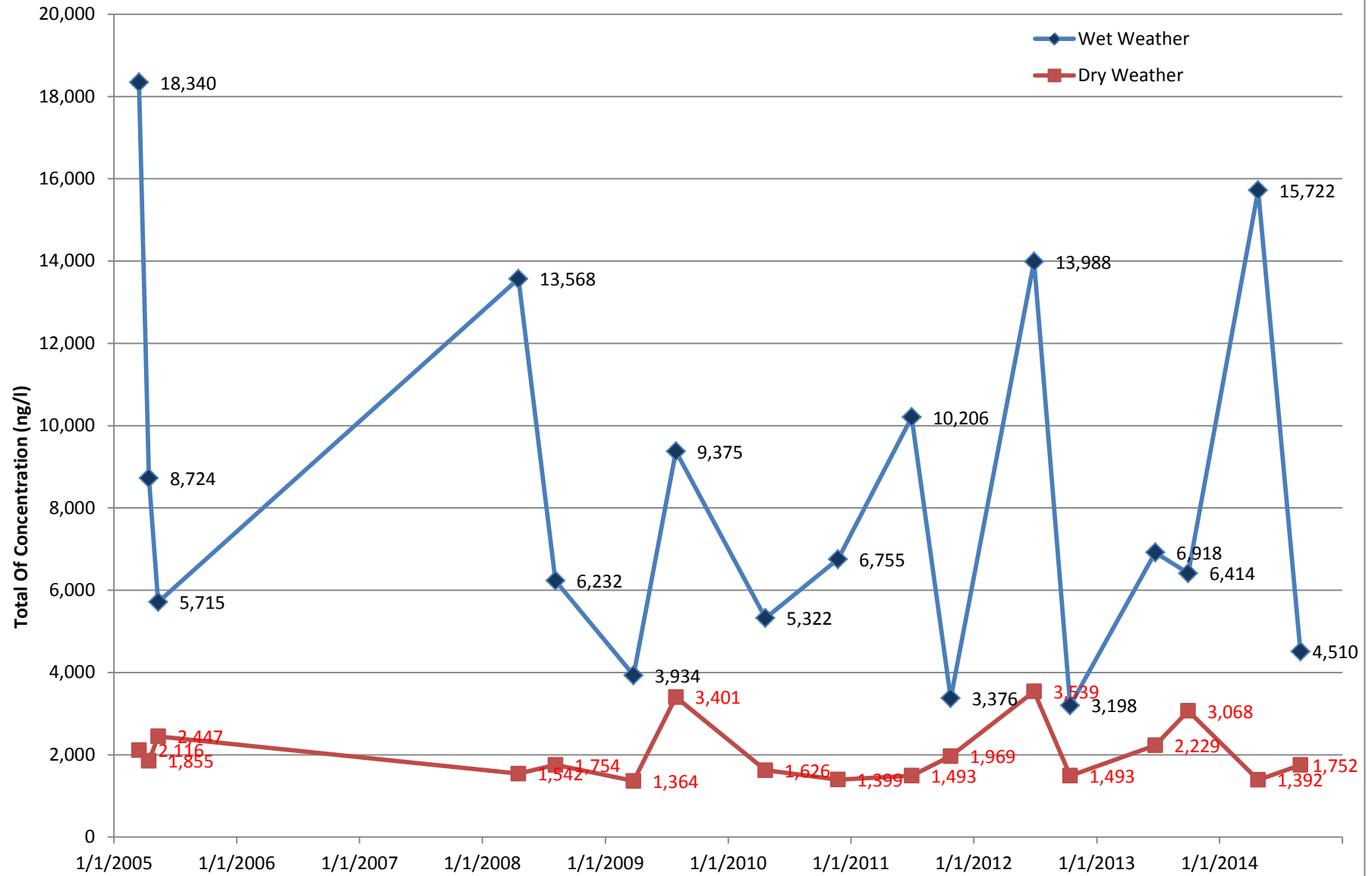
7 Tabular Summary

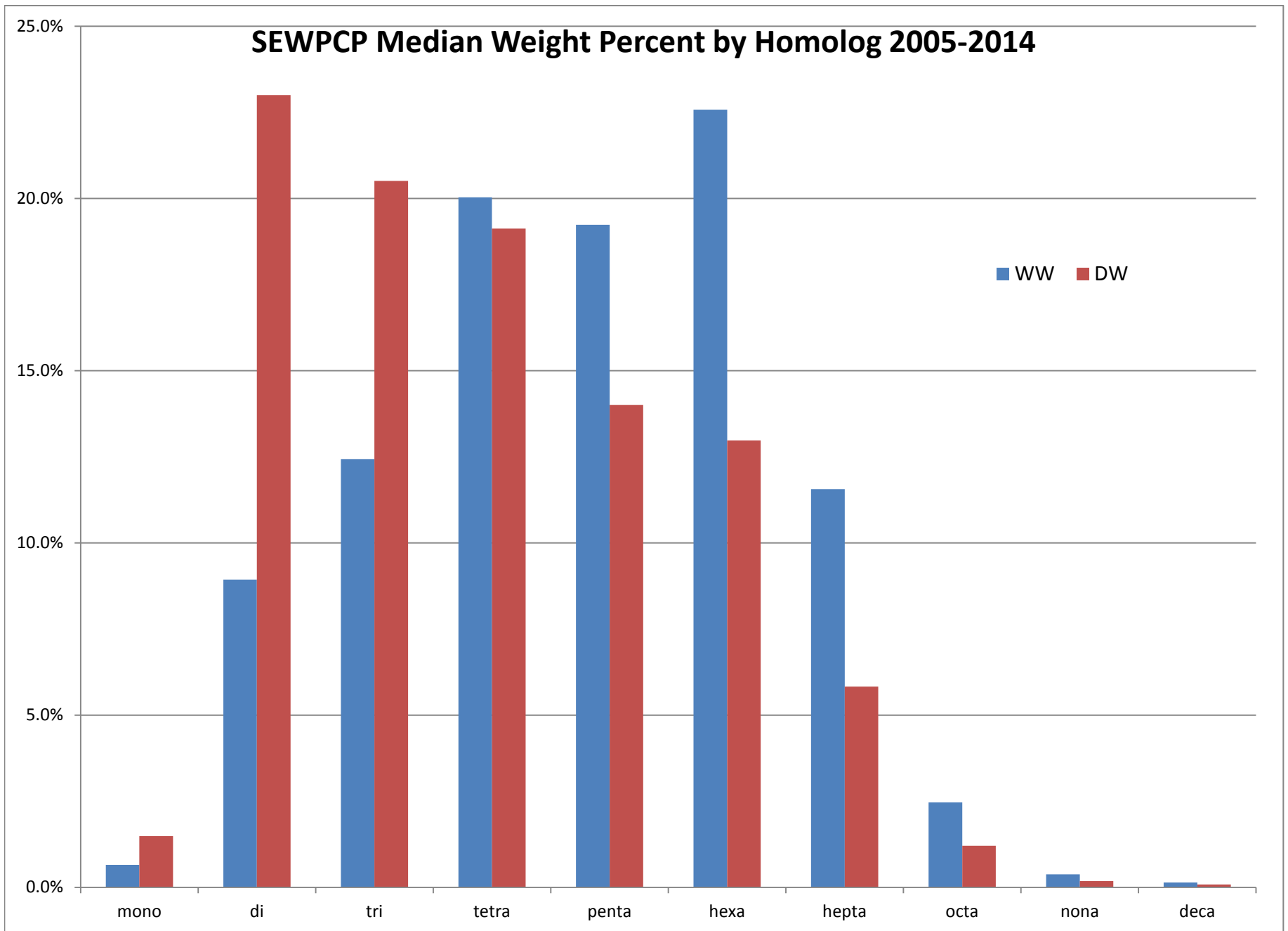
Sample Location	Date of Sample Collection	Date Results Received	Total PCBs (pg/l)	Penta-PCBs (pg/l)
SEWPCP Phase 2 Trackdown Sampling	October 17-20, 2006	May 1, 2007		
NEWPCP, SEWPCP & SWWPCP effluent	December 2-3, 2007	March 28, 2008		
NEWPCP			13,709	2340
SEWPCP			13,580	2233
SWWPCP			7,362	1,314
NEWPCP, 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 (November 27, 2013)	January 20, 2014		
NEWPCP			2,886	669
SEWPCP			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			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

Attachment A

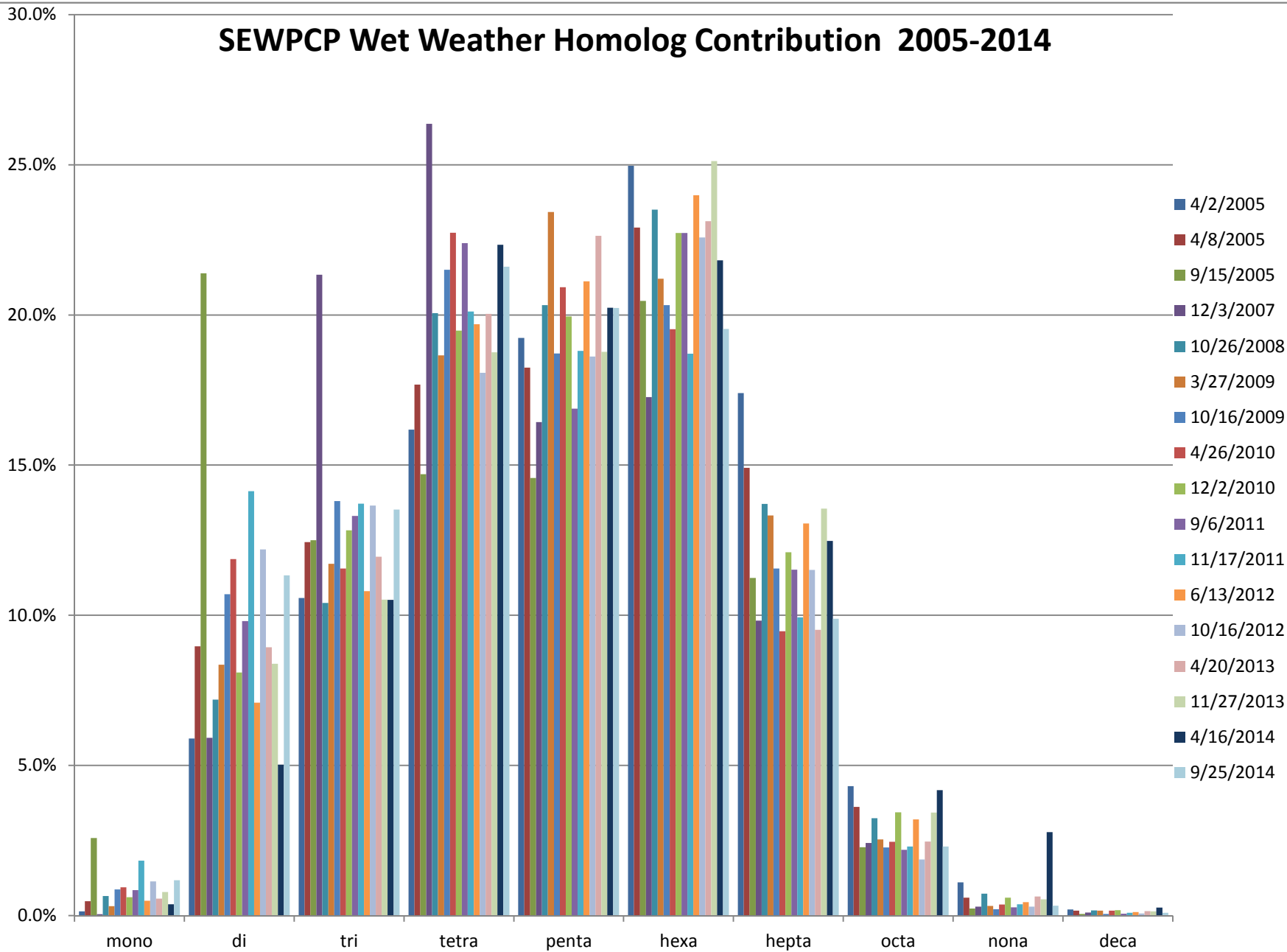
Data Graphs

# Total PCB Concentration PWD SEWPCP

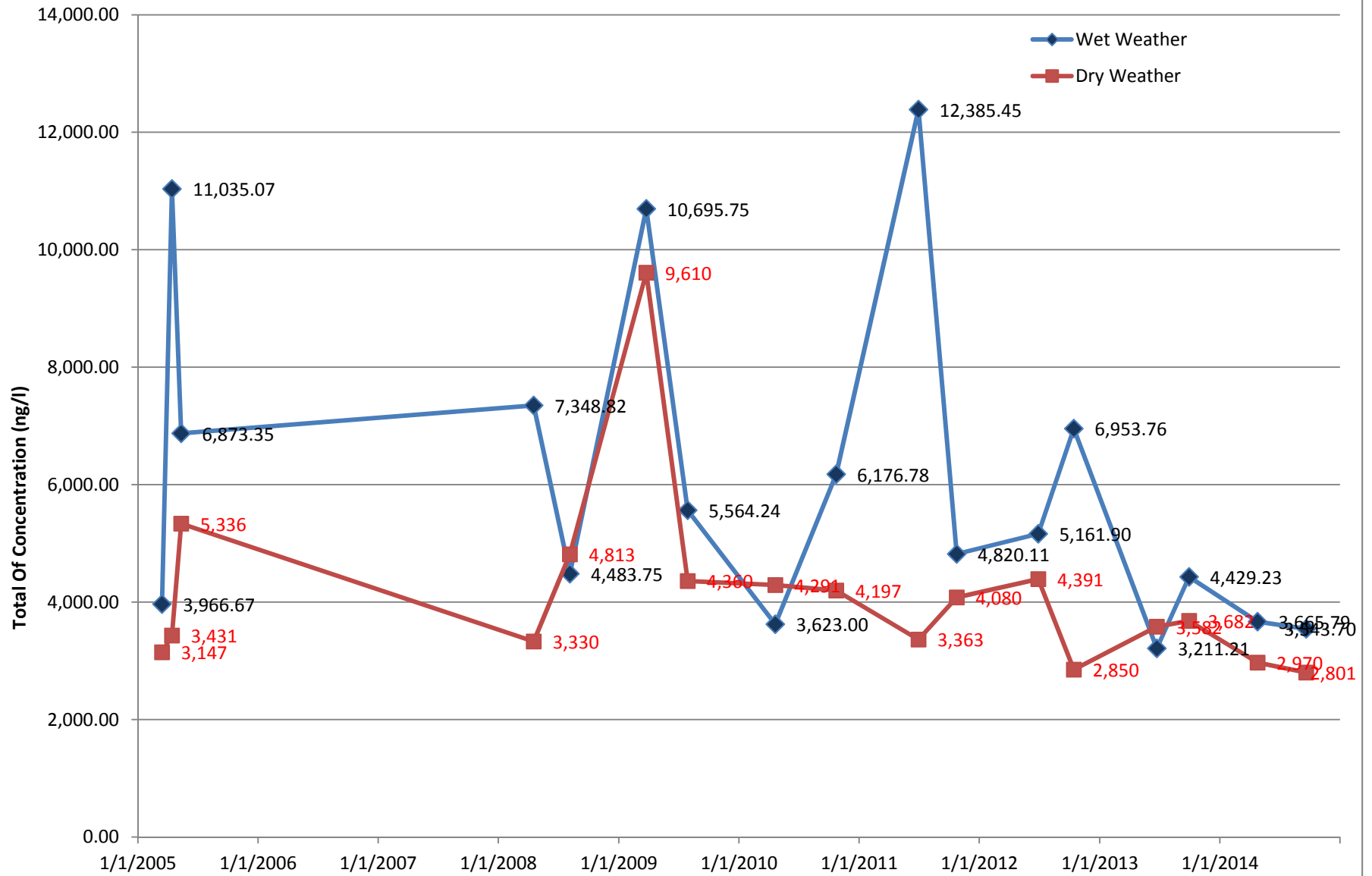


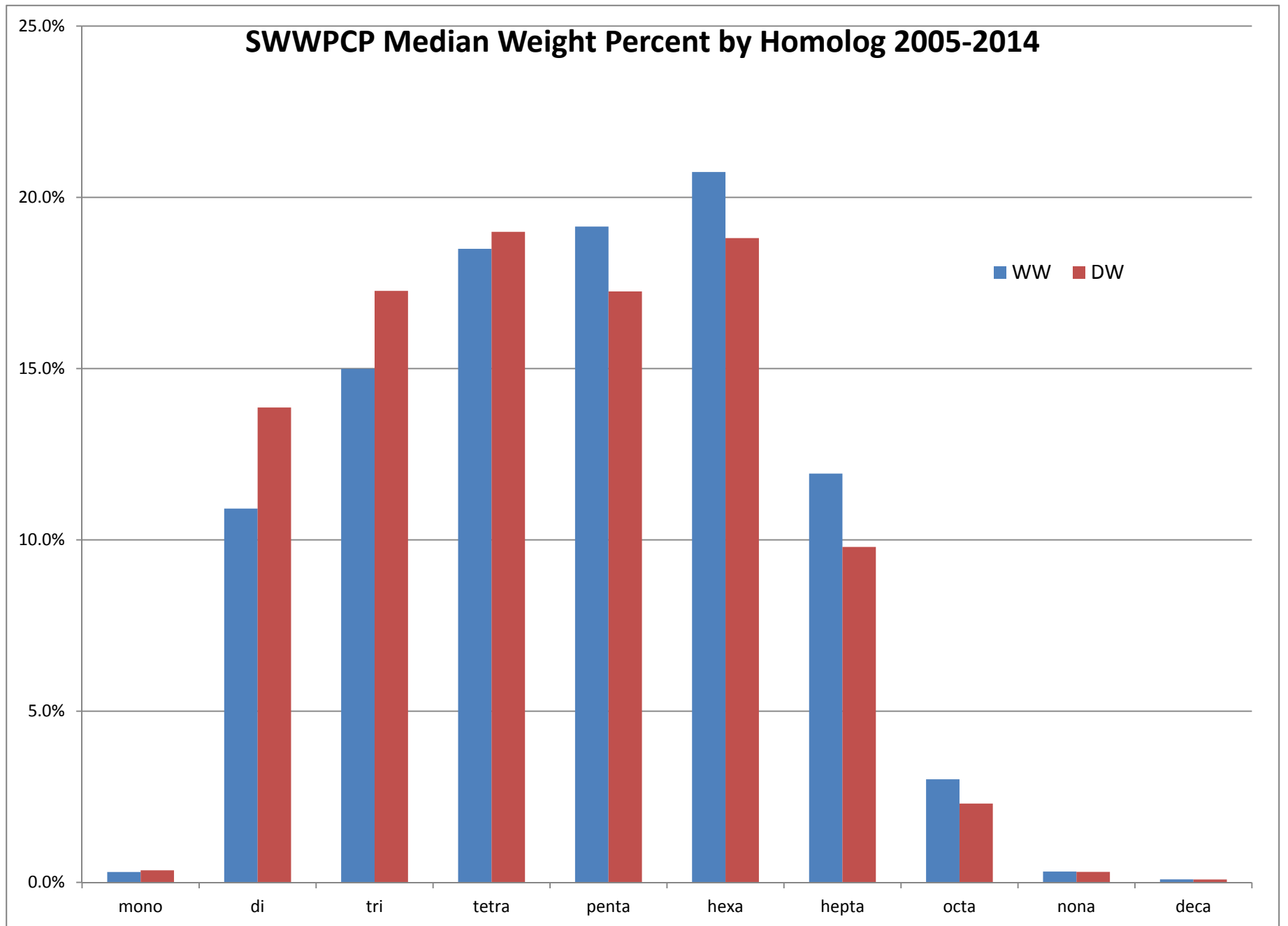


## SEWPCP Wet Weather Homolog Contribution 2005-2014

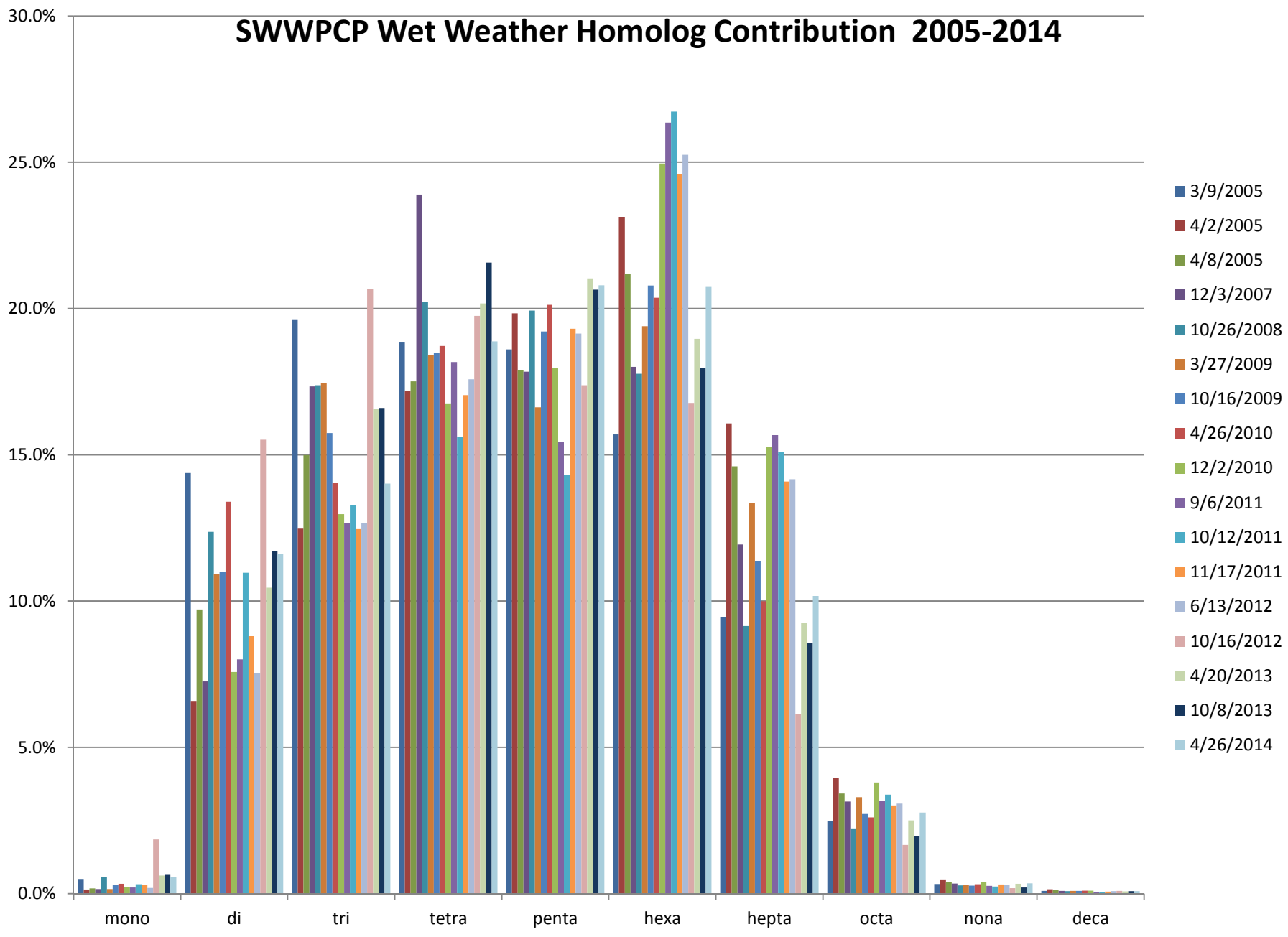


## Total PCB Concentration PWD SWWPCP



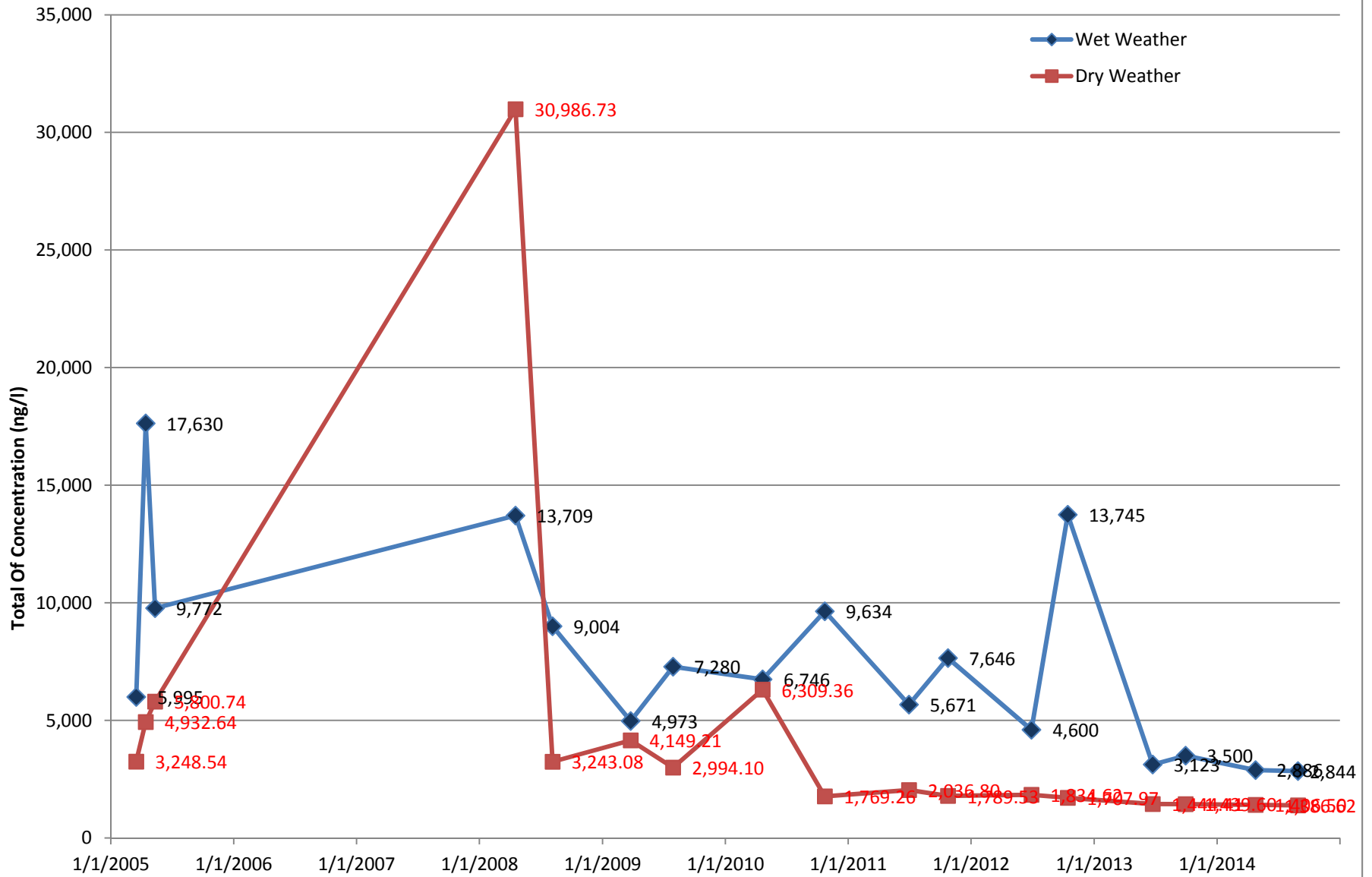


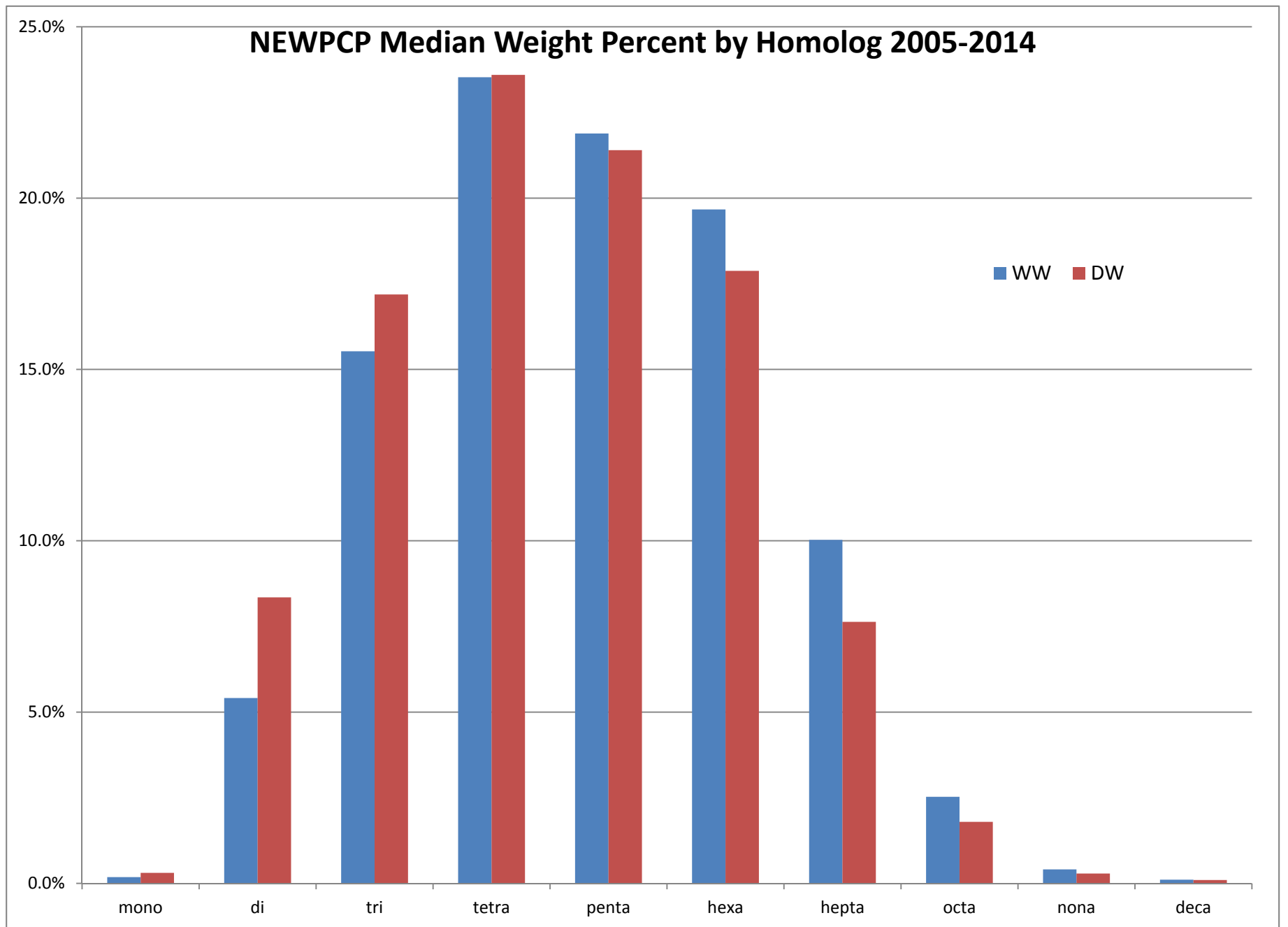
## SWWPCP Wet Weather Homolog Contribution 2005-2014



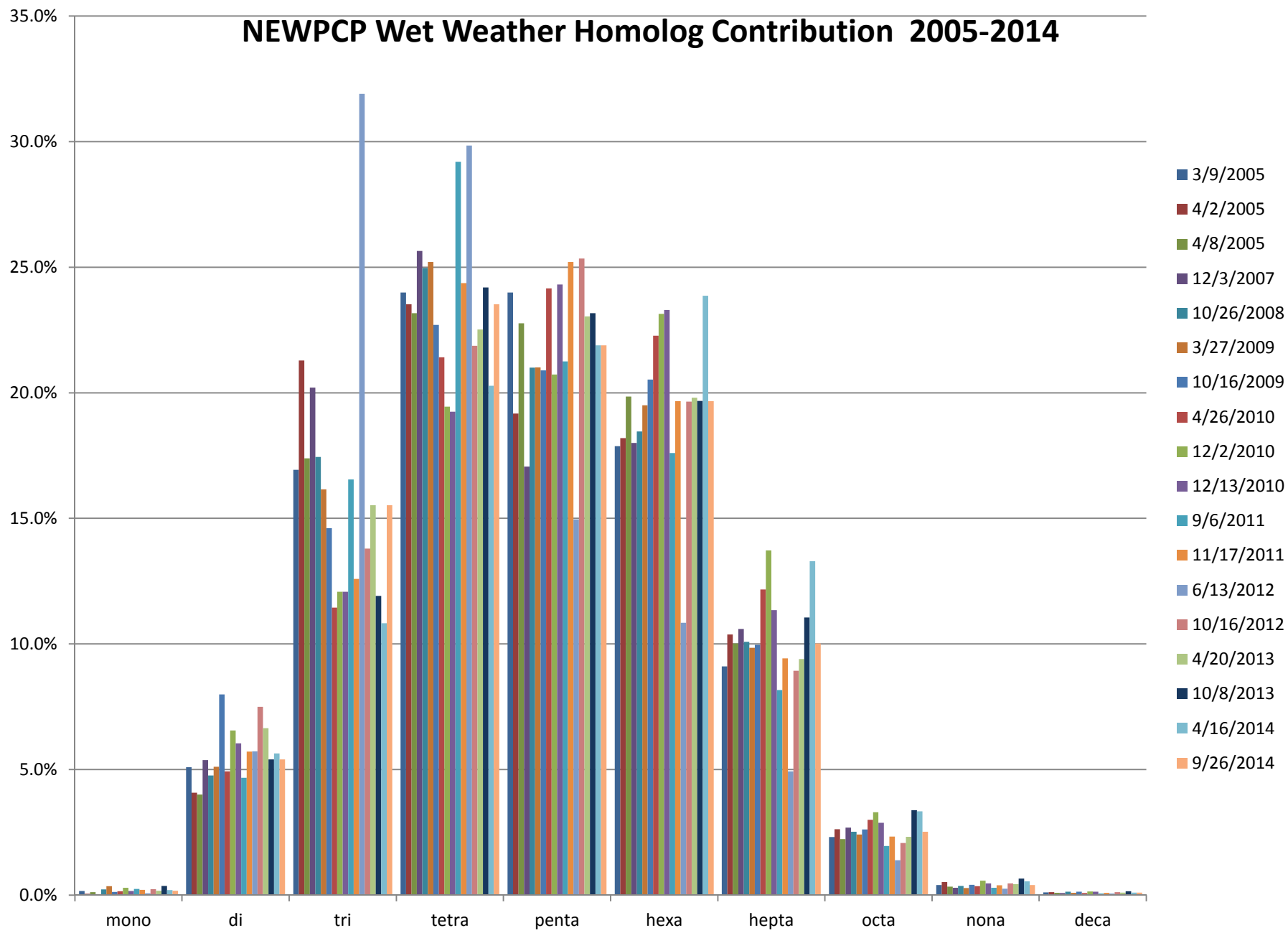


## Total PCB Concentration PWD NEWPCP

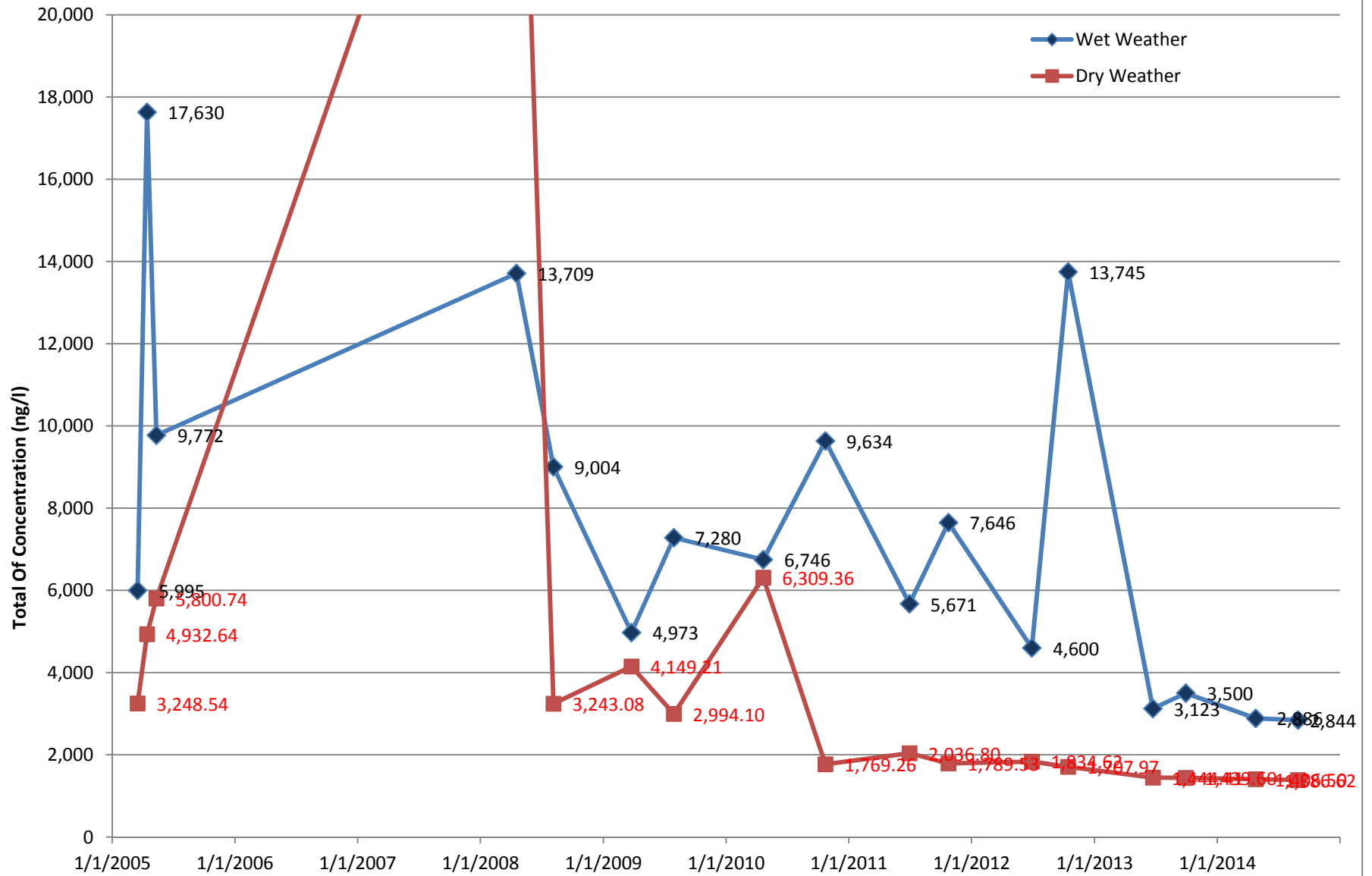




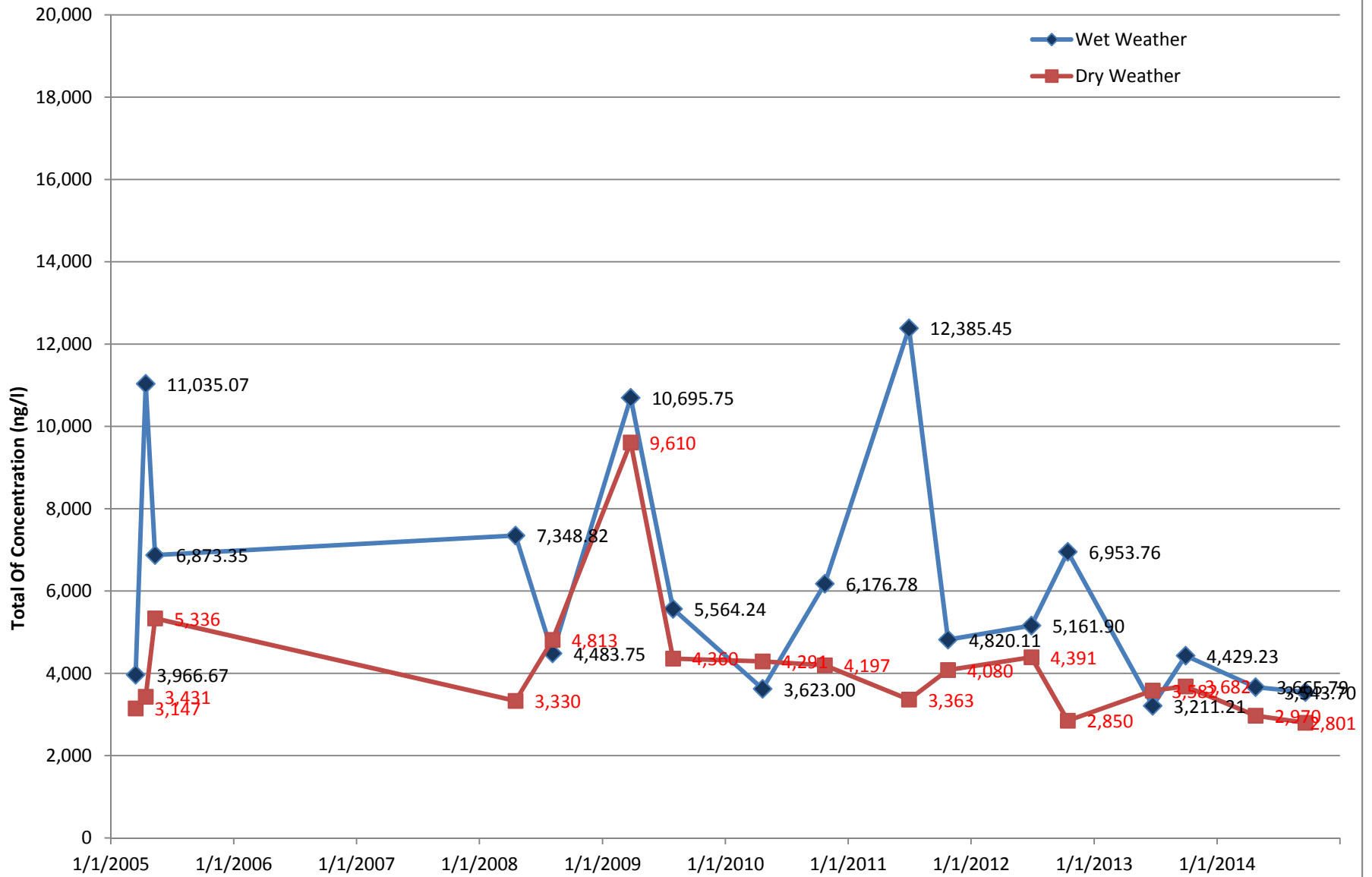
## NEWPCP Wet Weather Homolog Contribution 2005-2014



## Total PCB Concentration PWD NEWPCP



## Total PCB Concentration PWD SWWPCP



## 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

	A	B	C	D	E	F	G	H	I	J	K
1	Loc ID	Name	Address	Location	Contact	Equipment	Number	Aroclor	Conc	Gallons	Insp Date
4	SW-206	McNeill	7050 Camp Hill Rd	Fire pump	Kristen Egan	Transformer	1	1260	16	125	9/23/2014
5	SW-207	McNeill	7050 Camp Hill Rd	Outside CDC	Kristen Egan	Transformer	1		nd	221	9/23/2014
6	SW-208	McNeill	7050 Camp Hill Rd	WWTP	Kristen Egan	Transformer	1		nd	135	9/23/2014
7	SW-209	McNeill	7050 Camp Hill Rd	Admin B	Kristen Egan	Transformer	1	1260	17ppm	165	9/23/2014
8	SW-210	McNeill	7050 Camp Hill Rd	A	Kristen Egan	Transformer	1		nd	1373	9/23/2014
9	SW-211	McNeill	7050 Camp Hill Rd	B	Kristen Egan	Transformer	1		nd	1373	9/23/2014
10	SW-204	Starlite	1111 Lancaster Ave	1st Floor Trans rm	Jay Rosenbluth	Transformer			>50		9/25/2014
11	SW-213	Astra Foods	6430 Market Street	Boiler room T1	Demitri Poulmentous	Transformer	1				9/24/2014
12	SW-214	Astra Foods	6430 Market Street	South Bld. T4	Demitri Poulmentous	Transformer	1				9/24/2014
13	SW-215	Astra Foods	6430 Market Street	East Bld T5	Demitri Poulmentous	Transformer	1				9/24/2014
14	SW-216	Astra Foods	6430 Market Street	Centrifuge bld west of T4	Demitri Poulmentous	Transformer	1				9/24/2014
15	SW-218	Philadelphia Zoo	3400 W. Girard Ave	Kids ZooU	Steve Carrick	Transformer	1				7/9/2014
16	SW-219	Philadelphia Zoo	3400 W. Girard Ave	Picnic Grove	Steve Carrick	Transformer	1		<50		7/9/2014
17	SW-220	Philadelphia Zoo	3400 W. Girard Ave	African Plains 2	Steve Carrick	Transformer	1		<50		8/21/2014
18	SW-221	Philadelphia Zoo	3400 W. Girard Ave	Reptile House	Steve Carrick	Transformer	1				8/21/2014
19	SW-222	Philadaephia Zoo	3400 W. Girard Ave	Shelly Bld	Steve Carrick	Transformer	1				8/21/2014
20	SW-223	Philadelphia Zoo	3400 W. Girard Ave	Solitude	Steve Carrick	Transformer	1				8/21/2014
21	SW-223	Paperworks	5000 Flat Rock Road	T2 Pulper Loft	Gary Warren	Transformer	1		<500	940	10/14/2014
22	SW-224	Paperworks	5000 Flat Rock Road	T3 Bld 120	Gary Warren	Transformer	1		<50	390	10/14/2014
23	SW-225	Paperworks	5000 Flat Rock Road	T6 bld 132	Gary Warren	Transformer	1		<50	289	10/14/2014
24	SW-226	Paperworks	5000 Flat Rock Road	T10 bld 119 roof	Gary Warren	Transformer	1		<50	635	10/14/2014
25	SW-227	Paperworks	5000 Flat Rock Road	T11 bld 15	Gary Warren	Transformer	1		<50	359	10/14/2014
26	SW-228	Paperworks	5000 Flat Rock Road	Bld 118 roof	Gary Warren	Transformer	3				10/14/2014
27	SW-229	Paperworks	5000 Flat Rock Road	bld 115	Gary Warren	Transformer	56			56	10/14/2014
28	SW-212	G.J Littlewood	4045 Main Street	Vault	Dave Littlewood	Transformer	5			3x50/2x75	9/10/2014
29	SE-206	Ashland	2801 Columbus Blvd	Front Gate	Eric Weisbrod	Transformer	1		<50	300	6/25/2014
30	SE-207	Ashland	2801 Columbus Blvd	Roof of Bld. 10	Eric Weisbrod	Transformer	1		<50	238	6/25/2014
31	SE-205	Ashland	2801 Columbus Blvd	Main by nitrogen	Eric Weisbrod	Transformer	1		<4	370	6/25/2014
32	SE-204	Inolex	2101 Swanson St	Jackson St	Dave Olson	Transformer	1				6/4/2014
33	SE-208	Inolex	2101 Swanson St	Reactor Dock	Dave Olson	Transformer	3		>50		6/4/2014
34	SE-209	Inolex	2101 Swanson St	Waccocoe St	Dave Olson	Transformer	1		>50		6/4/2014
35	SE-210	Inolex	2101 Swanson St.	Railroad/Swanson St	Dave Olson	Transformer	1				6/4/2014
36	SE-211	Inolex	2101 Swanson St	A warehouse	Dave Olson	Transformer	3				6/4/2014
37	NE-206	Perfecseal	9800 Busleton Ave	outside bld rear	Pauline Smith	Transformer	4			3x100/1x720	11/13/2014
38	NE-231	Polysat	7240 State Rd	Outside	Jay Patel	Transformer	2		<50		10/21/2024
39	NE-204	SPD	13500 Roosevelt Blvd	transformer room	Dave Urda	Transformer	4	1260/1254	5 to 25 ppm	318x3/345	4/14/2014
40						Transformer					
41	NE-216	Thermacore	2000 Cabot Blvd. suite 150	bld. Rear	David O'Connor	Transformer	1				7/8/2014
42	NE-211	Delavau LLC	10101 roosevelt blvd	East side of Bld	James Hansen	Transformer	1		<50	258	9/17/2014
43	NE-210	Cintas	10080 Sandmeyer	back parking lot	Dennis Kelley	Transformer	2			2590 lbs	10/1/2014
44	NE-143	Thalheimer Brothers	700 E Godfrey Ave	Bundy Bld	Andy Pak	Transformer	5		<50 mg/l		1/21/2014
45	NE-66	Thalheimer Brothers	5550 Whitaker Ave	Scale House	Andy Pak	Transformer	1	Retrofilled	<50 mg/l		1/21/2014
46	NE-67	Thalheimer Brothers	700 E Godfrey Ave	Whse	Andy Pak	Transformer	2	Retrofilled	<50 mg/l		1/21/2014
47	NE-119	Thalheimer Brothers	5601 Tabor Ave	Outside	Andy Pak	Transformer	3		<50 mg/l		1/21/2014
48	NE-229	Thalheimer Brothers	5550 Whittaker Ave	Outside office area	Andy Pak	Transformer	2			45	1/21/2014
49	NE-224	Pepsi	11701 Roosevelt Blvd	Boiler Room	Todd Kelly	Capacitor	1				7/22/2014
50	NE-225	Pepsi	11701 Roosevelt Blvd	Outside	Todd Kelly	Transformer	1			465	7/22/2014
51	NE-207	Domestic Linen	4100 Frankford ave	Transformer Rm	Jerry Tannian	Transformer	2				
52	NE-226	Domestic Linen	4100 Frankford Avenue	outside	Jerry Tannian	Transformer	1				5/21/2014
53	NE-227	Amuneal	4737 Darragh St	Manufacturing area	Michelle Oleski	Capacitor	3				10/22/2014
54	NE-222	Allied Tube & Conduit	11350 Norcom Rd	In Electrical Rm	Donn Carroll	Transformer	4	Interteen		aprox. 300 each	6/10/2014



	A	B	C	D	E	F	G	H	I	J	K
55	NE-228	Allied tube & Conduit	11350 Norcom Rd	Loft	Donn Carroll	Capacitor	1				6/10/2014
56	NE-215	Dickler	4201 Torresdale Ave	Transformer Room	Ken Hamel	Transformer	1		<2ppm		9/11/2014
57	NE-223	Dickler	4201 Torresdale Ave		Ken Hamel	Capacitors	6		<2		9/11/2014
58	NE-22	General Electric International, Inc. (GEII)	1040 East Erie Avenue	General Electric International	Ana Adornao	Transformer	4				5/8/2014
59	NE-219	Henshell Corp.	2229 N. 19th street	Trans. Rm near Boiler	Kevin Maloney	Transformer	1	1260	407	175	9/5/2014
60	NE-220	Henshell Corp.	2229 N. 19th street	Trans. Rm near office	Kevin Maloney	Transformer	2			41	9/5/2014
61	NE-230	Henshell Corp.	2229 N. 19th street	Outside	Kevin Maloney	Transformer	1				9/5/2014
62											
63	Plant	Reinspected	New Inspections	Total							
64	Northeast	13	8	21							
65	Southeast	8	0	8							
66	Southwest	3	22	25							
67											
68				54 Total Inspections							

## **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 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:

### 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

## 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



**Figure 1.** Eroded stream bank at Poquessing Creek

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 streambeds 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



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

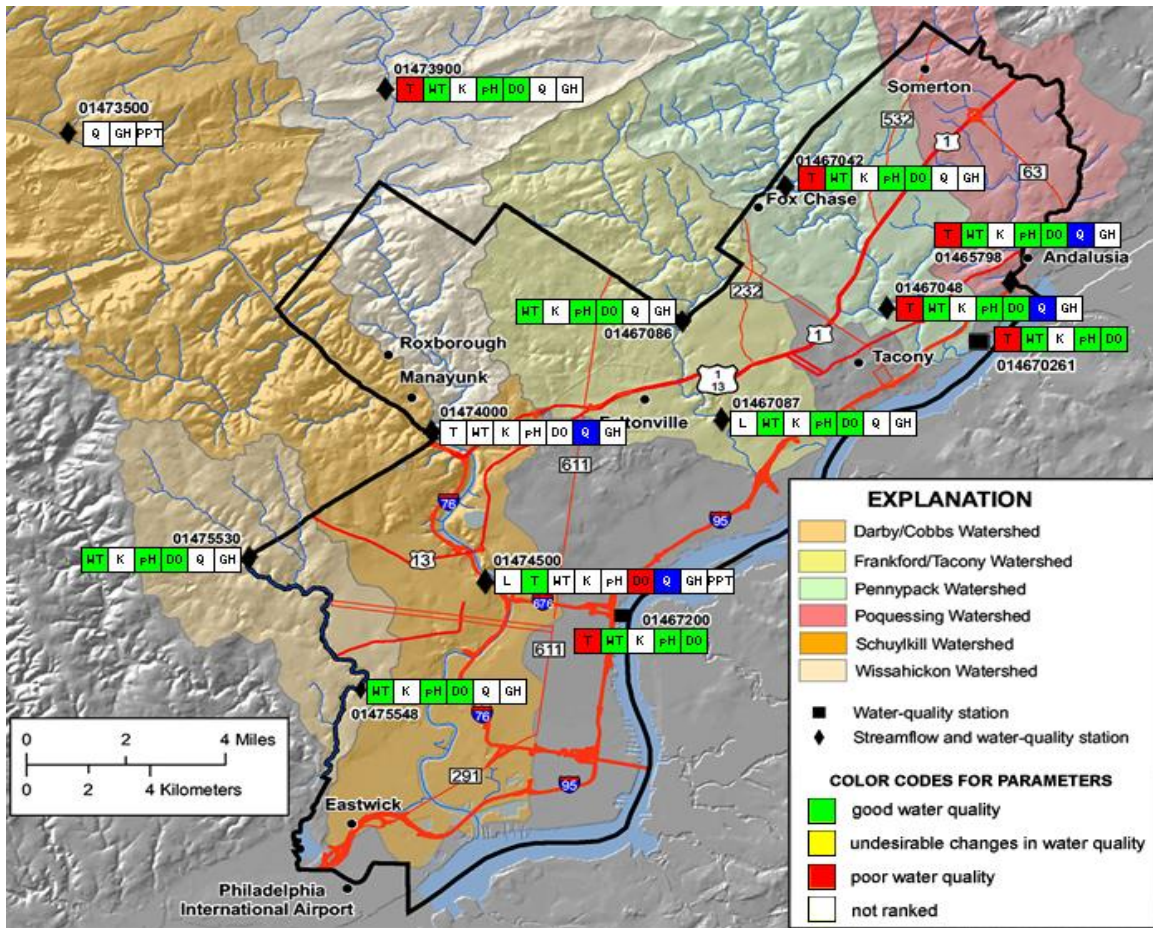
management practice that increases infiltration or detains flow will help decrease the frequency of damaging floods; however, the size of such structures may need to be increased in areas where flooding is a major concern. (Reductions in the frequency of erosive flows and velocities will also help protect the investment in stream restoration made as part of Target B.)

Target C must be approached somewhat differently from Targets A and B. Full achievement of this target means meeting all water quality standards during wet weather, as well as elimination of flood-related issues.

Meeting these goals will be difficult. It will be expensive and requires a long-term effort. A rational approach to achieve this target includes stepped implementation with interim goals for reducing wet weather pollutant loads and stormwater flows, along with monitoring for the efficacy of control measures.

### Monitoring Locations

Water quality samples are taken at 10 USGS gage sites in the USGS/PWD Cooperative Monitoring Program (Figure 2). Site identification codes used by PWD's Bureau of Laboratory Services (BLS)



**Figure 2.** Philadelphia Water Quality Gage Stations as Viewed on Cooperative USGS-PWD Website (<http://pa.water.usgs.gov/pwd/>)

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

and rivermile-based site ID codes are presented alongside USGS gage station numbers in Table 1. USGS stream gaging stations are ideal monitoring points as they allow discrete sample data to be coupled with continuous discharge data being collected year-round at these sites for loading estimate purposes. Furthermore, grab sample results and field meter readings taken at the time of grab sampling may be invaluable when evaluating continuous water quality data from these USGS gages.

as more GSI projects are completed over the coming years, the water quality data should gradually begin to reflect their positive environmental impacts.

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

**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

<b>Description</b>	<b>USGS Gage #</b>	<b>BLS Location ID</b>	<b>Site ID</b>
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

**Table 2.** PWD/USGS Quarterly Dry Weather Grab Sample Dates

<b>Sample Date</b>	<b>Season</b>	<b>Recreational Use Season</b>
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

## Quarterly Dry Weather Monitoring July 2009 – June 2015

### Sample Collection Dates

This report summarizes cumulative results from 25 sets of quarterly grab samples that were collected from June 2009 through June 2015. 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). PWD is not aware of any spills, discharges or unusual conditions that would cause misleading results in the water quality data from any of these grab samples.

### Nutrient Analysis

The macronutrients phosphorus and nitrogen are essential to the growth and overall survival of all plants. However, when occurring in surplus they can be extremely detrimental to aquatic ecosystems, and in turn to the human population that utilizes these water bodies for drinking water and recreational activities such as fishing, boating, and swimming. Elevated nutrient concentrations in rivers and streams can most often be attributed to anthropogenic pollution sources. In these situations, the most common sources of both nutrients are runoff from fertilized lawns/farmland and wastewater discharge.

The most immediate result of excessive nutrient concentrations in any natural water body is excessive plant growth, seen in a variety of growth forms from suspended algae to aquatic

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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 ( $\text{NH}_3$ ) or as ammonium ion ( $\text{NH}_4^+$ ), 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 ( $\text{NO}_3^-$ ) 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  $\text{NO}_3^-$  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  $\text{NH}_3$  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  $\text{NH}_3$  toxicity by approximately an order of magnitude). At pH 9.5 and above, even background concentrations of  $\text{NH}_3$  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.



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

## 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, which was 0.1 mg/L for samples collected in June 2009, 0.09 mg/L for samples collected in March and June 2014, and 0.05 mg/L for the remaining 22 quarterly samples collected to date (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 has been collected. The data seem to indicate a trend toward decreased nitrate

**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	0.059	0.050	0.019	0.050	0.100	25	24	1	24	Needs more evaluation
1467042	0.407	0.289	0.259	0.099	0.953	24	0	24	0	Non-attaining
1467048	0.284	0.209	0.200	0.057	0.852	25	0	25	0	Non-attaining
1467086	0.058	0.050	0.023	0.000	0.100	24	23	1	23	Needs more evaluation
1467087	0.060	0.050	0.023	0.011	0.117	25	20	4	20	Needs more evaluation
1473900	0.313	0.266	0.134	0.112	0.723	25	0	25	0	Non-attaining
1474000	0.176	0.168	0.070	0.050	0.414	24	2	22	2	Non-attaining
1474500	0.138	0.111	0.085	0.050	0.367	25	4	21	4	Non-attaining
1475530	0.058	0.050	0.020	0.019	0.100	25	24	0	23	Needs more evaluation
1475548	0.057	0.050	0.022	0.000	0.100	25	25	0	25	Needs more evaluation

NPDES Permit No. 0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix G – PWD Quarterly Dry Weather Water Quality Monitoring Program

Page 8 of 22

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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 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 16 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 25 of the 160 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 135 of the 160 sample results characterized as non-detects due to laboratory reporting limits, 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.

NPDES Permit No. 0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix G – PWD Quarterly Dry Weather Water Quality Monitoring Program

Page 9 of 22

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 4.** Nitrate Summary Statistics and Assessments. Concentrations are in mg/L.

<b>Gage</b>	<b>Mean</b>	<b>Median</b>	<b>Std. dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>n</b>	<b>n, non-detects</b>	<b>Exceedances, PADEP</b>	<b>Exceedances, Subcoregion</b>	<b>PADEP Assessment</b>	<b>EPA Subcoregion Assessment</b>
1465798	1.714	1.767	0.439	0.797	2.491	24	0	0	23	Attaining	Non-attaining
1467042	4.601	4.067	1.155	3.200	7.943	22	0	0	22	Attaining	Non-attaining
1467048	3.658	3.370	1.078	1.209	6.326	24	0	0	24	Attaining	Non-attaining
1467086	2.329	2.363	0.392	1.517	2.974	23	0	0	23	Attaining	Non-attaining
1467087	1.858	1.946	0.770	0.505	3.373	24	0	0	23	Attaining	Non-attaining
1473900	5.739	5.008	2.038	3.153	12.039	23	0	1	23	Needs more evaluation	Non-attaining
1474000	3.790	3.700	0.946	1.288	5.770	23	0	0	23	Attaining	Non-attaining
1474500	2.925	2.765	0.484	2.141	3.960	24	0	0	24	Attaining	Non-attaining
1475530	3.044	3.087	0.296	2.489	3.521	24	0	0	24	Attaining	Non-attaining
1475548	2.538	2.632	0.498	1.395	3.280	24	0	0	24	Attaining	Non-attaining

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 5.** Ammonia Summary Statistics and Assessments. Concentrations are in mg/L.

<b>Gage</b>	<b>Mean</b>	<b>Median</b>	<b>Std. dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>n</b>	<b>n, non-detects</b>	<b>Exceedances</b>
1465798	0.132	0.100	0.101	0.100	0.500	16	13	0
1467042	0.134	0.100	0.105	0.100	0.500	16	15	0
1467048	0.139	0.100	0.110	0.100	0.500	16	13	0
1467086	0.125	0.100	0.100	0.100	0.500	16	16	0
1467087	0.209	0.173	0.129	0.100	0.500	16	5	0
1473900	0.125	0.100	0.100	0.100	0.500	16	16	0
1474000	0.125	0.100	0.100	0.100	0.500	16	16	0
1474500	0.142	0.100	0.102	0.100	0.500	16	11	0
1475530	0.125	0.100	0.100	0.100	0.500	16	16	0
1475548	0.126	0.100	0.100	0.100	0.500	16	14	0

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

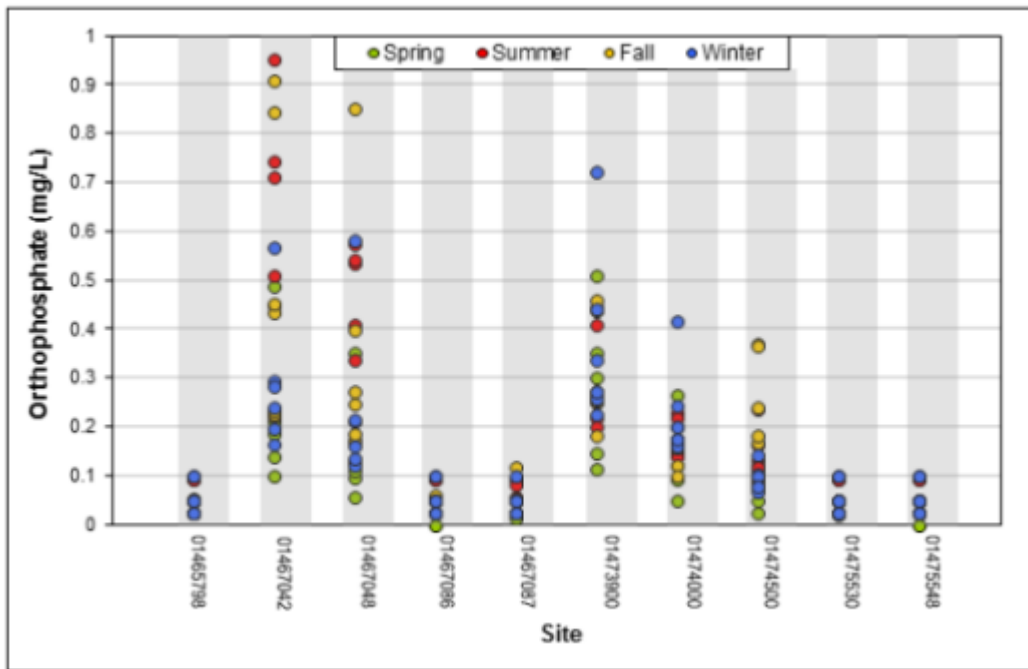


Figure 3. Orthophosphate concentration at 10 USGS gage stations, July 2009-June 2015

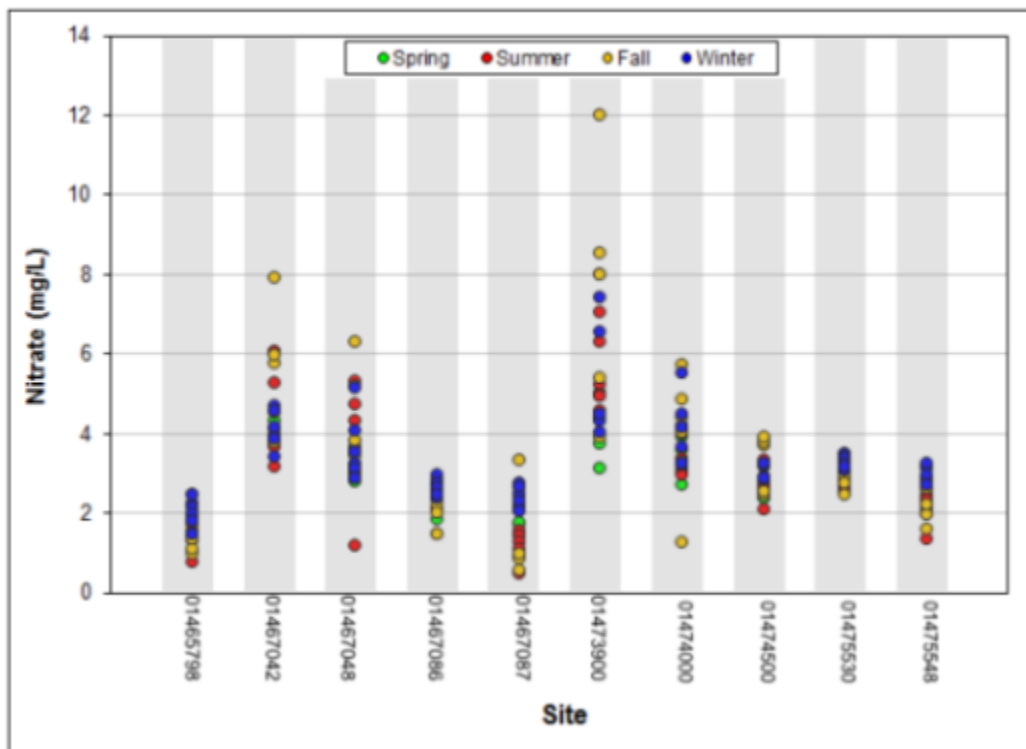


Figure 4. Nitrate concentration at 10 USGS gage stations, July 2009-June 2015

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

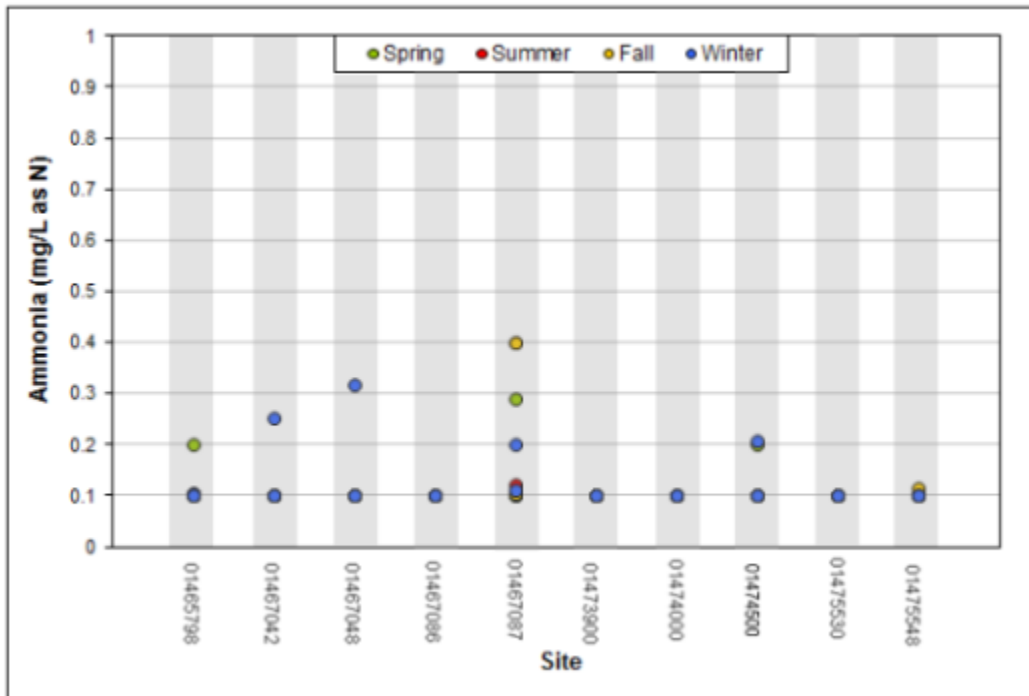


Figure 5. Ammonia concentration at 10 USGS gage stations, September 2011-June 2015

## 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).

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 6.** Fecal Coliform Geometric Mean Results and PA DEP Water Quality Recreational Use Criteria Achievement Status by Season

<b>Gage</b>	<b>n</b>	<b>n, non-detects</b>	<b>Geometric mean (CFU/100 mL)</b>	<b>Season</b>	<b>Attaining Standard</b>
1465798	13	1	47	non-swimming	Yes
1465798	12	0	562	swimming	No
1467042	13	1	29	non-swimming	Yes
1467042	12	0	311	swimming	No
1467048	13	0	375	non-swimming	Yes
1467048	12	1	1578	swimming	No
1467086	13	0	243	non-swimming	Yes
1467086	12	0	1144	swimming	No
1467087	13	0	236	non-swimming	Yes
1467087	12	0	584	swimming	No
1473900	13	0	45	non-swimming	Yes
1473900	12	0	289	swimming	No
1474000	13	1	21	non-swimming	Yes
1474000	12	0	127	swimming	Yes
1474500	13	1	29	non-swimming	Yes
1474500	12	2	61	swimming	Yes
1475530	13	1	80	non-swimming	Yes
1475530	12	0	354	swimming	No
1475548	13	0	108	non-swimming	Yes
1475548	12	0	958	swimming	No



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	161	73	No	No
01467042	1	0	95	47	Yes	No
01467048	0	0	773	114	No	No
01467086	1	0	454	103	No	No
01467087	1	1	333	73	No	No
01473900	0	0	124	76	Yes	No
01474000	1	1	47	21	Yes	Yes
01474500	4	2	38	9	Yes	Yes
01475530	1	0	155	123	No	No
01475548	1	0	274	102	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 2009-2015 indicate a fair correlation between fecal coliform and *E. coli* ( $r = 0.81$ ), and weaker correlations between fecal coliform and enterococci ( $r = 0.25$ ), 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.

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

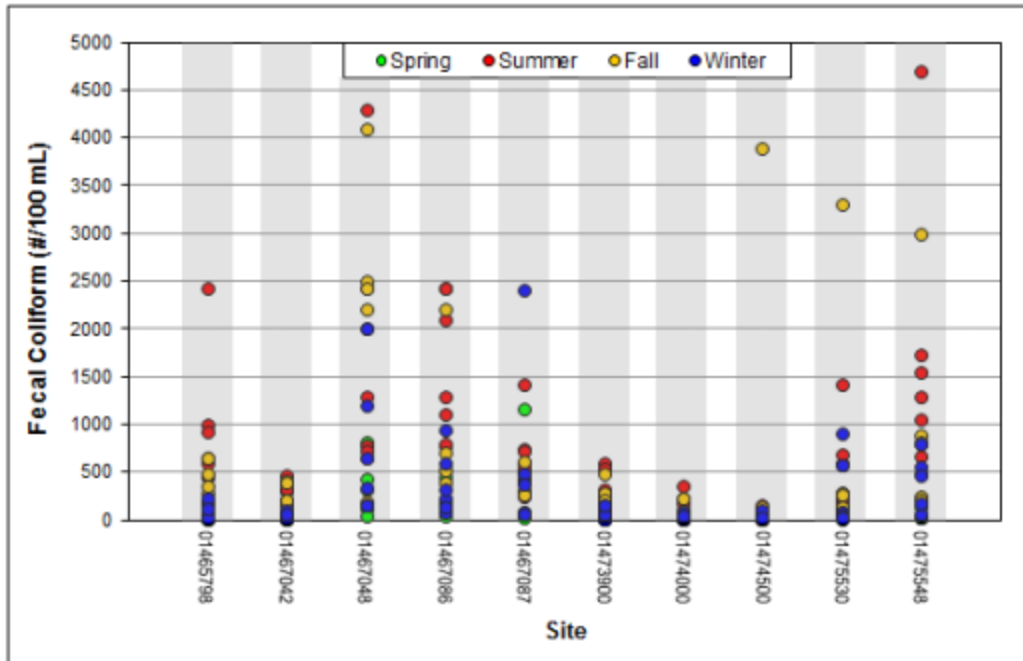


Figure 6. Fecal Coliform results at 10 USGS gage stations, July 2009-June 2015

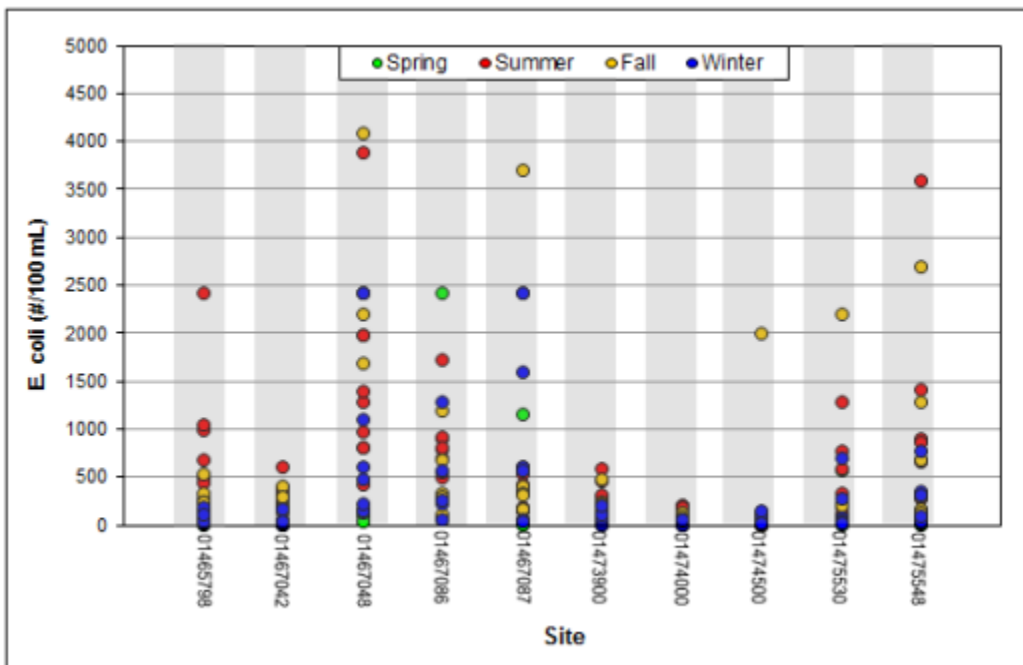
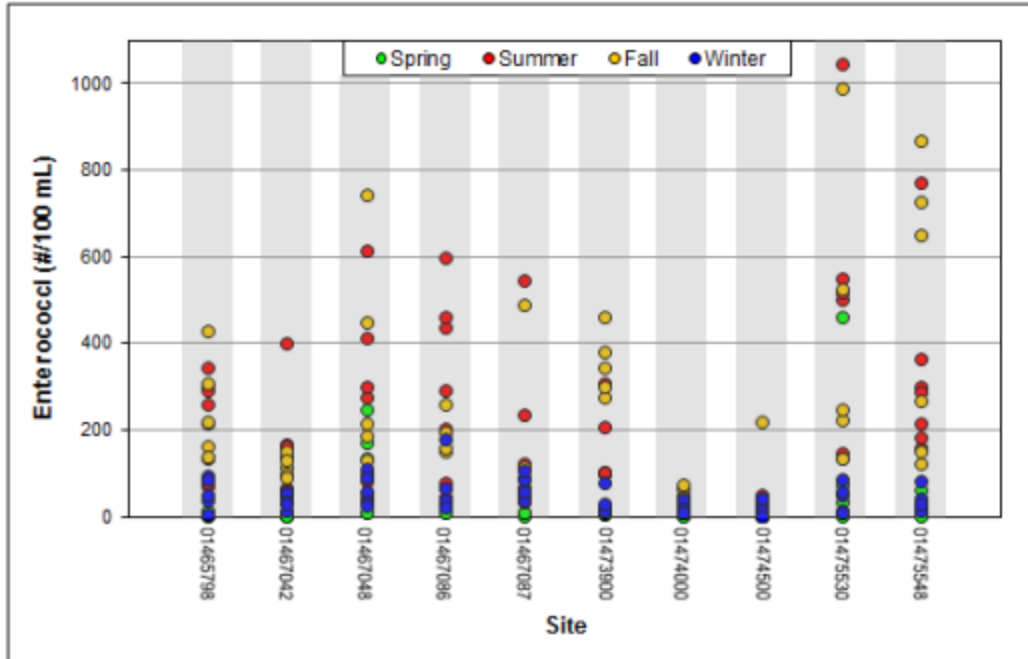


Figure 7. E. coli results at 10 USGS gage stations, July 2009-June 2015

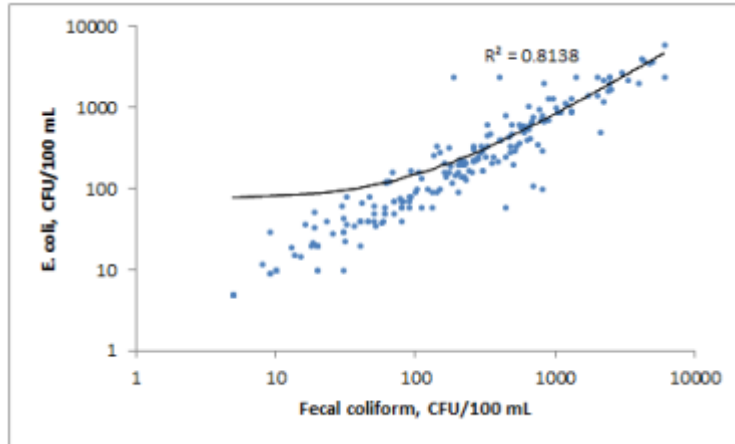
CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



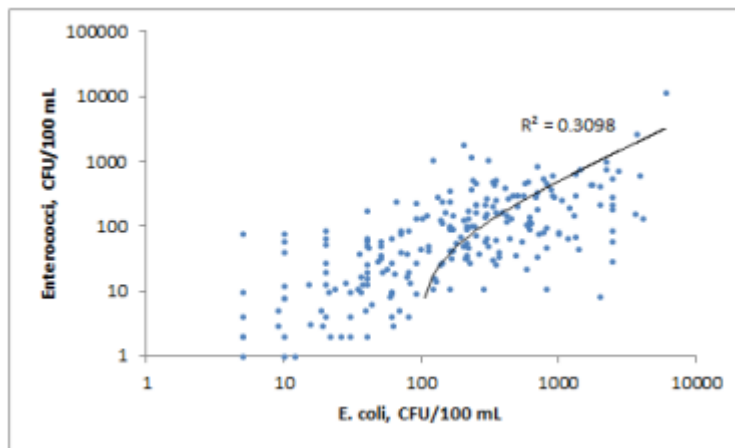
**Figure 8.** Enterococci results at 10 USGS gage stations, July 2009-June 2015

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

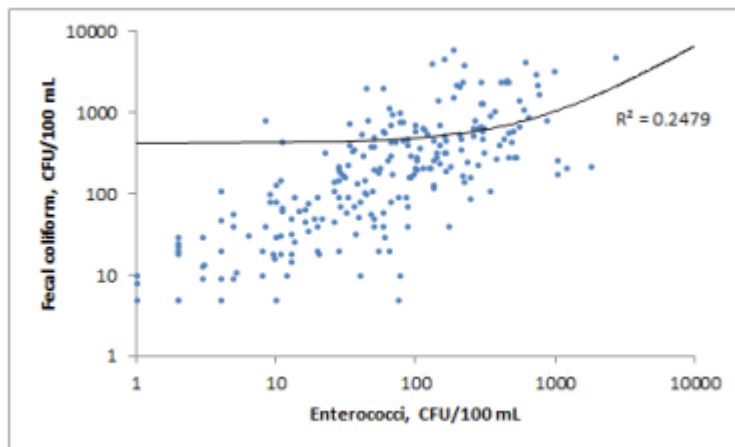
---



**Figure 9.** Scatterplot of 2009-2015 Correlating E. coli and Fecal coliform (x-y axes plotted in log10 scale)



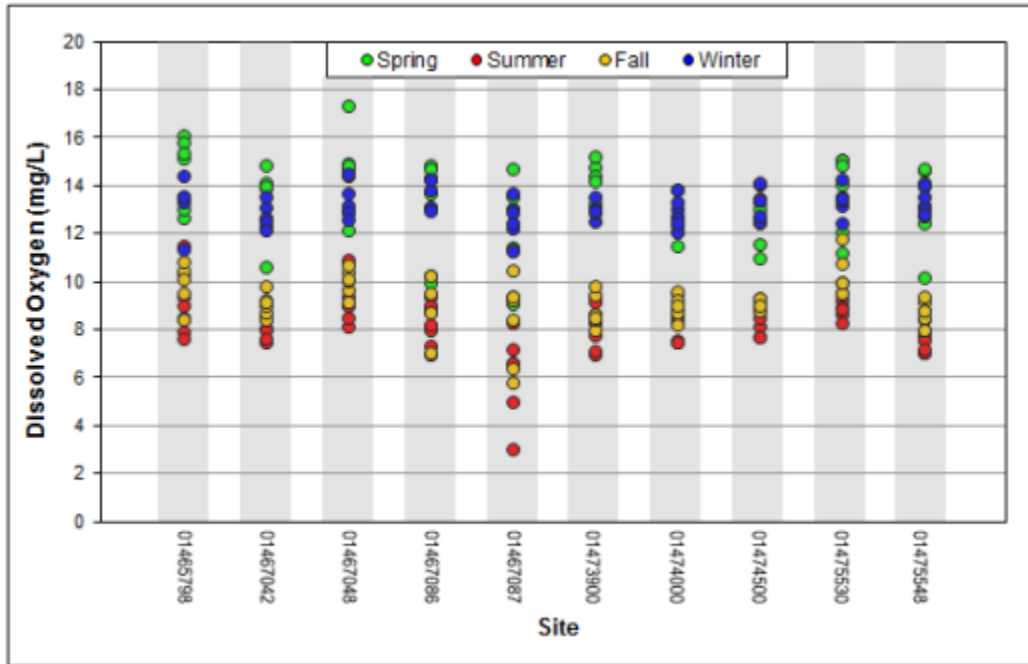
**Figure 10.** Scatterplot of 2009-2015 Correlating Enterococci and E. coli (x-y axes plotted in log10 scale)



**Figure 11.** Scatterplot of 2009-2015 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.



**Figure 12.** Dissolved oxygen results at 10 USGS gage stations, July 2009-June 2015

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

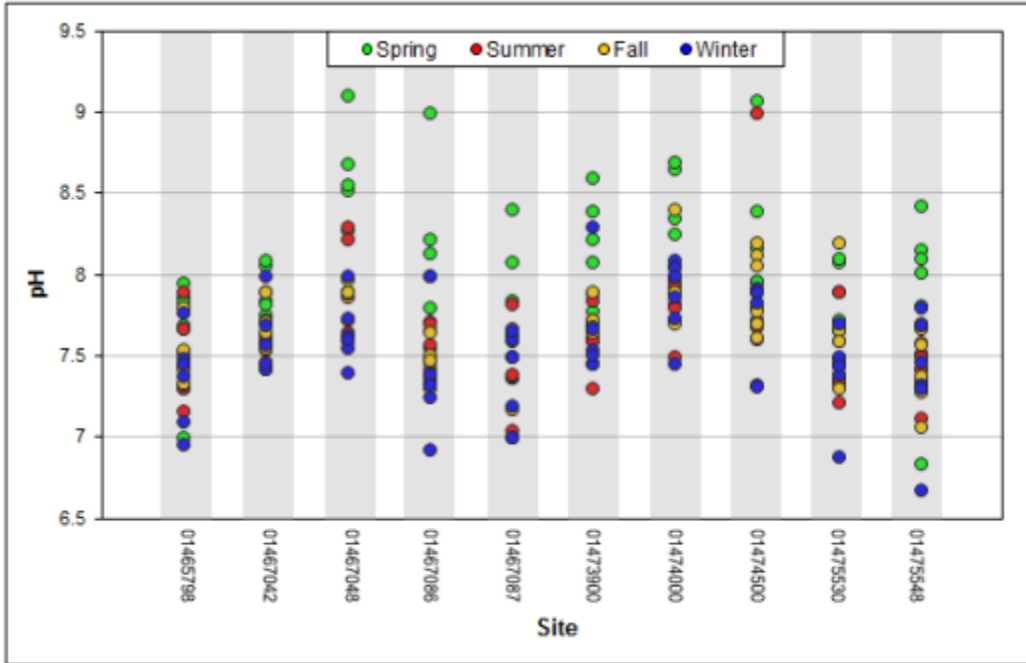


Figure 13. pH results at 10 USGS gage stations, July 2009-June 2015

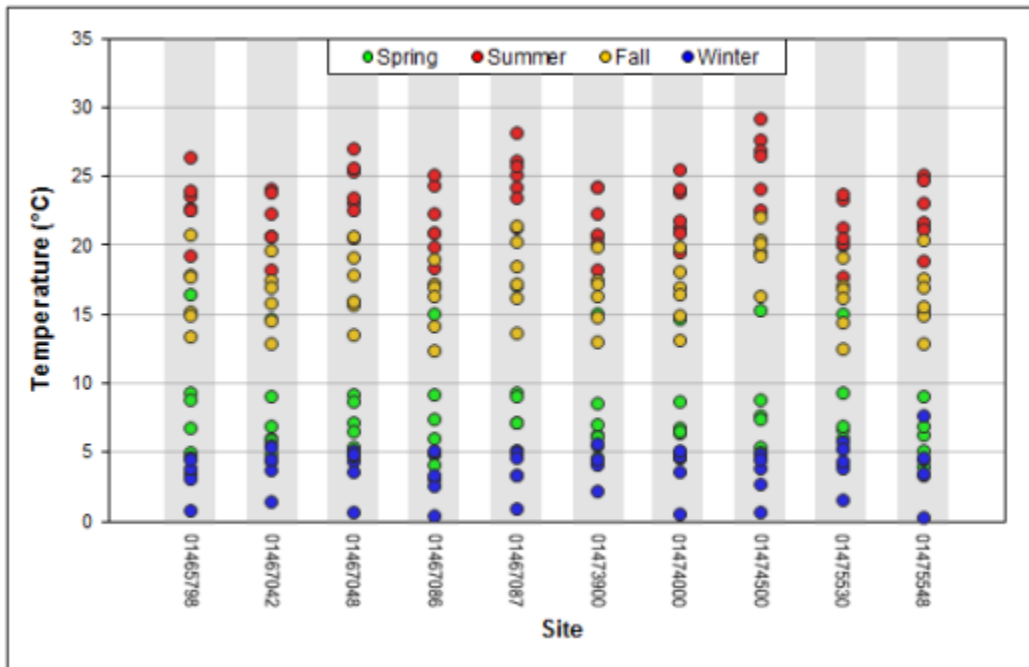
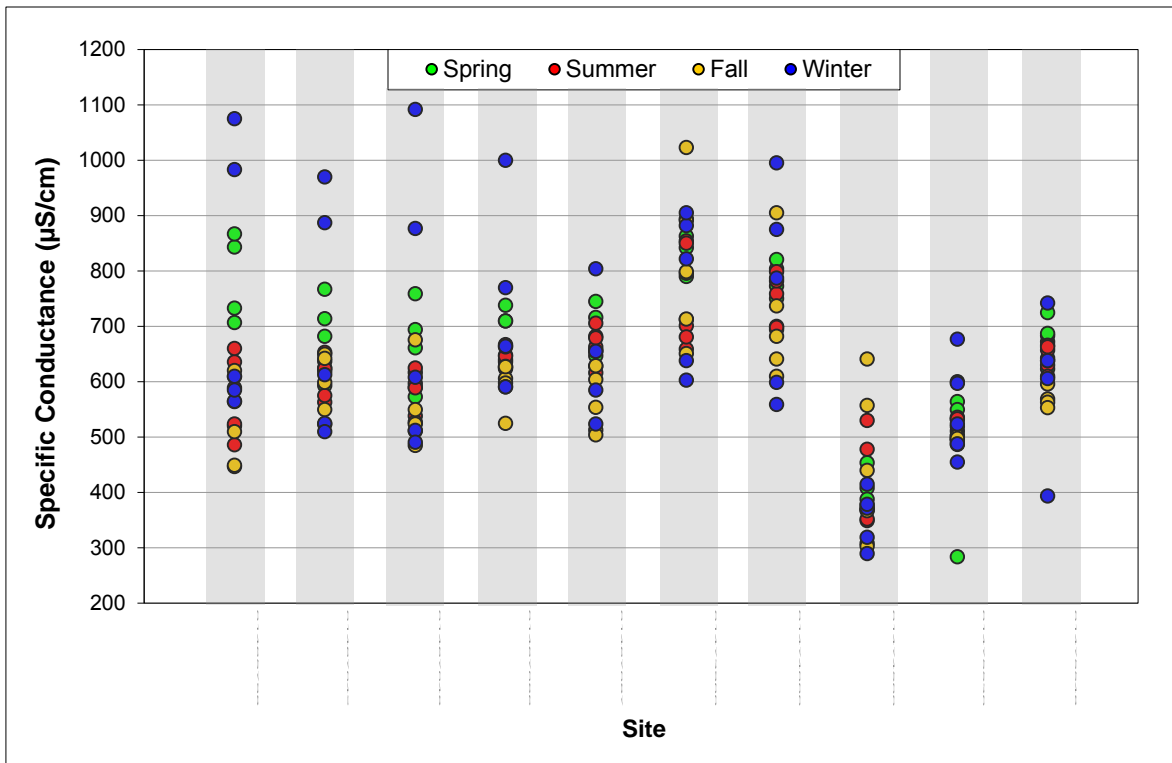


Figure 14. Temperature results at 10 USGS gage stations, July 2009-June 2015

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 15.** Specific conductance results at 10 USGS gage stations July 2009-June 2015

## 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 F –**  
**MONITORING LOCATIONS**

	Page
Figure - 1 Biological and Physical assessment locations in Cobbs Creek Watershed.....	2
Figure - 2 Chemical monitoring locations in Cobbs Creek Watershed .....	3
Figure - 3 Biological and Physical assessment locations in Pennypack Watershed .....	4
Figure - 4 Chemical monitoring locations in Pennypack Watershed .....	5
Figure - 5 Biological and Physical assessment locations in Poquessing-Byberry Watershed .....	6
Figure - 6 Chemical monitoring locations in Poquessing-Byberry Watershed .....	7
Figure - 7 Biological and Physical assessment locations in Tacony-Frankford Watershed .....	8
Figure - 8 Chemical monitoring locations in Tacony-Frankford Watershed.....	9
Figure - 9 Biological and Physical assessment locations in Wissahickon Watershed .....	10
Figure - 10 Chemical monitoring locations in Wissahickon Watershed .....	11
Figure - 11 Chemical monitoring locations in Delaware Estuary and Lower Schuylkill River Watershed .....	12



CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

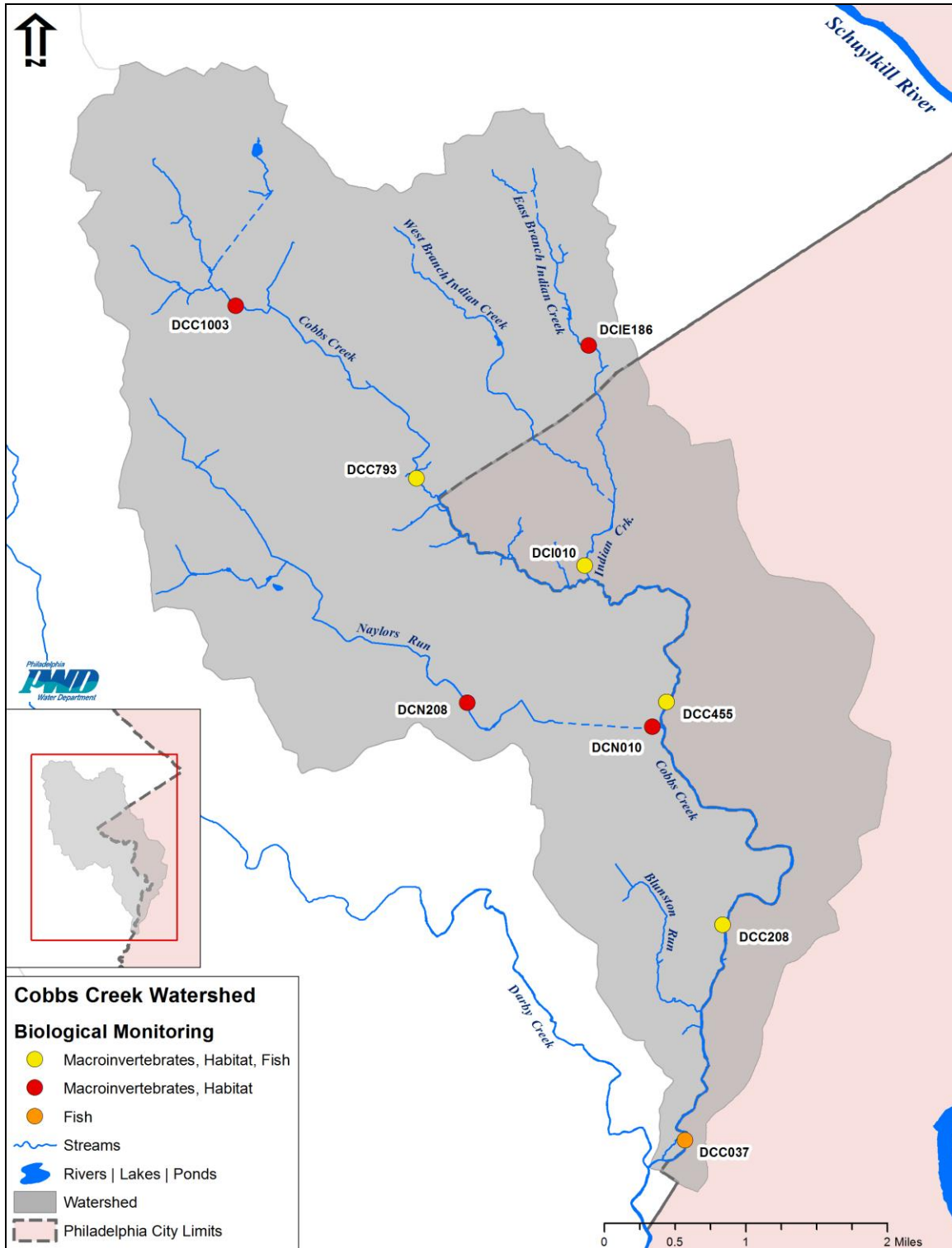


Figure - 1 Biological and Physical assessment locations in Cobbs Creek Watershed

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

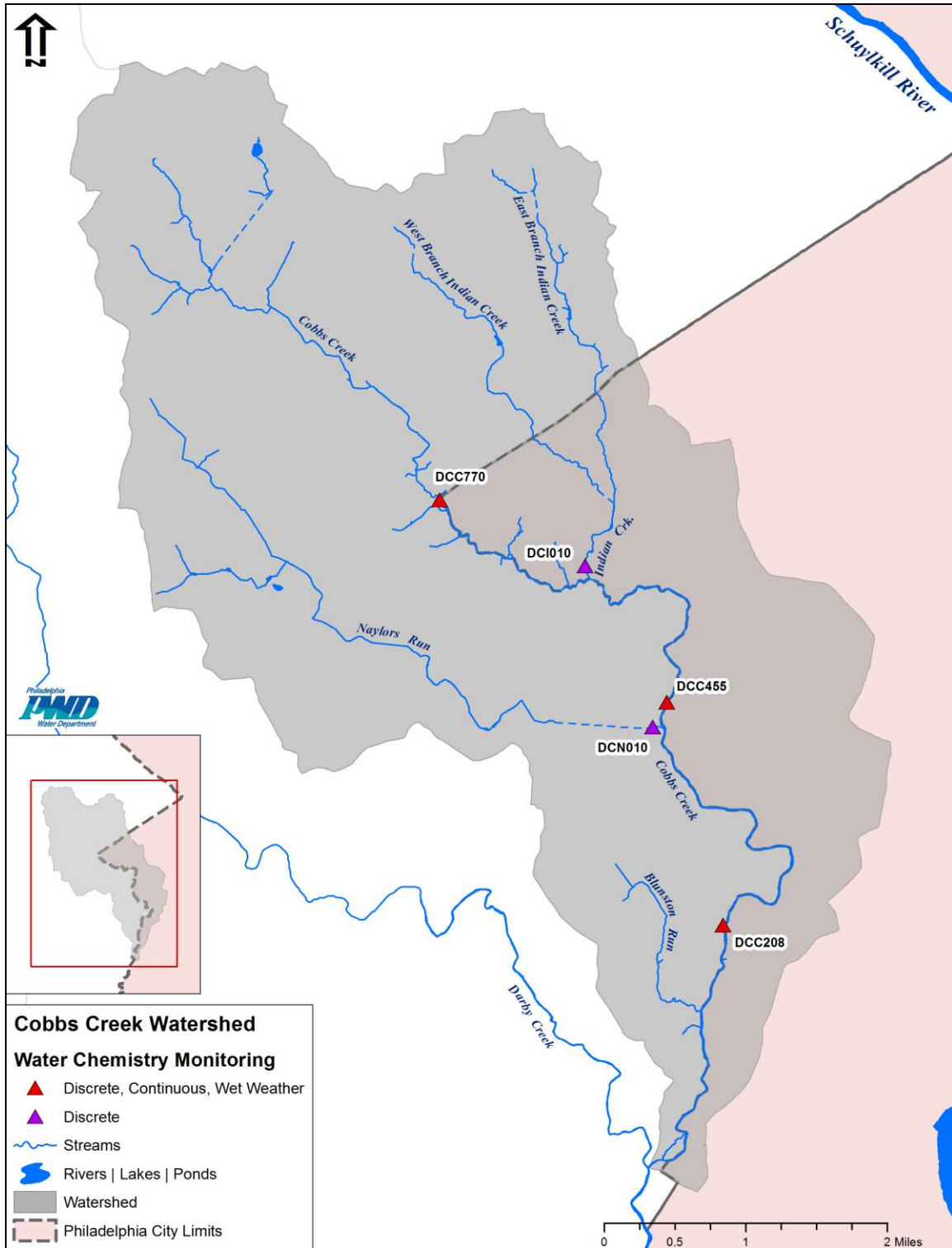


Figure - 2 Chemical monitoring locations in Cobbs Creek Watershed

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

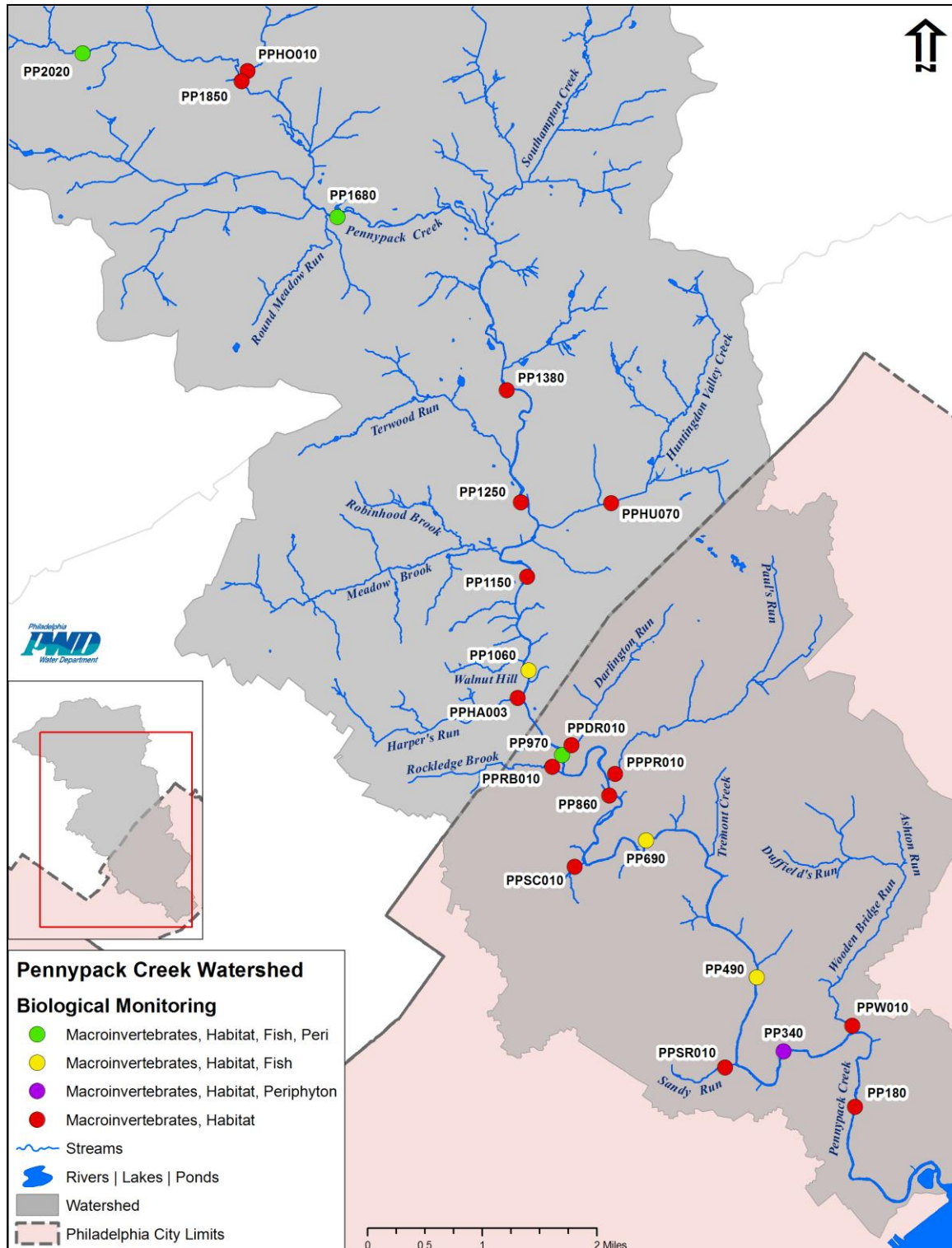


Figure - 3 Biological and Physical assessment locations in Pennypack Watershed

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

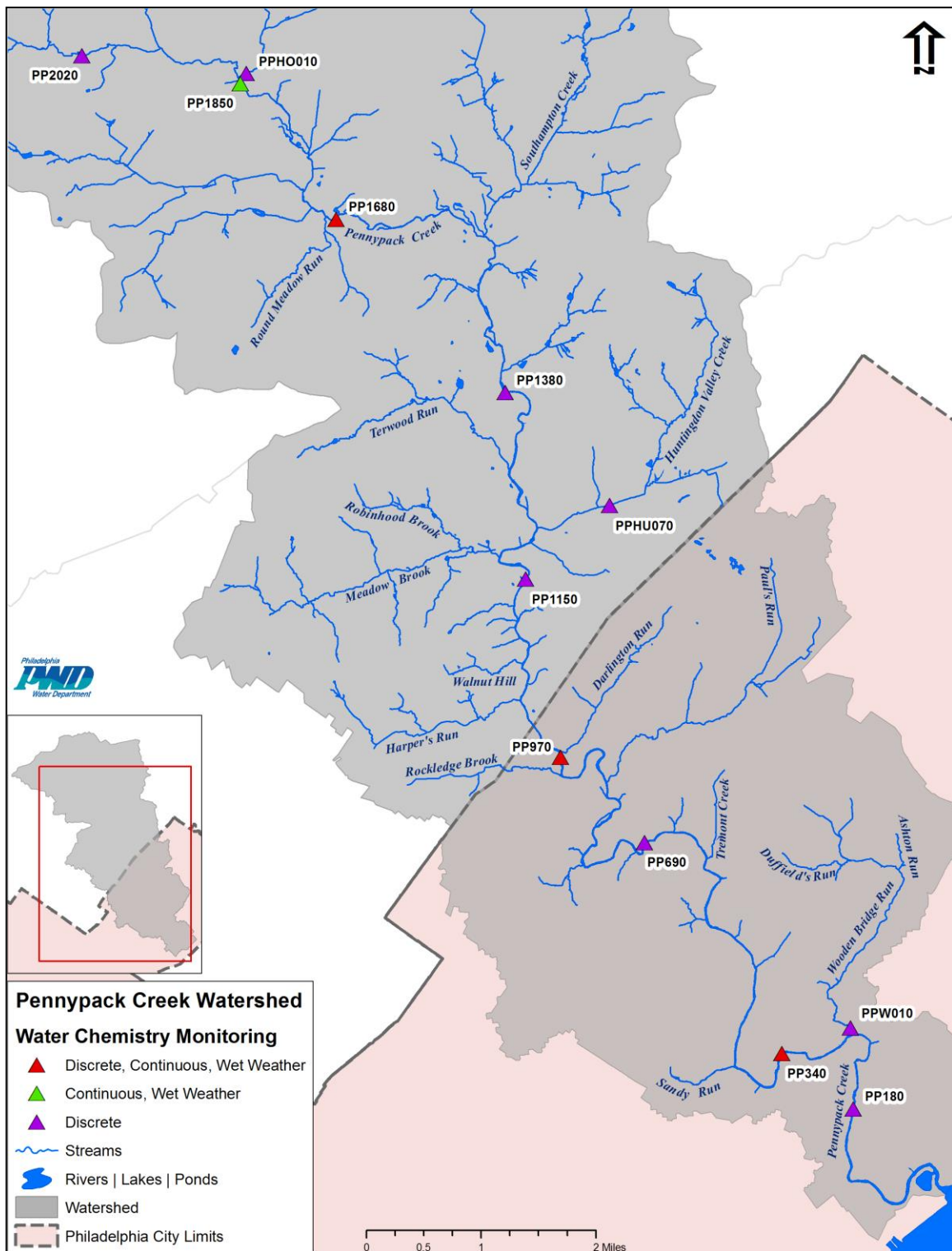


Figure - 4 Chemical monitoring locations in Pennypack Watershed



CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

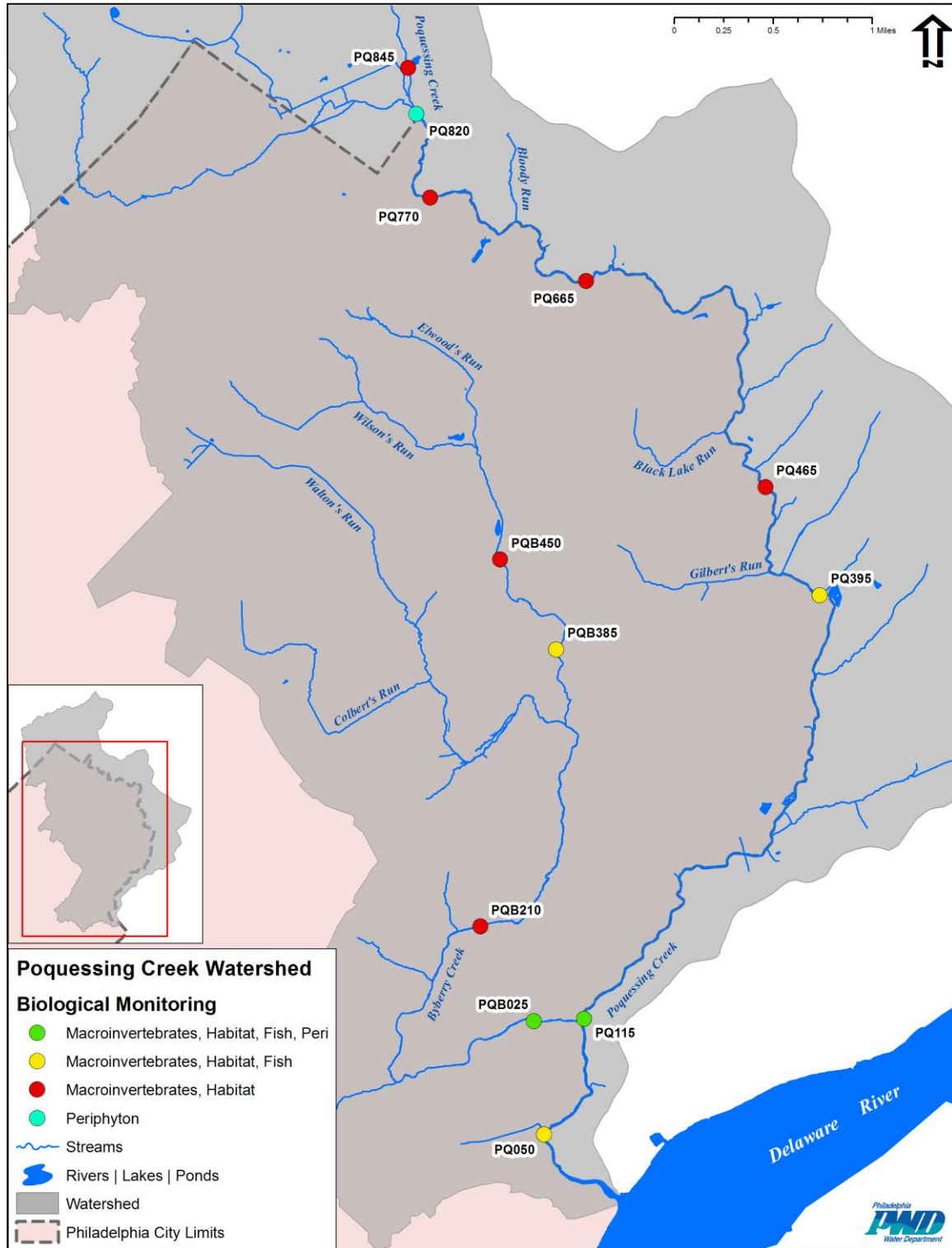


Figure - 5 Biological and Physical assessment locations in Poquessing-Byberry Watershed

CITY OF PHILADELPHIA  
COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

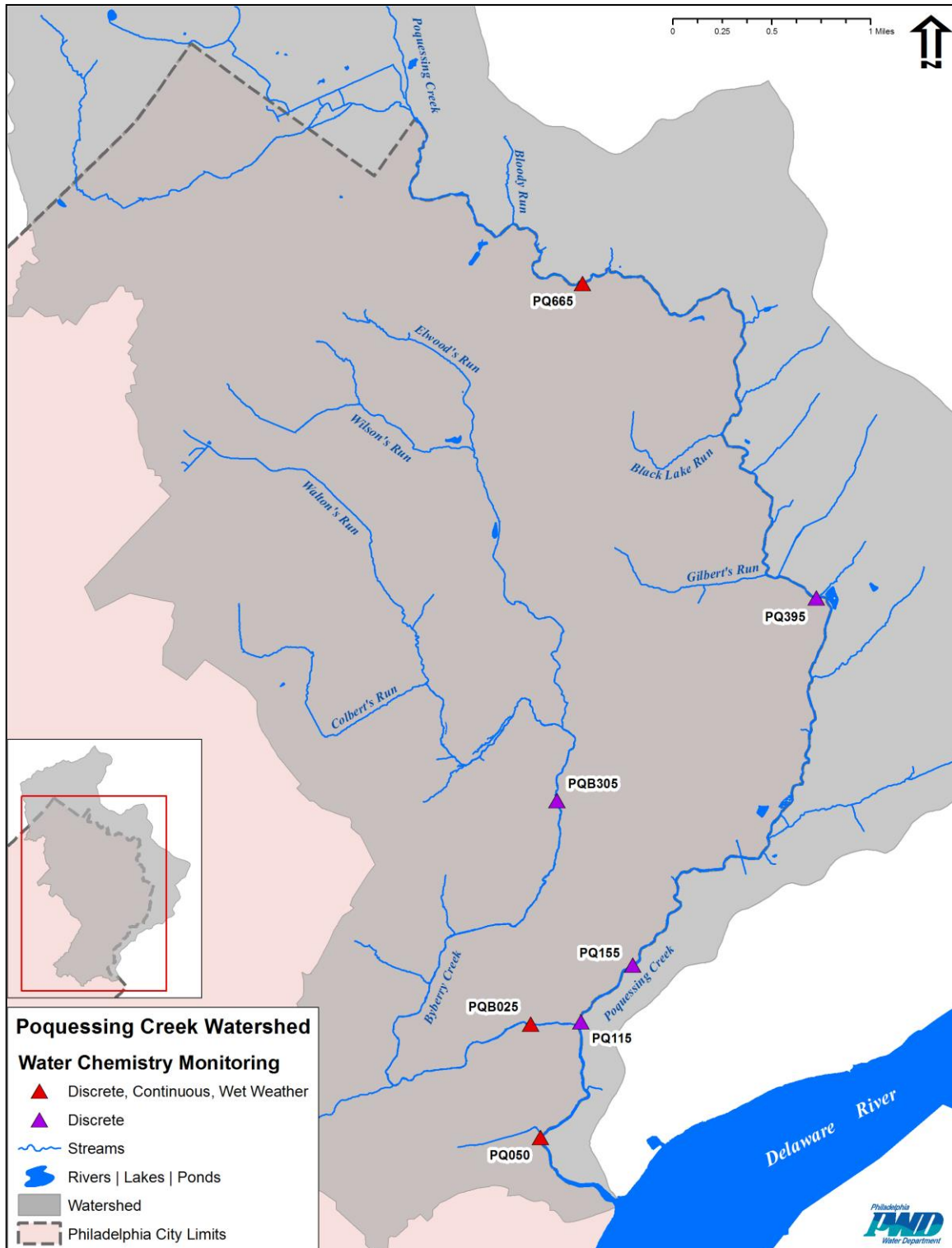


Figure - 6 Chemical monitoring locations in Poquessing-Byberry Watershed

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

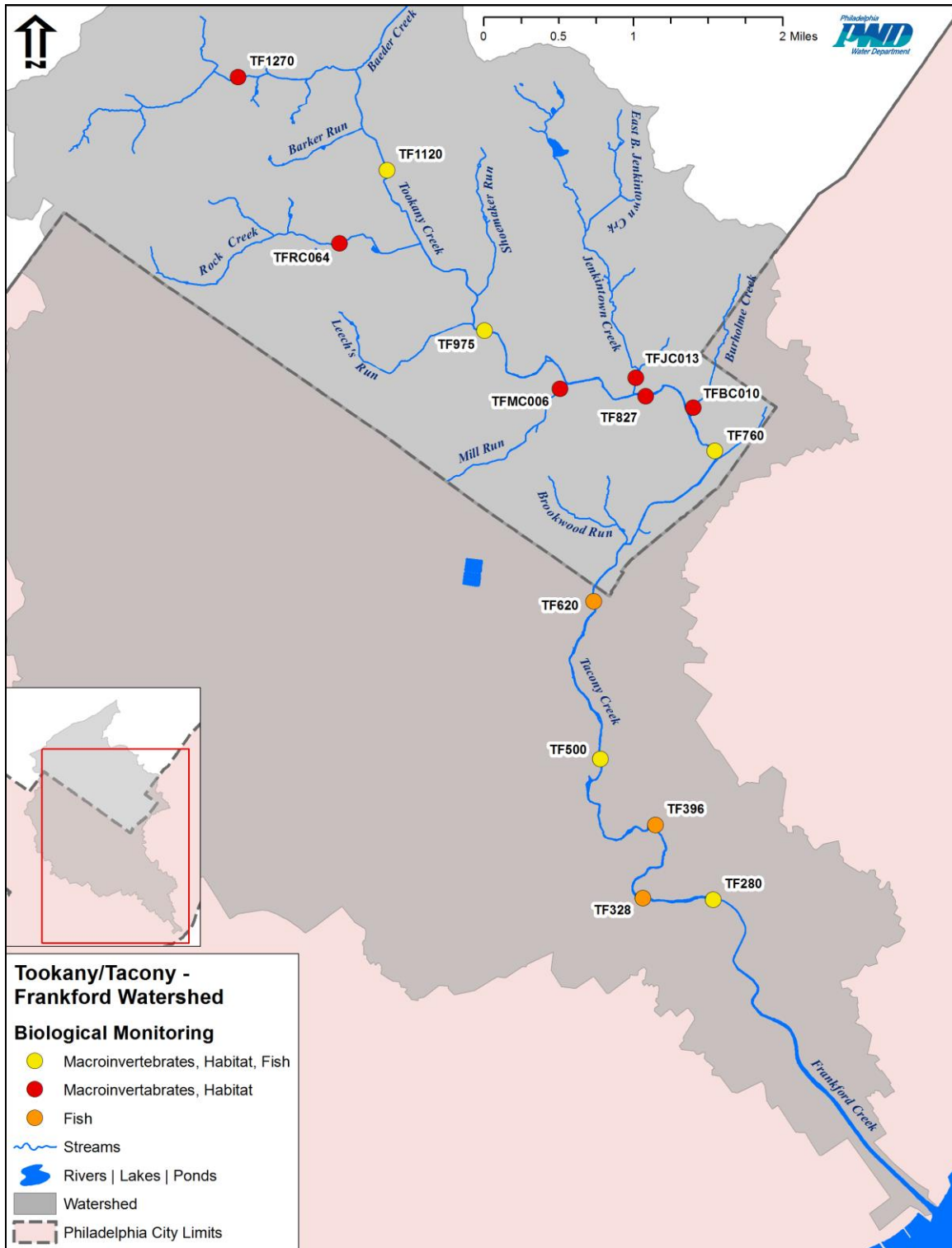


Figure - 7 Biological and Physical assessment locations in Tacony-Frankford Watershed

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

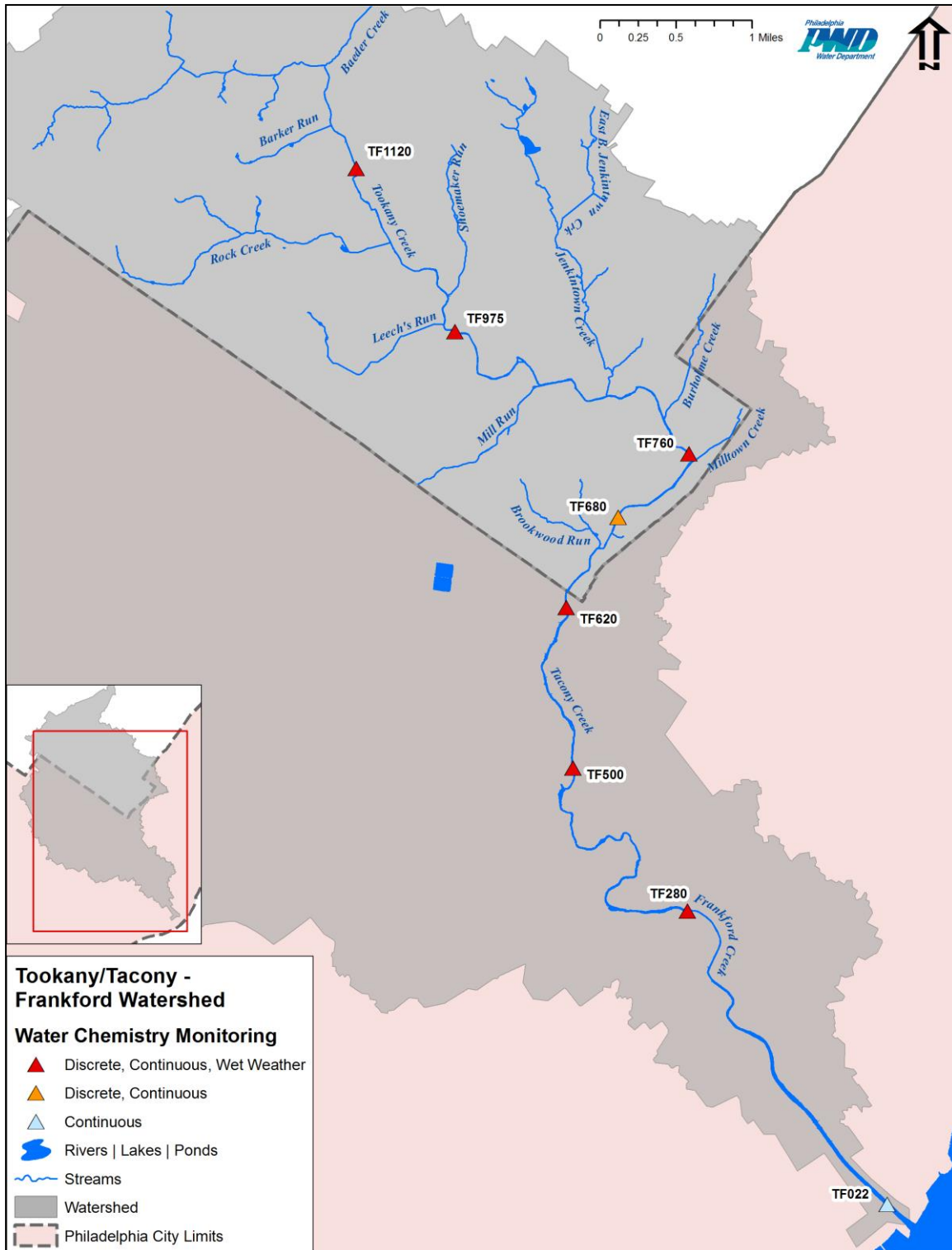


Figure - 8 Chemical monitoring locations in Tacony-Frankford Watershed





CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

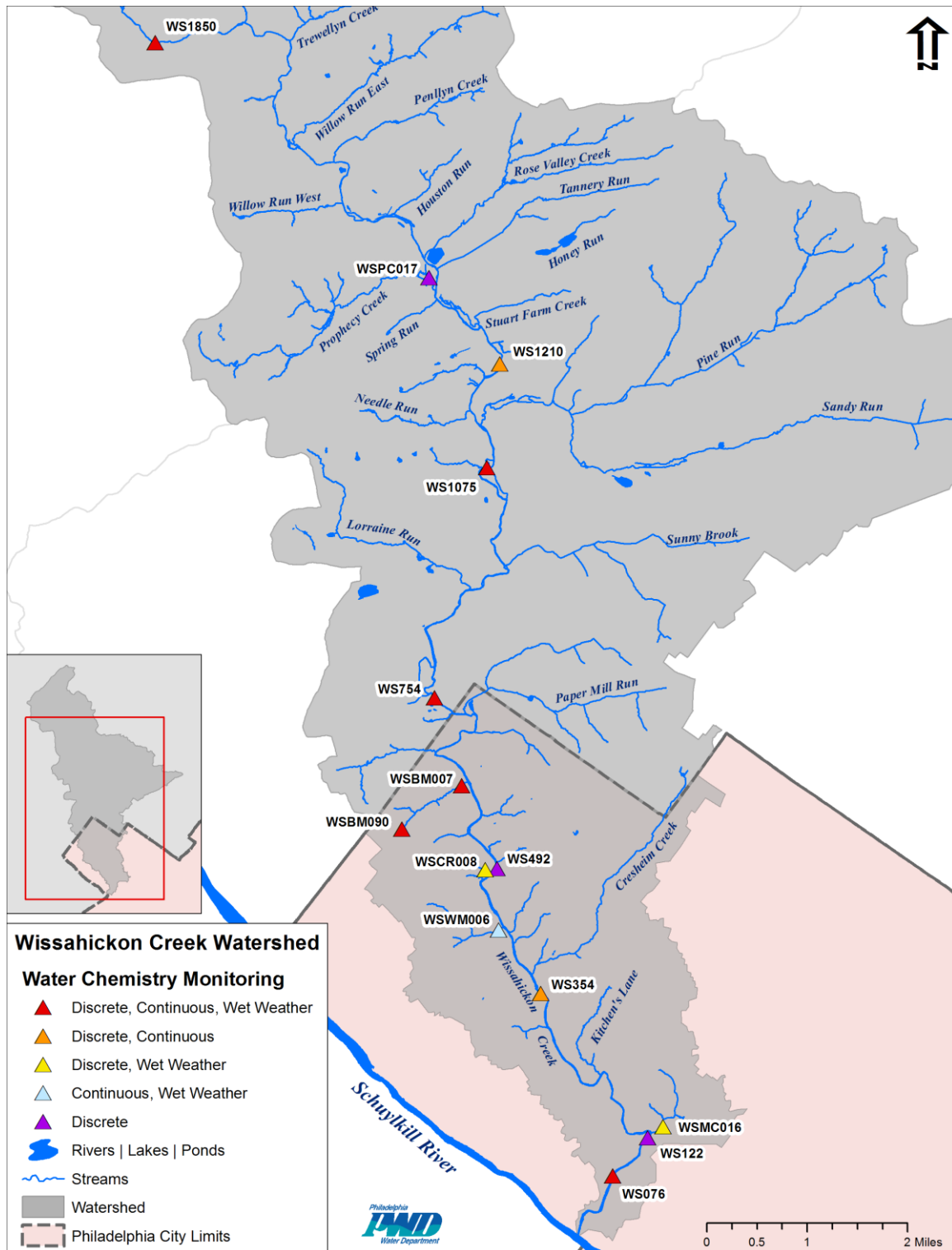


Figure - 10 Chemical monitoring locations in Wissahickon Watershed

CITY OF PHILADELPHIA  
 COMBINED SEWER AND STORM WATER MANAGEMENT PROGRAM

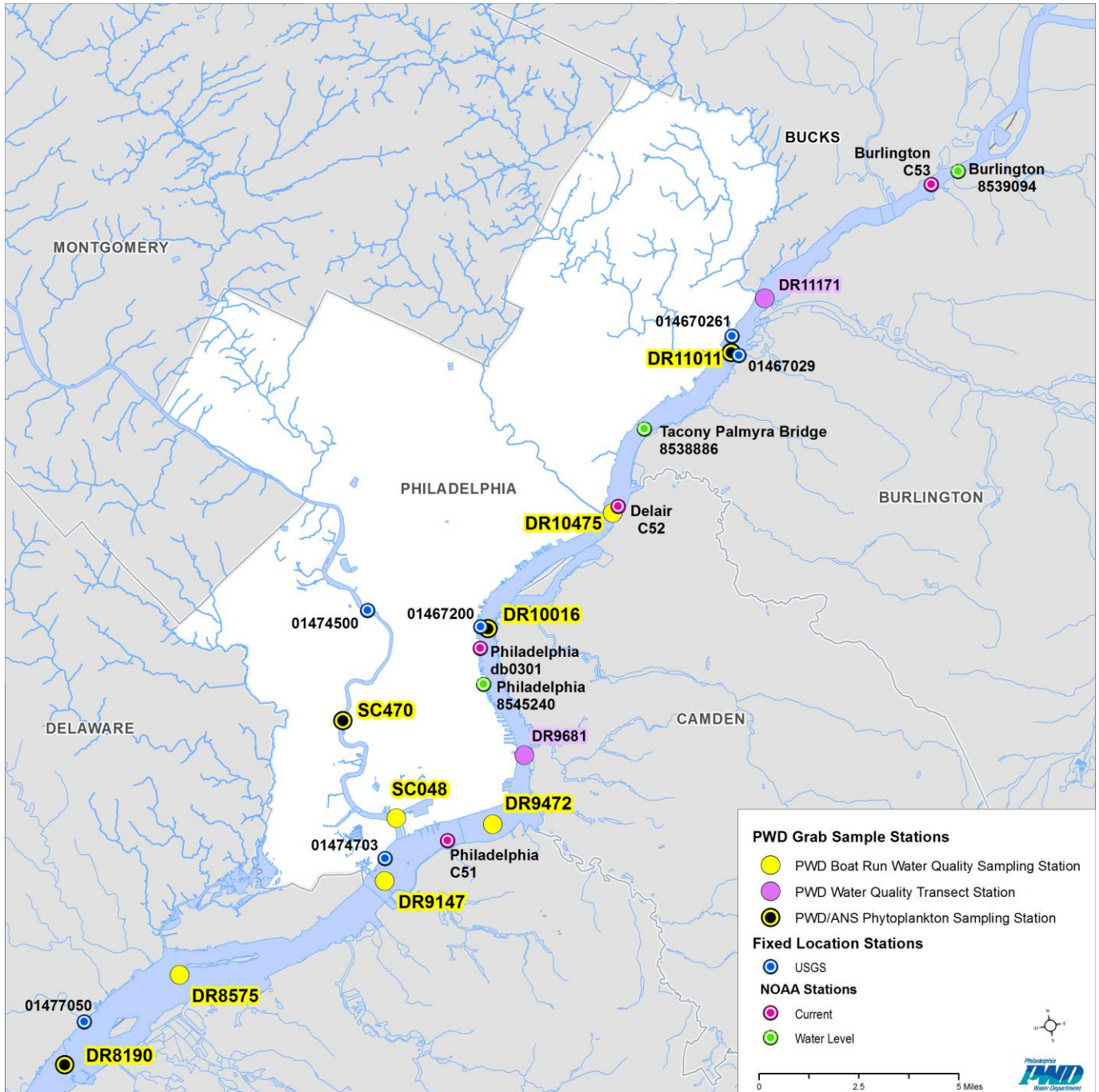


Figure - 11 Chemical monitoring locations in Delaware Estuary and Lower Schuylkill River Watershed

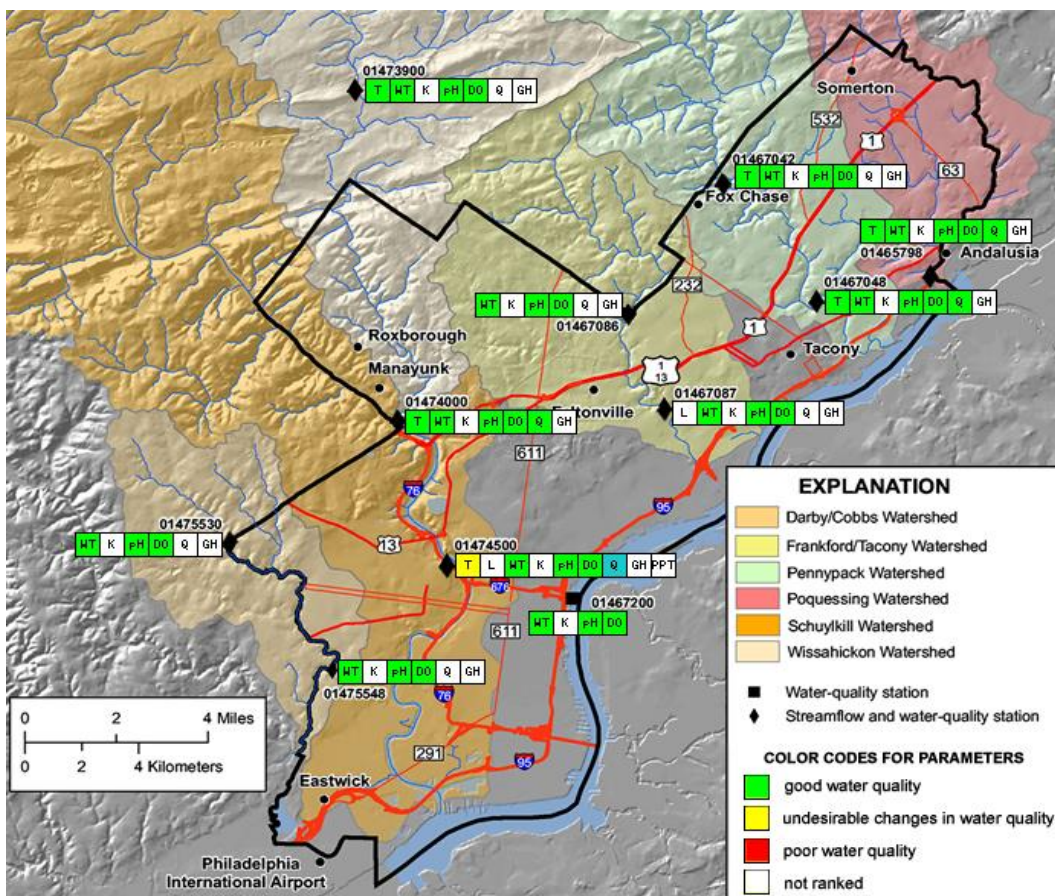
**Appendix H –**  
**PWD-USGS Cooperative Water Quality Monitoring**  
**Program Annual Summary**

---



## 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

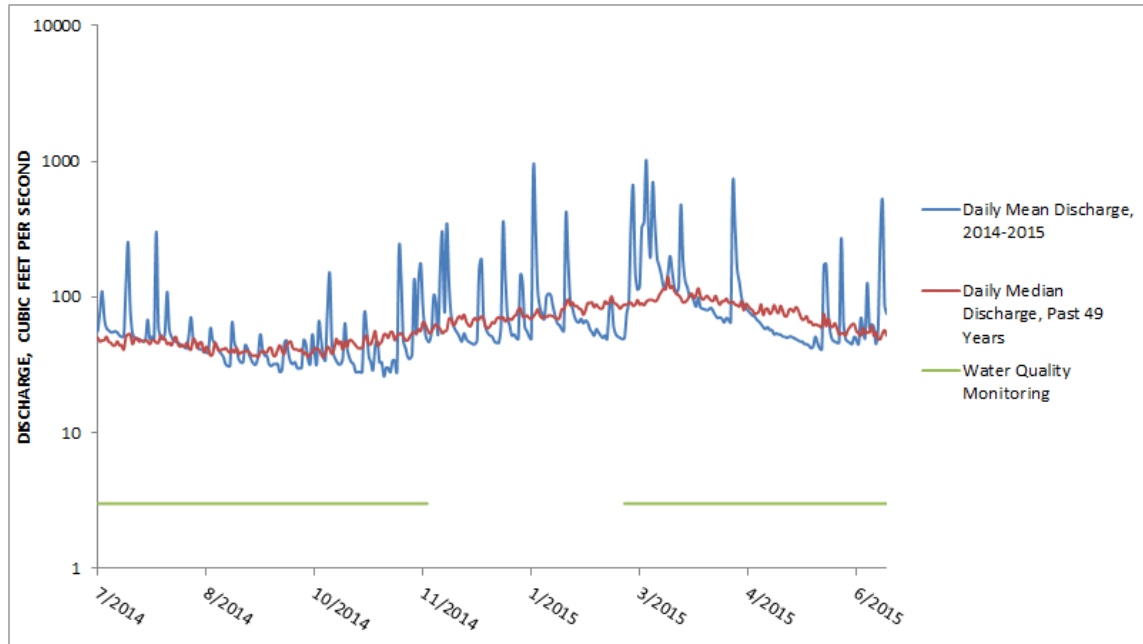
The PWD/USGS Cooperative Monitoring Program builds upon the widespread network of USGS gages that were formerly operated throughout Philadelphia. These gages are logically situated and/or have a continuous period of record, making them ideal for water quality monitoring purposes. Within a given watershed, 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, 2014 – June 30, 2015, excluding the period of December 2014 through February 2015, 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 2014 through March 2015. 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 49 years. The influence of severe storms can be observed in Figure 2; the highest daily mean discharge (2,490 cubic feet per second) was recorded on May 1, 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 2.** Daily mean flow July 1 2014-June 30 2015 and daily median flow for 49 years of record at USGS gage 01474000 (Wissahickon Creek at Ridge Ave.).

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 1.** PWD/USGS Cooperative Water Quality Monitoring Program Gages

<b>Gage Number</b>	<b>Gage name</b>	<b>Flow Data Record</b>
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)

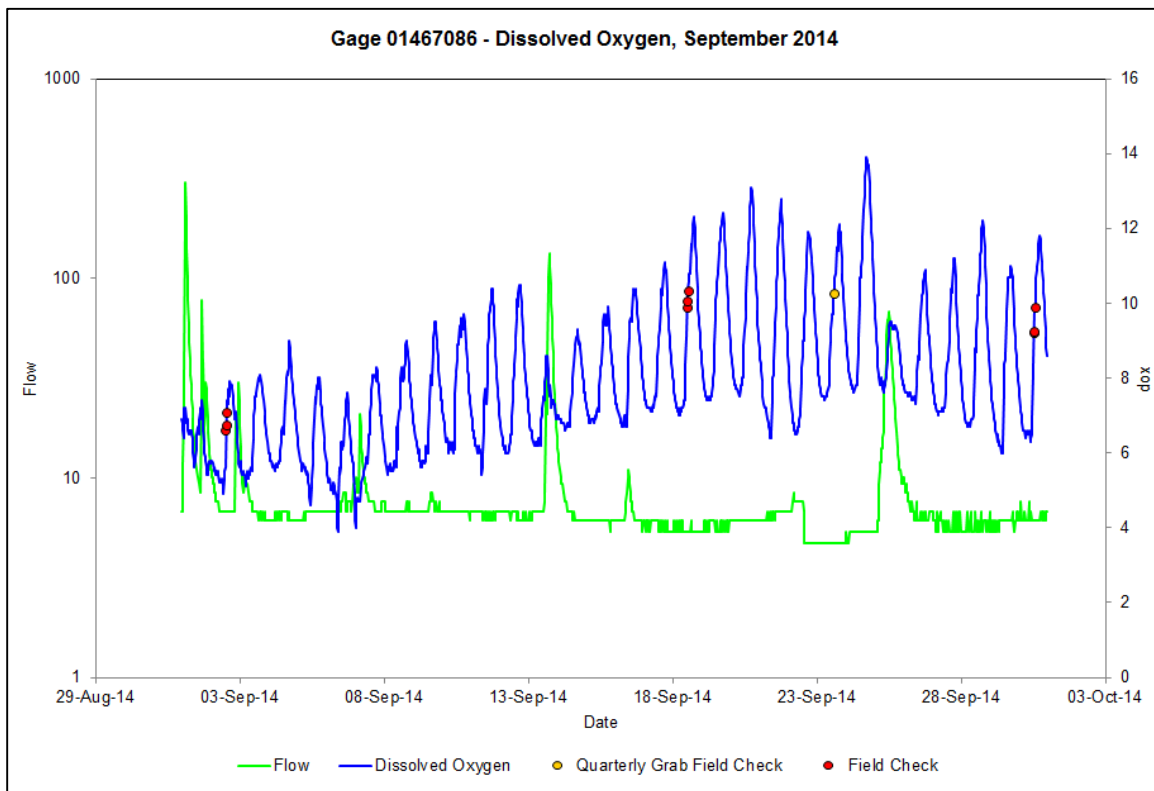
\*\*Funding for the operation of this gage is provided by DRBC



## 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.

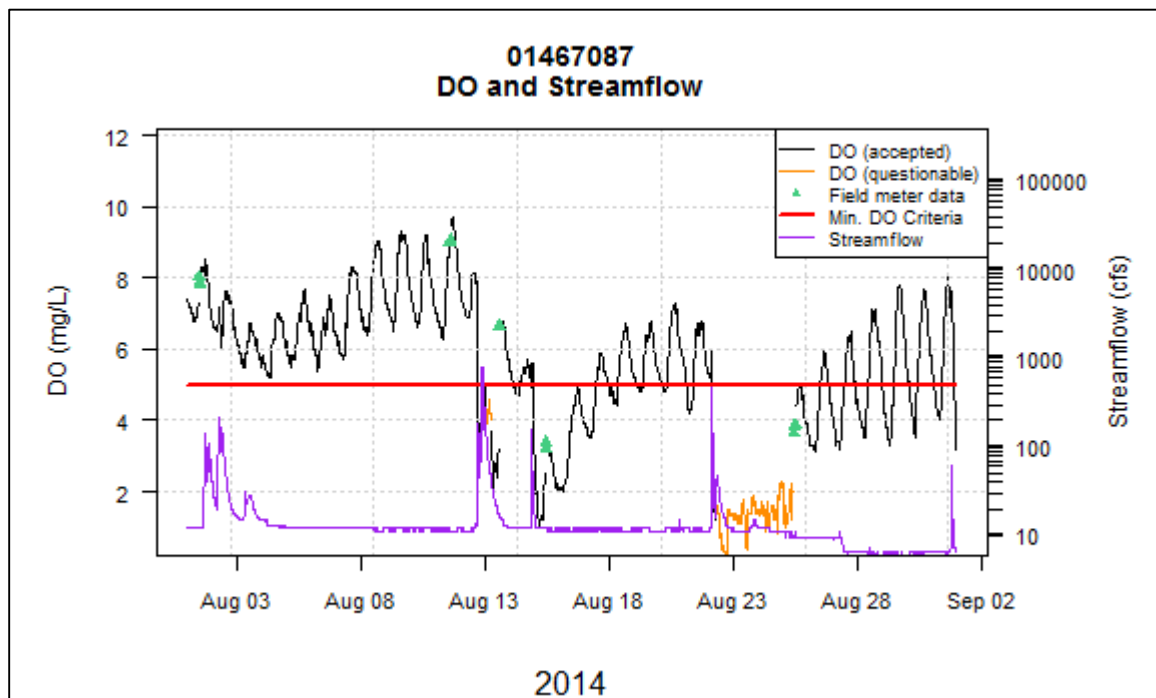
OOW independently maintains databases of water quality and streamflow via automated regular retrievals of these data from USGS NWIS. On a monthly basis, the databases are queried and results for each gage are imported into MS Excel workbooks. If available, any field data collected during that period (*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, September 2014.

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.

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, August 2014.

## Continuous Water Quality Monitoring Results Annual Summary, July 2014 - June 2015

### 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 014670261 (Zone 2), but there is a more stringent daily mean guideline of 5.0 mg/L (Table 2).

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 2.** PADEP Dissolved Oxygen Water Quality Criteria

<b>Gage number</b>	<b>Designated Use</b>	<b>Minimum Criterion</b>	<b>7-Day Average Criterion</b>	<b>Daily Average Criterion</b>
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 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 2014 and 2015 appear in separate tables.

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

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 2014 - June 2015 Dissolved Oxygen Minimum Criterion Summary Results

Gage number	Designated Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% days non-attaining	% hrs. attaining
01465798	WWF	6252.0	260.5	1.9	0.9	99.0
014670261*	DRBC	NA	NA	NA	NA	NA
01467042	TSF	6284.5	261.9	1.4	0.1	99.9
01467048	TSF	6340.5	264.2	0.5	0	100
01467086	WWF	6141.5	255.9	3.6	1.4	98.6
01467087	WWF	6032.5	251.4	5.3	33.9	66.1
01467200*	DRBC	NA	NA	NA	NA	NA
01473900	TSF	6221.0	259.2	2.4	0.2	99.7
01474000	TSF	6086.0	253.6	4.5	0	100
01474500	WWF	6251.5	260.5	1.9	0.1	99.9
01475530	WWF	6358.0	264.9	0.2	0.0	100.0
01475548	WWF	6010.0	250.4	5.7	7.4	92.6

\*No minimum DO criterion applies at gages 01467200 and 014670261

**Table 4.** USGS Gage July 2014 - June 2015 Dissolved Oxygen Daily Mean Summary Results

Gage number	Designated Use	Total days accepted data	% days flagged data*
01465798	WWF	245.0	7.7
014670261	DRBC	234.0	0.0
01467042	TSF	247.0	6.9
01467048	TSF	241.0	9.2
01467086	WWF	233.0	12.2
01467087	WWF	207.0	22.0
01467200	DRBC	237.6	4.6
01473900	TSF	240.0	9.6
01474000	TSF	241.0	9.2
01474500	WWF	247.0	6.9
01475530	WWF	256.0	3.6
01475548	WWF	173.0	34.8

\*Small data gaps prevent the calculation of a daily mean and are classified as flagged.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 5.** USGS Gage July 2014 - December 2014 Dissolved Oxygen 7-Day Average Criterion Summary Results

<b>Gage number</b>	<b>Designated Use</b>	<b>Total hours accepted data</b>	<b>% hours flagged data</b>	<b>% hours non-attaining</b>	<b>% hours attaining</b>
01465798	WWF	3253.6	0	0	100
014670261	DRBC	NA	NA	NA	NA
01467042	TSF	3253.5	0	0	100
01467048	TSF	3253.5	0.0	0	100
01467086	WWF	3253.5	0	0	100
01467087	WWF	3093.5	4.9	54.8	45.2
01467200	DRBC	NA	NA	NA	NA
01473900	TSF	3050.5	6.2	0	100
01474000	TSF	3253.5	0	0	100
01474500	WWF	3177.0	2.4	0	100
01475530	WWF	3253.5	0	0	100
01475548	WWF	3253.5	0	1.7	98.2

**Table 6.** USGS Gage March 2015 - June 2015 Dissolved Oxygen 7-Day Average Criterion Summary Results

<b>Gage number</b>	<b>Designated Use</b>	<b>Total hours accepted data</b>	<b>% hours flagged data</b>	<b>% hours non-attaining</b>	<b>% hours attaining</b>
01465798	WWF	2378.5	5.2	0	100
014670261	DRBC	NA	NA	NA	NA
01467042	TSF	2502.5	0.3	0	100
01467048	TSF	2509.5	0	0	100
01467086	WWF	2426.5	3.3	0	100
01467087	WWF	2329.0	7.2	32.7	67.3
01467200	DRBC	NA	NA	NA	NA
01473900	TSF	2509.5	0	0	100
01474000	TSF	2261.5	9.9	0	100
01474500	WWF	2509.5	0	0	100
01475530	WWF	2509.5	0	0	100
01475548	WWF	2110.5	15.9	0	100

**Table 7.** USGS Gage 01467200 and 014670261 Dissolved Oxygen Seasonal Mean Criterion Summary Result

<b>Gage number</b>	<b>Designated Use</b>	<b>Total hrs. accepted data</b>	<b>Total days accepted data</b>	<b>% hrs. flagged data</b>	<b>Seasonal mean</b>	<b>Attained Standard?</b>
01467200	DRBC	1696.5	70.7	6.9	9.0	Yes
014670261	DRBC	493.5	20.7	0.0	9.2	Yes

## pH

### Background

pH has been identified as a parameter of potential concern for some of Philadelphia's watersheds, primarily because of algal effects on the dissolved inorganic carbon (DIC) composition of stream water. Algae take up CO<sub>2</sub> 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 occurred at the Schuylkill site and upstream Tacony site.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 8.** USGS Gage July 2014 - June 2015 pH Criteria Summary Results

<b>Gage number</b>	<b>Total hrs. accepted data</b>	<b>Total days accepted data</b>	<b>% hrs. flagged data</b>	<b>% hrs. max. non-attaining</b>	<b>% days max. non-attaining</b>	<b>% hrs. min. non-attaining</b>	<b>% days min. non-attaining</b>	<b>% hrs. attaining</b>	<b>% days attaining</b>
01465798	6246.0	260.3	1.9	0.5	3.0	0	0	99.5	96.9
014670261	5918.5	246.6	10.2	0.0	0.0	0	0	99.9	98.8
01467042	6284.0	261.8	1.4	0.7	3.8	0	0	99.3	96.2
01467048	6012.0	250.5	5.6	3.2	9.5	0	0	96.8	90.5
01467086	6199.0	258.3	2.7	3.5	14.2	0	0	96.5	85.8
01467087	5776.5	240.7	9.3	0.0	0.0	0	0	100.0	100.0
01467200	5701.5	237.6	4.6	0.0	0.0	0	0	100.0	100.0
01473900	6306.0	262.8	1.0	2.2	8.3	0	0	97.8	91.7
01474000	6084.5	253.5	4.5	0.1	0.8	0	0	99.9	99.2
01474500	6201.0	258.4	2.7	8.7	17.1	0	0	91.3	82.9
01475530	6297.5	262.4	1.2	0.0	0.4	0	0	99.9	99.6
01475548	6046.0	251.9	5.1	0.6	4.2	0	0	99.4	95.8



## Turbidity

### Background

Turbidity in Philadelphia’s streams increases with increased flow as inorganic sediment and additional constituents of stormwater runoff are introduced to the stream or scoured/eroded from the stream channel. There are no numeric PA DEP water quality criteria for turbidity, so PWD watershed management plans used a reference value for turbidity that was derived from EPA Guidance document EPA 822-B-00-023 (*i.e.*, 2.825 NTU). This value is surpassed more often in wet weather than in dry weather (Tables 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 2014 - June 2015 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	6236.5	259.9	2.1	31.9	68.1
014670261	6591.0	274.6	0.0	99.2	0.8
01467042	5393.5	224.7	15.3	21.8	78.2
01467048	6280.5	261.7	1.4	28.7	71.3
01467086*	NA	NA	NA	NA	NA
01467087*	NA	NA	NA	NA	NA
01467200*	NA	NA	NA	NA	NA
01473900	6008.0	250.3	5.7	47.2	52.8
01474000	5154.0	214.8	19.1	13.9	86.1
01474500	6250.5	260.4	1.9	63.5	36.4
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 2014 - June 2015 Specific Conductance Summary Results

<b>Gage number</b>	<b>Total hrs. accepted data</b>	<b>Total days accepted data</b>	<b>% hrs. flagged data</b>
01465798	6304.0	262.7	1.1
014670261	6158.0	256.6	6.4
01467042	6283.0	261.8	1.3
01467048	6339.0	264.1	0.5
01467086	6199.0	258.3	2.7
01467087	6315.5	263.1	0.9
01467200	5718.0	238.3	4.3
01473900	6355.5	264.8	0.3
01474000	6081.0	253.4	4.6
01474500	6251.5	260.5	1.9
01475530	6357.5	264.0	0.6
01475548	6122.0	255.1	3.9

## 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

<b>Date range start</b>	<b>Date range end</b>	<b>WWF maximum (°C)</b>	<b>WWF maximum (°F)</b>	<b>TSF maximum (°C)</b>	<b>TSF maximum (°F)</b>
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

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**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 2014 - June 2015 Temperature Maximum Criteria Summary Results

<b>Gage number</b>	<b>Designated Use</b>	<b>Total hrs. accepted data</b>	<b>Total days accepted data</b>	<b>% hrs. flagged data</b>	<b>% hrs. exceedance</b>	<b>% hrs. attaining</b>
01465798	WWF	6304.0	262.7	1.1	12.7	87.3
014670261	DRBC	6539.5	272.5	0.9	0.0	100
01467042	TSF	6284.0	261.8	1.4	25.2	74.8
01467048	TSF	6341.5	264.2	0.5	30.4	69.6
01467086	WWF	6199.0	258.3	2.7	13.7	86.3
01467087	WWF	6315.5	263.1	0.9	14.7	85.3
01467200	DRBC	5737.5	239.1	3.9	0.0	100
01473900	TSF	6317.5	263.2	0.9	23.7	76.3
01474000	TSF	6088.0	253.7	4.5	26.6	73.4
01474500	WWF	6251.5	260.5	1.9	14.6	85.4
01475530	WWF	6357.5	264.9	0.2	10.3	89.7
01475548	WWF	6124.0	255.2	3.9	13.8	86.2

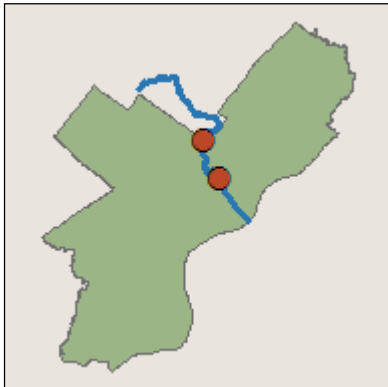
## Monthly Results, July 2014 - June 2015

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 June 2015; the minimum DO criterion was not attained throughout much of the month (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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

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 April 2015 (Figure 11). Percent DO saturation of more than 175% in daylight were also observed at gage 01467086 in April 2015, 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-14	WWF	742.0	30.9	0.3	0.6	99.4	4.7	13.3	7.7
Aug-14	WWF	742.0	30.9	0.3	0.0	100.0	5.6	12.7	8.2
Sep-14	WWF	701.0	29.2	2.6	1.5	98.5	3.9	13.9	7.9
Oct-14	WWF	741.0	30.8	0.4	0.0	100.0	6.2	12.7	8.7
Nov-14	WWF	670.5	27.9	6.9	0.0	100.0	7.4	14.0	10.7
Mar-15	WWF	367.0	15.3	0.5	0.0	100.0	9.3	19.1	13.2
Apr-15	WWF	718.0	29.9	0.3	0.0	100.0	5.4	18.6	11.3
May-15	WWF	742.5	30.9	0.2	6.7	93.3	2.4	15.6	7.9
Jun-15	WWF	717.5	29.9	0.3	2.7	97.3	4.2	10.8	7.1

**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-14	WWF	724.0	30.2	2.7	48.3	51.7	0.2	8.4	4.6
Aug-14	WWF	658.5	27.4	11.5	28.4	71.6	1.0	9.7	5.8
Sep-14	WWF	683.0	28.5	5.1	68.4	31.6	0.2	8.7	3.9
Oct-14	WWF	724.0	30.2	2.7	48.9	51.0	0.2	8.7	4.7
Nov-14	WWF	671.5	27.9	6.7	0.22	99.77	4.5	12.0	8.5
Mar-15	WWF	570.0	23.8	16.4	5.6	94.4	0.1	15.4	10.5
Apr-15	WWF	714.0	29.8	0.8	0.0	100.0	5.5	13.4	10.14
May-15	WWF	739.5	30.8	0.6	13.3	86.7	0.1	10.3	6.7
Jun-15	WWF	714.0	29.7	0.8	77.9	22.1	0.2	8.5	3.8

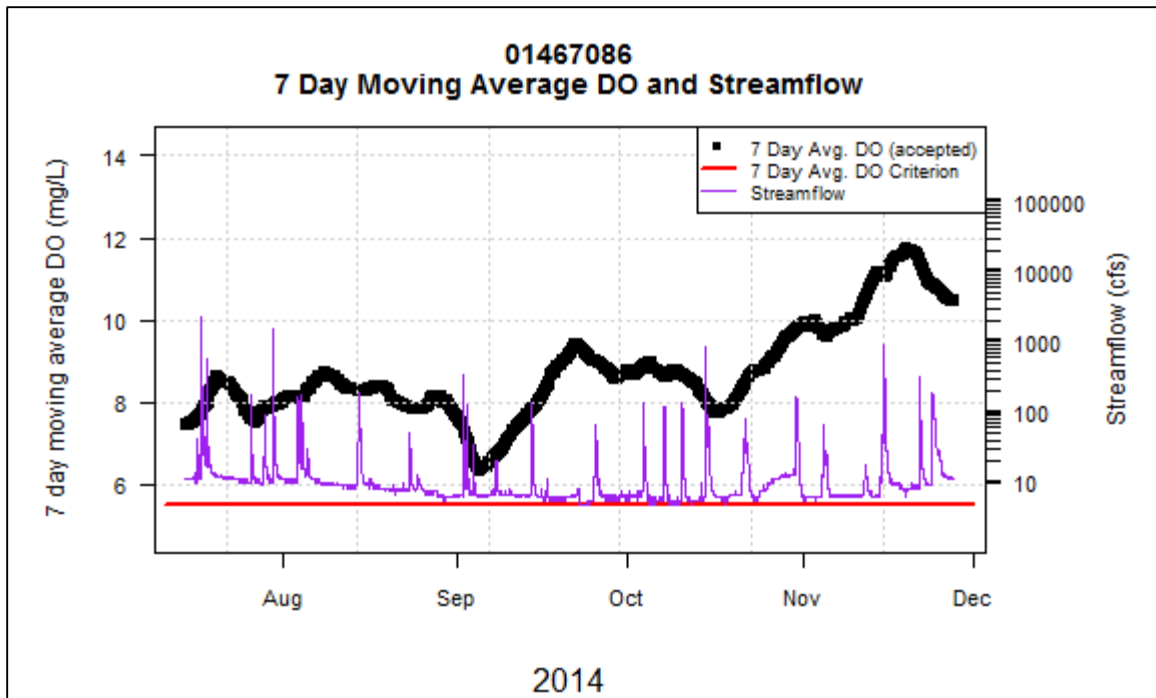


Figure 5. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

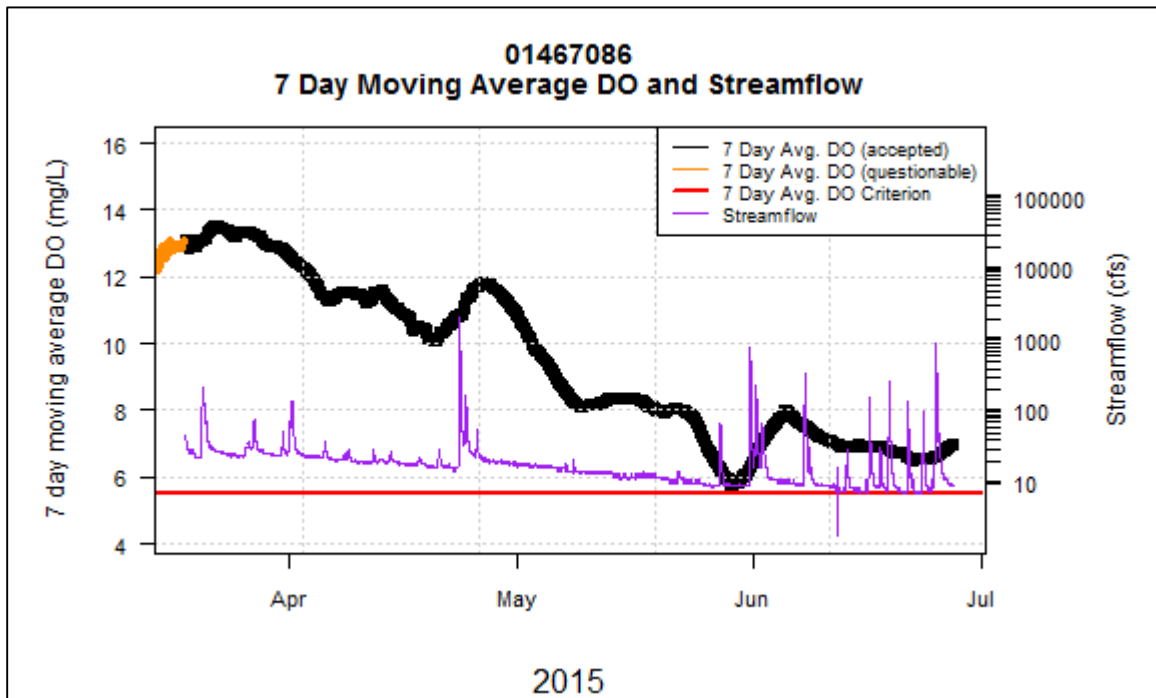


Figure 6. Gage 01467086, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

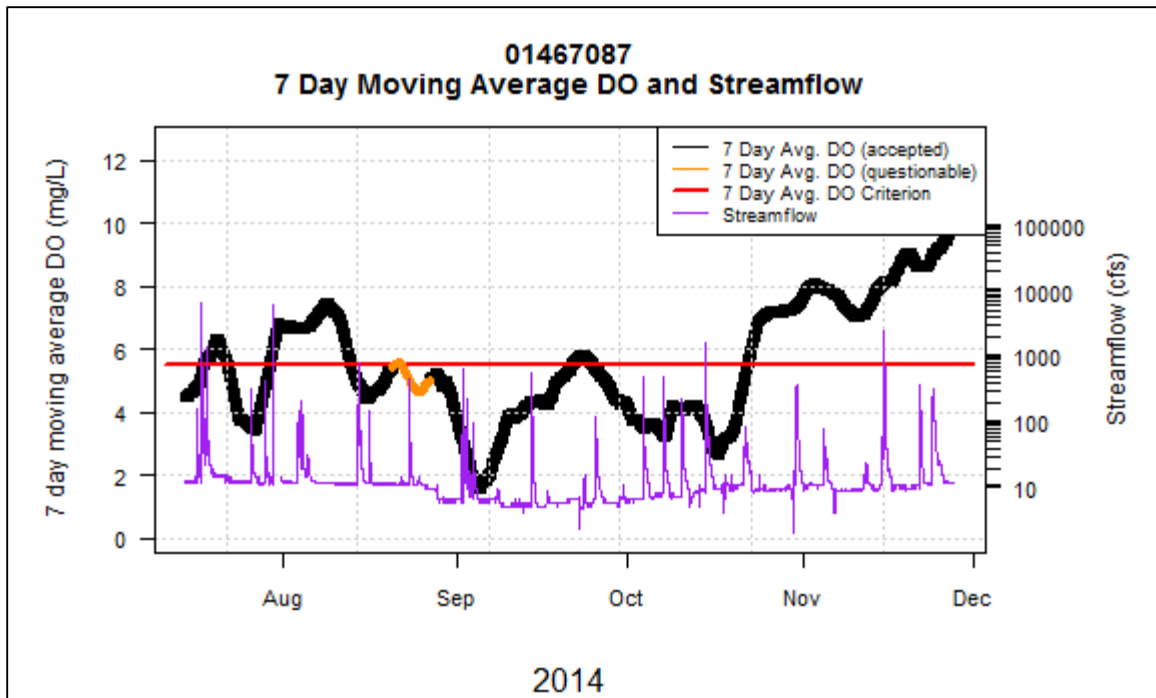


Figure 7. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

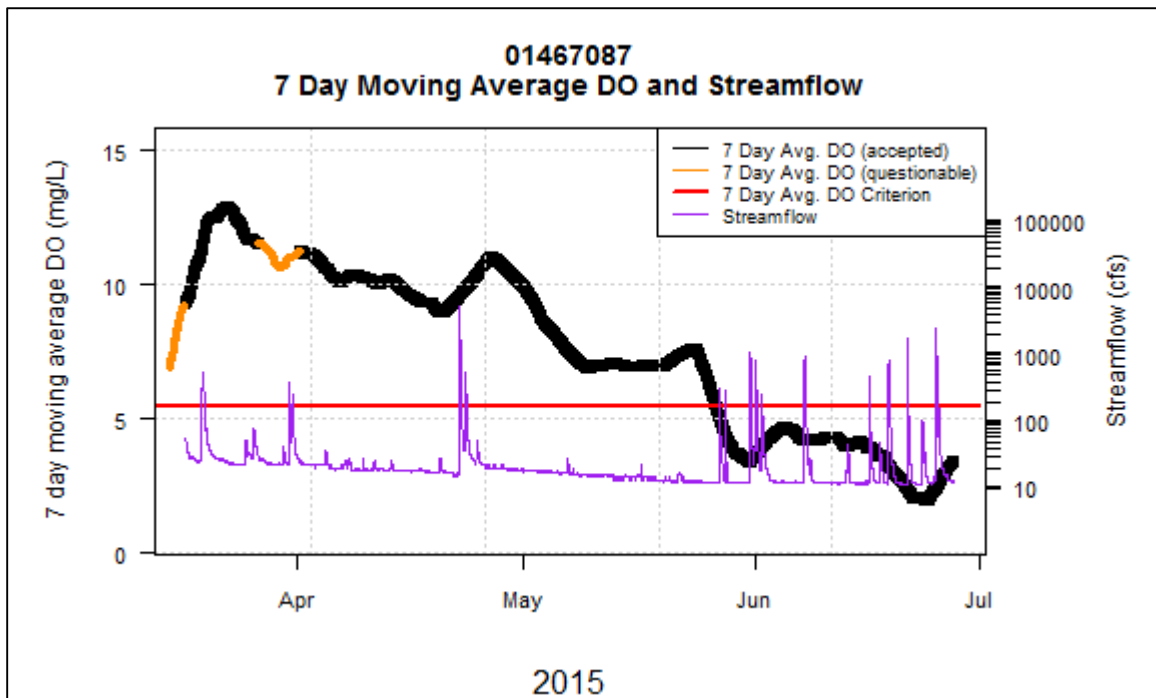


Figure 8. Gage 01467087, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	WWF	28.0	9.7	6.3	9.4	7.8
Aug-14	WWF	29.0	6.5	6.9	9.1	8.3
Sep-14	WWF	26.0	13.3	5.7	10.3	7.9
Oct-14	WWF	27.0	12.9	7.0	10.2	8.6
Nov-14	WWF	25.0	16.7	8.3	12.7	10.8
Mar-15	WWF	13.0	15.4	12.2	14.2	13.3
Apr-15	WWF	28.0	6.7	8.5	13.0	11.2
May-15	WWF	30.0	3.2	4.2	10.7	7.9
Jun-15	WWF	27.0	10.0	5.8	8.2	7.1

**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-14	WWF	22.0	45.5	0.4	7.4	4.7
Aug-14	WWF	23.0	17.4	3.5	7.9	5.9
Sep-14	WWF	23.0	26.1	0.6	6.5	4.2
Oct-14	WWF	23.0	43.5	1.2	7.5	4.7
Nov-14	WWF	25.0	16.7	6.7	11.5	8.5
Mar-15	WWF	19.0	33.1	6.2	13.8	11.1
Apr-15	WWF	26.0	13.3	8.1	12.0	10.0
May-15	WWF	28.0	9.7	1.3	9.5	6.9
Jun-15	WWF	24.0	20.0	1.1	6.3	3.9

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	742.0	30.9	0.3	0.0	0.0	0	0	100.0	100.0	6.6	8.6	7.4
Aug-14	742.0	30.9	0.3	0.0	0.0	0	0	100.0	100.0	6.9	8.5	7.5
Sep-14	717.0	29.9	0.4	0.0	0.0	0	0	100.0	100.0	6.4	8.8	7.5
Oct-14	741.5	30.9	0.3	0.0	0.0	0	0	100.0	100.0	6.9	8.7	7.8
Nov-14	711.5	29.6	1.9	0.0	0.0	0	0	100.0	100.0	6.9	8.9	8.0
Mar-15	367.0	15.3	0.5	17.6	81.3	0	0	82.4	18.8	7.3	9.4	8.2
Apr-15	718.0	29.9	0.3	20.1	70.0	0	0	79.9	30.0	7.2	9.6	8.2
May-15	742.5	30.9	0.2	1.1	9.7	0	0	98.9	90.3	7.1	9.3	7.7
Jun-15	717.5	29.9	0.3	0.0	0.0	0	0	100.0	100.0	6.9	8.0	7.2

**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-14	736.0	30.7	1.1	0.0	0.0	0	0	100.0	100.0	6.4	7.6	7.1
Aug-14	678.0	28.3	8.9	0.0	0.0	0	0	100.0	100.0	6.8	7.8	7.3
Sep-14	716.0	29.8	0.6	0.0	0.0	0	0	100.0	100.0	6.6	7.5	7.1
Oct-14	728.5	30.4	2.1	0.0	0.0	0	0	100.0	100.0	6.6	7.7	7.1
Nov-14	717.0	29.9	0.4	0.0	0.0	0	0	100.0	100.0	6.3	7.8	7.3
Mar-15*	33.5	1.4	95.1	0.0	0.0	0	0	100.0	100.0	8.4	8.8	8.5
Apr-15	714.0	29.8	0.8	0.0	0.0	0	0	100.0	100.0	7.1	8.7	7.9
May-15	739.5	30.8	0.6	0.0	0.0	0	0	100.0	100.0	6.7	7.8	7.4
Jun-15	714.0	29.8	0.8	0.0	0.0	0	0	100.0	100.0	6.6	7.8	7.2

\*Discrepancies between field meter and sonde readings throughout the month resulted in a large amount of flagged data.

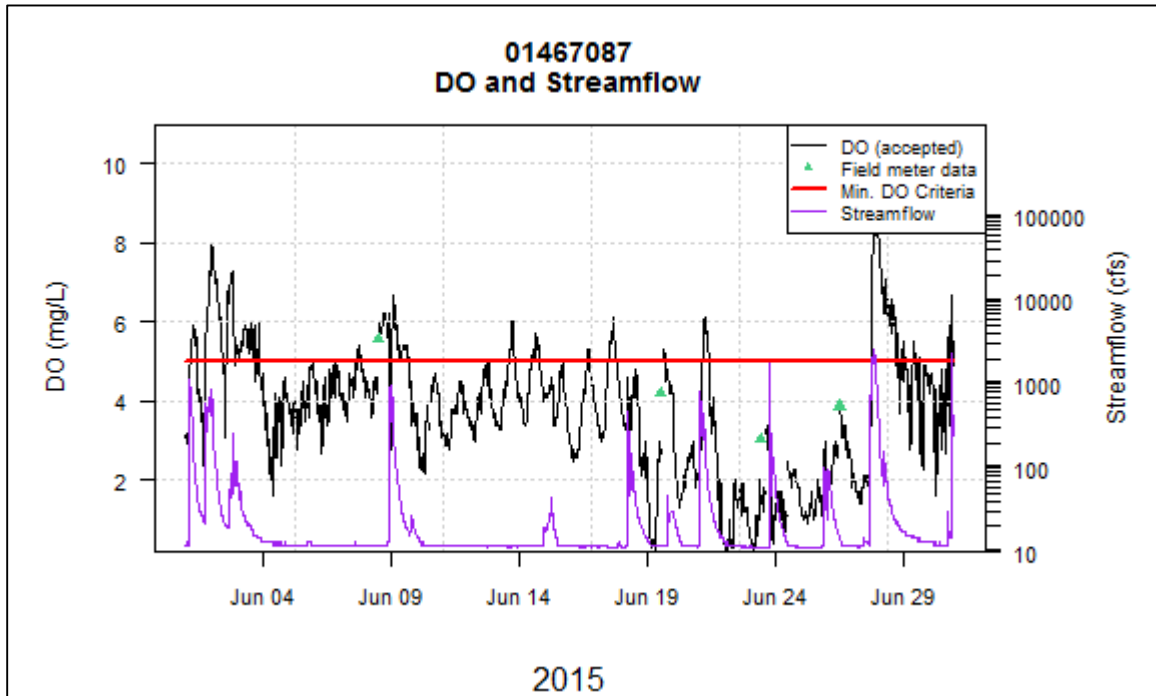


Figure 9. Gage 01467087, Dissolved Oxygen and Streamflow, June 2015.

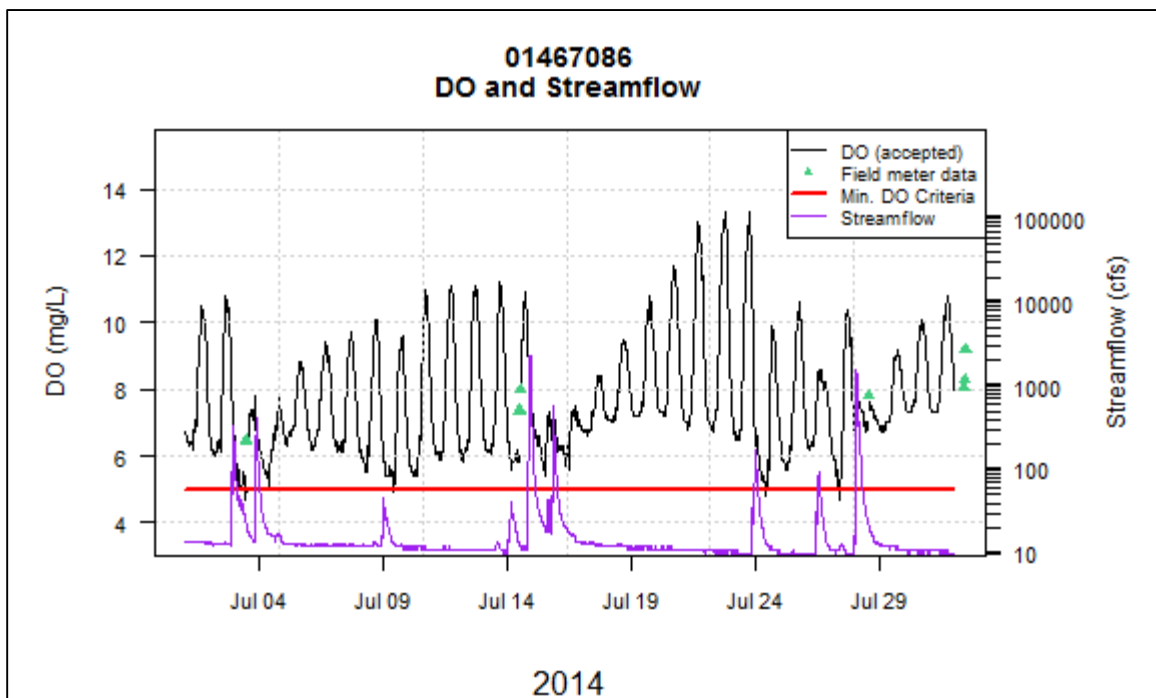


Figure 10. Gage 01467086, Dissolved Oxygen and Streamflow, July 2014.

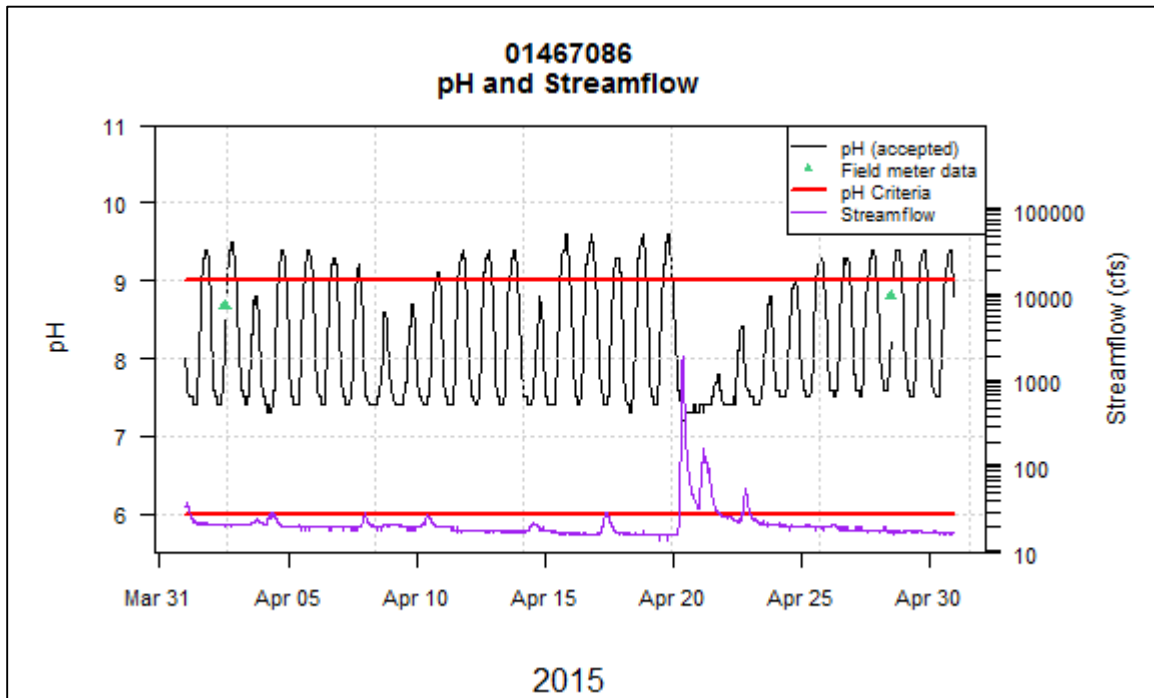


Figure 11. Gage 01467086, pH and Streamflow, April 2015.

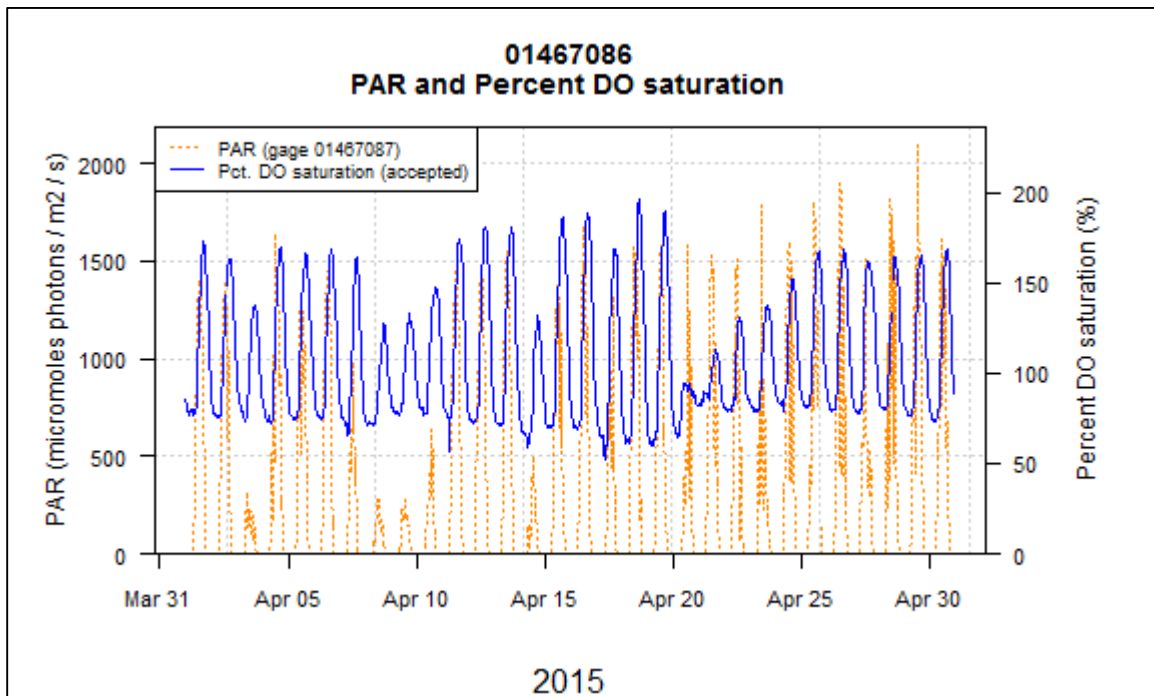


Figure 12. Gage 01467086, PAR and Percent Dissolved Oxygen Saturation, April 2015.



**Figure 13.** Gage 01467086, Tacony Creek at Adams Ave.



**Figure 14.** Gage 01467087, Frankford Creek at Castor Ave., looking downstream

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Specific Conductance**

Specific conductance observations were usually consistent between the two gage sites (Tables 19-20). Elevated levels of specific conductance were observed in November and March and 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-14	742.0	30.9	0.3	80.0	703.0	562.5
Aug-14	742.0	30.9	0.3	208.0	743.0	632.9
Sep-14	717.0	29.9	0.4	84.0	746.0	611.8
Oct-14	741.5	30.9	0.3	132.0	717.0	527.8
Nov-14	711.5	29.6	1.2	112.0	2410.0	634.4
Mar-15	367.0	15.3	0.5	452.0	2280.0	959.5
Apr-15	718.0	29.9	0.3	94.0	831.0	757.6
May-15	742.5	30.9	0.2	607.0	811.0	778.4
Jun-15	717.5	29.9	0.3	89.0	805.0	573.2

**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-14	736.0	30.7	1.1	66.0	712.0	536.6
Aug-14	738.5	30.8	0.7	268.0	758.0	602.9
Sep-14	716.0	29.8	0.6	232.0	738.0	588.3
Oct-14	728.5	30.4	2.1	224.0	709.0	508.1
Nov-14	717.0	29.9	0.4	196.0	2140.0	614.8
Mar-15	678.0	28.3	0.6	514.0	4650.0	1178.7
Apr-15	714.0	29.8	0.8	69.0	920.0	741.8
May-15	739.5	30.8	0.6	397.0	911.0	772.0
Jun-15	714.0	29.8	0.8	110.0	780.0	507.6

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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 in March, April and May (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	0.3	742.0	30.9	18.6	26.5	22.8
WWF	1-Aug	15-Aug	0.0	100.0	0.6	358.0	14.9	17.8	24.9	21.3
WWF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.3	359.0	14.9	14.6	26.5	19.6
WWF	16-Sep	30-Sep	0.0	100.0	0.6	358.0	14.9			
WWF	1-Oct	15-Oct	0.0	100.0	0.3	359.0	14.9	9.3	20.4	14.7
WWF	16-Oct	31-Oct	4.1	95.9	0.3	383.0	16.0			
WWF	1-Nov	15-Nov	0.0	100.0	2.4	351.5	14.6	0.8	13.6	7.3
WWF	16-Nov	30-Nov	11.3	88.8	0.0	360.0	15.0			
WWF	1-Mar	31-Mar	29.6	70.4	47.3	367.0	15.3	2.3	12.9	6.7
WWF	1-Apr	15-Apr	56.5	43.5	0.1	359.5	14.9	5.2	20.9	12.8
WWF	16-Apr	30-Apr	51.5	48.5	0.4	358.5	14.9			
WWF	1-May	15-May	58.6	41.4	0.4	358.5	14.9	12.2	25.2	19.0
WWF	16-May	31-May	22.4	77.6	0.0	384.0	16.0			
WWF	1-Jun	15-Jun	0.0	100.0	0.4	358.5	14.9	15.1	27.0	21.6
WWF	16-Jun	30-Jun	0.0	100.0	0.3	359.0	15.0			



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	1.1	736.0	30.7	21.2	27.3	24.0
WWF	1-Aug	15-Aug	0.0	100.0	1.1	356.0	14.8	20.1	25.5	22.5
WWF	16-Aug	31-Aug	0.0	100.0	0.4	382.5	15.9			
WWF	1-Sep	15-Sep	0.0	100.0	0.8	357.0	14.9	16.0	27.5	20.5
WWF	16-Sep	30-Sep	0.0	100.0	0.3	359.0	14.9			
WWF	1-Oct	15-Oct	0.0	100.0	0.8	357.0	14.9	10.6	21.0	15.2
WWF	16-Oct	31-Oct	5.7	94.3	3.3	371.5	15.5			
WWF	1-Nov	15-Nov	0.0	100.0	0.6	358.0	14.9	1.5	12.9	7.12
WWF	16-Nov	30-Nov	12.7	87.3	0.3	359.0	15.0			
WWF	1-Mar	31-Mar	6.7	93.3	2.6	678.0	28.3	0.0	10.3	5.5
WWF	1-Apr	15-Apr	63.9	36.0	0.6	358.0	14.9	6.4	18.8	12.8
WWF	16-Apr	30-Apr	52.2	47.8	1.1	356.0	14.8			
WWF	1-May	15-May	71.9	28.1	0.7	357.5	14.9	14.4	26.0	19.9
WWF	16-May	31-May	35.6	64.4	0.5	382.0	15.9			
WWF	1-Jun	15-Jun	1.9	98.1	0.6	358.0	14.9	15.4	27.8	22.2
WWF	16-Jun	30-Jun	0.0	100.0	1.1	356.0	14.8			



### **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 April—a key month for algal growth—pH exceeded the maximum guideline at the downstream gage (Table 28). Algae remove CO<sub>2</sub> 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 over 125% during the day, while the downstream gage recorded peak DO saturation levels over 150% (Figures 21-22).

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	WWF	742.0	30.9	0.3	0.0	100.0	6.0	10.7	7.9
Aug-14	WWF	743.0	30.9	0.3	0.0	100.0	6.5	11.2	8.3
Sep-14	WWF	718.5	29.9	0.2	0.0	100.0	7.4	9.8	8.5
Oct-14	WWF	742.0	30.9	0.3	0.0	100.0	7.4	12.3	9.2
Nov-14	WWF	719.5	29.9	0.1	0.0	100.0	8.8	13.6	11.0
Mar-15	WWF	513.0	21.4	0.0	0.0	100.0	9.8	16.3	12.5
Apr-15	WWF	720.0	30.0	0.0	0.0	100.0	7.3	15.1	10.6
May-15	WWF	743.0	31.9	0.1	0.0	100.0	5.2	13.1	8.5
Jun-15	WWF	717.0	29.9	0.4	0.0	100.0	6.2	9.8	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-14	WWF	727.5	30.3	2.2	23.8	76.2	1.1	12.0	6.3
Aug-14	WWF	738.0	30.8	0.8	2.8	97.2	4.1	13.3	7.5
Sep-14	WWF	690.5	28.8	4.1	11.6	88.4	1.2	11.7	6.9
Oct-14	WWF	710.0	29.6	4.6	0.0	100.0	5.6	12.0	8.4
Nov-14	WWF	706.0	29.4	1.9	0.0	100.0	7.7	13.4	10.6
Mar-15	WWF	372.0	15.5	27.6	0.0	100.0	10.2	18.7	13.9
Apr-15	WWF	696.5	29.0	3.3	0.0	100.0	6.4	19.2	10.9
May-15	WWF	654.5	27.3	12.0	16.6	83.4	1.9	13.1	7.1
Jun-15	WWF	715.0	29.8	0.7	8.9	91.1	2.6	10.5	6.9

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

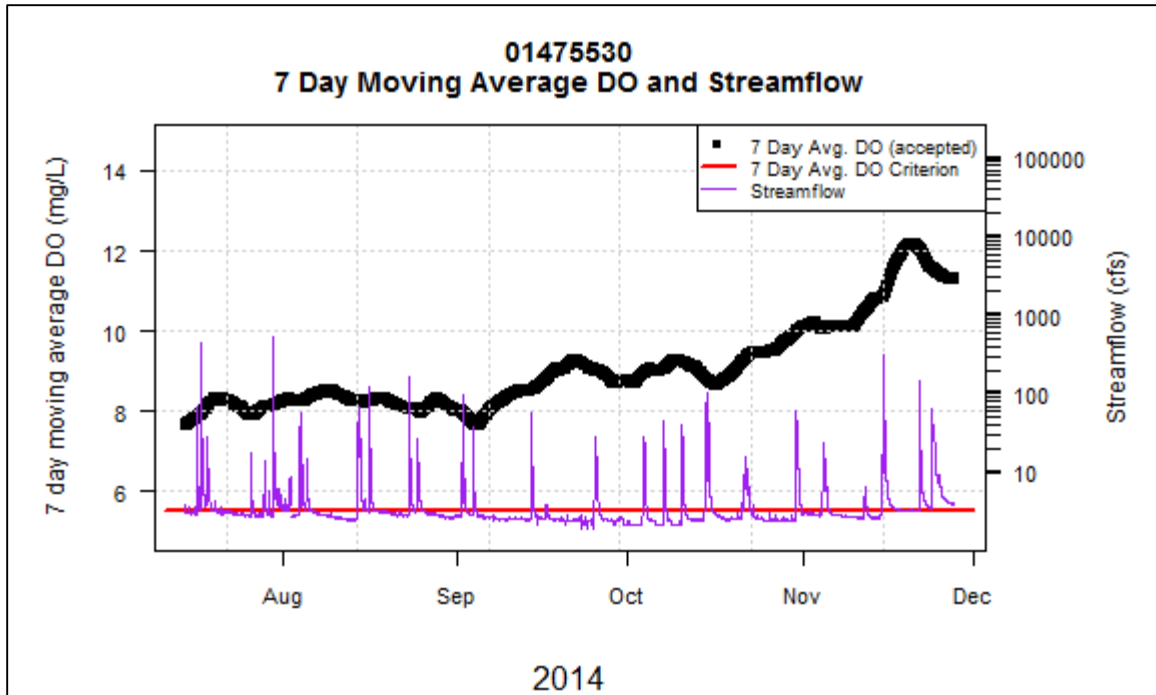


Figure 15. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

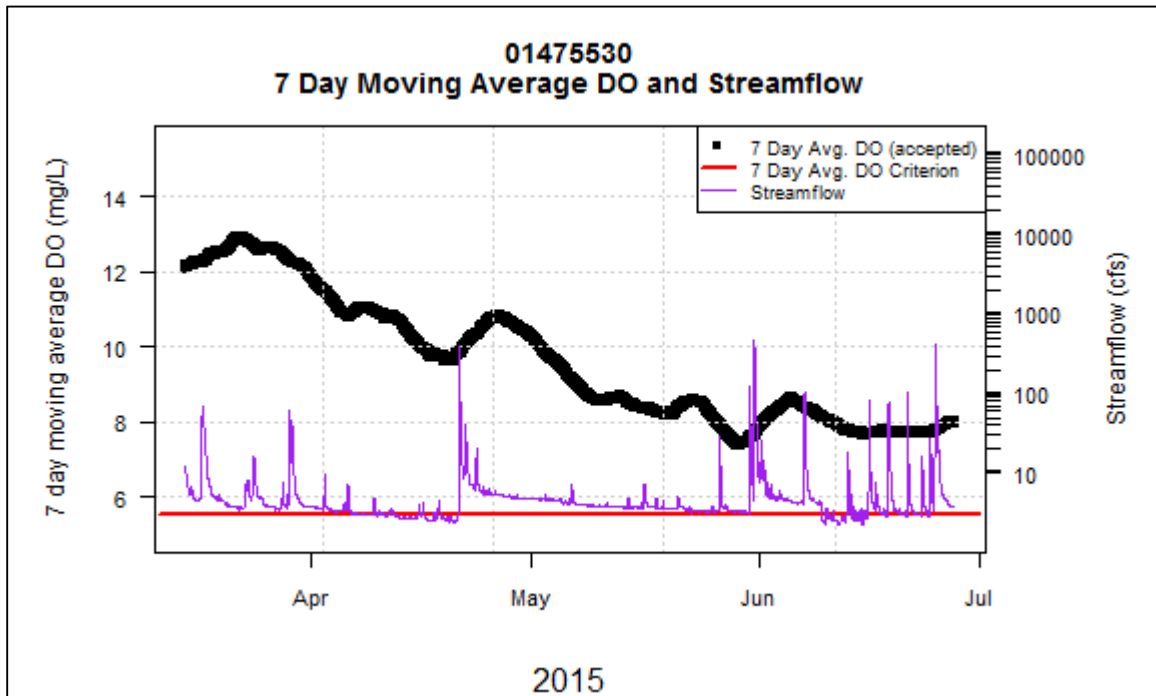


Figure 16. Gage 01475530, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

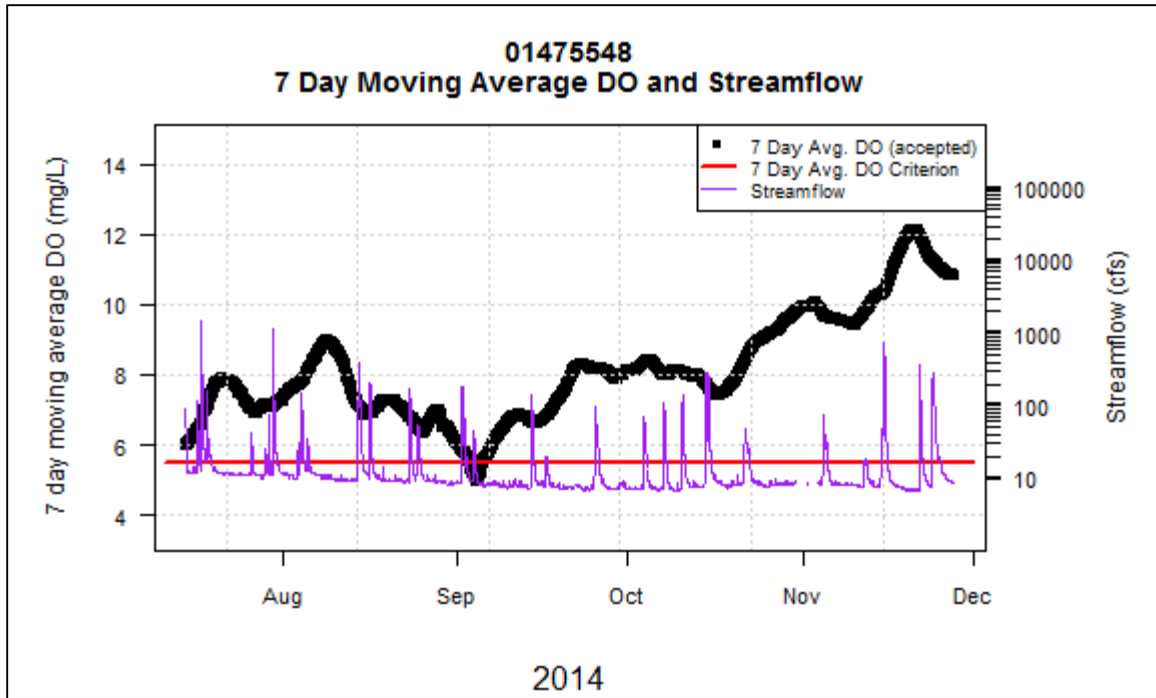


Figure 17. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

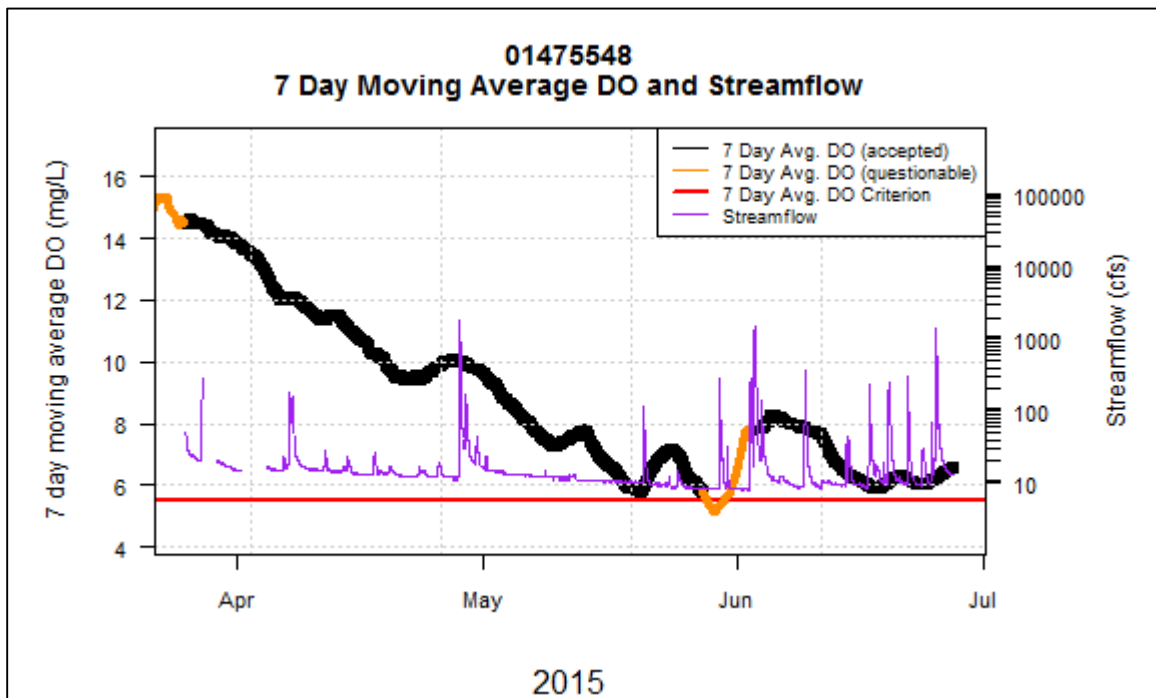


Figure 18. Gage 01475548, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	WWF	30.0	3.2	7.2	8.6	7.9
Aug-14	WWF	30.0	3.2	7.8	8.8	8.3
Sep-14	WWF	29.0	3.3	7.4	9.8	8.5
Oct-14	WWF	30.0	3.2	8.1	10.3	9.2
Nov-14	WWF	29.0	3.3	9.4	12.9	10.9
Mar-15	WWF	21.0	1.7	11.6	13.2	12.5
Apr-15	WWF	30.0	0.0	9.2	12.1	10.6
May-15	WWF	30.0	3.2	6.6	10.3	8.5
Jun-15	WWF	27.0	10.0	7.4	8.8	7.9

**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-14	WWF	16.0	48.4	4.3	8.3	6.2
Aug-14	WWF	28.0	9.7	5.6	9.5	7.4
Sep-14	WWF	17.0	43.3	2.9	8.4	6.5
Oct-14	WWF	13.0	58.1	6.9	10.2	8.3
Nov-14	WWF	26.0	13.3	8.4	13.2	10.7
Mar-15	WWF	12.0	43.9	12.4	15.6	13.9
Apr-15	WWF	19.0	36.7	9.4	14.2	11.3
May-15	WWF	15.0	51.6	3.6	9.4	6.7
Jun-15	WWF	27.0	10.0	4.5	8.5	6.8

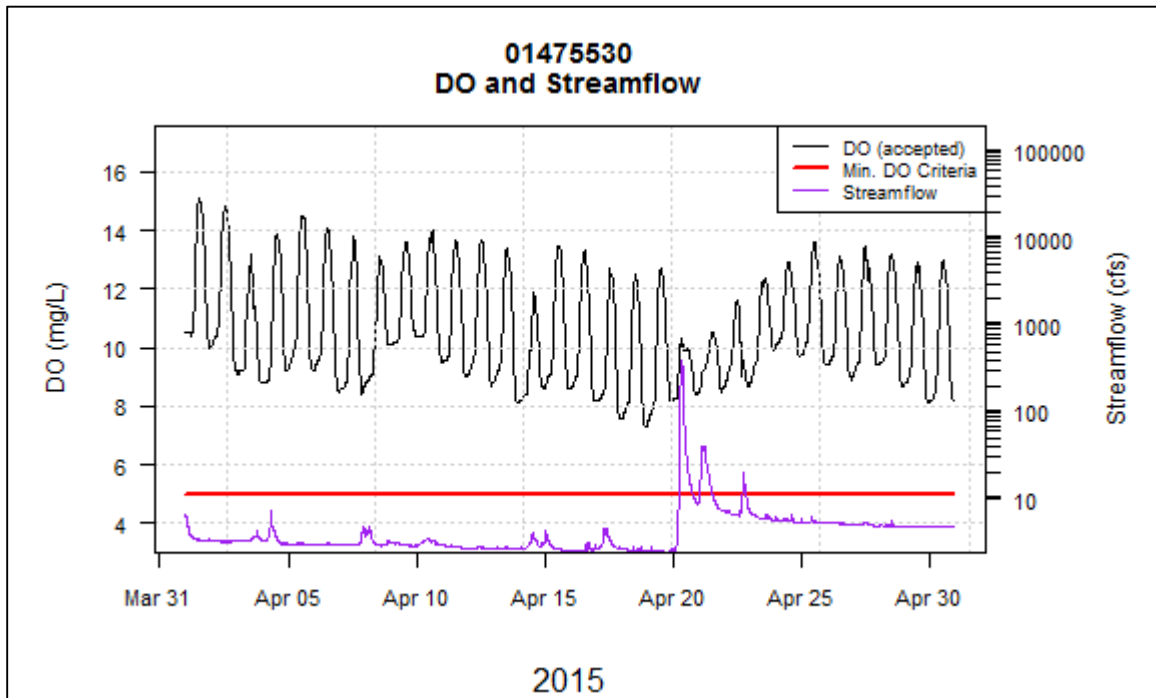
CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 27.** Gage 01475530 pH Criteria Summary Results by Month

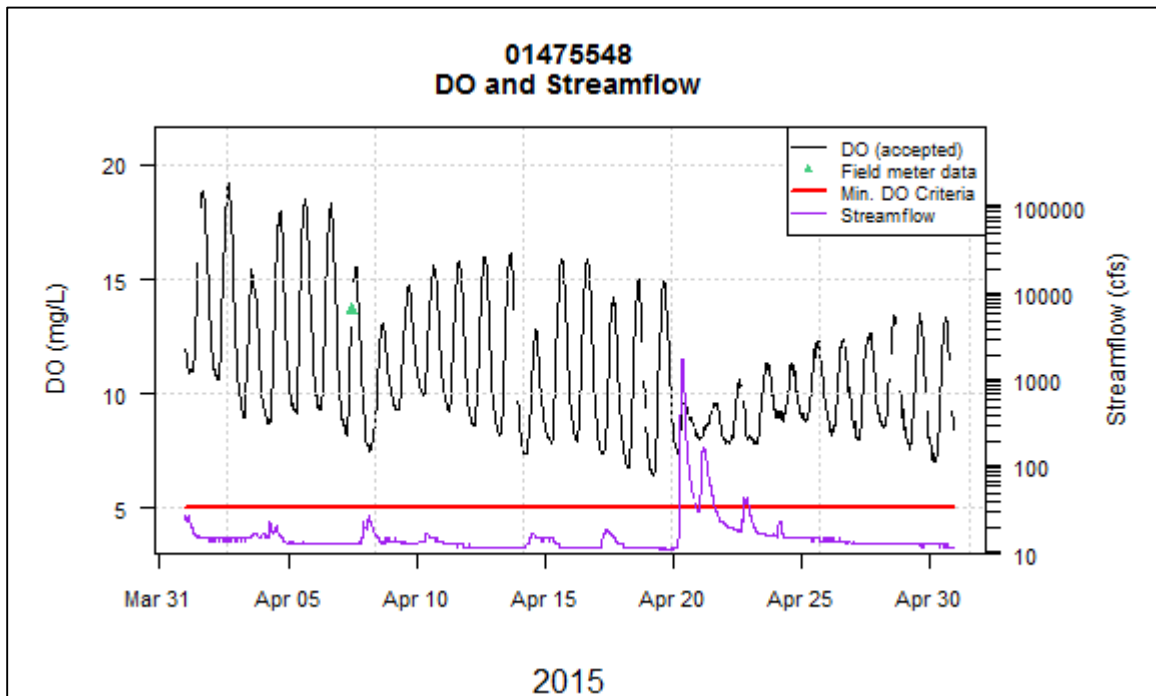
Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. max. non-attaining	% days max. non-attaining	% hrs. min. non-attaining	% days min. non-attaining	% hrs. attaining	% days attaining	Min.	Max.	Mean
Jul-14	742.0	30.9	0.3	0.0	0.0	0	0	100.0	100.0	6.5	8.2	7.4
Aug-14	743.0	30.9	0.1	0.0	0.0	0	0	100.0	100.0	6.5	8.2	7.3
Sep-14	718.5	29.9	0.2	0.0	0.0	0	0	100.0	100.0	6.9	8.4	7.4
Oct-14	742.0	30.9	0.3	0.0	0.0	0	0	100.0	100.0	7.0	8.1	7.4
Nov-14	719.5	29.9	0.1	0.1	0.1	0	0	99.9	99.9	7.1	9.3	7.4
Mar-15	513.0	21.4	0.0	0.0	0.0	0	0	100.0	100.0	7.2	8.9	7.6
Apr-15	720.0	30.0	0.0	0.0	0.0	0	0	100.0	100.0	7.2	9.0	7.6
May-15	743.0	30.9	0.1	0.0	0.0	0	0	100.0	100.0	6.9	8.6	7.5
Jun-15	656.5	27.4	8.8	0.0	0.0	0	0	100.0	100.0	6.5	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-14	738.0	30.8	0.8	0.0	0.0	0	0	100.0	100.0	6.5	8.6	7.4
Aug-14	742.0	30.9	0.3	0.0	0.0	0	0	100.0	100.0	6.8	8.9	7.5
Sep-14	707.5	29.5	1.7	0.0	0.0	0	0	100.0	100.0	6.7	8.7	7.7
Oct-14	651.0	27.1	12.5	0.0	0.0	0	0	100.0	100.0	7.1	8.6	7.7
Nov-14	709.0	29.5	1.5	0.0	0.0	0	0	100.0	100.0	7.1	7.8	7.5
Mar-15	372.0	15.5	27.6	0.0	0.0	0	0	100.0	100.0	7.0	8.9	7.6
Apr-15	696.5	29.0	3.3	4.9	36.7	0	0	95.1	63.3	7.0	9.3	7.9
May-15	715.0	29.8	3.9	0.0	0.0	0	0	100.0	100.0	6.9	8.7	7.4
Jun-15	715.0	29.7	0.7	0.0	0.0	0	0	100.0	100.0	6.7	8.2	7.4

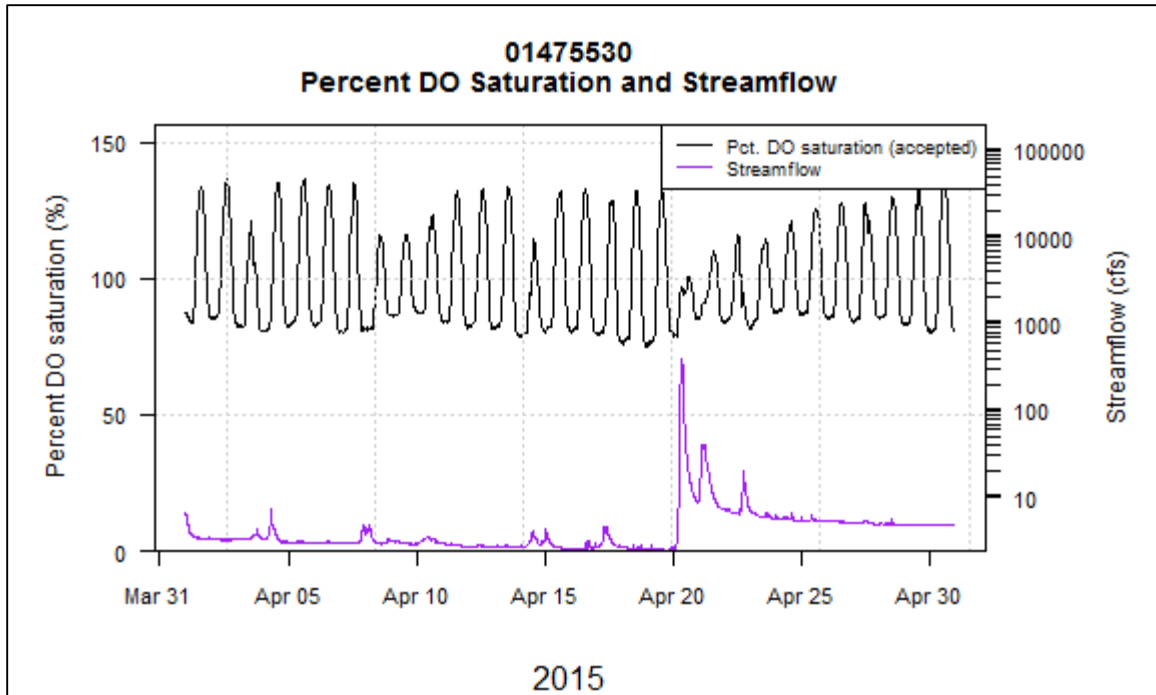


**Figure 19.** Gage 01475530, Dissolved Oxygen and Streamflow, April 2015.

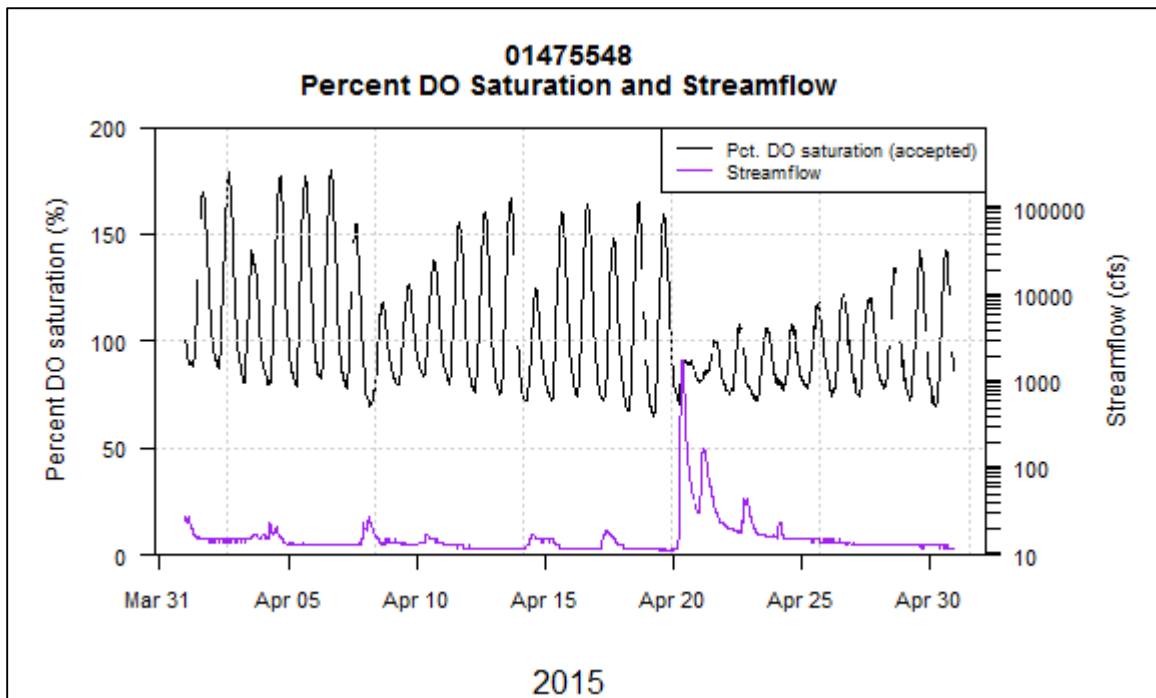


**Figure 20.** Gage 01475548, Dissolved Oxygen and Streamflow, April 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 21.** Gage 01475530, Percent DO Saturation and Streamflow, April 2015.



**Figure 22.** Gage 01475548, Percent DO Saturation and Streamflow, April 2015.





**Figure 23.** Gage 01475530, Cobbs Creek at Rte. 1, looking upstream



**Figure 24.** Gage 01475548, Cobbs Creek at Mt. Moriah Cemetery

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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 had significant impact on conductance at the upstream gage in November and March. However, the typical pattern of stormwater lowering conductance levels in the stream is well-observed during the frequent 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-14	742.0	30.9	0.3	69.0	522.0	465.6
Aug-14	743.0	30.9	0.1	79.0	560.0	458.0
Sep-14	718.5	29.9	0.2	105.0	528.0	477.1
Oct-14	742.0	30.9	0.3	105.0	522.0	454.5
Nov-14	719.5	29.9	0.1	78.0	2970.0	524.4
Mar-15	513.0	21.3	0.0	324.0	3320.0	835.9
Apr-15	720.0	30.0	0.0	122.0	672.0	595.2
May-15	743.0	30.9	0.1	384.0	645.0	571.3
Jun-15	695.5	28.9	3.4	70.0	595.0	475.8

**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-14	738.5	30.8	0.7	90.0	672.0	534.0
Aug-14	741.5	30.9	0.3	156.0	672.0	534.6
Sep-14	704.0	29.3	2.2	267.0	680.0	567.4
Oct-14	726.0	30.3	2.4	192.0	672.0	510.3
Nov-14	709.5	29.6	1.5	133.0	2080.0	615.2
Mar-15	372.0	15.5	27.6	451.0	1310.0	824.0
Apr-15	698.5	29.1	2.9	166.0	799.0	722.9
May-15	717.0	29.8	3.6	371.0	785.0	725.9
Jun-15	715.0	29.8	0.7	94.0	782.0	531.7

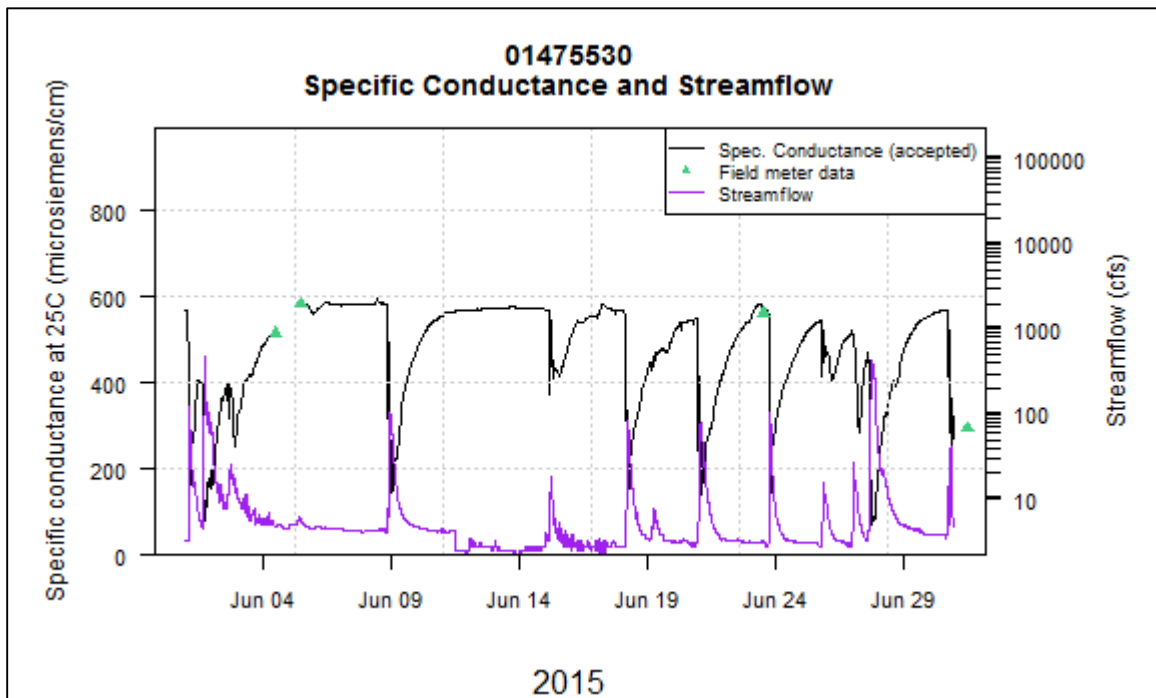


Figure 25. Gage 01475530, Specific Conductance and Streamflow, June 2015.

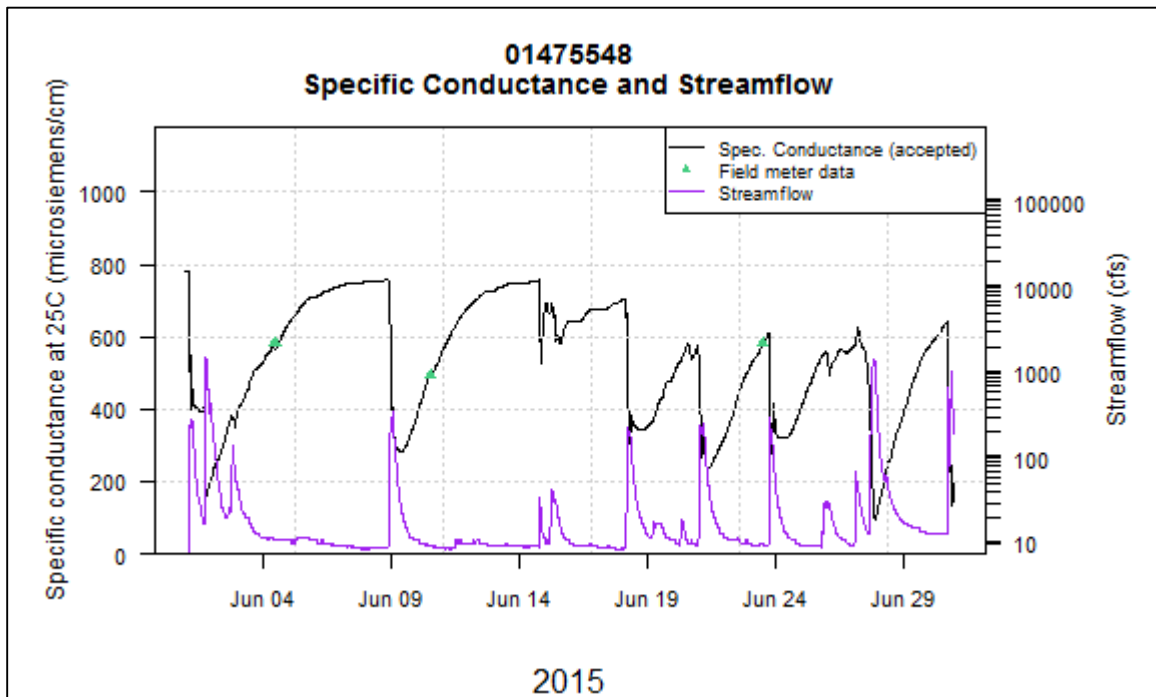


Figure 26. Gage 01475548, Specific Conductance and Streamflow, June 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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 in April and 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	0.3	741.5	30.9	18.1	25.9	21.7
WWF	1-Aug	15-Aug	0.0	100.0	0.3	359.0	14.9	17.3	23.6	20.4
WWF	16-Aug	31-Aug	0.0	100.0	0.4	382.5	15.9			
WWF	1-Sep	15-Sep	0.0	100.0	0.4	358.5	14.9	14.4	24.9	18.8
WWF	16-Sep	30-Sep	0.0	100.0	0.0	360.0	15.0			
WWF	1-Oct	15-Oct	0.0	100.0	0.0	358.0	14.9	9.4	20.8	14.4
WWF	16-Oct	31-Oct	0.9	99.09	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	0.0	100.0	0.0	360.0	15.0	1.5	13.7	7.6
WWF	16-Nov	30-Nov	11.5	88.5	0.1	359.5	14.9			
WWF	1-Mar	31-Mar	19.5	80.5	26.3	513.0	21.4	2.8	12.1	6.5
WWF	1-Apr	15-Apr	49.9	50.1	0.0	360.0	15.0	5.4	19.8	12.3
WWF	16-Apr	30-Apr	42.6	57.4	0.0	360.0	15.0			
WWF	1-May	15-May	38.1	61.8	0.3	359.0	14.9	12.0	23.8	17.9
WWF	16-May	31-May	9.7	90.2	0.0	384.0	16.0			
WWF	1-Jun	15-Jun	0.0	100.0	0.7	357.5	14.9	15.1	25.4	20.6
WWF	16-Jun	30-Jun	0.0	100.0	0.1	359.5	14.9			

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

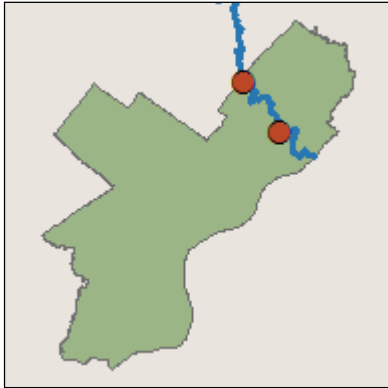
**Table 32.** Gage 01475548 Temperature Summary Results by Maximum Criteria Period

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	0.5	740.0	30.8	19.7	27.3	23.3
WWF	1-Aug	15-Aug	0.0	100.0	0.4	358.5	14.9	18.7	24.9	21.6
WWF	16-Aug	31-Aug	0.0	100.0	0.0	384.0	16.0			
WWF	1-Sep	15-Sep	0.0	100.0	0.6	358.0	14.9	15.0	26.1	19.7
WWF	16-Sep	30-Sep	0.0	100.0	2.8	350.0	14.6			
WWF	1-Oct	15-Oct	0.0	100.0	1.9	353.0	14.7	9.8	20.2	14.7
WWF	16-Oct	31-Oct	2.8	97.2	1.4	378.5	15.8			
WWF	1-Nov	15-Nov	0.0	100.0	7.0	334.5	13.9	1.0	13.1	7.2
WWF	16-Nov	30-Nov	12.3	87.7	0.4	358.5	14.9			
WWF	1-Mar	31-Mar	22.3	77.7	46.6	372.0	15.5	3.3	11.3	6.8
WWF	1-Apr	15-Apr	58.2	41.8	1.7	354.0	14.8	5.8	20.2	12.9
WWF	16-Apr	30-Apr	52.6	47.4	3.3	348.0	14.5			
WWF	1-May	15-May	63.4	36.6	5.6	340.0	14.2	13.3	26.0	19.4
WWF	16-May	31-May	26.4	73.6	1.0	380.0	15.8			
WWF	1-Jun	15-Jun	0.0	100.0	0.6	358.0	14.9	15.6	26.9	21.9
WWF	16-Jun	30-Jun	0.0	100.0	0.8	357.0	14.9			

## 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 sometimes higher than 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 both gages in the spring. 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. A malfunctioning pH port at 01467048 is responsible for the large amount of flagged data during March.

Algal communities in the area of both gages recover quickly after storm events, as seen in Figures 33-34. Prior to the storm event in April 2015, both DO and pH showed the typical pronounced fluctuations indicative of strong algal activity. This stopped abruptly with the storm, when much of the algae was likely scoured away and overcast conditions



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

likely inhibited further growth, as indicated by the PAR data at 01467048 for April 2015 (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-14	TSF	742.0	30.9	0.3	0.0	100.0	5.9	11.7	7.7
Aug-14	TSF	742.0	30.9	0.3	0.0	100.0	6.0	10.8	7.9
Sep-14	TSF	719.0	29.9	0.1	0.0	100.0	5.7	13.4	8.8
Oct-14	TSF	739.5	30.8	0.6	0.0	100.0	6.1	12.7	9.2
Nov-14	TSF	719.5	29.9	0.7	0.0	100.0	8.4	13.3	10.9
Mar-15	TSF	443.0	18.5	0.2	0.0	100.0	9.8	16.7	12.2
Apr-15	TSF	718.5	29.9	0.2	0.0	100.0	5.9	19.5	11.3
May-15	TSF	743.0	30.9	0.1	0.5	99.5	4.8	16.0	8.2
Jun-15	TSF	718.0	29.9	0.3	0.0	100.0	5.7	10.4	7.5

**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-14	TSF	741.0	30.9	0.4	0.0	100.0	5.8	13.8	8.0
Aug-14	TSF	740.0	30.8	0.5	0.0	100.0	6.0	14.3	8.6
Sep-14	TSF	717.5	29.9	0.3	0.0	100.0	5.9	13.2	8.7
Oct-14	TSF	741.0	30.8	0.4	0.0	100.0	7.5	12.3	9.3
Nov-14	TSF	717.5	29.9	0.3	0.0	100.0	8.5	14.0	11.5
Mar-15	TSF	534.5	22.3	0.5	0.0	100.0	10.5	16.2	13.5
Apr-15	TSF	713.0	29.7	0.9	0.0	100.0	7.1	17.8	11.5
May-15	TSF	741.5	30.9	0.3	0.0	100.0	5.5	16.6	8.3
Jun-15	TSF	715.5	29.8	0.6	0.0	100.0	5.8	10.4	8.0

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

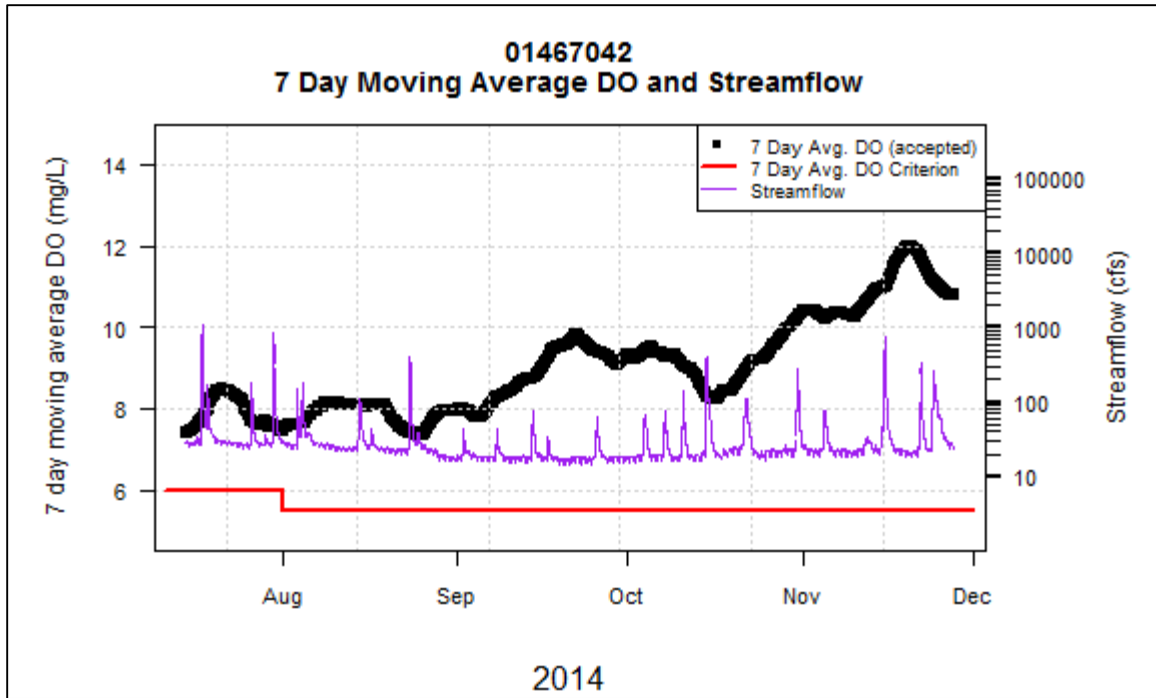


Figure 27. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

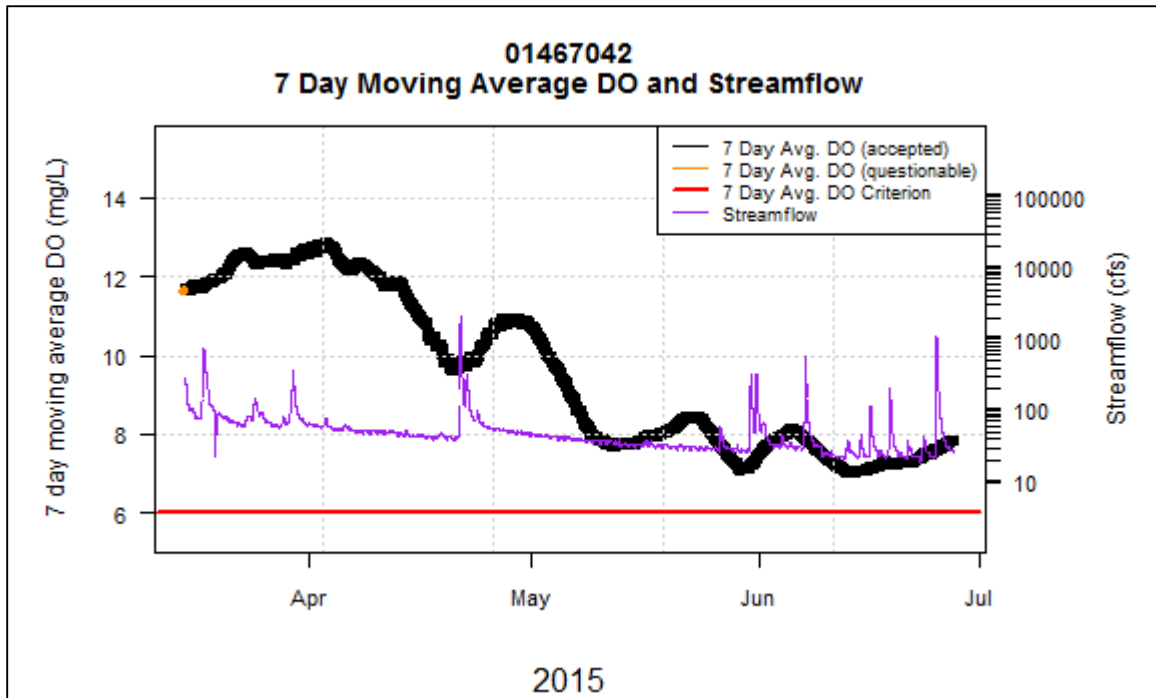


Figure 28. Gage 01467042, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

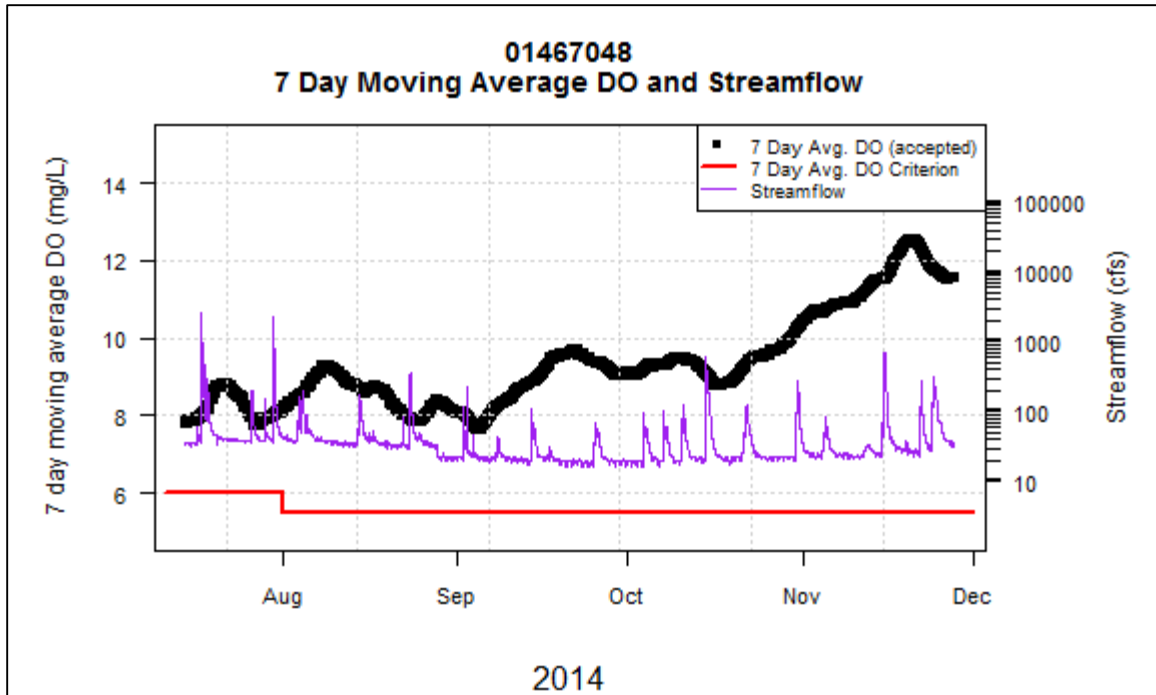


Figure 29. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

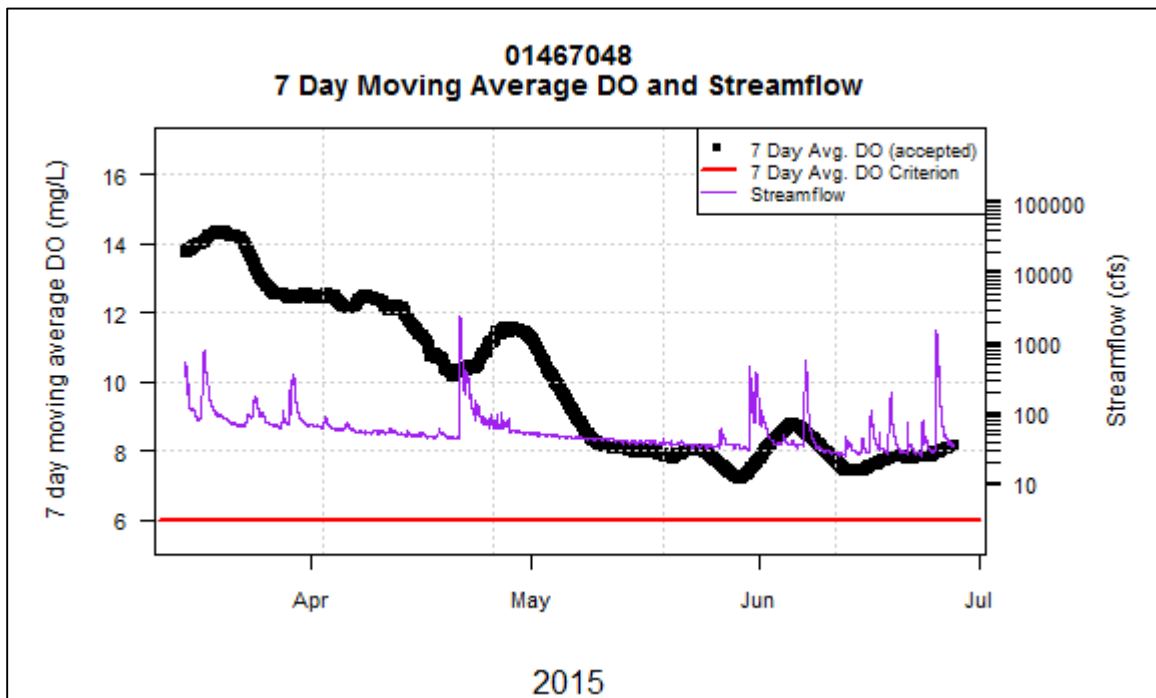


Figure 30. Gage 01467048, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	TSF	29.0	6.5	6.6	9.0	7.7
Aug-14	TSF	29.0	6.5	6.8	8.5	7.8
Sep-14	TSF	29.0	3.3	7.6	10.5	8.8
Oct-14	TSF	27.0	12.9	7.4	10.5	9.1
Nov-14	TSF	29.0	3.3	8.9	12.7	10.9
Mar-15	TSF	17.0	8.1	10.9	16.7	12.2
Apr-15	TSF	29.0	3.3	8.3	13.4	11.3
May-15	TSF	30.0	3.2	6.4	10.8	8.2
Jun-15	TSF	28.0	6.7	6.7	8.5	7.5

**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-14	TSF	28.0	9.7	7.2	9.6	8.0
Aug-14	TSF	28.0	9.7	7.4	9.6	8.6
Sep-14	TSF	28.0	6.7	7.3	10.2	8.8
Oct-14	TSF	29.0	6.5	8.2	10.5	9.3
Nov-14	TSF	28.0	6.7	9.6	13.3	11.5
Mar-15	TSF	20.0	10.6	11.3	15.3	13.5
Apr-15	TSF	25.0	16.7	8.9	13.1	11.6
May-15	TSF	29.0	6.5	6.9	11.3	8.3
Jun-15	TSF	27.0	10.0	7.2	8.9	7.9

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	742.0	30.9	0.2	0.0	0.0	0	0	100.0	100.0	7.1	8.6	7.6
Aug-14	741.5	30.9	0.3	0.0	0.0	0	0	100.0	100.0	7.2	8.2	7.6
Sep-14	719.0	29.9	0.1	0.0	0.0	0	0	100.0	100.0	7.4	8.7	7.9
Oct-14	739.5	30.8	0.6	0.0	0.0	0	0	100.0	100.0	7.1	8.6	7.6
Nov-14	719.0	29.9	0.1	0.0	0.0	0	0	100.0	100.0	7.1	7.6	7.4
Mar-15	443.0	18.5	0.2	0.0	0.0	0	0	100.0	100.0	7.2	8.8	7.6
Apr-15	718.5	29.9	0.2	6.2	33.3	0	0	93.8	66.7	7.1	9.3	7.9
May-15	743.0	30.9	0.1	0.0	0.0	0	0	100.0	100.0	7.2	8.9	7.5
Jun-15	718.0	29.9	0.3	0.0	0.0	0	0	100.0	100.0	7.1	8.1	7.4

**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-14	741.0	30.9	0.4	0.0	0.0	0	0	100.0	100.0	6.7	9.0	7.6
Aug-14	740.0	30.8	0.6	0.0	0.0	0	0	100.0	100.0	7.0	9.0	7.7
Sep-14	717.5	29.9	0.3	0.0	0.0	0	0	100.0	100.0	6.9	8.8	7.7
Oct-14	741.0	30.9	0.4	0.0	0.0	0	0	100.0	100.0	7.0	8.6	7.6
Nov-14	717.5	29.9	0.3	0.0	0.0	0	0	100.0	100.0	7.2	8.2	7.7
Mar-15	202.0	8.4	62.4	0.0	0.0	0	0	100.0	100.0	7.4	8.6	7.8
Apr-15	696.0	29.0	3.3	25.8	70.0	0	0	74.2	30.0	7.2	9.8	8.5
May-15	741.5	30.9	0.3	1.7	9.7	0	0	98.3	90.3	7.2	9.4	7.8
Jun-15	715.5	29.8	0.6	0.0	0.0	0	0	100.0	100.0	6.9	8.2	7.5

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

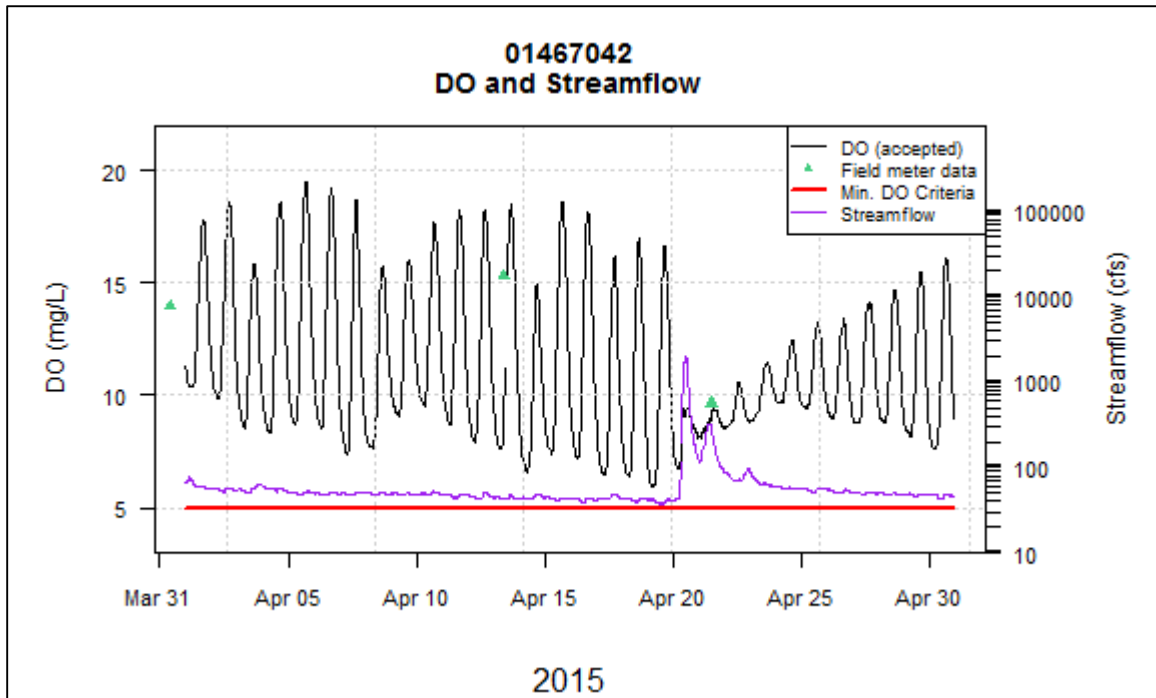


Figure 31. Gage 01467042, Dissolved Oxygen and Streamflow, April 2015.

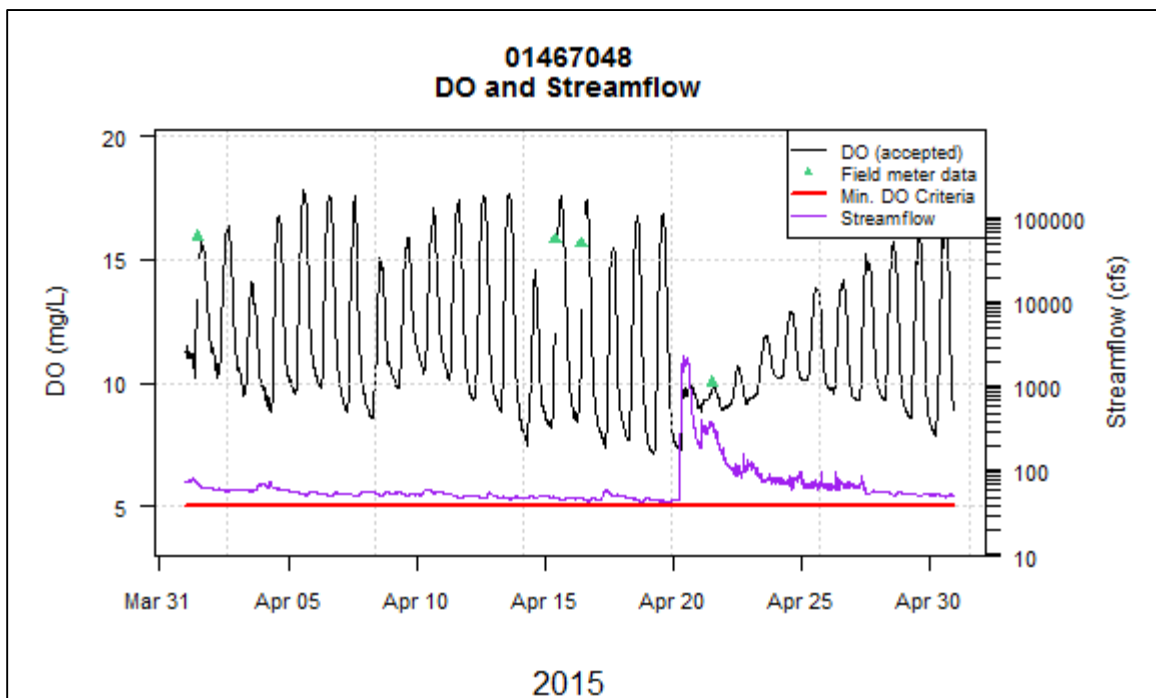


Figure 32. Gage 01467048, Dissolved Oxygen and Streamflow, April 2015.

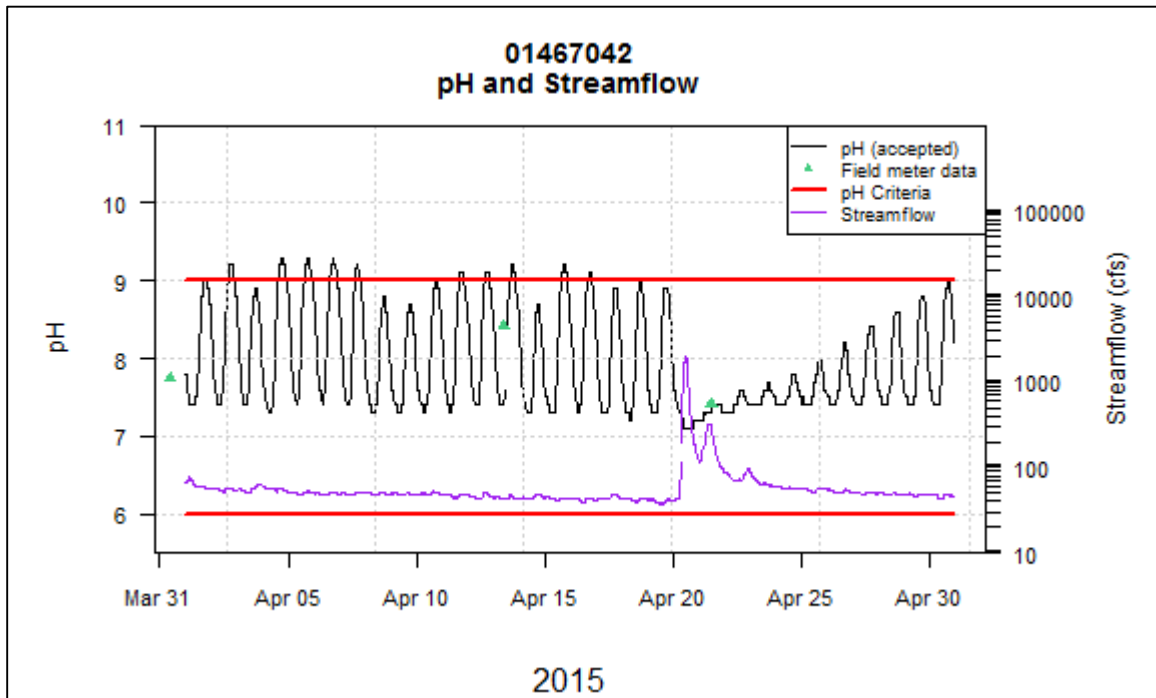


Figure 33. Gage 01467042, pH and Streamflow, April 2015.

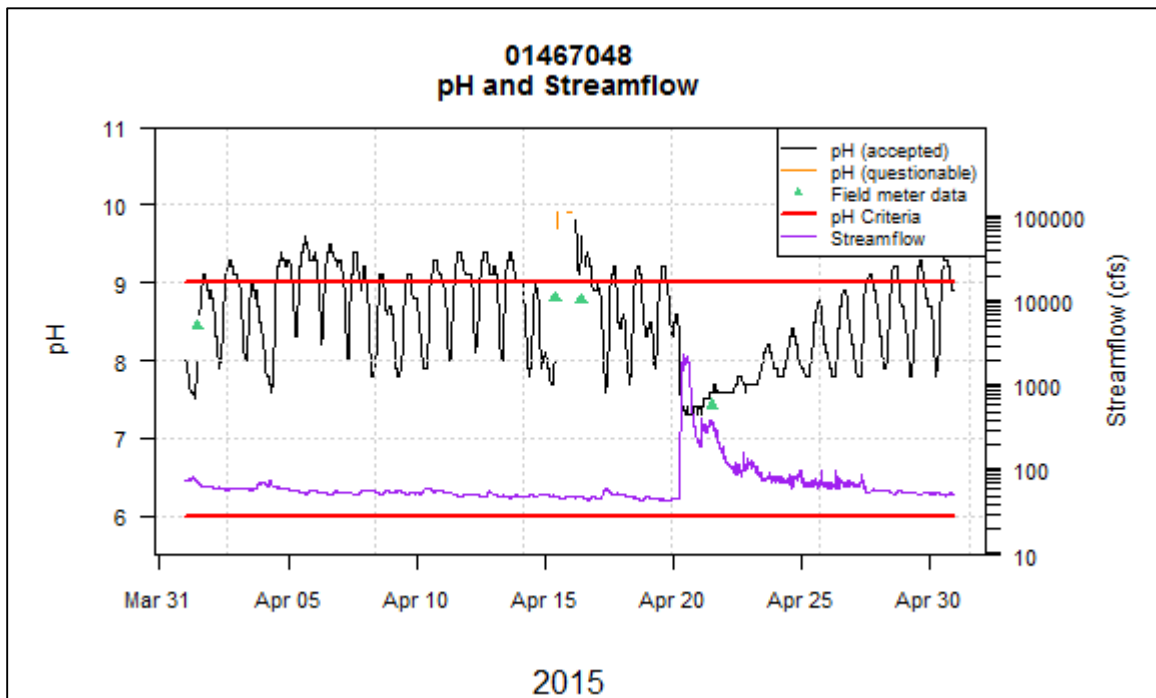
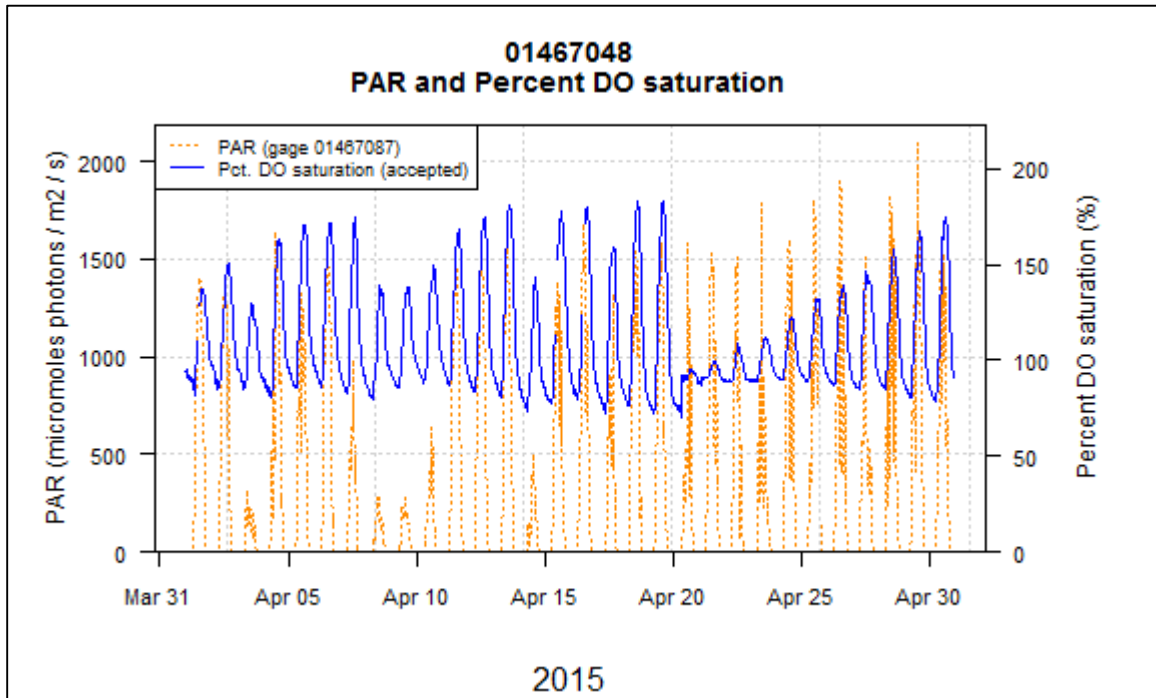


Figure 34. Gage 01467048, pH and Streamflow, April 2015.



**Figure 35.** Gage 01467048, PAR and Percent Dissolved Oxygen Saturation, April 2015.



**Figure 36.** Gage 01467042, Pennypack Creek at Pine Rd., looking upstream



**Figure 37.** Gage 01467048, Pennypack Creek at Lower Rhawn St. Bridge, looking upstream



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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 September and October, the large amount of flagged data at the upstream gage is due to discrepancies between the sonde and field meter readings. Water seeping into the sonde port may have caused the issue. An intense storm in July is responsible for the high turbidity at the downstream gage; although it is likely that the sonde pipe was clogged for a period after the storm, it is general procedure not to flag turbidity data that returns to normal levels without manual cleaning.

**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-14	735.5	30.6	1.1	18.9	81.1	0.0	440.0	4.4
Aug-14	733.5	30.6	1.4	20.9	79.1	0.0	56.0	2.0
Sep-14	573.0	23.9	20.4	1.2	98.8	0.0	6.2	0.5
Oct-14	25.0	1.0	96.6	2.0	98.0	0.0	3.1	0.7
Nov-14	704.5	29.4	2.2	22.6	77.4	0.1	160.0	5.2
Mar-15	443.0	18.5	0.2	85.4	14.6	0.8	94.0	6.6
Apr-15	718.5	29.9	0.2	9.3	90.7	0.7	480.0	4.8
May-15	743.0	30.9	0.1	2.8	97.2	0.6	8.8	1.4
Jun-15	717.5	29.9	0.3	34.8	65.2	0.1	270.0	7.5

**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-14	736.0	30.7	1.1	31.3	68.7	0.1	1390	23.9
Aug-14	739.5	30.8	0.6	18.8	81.2	0.6	28.0	2.4
Sep-14	717.5	29.9	0.3	7.7	92.3	0.3	34.0	1.4
Oct-14	741.0	30.9	0.4	13.5	86.5	0.1	100.0	2.3
Nov-14	717.5	29.9	0.3	49.3	50.7	0.6	99.0	5.1
Mar-15	480.0	20.0	10.6	79.9	20.1	1.7	230.0	17.7
Apr-15	713.0	29.7	0.9	18.4	81.6	1.3	590.0	9.3
May-15	741.5	30.9	0.3	3.4	96.6	1.0	18.0	1.6
Jun-15	715.5	29.8	0.6	56.7	43.3	0.9	220.0	7.6



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

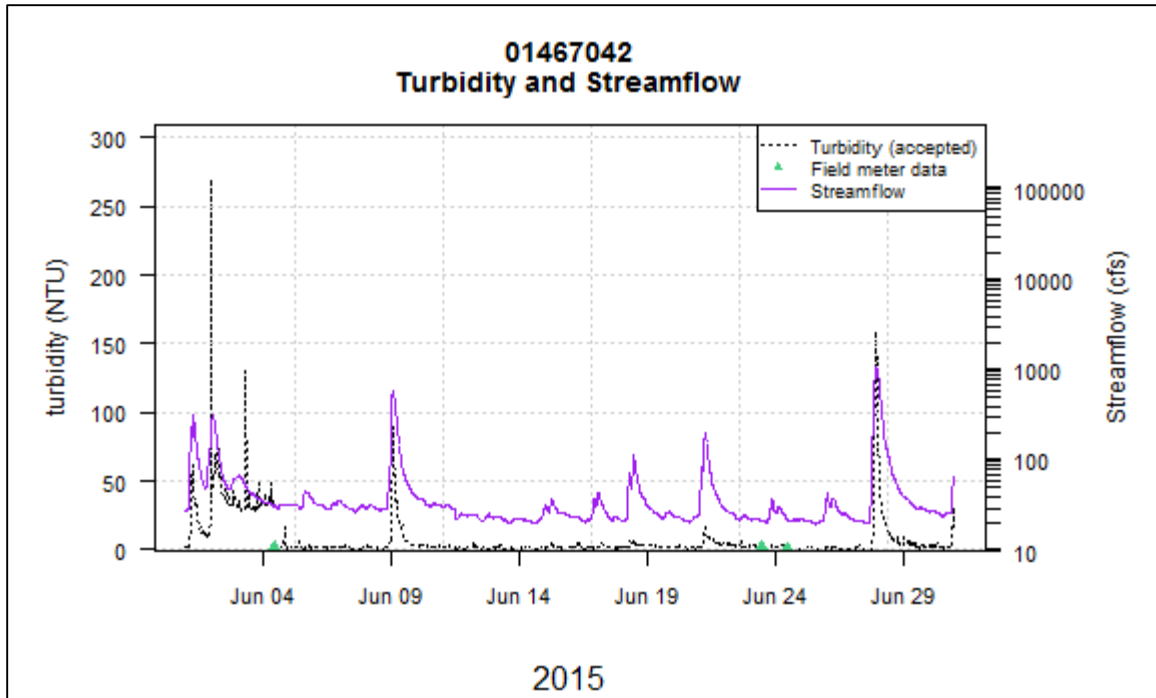


Figure 38. Gage 01467042, Turbidity and Streamflow, June 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Specific Conductance**

Specific conductance data were similar to other Philadelphia area streams. Elevated mean and maximum conductance values at both gages in November and 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-14	741.5	30.9	0.3	194.0	720.0	583.9
Aug-14	741.5	30.9	0.3	307.0	727.0	618.0
Sep-14	719.0	29.9	0.1	542.0	832.0	699.2
Oct-14	739.5	30.8	0.6	279.0	760.0	585.4
Nov-14	719.5	29.9	0.7	233.0	1570.0	632.9
Mar-15	443.0	18.5	0.2	587.0	2100.0	971.8
Apr-15	718.5	29.9	0.2	247.0	894.0	768.3
May-15	742.5	30.9	0.2	651.0	809.0	754.5
Jun-15	718.0	29.9	0.3	198.0	785.0	614.3

**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-14	741.0	30.9	0.4	131.0	679.0	523.9
Aug-14	740.0	30.8	0.5	300.0	712.0	575.6
Sep-14	717.5	29.9	0.3	157.0	775.0	656.1
Oct-14	741.0	30.9	0.4	202.0	715.0	535.4
Nov-14	717.5	29.9	0.3	219.0	1620.0	613.2
Mar-15	535.5	22.3	0.3	800.0	2420.0	1230.0
Apr-15	710.5	29.6	1.3	186.0	1030.0	789.8
May-15	741.5	30.9	0.3	645.0	791.0	757.9
Jun-15	715.5	29.8	0.6	177.0	747.0	545.3

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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 2014 (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	48.1	51.9	0.3	742.0	30.9	19.2	26.6	22.9
TSF	1-Aug	15-Aug	0.0	100.0	0.3	359.0	14.9	18.2	24.2	21.3
TSF	16-Aug	31-Aug	0.0	100.0	0.4	382.5	15.9			
TSF	1-Sep	15-Sep	0.0	100.0	0.3	359.0	15.0	15.1	25.1	19.4
TSF	16-Sep	30-Sep	0.0	100.0	0.4	360.0	15.0			
TSF	1-Oct	15-Oct	0.0	100.0	1.1	356.0	14.8	9.8	19.8	14.7
TSF	16-Oct	31-Oct	4.8	95.2	0.1	383.5	15.9			
TSF	1-Nov	15-Nov	0.0	100.0	0.0	360.0	15.0	1.7	12.9	7.5
TSF	16-Nov	30-Nov	11.3	88.7	0.1	359.5	14.9			
TSF	1-Mar	31-Mar	13.3	86.7	0.0	443.0	18.5	3.1	10.5	6.4
TSF	1-Apr	15-Apr	54.7	45.3	0.4	358.5	14.9	5.9	19.3	12.5
TSF	16-Apr	30-Apr	46.8	53.2	0.0	360.0	15.0			
TSF	1-May	15-May	54.6	45.4	0.3	359.0	14.9	12.6	24.5	18.8
TSF	16-May	31-May	48.0	51.9	0.0	384.0	16.0			
TSF	1-Jun	15-Jun	44.9	55.0	0.3	359.0	14.9	15.3	26.1	21.4
TSF	16-Jun	30-Jun	56.4	43.6	0.3	359.0	14.9			

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	67.8	32.2	0.4	741.0	30.9	20.6	28.2	23.9
TSF	1-Aug	15-Aug	0.0	100.0	0.6	358.0	14.9	19.4	26.0	22.1
TSF	16-Aug	31-Aug	0.0	100.0	0.5	382.0	15.9			
TSF	1-Sep	15-Sep	0.0	100.0	0.4	358.5	14.9	15.2	27.6	20.0
TSF	16-Sep	30-Sep	0.0	100.0	0.3	359.0	14.9			
TSF	1-Oct	15-Oct	0.0	100.0	0.4	358.5	14.9	9.9	19.9	15.0
TSF	16-Oct	31-Oct	5.1	94.9	0.4	382.5	15.9			
TSF	1-Nov	15-Nov	0.0	100.0	0.7	357.5	14.9	1.0	12.7	7.3
TSF	16-Nov	30-Nov	9.4	90.6	0.0	360.0	15.0			
TSF	1-Mar	31-Mar	9.6	90.4	0.0	535.5	22.3	2.9	9.9	6.2
TSF	1-Apr	15-Apr	60.4	39.6	0.9	356.5	14.9	6.0	19.9	12.9
TSF	16-Apr	30-Apr	53.0	46.9	0.9	356.5	14.9			
TSF	1-May	15-May	68.3	31.7	0.4	358.5	14.9	13.7	27.1	19.9
TSF	16-May	31-May	59.5	40.5	0.3	383.0	15.9			
TSF	1-Jun	15-Jun	52.9	47.1	0.7	357.5	14.9	15.7	28.6	22.2
TSF	16-Jun	30-Jun	70.1	29.9	0.6	358.0	14.9			

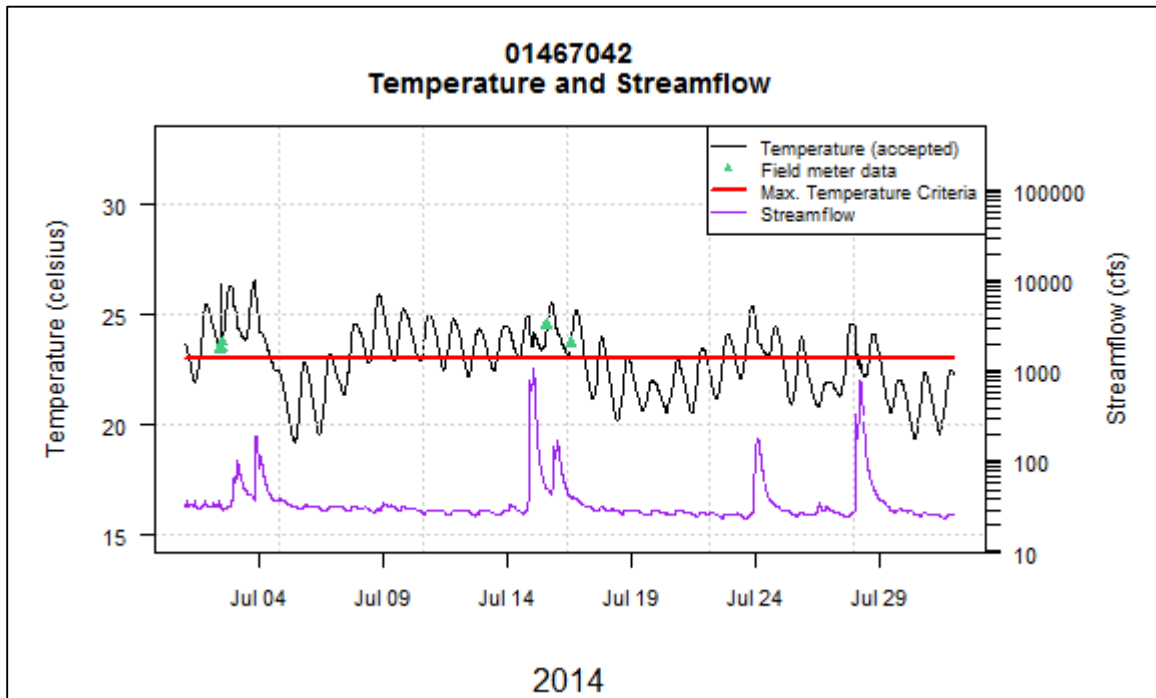


Figure 39. Gage 01467042, Temperature and Streamflow, July 2014.

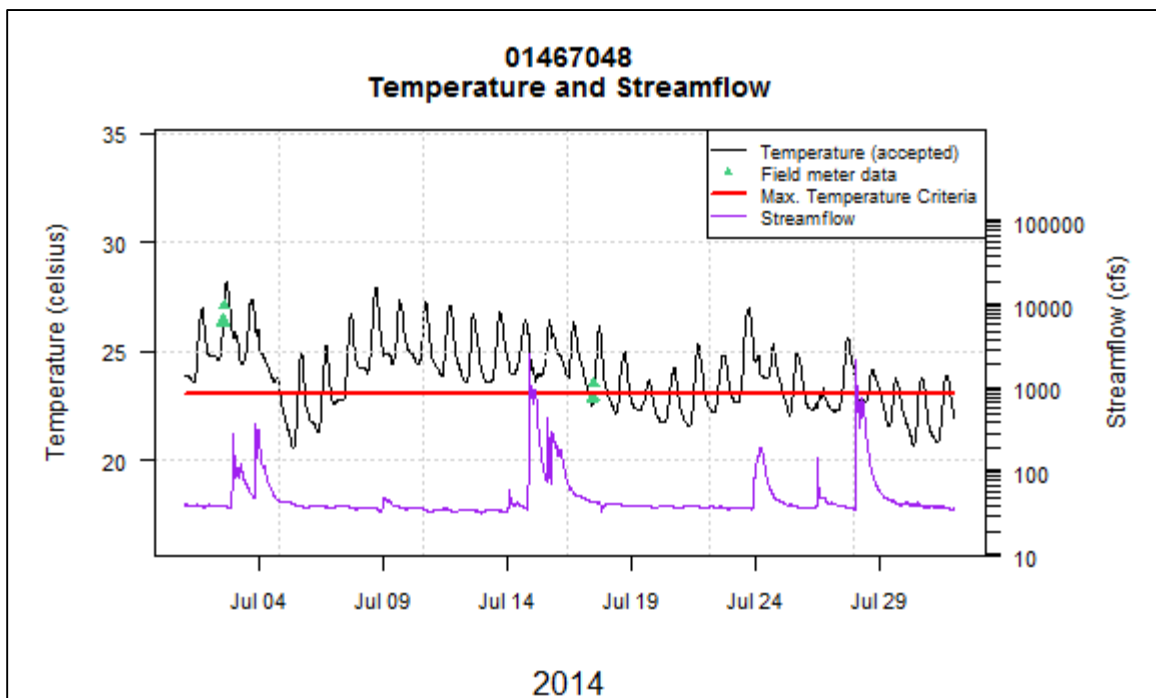
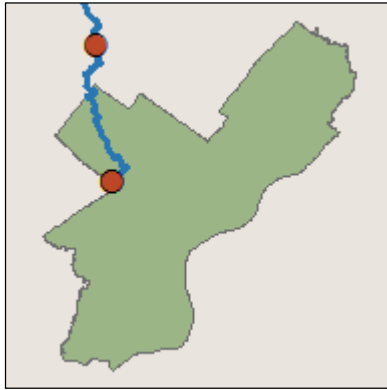


Figure 40. Gage 01467048, Temperature and Streamflow, July 2014.

### 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 2015, dissolved oxygen is seen fluctuating from 22.5 to 6.2 mg/L in a single day/night period (Figure 45), with pH ranging from approximately 9.4 to 7.6 at the same time (Figure 46). Seventy percent of the days in April exceeded pH maxima, a direct result of algal activity (Table 49).

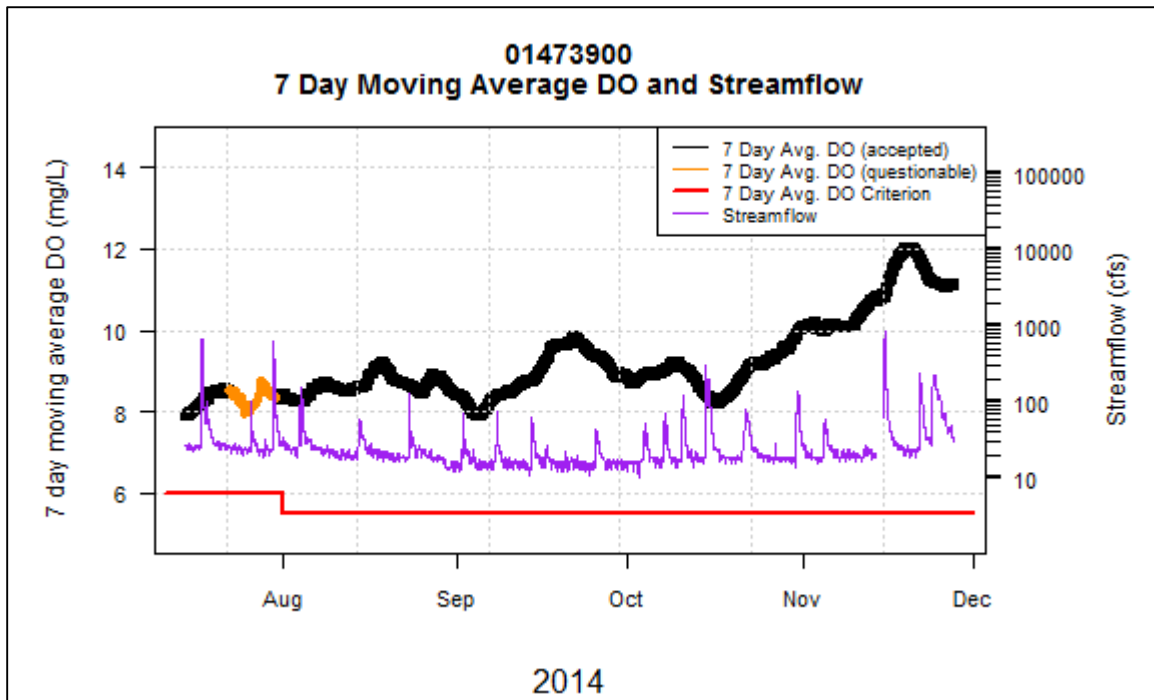
**Table 45.** Gage 01473900 Dissolved Oxygen Minimum Criterion Summary Results by Month

Month	Des. Use	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. non-attaining	% hrs. attaining	Min	Max	Mean
Jul-14	TSF	623.5	25.9	16.2	0.0	100.0	6.0	12.2	8.0
Aug-14	TSF	741.0	30.9	0.4	0.0	100.0	5.9	14.0	8.6
Sep-14	TSF	718.5	29.9	0.2	0.0	100.0	5.7	14.4	8.9
Oct-14	TSF	742.0	30.9	0.2	0.0	100.0	6.5	13.5	8.9
Nov-14	TSF	702.0	29.3	2.5	0.0	100.0	7.8	14.8	10.9
Mar-15	TSF	656.0	27.3	0.2	0.0	100.0	10.0	19.1	13.2
Apr-15	TSF	719.5	29.9	0.1	0.0	100.0	5.6	22.5	12.1
May-15	TSF	741.5	30.9	0.3	1.7	98.3	4.5	17.4	7.8
Jun-15	TSF	718.0	29.9	0.3	0.0	100.0	5.2	10.5	7.4

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	TSF	741.0	30.9	0.4	0.0	100.0	6.3	12.1	8.7
Aug-14	TSF	742.5	30.9	0.2	0.0	100.0	7.0	12.2	8.9
Sep-14	TSF	719.5	29.9	0.1	0.0	100.0	6.6	12.9	9.4
Oct-14	TSF	742.5	30.9	0.2	0.0	100.0	7.8	12.0	9.6
Nov-14	TSF	717.0	29.9	0.4	0.0	100.0	9.5	13.9	11.6
Mar-15	TSF	275.5	11.5	0.0	0.0	100.0	11.0	15.9	12.8
Apr-15	TSF	716.0	29.9	0.6	0.0	100.0	8.0	16.1	11.2
May-15	TSF	744.0	31.0	0.0	0.0	100.0	6.3	13.8	9.0
Jun-15	TSF	688.0	28.7	4.4	0.0	100.0	6.4	11.1	8.4



**Figure 41.** Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

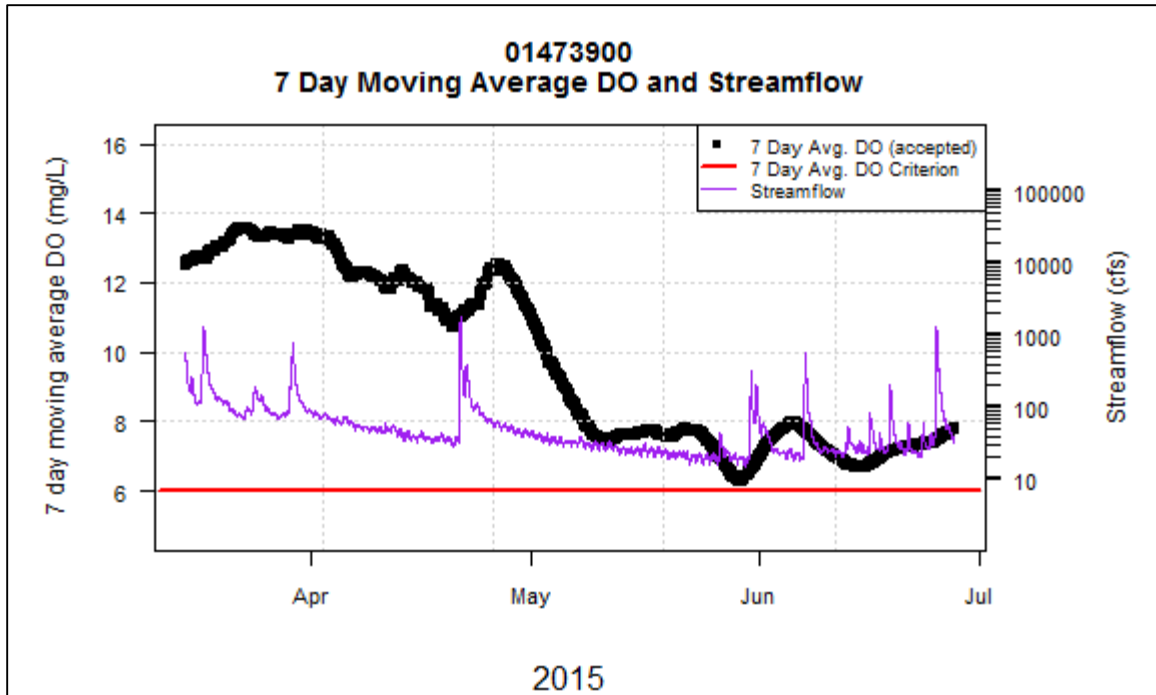


Figure 42. Gage 01473900, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

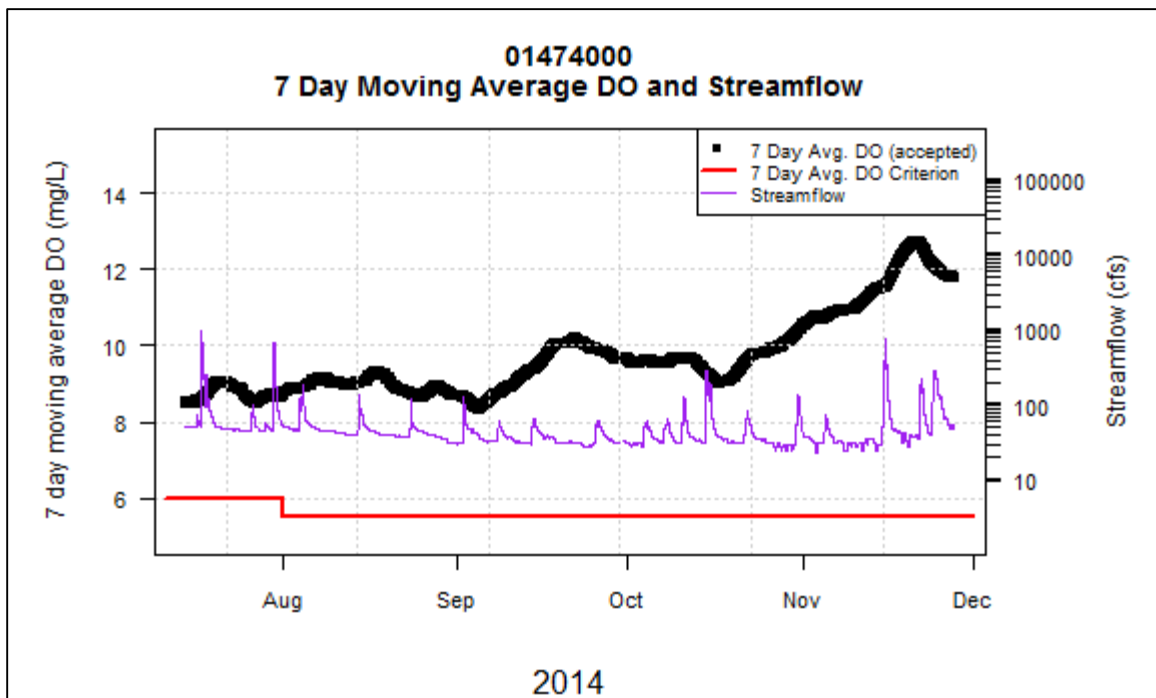
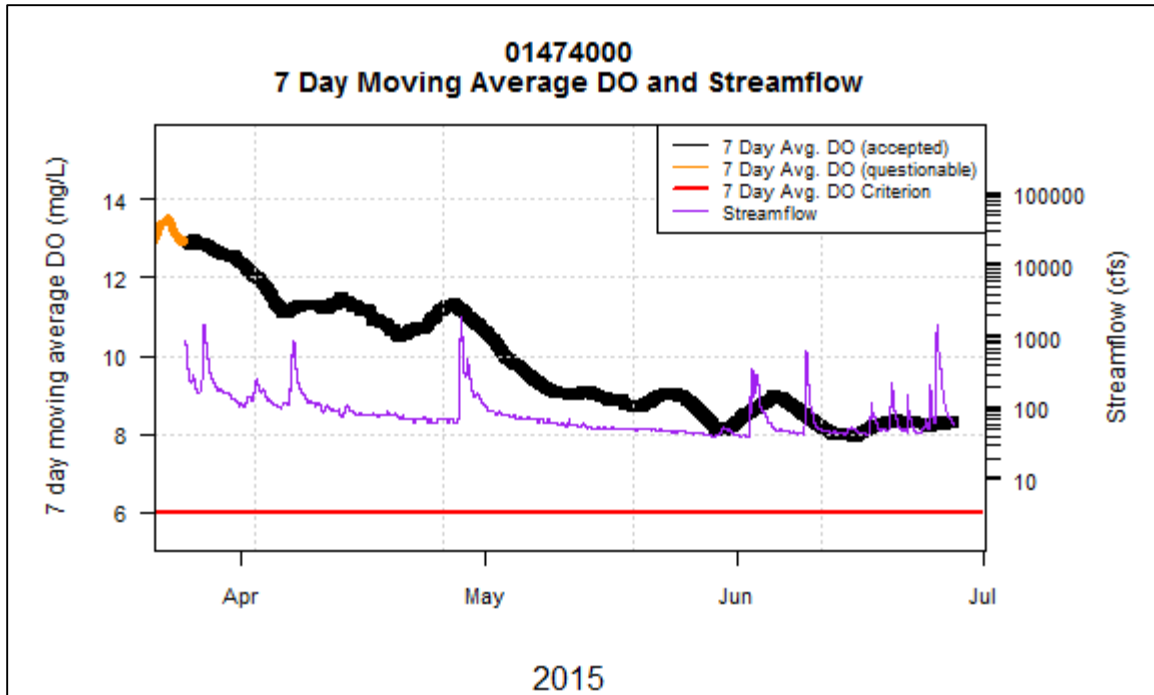


Figure 43. Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 44.** Gage 01474000, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

**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-14	TSF	24.0	0.0	6.7	8.9	8.0
Aug-14	TSF	28.0	9.7	7.3	9.4	8.6
Sep-14	TSF	29.9	0.2	5.7	14.4	8.9
Oct-14	TSF	29.0	6.5	7.3	10.9	8.9
Nov-14	TSF	26.0	13.3	8.7	12.6	10.9
Mar-15	TSF	25.0	8.7	11.5	14.2	13.2
Apr-15	TSF	29.0	3.3	8.3	14.4	11.9
May-15	TSF	28.0	9.7	5.7	10.6	7.8
Jun-15	TSF	28.0	6.7	6.4	8.5	7.4

**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-14	TSF	29.0	6.5	7.7	9.4	8.7
Aug-14	TSF	29.0	6.5	8.2	9.6	8.9
Sep-14	TSF	29.0	3.3	8.1	10.5	9.4
Oct-14	TSF	30.0	3.2	8.5	10.5	9.6
Nov-14	TSF	28.0	6.7	10.2	13.4	11.7
Mar-15	TSF	10.0	0.0	11.5	13.6	12.7
Apr-15	TSF	28.0	6.7	9.4	12.8	11.2
May-15	TSF	31.0	0.0	7.8	10.3	9.0
Jun-15	TSF	27.0	10.0	7.5	9.2	8.3

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	742.5	30.9	0.2	0.0	0.0	0	0	100.0	100.0	6.9	8.4	7.5
Aug-14	741.0	30.9	0.4	0.0	0.0	0	0	100.0	100.0	7.4	8.8	7.9
Sep-14	718.5	29.9	0.2	0.0	0.0	0	0	100.0	100.0	7.5	8.8	7.9
Oct-14	742.0	30.9	0.2	0.0	0.0	0	0	100.0	100.0	7.4	8.5	7.9
Nov-14	718.5	30.0	0.2	0.0	0.0	0	0	100.0	100.0	7.4	8.3	7.8
Mar-15	656.0	27.3	0.2	0.0	0.0	0	0	100.0	100.0	7.2	9.0	7.8
Apr-15	719.5	29.9	0.1	18.9	70.0	0	0	81.0	30.0	7.3	9.4	8.3
May-15	741.0	30.9	0.4	0.3	3.2	0	0	99.7	96.7	7.4	9.1	7.7
Jun-15	668.0	27.8	7.2	0.0	0.0	0	0	100.0	100.0	7.3	8.1	7.6

**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-14	741.0	30.9	0.4	0.0	0.0	0	0	100.0	100.0	7.4	8.8	8.2
Aug-14	743.0	30.9	0.1	0.0	0.0	0	0	100.0	100.0	7.7	8.7	8.2
Sep-14	719.5	29.9	0.1	0.0	0.0	0	0	100.0	100.0	7.7	8.7	8.3
Oct-14	742.5	30.9	0.2	0.0	0.0	0	0	100.0	100.0	7.7	8.6	8.1
Nov-14	717.0	29.9	0.4	0.0	0.0	0	0	100.0	100.0	7.1	8.3	8.0
Mar-15	275.5	11.5	25.5	0.0	0.0	0	0	100.0	100.0	7.6	8.9	8.2
Apr-15	716.0	29.8	0.6	0.6	6.7	0	0	99.4	93.3	7.3	9.1	8.3
May-15	744.0	31.0	0.0	0.0	0.0	0	0	100.0	100.0	7.6	8.7	8.0
Jun-15	686.0	28.6	4.7	0.0	0.0	0	0	100.0	100.0	7.6	8.7	8.1

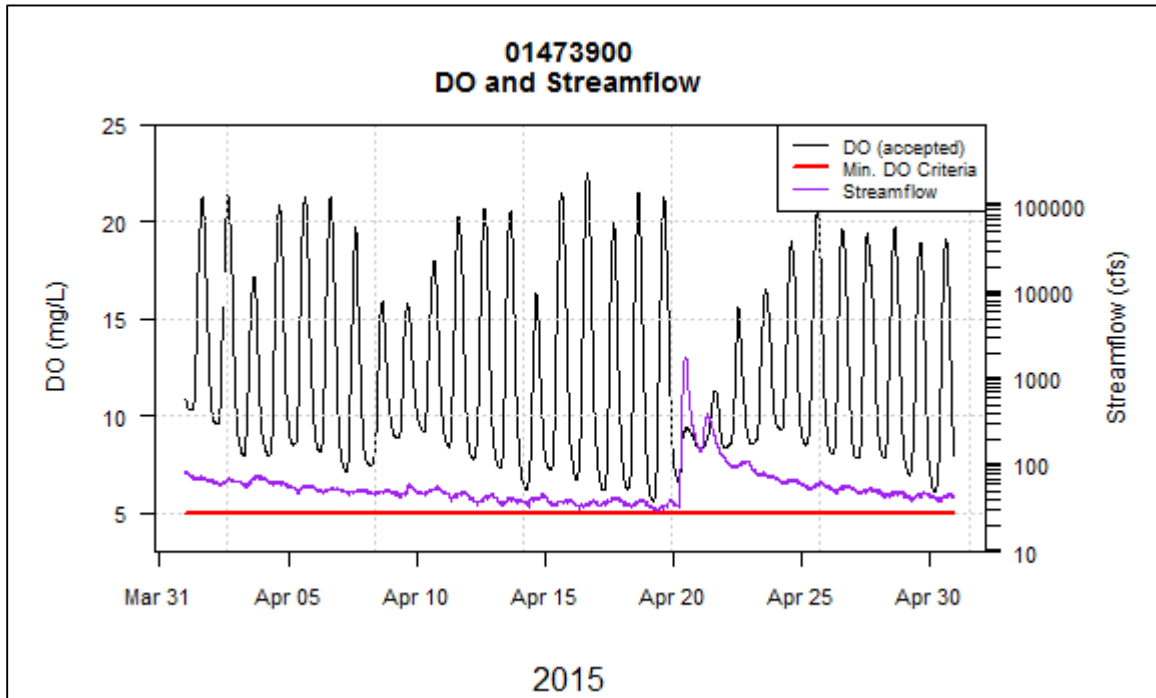


Figure 45. Gage 01473900, Dissolved Oxygen and Streamflow, April 2015.

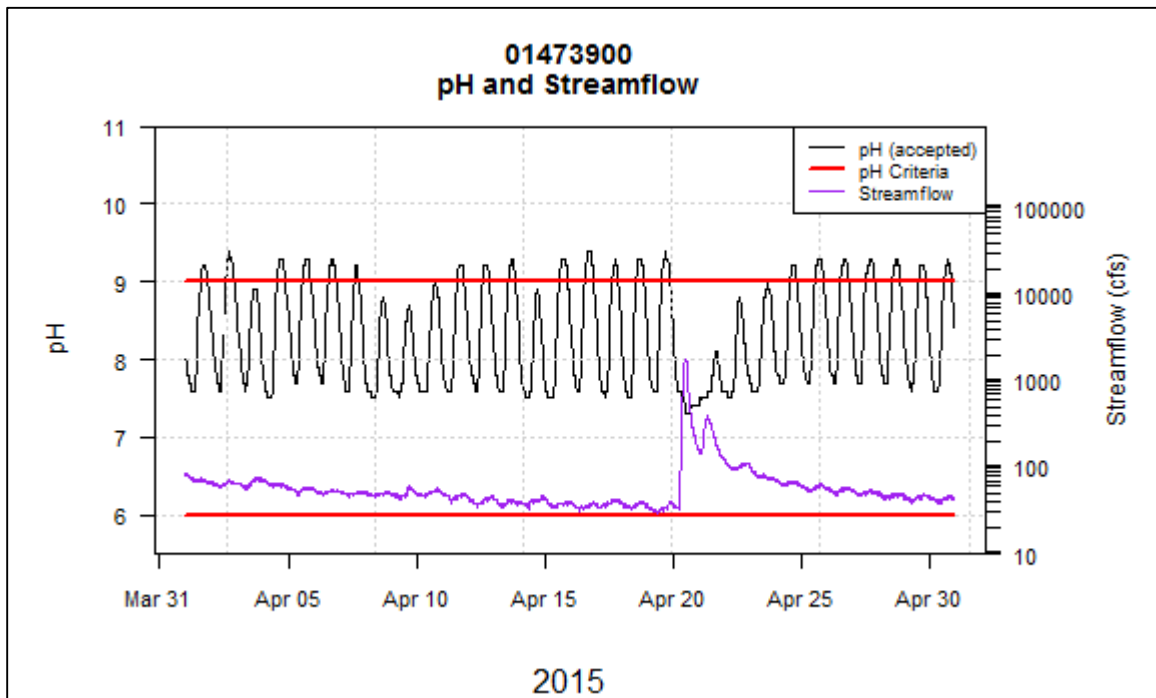


Figure 46. Gage 01473900, pH and Streamflow, April 2015.



**Figure 47.** Gage 01473900, Wissahickon Creek at Ft. Washington, looking downstream



**Figure 48.** Gage 01474000, Wissahickon Creek at mouth, looking downstream

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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.

Flagged data in August and September at the lower gage (01474000) can be attributed to a sonde that required power cycling to collect accurate readings.

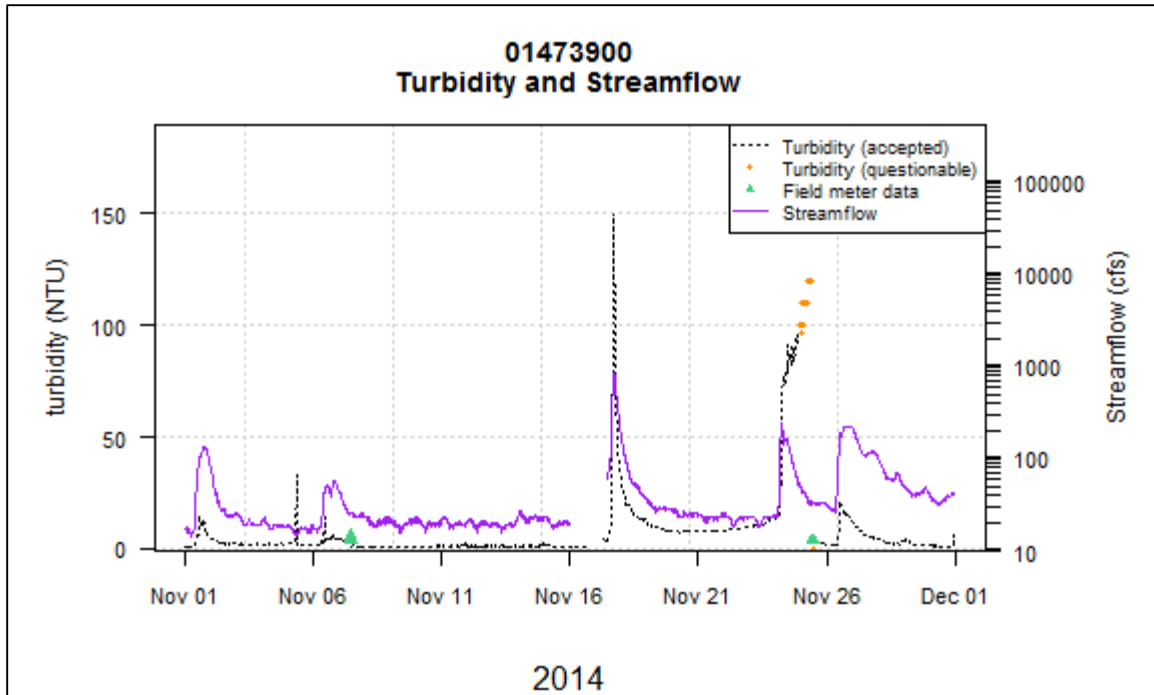
**Table 51. Gage 01473900 Turbidity Summary Results by Month**

Month	Total hrs. accepted data	Total days accepted data	% hrs. flagged data	% hrs. above max. guideline	% hrs. below max. guideline	Min.	Max.	Mean
Jul-14	617.0	25.7	0.0	22.8	77.2	0.0	310.0	3.7
Aug-14	672.5	28.0	9.6	50.7	49.3	0.7	36.0	4.2
Sep-14	717.5	29.9	0.3	47.6	52.3	0.6	34.0	5.6
Oct-14	680.5	28.4	8.5	45.8	54.2	0.3	89.0	6.7
Nov-14	689.0	28.7	4.3	41.3	58.7	0.4	150.0	7.2
Mar-15	654.5	27.3	0.4	69.5	30.5	1.3	670.0	14.2
Apr-15	711.0	29.6	1.3	40.4	59.6	1.3	600.0	6.7
May-15	688.5	28.7	7.5	30.2	69.8	1.5	18.0	2.8
Jun-15	718.0	29.9	0.3	84.3	15.7	1.4	170.0	7.8

**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-14	741.0	30.9	0.5	14.4	85.6	0.2	340.0	3.8
Aug-14	76.0	3.2	89.8	25.0	75.0	0.5	9.1	2.5
Sep-14	537.0	22.4	25.4	0.8	99.2	0.0	8.6	0.3
Oct-14	742.5	30.9	0.2	5.1	94.9	0.0	81.0	0.9
Nov-14	641.5	26.7	10.9	33.0	66.9	0.2	140.0	4.1
Mar-15	275.5	11.5	0.0	31.6	68.4	1.2	34.0	4.4
Apr-15	716.0	29.8	0.6	10.7	89.3	0.6	240.0	4.8
May-15	744.0	31.0	0.0	0.5	99.5	0.4	4.1	0.8
Jun-15	680.5	28.4	5.5	25.1	74.9	0.6	370.0	5.5

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 49.** Gage 01473900, Turbidity and Streamflow, November 2014.

**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 (Figure 50). This pattern is also observed in absence of storms in March, when higher conductivity in the stream is likely attributable to road salt present in snowmelt.

**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-14	742.5	30.9	0.2	273.0	958.0	766.4
Aug-14	741.0	30.9	0.4	503.0	1000.0	885.4
Sep-14	718.5	29.9	0.2	650.0	1120.0	887.7
Oct-14	741.5	30.9	0.3	345.0	981.0	784.9
Nov-14	718.5	30.0	0.2	310.0	1680.0	838.0
Mar-15	656.0	27.4	0.2	505.0	2980.0	1231.1
Apr-15	719.5	29.9	0.1	287.0	963.0	881.9
May-15	741.5	30.9	0.3	830.0	1060.0	940.9
Jun-15	717.5	29.9	0.3	252.0	1070.0	799.4

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

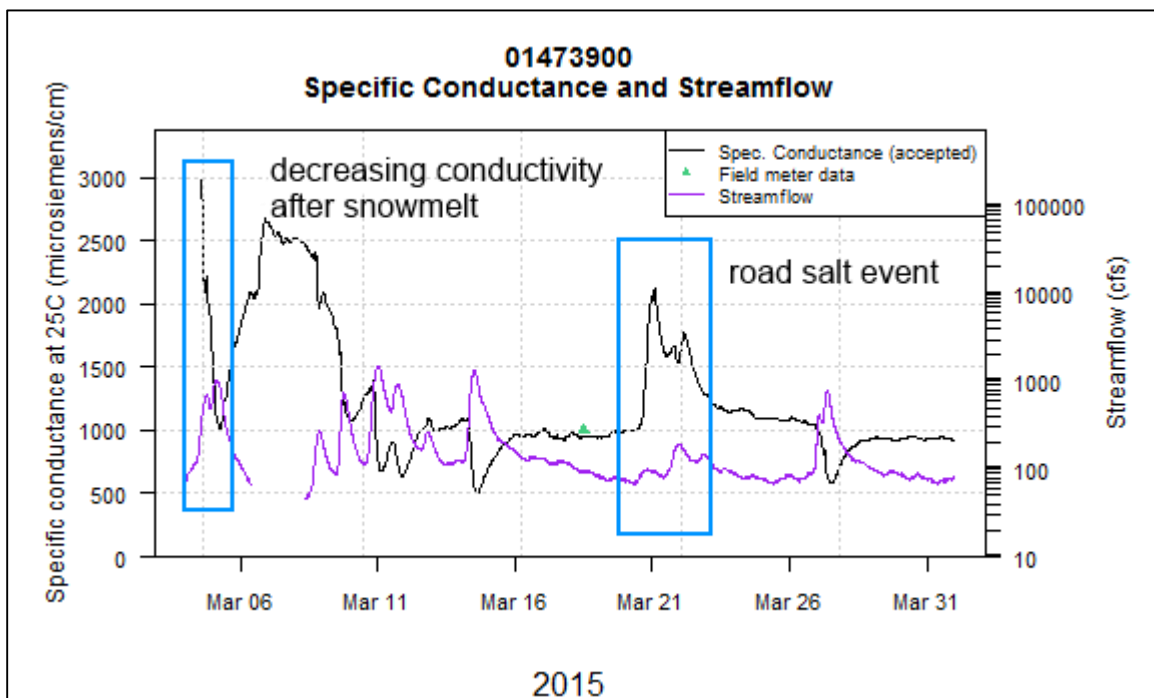
Appendix H – PWD-USGS Coop. Water Quality Monitoring Program Annual Summary



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	740.5	30.9	0.5	176.0	838.0	700.6
Aug-14	742.5	30.9	0.2	561.0	875.0	793.9
Sep-14	719.5	29.9	0.1	596.0	918.0	807.3
Oct-14	742.5	30.9	0.2	296.0	848.0	709.1
Nov-14	717.0	29.9	0.4	83.0	985.0	662.8
Mar-15	275.0	11.4	25.5	554.0	1220.0	887.4
Apr-15	716.0	29.8	0.6	321.0	891.0	776.4
May-15	744.0	31.0	0.0	783.0	919.0	852.2
Jun-15	683.5	28.5	5.1	272.0	931.0	693.1



**Figure 50.** Gage 01473900, Specific Conductance and Streamflow, March 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	41.7	58.3	0.2	742.5	30.9	18.9	26.4	22.7
TSF	1-Aug	15-Aug	0.0	100.0	0.3	359.0	14.9	18.2	24.1	21.4
TSF	16-Aug	31-Aug	0.0	100.0	0.7	381.5	15.9			
TSF	1-Sep	15-Sep	0.0	100.0	0.4	358.5	14.9	15.3	25.6	19.7
TSF	16-Sep	30-Sep	0.0	100.0	0.4	358.5	14.9			
TSF	1-Oct	15-Oct	0.0	100.0	0.3	359.0	15.0	10.1	20.3	15.2
TSF	16-Oct	31-Oct	4.2	95.8	0.3	383.0	15.9			
TSF	1-Nov	15-Nov	0.0	100.0	0.3	359.0	14.9	2.2	14.0	8.3
TSF	16-Nov	30-Nov	13.4	86.6	0.0	344.5	14.4			
TSF	1-Mar	31-Mar	6.3	93.7	0.0	651.5	27.1	0.1	10.2	5.2
TSF	1-Apr	15-Apr	54.6	45.4	1.1	356.0	14.8	5.6	19.5	12.5
TSF	16-Apr	30-Apr	43.8	56.2	0.7	357.5	14.9			
TSF	1-May	15-May	57.2	42.8	0.9	356.5	14.9	12.9	24.5	18.8
TSF	16-May	31-May	47.4	52.6	1.6	378.0	15.8			
TSF	1-Jun	15-Jun	43.3	56.7	0.8	357.0	14.9	15.1	26.0	21.3
TSF	16-Jun	30-Jun	54.9	45.0	0.9	356.5	14.9			



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	54.3	45.7	0.4	741.0	30.9	20.0	26.6	23.1
TSF	1-Aug	15-Aug	0.0	100.0	0.0	360.0	15.0	19.1	23.4	21.3
TSF	16-Aug	31-Aug	0.0	100.0	0.3	383.0	15.9			
TSF	1-Sep	15-Sep	0.0	100.0	0.1	359.5	14.9	15.6	24.2	19.3
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	10.6	19.3	14.7
TSF	16-Oct	31-Oct	1.2	98.8	0.0	384.0	16.0			
TSF	1-Nov	15-Nov	0.0	100.0	0.8	357.0	14.9	1.7	11.1	7.3
TSF	16-Nov	30-Nov	7.2	92.8	0.0	360.0	15.0			
TSF	1-Mar	31-Mar	7.6	92.4	0.0	275.5	11.5	4.4	9.4	6.6
TSF	1-Apr	15-Apr	53.0	47.0	0.7	357.5	14.9	6.4	18.4	12.5
TSF	16-Apr	30-Apr	45.5	54.5	0.4	358.5	14.9			
TSF	1-May	15-May	64.0	36.0	0.0	360.0	15.0	13.9	24.5	19.2
TSF	16-May	31-May	47.2	52.8	0.1	383.5	15.9			
TSF	1-Jun	15-Jun	47.9	52.1	0.6	358.0	14.9	16.4	25.8	21.8
TSF	16-Jun	30-Jun	70.2	29.8	0.0	332.0	13.8			

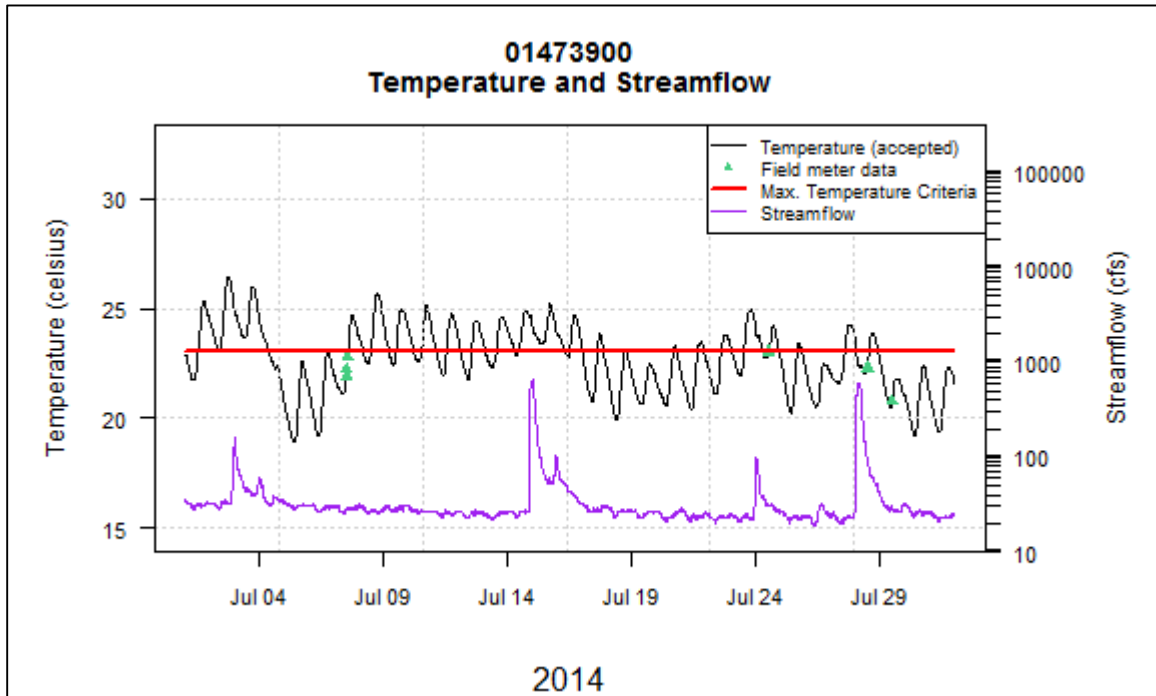


Figure 51. Gage 01473900, Temperature and Streamflow, July 2014.

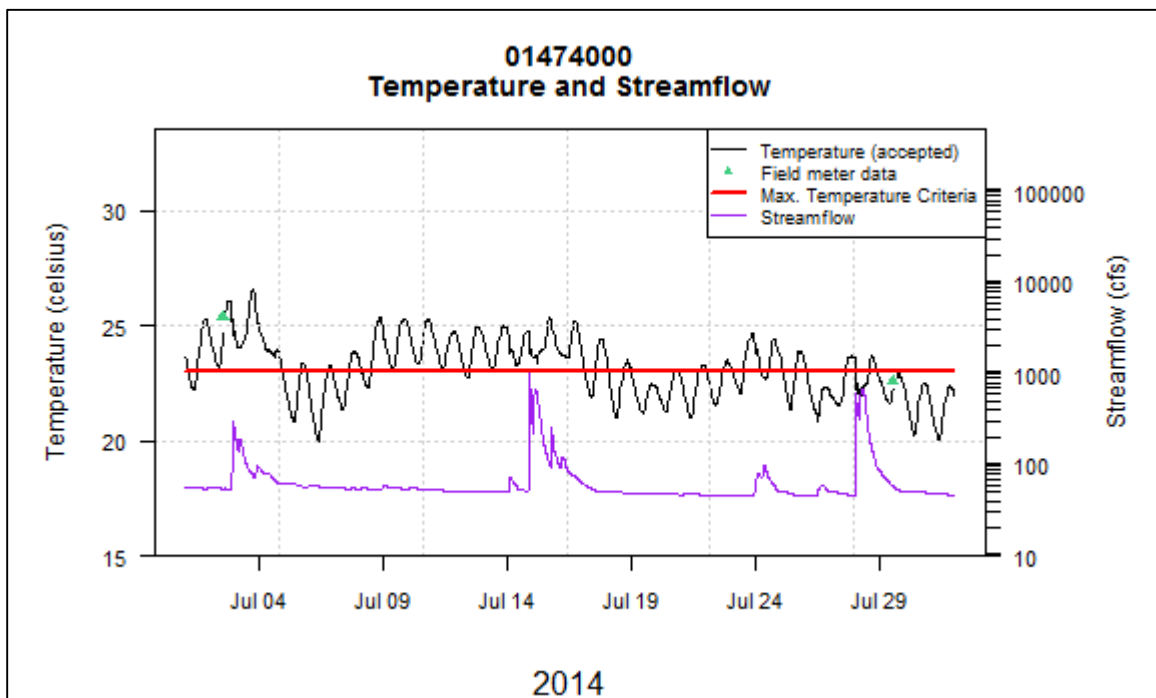


Figure 52. Gage 01474000, Temperature and Streamflow, July 2014.

### Poquessing Creek (Gage 01465798)



#### Dissolved oxygen and pH

Dissolved oxygen and pH at this gage site were usually within acceptable ranges and seldom 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 (Figure 39).

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 2015 (Figures 55-56), one can expect steadily increasing DO and pH fluctuations.

**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-14	WWF	700.5	29.2	5.8	1.1	98.9	3.9	15.9	7.9
Aug-14	WWF	740.5	30.9	0.5	0.0	100.0	5.0	14.2	8.3
Sep-14	WWF	718.5	29.9	0.2	1.6	98.4	3.3	13.2	8.1
Oct-14	WWF	741.5	30.9	0.3	0.0	100.0	5.6	12.1	8.3
Nov-14	WWF	716.0	29.8	0.6	0.0	100.0	7.3	13.4	10.3
Mar-15	WWF	680.5	28.4	0.1	0.0	100.0	8.1	17.5	12.6
Apr-15	WWF	670.5	27.9	6.9	0.0	100.0	6.7	18.4	11.2
May-15	WWF	744.0	31.0	0.0	4.7	95.3	3.5	15.0	8.1
Jun-15	WWF	705.0	29.4	2.1	0.9	99.1	3.0	10.3	7.3

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

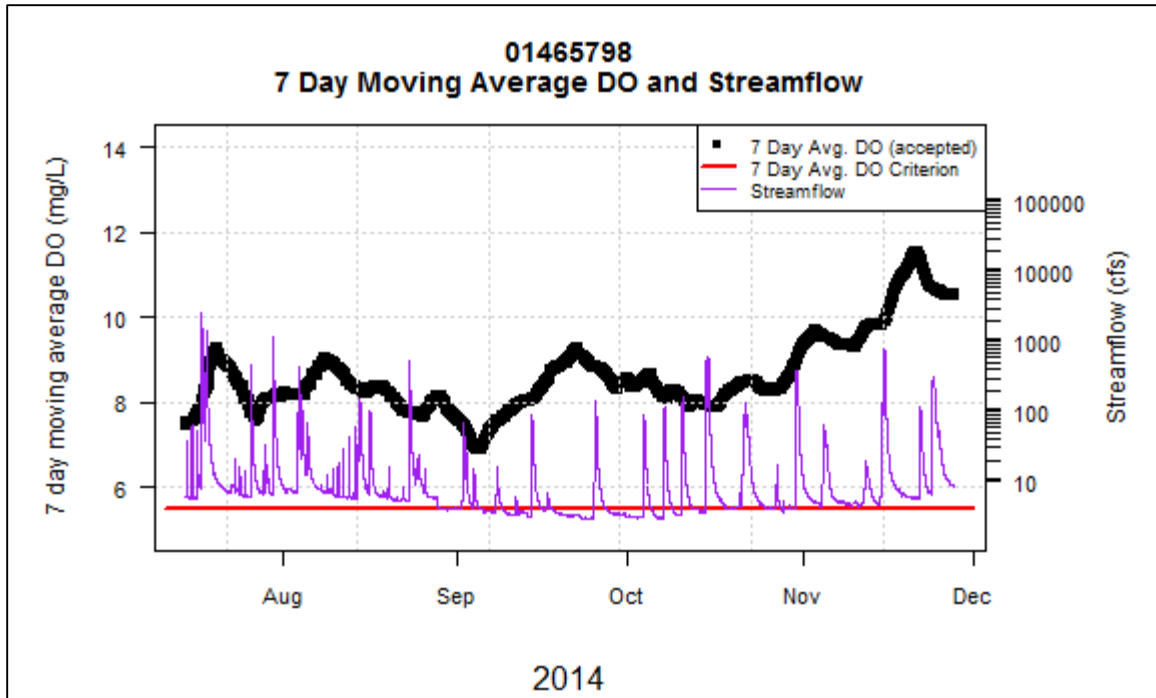


Figure 53. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

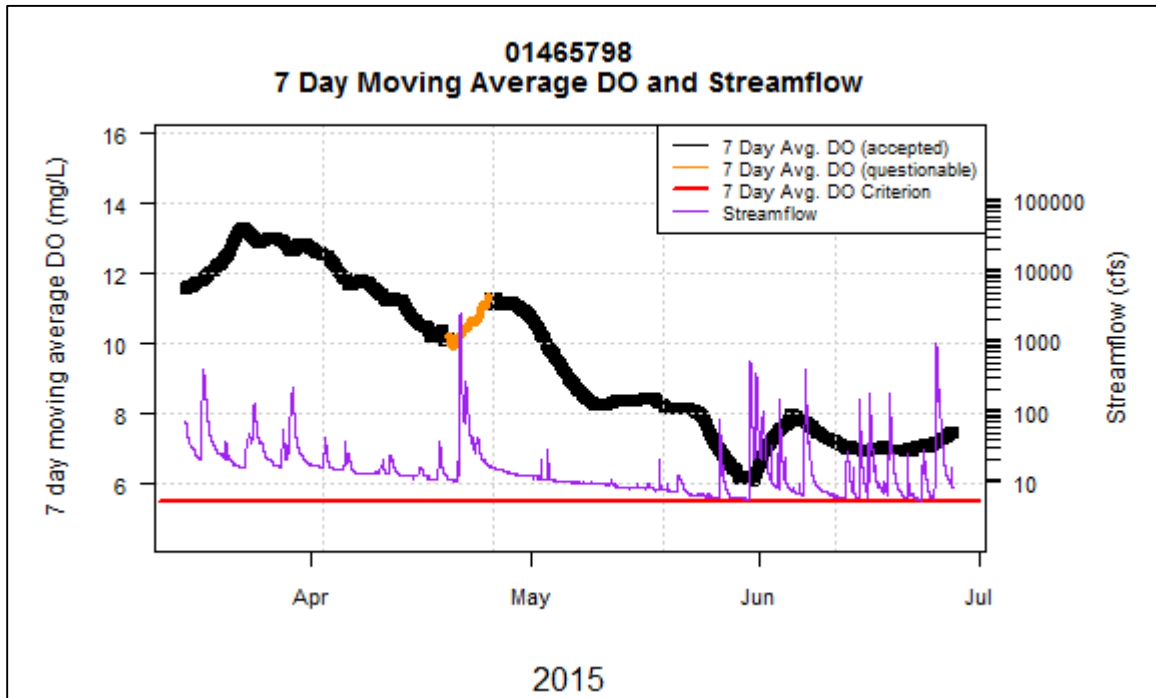


Figure 54. Gage 01465798, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	WWF	26.0	16.1	6.1	10.3	8.0
Aug-14	WWF	29.0	6.5	7.2	9.4	8.3
Sep-14	WWF	29.0	3.3	6.4	10.0	8.1
Oct-14	WWF	29.0	6.5	7.1	9.2	8.3
Nov-14	WWF	28.0	6.7	8.2	12.2	10.3
Mar-15	WWF	26.0	8.4	11.2	14.1	12.6
Apr-15	WWF	26.0	13.3	8.9	13.3	11.2
May-15	WWF	31.0	0.0	4.7	10.8	8.1
Jun-15	WWF	27.0	10.0	5.6	8.3	7.3

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**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-14	741.5	30.9	0.3	1.9	9.7	0	0	98.0	90.3	6.9	9.4	7.5
Aug-14	740.5	30.9	0.5	0.0	0.0	0	0	100.0	100.0	6.8	8.8	7.4
Sep-14	718.0	29.9	0.3	0.0	0.0	0	0	100.0	100.0	7.0	8.5	7.5
Oct-14	684.0	28.5	8.1	0.0	0.0	0	0	100.0	100.0	6.8	8.2	7.2
Nov-14	716.0	29.8	0.6	0.0	0.0	0	0	100.0	100.0	6.4	7.3	7.1
Mar-15	680.5	28.4	0.1	0.0	0.0	0	0	100.0	100.0	7.0	8.5	7.3
Apr-15	670.5	27.9	0.0	2.1	17.2	0	0	97.9	82.8	7.0	9.3	7.6
May-15	744.0	31.0	0.0	0.0	0.0	0	0	100.0	100.0	7.0	8.9	7.4
Jun-15	716.0	29.8	0.6	0.0	0.0	0	0	100.0	100.0	6.9	7.8	7.3

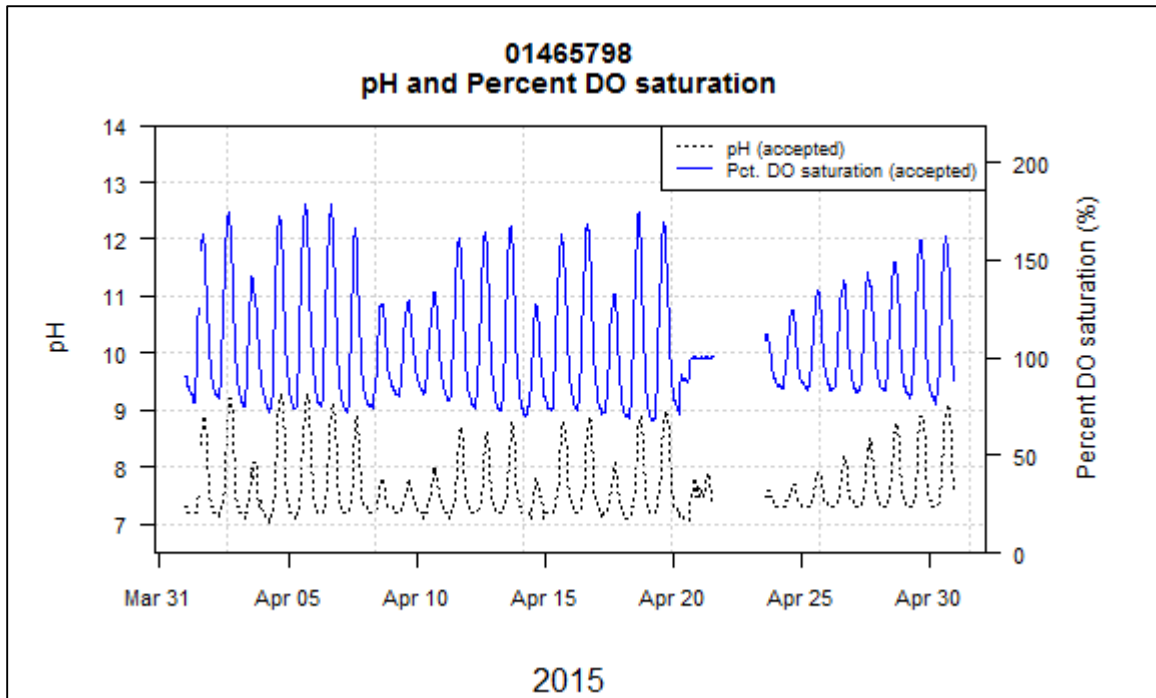


Figure 55. Gage 01465798, pH and Percent DO Saturation, April 2015.

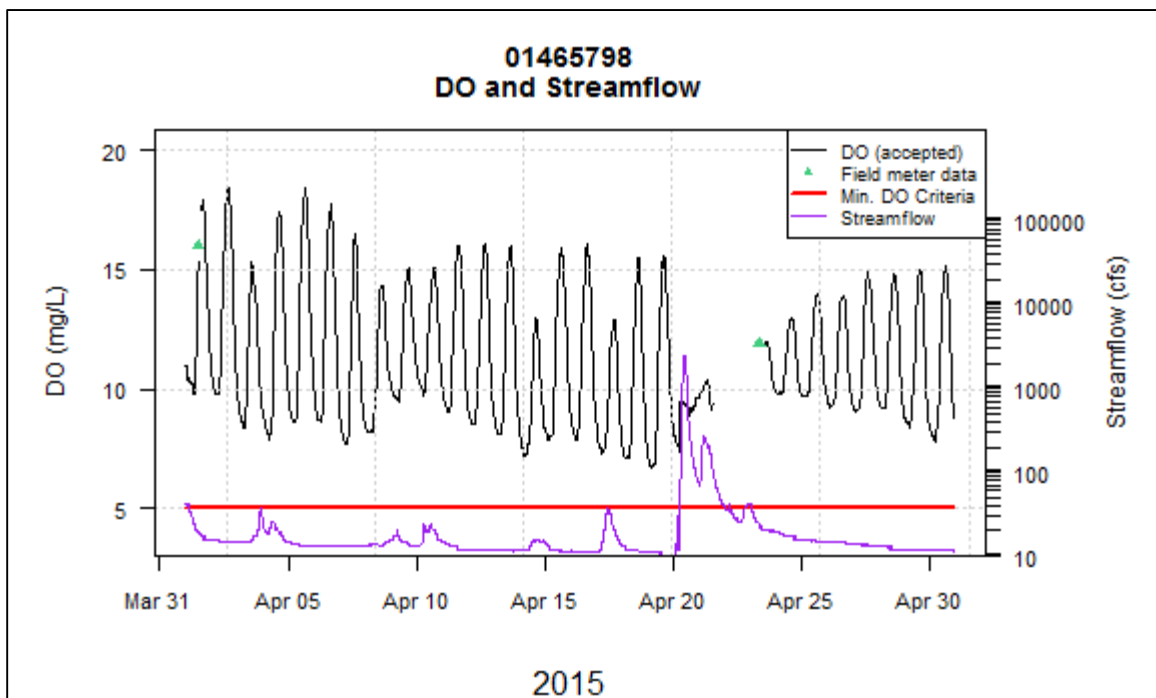


Figure 56. Gage 01465798, DO and Streamflow, April 2015.



**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-14	741.5	30.9	0.3	33.4	66.6	0.7	280.0	10.1
Aug-14	740.5	30.9	0.5	22.6	77.4	0.5	180.0	4.0
Sep-14	718.5	29.9	0.2	9.6	90.4	0.2	29.0	1.5
Oct-14	741.5	30.9	0.3	21.4	78.6	0.3	180.0	4.4
Nov-14	716.0	29.8	0.6	59.6	40.4	0.6	190.0	11.5
Mar-15	648.0	27.0	4.8	81.6	18.4	1.3	190.0	15.8
Apr-15	649.0	27.0	9.9	20.7	79.3	1.5	1170.0	8.1
May-15	744.0	31.0	0.0	5.9	94.1	1.2	39.0	2.2
Jun-15	702.5	29.8	2.4	53.6	46.4	0.9	1240.0	113.5



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**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-14	741.5	30.9	0.3	57.0	723.0	489.6
Aug-14	740.5	30.9	0.5	151.0	764.0	543.9
Sep-14	718.5	29.9	0.2	253.0	768.0	586.3
Oct-14	741.5	30.9	0.3	140.0	725.0	467.9
Nov-14	716.0	29.8	0.6	102.0	977.0	511.1
Mar-15	680.5	28.4	0.1	669.0	4640.0	1414.1
Apr-15	670.5	27.9	0.0	7.0	934.0	759.2
May-15	744.0	31.0	0.0	609.0	808.0	772.4
Jun-15	716.0	29.9	0.5	107.0	776.0	498.7

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	0.3	741.5	30.9	19.4	27.9	23.4
WWF	1-Aug	15-Aug	0.0	100.0	0.4	358.5	14.9	18.5	25.6	21.8
WWF	16-Aug	31-Aug	0.0	100.0	0.5	382.0	15.9			
WWF	1-Sep	15-Sep	0.0	100.0	0.0	360.0	15.0	15.1	26.8	19.9
WWF	16-Sep	30-Sep	0.0	100.0	0.4	358.5	14.9			
WWF	1-Oct	15-Oct	0.0	100.0	0.4	358.5	14.9	9.9	20.8	14.9
WWF	16-Oct	31-Oct	5.5	94.5	0.3	383.0	15.9			
WWF	1-Nov	15-Nov	0.0	100.0	1.1	356.0	14.8	1.0	13.4	7.4
WWF	16-Nov	30-Nov	10.1	89.9	0.0	360.0	15.0			
WWF	1-Mar	31-Mar	10.4	89.6	2.2	680.5	28.4	0.1	11.3	5.1
WWF	1-Apr	15-Apr	54.7	45.3	0.6	358.0	14.9	5.0	21.1	12.7
WWF	16-Apr	30-Apr	48.5	51.5	0.0	312.5	13.0			
WWF	1-May	15-May	61.8	38.2	0.0	360.0	15.0	12.5	27.0	19.3
WWF	16-May	31-May	25.3	74.7	0.0	384.0	16.0			
WWF	1-Jun	15-Jun	1.7	98.3	0.9	356.5	14.9	15.2	27.7	21.5
WWF	16-Jun	30-Jun	0.0	100.0	0.1	359.5	14.9			

## 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 throughout May (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-14	WWF	742.5	30.9	0.2	0.0	100.0	6.2	20.0	10.7
Aug-14	WWF	743.0	30.9	0.1	0.0	100.0	6.6	12.4	7.9
Sep-14	WWF	717.0	29.9	0.4	0.0	100.0	6.6	9.7	8.1
Oct-14	WWF	683.0	28.5	8.2	0.0	100.0	7.9	9.9	9.0
Nov-14	WWF	719.0	29.9	0.1	0.0	100.0	9.4	13.4	11.3
Mar-15	WWF	466.0	19.4	0.0	0.0	100.0	12.2	13.5	12.9
Apr-15	WWF	718.5	29.9	0.2	0.0	100.0	9.4	16.2	11.9
May-15	WWF	744.0	31.0	0.0	0.4	99.6	4.1	17.4	11.3
Jun-15	WWF	718.5	29.9	0.2	0.0	100.0	6.2	15.0	8.7

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

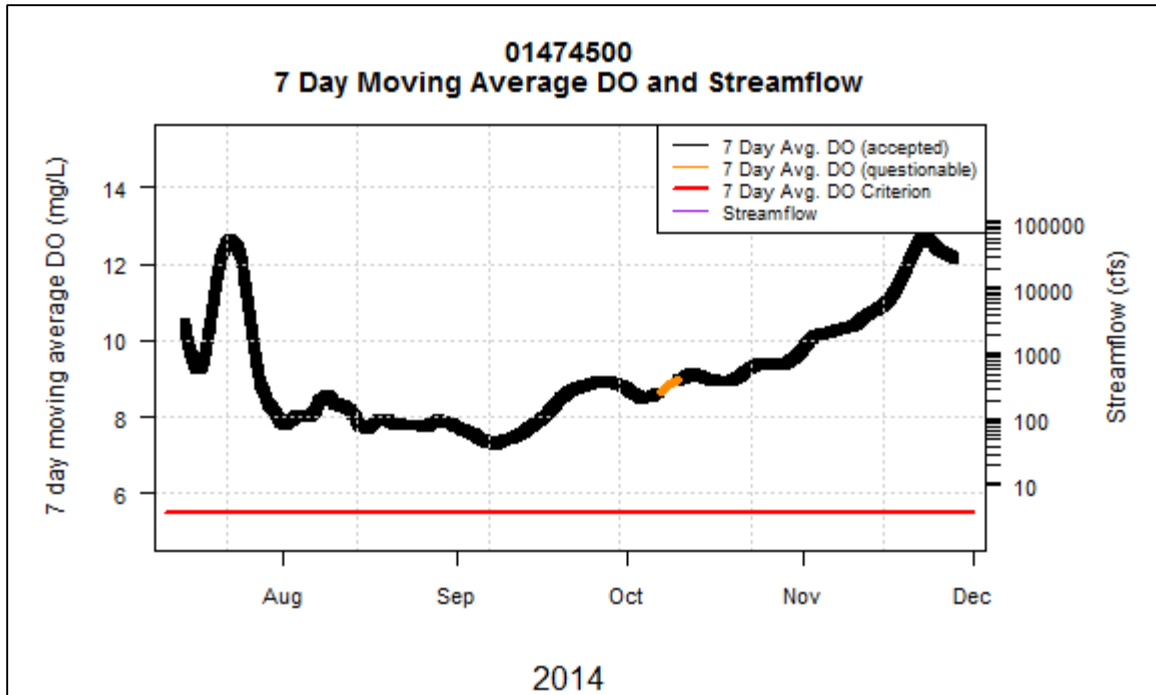


Figure 58. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Jul-Dec 2014.

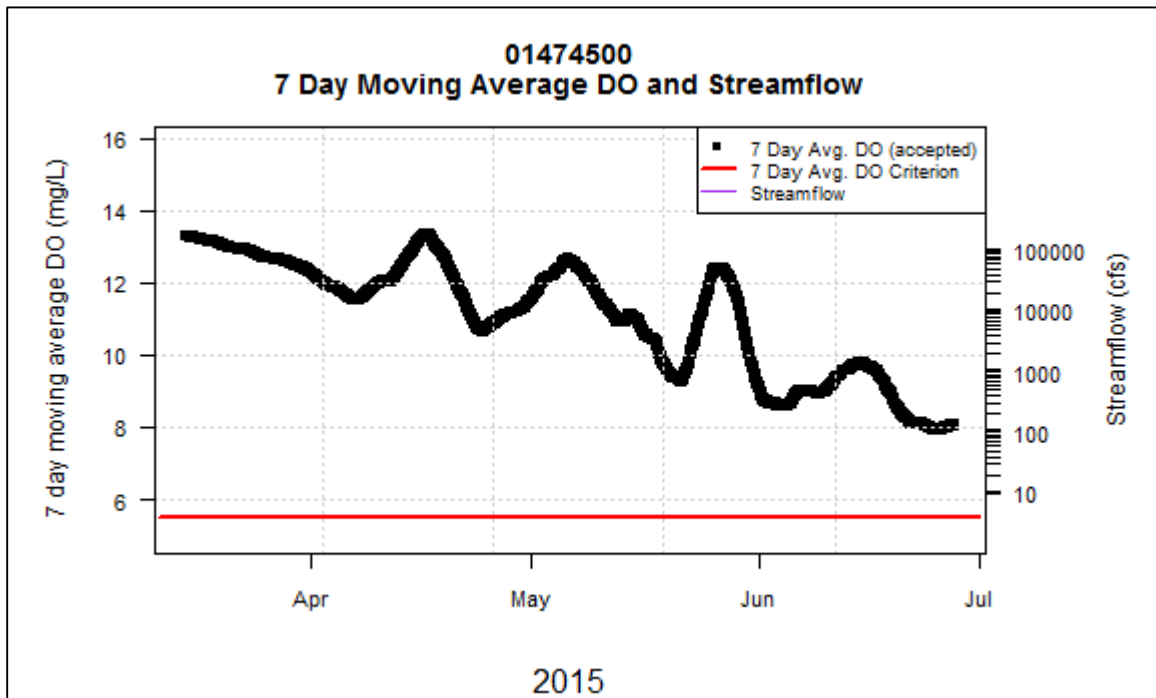
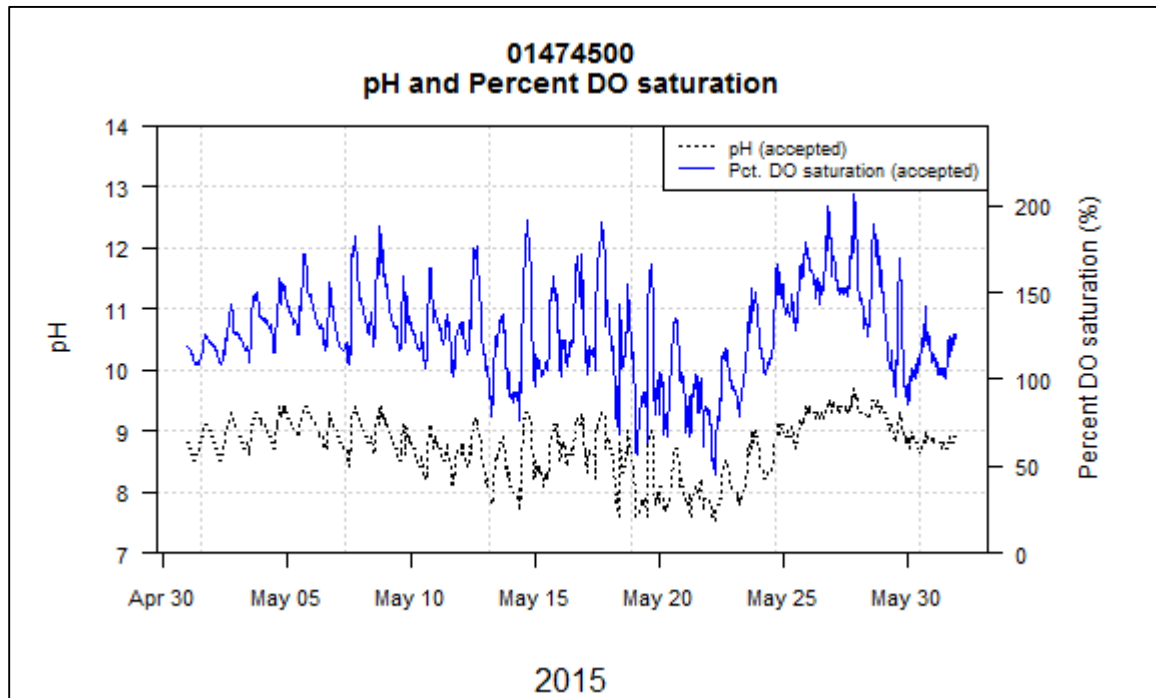


Figure 59. Gage 01474500, 7 Day Average Dissolved Oxygen and Streamflow, Mar-Jun 2015.

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	WWF	30.0	3.2	7.4	14.7	10.8
Aug-14	WWF	30.0	3.2	7.1	9.6	7.9
Sep-14	WWF	27.0	0.0	7.1	9.0	8.0
Oct-14	WWF	23.0	0.0	8.3	9.5	9.1
Nov-14	WWF	29.0	3.3	9.7	13.2	11.2
Mar-15	WWF	19.0	2.1	12.3	13.4	12.9
Apr-15	WWF	29.0	3.3	9.9	14.7	11.9
May-15	WWF	31.0	0.0	7.6	14.5	11.3
Jun-15	WWF	29.0	3.3	7.4	10.9	8.7



**Figure 60.** Gage 01474500, pH and Percent Dissolved Oxygen Saturation, May 2015.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	742.5	30.9	0.2	18.2	45.2	0	0	81.8	54.8	7.3	9.4	8.4
Aug-14	743.0	30.9	0.1	0.0	0.0	0	0	100.0	100.0	7.4	8.3	7.6
Sep-14	717.0	29.9	0.4	0.0	0.0	0	0	100.0	100.0	7.5	8.4	7.9
Oct-14	683.0	28.5	8.2	0.0	0.0	0	0	100.0	100.0	7.8	8.4	8.1
Nov-14	668.5	27.8	7.2	0.0	0.0	0	0	100.0	100.0	7.7	8.3	8.0
Mar-15	466.0	19.4	0.0	0.0	0.0	0	0	100.0	100.0	7.6	8.1	7.8
Apr-15	718.5	29.9	0.2	25.9	30.0	0	0	74.1	70.0	7.8	9.8	8.7
May-15	744.0	31.0	0.0	29.2	67.7	0	0	70.8	32.3	7.5	9.7	8.7
Jun-15	718.5	29.9	0.2	0.3	3.3	0	0	99.7	96.7	7.6	9.2	8.1

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	0.2	742.5	30.9	24.1	29.0	26.3
WWF	1-Aug	15-Aug	0.0	100.0	0.0	360.0	15.0	23.2	27.7	24.8
WWF	16-Aug	31-Aug	0.0	100.0	0.3	383.0	15.9			
WWF	1-Sep	15-Sep	0.0	100.0	0.0	360.0	15.0	18.9	27.9	22.7
WWF	16-Sep	30-Sep	0.0	100.0	0.8	357.0	14.9			
WWF	1-Oct	15-Oct	0.0	100.0	0.0	299.0	12.5	13.4	21.2	16.5
WWF	16-Oct	31-Oct	0.0	100.0	0.0	384.0	16.0			
WWF	1-Nov	15-Nov	0.0	100.0	0.0	360.0	15.0	3.2	13.4	8.1
WWF	16-Nov	30-Nov	0.0	100.0	0.3	359.0	14.9			
WWF	1-Mar	31-Mar	0.0	100.0	0.0	466.0	19.4	2.9	7.1	4.9
WWF	1-Apr	15-Apr	48.9	51.1	0.0	360.0	15.0	6.5	17.5	12.6
WWF	16-Apr	30-Apr	58.9	41.1	0.4	358.5	14.9			
WWF	1-May	15-May	77.78	22.2	0.0	360.0	15.0	15.6	26.0	21.5
WWF	16-May	31-May	55.2	44.8	0.0	384.0	16.0			
WWF	1-Jun	15-Jun	9.6	90.4	0.4	358.5	14.9	18.4	28.5	24.1
WWF	16-Jun	30-Jun	0.0	100.0	0.0	360.0	15.0			

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**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-14	741.5	30.9	0.3	99.9	0.1	2.7	14.0	5.9
Aug-14	743.0	30.9	0.1	24.6	75.4	0.6	7.4	2.3
Sep-14	720.0	30.0	0.0	3.5	96.5	0.0	10.0	1.7
Oct-14	680.5	28.4	8.5	15.2	84.8	0.8	9.5	2.2
Nov-14	719.0	29.9	0.1	39.0	61.0	0.8	8.2	3.0
Mar-15	466.0	19.4	0.0	100.0	0.0	4.8	110.0	20.3
Apr-15	718.5	29.9	0.2	100.0	0.0	3.9	33.0	8.9
May-15	743.5	30.9	0.1	99.5	0.5	2.4	20.0	5.8
Jun-15	718.5	29.9	0.2	99.8	0.2	2.7	56.0	7.4



CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

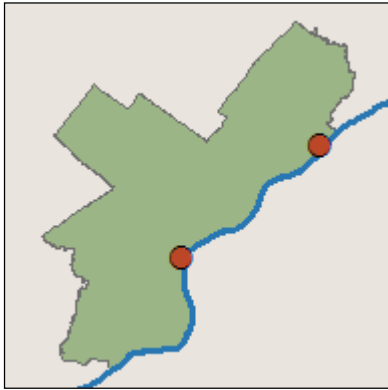
**Specific Conductance**

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-14	742.5	30.9	0.2	354.0	506.0	435.5
Aug-14	743.0	30.9	0.1	392.0	560.0	502.8
Sep-14	717.0	29.9	0.4	493.0	638.0	577.9
Oct-14	683.0	28.5	8.2	333.0	656.0	521.9
Nov-14	719.0	29.9	0.1	482.0	655.0	552.7
Mar-15	466.0	19.4	0.0	332.0	502.0	410.3
Apr-15	718.5	29.9	0.2	359.0	503.0	432.1
May-15	744.0	31.0	0.0	416.0	587.0	515.7
Jun-15	718.5	29.9	0.2	281.0	577.0	430.9

### 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 criteria was never exceeded at Gage 014670261, and the maximum pH guideline was briefly exceeded in February (Tables 70 and 72). In 2015, the collection of data at gage 01467200 began March 31. Thus, data for that month is incomplete for that location. Data is collected year round at 014670261, but an ice floe disabled the sonde from March 3 to May 26 while a steel shield was manufactured to protect the sonde. Also, a problem with the pH port made the 014670261 data collected in January questionable.



**Figure 62.** Delaware River at Ben Franklin Bridge, near Gage 01467200

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	DRBC	29.0	6.5	0.0	100.0	5.3	7.6	6.7	4.3	8.5
Aug-14	DRBC	28.0	9.7	0.0	100.0	5.0	6.1	5.3	3.3	7.0
Sep-14	DRBC	28.0	6.7	0.0	100.0	5.1	6.2	5.5	4.1	6.6
Oct-14	DRBC	26.0	16.1	0.0	100.0	5.8	7.5	6.7	5.3	7.9
Nov-14	DRBC	25.0	16.7	0.0	100.0	7.6	10.9	8.9	7.3	11.2
Mar-15	DRBC	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr-15*	DRBC	10.0	66.7	0.0	100.0	9.2	12.1	11.0	8.7	12.2
May-15*	DRBC	12.0	61.3	0.0	100.0	6.8	9.9	8.3	5.7	10.2
Jun-15*	DRBC	7.0	76.7	0.0	100.0	5.4	6.7	6.2	4.8	9.4

\*Interruptions in DO data occurred regularly during these months. Daily averages were not calculated for days with incomplete data.

**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-14	DRBC	30.0	3.2	0.0	100.0	7.5	9.1	8.3	6.8	10.1
Aug-14	DRBC	27.0	12.9	0.0	100.0	5.9	7.9	6.5	5.6	8.6
Sep-14	DRBC	29.0	3.3	0.0	100.0	5.7	7.0	6.3	5.5	7.4
Oct-14	DRBC	23.0	25.8	0.0	100.0	6.9	8.0	7.4	6.7	8.2
Nov-14	DRBC	25.0	16.7	0.0	100.0	8.2	11.7	9.8	8.0	11.8
Dec-14	DRBC	24.0	22.6	0.0	100.0	11.4	12.7	12.2	11.3	12.8
Jan-15	DRBC	13.0	48.4	0.0	100.0	12.3	14.1	13.4	12.2	15.4
Feb-15	DRBC	24.0	14.3	0.0	100.0	13.7	14.5	14.1	13.4	16.4
Mar-15	DRBC	2.0	0.0	0.0	100.0	14.1	14.3	14.2	13.9	14.4
Apr-15	DRBC	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-15	DRBC	5.0	0.0	0.0	100.0	7.9	8.1	7.9	7.5	8.7
Jun-15	DRBC	29.0	3.3	0.0	100.0	6.2	9.5	7.7	5.8	10.2

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	743.0	31.0	0.1	0.0	0.0	0	0	100.0	100.0	6.8	7.6	7.1
Aug-14	741.0	30.9	0.4	0.0	0.0	0	0	100.0	100.0	6.7	7.2	6.9
Sep-14	715.0	29.7	0.7	0.0	0.0	0	0	100.0	100.0	7.0	7.2	7.1
Oct-14	740.0	30.8	0.5	0.0	0.0	0	0	100.0	100.0	7.0	7.3	7.2
Nov-14	714.0	29.75	0.8	0.0	0.0	0	0	100.0	100.0	6.9	7.2	7.1
Mar-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr-15	691.5	28.8	3.9	0.0	0.0	0	0	100.0	100.0	6.6	7.3	6.9
May-15	697.0	29.0	6.3	0.0	0.0	0	0	100.0	100.0	6.5	7.2	6.8
Jun-15	648.0	27.0	10.0	0.0	0.0	0	0	100.0	100.0	6.6	7.3	7.0

**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-14	743.0	31.0	0.1	0.0	0.0	0	0	100.0	100.0	7.4	8.5	7.6
Aug-14	741.0	30.8	0.4	0.0	0.0	0	0	100.0	100.0	7.2	7.9	7.4
Sep-14	718.5	29.9	0.2	0.0	0.0	0	0	100.0	100.0	7.1	7.4	7.2
Oct-14	680.0	28.3	8.6	0.0	0.0	0	0	100.0	100.0	7.3	7.6	7.3
Nov-14	718.0	29.9	0.3	0.0	0.0	0	0	100.0	100.0	7.3	7.9	7.5
Dec-14	740.5	30.9	0.5	0.0	0.0	0	0	100.0	100.0	7.0	7.7	7.5
Jan-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb-15	653.5	27.2	2.8	0.4	10.7	0	0	99.6	89.3	6.1	7.5	7.1
Mar-15	71.0	2.9	0.0	0.0	0.0	0	0	100.0	100.0	7.1	7.2	7.1
April-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-15	133.5	5.6	0.0	0.0	0.0	0	0	100.0	100.0	7.4	7.7	7.5
Jun-15	719.5	29.9	0.1	0.0	0.0	0	0	100.0	100.0	7.2	8.0	7.4

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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	0.3	742.0	30.9	24.9	26.5	25.9
DRBC	1-Aug	31-Aug	0.0	100.0	0.2	742.5	30.9	24.5	25.7	25.1
DRBC	1-Sep	30-Sep	0.0	100.0	0.7	715.0	29.8	21.0	26.1	23.6
DRBC	1-Oct	31-Oct	0.0	100.0	0.3	742.0	30.9	15.2	21.5	18.3
DRBC	1-Nov	30-Nov	0.0	100.0	0.7	715.0	29.8	6.2	15.3	10.4
DRBC	31-Mar	31-Mar	0.0	100.0	0.0	12.0	0.5	5.3	5.6	5.5
DRBC	1-Apr	30-Apr	0.0	100.0	4.6	687.0	28.6	5.4	13.9	9.8
DRBC	1-May	31-May	0.0	100.0	5.1	706.0	29.4	12.5	23.3	18.7
DRBC	1-Jun	30-Jun	0.0	100.0	6.0	676.5	28.2	21.2	26.0	23.7

**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	0.1	743.0	31.0	24.6	27.2	25.6
DRBC	1-Aug	31-Aug	0.0	100.0	0.4	741.0	30.8	24.1	26.8	25.2
DRBC	1-Sep	30-Sep	0.0	100.0	0.2	718.5	29.9	20.2	26.6	23.5
DRBC	1-Oct	31-Oct	0.0	100.0	8.3	682.0	28.4	14.1	21.1	17.9
DRBC	1-Nov	30-Nov	0.0	100.0	0.1	719.0	29.9	4.6	14.2	9.1
DRBC	1-Dec	31-Dec	0.0	100.0	0.2	742.0	30.9	3.0	6.5	4.4
DRBC	1-Jan	31-Jan	0.0	100.0	18.0	610.0	25.4	0.0	4.5	1.1
DRBC	1-Feb	28-Feb	0.0	100.0	1.9	659.5	27.5	0.0	1.4	0.2
DRBC	1-Mar	31-Mar	0.0	100.0	0.0	71.0	2.9	0.1	0.7	0.3
DRBC	1-Apr	30-Apr	NA	NA	NA	NA	NA	NA	NA	NA
DRBC	1-May	31-May	0.0	100.0	0.0	133.5	5.6	21.3	23.9	22.8
DRBC	1-Jun	30-Jun	0.0	100.0	0.0	720.0	30.0	20.4	26.5	23.7

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	1487.0	31.0	0.1	184.0	273.0	224.3
Aug-14	1481.0	30.9	0.4	213.0	325.0	269.9
Sep-14	1430.0	29.8	0.7	288.0	382.0	324.6
Oct-14	1484.0	30.9	0.3	286.0	422.0	344.2
Nov-14	1430.0	29.8	0.7	271.0	364.0	307.9
Mar-15	24.0	0.5	0.0	315.0	344.0	330.0
Apr-15	1383.0	28.8	3.9	154.0	341.0	220.3
May-15	1404.0	29.3	5.6	211.0	341.0	274.1
Jun-15	1314.0	27.4	8.8	209.0	349.0	282.9

**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-14	1485.0	30.9	0.2	120.0	281.0	190.3
Aug-14	644.0	13.4	56.7	262.0	288.0	270.2
Sep-14	1437.0	29.9	0.2	252.0	299.0	272.3
Oct-14	1360.0	28.3	8.6	228.0	303.0	276.4
Nov-14	1437.0	29.9	0.2	228.0	399.0	272.5
Dec-14	1480.0	30.8	0.5	184.0	359.0	252.9
Jan-15	1319.0	27.5	11.4	180.0	553.0	284.5
Feb-15	1308.0	27.3	2.7	108.0	651.0	421.3
Mar-15	142.0	2.9	0.0	426.0	597.0	480.8
Apr-15	NA	NA	NA	NA	NA	NA
May-15	266.0	5.5	0.0	298.0	344.0	310.6
Jun-15	1438.0	29.9	0.1	193.0	314.0	252.1

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**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-14	743.0	31.0	0.1	99.7	0.3	1.9	44.0	9.1
Aug-14	737.5	30.7	0.8	99.6	0.4	2.6	42.0	6.4
Sep-14	718.5	29.9	0.2	99.7	0	2.5	46.0	8.0
Oct-14	677.0	28.2	9.0	99.3	0.7	2.5	47.0	7.5
Nov-14	719.5	29.9	0.1	99.9	0.1	2.0	51.0	11.2
Dec-14	736.5	30.7	1.0	100.0	0.0	3.9	65.0	11.2
Jan-15	669.5	27.9	10.0	99.7	0.2	0.5	210.0	13.9
Feb-15	666.0	27.8	0.9	99.4	0.6	1.0	240.0	8.3
Mar-15	71.0	2.9	0.0	100.0	0.0	3.6	9.1	4.7
Apr-15	NA	NA	NA	NA	NA	NA	NA	NA
May-15	133.5	5.6	0.0	94.8	5.2	2.1	20.0	6.3
Jun-15	719.0	29.9	0.1	96.4	3.6	2.0	41.0	6.5

## Wet Weather and Dry Weather Results

### Annual Summary, July 2014 - June 2015

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 2014 - June 2015 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.



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 79.** USGS Gage July 2014 - June 2015 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 2014 - June 2015 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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 81.** USGS Gage July 2014 - June 2015 Dissolved Oxygen Daily Mean Criterion Summary Results During Dry Weather

---

<b>Gage number</b>	<b>Designated Use</b>	<b>Total days accepted data</b>	<b>% days flagged data</b>
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

---

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 82.** USGS Gage July 2014 - June 2015 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 2014 - June 2015 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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 84. USGS Gage July 2014 - June 2015 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 2014 - June 2015 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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 86.** USGS Gage July 2014 - June 2015 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 2014 - June 2015 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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 88.** USGS Gage July 2014 - June 2015 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 2014 - June 2015 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.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

## Monitoring Well Locations

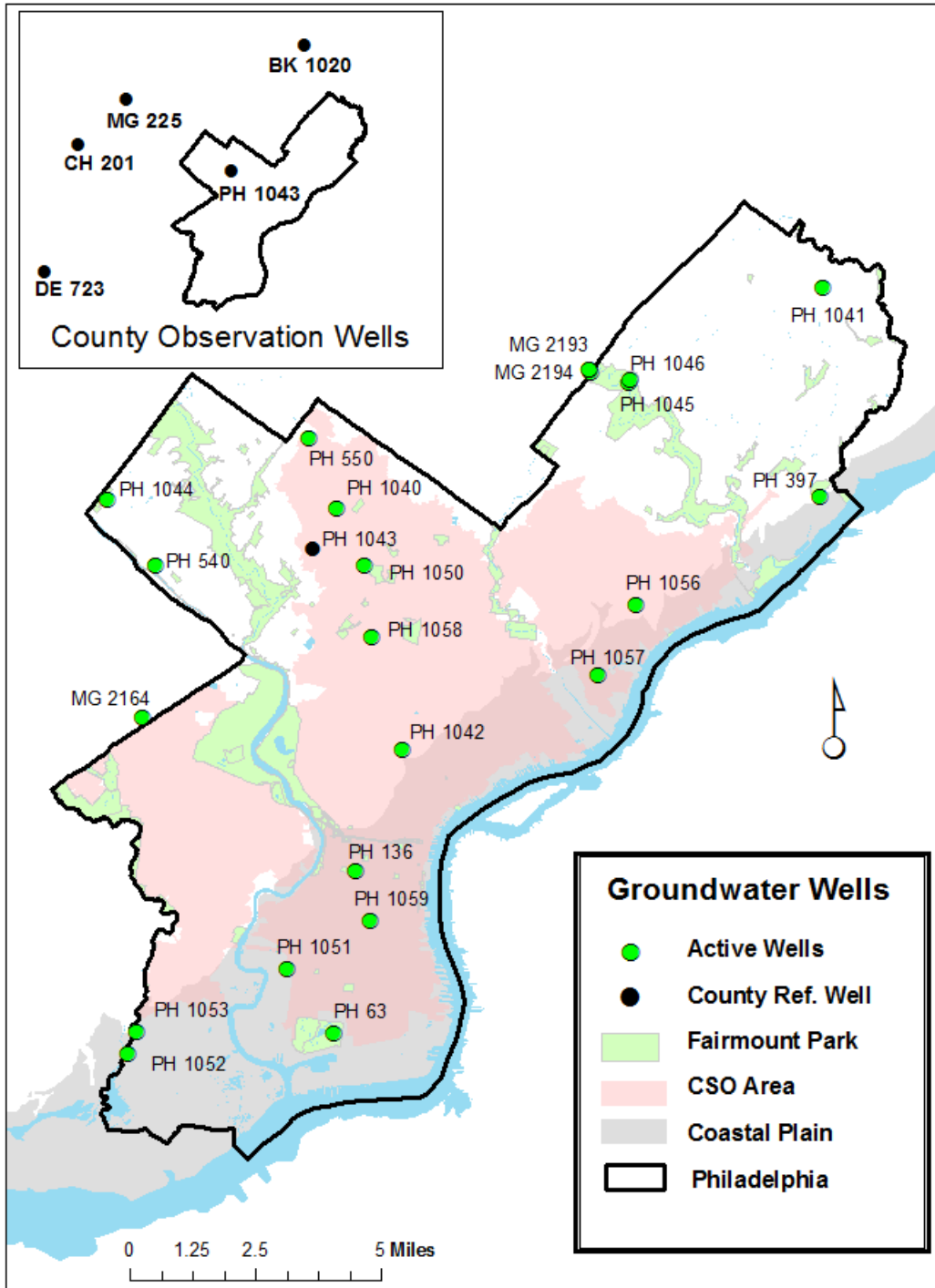
Currently the well monitoring network contains 23 active sites that are monitored monthly. (Table 1, Figure 1). PWD is in the process of drilling additional wells on City-owned property in order to meet spatial distribution and other well network criteria. Of the 23 active wells, 9 are located within 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	39
USGS-395408075104001	PH 63	39.902	-75.177	9/14/1954	57
USGS-395416075150301	PH 1053	39.904	-75.251	4/24/2003	39
USGS-395516075113901	PH 1051	39.921	-75.194	--	41
USGS-395656075100401	PH 136	39.949	-75.167	12/6/1978	48
USGS-395859075085401	PH 1042	39.983	-75.148	2/14/2011	43
USGS-395942075144301	MG 2164	39.995	-75.245	2/14/2011	52
USGS-400211075093701	PH 1050	40.036	-75.16	--	52
USGS-400217075142101	PH 540	40.038	-75.239	3/29/1948	42
USGS-400229075104601	PH 1043*	40.041	-75.179	2/14/2011	51
USGS-400308074592201	PH 397	40.052	-74.989	1/4/1979	56
USGS-400311075101301	PH 1040	40.053	-75.17	2/17/2011	54
USGS-400327075152201	PH 1044	40.057	-75.256	3/16/2011	47
USGS-400424075104901	PH 550	40.073	-75.18	--/--/1906	47
USGS-400512075033401	PH 1045	40.087	-75.059	7/18/2011	48
USGS-400516075033201	PH 1046	40.088	-75.059	7/18/2011	41
USGS-400524075042601	MG 2195	40.09	-75.074	--	10
USGS-400527075042801	MG 2193	40.091	-75.074	--	41
USGS-400527075042802	MG 2194	40.091	-75.074	--	47
USGS-400644074590801	PH 1041	40.112	-74.986	2/17/2011	52
USGS-400132075031001	PH 1056	40.026	-75.053	8/14/2014	10
USGS-400001075040301	PH 1057	40.00	-75.068	8/14/2014	10
USGS-400038075094601	PH 1058	40.011	-75.163	8/14/2014	10
USGS-395611075091301	PH 1059	39.936	-75.154	8/14/2014	11

\* Philadelphia County observation well

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 1.** PWD-USGS Groundwater Monitoring Well Network Locations and (inset) County Reference Well Locations.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

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.

direction (monotonic trend) over time. The magnitude (*i.e.*, slope) of the trend is also determined. The test is nonparametric, therefore non-normal data can be analyzed (Helsel *et al.* 2006). USEPA (2009) advises that at least 10-12 measurements are needed, whereas Helsel and Hirsch (2002) recommends that the product of number of years and number of seasons be greater than 25. Helsel *et al.* (2006) further

**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	439
USGS-400808075210401	MG 225 Montgomery County Observation Well	40.199	-75.052	08/15/1956	157
USGS-401157075032001	BK 1020 Bucks County Observation Well	40.081	-75.432	04/13/1968	153
USGS-395512075293701	DE 723 Delaware County Observation Well	39.920	-75.493	1983	180

## Data Analysis

USEPA (2009) published detailed guidance on statistical analysis of groundwater contaminant concentrations. In many of the examples, the same logic and techniques could apply to analysis of groundwater levels. In the case of the Philadelphia groundwater monitoring network, the goal is to understand if groundwater levels are changing over time, at either a single well or group of wells. The main statistical tests to be utilized are a) Seasonal Kendall Test, and b) ANOVA. The tests are briefly described below.

The Seasonal Kendall test performs the Mann-Kendall (MK) trend test for individual seasons of the year, where season is defined by the user. It then combines the individual results into one overall test for whether the dependent variable (*i.e.*, groundwater level) changes in a consistent

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 2014 to June 2015 (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).

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

**Table 4.** PWD-USGS Groundwater Monitoring Well Data 7/2014-6/2015, Depth to Water Level (Feet below Land Surface).

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
395408075104001	5.72	5.7	5.99	5.52	6	6.27	5.74	5.48	5.3	5.28	5.42	5.67
395656075100401	31.12	31.25	31.26	31.21	31.31	31.05	30.94	30.96	31.02			31.38
395859075085401	7.8	9.62	10.29	9.99	9.39	8.49	8.87	8.87	7.73	8.53	8.93	9.29
395942075144301	16.22	15.12	19.48	16.73	16.35	14.77	14.05	13.37	12.39	13.62	15.57	14.84
400229075104601	14.9	14.65	14.84	15.46	15.3	14.84	14.92	15.02	14.02	14.87	15.1	15.36
400308074592201	3.88	4.34	4.81	6.3	6.75	5.65	4.98	3.91	2.94	3.11	6.71	3.88
400311075101301	11.23	11.63	11.12	12.98	13.12	11.54	10.6	9.71	8.64	9.19	10.02	11.26
400327075152201	60.81	69.46	71.78	73.16	74.67	74.83	74.24	63.71	55.2	55.89	56.75	51.45
400424075104901	17.11	18.19	19.02	19.95	20.45	20.01	19.36	18.53	17.88	17.37	17.47	18.32
400512075033401	36.39	36.9	36.4	37.32		35.69	35.18	35.15	32.61	34.82	35.02	35.76
400516075033201	27.69	28.7	28.25	28.82	28.07	30.99	31.3	29.72	29.51	29.2	26.63	28.14
400644074590801	17.76	17.14	17.3	18.16	18.27	17.35	17.15	20.2	18.61	18.68	16.63	17.67
395353075151501	14.44	15.09	15.58	15.9	16.28	16.71	16.43	15.87	15.15	14.75	14.64	15.04
395416075150301	7.57	8.56	9.52	9.82	10.61	10.72	9.65	8.93	8.23	7.87	8.29	8.04
395516075113901	28.08	28.13	28.58	27.85	28.62	28.58	28.2	28.22	28	27.76	28.09	28.1
400211075093701	14.02	13.84	13.9	14.08	14.15	14.17	14.21	14.3	14.2	14.04	13.9	13.84
400217075142101	28.47	24.05	24.21	26.13	30.55	29.42	29.92	29.87	28.36	26.88	30.97	27.79
400527075042801	20.3	20.88	21.81	22.07	22.32	20.45	20.63	20.75	20.15	20.36	20.4	20.93
400527075042802	18.75	21.39	23.41	24.36	24.72	21.96	22.3	21.87	19.86	20.74	20.63	22.17
400132075031001	20.26	20.31		21	21	20.87	20.51	20	19.91	20	20.36	20.26
400001075040301	15.19	15.09		16.37	16.41	16.04	15.67	15.33	15.1	15.21	15.55	15.19
400038075094601	19.7	19.5		19.48	19.51	19.91	19.7	19.64	19.66	19.6	20.03	19.7
395611075091301	26.36	26.6	26.74	26.95	26.93	27.36	27.43	27.26	27.12	27.15	27.01	26.36



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 5.** Regional County Observation Well Data 7/2014 - 6/2015.

Site ID	J	A	S	O	N	D	J	F	M	A	M	J
400453075255601	21.71	23.29	24.57	25.35	25.52	23.85	21.46	21.62	18.83	20.1	21.48	22.49
400808075210401	10.64		12.78	13.4		11.76			9.1	9.16		11.5
401157075032001	31.9		36.65	38.4		35.46			29.8	27.86		33.14
395512075293701	6.6	7.33		7.77		7.2	6.74		6.4	6.71		7.28

## References

USEPA, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities -Unified Guidance. Report no. EPA-530-R-09-007. Office of Resource Conservation and Recovery. Available online at

<http://www.epa.gov/epawaste/hazard/correctiveaction/resources/guidance/sitechar/gwstats/unified-guid.pdf>

Helsel, D. R., and Hirsch, R. M., 2002. Statistical methods in water resources: U.S. Geological Survey Techniques of Water-Resources Investigations, book 4, chap. A3, 524 p. Available online at

<http://water.usgs.gov/pubs/twri/twri4a3/>

Helsel, D.R., Mueller, D.K., and Slack, J.R., 2006. Computer Program for the Kendall Family of Trend Tests. U.S. Geological Survey Scientific Investigations Report 2005-5275, 4p. Available online at

<http://pubs.usgs.gov/sir/2005/5275/pdf/sir2005-5275.pdf>

Lettenmaier D.P., 1988. Multivariate Nonparametric Tests for Trend in Water Quality. *Water Resources Bulletin*, 24, 505-512.

Maimone, M., O'Rourke, D.E., Knighton, J.O., and Thomas, C.P. 2011. Potential Impacts Of Extensive Stormwater Infiltration In Philadelphia. *Environmental Engineer: Applied Research and Practice*. Fall 2011. 29-39.

Paulachok, G. N., and Wood C.R. (1984). Water-table map of Philadelphia, Pennsylvania, 1976-1984. U.S. Geological Survey Hydrologic investigations atlas HA-676. Washington, D.C.

## **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 implemented by USGS in Chester County (Reif 2002, Reif 2004). The plan also reflects the manpower

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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

<b>Period</b>	<b>Monitoring Activity (number of samples)</b>
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 (15*) USGS gage samples (9); Random (1)
2016	Pennypack Creek Tributaries
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. Compositing 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 compositing 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

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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).

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 3.** PADEP ICE Protocol Metrics and Metric Standardization Values

<b>Metric</b>	<b>Standardization Value</b>
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 9 USGS gage sites, 15 tributary sites in the targeted Wissahickon watershed, and 1 randomly chosen site from PWD's watershed assessment site network between 3/06/2014 and 3/21/2014 (Figure 1, Tables 4-5). The random selection (TFRC064) ended up being a tributary site; because USGS sites are all mainstem locations, the assessments can be considered both in terms of mainstem vs. tributary results and short-term vs. long-term data collection. 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.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 1.** PWD Wadeable Streams Assessment Locations - Spring 2014

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712  
FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

### 2014 Wissahickon Targeted Watershed Monitoring Sites



Figure 2. PWD Wadeable Streams Assessment Locations for Targeted Watershed - Spring 2014



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 4.** PWD-USGS Cooperative Monitoring Program Monitoring Locations

<b>Site ID</b>	<b>USGS Gage</b>	<b>Site Description</b>	<b>Drainage Area (mi<sup>2</sup>)</b>
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
TF324*	01467087	Tacony Creek 165 ft downstream of outfall T14	29.69
TF597	01467086	Tacony Creek below Adams Ave. Bridge	16.25
WS076	01474000	Wissahickon Creek at Ridge Ave.	63.22
WS1075	01473900	Wissahickon Creek at Ft. Washington	40.44

\*TF324 is located nearby former PWD monitoring site TF328

**Table 5.** Tributary Monitoring Sites, Spring 2014

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

<b>Site ID</b>	<b>Site Description</b>	<b>Drainage Area (mi<sup>2</sup>)</b>
WSRT005	Unnamed tributary at Rex Ave. 650 ft upstream of Wissahickon confluence	0.255
WSTM002	Thomas Mill 150 ft upstream of Wissahickon confluence	0.175
WSVG009	Valley Green 500 ft upstream of Wissahickon confluence	0.189
WSCW003	Carpenters Woods 200 ft upstream of Wissahickon confluence	0.365
WSPC017	Prophecy Creek 400 ft upstream of Butler Ave bridge	2.477
WSBM007	Bells Mill 400 ft upstream of Wissahickon mainstem confluence	0.482
WSCC009	Cresheim Creek 500 ft upstream of Wissahickon confluence	2.329
WSCR008	Cathedral Run 400 ft upstream of Wissahickon confluence	0.225
WSGL020	Gorgas Lane tributary 500 ft downstream of Henry Rd bridge	0.686
WSHR009	Hartwell Run 450 ft upstream of Wissahickon confluence	0.189
WSLR005	Lorraine Run at Valley Green Rd bridge	2.051
WSMC025	Monoshone Creek 400 ft upstream of Rittenhousertown stone bridge	2.317
WSPM018	Paper Mill Run 900 ft downstream of Stenton Ave bridge	1.89
WSSR096	Sandy Run 750 ft downstream of I-276 bridge, adjacent to Pennsylvania Ave & Route 309	11.94
WSWM015	Wises Mill 750 ft upstream of Wissahickon confluence	0.658
TFRC064	Rock Creek 800 ft downstream of Washington Ln. bridge	1.63

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

## Benthic Macroinvertebrate Monitoring Results - Spring 2014

A total of 5,480 benthic macroinvertebrates from 42 taxa were collected from the 25 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 3). 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 16.6% to 44.2%. All sites were characterized by low taxa richness, low or absent modified EPT taxa, and elevated Hilsenhoff Biotic Index scores (Table 6, Figures 3-8).

**Table 6.** PADEP ICE Metric Scores

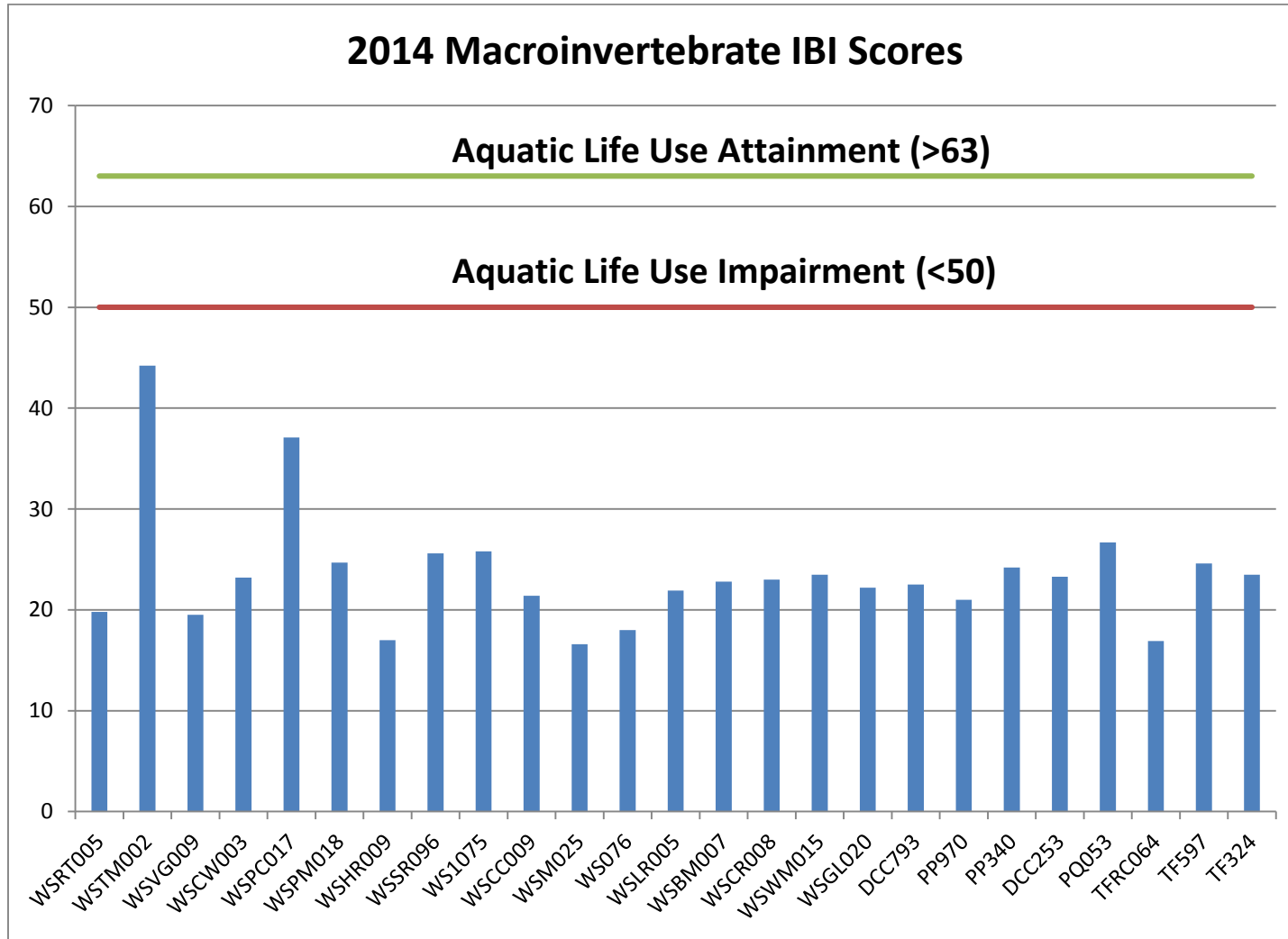
Site ID	Taxa Richness	EPT richness (PTV 0-4)	% Sensitive individuals	Beck's Index	HBI	Shannon Index	IBI score
WSRT005	10	1	0.442	1	6.04	0.894	19.8
WSTM002	13	5	34.703	9	4.49	1.904	44.2
WSVG009	8	1	1.345	1	5.78	0.903	19.5
WSCW003	12	1	2.778	3	5.77	0.978	23.2
WSPC017	19	4	7.826	2	4.96	1.924	37.1
WSPM018	11	1	3.182	0	5.69	1.515	24.7
WSHR009	9	0	0.976	1	6.21	0.688	17.0
WSSR096	13	1	2.791	2	6.16	1.515	25.6
WS1075	14	0	1.408	0	6.00	1.757	25.8
WSCC009	12	1	0.913	3	6.00	0.820	21.4
WSM025	9	0	0.427	0	6.27	0.743	16.6
WS076	9	1	0.000	0	5.92	0.720	18.0
WSLR005	12	0	1.288	0	6.20	1.329	21.9
WSBM007	10	2	0.847	3	5.89	1.044	22.8
WSCR008	10	1	2.740	3	5.88	1.154	23.0
WSWM015	11	2	0.917	3	5.90	1.083	23.5
WSGL020	12	0	1.500	0	6.44	1.469	22.2
DCC793	10	1	2.778	0	5.69	1.237	22.5
PP970	10	1	2.336	1	5.77	0.941	21.0
PP340	14	1	0.847	2	5.87	1.153	24.2
DCC253	11	1	2.415	0	5.87	1.363	23.3
PQ053	10	1	5.634	0	5.54	1.796	26.7
TFRC064	8	1	3.004	0	5.97	0.538	16.9
TF597	9	1	8.824	0	5.43	1.384	24.6
TF324	12	0	0.446	0	6.80	1.851	23.5

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

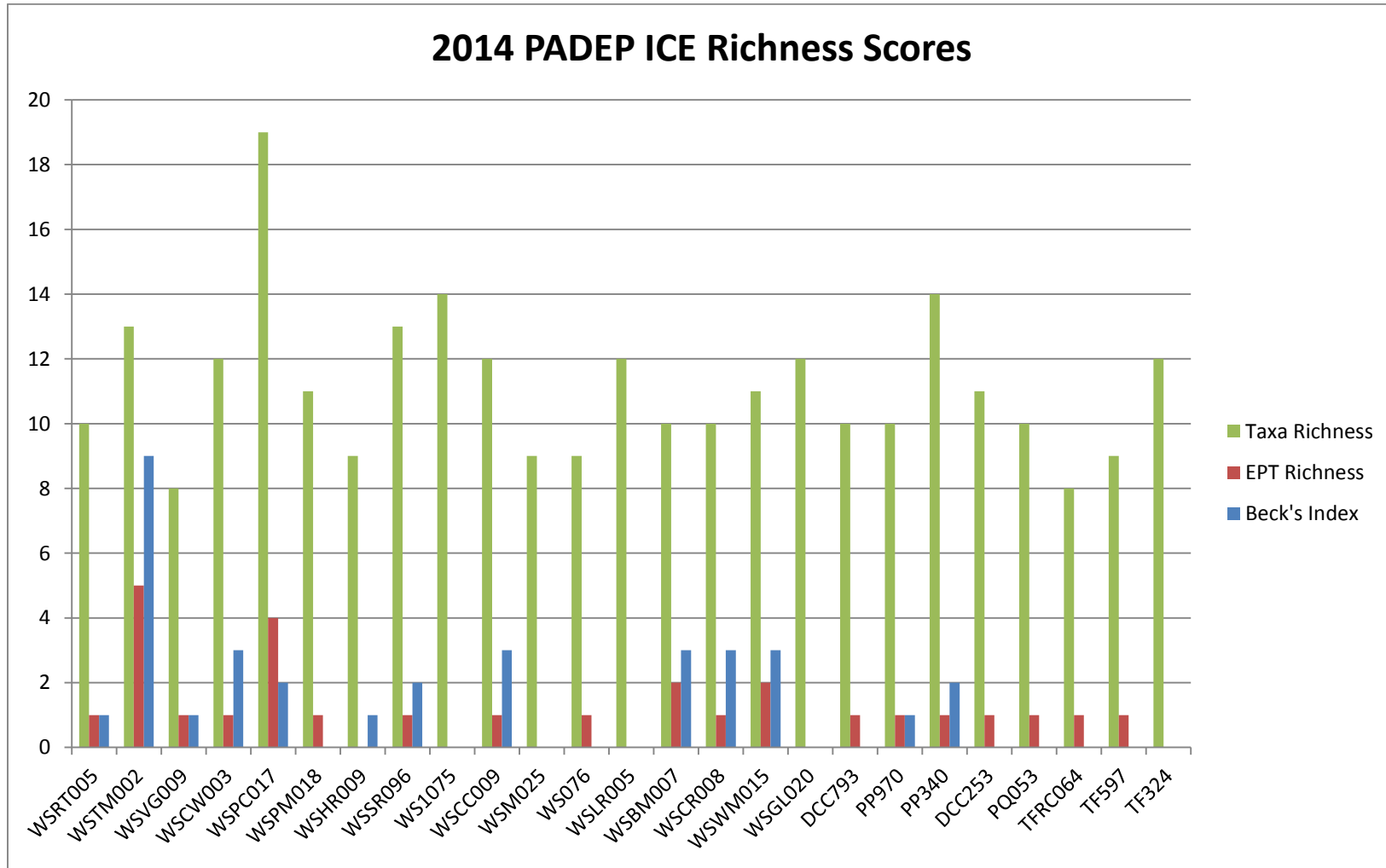
Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 3.** Macroinvertebrate IBI Scores - Spring 2014

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 4.** Macroinvertebrate ICE Richness Scores – Spring 2014

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

Very sensitive taxa (pollution tolerance value  $\leq 2$ ) were present at only 2 of the 9 mainstem sites (both in the Pennypack— PP340 and PP970). Site WSTM002 in Thomas Mill Run had the highest Beck's Index score (n=9) and included two taxa with pollution tolerance values of zero: *Dolophilodes* (Trichoptera; Philopotamidae) and *Glossosoma* (Trichoptera; Glossosomatidae). WSTM002 also had the highest percentage of sensitive individuals (34.7%), while no sensitive individuals were collected at WS076, the mainstem site at the mouth of the Wissahickon. 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 0.54 to 1.92, compared to the reference metric value of 2.86. The site with the greatest diversity was Prophecy Creek location WSPC017 (SDI=1.92), with a taxa richness (n=19), EPT taxa richness (n=4), and HBI (4.96).

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 zero (very sensitive) to 10 (very tolerant). The average HBI for all sites was 5.86, and scores at the 25 assessment sites ranged from 4.49 to 6.8 (Figure 5).

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

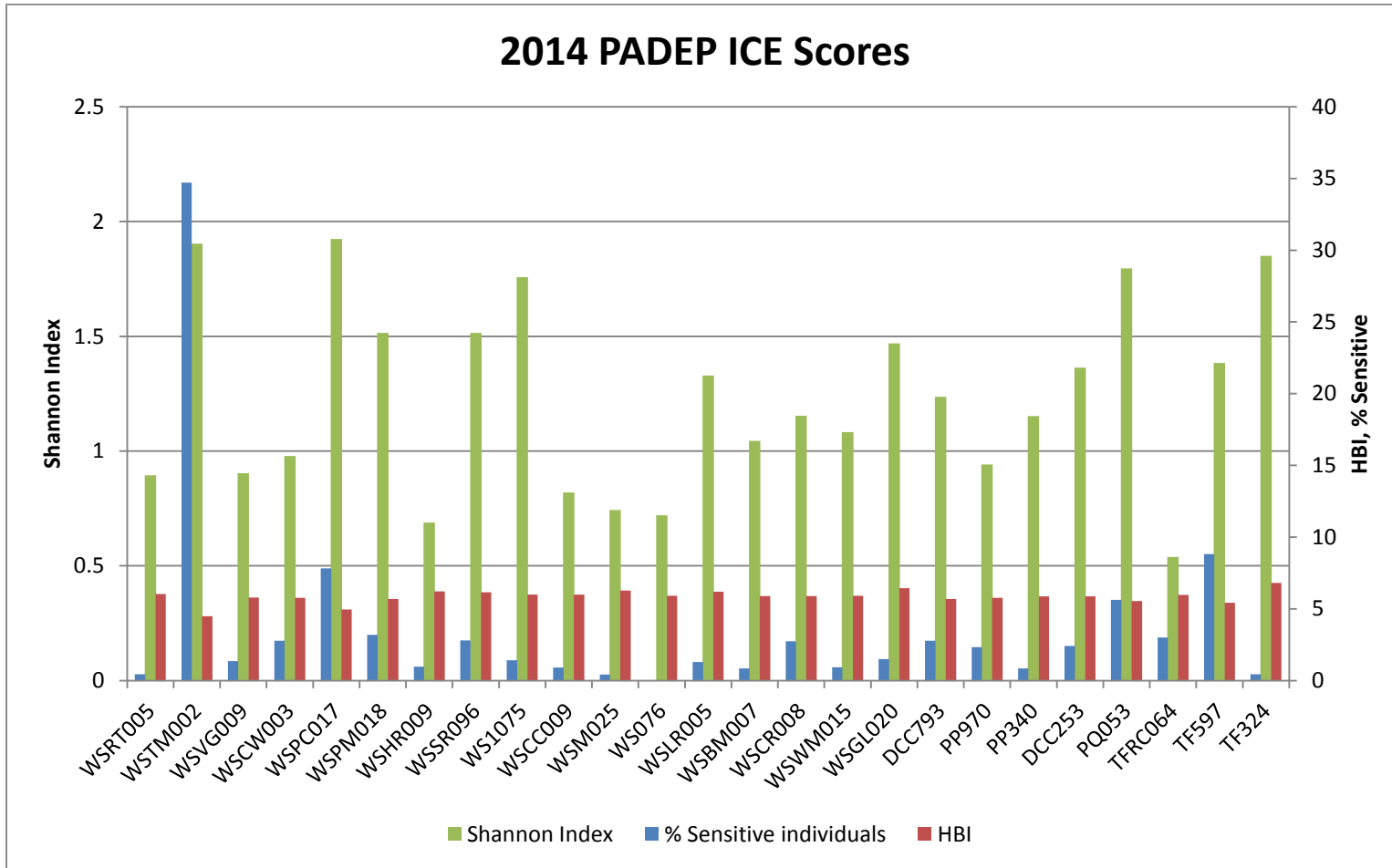


Figure 5. PADEP ICE Scores - Spring 2014

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

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 (76.75%) and filterers (15.47%) dominated at all Wissahickon assessment sites (Figure 6).

Specialized feeders—a group that is generally more sensitive to perturbation than generalist feeders—were absent or found in low abundance. Scrapers comprised only 4.69% 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 (2.04%) and shredders (1.05%), 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.

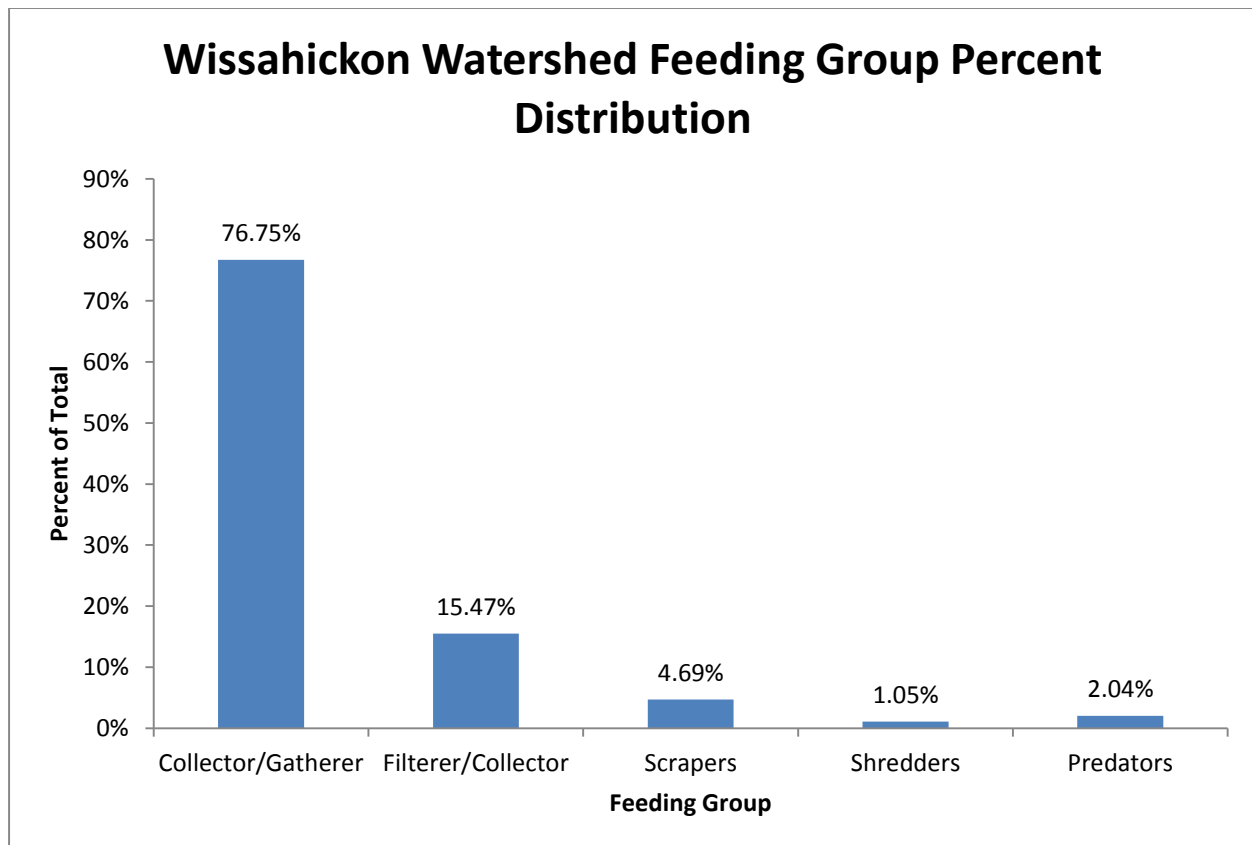


Figure 6. Feeding Group Percent Distribution - Spring 2014



CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

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 86.41%, with a range of 57.53% to 96.46%. The site with the greatest proportion of moderately tolerant taxa was WSRT005, with 96.46% dominance directly related to a high number of Chironomidae (n=149) and Baetidae (n=65) found within the sorted sample (n=226). Overall, Chironomids (Figure 7) were the dominant taxon at all but two of the assessment locations (WSTM002 and WSCR008, where Chironomids were outnumbered by moderately tolerant *Baetis*). 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 7.** Chironomid, or non-biting midge  
Photo: Simon Johnston

Tolerant taxa accounted for an average of 3.36% of all taxa, and the proportion of tolerant taxa at each monitoring site ranged from 0%-25.89%. Intolerant taxa were also poorly represented, averaging 8.89% of all taxa collected at the sites. The proportion of intolerant taxa at each site ranged from 0.09% to 42.61%.

Sensitive taxa (pollution tolerance values  $\leq 3$ ) were collected at 23 of the 25 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* (Diptera; Tipulidae pollution tolerance value n=3) was found at 16 sites and was the most commonly collected sensitive taxon.

**Table 7.** Sensitive Taxa Collected

---

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

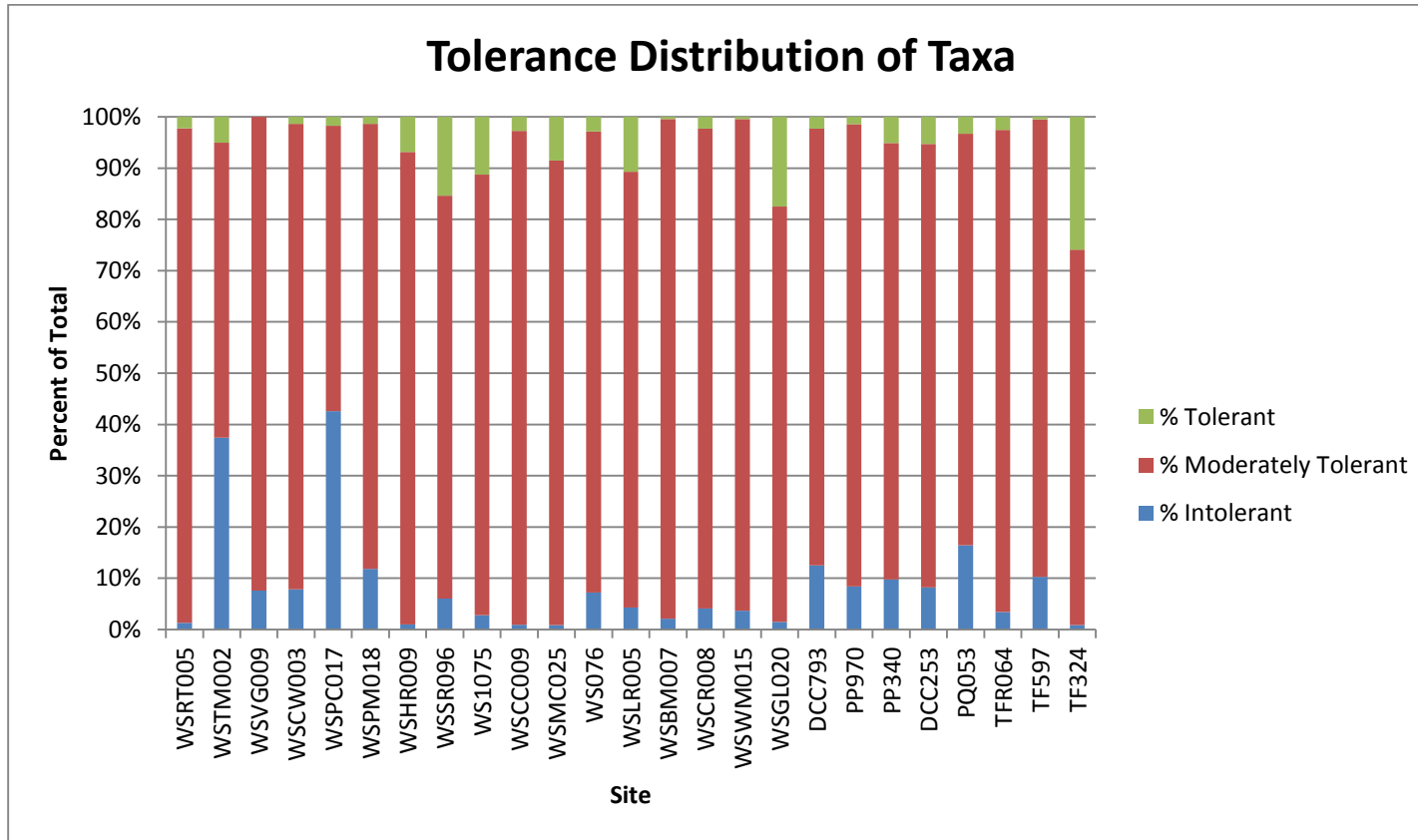
Site	Order	Family	Genus	HBI
WSRT005	Diptera	Ceratopogonidae	<i>Atrichopogon</i>	2
WSTM002	Trichoptera	Hydropsychidae	<i>Diplectrona</i>	0
WSTM002	Trichoptera	Philopotamidae	<i>Dolophilodes</i>	0
WSTM002	Trichoptera	Glossomatidae	<i>Glossosoma</i>	0
WSTM002	Plecoptera	Nemouridae	<i>Amphinemura</i>	3
WSVG009	Trichoptera	Hydropsychidae	<i>Diplectrona</i>	0
WSCW003	Trichoptera	Philopotamidae	<i>Dolophilodes</i>	0
WSPC017	Trichoptera	Uenoidae	<i>Neophylax</i>	3
WSPC017	Ephemeroptera	Heptageniidae	<i>Stenonema</i>	3
WSPC017	Plecoptera	Capniidae	<i>Allocapnia</i>	3
WSPC017	Diptera	Tipulidae	<i>Antocha</i>	3
WSPC017	Diptera	Simuliidae	<i>Prosimulium</i>	2
WSPC017	Coleoptera	Elmidae	<i>Microcylloepus</i>	2
WSPM018	Diptera	Tipulidae	<i>Antocha</i>	3
WSHR009	Diptera	Ceratopogonidae	<i>Atrichopogon</i>	2
WSSR096	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
WSSR096	Coleoptera	Elmidae	<i>Microcylloepus</i>	2
WSCC009	Trichoptera	Glossosomatidae	<i>Glossosoma</i>	0
WSCC009	Diptera	Tipulidae	<i>Antocha</i>	3
WSMC025	Diptera	Tipulidae	<i>Antocha</i>	3
WSLR005	Diptera	Tipulidae	<i>Antocha</i>	3
WSBM007	Trichoptera	Glossosomatidae	<i>Glossosoma</i>	0
WSBM007	Diptera	Tipulidae	<i>Antocha</i>	3
WSCR008	Trichoptera	Philopotamidae	<i>Dolophilodes</i>	0
WSWM015	Trichoptera	Philopotamidae	<i>Dolophilodes</i>	0
WSWM015	Diptera	Tipulidae	<i>Antocha</i>	3
WSGL020	Diptera	Tipulidae	<i>Antocha</i>	3
DCC793	Diptera	Tipulidae	<i>Antocha</i>	3
PP970	Diptera	Tipulidae	<i>Antocha</i>	3
PP970	Coleoptera	Elmidae	<i>Macronychus</i>	2
PP340	Diptera	Tipulidae	<i>Antocha</i>	3
PP340	Coleoptera	Elmidae	<i>Ancyronyx</i>	2
DCC253	Diptera	Tipulidae	<i>Antocha</i>	3
PQ053	Diptera	Tipulidae	<i>Antocha</i>	3
TFRC064	Diptera	Tipulidae	<i>Antocha</i>	3
TF597	Diptera	Tipulidae	<i>Antocha</i>	3
TF324	Diptera	Tipulidae	<i>Antocha</i>	3

NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 8.** Tolerance Distribution of Taxa - Spring 2014

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

---

**Table 8.** 2014 Benthic Macroinvertebrate Taxa List

<b>Order</b>	<b>Family</b>	<b>Genus</b>
Diptera	Chironomidae	<i>spp</i>
Diptera	Tipulidae	<i>Tipula</i>
Diptera	Tipulidae	<i>Antocha</i>
Diptera	Tipulidae	<i>Limonia</i>
Diptera	Empididae	<i>Hemerodromia</i>
Diptera	Ceratopogonidae	<i>Atrichopogon</i>
Diptera	Psychodidae	<i>Psychoda</i>
Diptera	Simuliidae	<i>Simulium</i>
Diptera	Simuliidae	<i>Prosimulium</i>
Oligochaeta	n/a	<i>n/a</i>
Hirudinea	Erpobdellidae	<i>sp</i>
Hydracarina	n/a	<i>n/a</i>
Lepidoptera	Pyralidae	<i>Petrophila</i>
Nematomorpha	n/a	<i>n/a</i>
Nemertea	n/a	<i>n/a</i>
Nematoda	n/a	<i>n/a</i>
Turbellaria	Planariidae	<i>sp</i>
Trichoptera	Philopotamidae	<i>Chimarra</i>
Trichoptera	Philopotamidae	<i>Dolophilodes</i>
Trichoptera	Hydropsychidae	<i>Hydropsyche</i>
Trichoptera	Hydropsychidae	<i>Cheumatopsyche</i>
Trichoptera	Hydropsychidae	<i>Ceratopsyche*</i>
Trichoptera	Hydropsychidae	<i>Diplectrona</i>
Trichoptera	Hydroptilidae	<i>Leucotrichia</i>
Trichoptera	Glossosomatidae	<i>Glossosoma</i>
Trichoptera	Uenoidae	<i>Neophylax</i>
Plecoptera	Nemouridae	<i>Amphinemura</i>
Plecoptera	Capniidae	<i>Allocapnia</i>
Amphipoda	Gammaridae	<i>Gammarus</i>
Amphipoda	Crangonyctidae	<i>Crangonyx</i>
Isopoda	Asellidae	<i>Caecidotea</i>
Ephemeroptera	Baetidae	<i>Baetis</i>
Ephemeroptera	Heptageniidae	<i>Stenonema</i>
Coleoptera	Elmidae	<i>Stenelmis</i>
Coleoptera	Elmidae	<i>Ancyronyx</i>
Coleoptera	Elmidae	<i>Microcylleopus</i>
Coleoptera	Elmidae	<i>Optioservus</i>
Coleoptera	Psephenidae	<i>Psephenus</i>

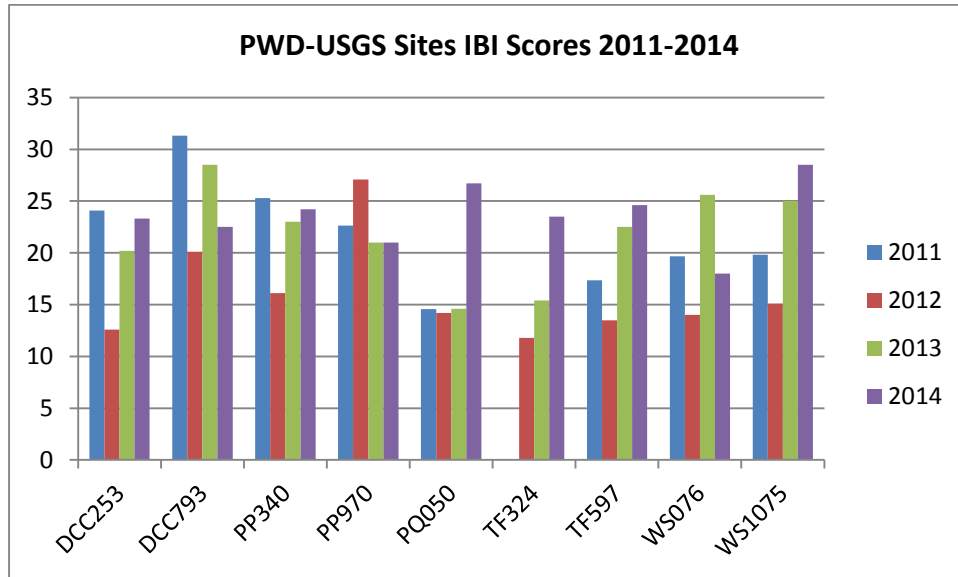
NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

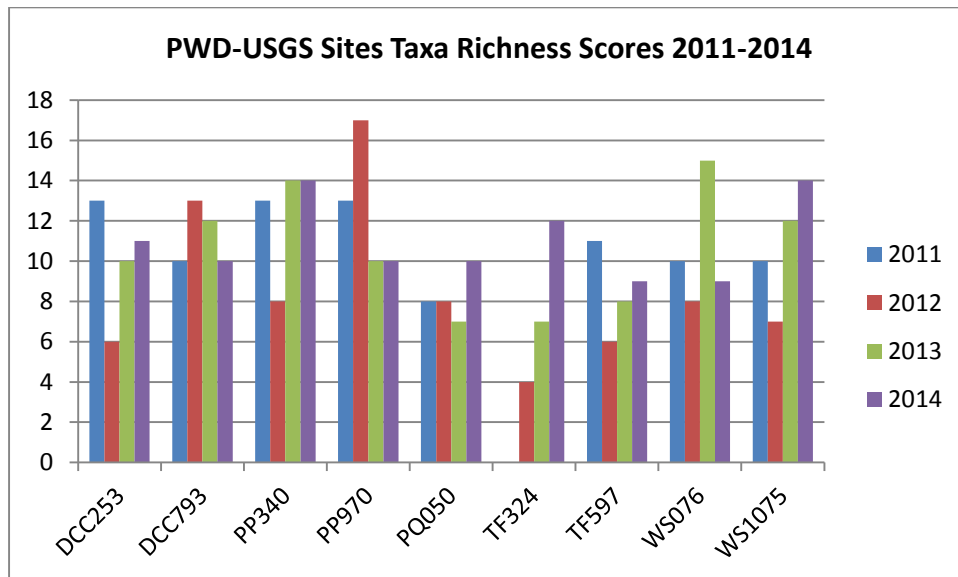
Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

Although it is much too early to draw conclusions regarding trends at the eight long-term PWD-USGS cooperative monitoring sites, IBI and taxa richness results are shown below (Figures 9-10). 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 9.** Comparison of IBI Scores at PWD-USGS Sites, 2011-2014\*



**Figure 10.** Comparison of Taxa Richness Scores at PWD-USGS Sites, 2011-2014\*

\*In 2013, samples for TF324 were taken from nearby site TF328.

CITY OF PHILADELPHIA  
COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

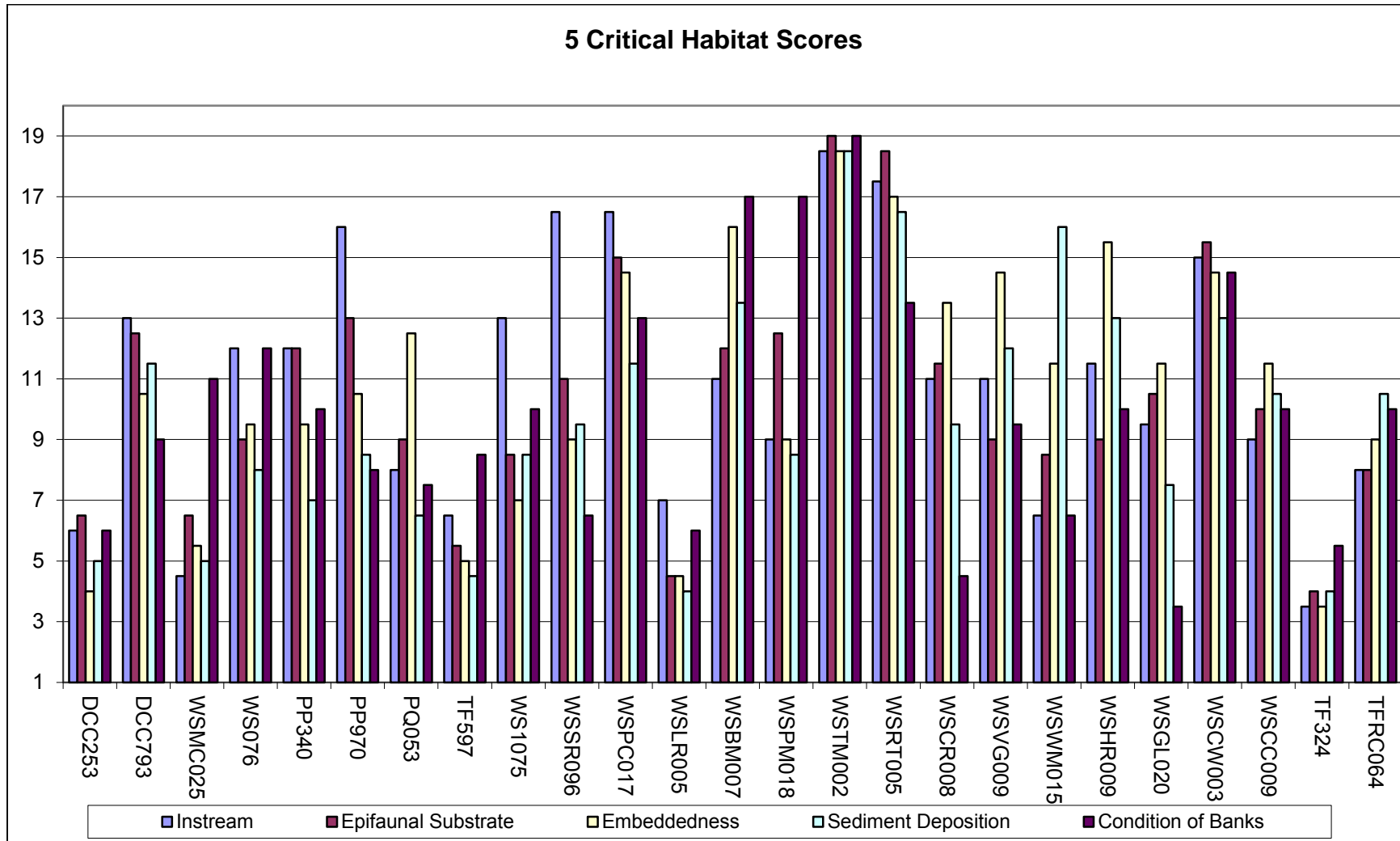
## Physical Habitat Monitoring Results - Spring 2014

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 two sites received an optimal score for embeddedness, and three sites received optimal status for sediment deposition for habitat (Table 9, Figure 11). The downstream Tacony Creek site TF324 had the worst total habitat scores of all sites, while Wissahickon site WSRT005 (an unnamed tributary 650 ft upstream of the Wissahickon confluence at Rex Ave.) had the best scores for all sites.

**Table 9.** Physical Habitat Scores at All Monitoring Sites - Spring 2014

Site ID	Instream	Epifaunal	Embed	Veldep	Chanalt	Seddep	Riffreq	Chanflo	Bankcond	Vegpro	Graze	Ripveg	Total Score
DCC253	6	6.5	4	7	8	5	6	11.5	6	10.5	11	9.5	91
DCC793	13	12.5	10.5	16	15	11.5	13.5	9	9	15.5	16	15.5	157
WSMC025	4.5	6.5	5.5	6.5	9	5	7	6.5	11	16	7	8	92.5
WS076	12	9	9.5	16.5	7.5	8	5.5	12.5	12	6	7	6.5	112
PP340	12	12	9.5	16	14.5	7	9	9	10	15.5	14	14.5	143
PP970	16	13	10.5	16	16	8.5	12.5	8.5	8	13.5	9	9	140.5
PQ053	8	9	12.5	11	16	6.5	9	8.5	7.5	11.5	14.5	13	127
TF597	6.5	5.5	5	6.5	9	4.5	6.5	7.5	8.5	10.5	11.5	10	91.5
WS1075	13	8.5	7	13	15	8.5	7	12.5	10	11.5	17	16.5	139.5
WSSR096	16.5	11	9	16.5	14	9.5	7	16	6.5	14	7.5	6.5	134
WSPC017	16.5	15	14.5	16	18	11.5	9.5	14.5	13	17.5	18	19	183
WSLR005	7	4.5	4.5	11.5	12.5	4	3.5	16.5	6	14	6.5	11.5	102
WSBM007	11	12	16	9	8	13.5	17	9.5	17	17.5	18.5	12.5	161.5
WSPM018	9	12.5	9	12	15	8.5	14	16.5	17	17	9.5	14	154
WSTM002	18.5	19	18.5	17	18.5	18.5	19	17	19	19.5	19.5	19	223
WSUT005	17.5	18.5	17	17.5	15	16.5	18.5	9.5	13.5	16.5	17	14.5	191.5
WSCR008	11	11.5	13.5	16.5	15.5	9.5	17	8	4.5	12.5	15.5	18.5	153.5
WSVG009	11	9	14.5	13.5	9.5	12	16	8.5	9.5	13.5	15.5	9.5	142
WSWM015	6.5	8.5	11.5	16	4.5	16	16.5	11.5	6.5	6	11.5	4.5	119.5
WSHR009	11.5	9	15.5	12.5	13	13	17	8.5	10	17	18.5	19	164.5
WSGL020	9.5	10.5	11.5	10	13.5	7.5	13	7.5	3.5	9	16.5	17	129
WSCW003	15	15.5	14.5	14	17	13	17	11.5	14.5	18.5	19	19	188.5
WSCC009	9	10	11.5	12	13.5	10.5	13	8.5	10	15.5	18	17	148.5
TF328	3.5	4	3.5	11.5	7	4	5	9.5	5.5	13.5	6	5	78
TFRC064	8	8	9	11	12.5	10.5	11.5	7.5	10	14	14.5	10	126.5

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM



**Figure 11.** Critical Habitat Scores, Spring 2014

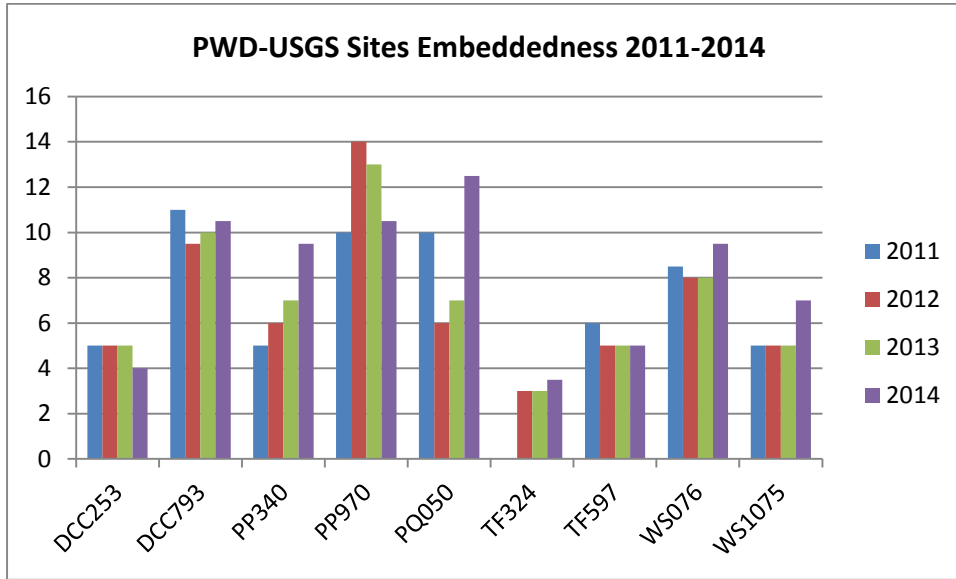
NPDES Permit No. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

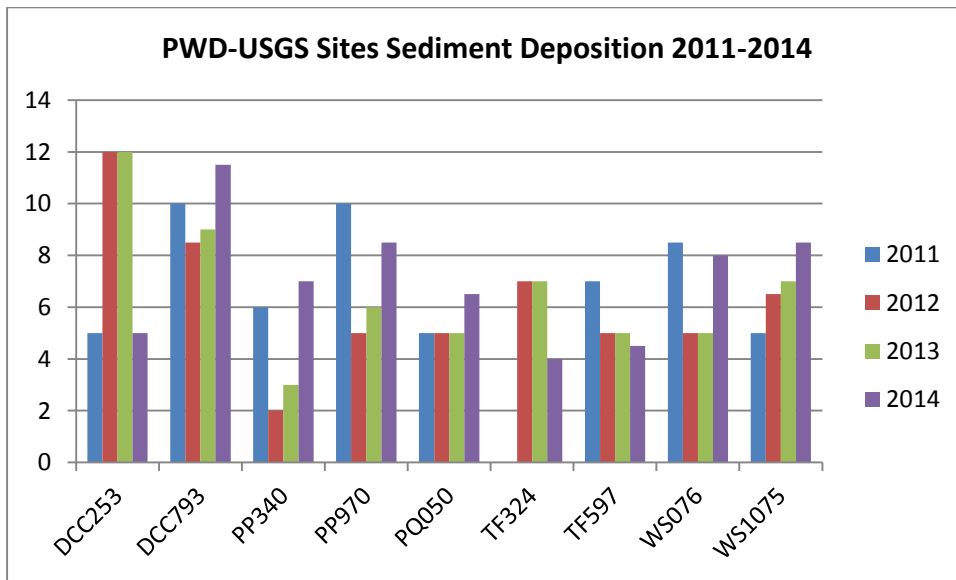
Appendix J – PWD Wadeable Streams Benthic Macroinvertebrate and Physical Habitat Assessments

CITY OF PHILADELPHIA  
 COMBINED SEWER & STORMWATER MANAGEMENT PROGRAM

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 12-13). 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 12.** Comparison of PWD-USGS Sites Embeddedness Scores, 2011-2014\*



**Figure 13.** Comparison of PWD-USGS Sites Sediment Deposition Scores, 2011-2014\*

\*In 2013, samples for TF324 201 were taken from nearby site TF328.



## References

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid bioassessment protocols for use in streams and wadeable rivers: periphyton, benthic macroinvertebrates and fish, second edition. EPA 841-B-99-002. United States Environmental Protection Agency; Office of Water. Washington, D.C.

Borsuk, M. E., C. A. Stow, and K. H. Reckhow. 2002. Predicting the frequency of water quality standard violations: A probabilistic approach for TMDL development. *Environmental Science & Technology*, 36: 2109-2115.

Pennsylvania Department of Environmental Protection (PADEP). (2009). Instream Comprehensive Evaluation Surveys. Harrisburg, PA. 59 p.

Paulsen, S.G. et al. 2008. Condition of stream ecosystems in the US: an overview of the first national assessment. *Journal of the North American Benthological Society*: December 2008, Vol. 27, No. 4, pp. 812-821.

Reif, A.G. 2002. Assessment of stream quality using biological indices at selected sites in the Red Clay and White Clay Creek Basins, Chester County, Pennsylvania, 1981-97. USGS Fact Sheet FS-118-02.

Reif, A.G. 2004. Assessment of water chemistry, habitat, and benthic macroinvertebrates at selected stream-quality monitoring sites in Chester County, Pennsylvania, 1998-2000: 84.

Runde, J. M., and R. A. Hellenthal. 2000. Behavioral responses of *Hydropsyche sparna* (Trichoptera: Hydropsychidae) and related species to deposited bedload. *Environmental Entomology* 29:704-709.

## **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
<b>PAG-03 General</b>				
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
872235	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ALLEGHENY IRON & METAL TACONY ST FAC	Clean Water	TACONY ST & ADAMS AVE, PHILADELPHIA, PA 19124
875199	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
843686	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
887619	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
870038	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

CITY OF PHILADELPHIA  
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
1033602	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	ESSINGTON AVE AUTO PARTS FAC	Clean Water	6770 ESSINGTON AVE, PHILADELPHIA, PA 19153
895858	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
1040038	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	GYES AUTO PARTS	Clean Water	3405 S 61ST ST, PHILADELPHIA, PA 19153

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
605861	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
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

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
891202	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	NORTHEAST PHILADELPHIA AIRPORT (PNE)	Clean Water	9800 ASHTON RD, PHILADELPHIA, PA 19114
860636	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
888167	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PEPSI BOTTLING ROOSEVELT BLVD PLT	Clean Water	11701 ROOSEVELT BLVD, PHILADELPHIA, PA 19154-2108
869978	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	PHILA GAS WORKS PASSYUNK AVE PLT	Clean Water	3100 W. PASSYUNK AVE, PHILADELPHIA, PA 19145

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
867330	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	RICHARDS APEX MAIN ST FAC	Clean Water	4202-24 MAIN ST, PHILADELPHIA, PA 19127
869788	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
902993	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SPC PENROSE AVE FAC	Clean Water	26TH ST & PENROSE AVE, PHILADELPHIA, PA 19145



CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
811062	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	STEFFA METALS CHURCH ST FAC	Clean Water	2190 CHURCH ST, PHILADELPHIA, PA 19124
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
809306	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	SUN CHEM HUNTING PARK AVE PLT	Clean Water	3301 HUNTING PARK AVE, PHILADELPHIA, PA 19132
869891	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
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
857504	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
1032066	PAG-03 Discharge of Stormwater Assoc w Industrial Activities	UNITED METAL TRADERS COMLY ST FAC	Clean Water	5240 COMLY ST, PHILADELPHIA, PA 19135

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
867328	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
<b>No Exposure</b>				
836412	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	COILPLUS BLEIGH AVE FAC	Clean Water	5135 BLEIGH AVE, PHILA, PA 19136
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

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
874750	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
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

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
788999	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	MUTUAL PHARM CO INC	Clean Water	7722 DUNGAN RD, PHILADELPHIA, PA 19111
1015651	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
1077395	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
575231	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
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
839546	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	PREFERRED FREEZER SERVICES	Clean Water	3101 SOUTH THIRD ST, PHILADELPHIA, PA 19148

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
1078326	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
863998	No Exposure Certification, Discharge of Stormwater Assoc w Ind Activities, PAG-03	TASTY BAKING S 26TH ST FAC	Clean Water	4300 S 26TH ST, PHILADELPHIA, PA 19112
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

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
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
1079708	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
1027710	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
<b>Individual</b>				
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 - RACE ST/ PENN COACH YARD FAC.	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

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Authority ID	Permit Type	Site Name	Program Description	Site Address
1080980	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	METRO READY MIX & SUPPLY CASTOR AVE PLT	Clean Water	4455-65 CASTOR AVENUE, PHILADELPHIA, PA 19124
882940	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA ENERGY SOLUTIONS REFINING & MKTG LLC	Clean Water	3144 W PASSYUNK AVE, PHILADELPHIA, PA 19145-5208
923728	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PHILA INTL AIRPORT	Clean Water	8000 ESSINGTON AVE, PHILADELPHIA, PA 19153
1007590	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	PLAINS PRODUCTS TERMINALS, LLC	Clean Water	1630 S 51ST ST, PHILADELPHIA, PA 19143-5831
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
913561	NPDES Pmt Stormwater Industrial Site Runoff (Individual)	WHITE PINES PARTNERS GC	Clean Water	1 RED LION RD, PHILADELPHIA, PA 19115

## **Appendix L – FY 15 Defective Laterals Annual Report**

---



**Sewer Maintenance Unit**  
**Defective Connections Group**  
**Fiscal Year 2015 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)<sup>1</sup>. 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 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. The Plumbing Repair Programs unit is responsible for abating the defective laterals detected.

## **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.

---

<sup>1</sup> 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 water main leak

The Leak Detection unit is alerted when the condition listed at (iii) above is encountered.

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 FY2015, 47 outfall inspections were conducted and 43 samples were taken due to observed dry-weather flow as part of the Priority Outfall Sampling program. During FY2015, 4 outfall inspections were conducted and 4 samples were taken due to observed dry-weather flow as part of the Permit Inspection program.

## C. Field Screening

The object of field screening is to identify the areas in a sewershed that are suspected of contributing to stream pollution through defective laterals. The field screening begins systematically at an outfall that shows a dry weather flow<sup>2</sup>.

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. 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 (ii): **Proper connection**
- 2) Combination of (i) and (iii): **Probable cross connection**
- 3) Combination of (ii) and (iv): **Inconclusive result**
- 4) Combination of (ii) and (iii): **Probable cross connection**

---

<sup>2</sup> 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.

In certain cases, the use of the closed circuit television camera is not possible. In such cases, the initial tests are conducted manually.

In a “**Manual Dye Test**”, a green dye placed in the storm FAI is drained and observed in the **storm sewer**. At the same time, a red dye is placed and drained in the sanitary FAI and observed in the **sanitary sewer**. If the green dye appears in the sanitary sewer, irrespective of the red dye’s appearance in the storm sewer, the conclusion arrived at is “**Proper Connection**”. If the green dye is not seen in the sanitary sewer, the test is repeated by placing and draining more dye from the sanitary FAI and observing its emergence in the **storm sewer**. This result signifies the presence of a “**Cross Connection**”. All other combinations of observations in the Manual Dye Test are held to be “**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 Possible cross connection. This test is conducted after a second notification to the customer has been sent. This test is **intrusive**; admission inside the home is required to conduct the testing.

The confirmation dye test is conducted **manually** by placing and flushing the fluorescent dye in household plumbing fixtures, such as a toilet. The emergence of the dye is then observed in the **sanitary sewer**.

If the dye does appear in the sanitary sewer, it is concluded that the property tested has a “**Proper Connection**.” If on the other hand the dye from the household plumbing does not appear in the sanitary sewer, then and only then an observation is made in the storm sewer. The presence of the dye in the storm sewer confirms the existence of a “**Cross Connection**.”<sup>3</sup>

### **(c) Notification of Defect**

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**

### **(a) Initial Notification**

---

<sup>3</sup> 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.

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 OUTFALLS

During FY2015, the emphasis of the Defective Laterals Detection and Abatement program has been 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 FY2015.

=====

**Table 1.**  
**Updated Progress on Dye Tests in Philadelphia MS4 Area**

	<b>Since Inception of the Program</b>	<b>During Fiscal 2015</b>
Dye Tests Initiated	56,465	2,629
No Cross Connections Found	54,025	2,564
Cross Connections Identified	1,359	44
Completed Tests	55,384	2,608
Abatements Completed	1,347	43

Of the 43 abatements above (in FY2015), 39 were residential properties. The cost for these abatements was \$ 350,905.12. Additionally, 4 commercial properties were abated at a cost of \$ 6,384.00.

### 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 1,347

During FY2015

43

- Estimated gallons of Polluted Water Prevented from entering the stormwater outfalls<sup>4</sup>  
Since Inception of the Program 189.3 million gallons per year  
During FY2015 6.0 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**

Four **SM Crew Chief Is / Science Technicians**

One position vacant

Eight **Utility Representatives**

Four positions vacant

One **Data Services Support Clerk**

The above field and office staffs are organized under the Water Conveyance Supervisor. This position is responsible for all aspects of the unit. The two Field Representative Supervisors are each responsible for two field crews, four crews in all. Each crew is led by a SM Crew Chief I / Science Technician and has two Utility Representatives.

In addition to the field staff, the Defective Connections group has the following position which provides general support:

**Data Services Support Clerk:** The DSSC handles the intricacies of the DLS database, creation of various correspondences related to dye tests, and follows-up with the field staff.

The DSSC also handles a variety of communications with the customers, makes appointments, and follows-up with delinquent customers. They also maintain the record of water shutoff warnings and miscellaneous closures.

At the end of FY2015, 11 of the 16 approved positions in the Defective Connections group were filled.

---

<sup>4</sup> Based on an average use of 110 gallons per capita per day, over a family size of 3.5 persons.



## **Appendix N – Pollutant Migration**

---

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
8/24/2014	3300 N Delaware Avenue	Acetone	Separate	IWU inspector responded to a call from Kinder Morgan. During a pressure test a hose burst and released approximately 100 gallons of acetone into the Delaware River around 9:50A.M. The inspector did not detect any odor from the acetone as it had dissipated into the river's flow. Baxter Water Treatment Plant and the NEWPCP received notifications from the inspector as a precaution because of the incoming tide.
8/18/2014	30 <sup>th</sup> & Allegheny Avenue	Oil Spill	Separate	Ten to 15 gallons of lubricating oil spilled onto the street at 30th St. & Allegheny Ave. when a line ruptured on a construction truck. An IWU inspector responded to the location after a call from the Fire Department's Hazardous Materials Unit. Inspector observed an estimated 10 gallons of oil in a nearby inlet. A representative contacted the J & J Spill Company to clean the inlet and remove the sand placed on the street.
8/15/2014	300 E. Ontario St.	Oil Spill	Combined	Industrial Waste Unit responded to an oil spill originating from an abandoned home at 300 E. Ontario St. The oil, aided by rain water from the previous evening, had migrated from the first curb inlet on the corner of Rosehill and Ontario Sts. to a second inlet at Rosehill and Westmoreland Sts. The oil originated from a damaged 5,000 gallon capacity tank in the building. IWU inspector arrived on scene and discovered both inlets heavily filled with fuel oil. Inspector checked the inlets for lower explosive level (LEL) and found it to be zero; and could not detect any oil odor. However, the inlets required cleaning. Additionally, the lot near the tank "was stained black with oil."
8/13/2014	3795 Sepviva St.	Hydrogen Sulfide discharge	Combined	An IWU inspector responded to 3795 Sepviva St. Evidently, a worker attempting to mobilize solids in a storage tank caused the release of hydrogen sulfide. IWU inspector confirmed non-release into any nearby inlets and checked the manholes on Sepviva St. and Butler St. for traces of the substance. Inspector did not detect any sulfide in the sewer. The odor had also dissipated in the building.

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix N – 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
8/11/2014	742 S 16 <sup>th</sup> St.	Oil Leak	Combined	IWU responded to 742 S. 16th St. where the inspector met the complainant. Cooking oil had trailed from a dumpster in the church-owned parking lot to the street. The oil trailed toward a nearby inlet but failed to reach it. A five-gallon container with three gallons of spent oil stood beside the dumpster. Inspector contacted a member of the church who assured cleanup of the oil. No oil remained on site when the inspector returned the following day. The inspector recommended sending a grease dumping warning letter to the church.
8/11/2014	10 <sup>th</sup> & Spencer St.	Transformer oil	Combined	A backhoe brought a PECO transformer to the ground by snagging power lines and snapping its pole at 10th and Spencer Sts. The transformer split open and released an estimated 25 gallons of its oil onto the street. The oil reached two nearby inlets. The PECO on-site representative advised the IWU inspector of the removal of five feet of sediment and debris along with the oil and water from the inlets. The PECO representative believed none of the oil had migrated from the inlets because of the amount of material they contained prior to the spill.
9/9/2014	4305 Main St.	Sulfide Odor	Separate	IWU inspector reported to the 4305 Main St. A member of the PWD's Water Emergency Repair had already begun investigating the complainant's sulfide odor problem. For over a year a strong sulfur odor had emanated from the tap after the water was turned on. Inspector performed a multi-meter detector check, searched the basement for a backflow preventer (none present) and observed the water main and flushing of the toilet. No odor detected. Inspector determined the problem as internal to the system and advised the complainant to hire a plumber. Inspector also directed a referral for additional assistance to Defective Laterals.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
9/9/2014	1918 S 65 <sup>th</sup> St.	Sewage Discharge	Combined	The maintenance man performing renovation work on 1918 S. 65 St. installed a submersible pump and began releasing sewage from the basement of the residence. IWU inspector responded to this situation and, with assistance from the on-site L&I representative, contacted the responsible individual. Individual arrived 15 minutes later, gained access to the residence, and deactivated the pump. This deactivation occurred after the sewage, an estimated 1,000 gallons total, had traveled from 65th St. to 64th and Allman where it entered a curb inlet at the rate of three to five gallons per minute. IWU inspector advised the maintenance man not to discharge to the street. Inspector also directed contact with IWU Engineering Support to obtain a permit to discharge to the nearest sanitary manhole.
9/12/2014	E. Seltzer St. (between Amber and Coral Sts.)	Unidentified chemical spill	Combined	Municipal Dispatch contacted IWU for response to a chemical spill on Seltzer between Amber and Coral Sts. Inspector responded to location where the green-yellow contents of two drums had spilled onto the street. IWU inspector noted the substance “gave off a sweet odor” and also noticed a “faint trace of ammonia” in the air. Inspector surveyed the area (as the material began to congeal) to determine affected inlets and manholes nearby. No manholes or inlets were near. Fire Hazmat arrived on scene. Hazmat contacted Clean Venture to complete the cleanup.
9/26/2014	61 <sup>st</sup> and Passyunk Ave	Water overflow from truck	Separate	IWU inspector performing storm sewer chlorine analysis at 61st and Passyunk Ave noticed a large amount of muddy water flowing downgrade from 3201 S. 61st St. Inspector visited the location at 12:00pm and observed the water overflowing from a tank truck with road spraying attachment. The downgrade from the property directed the muddy water to the street and onward to a nearby inlet. Employees from Clean Earth of Philadelphia appeared on scene to identify the inspector and themselves and, in turn, discuss the situation. Complaints from neighbors made it necessary to “wet the road [surface areas] for dust control.” They contacted the general manager who agreed on the overuse of water. The general manager advised the situation would not occur again. Inspector later requested IWU Engineering Support’s to forward a warning letter to Clean Earth at the 3201 S. 61st St. location.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
9/26/2014	2300 Fitzwater St.	Cement dump	Combined	A report of cement dumping to a sewer brought a IWU inspector to 2300 Fitzwater St. around 10:50am. The inspector observed a laborer attempting to wash away residue, later identified as tile solids slurry, from the area around a sewer inlet. The laborer identified the material and the inspector explained only stormwater goes into the inlet and nothing else. The responsible individual came on scene and advised a nearby homeowner had hired them to complete renovation work. Inspector provided a flier which informed only stormwater goes into the inlets. Inspector also advised of the issuance of a notice of violation, without fine.
10/10/2014	8001 Roosevelt Blvd	Grease Leak	Separate	Municipal Dispatch summoned the Industrial Waste Unit for response to 8001 Roosevelt Blvd. At 11:45am, Friday, October 10th, the IWU inspector arrived to discover the leakage of grease from a dumpster at a restaurant. The substance had trailed to a nearby inlet. Cars repeatedly tracked the grease and this resulted in a 200' grease stain. McGovern later arrived to pump the inlet and steam clean the driveway. Two additional members from the IWU monitored the cleanup. Inspector did not detect any flow or grease during the follow on observation at the Rhawn and Pennypack outfall.
10/10/2014	4400 Block of Castor Ave	Cement discharge	Direct Discharge	Industrial Waste Unit inspector was contacted by Municipal Dispatch. According to information provided inspector presumed to find a dumping of cement to inlet situation. Inspector instead discovered, and surprised, an employee discharging from a gas pump into an embankment leading to the Frankford Creek. The employee scrambled to pull the hose up as the inspector took pictures. Industrial Waste Unit contacted the Pennsylvania Department of Environmental Protection. Inspector also contacted Philadelphia Police.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
10/15/2014	5 <sup>th</sup> & Christian St.	Oil Spill	Combined	A tweet to 311 resulted in a visit by an Industrial Waste Unit inspector to 5th and Christian Sts. After arrival the inspector discovered a slight oil sheen in the intersection and noticed a fuel oil odor. A half block observation of the sheen trail westward on Christian St. failed to reveal the substance origin. The heavy rain which occurred earlier washed the oil from the roadway. Inspector estimated less than a gallon of the substance had trailed the surface.
10/17/2014	1948 S. 10th St.	Heating Oil Spill	Combined	An inspector from the Air Management Services (AMS), Philadelphia Health Department, contacted the IWU. The AMS inspector informed of a heating oil spill at 1948 S. 10th St. IWU inspector arrived on-site at 1:30pm and observed oil stains on the sidewalk leading to an inlet on the northwest corner of 10th and McKean Sts. Inspector estimated three gallons of the oil had entered that inlet. The heating oil spill occurred after the removal of the oil tank from the 1948 S. 10th St. residence. Inspector opened a water hydrant one block west of the site and flushed the inlet to eliminate the odor.
10/20/2014	6400 Roosevelt Blvd	Gasoline Spill	Combined	The Municipal Dispatcher contacted the IWU with the report of a gasoline spill at 6400 Roosevelt Blvd. Upon arrival at 9:50am the IWU inspector observed a fuel pump on the ground and gasoline throughout the area. The inspector could see the fuel and smell the fumes from the inlet. Philadelphia firefighters had diked with oil dry the drain which received the gasoline. Technicians from Bristol Environmental determined a release of 77 gallons of fuel (owner estimated 20 to 30 gallons) had occurred after a dump truck had struck the pump. Evidently the automatic shutoff valve had failed to work properly. Employees arrived on scene and proceeded to clear and flush the drain and laterals of any remaining fuel. Inspector notified the on-duty treatment plant operator at the Northeast Water Pollution Control plant (NEWPCP) and then proceeded to check the sewer lines between the spill site and the NEWPCP. During this procedure the inspector did not detect any fuel odors.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
10/23/2014	4164 Torresdale Ave	Oil and Antifreeze	Combined	IWU inspector responded at 11:30am to 4164 Torresdale Ave., the site of BRASCAR Auto, for a report of oil and antifreeze leakage. Inspector noticed oil sheen trailing from the property to the street and onward to a nearby inlet. The supervising mechanic explained that during a garage cleanup oil was spilled. Disorganized conditions were observed at the facility (engines and equipment located outside) and resulted in oil sheens over most of the property. Inspector explained the importance of oil and antifreeze sheen prevention to both the supervising mechanic and the owner.
10/24/2014	430 Mercer St.	Oil Spill	Combined	Municipal Dispatcher called for response to 430 Mercer St. for report of oil spill to sewer. Upon arrival at 1:50pm the IWU inspector discovered, and later noted: "430 Mercer St. does not exist." Inspector proceeded to 805 Mercer St., the location pinned by Google Maps and investigated a nearby restaurant/bar, Les & Doreen's at 1301 Susquehanna Ave. This establishment showed no evidence of inlet dumping or mishandling of waste oil. No grease trap for the drains in use as the business serves all food on paper plates and paper boats while using plastic utensils. Inspector suggested better security of the oil storage drum which did not have a lid ring while located in an area where it could be moved or tampered.
10/28/2014	50 <sup>th</sup> and Florence Ave	Diesel spill	Combined	A diesel spill had already occurred in a large area on 50th St. east of Florence Ave. when the IWU inspector arrived at 10:10am. From observation the inspector realized that none of the fuel entered the nearest inlet. Workers had already completed the cleanup but residue remained on the curb. The foreman of the cleanup team advised that substance was the cleaning agent in use. Inspector noticed a strong diesel odor in the air and diesel oil in the gutter. Inspector directed an additional cleanup effort to remove the diesel oil from the gutter. The superintendent advised the crew would use oil bond materiel instead of the sand used earlier.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
11/3/2014	9800 Bluegrass Rd	Diesel spill		IWU inspector responded to 9800 Bluegrass Rd. per Municipal Dispatch request. Upon arrival at noon inspector took on a diesel spill situation. An estimated 15 gallons spilled from the saddle tank of a parked tractor after being hit by another tractor trailer. A nearby inlet, which the inspector sampled, received and filled with the spilled diesel which Lewis Environmental later pumped out. The Fire Department's responders placed a boom, which they would remove later, in the inlet to receive residue from the predicted rain.
11/6/2014	Schuylkill River Dam	Oil Sheen		A Water Department employee reported oil sheens on the Schuylkill River. IWU inspector arrived at the river around 11:00am to perform checks at multiple access points below the Schuylkill River Dam. Inspector and the captain of the RE Roy skimmer discovered sheens at various locations leading up to the dam. Inspector noted "the tide was high and the rain made it impossible to tell if this was an active discharge." Neither the inspector nor the captain of the RE Roy skimmer vessel could identify the source of the sheen.
11/12/2014	22 <sup>nd</sup> & Oakdale St.	Oil discharge	Combined	Inspector responded at 12:50pm to a report of oil dumping at 22 <sup>nd</sup> and Oakdale Sts. Inspector discovered evidence of deliberate oil dumping into the inlet located across from Dobbins AVT High School. An estimated two gallons of motor oil lay at the bottom of the inlet as the inspector took a sample. Because no garages or auto mechanic facilities existed in the area nearby, and no runoff into the inlet existed, the inspector deemed the incident intentional. None of the nearby residents knew or witnessed the event. Inspector compiled nearby Oakdale and 22 <sup>nd</sup> St. addresses and requested Engineering Support's dispatch of dumping notification letters to the residents.



CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
11/21/2014	N Front St & W Clarkson Ave	Oil residue	Combined	IWU received a report of individuals cleaning oil drums at Front St. and Clarkson Ave. Upon arrival at noon the inspector did not observe any oil or oil residue at the inlet. Traces of oil residue along with an oil absorbent material was found on a storm inlet in a nearby facility lot. Inspector visited a nearby company where a representative stated no cleaning of oil drums was observed and no oil stored at their facility. The representative received guidance regarding the sewer inlets and a no-dumping policy/warning.
11/27/2014	3900 Richmond St.	Cumene Odor	Separate	IWU inspector responded to 3900 Richmond St. for the North East Water Pollution Control Plant at 12:35pm. The Treatment Plant Operator reported cumene odors at the facility. The Weir Building had the strongest detected odor with scent also detected in the bar screen area. All involved personnel believed "a slug of cumene had come through earlier in the morning." The inspector took air readings which gave normal results and also checked the manhole at Gaul and Lefevrere Sts. Inspector visited the shift supervisor at Honeywell and requested process checks and bi-hourly sample results. The supervisor later reported negative results on source detection.
12/8/2014	Germantown & Master St.	Sand and Dirt dumping	Combined	An IWU inspector responded to the intersection of Germantown Ave. and Master St. to investigate a report of short dumping. Upon arrival at noon the inspector discovered sand and dirt dumped next to the inlet in that intersection. The material blocked the inlet while backing the water into puddles along the street. Upon further investigation the inspector identified a Philadelphia Water Department sub-contractor, Petrongolo, as the culprit. Inspector continued the effort toward removal of the material by contacting the Water Department's construction inspector to contact Petrongolo for cleanup.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
12/10/2014	7500 Watson St.	Oil	Separate	IWU inspected the rear area of a property in the 7500 block of Watson St. The homeowner of 7517 Oxford Ave. arrived and told IWU he believed that a neighbor was dumping oil into his exterior property drain. Owner also expressed his concern about retaliation from the neighbor as this situation had previously occurred. IWU inspector advised property owner of his intent to return for rechecks and, if possible, owner should provide footage from their security camera.
12/11/2014	Grant Ave. & James St.	Muddy Groundwater discharge	Not contributing /Direct drainage	A Water Department employee filed a report of muddy groundwater being discharged to a storm sewer. The IWU inspector went to Grant Ave. and James St. and observed the work site at a café. A plumbing contractor's installation of a lateral to the café also included the pumping of muddy groundwater to nearby inlets. The inspector granted an emergency approval to pump groundwater to a sanitary manhole because the excavation trench began filling with water. Inspector also advised the plumber of the requirement to clean the work site of all mud and dirt before the next occurrence of rain.
12/11/2014	Umbria and Paoli St.	Non-PCB transformer oil spill	Separate	PECO Environmental workers labored at Umbria and Paoli Sts. to remediate a 15-gallon non-PCB transformer oil spill when the IWU inspector arrived at noon. The inspector observed PECO's cleanup contractor PSC's use of oil dry to sweep the street and their removal of contaminated soil. They also completed removal of liquid and debris from the inlet for disposal. Inspector also noted the absence of any effect of this spill on the Manayunk Canal around the time of this event.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
1/2/2015	6701 Rising Sun Avenue	Anti-freeze dumping	Combined	IWU inspector responded to 6701 Rising Sun Ave. at Rally Motors. Inspector received a report of anti-freeze dumping to the street. Upon arrival around 4:00pm stains from previous spills were noticed on the sidewalk. Owner advised the fresh liquid spill in question was soapy water. A half-filled bucket of soapy water stood nearby. Drums containing motor oil and anti-freeze were seen nearby. Inspector requested, and later confirmed, cleanup of the material from the sidewalk.
1/6/2015	9090 Bustleton Avenue	Sewage discharge	Not contributing /Direct drainage	An IWU inspector arrived at 9090 Bustleton Ave. and observed toilet paper and sewage flowing to a nearby storm drain. Officials from Waterways Restoration and the Pennsylvania Fish and Game Commission had already arrived on site. The center received a notice earlier and the water was shut off until repairs made. The clog reappeared. Inspector later received a followup call on January 9th and was advised another notice had been served. The water was again shut off to insure compliance for repairs.
1/6/2015	7350 Oxford Avenue	Sewage overflow	Separate	An official from the Pennsylvania Fish and Game Commission contacted the Industrial Waste Unit about a clogged lateral at a KFC franchise. Inspector responded to the KFC franchise located at 7350 Oxford Ave. at 3:30pm where sewage was overflowing the ventstack to the storm sewer. The manager directed the inspector to the Area Coach who advised a plumber would arrive the following day. The plumber did arrive the following day and corrected KFC's situation.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
1/9/2015	Stillman St. and Cecil B. Moore Ave.	Non-PCB oil spill	Combined	Citizen contact with the Municipal Dispatcher resulted in a IWU inspector responding to Stillman St. and Cecil B. Moore Ave. at noon. A transformer had spilled an estimated one gallon of non-PCB oil to a nearby sanitary sewer. PECO also responded to the scene and the inspector later verified the effective cleanup at the site.
3/31/2015	NEWPCP	Rust colored wastewater discharge	Non-contributing	IWU inspector responded to the Northeast Water Pollution Control Plant (NEWPCP) at 1:10pm to investigate a report of rust colored wastewater. The discharge of this wastewater apparently originated from the Baxter Water Treatment Plant. Baxter's plant manager advised inspector that basin cleaning had started there Saturday, March 28th. Because of the rust situation the workers increased their speed toward completion of the project. Inspector followed up with a later visit to NEWPCP which resulted in a no finding of the rust coloring. Plant personnel received notice of this finding and this complaint closed.
3/31/2015	2201 E. Susquehanna Ave	Sand	Combined	Green Stormwater Infrastructure Maintenance reported the dumping of a pile of sand between an inlet and a rainwater diverting structure. IWU inspector arrived at the location, 2201 E. Susquehanna Ave. in the intersection of Sepviva St., at 2:00pm and discovered the material. The location, next to the drains, had the potential to clog both structures. Inspector attempted contact with FTP Development LLC., the property owner, at 1226 S. 27th St. Efforts for direct contact unsuccessful. Inspector provided messages which requested return contact.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
4/3/2015	NEWPCP	Roof-coating Odor	Non-contributing	<p>The Municipal Dispatcher relayed a report of strong odors at the NEWPCP and the IWU inspector arrived there at 12:30pm. Inspector immediately detected “an odor similar to a roof coating.” Readings taken throughout the primary treatment and primary sedimentation tank buildings resulted in normal limit results. A check of the Castor line resulted in no detection. Inspector checked discharge points (Purolite, Petroleum Recyclers), an oil-water separator (at Kinder Morgan) and manholes (outside of NUPRO; Tioga St.; Venango St.). While the inspector made these checks the treatment plant officer discovered, and later advised, of the odor’s increasing heaviness in the detritor area. By the time of return to the plant the inspector no longer detected odors on the wipes placed in the Somerset Low Level and this “made tracking it [the odors] “difficult.” Inspector performed two actions to eventually resolve the situation which involved: first, requesting the plant operator to contact the dispatcher to summon the IWU if the odors strengthened and second, arrangement with the Chief of the Industrial Waste Unit to bring in additional personnel to track the odor if necessary.</p>
4/8/2015	Arch and Hutchinson Sts.	Unknown substance	Combined	<p>IWU inspector responded to Arch and Hutchinson Sts. at 2:20pm for a report of an unknown type of discharge to an inlet. Someone had extended a hose from a section of vertical pipe into a grated inlet. Inspector estimated that 35 to 50 gallons per minute, in excess of 25,000 gallons of water per day, had gone into this inlet since its discovery on Tuesday, April 7, 2015. Inspector noticed a company stenciling on a traffic control barrel and contacted IWU Engineering Support for contact information. IWU investigated the activity to determine the necessity for issuance of a violation if the discharge was not permitted. IWU issued a notice of violation.</p>

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
4/9/2015	1014 -1016 E. Hortter St	Unidentified pipe	Separate	A member of the Philadelphia Water Department’s Sewer Maintenance section reported a “suspicious pipe” extending from an embankment at 1014 -1016 E. Hortter St. IWU inspector arrived at 2:50pm and the Sewer Maintenance member presented the situation. The position of the pipe made it difficult to determine from which building it originated. The attempt to contact residents of 1014 Hortter failed (no one at home). The attempt to contact a resident of 1016 Hortter failed because of the gate and fencing. Inspector determined the situation not urgent because of the absence of any discharge from the pipe. A notice to the residents would serve to advise of the illegality of any future discharge and direct the removal of the pipe.
4/20/2015	3605 Grays Ferry Avenue	Hydraulic Spill	Combined	Municipal Dispatcher relayed notification of a hydraulic spill at 3605 Grays Ferry Ave. IWU inspector arrived at noon and observed the effect of the spill on the Schuylkill River. React, an environmental contractor, received a summons to clean up the spill and place a boom on the river prior to the Water Department’s receipt of notification. Representatives of the Pennsylvania Department of Environmental Protection (PaDEP) and the U.S. Coast Guard (USCG) had also responded to the site. This spill, which officials estimated at 40 gallons, had no effect on the Water Department intakes located further upstream.
4/22/2015	7323 Hasbrook St	Dirt Wash	Separate	A Water Department employee notified IWU, on behalf of a Fish Commission representative, of a contractor washing dirt to a storm sewer at 7323 Hasbrook St. Fish Commission member had asked the contractor, Flow Control, to cease and desist their activity. This occurred before the IWU inspector’s arrival at noon. Upon arrival the inspector discovered the Flow Control worker had already departed. Inspector surveyed the area and determined no further activity had occurred.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
4/24/2015	1405 Marlborough St.	Brick wash	Combined	IWU inspector arrived at 1405 Marlborough St. at 2:30pm in response to a complaint of a contractor flush of brick wash to a nearby inlet. The contractor did not place any corrosion control devices near the inlets or infiltration trench. Inspector took samples of the wash to determine pH acceptability for discharge and contacted the project manager. Project manager received directive to use necessary control method and e-mail a photo of those methods in place to avoid a Notice of Violation (NOV). The construction company later filed the permit.
4/24/2015	33 S. 40th St.	Sewage Discharge	Combined	Prior pumping of sewage from the basement of 33 S. 40th St. prompted a local individual to report the act to the Municipal Dispatcher who in turn relayed to IWU. Complainant advised the material, released on Friday, April 17th, flowed to a downgrade inlet which routinely does not take water after it rains. Inspector arrived at 4:15pm and began to survey the area. No trace of the substance found because of recent rain. Inspector contacted the restaurant shift manager (who directed to), the area manager (who directed to), the property owner who inspector had already contacted. One individual in the revolving chain never made an effort to return contact. Meanwhile, inspector continued efforts to contact and requested Engineering Support's forwarding of a NOV with possible fine to the property owner.
4/28/2015	Sandyford and Ryan Aves	Release of sewage from sewer	Direct Discharge	A sewer choke and failure of a manhole riser led to the release of sewage at an estimated 100 gallons per minute into a creek near Sandyford and Ryan Aves. This continued for several days until an individual reported to authorities. IWU inspector arrived on scene at 4:45pm. A PADEP representative advised on the situation and provided a tour of the affected areas. Inspector provided details to PWD Sewer Maintenance which included: the cause, specific manhole, description of the situation and the odor throughout the neighborhood. Inspector returned to the site on 4/29/2015 at 9:55am and directed the Sewer Maintenance representative to the defective manhole. Inspector observed sewer maintenance crews at work to relieve the choke. PADEP advised PWD of cleanup requirement after cessation of sewage flow.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
4/29/2015	430 E. Slocum St	Power Steering Fluid	Combined	IWU inspector arrived at 430 E. Slocum St. at 10:45am in response to an anonymous complaint of motor oil on the street. Although it existed in a noticeable pool, the substance did not flow from where it landed. Inspector contacted a neighbor who informed of the substance's true identity – power steering fluid. Neighbor further related the fluid leaks from the 430 Slocum homeowner's car whenever the steering wheel is turned. Inspector advised on the use of oil bond or kitty litter to absorb the fluid and sweeping the material for disposal to trash. A confirmation check of the downgrade inlet showed no trace of the fluid.
4/29/2015	2537 Collins St.	Sewage Pumping	Combined	IWU received a report of sewage dumping from 2537 Collins St. Upon arrival at 11:15am IWU inspector attempted, unsuccessfully, to contact the resident. Inspector spoke with a next-door neighbor who advised of the routine pumping of sewage from 2537 after 10:00pm. Neighbor advised this activity had recently ceased because of the absence of rain. A three-day effort to contact and secure city services (L&I, Water), at a plumber's advice, proved futile. Neighbor showed inspector a cellular phone picture of the pumping in progress. Inspection of affected inlet, bolted shut, proved impractical. No odor remained detectable at the site. Inspector advised neighbor to contact 311 should any future pumping activity occur.
4/29/2015	3040 Judson St.	Sewage Pumping	Combined	The Municipal Dispatcher provided notification at 6:55pm of sewage pumping from 3040 Judson St. into the street. IWU inspector arrived on site at 7:50pm to discover the release in action at an estimated five gallons per minute. Additional investigation revealed the activity's three-hour continuance. Inspector contacted an individual, a repairman, who pumped the sewage from the basement for the resident. Inspector directed the repairman to cease pumping to the street and use the fresh air inlet. The resident arrived as this effort neared completion. Inspector advised resident of fines and/or future termination of service should there be a recurrence of the effort. Inspector performed a street/inlet flush for 10 minutes at approximately 100 gallons per minute from the upgrade hydrant to remove the strong odor from the neighborhood. Inspector requested the issuance of either a warning letter or a NOV from Engineering Support to the resident.

NPDES Permit Nos. PA0026689, PA0026662, PA0026671, PA0054712

FY 2015 Combined Sewer and Stormwater Annual Reports

Appendix N – 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
5/4/2015	1636 ridge Avenue	Mud Pumping	Combined	The dispatcher forwarded a citizen's complaint of a contractor pumping mud from 1636 Ridge Ave. Upon arrival the IWU inspector discovered the pumping had stopped but mud filled the gutter from the contractor's work site to the corner inlet. The contractor, Hands On Builders, received directive to clean the mud from the street. Inspector also advised on the permit requirement and the process to obtain a permit (along with solids control), from the IWU for any future discharges. IWU's Engineering Support forwarded a warning letter and groundwater permit application to Hands On Builders after the inspector's site visit.
5/6/2015	NEWPCP	Green coloration of water	Non-contributing	IWU inspectors responded to the Northeast Water Pollution Control Plant at 12:30pm for a report of the green coloration of the water. The plant biologist advised of recent events involving algae blooms at the facility which tended to turn the waters dark green. The inspectors investigated the post-chlorination outfall for green fluorescein coloration. The water had minor coloration which did not compare with the green of fluorescein dye. The inspectors took samples (from the outfall location and the bar screen areas) and immediately delivered them to BLS for analysis.
5/7/2015	Mingo Creek Pumping Station	Unknown substance		Flow Control e-mailed a report to the IWU of a white substance in the water at the Mingo Creek Pumping Station. An inspector reported to that location and proceeded to inspect the basin and intakes. Inspector observed a significant amount of algae accompanied by a slight film near the intakes. The sample taken from Mingo's waters for lab analysis had no unusual odor but contained a significant amount of algae.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/9/2015	Calvert and Ryan Sts.	Water Main Break	Separate	The 29th St. Emergency Desk reported the break of a 12" water main at Calvert and Ryan Sts. Upon arrival at 3:30pm the IWU inspector verified shutdown of the main at the break location. Inspector proceeded to Lexington St. and Roosevelt Blvd. and identified the overflow location. Chlorine levels downstream registered 0.03 parts per million. Pennsylvania Department of Environmental Protection representatives received advisories while discharge and channel mud information went to Flow Control.
5/11/2015	NEWPCP	Unknown substance	Non-contributing	IWU inspector arrived at the Northeast Water Pollution Control Plant at 9:30am in response to a report from the Treatment Plant Operator. A brown substance, suspected ferric, had entered the plant's waters. Inspector determined, after reviewing the Baxter Water Treatment Plant pump schedule that the substance did not originate from that location. A check of the Frankford High Level revealed no unusual color. Inspector arrived at Baxter at 10:20am to observe the waters and obtain a sample from the detritor area. The sample did not appear to contain ferric. A member of Baxter's staff presented a picture of the waters taken at 8:20am which showed the darkened color. Inspector confirmed with the collectors that no flow from Queen Lane, under dry conditions, would divert to the NEWPCP. Meanwhile, the color which appeared earlier had dissipated.
5/11/2015	425 South Street	Stucco Dump	Combined	A Gaskill St. resident filed a complaint on a contractor's stucco project in progress at the rear of 425 South St. ("Eternity Fashions"). IWU inspector arrived at 12:00pm and observed white staining in the gutter adjacent to the project site along with unused and hardened stucco in a five gallon pail in the yard. Inspector contacted Eternity Fashion's manager and provided a business card to present to the absent contractor. Verification of illegal hydrant use attempted but unsuccessful. Inspector also placed business cards at two Gaskill St. residences before departure.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/12/2015	55 – 57 N. 11th Street	Water discharge	Combined	A report from a Water Department Load Control member of illegal discharge directed the IWU inspector to 55 – 57 N. 11th St. The management of the travel agency had a tube connected to a 8’ high external elbow which released water related to the maintenance of an aquarium from the premises. The discharge had flowed down the north side of the building, across the pavement to the gutter and traveling onward to a nearby combined sewer and storm inlet. No release occurred leading up to and during the visit. Inspector gave the manager a verbal warning and informed that use of an inside drain must occur for the future collection and discharge of water.
5/20/2015	9300 Ashton Road	Permit for Pumping Operation	Separate	A call from a former Water Department employee led to a IWU inspector’s response to 9300 Ashton Rd. The caller expressed concern about a pumping operation. Upon arrival at 1:30pm the inspector discovered the activity, the dewatering from a chocolate company, was an approved operation. The contractor was already retrieving the 1600’ hose for storage as the event had already been completed. Inspector contacted the former employee and explained the event and its prior approval.
5/20/2015	Willard and Joyce Sts	Oil discharge	Combined	An inlet located at Willard and Joyce Sts. came under the scrutiny of an IWU inspector on this date. The report of oil dumping mandated a visit which occurred at 3:30pm. Although the substance was similar to motor oil in color the smell seemed rancid like cooking grease. Neighbors spoke to the inspector to inquire of his visit but offered no specific information on the culprit. Inspector suspected the occupants of a nearby garage as possibly responsible but could not achieve certainty. Inspector then proceeded to flush the inlet with hydrant water at a rate of 100 gallons per minute for 10 minutes to lessen the odors. Inspector contacted the Water Department to advise on findings and inform of the inlet flushing.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/21/2015	1040 E. Erie Ave.	Pipe leaking Oil	Combined	IWU inspector responded to GE's groundwater remediation building located at 1040 E. Erie Ave. at 10:40am. The situation involved a pipe leaking oil which covered the catchment basin. Workers cleaned the storm drain which received some of the oil and placed booms inside. Remediation also involved the removal of 6" of soil where the pipe entered the building. GE personnel requested the services of Lewis Environmental to complete the cleanup. Inspector requested GE's taking of samples to determine PCB levels at the stormwater manhole. During a later inspection GE officials noted the groundwater system had ceased taking on oil. Inspector will stage followup visits to monitor the cleanup effort.
5/21/2015	Newman Paper	Significant flow	Separate	A routine surcharge sample collection event at Newman Paper at 7:00am exceeded routine when the IWU inspector noticed "significant flow in the sampling manhole that was not registering on the ISCO sampling machine flow meter." The water's "rich" appearance led the inspector to suspect the release of paper stock later estimated "in excess of 50,000 gallons." Inspector checked the ISCO flow meter in the basement. No water flow registered on this meter. Inspector returned to the ISCO sampler and manhole which registered no flow as the wastewater continued to flow. Contact and explanation to Newman personnel resulted in the realization of a process problem. Plant personnel discovered a valve, normally shut, remained open after an earlier troubleshooting effort which occurred after a power outage. After closure of this valve the flow of rich water slowed significantly. Inspector withdrew from the activity as plant personnel sought to bring a complete halt to the flow. Newman & Company officials received advisement of the requirement of a spill report for this event.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/26/2015	Schuylkill River Trail	Unknown substance		IWU inspector responded to the Schuylkill River Trail at 12:25pm for an anonymous report of a black and brown area of the water bubbling up from the river bed. Observation of the river at the reported area of the trail, and nearby areas, resulted in no noticeable evidence of unusual conditions or activity. Inspector questioned nearby individuals. None of them witnessed any unusual coloration or conditions along the river trail.
5/26/2015	10th and Race Sts.	Kitchen Grease	Combined	An observant citizen reported the dumping of kitchen grease. Report relayed to IWU inspector who arrived at 10th and Race Sts. around 1:30pm. Inspector observed and positively identified the kitchen grease, as reported, in the nearby storm inlet. The restaurant closed before the inspector's arrival. Personnel from the restaurant had attempted to clean up a grease spill in their outside storage area caused by a rust-damaged 55-gallon steel drum. Inspector advised, as best as possible because of language limitations, David's workers not to dump grease into the storm inlet. Engineering Support later directed a warning letter to the owner.
5/28/2015	2938 Richmond St.	Rubbish	Combined	The inlet at 2938 Richmond St. became the focus of an IWU inspector's attention at 3:00pm. The contractor, while repairing the vandalized line, supposedly dumped rubbish into the inlet. The supervisor at the worksite confirmed to the inspector his awareness of the requirement not to place any material/refuse into the system. Per the inspector's observation it did not appear discarded materials were released into the system.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
5/29/2015	1613 South 11th St	Stucco discharge	Combined	A caller reported the dumping of stucco by CPM Construction at 1613 S. 11th St. The IWU inspector responded to that location at 9:15am and discovered dumped concrete at the site. Additionally, the workers washed some of their equipment at the 11th and Fernon Sts. inlet. After numerous attempts to contact the contractor a response finally came on Saturday, May 30th. Contractor advised of CPM's role as the general contractor with the stucco work being performed by a sub-contractor from Vineland, New Jersey. Inspector advised CPM member of the situation at the work site. CPM member informed they would advise the sub-contractor of their responsibility to clean the inlet.
5/29/2015	1721 South Broad St.	Soapy Water	Combined	Residents reported the leakage of soapy/foamy water leaking from a pipe joint at Minuteman Press, located at 1721 S. Broad St. The IWU inspector reported to that site at 4:00pm. No water observed leaking, or any prior residue found from the wall onward to the sewer inlet at Broad and Castle Sts. According to the report from dispatch, complainant last saw this discharge during the previous evening on or around 8:20pm. At that time a report also went to the Pennsylvania Department of Environmental Protection. Inspector later returned to the site around 8:30pm. No substance observed coming from the pipe.
6/2/2015	2537 Kensington Ave.	Waste dumping	Combined	The 311 Dispatcher relayed a complaint on 2537 Kensington Ave. and the IWU inspector responded to that location at noon. The complaint involved suspected dumping of waste in the alley from the Vietnamese Restaurant. Inspector spoke with an interpreter and the business owner during the discussion of business practices. Other than noticing stained concrete with a slightly greasy odor the inspector did not find obvious signs of waste dumping.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
6/3/2015	Trenton and east Norris Sts.	Pumping Sediment Laden Water	Combined	A report of the pumping of sediment laden water prompted the response of a IWU inspector to Trenton and east Norris Sts. There at noon the inspector observed an active sump pump operation at the 2146 E. Norris St. construction site. The operator had not filed for a permit to operate. Upon contact with a worker at the site inspector directed the pump's shut off. Inspector provided a business card and directed the worker to have the property owner contact IWU's Engineering Support for a pumpout permit.
6/4/2015	Hunting Park Ave. and Marshall St.	Anti-Freeze	Combined	IWU inspector responded to Hunting Park Ave. and Marshall St. at 10:30am. Activity performed for the 311 report of an unknown individual observed dumping antifreeze to inlet in front of the McClure Elementary school building. An Auto Zone franchise located nearby but it does not have repair facilities. Inspector checked the inlet's content and did not notice any oil or antifreeze therein. Inlet filled will refuse such as bottles, cans, paper, etc.
6/5/2015	13150 Bustleton Ave.	Anti-Freeze	Separate	Anonymous complaint to 311 forwarded to IWU. Complainant's report of antifreeze dumping to Poquessing Creek mandated the inspector's noon response. The dumping reportedly occurred near Somerton Beverage around 13150 Bustleton Ave. Inspector checked the creek at the overpass location where it flows under Bustleton Ave. and the area around Somerton Beverage. None of the substance found in the area. Inspector noted evidence of past dye testing in the area but could not confirm whether anonymous complainant observed this substance. Inspector concluded the activity by reporting the result to the 311 dispatcher.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
6/18/2015	67th and Yocum Sts.	Anti-Freeze and Oil	Combined	IWU inspector responded to 67th and Yocum Sts. around 12:45pm for a report of anti-freeze and oil dumping by Speedy International into sewer inlets. Speedy's facility closed before arrival so no contact took place with its personnel. Inspector checked the storm water inlets around 67th and Yocum Sts. and did not find any residue to indicate the dumping of oil or antifreeze had occurred. To prevent future dumping incidents the inspector requested Engineering Support's forwarding of a cease and desist notice to Speedy.
6/24/2015	1945 S. 25th St.	Soil wash	Combined	IWU Chief directed a response to the 1945 S. 25th St. location of AMS Waste Disposal. A complainant informed on the tracking of mud from AMS's location into the street. Inspector arrived at 1:15pm and spoke with the owner. Inspector observed the lot adjacent to AMS's location and the soil which had washed into the street from it. AMS owner advised that neither he or his company owned the lot.
6/25/2015	Duffield and Meadow Sts.	Non-PCB transformer oil spill	Combined	An estimated 30 gallons of non-PCB transformer oil spilled onto the ground and into two inlets at Duffield and Meadow Sts. Inspector arrived on-site to verify the cleanup at 6:30am. A PECO representative advised Philadelphia firefighters had hosed the area. Inspector did not see any debris or residue in or around the affected inlets.



CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
6/26/2015	NEWPCP	Odor from Cumene	Non-contributing	Northeast Water Pollution Control Plant (NEWPCP) personnel alerted IWU of cumene odors on the plant's final tanks. IWU inspectors arrived on-scene at 12:15pm. NEWPCP personnel and the IWU inspectors performed a walking tour of the plant. The inspectors detected no odors and did not receive any unusual gauge measurements. Inspectors also checked Gaul and Lefebvre Sts. for cumene vapors. No odor or unusual gauge readings occurred. Inspector advised the Treatment Plant Operator of their findings and departed the plant at 1:15pm.
6/26/2015	Sylvester and Sanger Sts.	Non-PCB transformer oil spill	Combined	IWU inspector responded 1:15pm to the location of a 30-gallon non-PCB transformer oil spill in the rear driveway area of Sylvester and Sanger Sts. The spill occurred days earlier but PECO crews remained heavily occupied with correcting power outages caused by the recent storm. The rain had already flushed the oil into a nearby combined sewer. PECO planned to remove the contaminated debris and clean the drain after the removal of downed trees and poles from the site. All of the equipment already parked nearby for the project.
7/14/2014	600 E. Washington Ave	Dumping of Waste oil	Combined	A Water Department employee reported the suspected dumping of waste oil from the Saigon Maxim Restaurant at 600 E. Washington Ave. Industrial Waste Unit (IWU) member responded to the location around 7:34am. IWU inspector discovered the spill and rancid food materials located near a waste cooking oil container at the main trash collection point. Oil and grease had trailed to the nearby storm drain. Responsibility undetermined because five eating establishments shared the oil disposal site at the New World Plaza strip mall. Inspector contacted Mr. Bao Thach the property manager. Mr. Thach assumed responsibility for the spilled material and ordered his maintenance personnel to clean the oil from the earthen area. IWU inspector advised operators of the five food establishments on proper handling of the oil while inspecting their oil collecting locations. Inspector provided a PWD Grease Disposal Guide to each restaurant and requested the forwarding of warning letters to each and Mr. Thach.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
7/15/2014	3740 Hamilton Walk	Groundwater	Combined	IWU inspector discovered subcontract workers of P. Agnes discharging groundwater from a project located at 3740 Hamilton Walk around 10:20am. Their groundwater discharge into the combined sewer system's storm water inlet violated the terms of their Groundwater Discharge Permit. Inspector contacted the subcontractor's representative on site and the JPC General Superintendent in turn to advise of the illegality. Workers treated the groundwater through sedimentation tanks and silt filters in the inlet. The permit directed discharge of the groundwater through a direct connection to an existing lateral and into the City sewer. Inspector advised JPC could gain permission to discharge to the inlet as an additional location on their permit and directed contact with IWU Engineering Support. P Agnes and JPC would also receive Notice of Violation for this activity.
6/24/2014	2224 Granite Street	Oil	Combined	A neighbor reported the owner of a nearby garage using oil as a weed killer at 2224 Granite St. IWU response and investigation resulted in an unfounded assessment of the complaint. Owner advised he used a Roundup type product for weed control. Complaint is result of neighborhood dispute.
6/24/2014	13th St. (between Arch & Race Sts.)	Steam pipe rupture and runoff	Combined	Fire Department Hazmat requested IWU response to a Veolia steam system rupture on 13th St. between Arch and Race Sts. Hazmat expressed concern of possible asbestos release at steam pipe rupture and runoff. IWU member monitored situation because of runoff to a nearby sewer.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
6/25/2014	4300 Tacony St.	Groundwater pumping	Not contributing /Direct drainage	IWU responded to a report of groundwater pumping to sewer at First Philadelphia Charter School located at 4300 Tacony St. IWU member arrived on scene and did not discover pumping activity in progress. A later review of pictures from a previous inspection revealed a hose in the basin overflow. IWU member took follow-up action by contacting Engineering Support for confirmation of a groundwater pumping permit and warning letter.
6/30/2014	326 Roxborough Ave	Power Washing	Separate	A power washing crew sought to remove gray paint from the outside walls of 326 Roxborough Ave. IWU member arrived, observed activity and contacted the job supervisor. Individual advised that inlets flow to the Manayunk Canal thereby making the runoff unacceptable. Job supervisor halted the activity. IWU member requested Engineering Support forwarding of a warning letter to the job supervisor.
7/11/2014	143 W. Lehigh Avenue	Cooking Grease	Combined	Dispatcher requested IWU response to report of cooking grease being dumped into sewer inlet from 143 W. Lehigh Ave., China King Restaurant. IWU members inspected sewer inlet located on southeast corner of Waterloo St. at Lehigh Ave. Grease had accumulated inside and around inlet openings. Grease also observed on the water in the sewer. Cashier questioned and warned about future illegal dumping of grease from the restaurant. Individual denied any dumping had occurred from their business. Inspection of the establishment revealed two grease traps and a grease-bearing drum in the basement. IWU member provided business card and repeated warning. Engineering Support contacted to request forwarding of warning letter to this business.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
7/15/2014	9217 Wooden Bridge Road	Cement/grout material	Separate	Municipal Dispatcher requested response to a sewer inlet at the 9200 block of Wooden Bridge Road. IWU inspector discovered either cement or grout material residue at an inlet which discharges to the Pennypack Creek. Further observations resulted in the discovery of the material's container in front of 9217 Wooden Bridge Road and the individual who used the substance. Individual cited "some lady" at residence requested his work inside the residence. A search of the White Pages database resulted in discovery of the property owners names for the forwarding of a warning letter.
7/18/2014	70th & Holstein St.	Non-PCB Transformer Oil	Separate	Three electrical transformers, each containing 10 gallons of non-PCB transformer oil, fell to the ground after a car slammed into the power line pole upon which they were mounted. IWU member arrived on site and observed two split transformers with one having completely lost its oil. IWU inspector estimated 15 gallons entered the nearby storm inlet. The remediation team from PSC had already arrived along with the PECO representative. Workers had diked the inlet with an oil bond material. IWU inspector estimated 38 gallons of the transformer mineral oil spilled onto the street with 15 gallons reaching the inlet. Inspector determined none of the material had reached the storm sewer because no odor or material detected within that area.
7/19/2014	1532 South 24th St	Hydraulic fluid spill	Combined	IWU member responded to a Fire Communications report of a large hydraulic fluid spill from a Habitat for Humanity truck onto Cross St. near S. 24th St. Upon arrival member observed workers had already placed berms around both inlets at the corner of Cross and 24th. Workers had already placed sand along the spill on Cross St. leading to 24th. Fire Department Lieutenant Higgins had reported material reaching the inlet. However, IWU inspector did not observe any fluid in the inlet.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
3/9/2015	60th Street (side of Bryant School)	Sediment blocking gutter	Combined	IWU inspector responded at 2:00pm to the Office of Watershed's complaint of sediment on the 60th St. side of the Bryant school. Mud covered the curb and pooled in the gutter. Inspector detected no sign of recent construction activity although two newly formed asphalt patches existed on the street. Inspector checked Cityworks and did not see any notes of recent Philadelphia Water Department activity at the location. No one observed whoever may have been responsible for the sediment in that area.
3/10/2015	1457 N. 52nd St.	Asbestos	Combined	Individuals had dumped materials along the curb at 1457 N. 52nd St. – Dreamchasers LLC. The inspector responded, in a downpour of rain, to this location at 3:30pm. An inspector from the Air Management Service's Asbestos Control Unit advised that asbestos existed in some of the material. The Fire Department's responders had diked the nearby inlet; however, the rain had bypassed that effort. Everyone present agreed to allow the runoff to access the inlet to greatly reduce the possibility of a health hazard caused by airborne asbestos fibers.
3/12/2015	NEWPCP	Sludge spill	Separate	Notice of the spill of sludge from the Northeast Water Pollution Control Plant resulted in a response from the IWU at 2:30pm. After the inspector's arrival the plant manager advised a return valve had remained open the night before and allowed sludge to spill into the Delaware River. Some of the material had flowed back to the plant and a cleanup of the river bank was already underway. The plant manager advised he did not observe any measurable effect upon the river. Inspector departed the location and upon later return workers had completed cleanup of the river bank. No evidence of sludge remained on the river.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
3/13/2015	2181 East Tucker Street	Sugar syrup spill	Combined	A representative of the Charles Jacquins plant met the IWU inspector upon his 11:30am arrival. The individual advised of the spill of three gallons of sugar syrup from a hose connection to ground the previous day. Someone had already reported the 2181 E. Tucker St. event as a chemical spill to the City's 311 system.
3/16/2015	Gorgas Lane Outfall	Oil sheen and scum	Separate	A "moderate to heavy oil sheen and scum layer" lay on the surface of the Gorgas Lane outfall when the IWU inspector arrived at 2:20pm. He collected a sample and contacted the Pennsylvania Department of Environmental Protection (PaDEP) for notification. Inspector then checked the contributing lines to the outfall and none showed any presence of the substance. The PaDEP representative arrived on-site and placed a boom across the plunge pool outlet to halt the material's continued movement downstream. The IWU inspector then contacted Clean Venture and arranged their services. Clean Venture arrived the following day and placed a new boom and spill towels at the location. IWU inspector observed this action and did not notice any continued discharge of the substance from the outfall.
2/22/2015	NEWPCP	Cumene odor	Non-contributing	IWU inspector responded to the plant operator's report of cumene odor at the Northeast Water Pollution Control Plant at 8:05pm. Inspector toured the facility and discovered the odor emanating from the test bores in the UDLL collector. Odor also detected in the grit basin and the primary sedimentation tank. The manhole located at Gaul and LeFevre Sts. also had strong cumene odor. Inspector telephoned and visited Honeywell. A check of the Water Department's interceptor at Honeywell's property resulted in the detection of cumene odors. Inspector took a sample of the cumene discharge from the interceptor and delivered it to BLS for analysis.

CITY OF PHILADELPHIA  
COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

Date	Location	Pollutant	Drainage Type	Follow-up Actions
2/26/2015	SWPCP	Suspected Kerosene Detection	Non-contributing	The detection of kerosene-like odors prompted the plant manager's filing of a complaint and the IWU inspector's response at 3:35pm. Upon arrival Mary Ellen Senss advised of the odor's recurring nature. Inspector investigated the plant's headworks and the collectors. No kerosene-like odor detected, because of dissipation, at either location. Analysis of the samples showed extremely low levels of benzene and chloroform typical of monthly RACT sampling. Inspector also delivered the wastewater sample collected by plant personnel to BLS for organics analysis.
1/28/2015	Baxter WTP	Zinc Othphosphate	Non-contributing	IWU inspector responded to a Water Department employee's report at the Baxter Water Treatment Plant at 3:30pm. An estimated 750 gallons of zinc orthphosphate leaked from a tank with a defective flange into a diked area. Some of the material leaked through the dike and possibly entered a nearby sanitary sewer. Clean Venture personnel arrived and pumped an estimated five gallons of the free standing chemical while washing and neutralizing the residue on the floor. Baxter personnel removed the remaining material from the defective tank.
1/29/2015	100 block of north 9th St	Grease	Combined	The Water Department's Sewer Maintenance supervisor contacted IWU to voice concerns about grease entering the sewer in the 100 block of north 9th St. IWU inspector, while performing a random inspection on a Rangoon Restaurant grease trap around 12:00pm, discovered it clogged. Restaurant owner explained the bi-weekly cleaning of the traps. IWU inspector directed the owner to clean the traps weekly to prevent choking the sewer system.

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

---

Date	Location	Pollutant	Drainage Type	Follow-up Actions
2/6/2015	708 South 50th Street	Grease	Combined	Choi Wong Kitchen received a visit by a IWU inspector at 11:15am in response to grease clogging of the laterals via the facility's internal drains. Inspector surveyed the restaurant's plumbing system and discovered two grease traps. The trap in the basement, Watts Model WD-20-THD, appeared to be the only true grease trap of the two units. An employee showed the waste oil drum which contained a small amount of oil and congealed grease. The employee revealed the recycler recently removed the oil. None of the employees had documents to certify prior removals. Inspector called for issuance of a grease disposal warning letter to the owner and submission of grease disposal receipt copies to the IWU.



## **Appendix M – City of Philadelphia Snow and Ice Operations Plan Winter 2013-2014\***

---

\*Full document is available upon request.

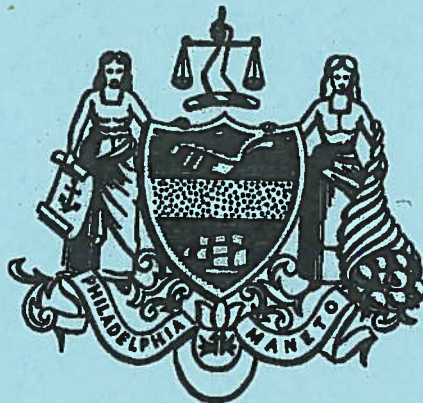
Streets Department  
1401 JFK Blvd, 7<sup>th</sup> Floor  
Philadelphia, PA 19102  
(215) 686-5460

# City of Philadelphia

## Streets Department

### Winter 2013 – 2014

## Snow and Ice Operations Plan



**November 14, 2013**

---

*Honorable Michael A. Nutter, Mayor*  
*Richard Negrin, Managing Director*  
*Rina Cutler, Deputy Mayor, Transportation & Utilities*  
*David Perri, Streets Acting Commissioner*  
*Donald Carlton, Deputy Commissioner*  
*Patricia McConnell, Acting Deputy Commissioner*  
*Stephen Lorenz, Chief Roadway Engineer*

## **Appendix O – FY15 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
8/25/2014	11:00 AM	Mower & Stamford St	Choked Sewer – Found M/H P-100-11-S0065 choked * cloudy water @ outfall P-100-11 no fish kill no clean-up needed	P100-11	8/25/2014	11:40 AM	Used vector to remove grease & debris relieving choke
2/4/2015	2:30 PM	On W heatsheaf from Aramingo to Richmond St	Other – Sewage coming out of manhole	FCHL-0105	2/4/2015	3:10 PM	Sewers were pumped down to stop the leaking
4/15/2015	2:00 PM	1400 BLK of 71 <sup>st</sup> Ave	Choked Sewer – While checking a pre-inspection job found high water level in M/H S-1820; Found grease choke @ M/H T088-010S01160 Heavy Grease. Vacuumed out M/H and cleaned san. Sewer from S160 to M-1825	T088-01	5/5/2015	4:00 PM	Sewer was cleaned with degreaser and will CCTV
4/17/2015	2:00 PM	Intersection of Telfair Rd & Greenmount Rd	Choked Sewer – Found sewer choked @ M/H Q-107-01-S0025	Q107-01	4/17/2015	4:00 PM	Used vector to flush open sewer & removed grease & debris
4/29/2015	3:00PM	6300 BLK of Greene St	Choked Sewer – Found sewer choked; W.C from floor drain @ 6357 Greene St. owner pumping w/c to lawn	W068-05	4/29/2015	7:30 PM	Flushed and cleaned sewer; Removed all debris from M/H
4/29/2015	3:40 PM	2596 Cranston Rd	Choked Sewer – Found sewer choked with grease at Ford Rd and Cranston	S046-09	4/29/2015	3:40 PM	Used Vector to flush open sewer and used degreaser to clean sewer and manhole
6/5/2015	1:30 PM	7225 Orwell Rd	Choked Sewer – Grease choke between SOO55 & SOO60 – Heavy grease	W067-06	6/5/2015	4:00 PM	Vacuumed out M/H and flushed sewer

CITY OF PHILADELPHIA  
 COMBINED SEWER OVERFLOW & STORM WATER MANAGEMENT PROGRAM

---

6/5/2015	11:00 AM	Hasbrook & Unruh	Choked Sewer – Found sewer choked at M/H TO89-02-S0015	T089-02	6/5/2015	6:30 PM	Used vactor to remove grease & debris to relieve choked sewer
6/19/2015	9:30 AM	3449 Midvale Ave	Choked Sewer –Found Sewer choked by grease; No discharge to storm sewer or waterway; Discharge to basement	S052-04	6/19/2015	11:00 AM	Flushed and cleaned sewer; Small amount of W/C in basement; Referred to C/S for clean up