

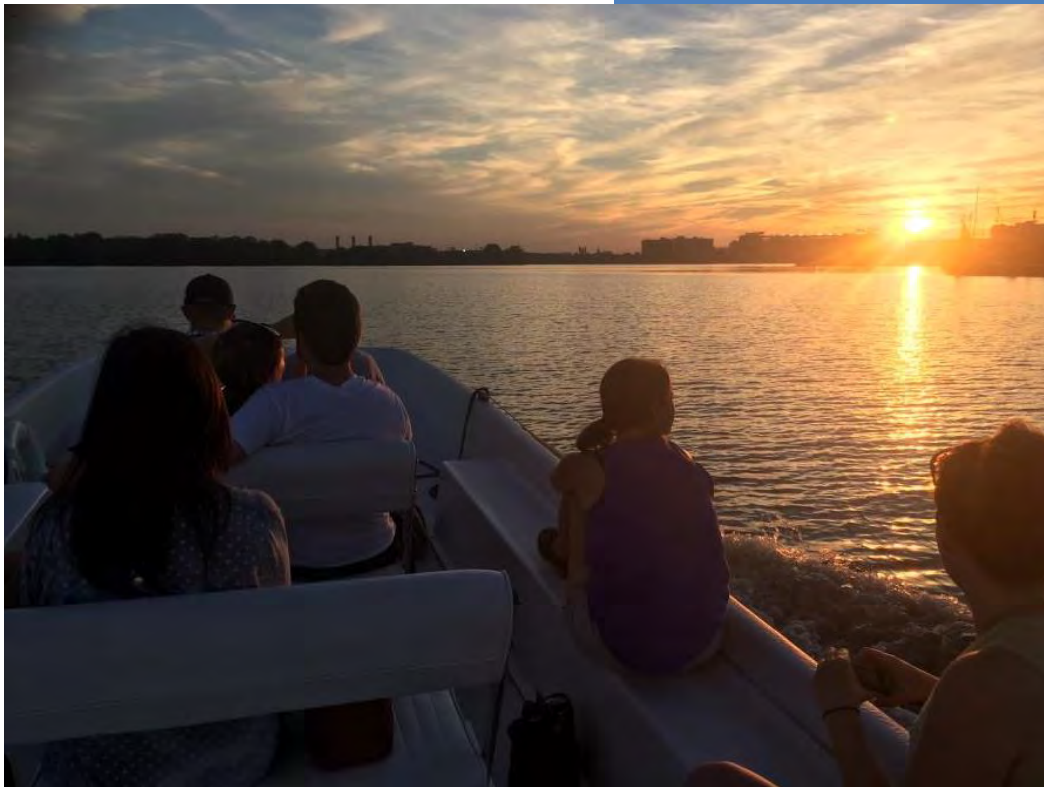


**GOVERNMENT OF THE
DISTRICT OF COLUMBIA**

**Municipal Separate Storm
Sewer System**

NPDES Permit No. DC0000221

**2016
MS4 Annual Report**



Anacostia River Explorers Boat Tour
Photo Credit: Anacostia Watershed Society

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Environment

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List of Acronyms and Abbreviations

AFF	Alice Ferguson Foundation
AWS	Anacostia Watershed Society
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSS	Combined Sewer System
CWP	Center for Watershed Protection
DCMR	District of Columbia Municipal Regulations
DCPS	District of Columbia Public Schools
DCRA	Department of Consumer and Regulatory Affairs
DDOE	District Department of the Environment
DOEE	Department of Energy and Environment
DDOT	District Department of Transportation
DGS	Department of General Services
DPR	Department of Parks and Recreation
DPW	Department of Public Works
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FY	Fiscal Year (October–September)
GAR	Green Area Ratio
GIS	Geographic Information System
GSA	General Services Administration
IPM	Integrated Pest Management
LID	Low Impact Development
MWEE	Meaningful Watershed Education Experience
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Infraction
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NWS	National Weather Service

Offv	Off-Site Volume
OP	Office of Planning
Permit	National Pollutant Discharge Elimination System Permit
PROW	Public Right-of-Way
QAPP	Quality Assurance Program Plans
RCRA	Resource Conservation and Recovery Act
RSR	RiverSmart Rewards
SOP	Standard Operating Procedure
SRC	Stormwater Retention Credit
SWAP	Stormwater Advisory Panel
SWEEP	Solid Waste Education and Enforcement Program
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRv	Stormwater Retention Volume
TMDL	Total Maximum Daily Load
TWG	Technical Working Group
WLA	Wasteload Allocation
WQS	Water Quality Standards

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- D. FY 2016 IDDE Investigations
- E. FY 2016 Household Hazardous Waste Collection
- F. FY 2016 Trash Cleanup Event Data
- G. Monitoring Location Maps
- H. Wet Weather Monitoring Data
- I. Monitoring for Trash in District Waters 2016 Annual Progress Report
- J. Dry Weather Monitoring Data

DISTRICT OF COLUMBIA
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT ANNUAL
REPORT

1 INTRODUCTION

1.1 Background

The Government of the District of Columbia (the District) submits this Annual Report on stormwater pollution control for fiscal year (FY) 2016 (October 1, 2015 through September 30, 2016). This report documents activities required to fulfill the requirements of the District of Columbia's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. DC0000221 (Permit), reissued on October 7, 2011 and modified November 9, 2012, as well as additional activities undertaken by the District to reduce pollutant loadings from the MS4 to the Potomac and Anacostia Rivers and their tributaries. The activities described in the Annual Report meet the reporting requirements of the Permit and serve as a review of program implementation and compliance. This report also contains the Discharge Monitoring Report (DMR) for interim monitoring, Section 5. The District Department of Energy and the Environment (DOEE)¹ compiled this report with assistance and input from the District agencies responsible for MS4 Permit compliance, Table 3.

1.2 Authorized Discharges

The MS4 Permit allows discharges of stormwater from the MS4 to Rock Creek, the Potomac and Anacostia Rivers and their tributaries that comply with the requirements of the MS4 Permit. The purpose of the District's MS4 Program is to reduce the pollutant loading from the MS4 to receiving waters, reduce pollutants that cause an exceedance of the District water quality standards and, to the maximum extent practicable, the requirements of the wasteload allocations (WLA) in the approved Total Maximum Daily Loads (TMDL).

1.3 Limitations of Coverage

The District continues to prohibit, through the implementation of the MS4 Program described in this report, non-stormwater discharges into the MS4, except to the extent such discharges are regulated by the Permit. The District has removed the "waivers and exemption" provision that previously existed in its regulations at 21 DCMR § 528.

¹ Mayor's Order 2015-191, dated July 23, 2015 changes the Agency's name from District Department of the Environment (DDOE) to Department of Energy and Environment (DOEE).

1.4 Discharge Limitations

The District continues to manage, implement, and enforce a stormwater management program in accordance with all federal and local laws and regulations.

The District is in compliance with all the performance standards, provisions, and schedules found in the MS4 Permit. This demonstrates adequate progress towards compliance with District of Columbia Water Quality Standards (WQS) and wasteload allocations (WLAs), as stated in Section 1.4.1 of the District's MS4 Permit.

2 LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINISTRATION

2.1 Legal Authority

As required by Section 2 of the MS4 Permit the District maintains the legal authority to control stormwater pollution within the MS4 drainage area.

The legal authority is established by the following laws and regulations:

MS4 Program Activities:

- The Comprehensive Stormwater Management Enhancement Amendment Act of 2008, effective July 1, 2009 (D.C. Official Code § 8-151.51 *et seq.*)
- The District Department of the Environment Establishment Act of 2005, effective February 15, 2006 (D.C. Law 16-51, as amended; D.C. Official Code §§ 8-151.01 *et seq.* (2008 Repl. & 2012 Supp.))
- The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188; D.C. Official Code §§ 8-103.01 *et seq.* (2008 Repl. & 2012 Supp.)), as amended

Soil and Sediment Control:

- The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188; D.C. Official Code 8-103.07 *et seq.* (2008 Repl. & 2012 Supp.))
- The Soil Erosion and Sedimentation Control Act of 1977, effective Sept. 28, 1977 (21 DCMR §§ 500-507; 21 DCMR §§ 40-48)

Illicit Discharge and Dumping:

- The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188; D.C. Official Code 8-103.07 *et seq.* (2008 Repl. & 2012 Supp.)), as amended

Plastic Bag Fee and Enforcement:

- The Anacostia River Clean Up and Protection Act of 2009, effective September 23, 2009 (D.C. Law 18-55; D.C. Official Code § 2-1226.51 *et seq.*)

Coal Tar-Based Pavement Product Ban:

- Comprehensive Stormwater Management Enhancement Amendment Act of 2008, effective July 1, 2009 (D.C. Official Code § 8-151.81)

Pesticide and Fertilizer Control:

- Section 12(a) of the Pesticide Operations Act of 1977, effective April 18, 1978 (D.C. Law 2-70; D.C. Official Code § 8-411(a) (2001))
- The Pesticide Education and Control Amendment Act of 2012, effective on October 23, 2012 (D.C. Official Code § 8-431 *et seq*)
- Section 103(b)(1)(B)(ii)(II) of the District Department of the Environment Establishment Act of 2005, effective February 15, 2006 (D.C. Law 16-51; D.C. Official Code § 8-151.03(b)(1)(B)(ii)(II) (2012 Repl.))

Polystyrene Ban:

- The Sustainable DC Omnibus Amendment Act of 2014, effective January 1, 2016 (D.C. Act 20-385)

DC Solid Waste Management and Recycling:

- Title 21 DCMR, Chapter 7, Chapter 8 and Chapter 20

Further authority is established by the following regulations:

As required by Section 2.1.2, the District finalized the 2013 Stormwater Management Soil Erosion and Sediment Control (2013 Stormwater Rule) on Friday, July 19, 2013. The 2013 Stormwater Rule amended Chapter 5 (Water Quality) of Title 21 (Water and Sanitation) § 500 to 545 and 599, and §§ 546, 547, and 552 of the District of Columbia Municipal Regulations (DCMR). The 2013 Stormwater Rule requires sites that disturb 5,000 square feet (SF) or more of land to retain the stormwater from a 1.2 inch storm. The Rule also requires a lesser retention standard for substantial improvement projects and has provisions for regulated sites to satisfy these standards offsite.

As required by Section 2.1.4 of the MS4 Permit, the District has drafted and amended environmental legislation and regulations to remove barriers to implementing the 2013 Stormwater Rule and other Permit required performance standards.

Additional legal authorities are discussed throughout the report where the activities are addressed.

2.2 Fiscal Resources

The District's Stormwater Permit Compliance Amendment Act of 2000 requires each agency to budget and fund costs for stormwater management activities that they were required to carry out prior to April 20, 2000. Those agencies continue to budget and fund the stormwater management activities listed in Table 1. Additionally, the District coordinates internally to spend special

purpose revenue funds and to set the budget. The revenue target set in 2010, at the beginning of the Permit term, is still adequate to meet Permit requirements.

The Enterprise Fund

As required by Section 2.2 of the MS4 Permit the District has a dedicated funding source for MS4 Permit implementation. The District's Stormwater Permit Compliance Amendment Act of 2000 also established a Stormwater Permit Compliance Enterprise Fund (Enterprise Fund) to provide revenue to implement and administer activities directly required by the MS4 Permit. The Enterprise Fund generates approximately \$13,000,000 per year that is utilized to substantively fulfill the requirements of the MS4 Permit. DOEE will continue current activities to manage stormwater pollution and encourage improved stormwater management techniques. This law also requires District agencies to maintain budget allocations that support baseline levels of effort for activities that control pollution from stormwater discharges from the MS4. This funding is derived from each agency's general obligation budget.

The Anacostia River Clean Up and Protection Fund

The Anacostia River Clean Up and Protection Act (Bag Law) requires all District businesses selling food or alcohol to charge \$.05 for each disposable paper and plastic carryout bag. The law allows businesses to keep \$.01 (or \$.02 if it offers a rebate when customers bring their own bag), and the remaining \$.03 or \$.04 is deposited in to the Anacostia River Clean Up and Protection Fund. This fund generates approximately \$2,000,000 per year and is used to implement watershed education programs, stream restoration, trash retention projects, and to purchase and distribute reusable bags to District residents. Many of these activities also support the District's compliance with the MS4 Permit.

MS4 Program Budget and Expenditures

The District expends Enterprise Funds, Anacostia River Clean Up and Protection Funds, and general obligation funds to fulfill its obligations, Table 2. DOEE budgets Enterprise Funds solely for activities that are specific to the MS4 Permit compliance. DOEE and other District agencies also allocate additional funds to complete baseline municipal activities that are necessary to control pollution in MS4 discharges. The current level of funding is sufficient to fully comply with the Permit requirements. The Enterprise Fund budget for FY 2017 provides for capital construction costs, operation and maintenance (O&M) of structural controls, and programmatic activities. Table 1 provides a summary of the budget for FY 2017 MS4 Permit-required programs. Table 2 provides a summary of the Enterprise Fund expenditures for FY 2016 for Permit required deliverables. It is important to note that the budget includes capital funds that are often expended over multiple years. Further, DOEE establishes stormwater related budgets and track expenditures in a manner consistent with District practices and agency structure, which do not reflect the organization of the MS4 Permit. Therefore, professional judgment is used to allocate funds among the permit activities identified in Table 1 and Table 2. Table 1 and Table 2 meet the requirements of Section 6.2.1.k of the MS4 Permit.

Table 1 FY 2017 Budget

Permit Section	Topic	FY 2017 Budget
	General MS4 Permit Management	\$3,900,000
4.1	Standard for Long-Term Stormwater Management	\$250,000
4.1	Impervious Surface Retrofits: bioretention, green roofs, outfall repairs, tree canopy and other capital investments	\$2,000,000
4.1	Green Landscape Incentives / RiverSmart Programs	\$14,400,000
4.2	Operation and Maintenance of Stormwater Capture Practices	\$500,000
4.3	Management of District Government Areas	\$340,000
4.3	Enhanced Street Sweeping	\$575,000
4.4	Management of Commercial Institutional Areas	\$225,000
4.5	Management of Industrial Facilities and Spill Response	\$140,000
4.6	Stormwater Management for Construction Sites ²	
4.7	Illicit Discharges and Improper Disposal	\$140,000
4.8	Flood Control Practices ³	
4.9	Public Education and Public Participation	\$500,000
4.1	TMDL Wasteload Allocation Planning and Implementation	\$1,550,000
4.1	Trash TMDL Implementation	\$1,100,000
5.1	Revised Monitoring Program	\$800,000
5.2	Interim Monitoring	\$325,000
Total FY 2017 Budget		\$26,745,000

² DOEE has increased permit fees to cover the costs of plan review and inspection of construction sites. The stormwater enterprise fund has not been utilized for this function in 2016.

³ DOEE is utilizing other funding sources to cover the costs of the flood plain management program. The stormwater enterprise fund has not been utilized for this function in 2016.

Table 2 FY 2016 MS4 Program Expenditures by Program

Activity	Fund Source	Total
MS4 Monitoring, TMDL Development, and IDDE	Stormwater Enterprise Fund	\$1,534,885
Construction Plan Review, Construction and Maintenance Inspection, and Restoration Project Management	Stormwater Enterprise Fund	\$169,183
Pubic Space Green Infrastructure Programs and Trees	Stormwater Enterprise Fund	\$2,371,043
Green Infrastructure Retrofits (nonpublic space) and Education	Stormwater Enterprise Fund	\$572,535
MS4 Program Administration (program implementation, regulatory development, and fee collection)	Stormwater Enterprise Fund	\$3,281,222
Enhanced Street Sweeping, Hazardous Waste Collection, and Outreach	Stormwater Enterprise Fund	\$718,093
Contracts (TMDL implementation planning, revised monitoring planning, catch basin cleaning, catch basin optimization planning, and outfall survey)	Stormwater Enterprise Fund	\$849,360
Other Related Expenses (legal and office expenses)	Stormwater Enterprise Fund	\$220,133
Stream Restoration and Design	Bag Law Fund	\$866,971
Trash Reduction, Green Infrastructure Installation, and Environmental Education	Bag Law Fund	\$1,147,758
Total FY 2016 Expenditures		\$11,731,183

2.3 Stormwater Management Program Administration and Permittee Responsibility

DOEE was designated by the District Department of the Environment Establishment Act of 2005, D.C. Official Code 8-151.01 *et seq*, as the MS4 Permit Administrator and assumed this responsibility in February of 2007. The current MS4 Permit was issued on October 12, 2011, and became effective on January 22, 2012. On November 9, 2012, EPA finalized limited modifications to the MS4 Permit to (1) provide additional public notice and input on the permittee’s development of the Consolidated Total Maximum Daily Load (TMDL) Implementation Plan; (2) clarify and provide accountability for specific water quality-related outcomes, specifically on the content and timelines for the Consolidated TMDL Implementation Plan; (3) clarify that the District is the sole permittee; and (4) clarify that the District needs to notify the public of a sanitary sewer system overflow.

On April 6, 2016, the District submitted to the United States Environmental Protection Agency (EPA) Region III an application for renewal of its MS4 Permit. A draft of the District’s next MS4 Permit was issued on November 17, 2016.

Read more about DOEE's stormwater permit at the following links:

- MS4 Permit Administration <http://DOEE.dc.gov/service/separate-storm-sewer-system-ms4-permit>
- MS4 Permit http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/FinalPermit2011/DCMS4permit2011.pdf
- Final Signed Limited Modification to the DC MS4 Permit http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/MS4FinalLimitedModDocument/FinalSignedDCMS4LimitedMod%2011_9_12.pdf

DOEE partners with sister agencies to implement Permit activities. An overview of District agency responsibilities for MS4 permit compliance is shown in Table 3. This table summarizes the Matrix of Responsibilities from the Memorandum of Understanding (MOU) executed on December 14, 2000, and updated in 2008, which assigned responsibilities to District agencies for compliance with the Permit.

As required by Section 2.3.2 of the Permit, the District has a number of mechanisms in place to ensure that coordination across all agencies with responsibilities to implement Permit provisions occurs. Specifically, DOEE coordinates the District's MS4 Technical Workgroup (TWG) and the cabinet-level Storm Water Advisory Panel (SWAP). DOEE also executed independent MS4 MOUs with sister agencies which specified activities to be implemented in FY 2016 as required under the Permit and specified reimbursement amounts for implementation of these activities. Copies of the FY 2016 MOUs are included in Attachment A of this report.

Every year during the MOU and budget process the District assesses the need to add new agencies and group to the TWG and SWAP. In FY 2016 no new critical partners were identified. Additionally, DOEE continues to hold quarterly meetings with non-governmental organizations (NGOs) to discuss partnership opportunities.

Table 3 Agencies Responsible for District MS4 Permit Compliance

Responsible Agency	Compliance Activity
DOEE	MS4 program administration Source identification Pollution Prevention Wet/dry weather monitoring program Wet weather screening program Flood control projects review Construction management and plan review Pollutant control from hazardous waste sites Pesticide, herbicide, and fertilizer application Promoting LID practices Illicit discharge detection Sediment erosion control Inspection/enforcement
DC Water	Floatables reduction program Pollution prevention Operation and maintenance of sewer infrastructure Catch basin cleaning Illicit discharge detection
DPW	Street sweeping Seasonal leaf and holiday tree collection program Pollution prevention Household hazardous waste collection De-icing and snow removal Stormwater management at municipal waste transfer stations
DDOT	Pollutant reduction from vehicles and roadways Pollution prevention LID practices in public right-of-way
DGS	LID practices on District-owned properties Pollution prevention
OP	Planning for neighborhoods, public facilities, parks and open spaces, etc. Urban design and land use review

3 STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

The District continues to implement, assess, and upgrade all the controls and management practices described in the MS4 Permit and Revised Stormwater Management Plan (SWMP). The Revised SWMP was published on January 21, 2016 and can be found at <http://doee.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports>.

The Consolidated TMDL Implementation Plan drives the District's determination of any future implementation needs that may need to be addressed in the SWMP, a requirement of Section 6.2.1.h of the MS4 Permit. This plan also establishes the framework for tracking the effects of stormwater management in the District, a requirement of Section 6.2.1.j of the MS4 Permit. The Consolidated TMDL Implementation Plan can be found at <http://doee.dc.gov/tmdlplan>.

Section 6.2.1.c of the MS4 Permit requires an assessment of the effectiveness of controls established by the SWMP. This requirement is fulfilled by Table 12 which detail pollutant load and stormwater volume reductions.

The District is required by Section 6.2.1.a and Section 3 of the MS4 Permit to comply with all schedules of compliance. Table 4 includes program elements and strategies the District is required to submit to the EPA for review and approval.

Table 4 Stormwater Management Program Submittal Dates

Element	Required Submittal Date	Actual Submittal Date
Anacostia River Watershed Trash Reduction Calculation Methodology	01/22/2013	01/22/2013
Tree Canopy Strategy	01/22/2013	01/22/2013
Catch Basin Operation and Maintenance Plan	07/22/2013	07/05/2013
Outfall Repair Schedule	07/22/2013	07/05/2013
Updated Stormwater Regulations	07/22/2013	07/19/13
Stormwater Retention Standards for Substantial Improvement Projects	07/22/2013	07/19/13
Off-Site Mitigation/ Fee-in-Lieu Program	07/22/2013	07/19/13
Stormwater Management Guidebook	07/22/2013	07/19/13
Retrofit Program	01/22/2014	01/22/2014
Revised Monitoring Program	05/09/2015	5/8/2015
Consolidated TMDL Implementation Plan	05/09/2015	5/15/2015*
Revised Stormwater Management Program Plan for Public Comment	1/22/2015	2/20/2015*
Final Revised Stormwater Management Program Plan	01/22/2016	1/22/2016
MS4 Permit Reapplication	04/07/2016	04/06/2016

*extension granted by EPA Region III

4 IMPLEMENTATION OF STORMWATER CONTROL MEASURES

4.1 Standard for Long-Term Stormwater Management

The District continues to implement and enforce its Stormwater Management Program in accordance with the MS4 Permit and the Revised SWMP. The program uses retention practices to reduce stormwater runoff by mimicking natural landscapes through green roofs, bioretention, pervious pavers and other stormwater runoff reducing green infrastructure. The implementation of these activities, policies, and incentive programs is described throughout this report.

Table 5 Numeric Performance Standards and Compliance

Numeric Requirement	Time Period	FY 2016 Achievement	Achievement During Permit Term
Retrofit 18,000,000 square feet of impervious surfaces	Permit term	11,699,605 square feet	24,638,039 square feet ⁴
Retrofit 1,500,000 square feet of impervious surfaces in the transportation right-of-way	Permit term	1,579,759 square feet	2,680,118 square feet
Plant 4,150 trees within the MS4 area (net increase)	Annually	6,085 trees	34,373 trees
Install 350,000 square feet of green roofs on District properties	Permit term	414,977 square feet	1,463,615 square feet
Remove 103,188 pounds of trash annually from the Anacostia River	By the fifth year of the permit	111,957 pounds	Not Applicable

4.1.1 Standards for Stormwater Discharges from Development

DOEE finalized the 2013 Rule on Stormwater Management and Soil Erosion and Sediment Control (2013 Stormwater Rule) on Friday, July 19, 2013.

The 2013 Stormwater Rule satisfies the requirements of Section 4.1.1 of the MS4 Permit, which requires the District to implement a 1.2-inch stormwater retention standard for land-disturbing activities, a lesser retention standard for substantial improvement projects, and provisions for regulated sites to satisfy these standards offsite. The 2013 Stormwater Rule also includes the Stormwater Retention Credit (SRC) trading program, which allows property owners to generate and sell SRCs by installing green infrastructure that has the capacity to retain stormwater and

⁴ Discussion on District retrofit program and retrofit calculation is found in Section 4.1.5.4.

thereby reduce the runoff that harms District streams and rivers. More information on the SRC trading program can be found in Sections 4.1.2 and 4.1.3 of this report.

DOEE continues to hold training sessions for the public and District agency staff. More information about these trainings can be found in Section 4.3.10.

To view the 2013 Stormwater Rule and the 2013 Stormwater Management Guidebook (2013 SWMG): <http://DOEE.dc.gov/swregs>

FY 2017 Goals: Additional trainings for District staff and the public will continue to be held throughout FY 2017.

4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking

As required by Section 4.1.2 of the MS4 Permit, the District has drafted and amended environmental legislation and regulations to remove barriers to the implementation of the retention performance standards. DOEE has also designed the 2013 Stormwater Rule to work in concert with other sustainability initiatives in the District, including the Green Area Ratio (GAR) requirements under the zoning code. To read more information about these initiatives:

- GAR <http://doee.dc.gov/GAR>
- Sustainable DC <http://sustainable.dc.gov>
- The Green Building Act <https://doee.dc.gov/service/green-buildings>
- Green Infrastructure Design Standards www.ddot.dc.gov/greeninfrastructure

Along with code and policy revisions, the District maintains a plan review erosion control program for new construction coupled with a field inspection program to ensure compliance with District erosion control and stormwater management regulations.

In FY 2015, DOEE launched the Stormwater Database to manage submission, review, and inspection of Stormwater Management Plans, Erosion and Sediment Control Plans, and Green Area Ratio Plans. The database is also used to calculate and track discounts in the RiverSmart Rewards program and to calculate eligibility for and track the Stormwater Retention Credit Program. As required by Section 4.1.2 of the MS4 Permit, the database tracks each site's regulatory obligations and compliance, including off-site retention (Offv) achieved with SRCs or payment of the in-lieu fee (ILF).

The public uses the database to:

- Submit compliance calculations and other information to support an application for DOEE approval of a Stormwater Management Plan, Erosion and Sediment Control Plan, or Green Area Ratio Plan
- Comply with an off-site retention obligation by applying to use SRCs or notifying DOEE of an in-lieu fee payment
- Apply to certify, transfer, or retire SRCs
- View the SRC registry
- Apply for a RiverSmart Rewards discount on the District's impervious surface-based fees

After completing applications, public users submit them electronically and the database notifies DOEE of these new applications. Staff reviews and makes a decision to approve or disapprove each application and the database notifies public users of DOEE's decision.

In FY 2016, DOEE continued to expand the uses of the Stormwater Database across all programs. General enhancements to the database have included streamlining database workflows, automating email notifications regarding application approval and inspection, and providing greater access to program information. Notably, DOEE is now publishing best management practice (BMP) data from the Stormwater Database in a GIS layer that can be publicly downloaded from <http://opendata.dc.gov/>.

DOEE also increased its ability to use the Stormwater Database for its inspection and enforcement programs by developing new database features. DOEE's inspectors now use the Stormwater Database in the field with tablets, which allows them to record inspection events and enforcement actions on-site. Detailed inspection data is stored in the database, signed, formatted into PDF documents, and automatically sent to the site owner and the site owner's agent, if applicable.

DOEE also developed expanded reporting options for the Stormwater Database to enhance the ability of program administrators to track program implementation. This allows DOEE to identify process bottlenecks and to assess overall program implementation across the District.

More information about the Stormwater Database can be found at: <http://DOEE.dc.gov/swdb>

FY 2017 Goals: DOEE will continue to migrate historic data into the database and validate historic records. DOEE will expand the database to include new features, to track additional information for DOEE's programs, and to incorporate new programs, including RiverSmart Homes, within the Stormwater Database. Updates about the operation and implementation of the Stormwater Database will be included in future Annual Reports.

4.1.3 Off-Site Mitigation and/or Fee-in-Lieu

The 2013 Stormwater Rule provides regulated sites with flexible options for meeting regulatory requirements. Under the rule, each major regulated project faces a stormwater retention volume (SWRv) based on either the 0.8 or 1.2 inch storm. A regulated site may meet a portion of its SWRv through Stormwater Retention Credits (SRCs) that are purchased in a private market or through payment of in-lieu fee (ILF) to the District government. Program details are contained in Section 527 and Sections 530 through 534 of the 2013 Stormwater Rule and Chapters 6 and 7 of the 2013 Stormwater Management Guidebook. The regulations and trading program meet the requirements of Section 4.1.3 of the MS4 Permit. For full program information and to view the SRC Registry, visit <http://doee.dc.gov/src>.

In FY 2016, DOEE made a significant investment to accelerate green infrastructure retrofits in MS4 areas by issuing a grant to a non-profit partner, the Center for Watershed Protection (CWP), to assist DOEE with the establishment of an SRC Purchase Agreement Program. Through the SRC Purchase Agreement Program, CWP will enter into contracts on DOEE's behalf with voluntary SRC-generating green infrastructure projects. These contracts will give SRC generators the option of selling SRCs to DOEE at a pre-determined price for a pre-determined

time period, effectively setting a price floor and giving greater certainty to potential SRC generators about the financial viability of their proposed projects. These agreements will be available only to voluntary green infrastructure projects located in the MS4.

After the participating project is built and SRCs are certified, the owner of the SRCs will have the option to either sell the SRCs on the market or execute the purchase agreement with CWP. All SRCs purchased through this program will be retired and removed from the market so that they cannot be resold and cannot be used to meet a regulatory obligation. DOEE has made \$11.5 million (out of a total project budget of \$12.75 million) available solely for SRC purchases. DOEE expects purchase agreements to be available in the spring of 2017.

In addition to the \$11.5 million that will be available for SRC purchases, the grant also includes \$700,000 to support the technical and outreach work required to identify sites that may be good candidates for green infrastructure projects.

DOEE updated the publicly-available information about the SRC program in the SRC and Offv Registry, which is available via the Stormwater Database. These updates increased program transparency and provided more information about program activity. Notably, DOEE now publishes information about expected dates that new projects with Offv will complete construction. Projects must begin using SRCs and/or paying ILF to comply with Offv obligations at the end of the construction process. Publishing this information shows program participants when to expect future trades. The SRC and Offv Registry is available at <http://doee.dc.gov/src>.

DOEE began piloting a discussion board that allows members of the general public to encourage conversation between potential market participants. DOEE also posts news about the SRC program on the discussion board, which is available at <http://hootboard.com/srcprogram>.

DOEE updated a GIS viewer that shows impervious areas in the District. The map now also shows non-tidal tributaries to the District's waterbodies. These smaller watersheds are high priorities for green infrastructure retrofits and will be the focus of the purchase agreement program. Other tools available on DOEE's website include a template SRC trading contract and a financial return calculator to help participants determine the most cost-effective and most profitable projects.

The SRC market and Offv programs grew substantially in FY 2016. The SRC market experienced eight trades for a total of 24,972 SRCs selling at an average price of \$1.85. DOEE also received one in-lieu fee (ILF) payment of \$5,806.76. The SRC trades and ILF payment were driven primarily by projects with Offv obligations that were nearing the end of construction along with one project that was beginning a subsequent year of Offv compliance. Because projects may purchase SRCs and/or pay ILF several months before it is required, the period of compliance achieved by the SRCs and/or ILF payment may begin in a later fiscal year than when a trade occurred. This occurred several times in FY 2016. One site completed construction in FY 2016 and two sites that had already completed construction continued to comply with Offv requirements through SRC use. Offv compliance achieved by the other trades and ILF payment will be described in future annual reports.

In FY 2016, DOEE approved four applications to certify Stormwater Retention Credits accounting for 278,872 SRCs. This is an increase from the 194,588 SRCs certified in FY 2015. Seventy-eight percent of the SRCs approved in FY 2016 were for green infrastructure located in the Anacostia River watershed. Sixty-nine percent of the SRCs approved were for green infrastructure located in the MS4. Since inception of the SRC program in 2013, 79% of SRCs are generated by green infrastructure located in the MS4, and 21% are generated by green infrastructure located in the Combined Sewer System (CSS). Fifty-one percent of SRC are generated by green infrastructure located in the Potomac River watershed, 47% are located in the Anacostia River watershed, and 2% in the Rock Creek watershed.

In FY 2016, DOEE approved 19 permit applications for sites with Offv, bringing the total number of sites with Offv to 34. These values exclude any site that was originally approved with an Offv but has subsequently been approved for a revision to eliminate the Offv. The increase in the number of approved plans with Offv and the increase in the overall Offv approved is expected to stimulate future SRC trades.

Information about SRC and Offv program activity in FY 2016 is summarized in the below charts and tables.

SRCs Certified

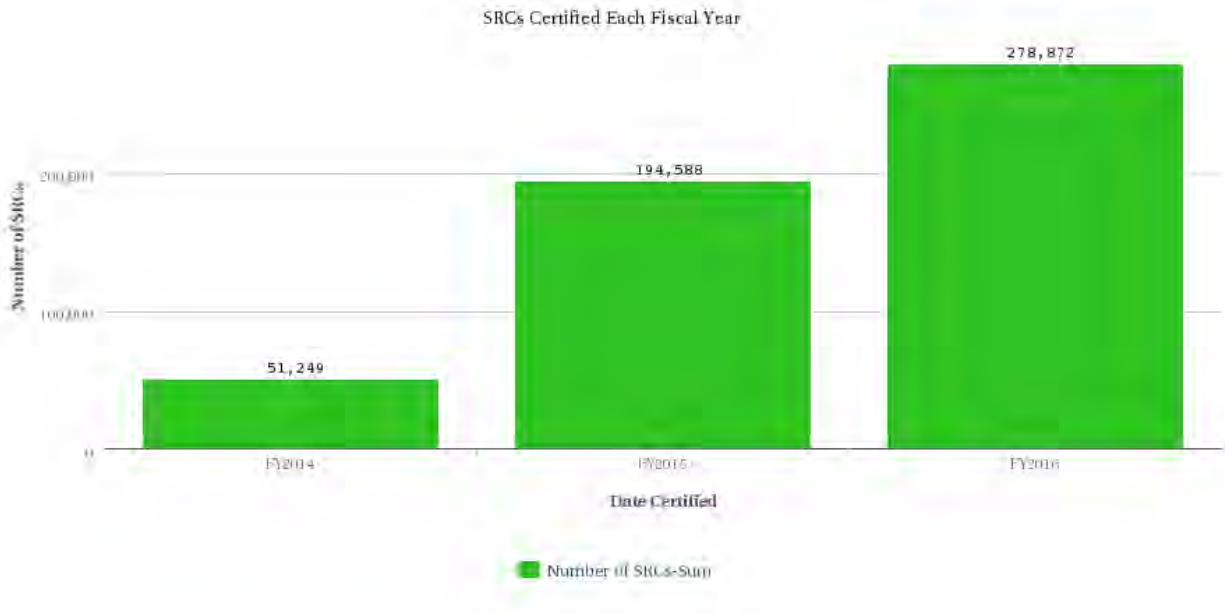


Figure 1 SRCs Certified Per Fiscal Year

Figure 1 shows the SRCs certified in each fiscal year, with 278,872 SRCs certified in FY 2016. DOEE certifies up to 3 years' worth of SRCs on one application, so each fiscal year shown in Figure 1 represents up to 3 years' worth of SRCs. Each SRC has a vintage year that represents the year during which SRCs achieve retention. A vintage year is based on the date DOEE

receives a complete application and each anniversary date thereafter. DOEE may receive an SRC certification application in one fiscal year and approve it in the next fiscal year.

More information about SRC certification is available in Table 6, including the certification and years for which the certification is valid, also known as vintage years. In most instances, the vintage term occurs partially in two fiscal years. For simplicity, this table reports the fiscal year during which the SRC begins to achieve retention. For example, an SRC with a vintage from 9/24/2015 through 9/23/2016 would achieve retention during both FY 2015 and FY 2016 but would be reported only in the FY2015 column. This table includes information about all SRCs that DOEE has certified through the end of FY 2016, including SRCs that were certified in prior fiscal years.

Table 6 SRCs Certified

SRC Certification Date	Watershed	Sewershed	Total SRCs	Vintage Year				
				FY2014	FY2015	FY2016	FY2017	FY2018
9/28/2016	Anacostia	MS4	41,344			13,778	13,778	13,778
9/2/2016	Anacostia	MS4	111,621			37,207	37,207	37,207
3/7/2016	Anacostia	MS4	38,826			19,413	19,413	
2/19/2016	Anacostia	CSS	12,203				12,203	
2/17/2016	Anacostia	CSS	12,203			12,203		
10/30/2015	Potomac	CSS	62,685			20,895	20,895	20,895
9/24/2015	Potomac	MS4	123,000		41,000	41,000	41,000	
8/18/2015	Anacostia	MS4	19,413		19,413			
7/2/2015	Anacostia	CSS	8,732		4,366	4,366		
6/12/2015	Potomac	MS4	30,495		10,165	10,165	10,165	
1/29/2015	Rock Creek	CSS	12,948		4,316	4,316	4,316	
4/29/2014	Potomac	MS4	51,249	17,083	17,083	17,083		
TOTAL			524,709	17,083	96,343	180,426	158,977	71,880

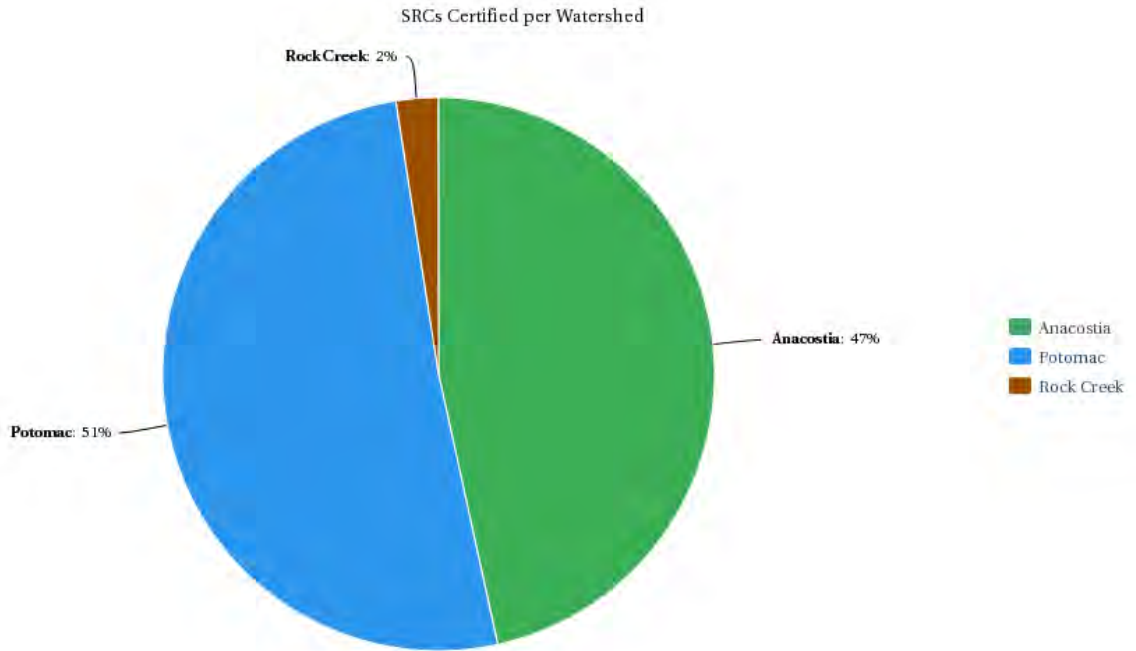


Figure 2 SRCs Certified per Watershed

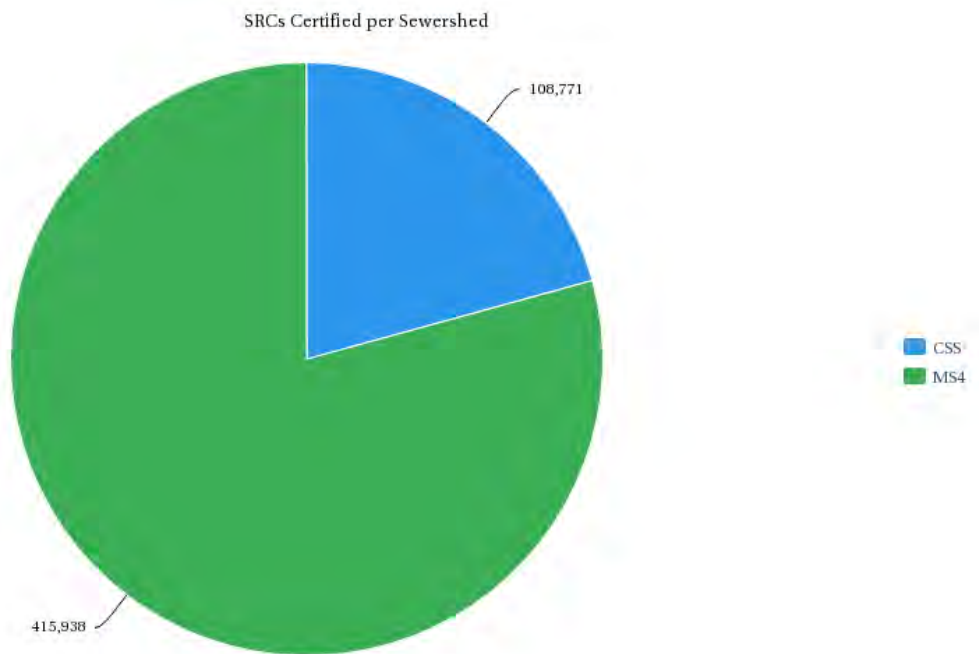


Figure 3 SRCs Certified per Sewershed

Off-Site Retention Volume

In FY 2016, DOEE approved 19 projects with Offv. Figure 4 shows the number of projects approved with Offv each fiscal year. More projects with Offv translate to increased potential demand in the SRC market. This creates additional incentive for more voluntary green infrastructure projects to meet that demand.

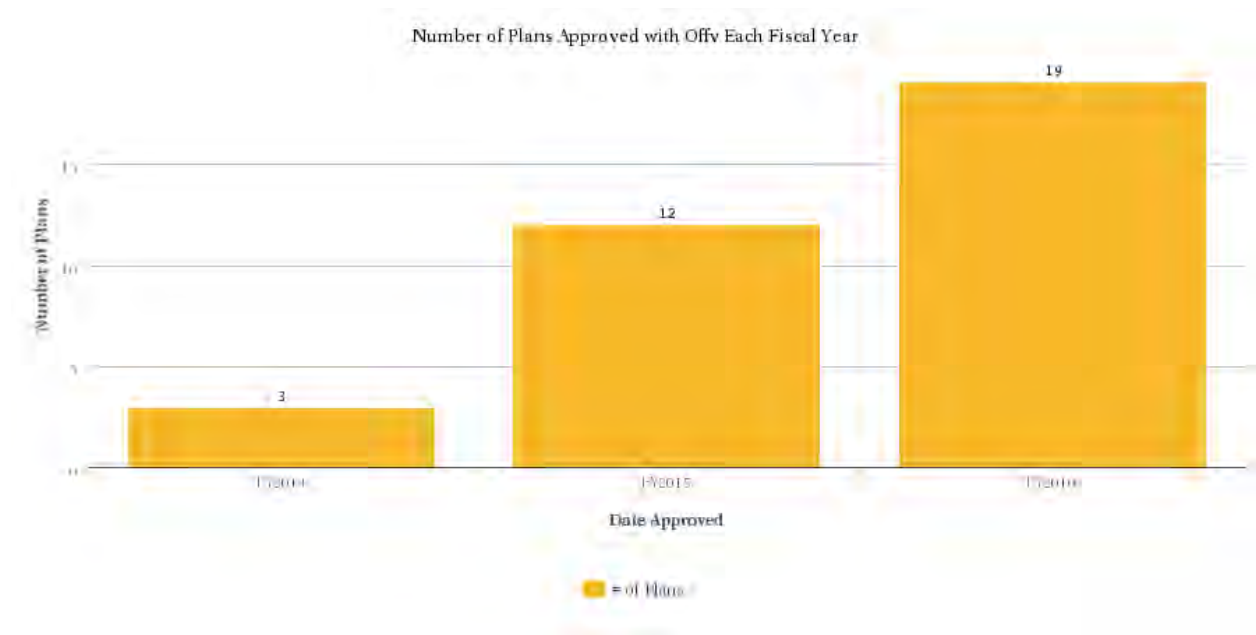


Figure 4 Number of Plans Approved with Offv

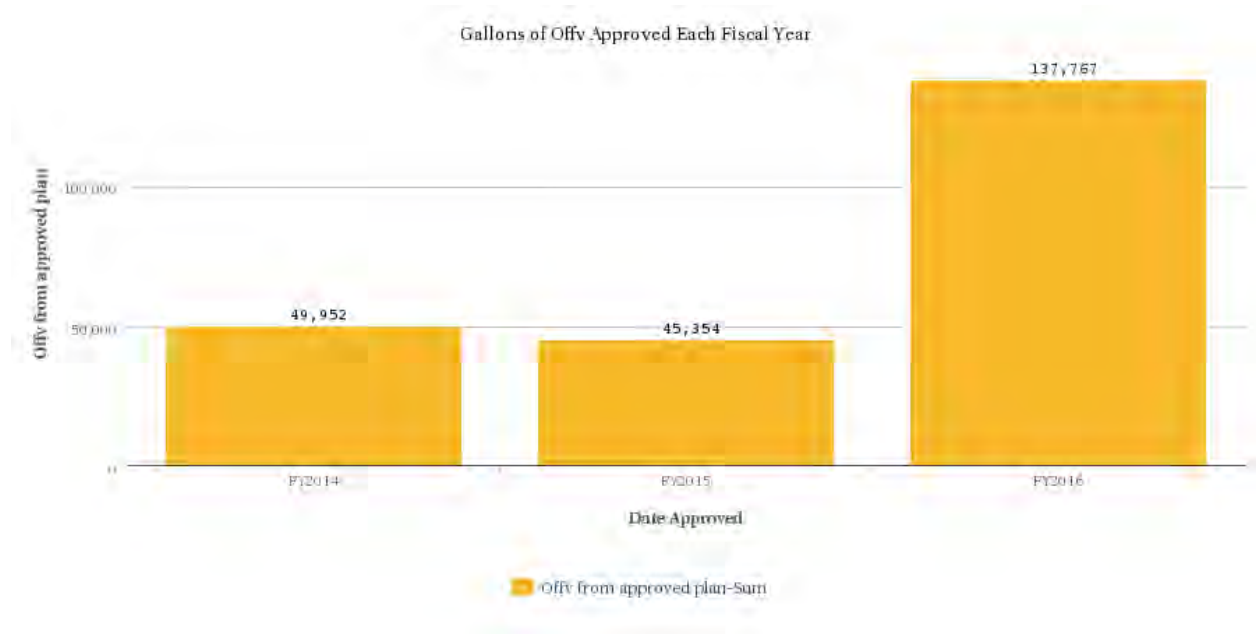


Figure 5 Gallons of Offv Approved

SRC Trades

The number of SRC trades increased substantially in FY 2016, particularly during the last quarter. All trades were driven by projects that were nearing the end of construction or their next Offv compliance date. Table 7 lists the price for each trade, and as each trade represents a different number of SRCs, a weighted average price for all trades is included.

Table 7 FY 2016 SRC Trades

Date	Number of SRCs	Purchase Price	Value of Trade
9/26/2016	4,648	\$1.70	\$7,901.60
9/8/2016	2,142	\$2.00	\$4,284
8/10/2016	108	\$1.80	\$194.40
8/8/2016	2,115	\$1.90	\$4,018.50
8/3/2016	3,105	\$1.80	\$5,589
7/8/2016	584	\$1.90	\$1,109.60
7/8/2016	1,257	\$1.80	\$2,262.60
10/2/2015	11,013	\$1.90	\$20,924.70
Total/Average	24,972	\$1.85	\$46,284.40

Offv Compliance

A regulated site must begin to comply with its Offv as of the date of its Final Construction Inspection and every year thereafter. Projects with Offv must use SRCs and/or pay ILF for each year of Offv compliance. Table 8 shows periods of Offv compliance that began in FY 2016, regardless of when ILF payment was received or when SRCs were certified and traded.

Table 8 Offv Compliance in FY 2016

Offv Compliance Start Date	Offv (gallons)	SRCs Used	ILF Payment	Notes
8/24/2016	584	584	\$0.00	Final Construction Inspection
10/31/2015	11,013	11,013	\$0.00	Renewed Offv Compliance
10/8/2015	38,324	38,324	\$0.00	Renewed Offv Compliance
Total	49,921	49,921	\$0.00	

SRCs Used in FY 2016 – Spatial Distribution

An SRC certified in one location in the District can be used to comply with an Offv requirement in another sewershed or watershed. As shown in Figure 6, 99% of the SRCs that were used in FY 2016 were generated by green infrastructure practices located in the MS4 and were used by projects to comply with Offv requirements in the CSS. One percent of the SRCs used in FY 2016 were both generated and used in the CSS. All of the SRCs used in FY 2016 were used to achieve Offv compliance in the CSS. Similarly, 99% of the SRCs that were used in FY 2016 were generated by green infrastructure located in the Potomac River watershed and were used in the

Anacostia River watershed, while 1% of SRCs were both generated and used in the Rock Creek watershed.

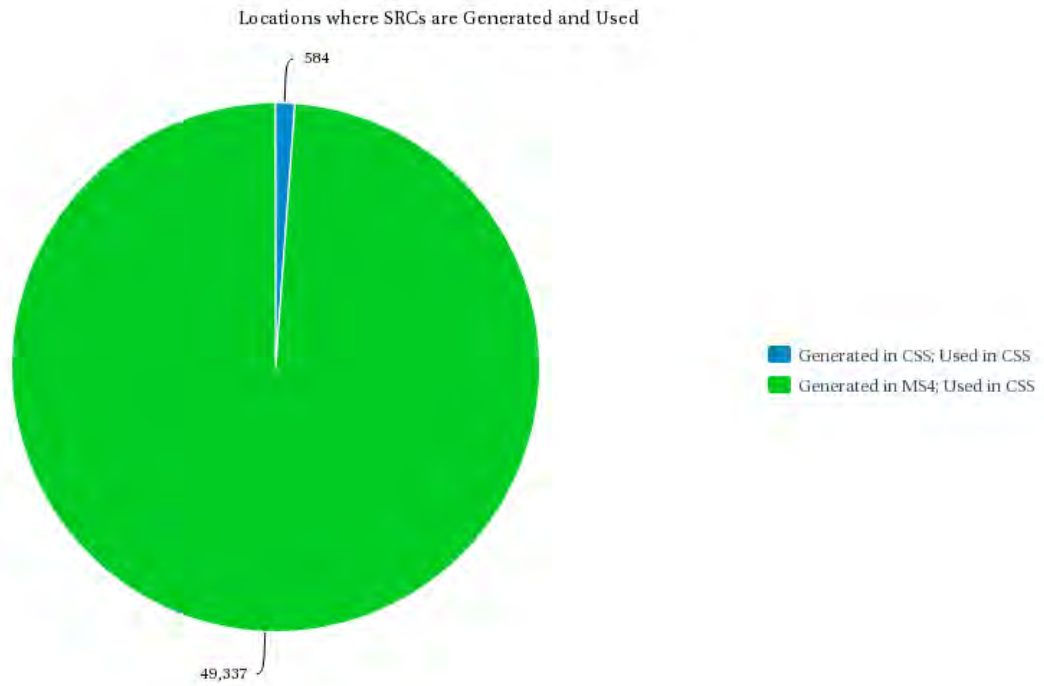


Figure 6 SRCs Used in FY 2016 - Spatial Distribution by Sewershed

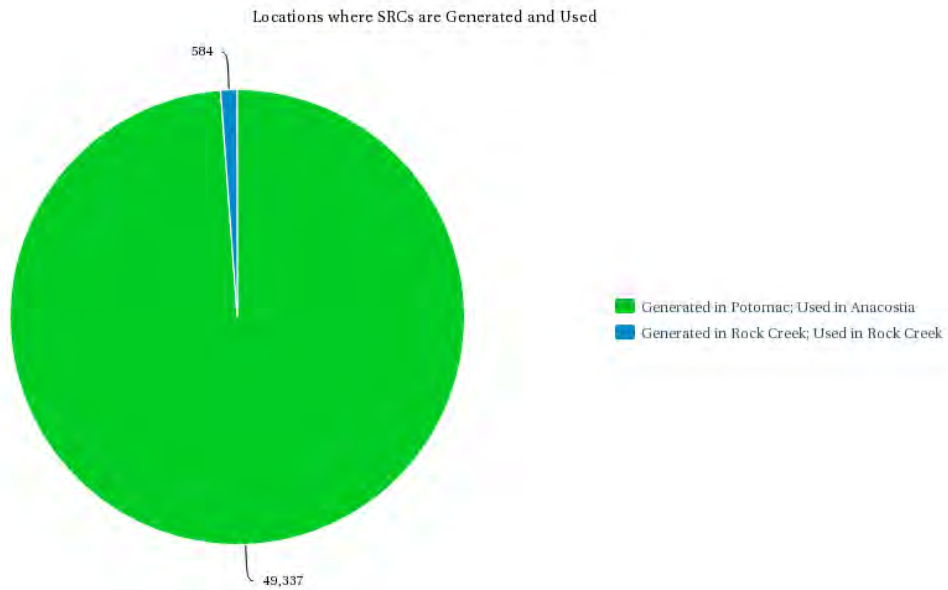


Figure 7 Used in FY 2016 - Spatial Distribution by Watershed

SRCs Used in FY 2016 – Temporal Distribution

DOEE certifies up to three years’ worth of SRCs at a time and SRCs may be banked indefinitely. DOEE tracks SRC vintage, which is the year for which an SRC represents a gallon of retention. The first SRC vintage year begins the date DOEE receives a complete SRC Certification application. Subsequent years of vintage begin on the anniversary of this date.

Offv compliance is also tracked on an annual basis. A regulated site with an Offv must begin to comply with its Offv as of the date of its final construction inspections.

For SRCs used in FY 2016, Figure 8 and Figure 9 show the extent to which the SRC vintage year overlaps with the regulated sites’ Offv compliance. Figure 8 shows the SRC vintage year in green and the Offv compliance in blue. The number of SRCs represented by each pair of bars is shown on the left size of the vertical axis. For example, the chart shows that 38,234 SRCs had a vintage from 9/24/2015 through 9/23/2016 and were used for Offv from 10/8/2015 through 10/7/2016.

Figure 9 summarizes this information and shows that 88% of the SRCs used in FY 2016 had a vintage year that overlaps with the Offv for which the SRCs were used. Twelve percent of the SRCs used in FY 2016 had a vintage year that did not overlap with the Offv for which they were used, but were within one year of overlapping. It is worth noting that the vintage year for these SRCs occurred before the year of Offv compliance for which they were used, meaning that the environmental performance of the green infrastructure represented by these SRCs occurred in full prior to beginning the period for which it was needed.

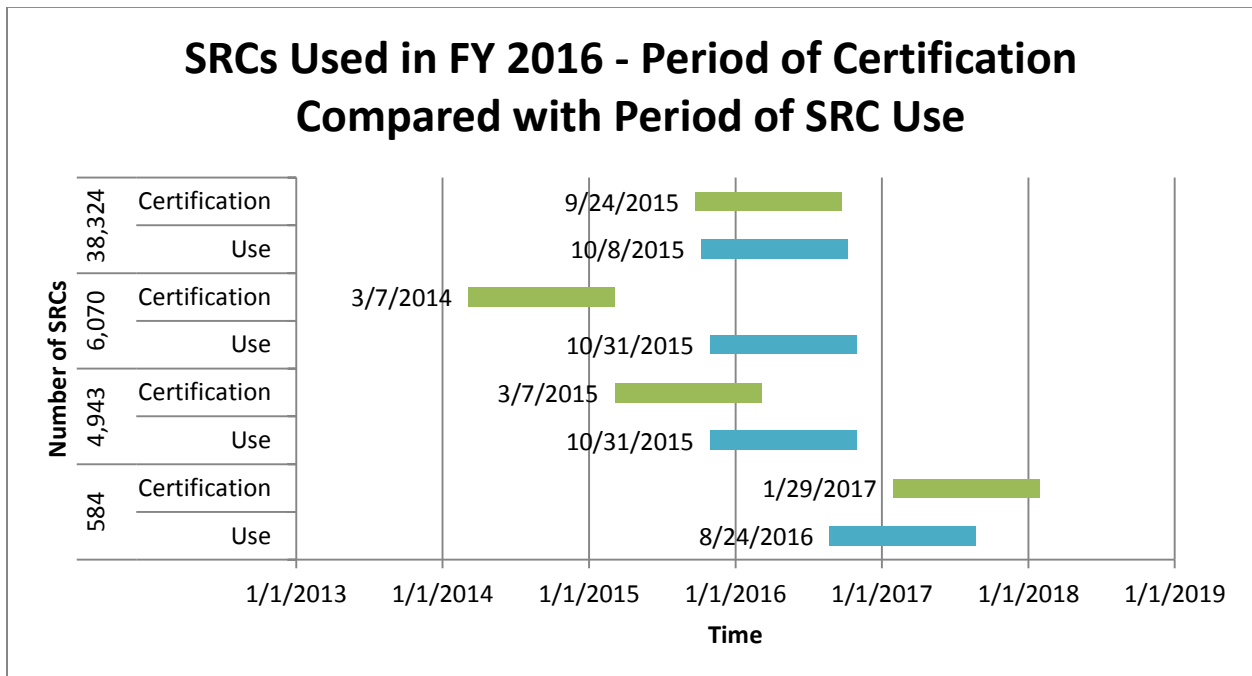


Figure 8 Temporal Distribution of SRCs Used in FY 2016

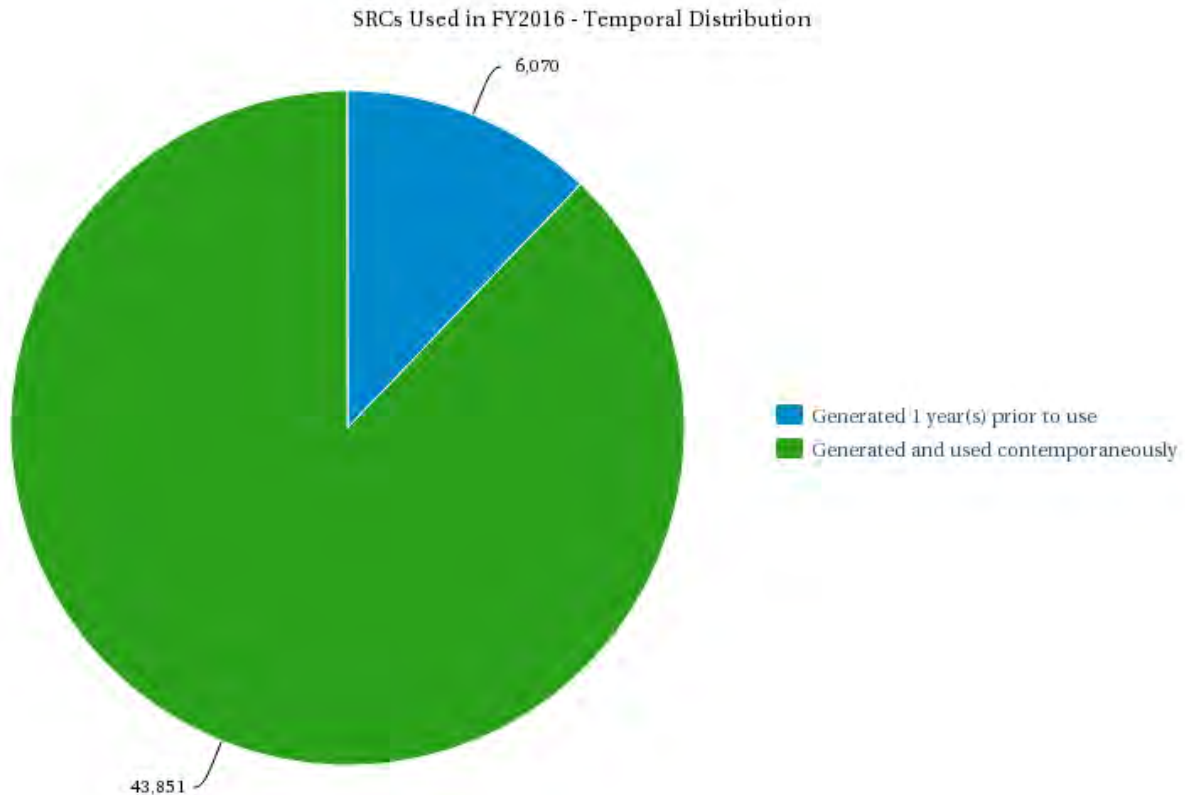


Figure 9 Summary of Temporal Distribution of SRCs Used in FY 2016

Table 9 SRCs Used in FY 2016

Number of SRCs	Certification Date	Certification Watershed	Certification Sewershed	Use Date	Use Watershed	Use Sewershed
38,324	9/24/2015	Potomac	MS4	10/8/2015	Anacostia	CSS
6,070	3/7/2014	Potomac	MS4	10/31/2015	Anacostia	CSS
4,943	3/7/2015	Potomac	MS4	10/31/2015	Anacostia	CSS
584	1/29/2017	Rock Creek	CSS	8/24/2016	Rock Creek	CSS

FY 2017 Goals: DOEE expects SRC trades to increase throughout FY2017, as regulated demand increases, both from regulated sites with an approved Offv that reach the end of construction and from new regulated sites going through the permitting process. In addition, as SRC purchase agreements become available to SRC generators, DOEE expects a significant increase in the generation of SRCs in the MS4. DOEE also plans to continue providing trainings and undertaking other efforts to assist program participants.

4.1.4 Green Landscaping Incentives Program

The District is using a series of stormwater incentive programs to help single-family residents and commercial properties, multi-family residences, schools, and churches plan and implement stormwater retrofit projects and increase planted areas. The Green Area Ratio and DOEE's RiverSmart programs fulfill the requirements of Section 4.1.4. Additional information about DOEE's incentive programs can be found at: <http://DOEE.dc.gov/riversmart>.

District green landscaping incentive programs are:

- Green Area Ratio
- RiverSmart Homes
- RiverSmart Schools
- RiverSmart Communities
- RiverSmart Rooftops
- RiverSmart Rebates
- Stormwater Retention Credit Trading
- RiverSmart Rewards
- RiverSmart Innovation Grant

Green Area Ratio

The Green Area Ratio (GAR) is a zoning regulation that integrates sustainable landscape elements into parcel site design to promote greater livability, ecological function, and climate adaptation in the urban environment. The GAR sets minimum lot coverage standards for landscaping and site design features in site construction. The GAR assigns a weighted score to a building site based on the types of landscape and site design features that are implemented and the amount of area the features cover. The minimum GAR score needed to reach compliance is determined based on the zoning district of the site. With limited exceptions, sites that require a Certificate of Occupancy must submit a GAR plan as part of the building permit application. These sites include new building construction, additions and interior renovations where the cost of work exceeds 100 percent of the assessed land value. The Green Area Ratio became effective on October 1, 2013. In FY 2016 DOEE held six training sessions, reviewed 144 plans, and approved 93 plans for the GAR.

Specific information about the GAR, including the GAR Guidebook, regulations, and score forms are available at <http://doee.dc.gov/GAR>.

RiverSmart Homes

The District recognizes the importance of targeting homeowners for pollution reduction measures because residential property is the largest single land use type in the city and is the

slowest of all construction areas to be redeveloped. Since 2008, DOEE has been implementing the RiverSmart Homes program, which provides technical and financial assistance to single-family residential properties seeking to install green infrastructure. The program started with eight demonstration sites—one in each of the eight wards. It then expanded to a pilot program in the Pope Branch watershed. The program is now mature and has been operating citywide since the summer of 2009. In FY 2016, the program focused outreach efforts in targeted watersheds to increase RiverSmart Homes participation in the neighborhoods adjacent to stream projects. To view information on the RiverSmart Homes program, visit <http://DOEE.dc.gov/riversmarthomes>.

FY 2016 RiverSmart Homes accomplishments include the following:

- Conducted 1,032 stormwater audits
- Installed 234 rain barrels
- Planted 552 shade trees
- Installed 44 rain gardens
- Implemented Bayscaping at 110 properties
- Installed pervious pavers at 11 properties

RiverSmart Schools

DOEE's RiverSmart Schools program works with schools to install green infrastructure. These practices are specially designed to be functional as well as educational in order to fit with the school environment. Additionally, schools that take part in the program receive teacher training on how to use the sites to teach to curriculum standards and how to properly maintain the sites. To view information on the RiverSmart Schools program, visit <https://doee.dc.gov/service/riversmart-schools>.

In FY 2016, DOEE completed the construction of five RiverSmart Schools projects. Listed below are sites and accomplishments:

1. JO Wilson Elementary School
 - Installed rainwater harvesting system with three, 580 gallon above-ground cisterns
 - Installed 735 square foot rain garden
 - Created outdoor classroom and nature education areas
 - Total area of disturbance is 9,485 square feet
 - On-site retention achieved is 2,536 gallons
 - On-site treatment achieved is 1,526 gallons
 - Total drainage area is 5,765 square feet
 - SRC eligibility 1,901 gallons

2. Excel Academy
 - Installed three rain gardens with total of 1,605 square feet
 - Created outdoor classroom on existing compacted land
 - Total area of disturbance is 7,360 square feet
 - On-site retention achieved is 5,395 gallons
 - On-site treatment achieved is 3,596 gallons
 - SRC eligibility 2,274 gallons
 - Total drainage area is 20,605 square feet
3. Ludlow-Taylor Elementary School
 - Removed existing asphalt school yard and playground area
 - Install 2,834 SF of green infrastructure including bioretention areas and stormwater planters
 - Created outdoor education areas
 - Total area of disturbance is 11,526 square feet
 - On-site retention achieved is 9,351 gallons
 - On-site treatment achieved is 1,723 gallons
 - SRC eligibility is 11,212 gallons
 - Total drainage area is 33,530 SF
4. Capital City Public Charter School
 - Installed Approximately 200 square feet conservation landscaping in the courtyard area
 - Created an outdoor classroom sized for 20 students
5. Sousa Middle School
 - Installed 330 square feet of conservation landscaping, including a pollinator garden
 - Created an outdoor classroom area

RiverSmart Communities

In FY 2016, the RiverSmart Communities program offered technical and financial assistance to condominiums, co-ops, apartments, locally-owned businesses, and houses of worship interested in installing rain gardens, BayScaping, pervious pavement, and rainwater harvesting practices.

There are two options for RiverSmart Communities projects:

- Option 1: Offered city-wide - rebates of up to 80% of the project cost of eligible green infrastructure
- Option 2: Offered in Oxon Run and Watts Branch - 100% funding for design/build of green infrastructure

In FY 2016, the RiverSmart Communities completed projects on 12 properties (3 design/build and 9 rebate projects), Table 10.

Table 10 FY 2016 RiverSmart Communities Project Information

Project Address	Subwatershed	Storm Sewer System	LID Type	LID Surface Area (sq. ft.)	Treatment Area (sq.ft)	Rebate or Design/Build
1740 New Jersey Ave NW 20001	Anacostia	CSS	Bayscape	600		Rebate
501 H St SW 20024	Potomac	MS4	Impervious removal	1045		Rebate
3016 Rodman Street NW 200	Rock Creek	MS4	Impervious removal	2235		Rebate
741 Delaware Avenue, SW 20024	Potomac	CSS	Impervious removal	1945		Rebate
741 Delaware Avenue, SW 20024	Potomac	CSS	Impervious removal	3,152		Rebate
23339 40th Pl NW 20007	Potomac	MS4	Bayscape	600		Rebate
1613 Harvard St NW NW 20009	Rock Creek	CSS	Impervious removal	2816		Rebate
4740 Connecticut Avenue NW 20008	Rock Creek	MS4	Impervious removal	1368		Rebate
2437 15th Street NW 20009	Anacostia	CSS	Impervious surface removal and bayscape	450		Rebate
607 Division Ave NE 20019	Anacostia	MS4	Permeable pavement	1,959	11,817.70	Design/Build
Galen Terrace Apartments	Anacostia	MS4	Stormwater planter	193	1,628.00	Design/Build
Morning Star Baptist Church	Potomac	MS4	Impervious removal and tree trench	450		Design/Build

View information about RiverSmart Communities, included application forms, FAQs, and design guidance at <http://DOEE.dc.gov/service/riversmart-communities>.

RiverSmart Rooftops

The District offers rebates for new green roofs on existing buildings and new construction projects that add a green roof that exceeds their requirements for a stormwater management permit. The FY 2016 rebate was \$10 per square foot, and up to \$15 per square foot in targeted watersheds. To view a map of targeted watersheds, visit <http://www.arcgis.com/home/webmap/viewer.html?webmap=0d4a747446234044b07b56fdefde79a4&extent=-77.2307,38.7888,-76.7874,39.006>.

RiverSmart Rebates

DOEE offers rebates to single-family and multi-family properties owners with less than four units who implement their own green infrastructure projects. The following rebates are available:

1. Rain Barrel Rebates

- \$2 per gallon rebate, with maximum of \$1,000 total per property or cost of rebate
- 50 gallon minimum capacity to qualify
- Up to two rebates per property
- Open to single-family homes and multi-family properties with less than four units

In FY 2016, DOEE awarded 60 rain barrel rebates. To view information on rain barrel rebates, visit www.DOEEDC.gov/service/riversmart-homes-rain-barrels.

2. Shade Tree Rebates

- \$50 rebate per tree for small and medium canopy trees
- \$100 per tree for select species large canopy trees

In FY 2016, DOEE awarded 184 trees rebates. To view information on the shade tree rebate, visit <http://DOEEDC.gov/service/riversmart-rebates>.

3. Landscaping Rebates

- Rain gardens:
 - \$3 per square foot of treatment area
 - 400 square foot minimum
- Replacement of impervious surface with vegetation
 - \$5 per square foot of project area
 - 200 square foot minimum
- Replacement of impervious surface with permeable pavers
 - \$10 per square foot of project area
 - 100 square foot minimum

In FY 2016, 47 properties received landscaping rebates, totaling 42,663.5 square feet of treatment area.

- 3 rain garden rebates
- 9 impervious surface removal rebates
- 39 permeable paver rebates

Stormwater Retention Credit Trading

The Stormwater Retention Credit (SRC) Trading Program is an innovative market-based program for managing stormwater in the District of Columbia. The program allows property owners to generate and sell SRCs by installing green infrastructure that has the capacity to retain stormwater and thereby reduce the runoff that harms District streams and rivers. An SRC is worth one gallon of retention for one year, and regulated development sites buy and use SRCs to meet their regulatory requirements for retaining stormwater runoff. Additional information on the FY 2016 implementation of the program can be found in Section 4.1.3 of this report.

To view information on the Stormwater Retention Credit Trading Program, visit <http://DOEE.dc.gov/src>.

RiverSmart Rewards

RiverSmart Rewards (RSR) is DOEE’s Stormwater Fee Discount Program. The program began July 19, 2013 upon promulgation of regulations (21 DCMR Chapter, Sections 557-563, 599) establishing the program. In FY 2016, DOEE revised these regulations to align the program with the existing billing practices of D.C. Water and Sewer Authority (DC Water) by changing when the discount calculated by DOEE is applied to the customer’s account, authorizing a greater discount for green infrastructure that receives runoff from compacted cover, and allowing greater flexibility in calculating discounts for rainwater harvesting practices.

The program offers a discount of up to 55% off the DOEE Stormwater Fee charged on a property’s DC Water bill. In order to be eligible for a discount, a property must install and maintain green infrastructure that function to retain stormwater runoff. Eligible green infrastructure include bioretention, rainwater harvesting, permeable pavement systems, green roofs, newly planted or preserved trees. All green infrastructure assigned a retention value in DOEE’s 2013 Stormwater Management Guidebook qualify for a discount. Discounts are available for three-year periods and are renewable.

DOEE calculates discounts based on the volume of stormwater retained by the green infrastructure installed on site. The maximum discount of 55% is provided when a property manages the 1.2” storm event, and the discount is scaled back proportionately for properties that manage less stormwater.

In FY 2016, DOEE began automatically enrolling participants of RiverSmart Homes.

FY 2016 accomplishments include:

- Approved a total of 170 discount applications, including:
 - 11 Standard Applications
 - 100 Simple Applications
 - 59 RiverSmart Homes auto-enrolls

Table 11 RiverSmart Rewards Accomplishments

Major Drainage Basin	Number of RSR Applications Approved	Total Value of Monthly Discounts	Number of BMPs on approved applications	Total Contributing Drainage Area (sq. ft.)	Volume Eligible for RiverSmart Rewards Discount (gal)
Anacostia	88	\$3,970.80	197	100,684	58,539
Potomac	21	\$7803.00	315	333,003	113,989
Rock Creek	61	\$2,868.48	172	57,924	40,469
Total	170	\$14,642.28	684	491,611	212,997

For additional information on RiverSmart Rewards, visit <http://doee.dc.gov/riversmartrewards>.

Community Stormwater Solutions Grants

In FY 2016, DOEE awarded nine Community Stormwater Solutions Grants totaling \$156,500. The program, previously referred to as RiverSmart Innovation Grants, provides start-up funding for community-oriented projects that improve stormwater management in the District. DOEE prioritized projects located in the MS4 sewershed and Anacostia Watershed by assigning 5 points for each category. The projects, which are set to be completed in FY 2017, focus on watershed and stormwater education and awareness and accomplish one or more of the following project areas:

- Remove impervious surfaces, install stormwater runoff-reducing green infrastructure, or plant trees
- Create/promote jobs focused on stormwater solutions
- Restore native habitat
- Clean up an area affected by high volumes of litter
- Prevent litter

To learn more about the program and awarded projects, visit <http://doee.dc.gov/service/community-stormwater-solutions-grants>.

FY 2017 Goals: The District will continue to implement green landscaping incentive programs.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Retrofit Plan

DOEE submitted the District's Retrofit Plan to EPA Region III on January 22, 2014. This plan establishes performance metrics that will be utilized to track progress in retrofitting existing impervious surfaces throughout the District, as required by Section 4.1.5.1 of the District's MS4 Permit. These metrics are consistent with the District's 2013 Stormwater Rule and Stormwater Management Guidebook that require development projects to retain stormwater runoff. The retrofit projects outlined in Section 4.1.5.4 have been normalized using the calculator found in the District's Retrofit Plan.

To view the District's Stormwater Retrofit Plan and calculator utilized to determine retrofit credit: <http://DOEE.dc.gov/stormwaterretrofitplan>.

4.1.5.2 Federal Facilities

During FY 2016, DOEE staff continued to participate in quarterly meetings with the Chesapeake Bay Program's DC Federal Stormwater MOU Workgroup. These efforts have resulted in improved communication and data sharing between DOEE and the Federal agencies in the District, and aided in resolving issues associated with property ownership, stormwater fee applicability, and the confirmation that Federal agencies must comply with the District's 2013 Stormwater Rule. Staff also participated in monthly conference calls with the Federal Facilities Workgroup. The workgroup documented a protocol for Setting Targets, Planning BMPs and

Reporting Progress for Federal Facilities and Lands, inventoried Federal Facilities requiring targets, and then published nitrogen, phosphorus, and sediment targets for applicable facilities.

4.1.5.3 Volume and Pollutant Reductions

DOEE calculated the potential pollutant load and volume reductions achieved through the District Retrofit Program. See Table 12 below.

DOEE developed runoff and load reduction estimates using the District’s Implementation Plan Modeling Tool (IPMT), which was used to develop the District’s Consolidated TMDL Implementation Plan. Load reductions for trash are based on the trash loading coefficients developed for the Anacostia Trash TMDL.

Table 12 Pollutant Load and Volume Reduction from Retrofit Projects

Watershed	Annual Runoff Retained (gallons)	Fecal Coliform (billion MPN)	TN (lbs.)	TP (lbs.)	TSS (lbs.)	Cu (lbs.)	Pb (lbs.)	Zn (lbs.)	Cd (lbs.) ⁵	Trash (lbs.)
Anacostia	30,539,749	21,896.21	1,294.95	206.98	124,318.56	18.24	5.75	42.68	6.30	172,260,839.07
Rock Creek	9,231,222	5,709.75	323.93	37.44	5,766.49	4.77	1.50	9.37	1.65	113,384,648.66
Potomac	16,426,697	9,325.37	576.37	68.47	7,023.20	7.63	2.50	15.18	2.74	60,241,665.53
Total	56,197,668	36,931.33	2,195.24	312.89	137,108.25	30.64	9.76	67.24	10.68	345,887,153.26

4.1.5.4 Numeric Performance Requirement for Retrofits

In FY 2016, the District retrofitted 11,699,605 square feet of impervious surface, Table. Since the start of the Permit Term in 2012 the District has retrofitted a total of 24,638,039 square feet of impervious surface. Data reported in Table 12 has been normalized to the 1.2” using the calculator included in the District’s Stormwater Retrofit Plan.

The District made two adjustments in how retrofit projects are accounted for to better reflect their true environmental impact. The first of these changes was to consider compacted cover and impervious cover as equivalent. The Retrofit Calculator considers land cover in its calculations, and assigns runoff coefficients to each land cover type (0.25 for compacted cover and 0.95 for impervious cover). The majority of retrofit projects in the District are from regulated redevelopment of existing sites, which are frequently mischaracterized as compacted cover. The runoff coefficient assigned to compacted cover substantially underestimates the extent of

5 An EPA report (402-R-99-004B- linked below) that reviewed several studies with varied site conditions has documented mean partition coefficients for metals. DDOE used these metal-specific partition coefficients (Kd) and associated particle associated fraction (fp) values to model pollutant reduction for these metals through BMP implementation. Since many of the relevant low impact development (LID) practices have similar removal rates for lead and cadmium, the relationship between these two metals, their fp values, and the areas retrofitted were used to estimate cadmium reductions achieved through the Retrofit Program. DOEE will use this methodology to estimate the pollutant load reduction for cadmium. <http://www.epa.gov/sites/production/files/2015-05/documents/402-r-99-004b.pdf>

impervious surface that is likely present on these sites prior to redevelopment. In terms of generating stormwater runoff, these sites behave more like fully impervious cover than compacted cover. To reflect this, in compiling retrofit data for this Annual Report DOEE considered compacted and impervious cover as equivalent, which resulted in an increase to the performance achieved by projects from DOEE’s Stormwater Management Database throughout the Permit Term and in FY 2016. In addition, during this reporting period the District also began considering projects that are currently under construction as “implemented”. At the point that these projects have received their first construction inspection much of the impervious surface on these sites has been removed. To date, the District has accounted for 15,065,365 square feet of retrofits from completed projects, with an additional 8,232,347 square feet of retrofits currently under construction. Figure 10 displays the amount of retrofit projects completed and under construction by year over the course of the Permit Term, and illustrates the increase in overall implementation that has occurred over the same time period. DOEE expects that a significant portion of the projects currently under construction will be completed during the next year.

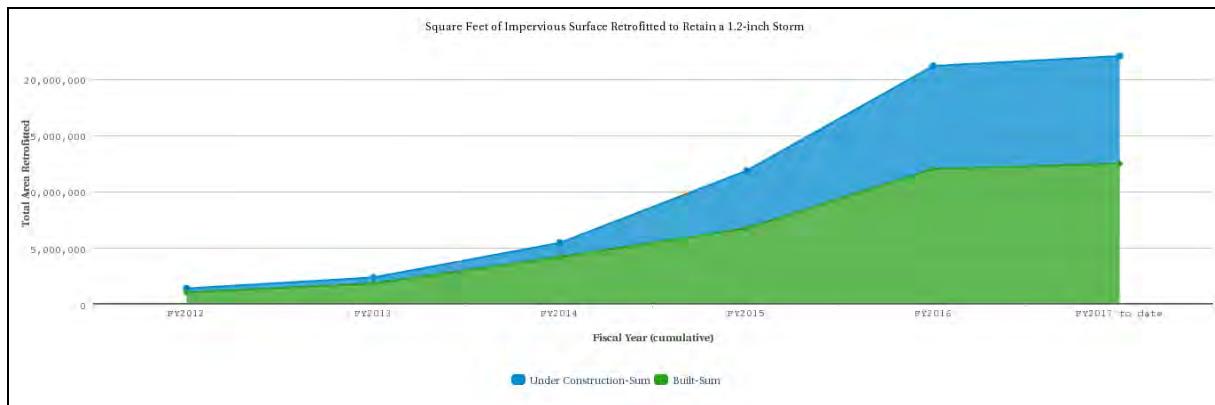


Figure 10 Impervious Surface Retrofitted to Retain 1.2-Inch Storm

Table 13 FY 2016 Retrofit Projects and Total Retrofit Projects To-Date

Projects	Pre-FY 2016 Impervious Surface Retrofitted (sq. ft.) ¹	FY 2016 Impervious Surface Retrofitted (sq. ft.)	Total Retrofitted During Permit Term
DOEE Stormwater Database Projects - Installed	10,702,539	1,731,294	12,433,833
DOEE Stormwater Database Projects – Under Construction	0	8,232,347	8,232,347
Incentive Programs ²	1,135,536	156,205	1,291,741
DDOT PROW Projects	1,087,648	220,851	1,308,499
PROW SWMP - Installed	12,711	18,581	31,292
PROW SWMP – Under Construction	0	1,340,327	1,340,327
PROW TOTAL	1,100,359	1,579,759	2,680,118
TOTAL	12,938,434	11,699,605	24,638,039

¹Retrofit size has been normalized to the 1.2” retention standard using the calculator included in the District’s Stormwater Retrofit Plan.

²Incentive program projects include rain barrels, bioretention, BayScaping, permeable pavers, cisterns, and impervious surface removal implemented through RiverSmart Homes, RiverSmart Communities, RiverSmart Schools, and RiverSmart Rebates.

Retrofit Projects in the Public Right-of-Way

In FY 2016, the District Department of Transportation (DDOT) retrofitted 220,851 square feet of impervious surface in the public right-of-way (PROW), Table 14. An additional 1,358,908 square feet was achieved by private development projects implemented or constructed in the PROW. During the current Permit term the District has retrofitted 2,680,118 square feet of the PROW,

Table 13.

Table 14 Completed DDOT Retrofit Projects in the PROW

Site Name	Sewershed	Ward	Subwatershed	BMP Type	Total Area (sq. ft.)	Total Area (acres)
LID Retrofit at East Beach Dr. NW	MS4	4	Rock Creek	Bioswales	196,250	4.5
LID Retrofit at Erie St SE	MS4	8	Anacostia	Streetside Bioretention	10,160	0.2
LID Retrofit at Fitch PI NE	MS4	7	Watts Branch	Streetside Bioretention	4,951	0.1
Q St Green Alley NW	MS4	3	Potomac River	Bioretention, Permeable Paving	9,490	0.2
TOTAL					220,851	5.1

Table 15 details the total impervious surface area in the District and the percentage of effective impervious surface reduced annually through the District’s retrofit program. This table fulfils the reporting requirements of Section 6.2.1.n and 6.2.1.0 of the MS4 Permit.

Table 15 Total District Land Area by Watershed

Watershed	Land Area (sq. ft.)	Impervious Surface (sq. ft.)	Percent Impervious Surface	Impervious Surface Retrofitted in FY 2016 (sq. ft.)	Percent of Impervious Surface Reduced Annually through the District Retrofit Program
Anacostia River	800,385,149	376,376,540	47.02%	5,826,709.48	1.55%
Potomac River	450,489,770	190,165,697	42.21%	3,835,226.92	2.02%
Rock Creek	457,023,015	189,834,967	41.54%	2,037,669.65	1.07%
Total	1,707,897,934	756,377,204	44.29%	11,699,606.06	1.55%

4.1.5.5 Substantial Improvement Projects

As part of the 2013 Stormwater Rule, finalized on July 19, 2013, the District created the regulatory mechanism that will implement a stormwater retention performance standard for substantial improvement projects. The stormwater retention performance standards are triggered by two different categories of projects:

1. Major Land-Disturbing Activities: Sites that disturb 5,000 square feet more of land are required to retain the stormwater from a 1.2 inch storm, either on-site or through a combination of on-site and off-site retention. The disturbance of 5,000 square feet of land has been the regulatory trigger since the establishment of the District's first stormwater management regulations in 1988.
2. Major Substantial Improvement Projects: Sites that undergo renovations of existing structures that have a combined building and associated land disturbance of 5,000 square feet or more and for which the project cost exceeds 50% of the pre-project value of the structure are required to retain the volume from a 0.8 inch storm.

More information about the 2013 Stormwater Rule can be found at <http://DOEE.dc.gov/swregs>.

4.1.5.6 District-Owned Properties

As required under Section 4.1.5.6 of the MS4 Permit, DOEE continues to work with the District's Department of General Services' (DGS) Office of Sustainability and Energy Management to identify retrofit project opportunities, as well as to incorporate green infrastructure into new construction. DGS staff participates in monthly MS4 Technical Working Group (TWG) meetings, and the Director of DGS is a member of the Stormwater Advisory Panel (SWAP). DOEE leads both meetings.

FY 2017 Goals: DOEE will continue to fund and install retrofit projects throughout the District through various programs. Additionally, the District will track and report retrofit installations and progress towards meeting the District's performance goal of retrofitting 18,000,000 square feet of impervious surface.

4.1.6 Tree Canopy

4.1.6.1 Tree Canopy Plan

The District developed a draft Urban Tree Canopy Plan that provides details on the tree canopy goal and the actions the District and its partners can take to achieve the canopy goal. To view the draft Urban Tree Canopy Plan: <http://DOEE.dc.gov/treecanopyplan>.

On December 18, 2015, DOEE and DDOT hosted the 2015 Tree Summit, which brought together stakeholders to share best management practices, improve coordination, and to identify partners that will join in planting trees on private property in 2016. At the Summit, Mayor Bowser announced the launch of Canopy 3,000 and the establishment of the Urban Forestry Advisory Committee.

Canopy 3,000 is a short-term public-private partnership aimed at planting 3,000 trees private property and public spaces throughout the District in 2016. The Urban Forestry Advisory Committee includes 11 members listed below. The Committee's role is to expand coordination and assist the District in meeting its Sustainable DC goal to cover 40% of the District with a healthy tree canopy by 2032. The Committee will identify ways to remove barriers to planting trees, to educate residents and businesses on the benefits of trees, and to provide an opportunity for local and federal officials, utilities, and experts in the field to exchanged ideas and best practices.

The Canopy 3,000 members include:

1. Department of Energy and Environment
2. District Department of Transportation
3. National Park Service
4. District Department of Parks and Recreation (DPR)
5. Casey Trees
6. Washington Parks and People
7. AECOM
8. American University
9. American Society of Landscape Architects
10. D.C. Baptist Convention
11. United States Forest Service

4.1.6.2 Tree Planting in the District

The District is assuming a five percent tree mortality rate. Using this assumption, the District has achieved a net increase of 6,085 trees in the MS4 in FY 2016, **Error! Reference source not found.** DOEE and DDOT Urban Forestry Administration (UFA) are currently building capacity to track tree mortality and replacement tree survival. This will help the District meet tree planting goals.

4.1.6.3 Tree Goals

The District continues to track tree plantings to document progress towards meeting the Sustainable DC goal to cover 40% of the District with a healthy tree canopy by 2032. **Error! Reference source not found.** documents tree planting efforts in FY 2016.

To view information about the District programs to achieve the tree canopy goal:

- UFA's Tree Planting Program see <http://ddot.dc.gov/node/509082-ufa>
- DOEE's Tree Program see <http://doee.dc.gov/trees>

Table 16 FY 2016 Tree Plantings in the District of Columbia

Program	Trees Planted Districtwide	Trees Planted in MS4 Area
RiverSmart Homes Tree Planting	552	364
Casey Trees Tree Planting	1,208	725
Washington Parks and People	152	114
UFA Districtwide Tree Planting	5,418	3,154
Tree Rebates	468	263
Stream Restoration Tree Planting	1,015	1,015
National Park Service Tree Planting	741	556
Sustainable DC/Parks and Schools Tree Planting	10	10
Pepco Tree Program	111	84
SWMP Trees Planted	141	106
Other Programs	77	14
Total Trees Planted	9,893	6,405
Net Trees Planted	9,398	6,085
Estimated Stormwater Volume Reduced (gallons)	10,604,306.70	6,865,519.50

FY 2017 Goals: The District will continue inter agency coordination on tree planting activities to meet the tree canopy goal.

4.1.7 Green Roof Projects

4.1.7.1 Structural Assessment

On October 8, 2013, DGS published the Smart Roof Final Report. For this report over 12.5 million square feet of roof area was evaluated to determine if they can be retrofitted with cool, green, or solar roofs. In 2015, DGS finished a Smart Roof Cost-Benefit Report that estimate of the costs and benefits of applying cool, green, and solar roof technologies on District owned buildings.

4.1.7.2 Green Roof Installations

Since the start of the Permit term, 1,463,615 square feet of green roofs have been installed.

FY 2016 green roof accomplishments include:

- 414,976 square feet of green roofs installed Districtwide
- 147,190 square feet of green roofs installed in the MS4 area
- 6,664,221 gallons of stormwater retained through green roof installations
 - 3,571,318 gallons of stormwater retained in the Anacostia watershed
 - 1,398,255 gallons of stormwater retained in the Rock Creek watershed
 - 1,694,648 gallons of stormwater retained in the Potomac watershed

4.1.7.3 Green Roof Tracking

DOEE continues to track green roof projects using the Stormwater Database. DOEE is regularly updating the database as plans for additional green roofs are approved and verified through our inspection program.

FY 2017 Goals: DOEE will continue tracking, inspecting, and funding green roof installations throughout the District of Columbia.

4.2 Operation and Maintenance of Stormwater Capture Practices

4.2.1 District Owned and Operated Practices

As required by Section 4.2.1 of the MS4 Permit, the District included operation and maintenance requirements for retention and non-retention BMPs in the updated 2013 Stormwater Management Guidebook (2013 SWMG), which was finalized in July 2013. The 2013 SWMG is available at <http://DOEE.dc.gov/swguidebook>.

The District has expanded educational training for District agency employees, particularly with regard to stormwater pollution prevention techniques and ‘good housekeeping’ training. Additional information regarding District trainings can be found in Section 4.3.10 of this report.

DOEE launched a database to manage submission, review, and inspection of Stormwater Management Plans, Erosion and Sediment Control Plans, and Green Area Ratio Plans. Additional information about the stormwater database can be found in Section 4.1.2 of this report.

FY 2017 Goals: DOEE has scheduled additional training for District staff. These include training on BMP design, one-on-one “office hours” with DOEE staff for engineers who are developing Stormwater Management Plans, and training on the use of DOEE’s Stormwater Management Database.

4.2.2 Non-District Owned and Operated Practices

As stated in Section 4.2.1, DOEE included operation and maintenance protocols in Chapter 5 of the 2013 SWMG, see <http://DOEE.dc.gov/swguidebook>.

The new Stormwater Database is how the District will continue to track non-district owned practices. All non-District properties are subject to inspection through DOEE's inspection and enforcement program. More information about DOEE's inspection and enforcement program can be found in Section 4.6.

FY 2017 Goals: DOEE will continue to update and maintain the Stormwater Database.

4.2.3 Stormwater Management Guidebook and Training

On July 19, 2013, DOEE released the 2013 Stormwater Management Guidebook (2013 SWMG), which provides technical guidance on complying with the 2013 Stormwater Rule, as required by Section 4.2.3.1 of the MS4 Permit. The SWMG is available at [DOEE.dc.gov/swregs](http://doee.dc.gov/swregs). The webpage also contains a link to downloadable versions of several spreadsheets developed to assist with determining project compliance, and calculating the SRCs that a project can earn. The available spreadsheets include the "General Retention Compliance Calculator" tool, a series of worksheets for the application and review of the proposed Maximum Extent Practicable (MEP) for the reconstruction of existing PROW, and an SRC Calculator to be used by SRC trading program participants.

As required by Section 4.2.3.2 of the Permit, DOEE holds training sessions for the public and District staff. DOEE also sends out updates to the stormwater stakeholder list of over 900 engineers, nonprofits, utilities, and government agencies. Information and schedules for upcoming Stormwater Management Guidebook training: <http://doee.dc.gov/swtraining>.

FY 2017 Goals: DOEE has committed to ensuring that interested stakeholders have the opportunity to participate in training sessions and will continue to add trainings based on stakeholder and public interest. A list of upcoming trainings can be found at <http://doee.dc.gov/swtraining>.

4.3 Management of District Government Areas

4.3.1 Sanitary Sewage System Maintenance Overflow and Spill Prevention Response

As required by Section 4.3.1 of the MS4 Permit DC Water continues to implement an effective response protocol for overflow events.

This protocol includes:

- Investigating complaints received within 24 hours of the incident report as outlined in the DC Water Emergency Command Center procedures and required by the DC Water All-Hazard Initial Response Actions Plan (2010).
- Responding within two hours to overflows for containment. Instructions on overflow response is located in the DC Water Sewer Emergency Containment Plan (2013) and DC Water All-Hazard Initial Response Actions Plan (2010).
- Notifying appropriate sewer and public health agencies within 24 hours when the sanitary sewer overflows to the MS4. Agencies are notified within 24 hours (per permit requirements) as identified in the DC Water Sewer Emergency Containment Plan (2013), DC Water Crisis Communication Plan, and the DC Water All-Hazard Initial Response Actions Plan (2010).
- Notifying the public in a timely and effective manner in the event of a discharge into the MS4 that may adversely affect public health. The procedures for notification are contained in the DC Water Crisis Communication Plan.

Due to confidentiality restrictions, the District cannot submit DC Water's All-Hazard Response Action Plan and Crisis Communication Plan at this time. However, these documents will be made available for review during the next EPA inspection and audit.

FY 2017 Goals: The District and DC Water will continue to coordinate to implement the provisions of Section 4.3.1 of the MS4 Permit. DC Water will continue to maintain a response and notification protocol.

4.3.2 Public Construction Activities Management

The District continues to comply with the construction and development requirements outlined in Section 4.3.2 of the MS4 Permit. Details of the construction management program are found in Section 2.6 of this report.

4.3.3 Vehicle Maintenance / Material Storage Facilities / Municipal Operations

DOEE provides trainings to inform District agencies on how to better manage their facilities to reduce and mitigate pollutants in stormwater runoff. These trainings typically last one and a half to two hours, and include a participant survey to measure understanding and adoption of practices and principles. Take-home materials are provided to better enable personnel to adopt long-term 'good housekeeping' and best management practices.

All personnel who are responsible for the design, installation, maintenance, and repair of stormwater controls, storage and handling of materials exposed to stormwater, and who are responsible for monitoring, inspecting, and documenting corrective actions are required to be trained at least once a year. In FY 2016, DOEE hosted 11 official trainings that reached 303 District employees.

Trainings included:

- SWPPP and BMP training for District employees
- Vehicle wash solutions for District facilities
- Pollution prevention training for snow plow operators
- Training for DPW facility managers on SWPPP review and pollution prevention at District facilities.

DOEE has also improved the database that tracks the inspection of sister agencies to ensure that facilities are inspected and maintained.

FY 2017 Goals: DOEE will establish a schedule to inspect municipal vehicle maintenance, material storage, and operations facilities. DOEE will continue trainings employees. DOEE will work with District agencies to finalize or update SWPPPs. DPW will continue to maintain and purchase additional AFVs as needed.

4.3.4 Landscape and Recreation Facilities Management, Pesticide, Herbicide, Fertilizer and Landscape Irrigation

4.3.4.1 Integrated Pest Management

DOEE has an Integrated Pest Management (IPM) strategy to better inform the public about the proper use and disposal of pesticides, and safer alternatives to pesticides. These programs encourage IPM at all project sites. The program provides citizen education and outreach to help residents adopt environmentally sound practices for pesticides use in yards and gardens, including the use of “good” garden pests.

As part of the Pesticide Education and Control Amendment Act of 2012 (PECA), District agencies are required to implement an IPM policy. The final rulemaking to implement the provisions of the PECA and amend and reorganize the District's existing pesticide regulations was published in the D.C. Register at 62 DCR 3340 (March 20, 2015). The revised Pesticide Schedule of Fines was published in the D.C. Register at 62 DCR 14069 (October 30, 2015). Pesticides cannot be applied to public rights-of-way, parks, District-occupied buildings, or child-occupied facilities if the location does not have an IPM program approved by DOEE.

DOEE’s Pesticide Management Program trains commercial applicators in the legal and safe application of pesticides and herbicides. Commercial applicators must receive a certification through the program to legally apply pesticides and herbicides in the District. DOEE is responsible for developing, updating, and administering examinations to qualified applicants for certification as pesticide applicators in The District. There are currently 400 certified applicators working in the District.

DOEE is also responsible for regulating worker protection, ensuring compliance with both District and Federal laws, and inspections of workplaces, worksites, and retail establishments

that sell, store, or use pesticides within the District. DOEE conducts inspections of retailers, wholesalers, and distributors of pesticide products that are not registered in the District or with the EPA, suspected of being shipped or distributed in violation of the District Pesticide Operations Act, displayed for sale in a manner as to endanger human health, or have been suspended or cancelled by the EPA.

District waters are tested regularly for the presence of pesticides, herbicides, and fertilizers. Pesticides are monitored as part of DOEE's overall wet and dry weather stormwater sampling and analysis program. In previous years, pesticides have been detected in some of the samples collected from outfalls. When pesticides are found in monitoring samples, the Illicit Discharge Detection and Elimination (IDDE) Program is notified and an inspection is conducted.

The District continues to incentivize native plants and native gardening. DOEE's RiverSmart Homes Program educates residents about the benefits of native plants and BayScaping and provides incentives for the planting of native species. The Cooperative Plant Management Task Force, established by the 2013 Mayor's Order 2013-209, the Sustainable DC Transformation Order, is charged with developing standards for identifying, planting, and cultivating native plants on District government properties. The task force issued the Cooperative Plant Management Task Force Final Report which includes standards for identifying, planting, and cultivating native plants on District government properties. DOEE is in the process of developing a comprehensive Pollinator Protection Plan for the District that will identify protection methods, including native planting, and address pesticide use. More information about this plan will be included in future annual reports. To view more information about DOEE's pollinator garden program go to <http://doee.dc.gov/service/pollinator-gardening>.

4.3.4.2 District Coordination

District agency staff coordinate on the use of pesticides. DGS maintains a plan to incorporate IPM on school properties. The Healthy Schools Act of 2010 requires the establishment of IPM in the DC Public Schools, under Title V, Sec. 501 (a)(1)(D). Implementation of this law requires coordination between DGS, DC Public Schools (DCPS), and pest control specialists.

4.3.4.3 Partnership

The District regularly partners with outside organizations and jurisdictions to ensure pesticide and fertilizer use does not impact water quality. DOEE's RiverSmart Homes Program is a public-private partnership that provide financial assistance to help District property owners install green infrastructure. RiverSmart Homes encourages native plants and minimizing the use of herbicides, pesticides, and fertilizers that are typical in conventional landscaping. RiverSmart Homes has created a factsheet that describes the impact of fertilizer use on water quality and provides alternative options for home owners. This factsheet can be found at <http://doee.dc.gov/publication/riversmart-homes-bayscaping-flyer>.

Additionally, through the Metropolitan Washington Council of Governments and the Chesapeake Bay Program's Urban Stormwater Workgroup, the District collaborates with other organizations in the region to discuss programs and measures employed to effectively limit the use of pesticides and fertilizers.

4.3.4.4 Fertilizer Program

The Anacostia River Clean Up and Protection Fertilizer Act of 2012 went into effect on April 20, 2013. The District's Fertilizer Law outlines requirements for lawn care professionals on how, when, and where to apply fertilizer and the types of fertilizer they can use,

The legislation requires the development of a public education program that shall include the dissemination of information regarding nutrient pollution, soil testing, proper interpretation of fertilizer label instructions, the proper use of fertilizer application equipment, best management practices for fertilizer use in the urban landscape, the requirements of the legislation, and the effects of fertilizers on the Chesapeake Bay and its tributaries. In July 2016 DOEE mailed 360 one page factsheets to retailers and applicators working in the District. A copy of this factsheet and additional information about the law can be found at <http://doee.dc.gov/fertilizer>.

4.3.4.5 Priority Areas

The District's existing geographic information system (GIS) layers contain data that can be used to identify and prioritize potential target areas for addressing pesticide and fertilizer use. These areas include District parks, institutional areas (such as college and university campuses), and transportation corridors (such as railroads). DOEE has included a number of activities in the Revised SWMP that will address pesticide and fertilizer application in priority areas, including public property and child-occupied areas. These activities will help the District meet the requirements of local pesticide laws and Section 4.3.4.5 of the MS4 Permit.

4.3.4.6 Program Implementation

The above detailed implementation activities summarize and explain how the District is meeting the requirements of Section 4.3.4 of the Permit.

FY 2017 Goals: DOEE will work with relevant sister agencies to include IPM as part of their overall SWPPPs.

4.3.5 Storm Drain System Operation and Management and Solids and Floatables Reduction

As required by Section 4.3.5 of the MS4 Permit, the District continues to conduct routine catch basin cleaning and repair activities and floatables removal.

Catch Basin Cleaning and Outfall Repair

DC Water conducts the operation and maintenance of pipes and conduits carrying stormwater flow, (not differentiating between the two systems for maintenance purposes) and works to keep all catch basins clean.

FY 2016 catch basin cleaning and repair activities include the following:

- DC Water cleaned 26,394 catch basins across the District; 14,979 in the MS4
- DC Water repaired 393 catch basins across the District; 224 in the MS4.

Figure 11 shows the fourteen-year trend for the cleaning and repair of the District catch basins. The number of catch basins cleaned and repaired has remained relatively constant since FY 2004.

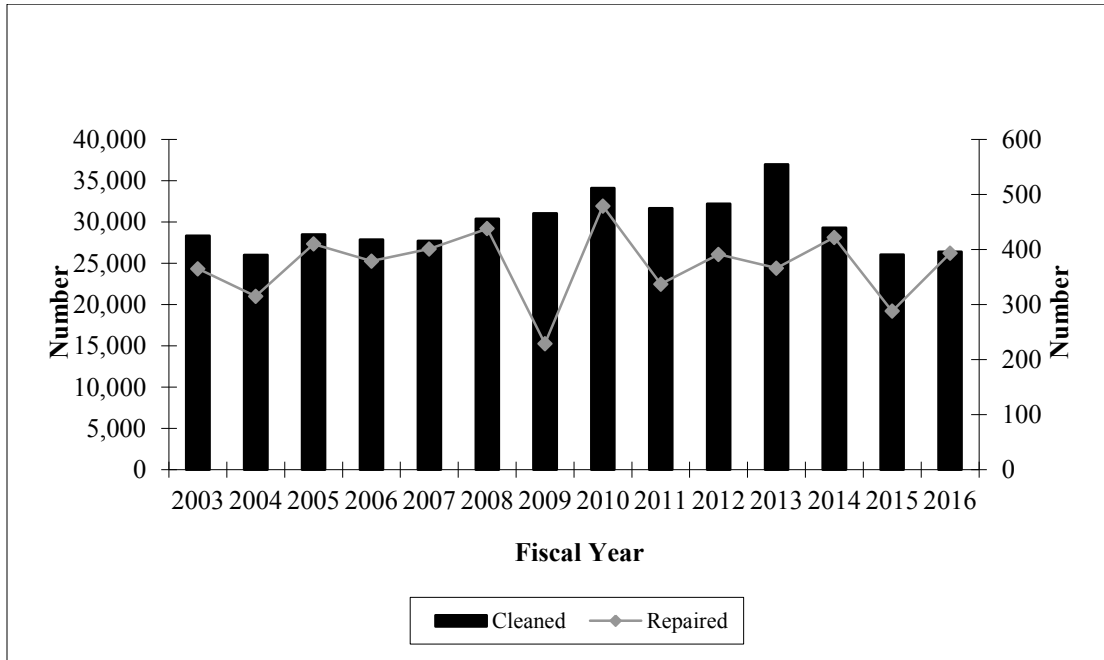


Figure 11 Number of Catch Basins Cleaned and Repaired in the District

As required by Sections 4.3.5.1 and 4.3.5.3 of the MS4 Permit, in July 2013 DOEE and DC Water submitted MS4 Reports on Optimal Catch Basin Cleaning, Inspection, and Repair and Outfall Repair Schedule to EPA Region III. These documents were posted to the DC Register for public comment and submitted to EPA for review and approval.

The District's Outfall Repair Schedule identified 101 outfalls in need of repair due to their potential to impact water quality. During the current permit term, DOEE repaired 51 outfalls while implementing numerous stream restoration projects, Table 17. DOEE anticipates that a performance requirement to repair an additional 50 outfalls will be incorporated into the next MS4 permit.

Table 17 Outfalls Repaired Through District Stream Restoration Projects

Stream Restoration Project	Number of Outfalls Repaired
Watts Branch	23
Milkhouse Ford	3
Park Drive	1
Soapstone Creek	1
Pope Branch	5
Alger Park	5
Nash Run	2
Springhouse Run	1
Linnean	1
Klinge Valley	9
Total	51

One of the main recommendations of the Catch Basin report was to develop a mobile field application for the District’s catch basin maintenance program. The goal of this application is to provide an asset management system for the District’s catch basins, track and report on the District’s catch basin maintenance operations, and collect and maintain data that can be used to inform program adjustments in the future. Since the submittal of the Catch Basin report, DC Water has developed this application and began utilizing it during FY 2016.

To view the Optimal Catch Basin Cleaning, Inspection, and Repair report go to <http://DOEE.dc.gov/draftcatchbasinreport>.

To view the Draft Outfall Repair Schedule report: <http://DOEE.dc.gov/draftoutfallreport>.

Floatables Reduction

DC Water continues to conduct the floatables reduction program utilizing skimmer boats on the Potomac and Anacostia Rivers. Activities to remove floatable debris and trash from the rivers as well as accumulated trash on river banks continue five days a week using skimmer boats and support boats. In FY 2016, DC Water removed 357 tons of debris. Since 2000, DC Water’s skimmer boats have removed a total of 9,123 tons of debris from the Anacostia River, Figure 12.

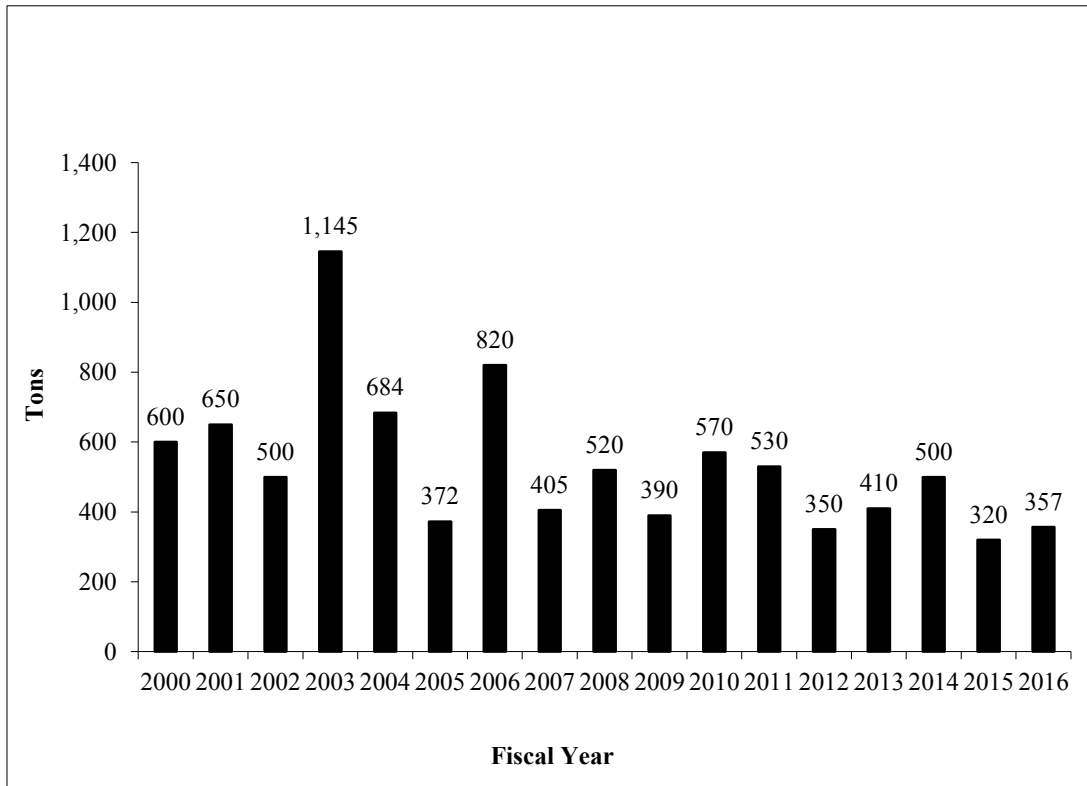


Figure 12 Floatables Removed from the Anacostia River

Trash TMDL Compliance

As required in Section 4.3.5.4 of the MS4 Permit, the District continues to comply with the Anacostia River Trash TMDL. Implementation activities can be found in Section 4.10.1 of this report.

FY 2017 Goals: DC Water will continue to conduct the floatables reduction program on the Potomac and Anacostia River. Catch basin cleaning and outfall repair activities will also continue.

4.3.6 Streets, Alleys, and Roadways

Street Sweeping

DPW is responsible for street sweeping activities in the District. DPW uses two basic methods to clean and sweep streets: mechanical street sweeping and litter vacuum personnel. These activities are complimented by truck crews that clean streets where the density of parked cars prohibits the effectiveness of mechanical cleaning.

Street sweepers are deployed to residential, industrial, and environmental hotspot areas, as well as the Central Business district and arterial/highway routes at or above the frequencies indicated

in Table 3 of the MS4 Permit. Table 18 contains DPW's historical street sweeping and debris collection record.

FY 2016 street sweeping accomplishments are:

- Night Sweeping on designated routes – 18,471 miles
- Highway miles swept – 8,167 miles
- Ward miles swept – 6,381 miles
- Inbound/Outbound miles swept – 2,146 miles
- Signed sweeping miles swept – 17,577 miles
- Total miles swept – 52,742 miles
- Total tons removed through street sweeping – 4,020

To view information about DPW's Street Sweeping Program: <http://dpw.dc.gov/page/street-and-alley-cleaning>.

Table 18 DPW Street Sweeping and Debris Collection Activities

Fiscal Year	Streets Swept (miles)	Alley Segments Swept	Number of Litter Receptacles Cleaned	Litter and Debris Collected (tons)
2001	34,000	8,751	4,000	3,400
2002	74,490	16,400	4,000	8,920
2003	102,181	41,238	4,050	9,516
2004	103,163	13,354	4,050	9,346
2005	91,649	20,897	4,050	7,755
2006	72,468	3,781	4,200	6,632
2007	68,189	5,944	4,324	6,388
2008	64,955	4,181	4,445	7,411
2009	62,972	3,550	4,445	7,883
2010	87,837	2,397	4,445	7,834
2011	80,489	2,842	4,600	7,872
2012	82,240	3,647	4,600	6,851
2013	88,705	5,543	5,000	6,509
2014	69,076	5,694	5,000	7,225
2015*	41,615	NR	8,110	4,471
2016*	52,742	NR	NR	4,020

*DPW has updated how street sweeping is tracked and recorded. Street sweeping routes and frequency have not changed and the difference in sweeping mileage is due to tracking improvements.

Snow and Ice Removal

As required by the MS4 Permit, the District implements a snow removal and deicing program to ensure safe passage on its roadways using deicing materials that cause the minimum impact practicable to the storm water runoff from snow and ice that enters the MS4.

The District’s Snow Team (DPW and DDOT) utilized several BMPs in FY 2016, including utilizing anti-icing materials, made out of a beet juice-brine mixture (Geo-melt), along with deicers, primarily road salt, which help to minimize application of salt and other chemicals on District roadways. Spreaders on Snow Fleet vehicles are calibrated annually and checked prior to deployment as part of the pre-trip inspection that all plow operators must complete before heading out to their routes. The District’s Snow team also utilizes several snow-centric computer applications to further minimize application of salts and prevent duplicative applications:

- Snow AVL tracks DC snow fleet locations and snow removal activities and progress statistics in real time;
- Storm Trak tracks operations cost management, including tracking roadway complaints, assigned routes, the use of contractors and contract equipment, and other activities;
- NHS One-Map is used to track National Highway System contractor vehicles and depict roadway conditions on a District map.

The District operates five salt storage facilities, Table 19. All of the District’s main salt storage areas store salt indoors in salt domes and brine is stored in tanks that have secondary containment. Mandatory annual training of salt dome and snow plow operators ensure they understand the proper amount of salt or brine to load vehicles with and how much to apply. In FY 2016, DOEE conducted six trainings on pollution prevention for Snow and Ice Removal Operations in coordination with DPW and DDOT. These trainings reached 248 light and heavy plow and salt dome operators.

Table 19 Salt Storage Facilities

Salt Domes	Area	Capacity
Brentwood Road and W Street, NE	CSO	13,000 tons
113 Potomac Avenue, SW	MS4	5,000 tons
3890 Fort Drive, NW	MS4	4,500 tons
401 Farragut Street, NE	MS4	18,000 tons
3400 Water Street, NW (under Key Bridge)	MS4	100 tons

The District has studied the use of pervious surfaces that require less use of deicing materials. There are many studies that have examined the performance of permeable pavement compared with conventional pavement in cold climates. The general consensus is that pervious materials show less buildup of ice and snow because of their ability to infiltrate precipitation that falls on it. The District used this research in its decision to implement the use of permeable pavement in the RiverSmart Programs.

As required by Section 4.3.6.4 of the MS4 Permit, the District continues to maintain a program that prevents excessive quantities of snow and ice from entering District water bodies.

FY 2016 accomplishments include the following:

- DOEE worked with the District Snow Team in FY 2016 to incorporate pollution prevention into their snow and ice response plan.
- DOEE worked with the District Snow Team in January 2016 to ensure snow storage practices at the RFK Stadium (Lot 7 parking lot) protected Kingman Lake and the Anacostia River from polluted runoff. DOEE activated its emergency response team, installed stormwater control measures including booms at outfall points, and had inspectors visit each snow storage site.
- Beginning August 2016 DOEE was officially included as a member of the District Snow Team for the 2016-2017 snow season, where it has played an active role in ensuring pollution prevention is incorporated into the Snow Plan. DOEE is assisting DPW in identifying new snow storage areas that have better stormwater controls with the hope of storing snow in CSS areas.
- DOEE launched a website that outlines ice removal best practices and links to EPA's Safer Choices website (<http://doee.dc.gov/service/ice-removal-best-practices>).

FY 2017 Goals: DPW is continuing to expand the use of liquid applications, the Snow Plow Driver Training Program, and the use of Automated Vehicle Location (AVL) technology to better manage District resources. DOEE will continue to provide recommendations for District snow and ice removal operations, and incorporate presentations on Stormwater Pollution Prevention into yearly, mandatory training of light and heavy plow operators held by DPW and DDOT. The District will begin implementation of DGS Stormwater Application to better track stormwater BMP management and implementation and ensure facility employees are trained on how to use it. Additionally, the District will continue to report on the implementation of permeable materials in future Annual Reports.

4.3.7 Infrastructure Maintenance / Pollution Source Control Maintenance

DOEE continues to implement an operation and maintenance program at all municipal facilities that promotes pollution prevention and critical source control.

DOEE maintains a database of industrial, commercial, institutional, municipal, and federal facilities within the MS4 area. In FY 2016 DOEE identified 157 industrial, commercial and institutional facilities within the District's MS4. Included in this critical source inventory are 11 individual NPDES permit holders and 28 municipal facilities. DOEE conducts a minimum of two inspections of each municipal facility within the MS4 permit term to ensure compliance with maintenance standards, best management practices, the facility SWPPP and self-inspection and monitoring requirements, and proper record keeping. At each site, DOEE inspects control strategies for protecting water quality, including 'good housekeeping' practices, containment structures, pretreatment devices, sediment and erosion control devices, and other BMPs. Inspectors evaluate the effectiveness of the control strategies and document deficiencies for follow-up using standard forms based on facility type.

DOEE is working with DGS to create a stormwater management application to better manage a regulatory compliance program that will reduce pollutant discharges from industrial, automotive, and other types of District facilities to receiving waters. The stormwater application will use cost-effective cloud computing, will synchronize with DGS’s Salesforce Database and DOEE’s Stormwater Database, and will assist in the development, implementation, and revision of facility stormwater pollution prevention plans. The Stormwater Application DGS is developing will result in a customizable web-enabled application of site-specific information on the design, location, and maintenance of structural stormwater BMPs and non-structural, “good housekeeping” compliance BMPs. In doing so, the Stormwater Application will assist facilities with the regulatory requirements for tracking and reporting that all involved stakeholders can access, edit, and communicate using a desktop computer or mobile device. This will strengthen cooperation and communication among relevant District agencies (such as DOEE, the District DDOT and DPW) for stormwater management-related activities.

4.3.8 Public Industrial Activities Management / Municipal and Hazardous Facilities

There is one District-owned facility with an individual NPDES permit. However, there are several non-District owned facilities within the District that have individual permits, Table 20.

Table 20 Facilities with Individual Permits

NPDES ID	Facility Name	Street Address
DCR053022	AIRCRAFT SERVICE INTERNATIONAL, INC.	BASE 537
DCR053021	AMERICAN AIRLINES	RONALD REAGAN WASHINGTON NATIONAL AIRPORT
DCR053030	AMTRAK IVY CITY YARD	1401 W STREET, N. E.
DCR053037	BENNING YARD	225 33RD STREET SE
DCR053008	BLADENSBURG BUS FACILITY	2250 AND 2251 26TH STREET NE
DCR053010	DISTRICT YACHT CLUB	1409 WATER STREET
DCR053042	EAST POTOMAC MAINTENANCE FACILITY	1000 OHIO DRIVE SW
DCR053015	FEDEX WASA	1501 ECKINGTON PLACE, NE
DCR053043	FIRST VEHICLE SERVICES	2175 WEST VIRGINIA AVENUE N.E.
DCR053011	JOINT BASE ANACOSTIA-BOLLING	20 MACDILL BLVD

NPDES ID	Facility Name	Street Address
DCR053025	NATIONAL MUSEUM OF AFRICAN AMERICAN HISTORY & CULTURE	1400 CONSTITUTION AVENUE
DCR053019	RECYCLED AGGREGATES - DC ROCK PLANT	1721 SOUTH CAPITOL STREET SW
DCR050001	ROCK CREEK PARK - MAINTENANCE YARD	5000 GLOVER ROAD NW
DCR053031	RONALD REAGAN NATIONAL AIRPORT	RONALD REAGAN NATIONAL AIRPORT TERMINAL B
DCR053014	RONALD REAGAN WASHINGTON NATIONAL AIRPORT	1 AVIATION CIRCLE
DCR053020	RONALD REAGAN WASHINGTON NATIONAL AIRPORT	11 AIR CARGO ROAD
DCR053023	RONALD REAGAN WASHINGTON NATIONAL AIRPORT	1 GENERAL AVIATION TERMINAL HANGER 7
DCR053040	RONALD REAGAN WASHINGTON NATIONAL AIRPORT	1 AVIATION CIRCLE
DCR053007	SHEPHERD PARKWAY BUS DIVISION	2 DC VILLAGE LANE SW
DCR053013	SOUTHWEST AIRLINES CO.	1 AVIATION CIRCLE, TERMINAL A
DCR053016	SUPER SALVAGE, INC.	1711 1ST STREET SW
DCR053024	SUPERIOR CONCRETE MATERIALS INC.	1601 SOUTH CAPITOL STREET SW
DCR053012	SWISSPORT USA	1 AVIATION CIRCLE AIR CANADA TERMINAL 1
DCR053041	THE WASHINGTON MARINA CO.	1300 MAINE AVE SW

NPDES ID	Facility Name	Street Address
DCR053035	UNITED AIRLINES, INC. DCA	RR WASHINGTON REAGAN NATIONAL AIRPORT
DCR053018	VIRGINIA CONCRETE - SWDC	2 S STREET
DCR053009	WESTERN BUS DIVISION	5230 WISCONSIN AVENUE NW

District Municipal facilities have all previously been covered and inspected under the District’s MS4 Permit. Some of these are required to obtain coverage under EPA’s new Multi Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP), Table 21.

Table 21 Status of District Facilities MSGP Coverage

Agency	Permit Status	Operator	Location	Address
Metropolitan Police Department	Approved	First Vehicle Services	MPD Maintenance Yard	2175 W. Virginia Ave. NE
Department of Public Works	Pending	DPW	Adams Place Fueling Facility	2200 Adams Pl. NE
Department of Public Works	Pending	DPW	Fort Totten Fueling Facility	4902 John McCormack (Bates) Rd. NE
Department of Public Works	Pending	DPW	Idaho Ave Fleet Fueling Facility	3320 Idaho Ave. NW
Department of Public Works	Pending	DPW	6th District Fleet Fueling Facility (MPD)	100 42nd St. NE
Department of Public Works	Pending	DPW	Alabama Ave Fleet Fueling Facility	2455 Alabama Ave. NE
Department of Public Works	Pending	DPW	Harbor Patrol Fleet Fueling Facility	550 Water St. SW

FY 2017 Goals:

1. Ensure District facilities are in compliance with the new 2015 MSGP. This includes ensuring facilities understand and meet monitoring, recordkeeping, and other ongoing requirements of the MSGP.

2. DOEE will support DGS in creating a stormwater management application to assist District employees in capturing and tracking pollution prevention activities. The stormwater application will use cost-effective cloud computing and will interface with DGS’s Salesforce Database and DOEE’s Stormwater Database. The result will be a customizable tool, a web-enabled application linked to an online database of site-specific information on the design, location, and maintenance of structural BMPs and non-structural, “good housekeeping” compliance BMPs. The tool will assist facilities with regulatory requirements for tracking and reporting, and allow personnel to access, edit, and communicate information about facility BMPs using a desktop computer or mobile device. The information gathered in the database will be used in the development, implementation, and revision of facility SWPPPs.
3. DOEE will host employee training of relevant personnel at District facilities that need coverage under the MSGP. These trainings will review the impact of stormwater runoff and pollution, facility SWPPPs, and location and maintenance of on-site controls.
4. DOEE will continue to facilitate interagency collaboration and knowledge-building to ensure District facilities have access to and information on stormwater BMPs.

4.3.9 Emergency Procedures

The District did not conduct repairs of public service systems or infrastructure as part of any emergency circumstance that caused an upset of District Water Quality Standards. In FY 2016 there were no emergencies as defined by 40 C.F.R. 122.41(n). However, the District did respond to several IDDE emergencies as reported in Section 4.7.

FY 2017 Goals: The District will continue meet the requirements of Section 4.3.9 of the MS4 Permit.

4.3.10 Municipal Official Training

The District continues to implement a training program for District staff. Individuals who manage, investigate or work on stormwater practices regularly attend relevant trainings. Specifically, the District has taken significant steps to enhance its pollution prevention program since the current Permit was issued and has offered numerous targeted training sessions for municipal facility staff. Details of the trainings held in FY 2016 are found in Table 22.

Table 22 FY 2016 Stormwater Trainings

Training Date	Training Topic	Details and Intended Audience
10/1/2015	Plan Review	DOEE Plan Reviewers
10/3/2015	Pollution Prevention	Snow Plow Training- Light Plow Drivers
10/6/2015	SRC RSR Database	Public

Training Date	Training Topic	Details and Intended Audience
10/7/2015	Stormwater Database	Public
10/7/2015	Pollution Prevention	Snow Plow Training- Heavy Plow Drivers
10/10/2015	Pollution Prevention	Snow Plow Training- Light Plow Drivers
10/10/2015	Pollution Prevention	Snow Plow Training- Light Plow Drivers
10/15/2015	Plan Review	DOEE Plan Reviewers
10/20/2015	General Compliance	Public
10/22/2015	Green Area Ratio	Public
10/22/2015	Stormwater Database	Public
10/28/2015	Pollution Prevention	DPW Facilities Training- Impound Lots
10/29/2015	Plan Review	DOEE Plan Reviewers
11/5/2015	Stormwater Database	Public
11/10/2015	General Compliance	Public
11/12/2015	MEP Process	DOEE Plan Review Staff
11/19/2015	Stormwater Database	Public
12/3/2015	Stormwater Database	Public
12/9/2015	Pollution Prevention	Vehicle Wash Presentation
1/6/2016	Stormwater Database	Public
1/14/2016	General Compliance	Public
1/21/2016	MEP Process	DOEE Plan Review Staff
2/10/2016	Stormwater Database	Public

Training Date	Training Topic	Details and Intended Audience
2/18/2016	Specialized BMP Design	Public
2/18/2016	Plan Review	DOEE Plan Reviewers
2/25/2016	General Compliance	Public
3/1/2016	Stormwater Database	Public
3/3/2016	Plan Review	DOEE Plan Reviewers
3/10/2016	SRC RSR Database	Public
3/17/2016	Plan Review	DOEE Plan Reviewers
3/21/2016	Stormwater Database	Public
3/24/2016	Specialized BMP Design	Public
3/30/2016	General Compliance	Public
3/31/2016	Plan Review	DOEE Plan Reviewers
4/13/2016	Stormwater Database	Public
4/14/2016	Plan Review	DOEE Plan Reviewers
4/18/2016	GAR Guidebook Stakeholder Meeting	Public
4/19/2016	Specialized BMP Design	Public
4/20/2016	GAR Guidebook Stakeholder Meeting	Public
4/28/2016	SRC RSR Database	Public
4/28/2016	Plan Review	DOEE Plan Reviewers
5/4/2016	Stormwater Database	Public

Training Date	Training Topic	Details and Intended Audience
5/11/2016	General Compliance	Public
5/12/2016	Plan Review	DOEE Plan Reviewers
5/24/2016	Stormwater Database	Public
5/25/2016	Green Area Ratio	Public
5/25/2016	Pollution Prevention	MWEE for Custodians: River Tour for School Custodians
5/26/2016	Plan Review	DOEE Plan Reviewers
5/31/2016	Pollution Prevention	General Stormwater Issues and Stormwater Regulations
6/1/2016-8/30/2016	Stormwater	Green Zone Environmental Program (GZEP) Students
6/1/2016	SRC RSR Database	Public
6/9/2016	Plan Review	DOEE Plan Reviewers
6/23/2016	Stormwater Database	Public
6/23/2016	Plan Review	DOEE Plan Reviewers
6/29/2016	General Compliance	Public
7/7/2016	Plan Review	DOEE Plan Reviewers
7/14/2016	Stormwater Database	Public
7/19/2016	SRC RSR Database	Public
7/21/2016	Plan Review	DOEE Plan Reviewers
7/27/2016	Green Area Ratio	Public
8/2/2016	Stormwater Database	Public

Training Date	Training Topic	Details and Intended Audience
8/3/2016	General Compliance	Public
8/4/2016	Plan Review	DOEE Plan Reviewers
8/11/2016	Pollution Prevention	DPW Facilities Training- Stormwater Pollution Prevention
8/16/2016	SRC RSR Database	Public
8/25/2016	Stormwater Database	Public
9/1/2016	Plan Review	DOEE Plan Reviewers
9/17/2016	Pollution Prevention	Snow Plow Training- Heavy Plow Drivers
9/21/2016	Green Area Ratio	Public
9/24/2016	Pollution Prevention	Snow Plow Training- Heavy Plow Drivers
9/29/2016	Plan Review	DOEE Plan Reviewers
10/1/2016	Pollution Prevention	Snow Plow Training- Light Plow Drivers
10/8/2016	Pollution Prevention	Snow Plow Training- Heavy Plow Drivers

FY 2017 Goals: DOEE will continue to hold trainings for District employees on a variety of training topics.

4.4 Management of Commercial and Institutional Areas

As required by Section 4.4 of the MS4 Permit the District's inspection and enforcement program utilizes established policies and procedures to effectively limit and reduce the discharge of pollutants in stormwater from all industrial, commercial, institutional, municipal, and federal facilities within the MS4 area. These facilities are inspected a minimum of twice each permit term under DOEE's inspection and enforcement program and tracked via the Stormwater Database. The inspections of all MS4 facilities are conducted by trained DOEE staff. Control measures identified at these facilities are documented by inspectors and include: 'good housekeeping' practices, containment structures, pre-treatment devices, sediment and erosion control devices, and other large best management practices. During these inspections, the condition and effectiveness of the control measures are documented. If an inspection of an MS4 facility identifies an ineffective control measure or an imminent threat to water quality, DOEE inspectors require immediate corrective action through varying approaches: compliance assistance, site directive, notice of violation (NOV), and possibly notice of infraction (NOI).

Additionally, the District's Stormwater Management Guidebook provides the procedures for managing stormwater. The Stormwater Management Guidebook can be found at <http://DOEE.dc.gov/swguidebook>.

4.4.1 Inventory of Critical Sources and Source Controls

DOEE continues to maintain a database of critical sources of stormwater pollution within the MS4 area including; industrial, commercial, institutional, municipal, and federal facilities. Commercial and institutional facilities identified within this database include automotive repair facilities, automotive fueling stations, automotive wash facilities, dry cleaners, and other facilities deemed as sources of stormwater pollution. DOEE WQD identified 157 commercial and institutional critical sources stormwater pollution within the District's MS4 area during FY 2016. Included in this critical source inventory are 11 individual NPDES permit holders and 28 municipal facilities.

4.4.2 Inspection of Critical Sources

DOEE maintains an inspection and enforcement program to address sources of stormwater pollution within the MS4 area of the District. In FY 2016 DOEE inspected a total of 130 critical sources, and performed a total of 50 re-inspections of critical source facilities to provide compliance assistance. This does not include enforcement actions taken under the Illicit Discharge program listed below, or inspections of NPDES MSGP or individual permit holders. DOEE inspected 18 municipal facilities in FY 2016.

These inspections are documented with facility specific inspections forms and recorded in the MS4 Inspection Tracking Database. DOEE took appropriate enforcement actions to ensure

compliance with the District's MS4 Permit. The list of critical sources inspections is included in Attachment B.

All facilities on the critical source inventory are inspected at a minimum of twice per Permit term. During the inspections, control strategies for protecting water quality, including 'good housekeeping' practices, containment structures, pre-treatment devices, sediment and erosion control devices, and other BMPs are inspected and documented. The effectiveness of the control strategies is evaluated and deficiencies are documented for follow-up.

4.4.3 Compliance Assurance

DOEE inspects each facility identified on the critical source inventory at a minimum of twice each during the permit term. Inspectors document control measures identified at these facilities, including 'good housekeeping' practices; containment structures, pretreatment devices, sediment and erosion control devices, and other large BMPs. Inspectors also document the condition and effectiveness of these control measures.

FY 2017 Goals: The District will continue to inspect, track, and report on critical sources as required by the MS4 Permit.

4.5 Management of Industrial Facilities and Spill Prevention

4.5.1 Industrial Facilities Program

The District continues to implement a program to monitor and control pollutants from Industrial facilities within the MS4.

4.5.2 Industrial Facilities Database

DOEE maintains a database of industrial, commercial, institutional, municipal, and federal facilities within the MS4 area. The industrial facilities identified by the database covered under NPDES individual and general permits are inspected as part of DOEE's NPDES Inspection and Enforcement Program.

As part of the Inspection and Enforcement program WQD conducted Compliance Evaluation Inspections (CEI) of all individual NPDES permitted facilities within the District. A CEI is conducted to verify permittee compliance with regulations, permit conditions, applicable permit self-monitoring requirements, effluent limits, compliance schedules, and the current SWPPP. Additionally, the program reviews facility DMR's for compliance with established effluent limits and the District Water Quality Standards.

Industrial facilities identified by the MS4 facilities database and not covered under NPDES are inspected as part of the MS4 Inspection and Enforcement program. These facilities include, but are not limited to, industrial facilities subject to SARA, EPCRA Title III, and Resource Conservation and Recovery Act (RCRA) requirements. In the event either of the Inspection and Enforcement programs identifies a facility that requires coverage under a NPDES permit, recommendations regarding the facilities permit status are referred to EPA Region III.

In accordance with the MS4 Permit, the District tracks industrial facilities within the District that are subject to regulation under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Table 23. CERCLA status is not permanent, as the sites are cleaned up, they are moved off the active list. The list includes private and Federal sites.

Table 23 List of DC Sites with an EPA SEMS ID

SEMS EPA ID	SITE NAME	FEDERAL FACILITY
DCN000303738	24th Place Drums	N
DCN000306845	Aaron's Cleaners	N
DCN000306000	Ballou Senior High School	N
DCN000306864	Baptized Believers Church	N
DCN000306840	Belair Cleaners	N
DC5570024443	Bolling Air Force Base	Y
DCN000306846	Capital Cleaners	N
DCD981107477	Cassells Cleaners	N
DCD024224545	Century Dry Cleaners	N
DCN000305704	Diamond Ordnance Fuze Lab	N
DC8210021004	Fort McNair	Y
DCD981042179	French's Dry Cleaners	N
DCN000306664	Georgia Avenue Pce Site	N
DCN000306842	Goody Cleaners	N
DC8470090004	GSA - Southeast Federal Center	Y
DCSFN0305462	Kenilworth Park Landfill Site	N
DCN000306844	Leon's New System Dry Cleaners	N
DCN000306843	Long Brothers Cleaners	N
DCN000306847	Magic Cleaners	N
DC7120507432	National Arboretum	Y
DCD982566127	Naylor Valet Cleaners	N
DCD003254273	NPS - Anacostia Park Sections E & F	Y
DCN000305662	Poplar Point Nursery	Y
DCD983967951	Potomac Power Resources Benning Generating Station	N
DCN000306928	Smithsonian Institution - National Museum of Natural History	Y
DC9751305997	St. Elizabeth Hospital - West	N
DCN000306841	The Laundry Basket	N
DCN000306885	Unity Health Care Clinic - Water Contamination Site	N
DCN000306920	US Secret Service - Ariel Rios Bldg	N
DC4210021156	Walter Reed Army Medical Center	Y
DCD983971136	Washington D.C. Chemical Munitions Site (Spring Valley)	N
DCD077797793	Washington Gas Light Site	N
DC9170024310	Washington Navy Yard	Y
DCD982567414	Z Cleaners	N

Based on data extracted from the online EPA Superfund Enterprise Management System (SEMS) database on December 2016 (<https://www.epa.gov/enviro/sems-search>).

DOEE continues to conduct inspections to determine compliance with hazardous waste regulations. DOEE conducted inspections at RCRA Large Quantity Generator (LQG), Small Quantity Generator (SQG), and Conditionally Exempt Small Quantity Generator (CESQG) facilities. In FY 2016 there are 78 RCRA LQGs, 60 RCA SQGs, and 963 CEQGs.

FY 2016 inspections:

1. TSDs: 0 (inspected by EPA)
2. LQGs: 8
3. SQGs: 15
4. CESQGs: 54

4.5.3 On-Site Assistance

As required by Section 4.5.3 of the MS4 Permit the District continues to provide on-site assistance and inspections focused on the development of pollution prevention plans and permit compliance.

Over the past year DOEE has developed its pollution prevention program to clarify its goal and vision. As a result it has become recognized by District employees as a resource for pollution prevention assistance. Program needs and potential opportunities have been catalogued to help further guide program development in order to maximize impact and meet MS4 permit deliverables. A Pollution Prevention Outreach Plan has been developed that identifies education opportunities and outlines a comprehensive program that will reach District employees, businesses, and the public.

DOEE was awarded a two-year grant to provide onsite technical assistance, workshops, and a certification program that promotes pollution prevention at automotive repair shops in the District. The project will be piloted in FY 2017 and launched in FY 2018.

The program has done extensive outreach to District industrial facilities to provide compliance assistance and employee training. As part of this effort, DOEE has created a comprehensive list of District-owned facilities that identifies their discharge waters, describes the property and operations on site, and evaluates their likelihood of contributing to stormwater pollution. This list will be used to further target P2 outreach at District facilities. The P2 program works closely with DOEE inspectors to follow up with District facilities found to be in violation of stormwater regulations.

DOEE is also working with DGS to develop a P2 Database that will allow District employees to more effectively implement pollution prevention practices at municipal facilities. The P2 Database will result in quantifiable improvements through requiring facility staff to conduct frequent self-inspections and reporting through a web-enabled database; and by offering readily accessible information for each facility that includes details of BMPs, facility operations and

records of maintenance, and “good housekeeping” practices. The P2 database was conceptualized in FY 2016 and development is expected to start in FY 2017.

DOEE worked with a DGS contractor to develop a template SWPPP and 12 site-specific SWPPPs for District facilities that need MSGP coverage. SWPPPs were created for DPW, DDOT, OSSE, FEMS, MPD, and DGS. In addition DPW already had 23 SWPPPs that were developed in 2010 and updated in 2014. Of these 23 SWPPPs, 6 were updated in FY 2016 to address MSGP requirements.

2016 on-site assistance accomplishments include:

- 10 on-site visits to discuss SWPPP development and stormwater P2. Included visiting:
 - 1403 W St. NE – DDOT Street and Bridge Maintenance Facility
 - 414 Farragut St. NE – DDOT Street and Bridge Maintenance Facility (twice)
 - 1833 West Virginia Ave. NE – DPW fleet repair facilities (tire shop and mechanic facilities)
 - 1835 W. Virginia Ave. NE – DPW Main Campus Fleet Fueling Facility
 - 5001 Shepherd Parkway SW – DPW impound lot
 - 5001 Shepherd Parkway SW – MPD impound lot
 - 3200 Benning Road NE – DPW SWMA transfer station
 - 4901 John McCormack (Bates) Rd. NE – DPW SWMA Transfer Station (twice)
 - 4 DC Village SW – OSSE bus terminal
 - 550 Water St SW – MPD and FEMS dock and DPW fueling station
- Tour of five sites to determine storage locations for Emergency Debris Management Plan.
- Over 24 meetings with sister agencies to discuss the development and implementation of P2 measures, including gaining MSGP compliance. A total of roughly 36 hours of meetings.

4.5.4 Policies and Procedures

The District continues to refine and implement procedures to investigate facilities suspected of contributing pollutants to the MS4. DOEE enforcement procedures were revised and published in The Environmental Enforcement Guidelines on March 18, 2015.

4.5.5 Illicit Discharge and Spill Prevention

Information regarding the District’s Illicit Discharge and Improper Disposal Program implementation is found in Section 4.7 of this report.

4.5.6 Program Progress

The program implementation activities in Sections 4.5 of the Annual Report address the District’s requirements of Section 4.5.6 of the MS4 Permit.

FY 2017 Goals: The District will continue to implement the provisions of Section 4.5 of the MS4 Permit. Additionally, in FY 2016 SWPPPs will be updated or completed for applicable facilities.

4.6 Management of Construction Activities

4.6.1 Program Implementation

DOEE maintains a plan review and erosion control program for new construction, which coupled with a field inspection program, ensures compliance with the District erosion control regulations.

4.6.2 Review and Approval Process for Sediment and Erosion Control Plans

DOEE reviews construction and grading plans for stormwater management, erosion and sediment control, and flood plain management considerations. Figure 13 details the 16-year trend in plan review and approval.

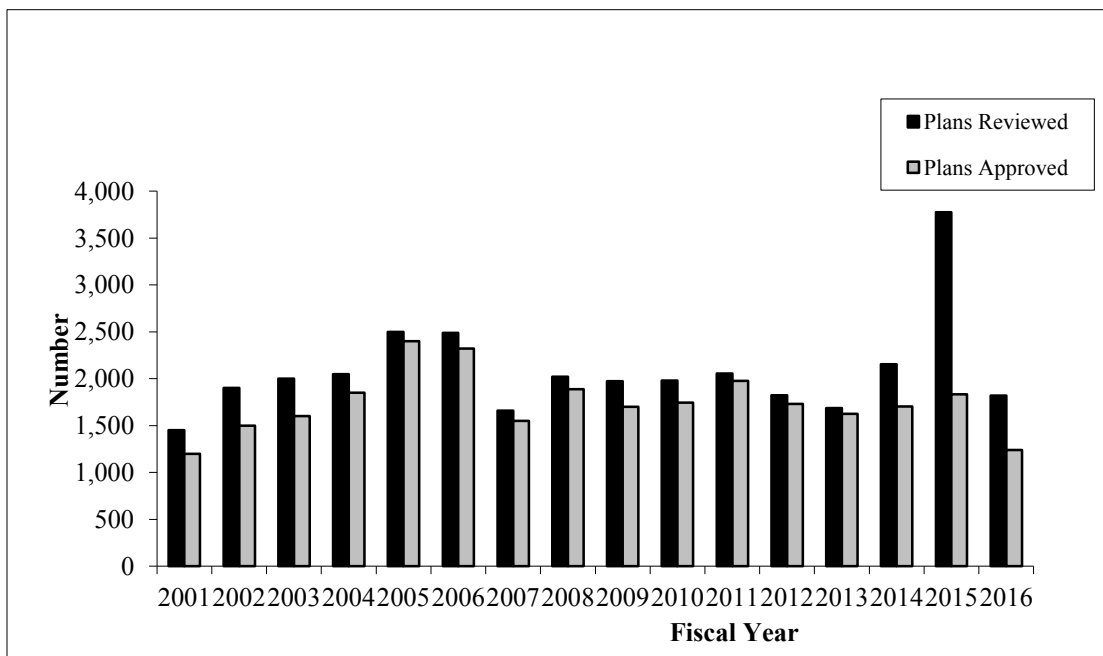


Figure 13 Total Number of Plans Reviewed and Total Number of Plans Approved

In FY 2016, DOEE accomplished the following:

- Reviewed 144 GAR plans and approved 93 plans.
- Reviewed 1,672 Erosion and Sediment Control Plans and approved 1,087.
- Reviewed 207 Stormwater Management Plans and approved 152.

4.6.3 Inspection and Enforcement Procedures

The District continues to implement existing inspection and enforcement procedures. The District's procedures for erosion and sediment control inspections have been previously submitted to the EPA and can be found in Attachment H of the 2014 Annual Report.

All District erosion and sediment control inspectors have been trained on the updated procedures and fines, as well as receiving training on other current topics and best practices regarding soil erosion and sediment control.

DOEE's construction site inspection program meets the required inspection frequency specified in Section 4.6.3.1-3 of the MS4 Permit. DOEE inspectors are authorized to conduct on-site inspections for all stormwater management facility construction in the District. The building permit holder is required to contact DOEE's Inspection and Enforcement Branch 24 hours before beginning construction of the stormwater management facility. The first step in all stormwater management facility construction inspections is a preconstruction meeting, where inspectors are required to review the SWMP with the owner/agent of the stormwater management facility. Inspections are performed at different stages of construction as outlined in the stormwater narrative of the approved SWMP and as specified in the specific Stormwater Management Facility Construction Report. A final inspection is performed upon completion of the stormwater management facility. The report indicates the due date of the As-Built plan of the completed stormwater management facility. A Final Approval Notice is issued to the owner/agent after receipt and approval of the As-built.

4.6.4 Erosion and Sediment Control Enforcement

As required by Section 4.6.4 of the MS4 Permit the District is providing a listing of all violations and enforcement actions, see Attachment C. Figure 14 shows 16 years of enforcement actions in the construction inspection program.

In FY 2016, the District accomplished the following:

- Conducted 1,061 inspections at construction sites for enforcement of stormwater management regulations
- Conducted 3,351 inspections at construction sites for enforcement of erosion and sediment control
- Issued 163 enforcement actions, including stop work orders and civil infractions for erosion and sediment control

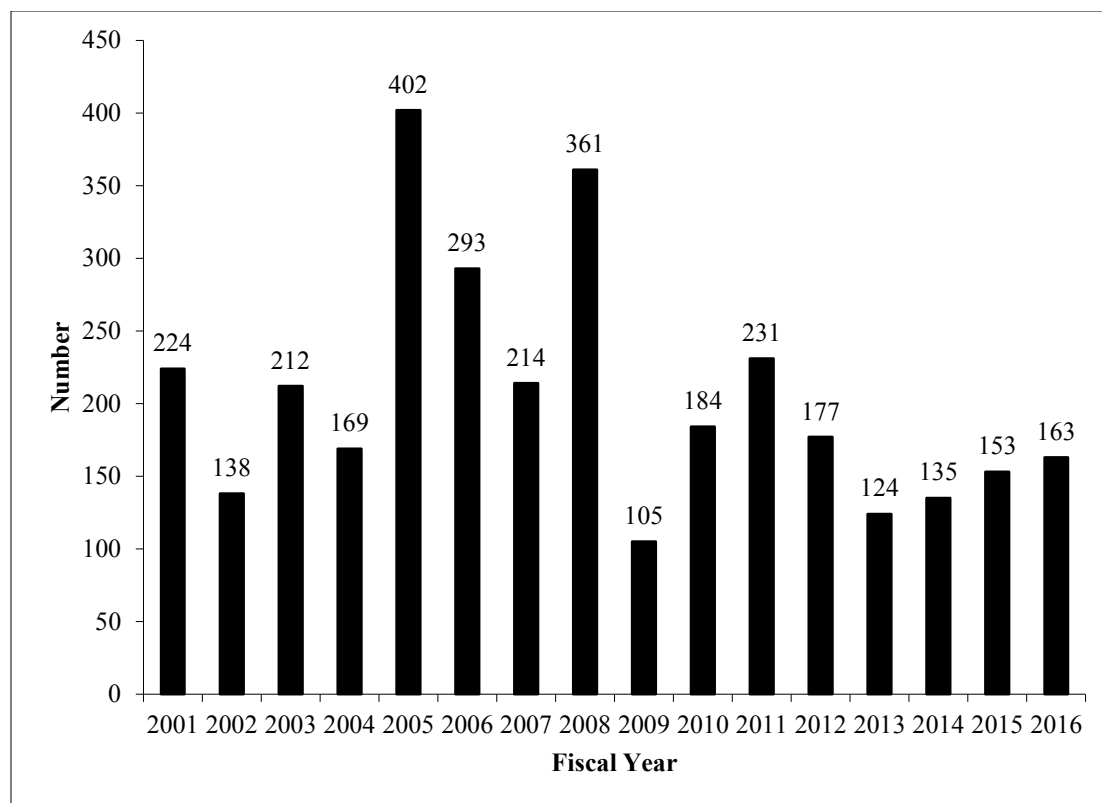


Figure 14 Historical Record of Enforcement Actions

The District has a new BMP tracking database that addresses the recordkeeping, paperwork, and data management requirement of the MS4 Permit. This database tracks compliance with the District's updated stormwater management regulations, including the construction and ongoing maintenance of BMPs.

4.6.5 Education and Outreach for Construction Site Operators

Educational training and compliance assistance for construction site operators is conducted during the site inspection process, as required by Section 4.6.5 of the MS4 Permit. This training includes distribution of the District's 2013 Stormwater Management Guidebooks and addresses particular needs and questions of the operators.

4.6.6 Progress in the Construction Program

The accomplishments of the Inspection and Enforcement Program demonstrate the effectiveness of the Program and meet the requirements of Section 4.6.6 of the MS4 Permit. The District is performing multiple rounds of inspections, identifying violations, following up with sites as appropriate to ensure violations are addressed, and imposing penalties as appropriate. Since 1988, the District has required and enforced stringent erosion and sediment control measures for projects that disturb more than 50 square feet of earth, which significantly exceeds the Permit requirement to enforce controls on projects greater than 5,000 square feet. Regulation of construction sites prevents the acceleration of soil erosion and sedimentation, which reduces total

suspended solids (TSS) and turbidity in District waters and reduces the amount of pollutants that adhere to the soil entering the waters. Dewatering practices at construction sites prevent additional pollutants, including toxics, from entering the District's waters. As required by EPA, regulated projects in the District must have SWPPPs that "identify all potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges from the construction site." SWPPPs and 'good housekeeping' practices at construction sites further reduce the amount of pollutants that may be discharged to District waters. Additionally, the District has removed the "waivers and exemption" provision that previously existed in its regulations at 21 DCMR § 528.

FY 2017 Goals: The District will continue to review and approve SWM plans and to provide staff refresher training to continually improve efficiency for review and provision of technical assistance. The District will continue to provide educational materials to construction site operators and to enforce the inspection procedure guidelines.

The District will continue inspections of commercial, residential, and road construction projects for the maintenance and implementation of erosion control devices and stormwater retention BMPs. DOEE will continue to track SWM facilities inspected in the Stormwater Database system.

4.7 Management of Illicit Discharges and Improper Disposal

4.7.1 Illicit Discharges Detection and Elimination Program

As required by Section 4.7.1 a-i of the MS4 Permit the District maintains an Illicit Discharge Detection and Elimination Program (IDDE) designed to detect and eliminate illicit discharges within the District. DOEE WQD, with the support of DC Water and DPW, investigates and conducts enforcement actions in accordance with the District's MS4 permit, the District's Water Pollution Control Act and the Districts Surface Water Quality Standards 21 DCMR § 1100 *et seq.*

The program also provides assistance to first responders, including DC FEMS, MPD, HSEMA, and the US Coast Guard in environmental emergencies. Reports or notifications from these agencies are routed to the DOEE Chief of Emergency Operations. Incidents potentially affecting the MS4 or District water quality are then referred to the WQD Inspection and Enforcement Branch for assistance. Those incidents referred to WQD through DOEE Emergency Operations are considered "emergency responses" and are designated and recorded as such.

In FY 2016 DOEE responded to a total of 84 illicit discharge reports associated with a discharge, spill, or release of pollutants to the MS4 or District Waters. As part of DOEEs process of seeing each incident through to completion, a total of 51 follow up inspections were conducted. In FY 2016 a total of 11 NOIs and 4 Administrative Orders were issued. A listing of DOEE IDDE investigations is included in Attachment D.

DOEE's enforcement procedures are addressed in *The Environmental Enforcement Guidelines*. This document details how enforcement actions, such as notices of violation, notices of infraction, and stop work orders are issued and adjudicated. The strategies outlined in the manual

provide the standard operating procedures for inspection and enforcement efforts within the District.

Field screening procedures consist of dry and wet weather monitoring. Once general geographic priority areas have been determined, DOEE conducts dry weather surveys through visual observations of outfalls to identify non-stormwater flows. Because illicit discharges are often intermittent, DOEE inspectors check for discharges multiple times in a given location, particularly in priority locations. DOEE reviews the collected screening data to discern any spatial or temporal patterns that may assist the program in prioritizing sewersheds for additional regulatory, educational, or structural pollution controls. Illicit discharges are also identified through routine facility inspections.

The District provides personnel with training on spill prevention and response as part of the larger Pollution Prevention Program, as well as during compliance assistance provided by the IDDE inspection staff.

Outfall Inventory

DOEE continues to refine an inventory of outfalls within the District, Table 24.

Table 24 MS4 Outfalls Identified by Watershed

Watershed	Number of Outfalls
Anacostia River	191
Potomac River	209
Rock Creek	170
Total	570

4.7.2 Soils and Floatables Program

As required by Section 4.7.2 and 4.3.5 the District maintains a solids and floatables program. Information about the District’s floatables program is found in Section 4.3.5 of this report.

4.7.3 Proper Disposal of Household Waste

As required by Section 4.7.3 the District continues to implement the prohibition against the disposal of used motor fluids, household hazardous waste, leaf and grass clippings, and animal waste into the storm sewer. Each of these programs are readily available and information can be found on the DPW and DOEE websites.

- Household hazardous waste: <http://dpw.dc.gov/service/household-hazardous-waste-e-cycling-document-shredding>
- Leaf Collection: <http://dpw.dc.gov/service/leaf-and-holiday-tree-collection>
- Pet Waste: <http://doee.dc.gov/petwaste>
- Auto Service Workshops: <http://doee.dc.gov/event/auto-service-workshop>
- Littering: <http://mpdc.dc.gov/page/littering-enforcement-help-keep-dc-clean>

Motor Vehicle Fluids and Auto Body Repair

DOEE hosted the sixth Auto Services Workshop on September 13, 2016. DOEE staff from-- Air Quality, Stormwater, Water Quality, Hazardous Waste, Enforcement, and Urban Sustainability Administration-- presented on the topics of compliance assistance and best practices. The OSHA consultant from the Department of Employment Services (DOES) also presented on the link between environment and health and safety. Twenty shops managers and technicians attended the workshop.

In FY 2016, the program also received a two-year grant to further provide assistance to District automotive repair shops, a critical source of stormwater pollution. The funding will be used to provide a unified, clear message on how to reduce pollution through source reduction. Businesses will be encouraged to develop and adopt source reduction plans for their businesses that will reduce their impact on the environment, save them money, and help keep their employees safe and healthy. The program includes four main elements: 1) onsite technical assistance visits; 2) twice-yearly newsletters, 3) twice-yearly workshops, and 4) a certification program. Over the next two years 43 automotive repair shops in the District will receive onsite technical assistance and 90 people will attend automotive workshops.

Pet Waste

For the last several years, DOEE has undertaken efforts to ensure the proper management and disposal of pet waste. Pet waste, particularly from dogs, contains pathogens that may be carried into the District's waterways through stormwater runoff. These pathogens also pose a threat to human and animal health.

As part of these efforts, DOEE posts street signs that inform pedestrians that it is illegal to improperly dispose of pet waste, Figure 15. DOEE partners with the District's Department of Transportation to hang these signs.

In FY 2016, 1,500 pet waste signs were posted and additional signs are planned to be posted in early FY 2017, see Table 25.

DOEE launched a pet waste bag pilot in the Edgewood neighborhood. Three pet waste bag dispensers were hung in the neighborhood and are being refilled regularly by the volunteer group, Friends of Edgewood (FOE). Plans are in place to expand the pilot with the help of FOE and the Ward 7 Business Improvement District to ten dispensers in early FY 2017.



Figure 15 Pet Waste Street Signs Posted in the District

Table 25 Pet Waste Sign Locations

Location	Number of Signs Installed
Ward 1	133
Ward 2	49
Ward 3	37
Ward 4	205
Ward 5	322
Ward 6	230
Ward 7	263
Ward 8	261
Total	1,500

Household Hazardous Waste

DPW continues to provide household hazardous waste (HHW) collection. During FY 2016, DPW operated monthly HHW drop-off sites at the Ft. Totten Transfer Station. Residents are able to bring their HHW materials and unwanted electronics for proper disposal. Details of the FY 2016 HHW Collections can be found in Attachment E.

FY 2016 DPW HHW collection accomplishments included:

- Collected 22,890 total gallons of HHW
- Collected 22,520 linear feet of HHW

Leaf Collection

In FY 2016, DPW continued with seasonal leaf and holiday tree collection. During leaf collection season DPW collects leaves at least twice from each residential neighborhood by “vacuuming” loose leaves residents rake into curbside tree boxes. Loose leaves are sent for composting. Figure 16 shows the historical record of leaf collection data.

FY 2016 accomplishments include:

- Distributed 38,490 Leaf Collection Schedules to District residents
- Collected 233 tons of holiday trees
- Collected 7,746 tons of leaves

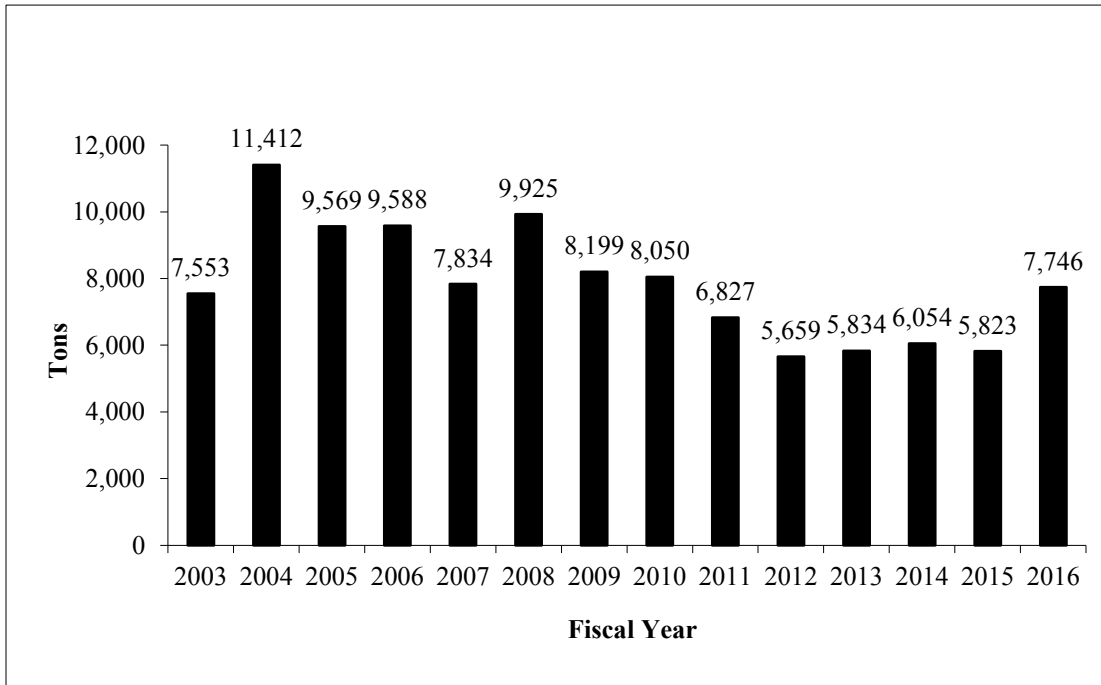


Figure 16 Leaf Collection Trend

Littering and Illegal Dumping Enforcement

DPW’s Solid Waste Education and Enforcement Program (SWEEP) seeks to maintain clean private and public spaces by investigating illegal dumping complaints, overgrown lots, trash can litter and overflow, and other sanitation violations. To view information on DPW SWEEP program: <http://dpw.dc.gov/service/solid-waste-education-and-enforcement-sweep>.

On September 1, 2014, MPD launched citywide enforcement of the District of Columbia’s anti-littering laws, allowing officers to issue \$75 Notices of Violation (NOV) or make an arrest of any pedestrian observed littering. MPD officers continue to issue \$100 traffic tickets to the driver of any vehicle where an officer observes either the driver or any passenger toss trash of any kind onto someone else’s private property or onto any public space, such as streets, alleys, or sidewalks. To view more information about MPD’s littering enforcement program: <http://mpdc.dc.gov/page/littering-enforcement-help-keep-dc-clean>.

FY 2016 littering and illegal dumping accomplishments include:

- DPW received 6,351 requests for SWEEP action
- DPW responded to 6351 SWEEP requests
- DPW answered 4,934 SWEEP requests within 5 days
- DPW received 4,800 requests for SWEEP action for illegal dumping
- MPD issued 63 tickets for littering from a vehicle
- MPS issued 44 NOVs for littering

4.7.4 Coal Tar Ban Enforcement

As required by Section 4.7.5 of the MS4 Permit the District continues to enforce its prohibition on the sale, use, and permitting of coal tar based pavement products. The coal tar ban helps to protect human health and the environment by reducing the amount of toxic polycyclic aromatic hydrocarbons (PAHs) in our communities and environment. Rainwater washes PAH-containing sealant particles and dust down storm drains and into our local streams and rivers, threatening aquatic life in the Anacostia and Potomac Rivers and the Chesapeake Bay.

FY 2016 Coal Tar Program accomplishments include:

- Conducted 60 inspections that were all compliant

DOEE continues to maintain an online tip line for citizens to report properties they suspect are in violation of the District's ban of coal tar pavement product. In addition, DOEE staff uses GIS remote sensing technology to identify dark-color paved areas for inspections.

To view information on the District's coal tar ban: <http://doee.dc.gov/coaltar>.

4.7.5 Anacostia Clean Up and Protection Act Enforcement

The District continues to implement the Anacostia Clean Up and Protection Act of 2009 (Bag Law).

The Bag Law is working to keep trash out of District water bodies by incentivizing residents to use reusable bags and reduce consumption of disposable bags. Also, funds from the disposable bag fee are funding important projects, including maintenance of trash traps, stream restoration, reusable bag distribution, and environmental education.

FY 2016 Bag Law accomplishments include:

- Performed 572 total inspections
- Issued 129 NOVs
- Issued 43 NOIs

DOEE continues to solicit tips from the public about potential Bag Law violations. Beginning in FY 2015, residents were able to report Bag Law violations through the citywide 311 website and smartphone application. DOEE received two tips via 311 in FY 2016.

To view information about the Bag Law: <https://doee.dc.gov/bags>.

4.7.6 Foam Ban

The Sustainable DC Omnibus Amendment Act of 2014 bans the use of food service products made of expanded polystyrene, commonly known as Styrofoam™. The ban began on January 1, 2016 and applies to all District businesses and organizations that serve food. The law also requires these regulated food entities to switch to recyclable and compostable food serviceware products beginning January 1, 2017. DOEE's Stormwater Management Division is charged with implementing and enforcing this new law.

Foam is easily blown by wind or washed by rain into storm drains and waterbodies. As a result, foam litter is one of the most common types of trash found in the Anacostia River. In addition to being unsightly, toxic chemicals stick to the surface of foam particles. Birds, fish, and other wildlife may ingest the foam particles, causing the polystyrene and other toxins to enter the food chain. Once in the food chain, these chemicals may impact human health.

DOEE conducted extensive outreach in the months prior to January 2016 in order to prepare regulated entities for the ban. DOEE staff organized an extensive four-month door-to-door outreach campaign along the busiest corridors across all eight wards of the city, speaking with businesses to remind them of the upcoming ban. Flyers and postcards with information on the ban were mailed out to over 4,000 regulated entities. Once the ban took effect in January 2016, DOEE began enforcement, initially focusing on providing compliance assistance and issuing warnings, before issuing fines to regulated entities that continue to distribute foam products.

FY 2016 Foam Ban Program accomplishments include:

- Performed 202 total inspections
- Issued 40 NOVs
- Issued 5 NOIs

DOEE started soliciting tips from the public about potential Foam Ban violations. Beginning in FY 2016, residents were able to report Foam Ban violations through the citywide 311 website and smartphone application. DOEE received 21 tips via 311 in FY 2016.

To view information on the District's foam ban: <http://doee.dc.gov/foam>

FY 2017 Goals:

1. The District will continue to investigate illegal dumping complaints, overgrown lots, trash can litter, and other sanitation violations.
2. The District will continue the program to detect illicit discharges, and to prevent improper disposal into the storm sewer system. DOEE personnel will continue to investigate potential illicit discharges in response to reports by citizens or government personnel.
3. DOEE will purchase and install additional pet waste street signs.
4. DOEE will continue coal tar ban and bag law enforcement efforts.
5. The District will strive to increase the number of citizens participating in the HHW and leaf collection programs through public education and the continuation of HHW collection at a transfer station on a monthly basis.

4.8 Flood Control Projects

The District of Columbia adopted the Flood Insurance Rate Maps (FIRM), issued by the Federal Emergency Management Agency (FEMA), on September 27, 2010. There have been no major changes in floodplains areas since the effective 2010 FIRM. After a major FIRM revision, for example for the area behind the Potomac Park Levee System after the completion and certification of the 17th Street levee construction, DOEE will update the impervious surface analysis of floodplains in the District, a requirement of Section 4.8.1 of the MS4 Permit.

Review in Compliance with the District's Flood Hazard Rules:

From October 1, 2015 to September 30, 2016, the following tasks were accomplished:

1. Flood Zone Determination:

196 flood zone determinations were processed for various developers as part of the permitting process by DOEE review engineers co-located at the satellite office in the Department of Consumer and Regulatory Affairs (DCRA).

2. Review of Environmental Impact Screening Forms for DC Flood Hazard Rules (20 DCMR, Chapter 31) Compliance:

22 Environmental Impact Screening Forms were reviewed and 5 were approved for compliance with the District's Flood Hazard Rules (20 DCMR, Chapter 31), and the District's Environmental Policy Act (DC Law 8-36).

3. Review of Erosion & Sediment Control, Stormwater Management and Floodplain Management Plans for 21 DCMR, Chapter 5 Compliance:

6,387 Erosion & Sediment Control (ESC), Stormwater Management (SWM) and Floodplain Management (FPM) Plans were reviewed and approved for compliance with the District's Flood Hazard Rules (20 DCMR, Chapter 31).

DC Flood Risk Management

DC Silver Jackets is an interagency team that leverages resources to identify and implement comprehensive, resilient, and sustainable solutions to reduce flood risk around the District and to assist local communities.

DC Silver Jackets was formalized in 2014 through an interagency Memorandum of Understanding (MOU) currently signed by 12 federal and District agencies. DC Silver Jackets first began meeting in April of 2012 as the Potomac River Flood Coordination Group. DOEE is the lead agency for the District. The U.S. Army Corps of Engineers, Baltimore District and the National Park Service jointly lead the federal agencies.

DC Silver Jackets has established five task groups: Development of Flood Inundation Mapping/Stream Gauges; Flood Emergency Planning; Interior Flooding; Levee Certification and Accreditation; and Flood Risk Communication. Each task group has respective responsibilities that will aid in fulfilling the team's mission and goals. For more information about DC Silver Jackets: <http://silverjackets.nfrmp.us/State-Teams/Washington-DC>

In FY 2016 the DC Silver Jacket accomplished the following:

- DC Flood Table Top Exercise to test the effectiveness of the District's revised Flood Emergency Manual.
- DOEE hosted the DC Flood Risk Management Plan (DC FRAME) Stakeholders Meeting.
- DC Silver Jacket team meet on several occasions to coordinate efforts in flood risk management for the District, including improving flood monitoring, forecasting, and emergency response.
- DOEE hosted the 2016 DC Flood Summit
- DOEE took part in Congresswoman Norton's 'Assessing Flood Risk in DC' Briefing.

FY 2017 Goals: The flood control program will continue to review and track compliance with the District's Flood Hazard Rules. The program will also continue to participate in the DC Silver Jackets Team.

4.9 Public Education and Participation

The District continues to implement an education and outreach program that is targeted and will reduce or eliminate behaviors that will cause adverse stormwater impacts.

4.9.1 Education and Outreach

The District conducts public education activities related to stormwater pollution. These activities target:

- Teachers and students (RiverSmart Schools, DC Environmental Literacy Plan, District of Columbia Environmental Education Consortium, The Anacostia River Environmental Education Fair, Meaningful Watershed Education Experiences, boat tours)
- Businesses (Bag Law, Coal Tar, IDDE, foam ban, Pollution Prevention)
- District employees (2013 Stormwater Rule, Pollution Prevention, Stormwater Guidebook, IDDE)
- Homeowners and property managers (RiverSmart Homes, RiverSmart Communities, RiverSmart Washington, IDDE)
- Developers and engineers (2013 Stormwater Rule, Stormwater Guidebook, SRC)
- General public (RiverSmart, Storm drain markers, HHW, motor oil, boat tours)

More information about each of these programs is presented in Section 4.9.4 of the Annual Report.

4.9.2 Measurement of Impacts

As part of the Anti-Littering Campaign, AFF monitored the effectiveness of their campaign. From monitoring conducted between 2013 and 2015, AFF observed a 31% decrease in the number of litterers at these monitoring sites. Additional details about this project can be found in Section 4.10.1 of this report.

4.9.3 Recordkeeping

DOEE continues to track and record stormwater related public education and outreach activities.

Items the District tracks are:

- Number of District youth receiving environmental education
- Number of District teachers receiving environmental education training
- Number of District staff receiving training
- Watershed meetings attended
- Environmental events attended
- Presentations given by DOEE staff

4.9.4 Public Involvement and Participation

The District continues to provide the opportunity for direct public involvement through a variety of programs.

Storm Drain Marking

In FY 2016, WPD installed 445 storm drain markers . DOEE reached out to five colleges/universities, RiverSmart Schools participants along with multiple community and service groups, and residents to organize storm drain marking events.

Stream and Neighborhood Cleanup Events

The District hosts volunteer stream clean ups throughout the year. More information about volunteer stream cleanups can be found in Section 4.10 of this report.

DC Environmental Literacy Plan

In FY 2016, DOEE continued to collaborate with stakeholders to implement the District Environmental Literacy Plan. In partnership with nonprofit organizations, DOEE began implementation of the Environmental Literacy Framework for District schools, a grade-by-grade approach for integrating environmental education into the curriculum. Teachers from Sustainable DC Model Schools, which are exemplary schools that already include environmental programming, helped develop the framework as well as pilot the framework. Three of the eight model schools were DOEE RiverSmart schools. This framework will help identify the best places in school curriculum where DOEE programming will fit. This project will also coordinate Green Career Expos for high school students to learn about green jobs and summer internships. DOEE continues to work with OSSE to implement the ELP, which will bring environmental education, including meaningful outdoor experiences, to District youth.

RiverSmart Schools

RiverSmart Schools works with applicant schools to install Low Impact Development (LID) practices to control stormwater. These practices are specially designed to be functional as well as educational in order to fit with the school environment. Additionally, schools that take part in the RiverSmart Schools program receive teacher training on how to use the sites to teach to curriculum standards and how to properly maintain the sites.

In FY 2016 DOEE accomplished the following:

- Provided 32 teachers with a four-day workshop on RiverSmart schools site usage and programming;
- Conducted 16 classroom visits and provided seven boat trips to support integration of watershed lessons for the RiverSmart Schools project at each participating school; and
- Engaged students, teachers, and volunteers in community work days to construct and maintain designed schoolyard conservation sites. Two hundred students from two schools participated in eight community work days.
- Completed the construction of five RiverSmart Schools LID projects.

District of Columbia Environmental Education Consortium (DCEEC)

DOEE helps to organize a network of environmental educators throughout the District so that ideas and resources can be shared among them. The D.C. Environmental Education Consortium (DCEEC) provides opportunities for networking, event coordination, and program partnering among its members. The members provide environmental expertise, professional development opportunities, curricula and resources, and hands-on classroom and field studies to District schools.

In FY 2016, DOEE and DCEEC hosted their tenth annual D.C. Teacher's Night at the U.S. Botanic Garden. Over 200 teachers registered and those in attendance learned about environmental programming from approximately 30 exhibitors representing local environmental and science education organizations. The teachers met with local environmental educators for connection with environmental education opportunities both inside and outside the classroom. Participants also took part in hands-on experiments and left with lesson plans for their classrooms.

The District held its fifth annual Growing Healthy Schools Month, which is the fusion of DC School Garden Week and DC Farm to School Week. Growing Healthy Schools Week highlights the interrelated goals of these two former weeks and reflects the components of the recent Healthy Schools Act, which encourages linkages between farm-to-school and school garden programs.

The Anacostia Environmental Youth Summit

The Anacostia Environmental Youth Summit is a District-wide showcase that spotlights youth voice, demonstrates environmental literacy, and encourages stewardship for the Anacostia and Potomac rivers and the Chesapeake Bay. In FY 2016 12 schools and 420 students participated in the event.

Meaningful Watershed Educational Experiences (MWEEs)

As part of DOEE's sub-grant program, non-profit partners were funded to create MWEEs for hundreds of District youth. DOEE's current MWEE initiatives are the following:

- Overnight Meaningful Watershed Educational Experiences
- Trash-Focused Meaningful Watershed Educational Experiences

In FY 2016, the trash-focused MWEE grant program focused on students in wards 7 and 8. The program reached 240 students this fiscal year.

During the 2015-16 school year, 1,772 DC Public School and DC Public Charter School fifth grade students completed two-day, three-night Overnight Meaningful Watershed Educational Experiences.

More information about MWEEs can be found at: <http://doee.dc.gov/service/overnight-meaningful-watershed-educational-experience>.

Anacostia River Explorers Educational Boat Tours

Anacostia River Explorers RiverSmart Educational Boat Tours (Anacostia River Explorers) educate the public about the Anacostia River. This includes its human and natural history, the threats it faces, and what solutions are being undertaken to help the River realize its full potential as an invaluable asset for the District and its residents. They are free, guided motorboat and canoe tours conducted by non-profit partners and funded by the District’s disposable bag fee.

In FY 2016, the Anacostia River Explorers had 246 boat tours with a total of 3,564 participants, Table 26. Approximately 35 youth groups, totaling 1,260 youth or young adults, took tours through the Anacostia River Explorers Program, Table 27.

Table 26 FY 2016 Anacostia River Explorers Accomplishments

Type of Tour	Number of Tours Provided
2 hr motorized	135
1 hr motorized	94
2 hour canoe	11
1 hour canoe	6
Total Number of Tours	246
Participants	3,564

Table 27 School Groups Participating in Anacostia River Explorers Educational Boat Tours in FY 2016

Type of Group	Name
Public Schools	
	Anacostia High School
	Capitol Hill Montessori
	Jefferson Academy Middle School
	Martin Luther King Jr Elementary School
	Maury Elementary School
	River Terrace Elementary
	Seaton Elementary School
	Stuart Hobson Middle School
Public Charter, Private, & Home School	
	Capital City Public Charter School
	E.L. Haynes Public Charter School
	Home School Groups
	Learning Tree
	Maret School
	Stone Ridge
	Two Rivers Public Charter School

Type of Group	Name
Colleges & Universities	
	American University
	Catholic University
	Georgetown University
	University of the District of Columbia
Extracurricular Groups & Activities	
	Best Kids Mentoring
	Companies for Causes (DC Youth)
	DC Housing Critical Exposure (youth photography program)
	DCPS Cornerstone Writers
	Eyes Wide Open Mentoring
	OSSE Environmental Literacy Leadership Cadre
Camps	
	Aqua Summer Day Camp
	Higher Achievement Camp
	Kids and Culture Camp
	Washington Area Bicyclist Association Camp
Other Internships, events, et al.	
	Anacostia Environmental Youth Summit
	DOEE Green Fellows Program
	DOEE Green Zone Environmental Program
	Earth Conservation Corps
	Live it Learn It
	Washington Youth Summit on the Environment
Total Youth Participation	1,260

Bag Law

In FY 2016, DOEE continued outreach to residents and businesses about the District's Bag Law.

FY 2016 Bag Law Program accomplishments include:

- Purchased a new series of reusable bags focused on restoring the Anacostia River
- Distributed over 27,000 reusable bags to District residents
- Tabled at local community events

Foam Ban

DOEE conducted extensive outreach in the months prior to January 2016 in order to prepare regulated entities for the ban. DOEE staff organized a four-month door-to-door outreach

campaign along the busiest corridors across all eight wards of the city, speaking with businesses to remind them of the upcoming ban. Flyers and postcards with information on the ban were mailed out to over 4,000 regulated entities. Once the ban took effect in January 2016, DOEE began enforcement, initially focusing on providing compliance assistance and issuing warnings, before issuing fines to regulated entities that continue to distribute foam products.

DOEE began preparing for the 2017 compostable and recyclable requirements of the ban in FY 2016. Research on recyclability of different food service ware products was conducted by visiting local material recovery facilities and interviewing industry experts. Research on compostable products was conducted as well. Outreach on the 2017 requirements began in FY 2016 when an informational flyer on the 2017 requirements was sent to regulated businesses in September 2016. DOEE is planning to publish a second round of proposed rulemaking that will create definitions that clarify the recyclable and compostable food service ware requirements in early FY 2017.

FY 2016 Foam Ban Program accomplishments include:

- Conducted door-to-door outreach to 360 businesses
- Tabled at local community events

Integrated Pest Management/Nutrient Management

The Anacostia River Clean Up and Protection Fertilizer Act of 2012 went into effect on April 20, 2013. The District's Fertilizer Law outlines requirements for lawn care professionals on how, when, and where to apply fertilizer and the types of fertilizer they can use. In July 2016 DOEE mailed 360 one page factsheets to retailers and applicators working in the District. A copy of these factsheets and additional information about the law can be found at <http://doee.dc.gov/fertilizer>.

Clean Marina

DOEE and NPS of the National Capital Region partner with marinas in the District to educate the public on environmentally responsible boating practices. The Clean Marina Program encourages marina, boatyard, and boat club operators, as well as the boating public, to reduce pollution through their daily operations and through encouraging boaters to do the same. To view more information on DOEE's Clean Marina Program: <http://doee.dc.gov/service/dc-clean-marina-partnership>

Trash and Litter

A major component of DOEE's public education activities in FY 2016 related to anti-littering and trash prevention efforts. Trash education and outreach activities are detailed in Section 4.10.1 of this report.

4.9.4.1 Stormwater Management Plan

On January 21, 2016 the Final Revised Stormwater Management Plan was submitted to EPA Region III and posted to the DOEE website, <https://doee.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports>.

4.9.4.2 Routine Communication

DOEE holds quarterly meetings with environmental non-profits regarding partnership opportunities and available grants. These meetings are held by the DOEE director and involve all DOEE programing.

4.9.4.3 MS4 Permit Deliverables

All MS4 Permit deliverables are made available for public comment and posted to the DOEE website.

- DOEE Annual Reports and Discharge Monitoring Reports are found at: <http://DOEE.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports>
- The Draft Stormwater Retrofit Plan can be found at: <http://DOEE.dc.gov/stormwaterretrofitplan>
- The Draft Tree Canopy Plan can be found at: http://DOEE.dc.gov/sites/default/files/dc/sites/DOEE/page_content/attachments/Draft_Urban_Tree_Canopy_Plan_Final.pdf
- The Draft MS4 Catch Basin Maintenance Optimization Plan can be found at: <http://doee.dc.gov/draftcatchbasinreport>
- The Draft MS4 Outfall Repair Schedule can be found at: <http://DOEE.dc.gov/draftoutfallreport>
- The 2013 Stormwater Guidebook and 2013 Stormwater Rule can be found at: <http://DOEE.dc.gov/swregs>
- Revised Monitoring Program can be found at: <http://dcstormwaterplan.org/documents-and-deliverables/>
- Consolidated TMDL Implementation Plan can be found at: <http://dcstormwaterplan.org/documents-and-deliverables/>

4.9.4.4 Public Education Materials

As required by Section 4.9.4.4 of the MS4 Permit, public education materials are routinely developed or updated.

4.9.4.5 DOEE Website

As required by Section 4.9.4.5 of the MS4 Permit, DOEE websites are regularly updated, at a minimum annually.

DOEE websites and social media sites include:

- www.DOEEDC.gov
- https://twitter.com/DOEE_DC
- <https://www.facebook.com/DDOE.DC/>
<http://www.youtube.com/user/DOEEDCPublicInfo>

FY 2017 Goals: The District periodically evaluates existing public education materials and revises or develops additional materials as necessary. DOEE will continue to update, add to, and refine the website and social media outreach to display all relevant information including reports, accomplishments, and outreach materials.

4.10 Total Maximum Daily Load Wasteload Allocation Planning and Implementation

4.10.1 Anacostia River Watershed Trash TMDL Implementation

The District has met the October 7, 2016, deadline for removing 103,188 pounds of trash annually from the Anacostia River, Table 28.

To accomplish the trash requirement the District is using the following tools:

- In-stream and end-of-pipe best management practices (e.g. trash traps)
- Stream clean-up activities
- Street sweeping environmental hotspots
- Education and outreach
- Regulatory approaches (e.g. Bag Fee)

Below is a description of the progress made to date with each of the practice categories.

In-Stream and End-of-Pipe Best Management Practices

The District has implemented several innovative trash trap designs for removing trash from local waterways. To date, the District has installed eight trash traps in the Anacostia River watershed. Four of those traps have been installed within hotspot sewersheds. In 2016, the District was successful in installing a new Bandalong Litter Trap in Nash Run, a tributary to the Upper Anacostia River. This trap was installed as part of the Nash Run stream restoration, Figure 17.

Unfortunately, the installation of the Gallatin Trash Trap was delayed due to permitting issues from the National Park Service and other local agencies. As of November 2016, permitting issues have been resolved. DOEE is currently awaiting final design plans to be submitted for approval. A construction schedule has not been completed yet. If construction is scheduled to start after February 2017, the District will have to request a special waiver from the US Army Corps of Engineers and NOAA to begin installation during spring anadromous fish spawning. The Gallatin Trap is being installed in a tributary to the northwestern branch of the Anacostia River which experiences fish spawning from late February through early June every year. DOEE has been holding bi-monthly progress meetings with the project team in order to obtain

regular updates on project progress. Once completed, this trap will be collecting trash from a large hotspot sewershed over 600 acres in size. Figure 18 below provides a conceptual drawing of the trap.



Figure 17 Nash Run Bandalong Trash Trap

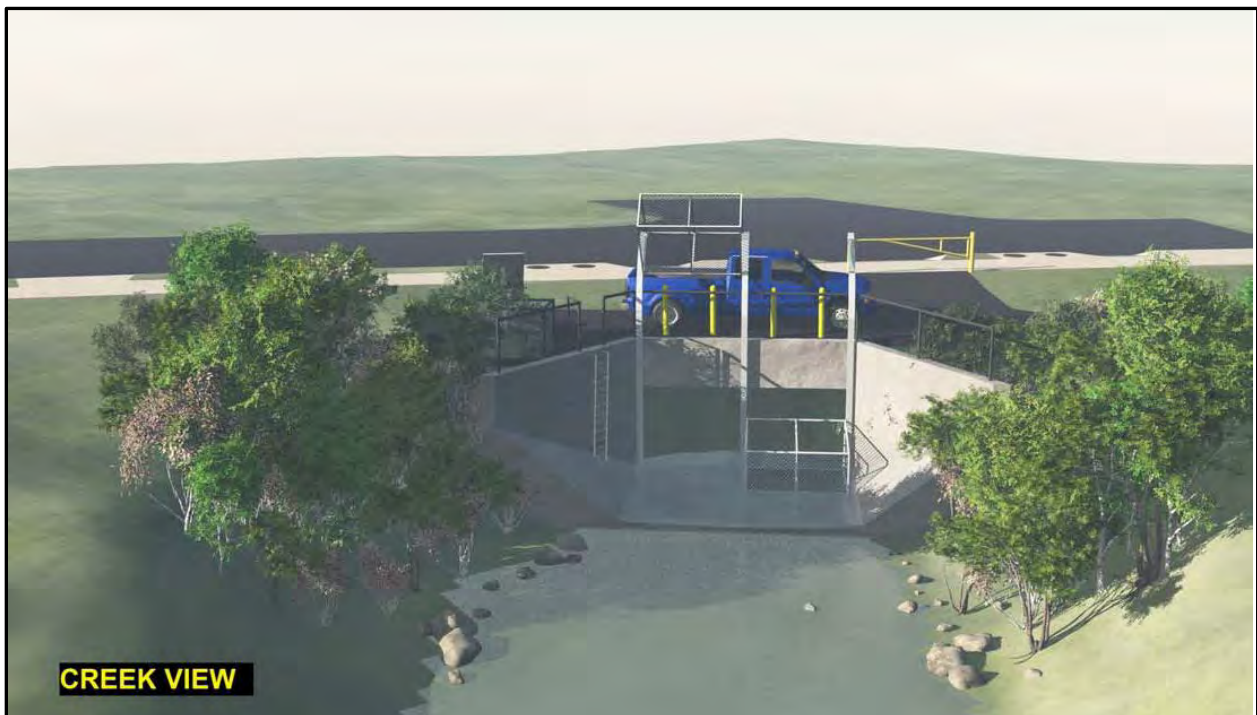


Figure 18 Conceptual Drawing of the Gallatin Trash Trap

Stream Clean-Up Activities

The District sponsors several stream clean-up events on an annual basis throughout the Anacostia watershed. Examples include the Alice Ferguson Foundation's (AFF) Potomac Trash clean-up and the Anacostia Watershed Society (AWS) annual Anacostia River Earth Day clean-up. In 2013, AFF received a grant from the National Geographic Society's FieldScope program to create an online Geographic Information System (GIS) to store data for cleanups. Data taken from that database was used to calculate the total trash removed by this practice in 2016. The total amount of trash collected at each cleanup event in the District can be found in Appendix A.6. The portion of those efforts that the District is counting towards meeting its TMDL goal is noted in Table 28.

DC Department of Small and Local Business Development Clean Teams Program

In 2015, DOEE worked with the DC Department of Small and Local Business Development (DSLBD) to capture data on trash collected by their commercial *Clean Teams* grant program. DSLBD currently provides over \$2 million per year in grants to groups throughout the city, such as Business Improvement Districts and Main Streets programs, to conduct the following activities in commercial areas:

- Litter and graffiti removal
- Recycling of materials collected from sidewalks and gutters
- Maintenance of street trees and other planters
- Tracking and reporting public space defects

Currently, there are 21 grantees operating throughout the District. Since mid FY 2014, DSLBD has been collecting weight data on how much litter each Clean Team has been collecting. Several times per year, Clean Teams transport the trash they collect to the District's Fort Totten trash transfer station and weigh everything. That data is then entered into a Quickbase database managed by DSLBD.

DSLBD was successful at creating a new clean team in 2016 along Benning Rd NE. The area maintained by this Clean Team spans two hotspots for trash identified in the 2009 Anacostia Watershed Trash Reduction Plan written by the Anacostia Watershed Society. Figure 19 illustrates the location of the area maintained by the new Benning Rd Clean Team.



Figure 19 Benning Road Clean Team Area and Trash Hotspot Zone

Street Sweeping Environmental Hotspots

DPW continued to implement the enhanced street sweeping program in 2016. In 2011, DOEE funded DPW to develop an enhanced street sweeping program for the District. The purpose of this project was to make street sweeping more efficient by creating extra time per month to sweep streets identified as environmental hotspots by DOEE.

Education and Outreach

In 2016, AFF completed work on a grant project focused on changing littering behavior. Through funding from DOEE, AFF actively engaged communities located in the Anacostia River watershed. They partnered with local businesses to display anti-littering education and outreach materials; conducted community trash clean-ups; disseminated reusable bags; and worked with community organizations on litter awareness and prevention. AFF reported to DOEE that they reached more than 9,000 people directly through these activities.

In addition, AFF monitored the effectiveness of their campaign through behavioral observations conducted in strategic locations in conjunction with the posting of campaign materials. From monitoring conducted between 2013 and 2015, AFF observed a 31% decrease in the number of litterers at these monitoring sites. While AFF did propose a pollution reduction efficiency for

their efforts, DOEE is currently collaborating on the development of an efficiency with the other Anacostia River jurisdictions. This is in response to a 2015 petition from local environmental stakeholders to address deficiencies with the Anacostia River trash TMDL. DOEE is working on refining other efficiencies with the neighboring jurisdictions to make sure that all BMP efficiencies for the trash TMDL are consistent across jurisdictional boundaries.

Regulatory and Enforcement Approaches

DOEE continued to enforce the District’s Bag Law. Section 4.7 of this report provides details on the number of enforcement measures taken in FY 2016. Section 4.7 also provides an update on litter enforcement activities undertaken by the DC MPD in FY 2016.

In 2014, the District passed the Sustainable DC Omnibus Act of 2014. Part of this law calls for the ban on polystyrene foam products the use of food service products made of expanded polystyrene, commonly known as foam or Styrofoam™. The ban begins on January 1, 2016 and applies to all District businesses and organizations that serve food. Section 4.7 provides more detail on ban.

DOEE, in collaboration with the MPD 6th District, DPW, DDOT, CSX, and NPS, implemented an illegal dumping enforcement pilot project, called *DumpBusters*, in the Anacostia River watershed. The project identified 10 illegal dumping sites and installed enforcement cameras and ‘No Dumping’ signs. Illegal dumping in the District carries with it civil and criminal penalties including monetary fines and jail time. MPD 6th District currently has a zero tolerance policy when it comes to illegal dumping and has an active environmental crimes unit. Between August and November 2016, MPD 6th District, along with DPW inspectors, have arrested six people charged with committing illegal dumping. DOEEs goal is to eliminate all 10 hotspots through outreach, surveillance, and enforcement over the next year. If the program is successful, DOEE hopes to expand the program.

Summary of 2014 Trash Load Reductions

Table 28 below displays how the District met the MS4 Permit trash TMDL requirement.

Table 28 Annual Trash Load Reductions by Program

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
Trash Traps	Marvin Gaye Park Bandalong	1,122	22	Annual average value taken from empirical data collected between Jan 2012 & November 2015. The average amount of trash collected during this time period is multiplied by 2% since that is the approximate proportion of the Watts Branch watershed which lies within District and drains to the trash trap.

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
Trash Traps	River Terrace Trash Trap	603	603	Annual average of trash collected in 2014 and 2015. Reduction factors are not applied since the drainage area lies entirely within the District MS4 and all bottles and cans are emptied of water before weighing.
	Kenilworth Bandalong	2,874	2,874	Annual average taken from empirical data collected between March 2011 and November 2015. No reduction factors are being applied since the entire drainage area above this trap lies within the District.
	Nash Run Trash Trap	2,266	1,700	Annual average taken from empirical data collected between 2009 and 2016. The total amount collected is then multiplied by 75% since that is the approximate proportion of the Nash Run watershed that lies within the District and drains to the trash trap.
	Nash Run Bandalong	2,702	2,026	Total trash collected by the trap in 2016. The total amount collected is then multiplied by 75% since that is the approximate proportion of the Nash Run watershed that lies within the District and drains to the trash trap.
	Hickey Run BMP	10,000	2,000	Based on assumed efficiency of 100 percent design capture of device. A reduction factor of 20 percent was applied since glass and plastic bottles may not have been emptied of water.
	James Creek Bandalong	107	107	Annual average taken from empirical data collected between January 2012 and November 2015. No reduction factors have been applied since the entire drainage area for this practice lies within the District.

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
	Earth Conservation Corps Trash Booms	1,713	144	Amount collected from trap in 2014. Annual average not taken for 2013 and 2014 data since only four months of data was collected in 2013. Reduction factors are applied since a portion of the trash collected is coming from the mainstem of the river. A reduction factor of 16.5% is applied since this the proportion of the Anacostia watershed which lies within the District. A second reduction factor of 50.8 % is applied to account for the District's portion of the Anacostia served by the MS4.
Sweeping Environmental Hotspots	Sweeping Environmental Hotspots	144,768	72,384	The total area of roadways within the environmental hotspots (e.g. blocks found to contain high trash amounts) ⁶ was calculated. That area was then multiplied by 50% because roughly half of the roadway (the middle of the road) is swept in these areas because they are unsigned. That area is then multiplied by the trash loading coefficient of 31.12 lbs/acre developed for the TMDL. That total mass in pounds is then multiplied by 16 since the DC Department of Public Works (DPW) is supposed to sweep environmental hotspots (i.e. blocks with high amounts of trash) twice per month, 8 months out of the year. That result is then multiplied by 50% because not all hotspots may always be swept.
Clean-Up Activities	Clean-Up Events	36,825	2,193	Based on empirical data collected during cleanup events within the District's portion of the Anacostia watershed. If a site is located along the mainstem of the river, a reduction factor of 16.5% is applied since this the proportion of the Anacostia watershed which lies within the District. A second reduction factor of 50.8 % is applied to account for the District's portion of the Anacostia served

⁶ - The environmental hotspots which are swept differ from the "hotspot" sewersheds mentioned earlier. The environmental hotspots swept represent a series of blocks found to contain very high amounts of trash.

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				by the MS4. A third reduction factor of 80% is applied to account for the fact that not all plastic and glass bottles collected may have been emptied of water before bagged.
Clean-Up Activities	Skimmer Boats	1,053,286	8,828	Based on the annual average of material collected by DC Water skimmer boats between 2003 and 2015. The average amount is first multiplied by 16.5 %, which represents the proportion of the watershed that lies within the District. A second reduction factor of 50.8 % was applied to account for the area of the District's portion of the watershed served by the MS4. A third reduction factor of 50 % was applied since not all material collected by the skimmer boats may have been trash. Finally, a fourth reduction factor of 80 percent was applied since not all plastic and glass bottles collected were emptied of water.
	Clean Teams Program	1,465,005	18,804	This data was captured during the District's FY15. However, a rolling annual average will be reported once multiple years of data is captured. A sample weight is collected by each Clean Team 1X per month. The annual average from those samples is then computed. That average is then multiplied by the number of days each teams operates, and is then multiplied by 52 weeks per year. The total annual estimate is then reduced by 50% to assume that 50% of the weight captured consists of organic debris. We further reduce the total captured by 80% (i.e. the number is multiplied by 20%) to adjust for the weight being impacted by beverage containers full of liquid. Lastly, we multiply that by the proportion of the Clean Team area in the MS4 area, but not in an environmental hotspot, to the total Clean Team area. The equations for this are detailed in annual report Section

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				4.10.1.
Education and Outreach	Watershed Wide Anacostia Campaign	NA	NA	DOEE is currently collaborating with the Metropolitan Washington Council of Governments, Prince Georges County and Montgomery County to establish an efficiency for education and outreach.
Regulatory Approaches	Bag Law	1,072	272	DOEE currently estimates (based on data collected for the development of the Anacostia Watershed Trash Reduction Plan) that there are 82,431 bags in the river and tributaries. This amount is first multiplied by 50.8%, since this is the proportion of the Anacostia River served by the MS4. The amount is then reduced by 50% because according to a recent survey report, 50% of businesses in the District report a 50% reduction in bag purchases. Finally, the total number of bags is then multiplied by 0.013 lbs, which is the standard weight for a plastic bag.
Total (pounds)		2,722,343	111,957	

FY 2017 Goals: DOEE will continue to implement all of the BMPs noted in Table 28 above.

4.10.2 Hickey Run TMDL Implementation

Hickey Run continues to be a priority watershed for the various RiverSmart incentive programs.

To view work DOEE has done in the Hickey Run watershed go to:

<http://doee.dc.gov/service/hickeyrun>.

FY 2017 Goals:

1. Continue to incentivize RiverSmart projects on residential properties in the Hickey Run watershed.
2. Continue progress towards the Spring House Run restoration.

4.10.3 Consolidated TMDL Implementation Plan

DOEE continued work on its Consolidated TMDL Implementation Plan (IP) during FY 2016. A draft of the Consolidated TMDL IP was published for public comment and submitted to EPA in May of 2015. DOEE received detailed comments from several stakeholders and from EPA. In August of 2016 DOEE submitted an updated draft of the Consolidated TMDL IP to address these comments.

The core of these updates to the TMDL IP were a series of new, programmatic milestones the District has committed to in the interest of accelerating the pace of stormwater management implementation.

To view the Consolidated TMDL Implementation Plan go to:

<http://dcstormwaterplan.org/documents-and-deliverables/>.

FY 2017 Goals: DOEE will continue to implement stormwater management activities to make progress toward the numeric and programmatic milestones from the Consolidated TMDL IP.

5 MONITORING AND ASSESSMENT CONTROLS

5.1 Revised Monitoring Program Development Status

In FY 2016, DOEE developing an Integrated Monitoring Strategy. This strategy builds upon the Revised Monitoring Plan that was developed in FY 2015. The Integrated Monitoring Strategy documents the overarching monitoring requirements of the entire Natural Resources Administration, including:

- Regulatory drivers
- Monitoring objectives
- Data management objectives
- Analysis, assessment, and reporting methods
- Programmatic evaluation
- General support and infrastructure planning needs

The Integrated Monitoring Strategy is supported by both quality assurance program plans (QAPPs) and standard operating procedures (SOPs). The design of the Integrated Monitoring Strategy includes a tiered approach to implementation of monitoring activities consisting of:

- rapid assessments
- core monitoring that includes both probability-based and targeted monitoring
- supplemental monitoring for special studies

The Revised Monitoring Plan was released for a 90-day public comment period on May 8, 2015 and can be found at <http://doee.dc.gov/release/notice-public-comment-draft-ms4-revised-monitoring-plan>.

FY 2017 Goals: DOEE anticipates implementing the Integrated Monitoring Strategy in the next approved permit period

5.2 Interim Monitoring

In FY 2016 sampling is proceeding under the interim sampling provisions. The District is providing a summary of monitoring data, trends in pollutant loading, monitoring station locations, and storm information as required by Section 6.2.1.b. The District submitted monitoring data via NetDMR on January 18, 2017.

5.2.1 Wet Weather Discharge Monitoring

Water quality monitoring for chemical constituents took place at six monitoring stations throughout the District during the 2016 sampling period, Table 29 and Figure 20. Detailed maps of each of the monitoring stations can be found in Attachment G.

Table 29 Monitoring Stations and Dates

Watershed	Site	Location	Drainage Area (Acres)	Dates of Wet Weather Sampling	Dates of Dry Weather Sampling
Anacostia River	A1	Anacostia High School (Corner of 17th St and Minnesota Ave, SE)	252	10/28/15 5/21/16 9/19/16	4/18/16 7/12/16
	A2	Gallatin & 14th St NE (Across from the intersection of 14 th St and Gallatin St, NE)	662	10/28/15 5/21/16 7/29/16	4/18/16 7/12/16
Rock Creek	B1	Walter Reed (Fort Stevens Drive NW)	23	12/14/15 5/21/16 7/29/16	4/18/16 7/26/16
	B2	Soapstone Creek (Connecticut Avenue and Albemarle Street, NW)	320	10/28/15 5/21/16 7/29/16	4/18/16 7/26/16
Potomac River	C1	Battery Kemble Creek (49th and Hawthorne Streets, NW)	11	12/14/15 5/21/16 7/29/16	4/18/16 * 7/26/16*
	C2	Oxon Run (Mississippi Avenue and 15th Street, SE)	43	12/14/15 5/21/16 7/29/16	4/18/16 7/12/16

* No dry weather flow

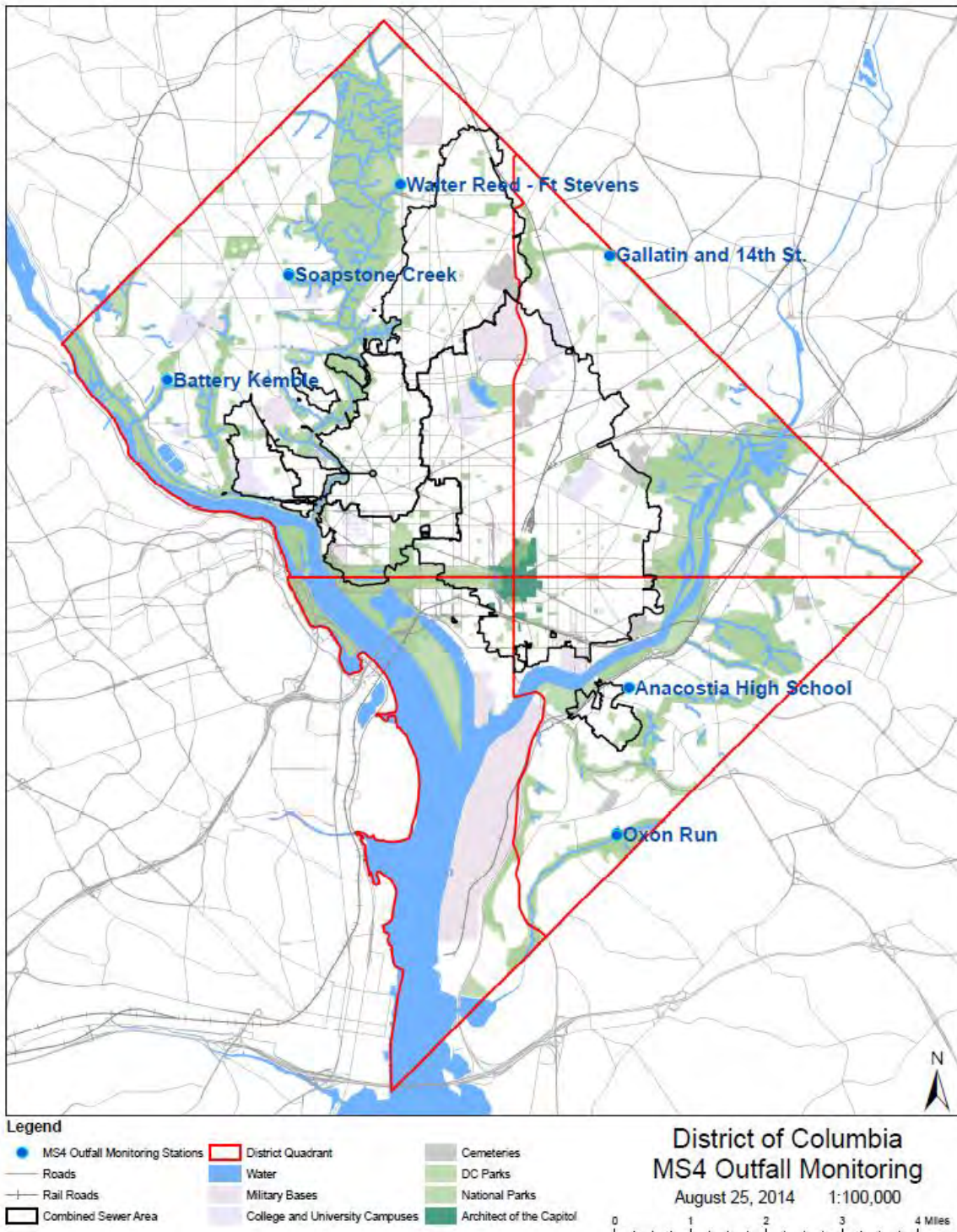


Figure 20 District MS4 Monitoring Stations

Table 30 details the water quality results for wet weather sampling. Table 31 details the wet weather sampling summary data for the required monitoring parameters. The geometric mean for each parameter was calculated to represent the event mean concentration (EMC). The wet weather summary data has also been submitted electronically to the EPA via NetDMR on January 18, 2017. Attachment H includes detailed wet weather sampling data for each monitoring site.

Table 30 Ambient Water Quality Data for Wet Weather Sampling

Site	Location	Date	Water Temp (°F)	pH	DO* (mg/L)	Estimated Flow (gpm)
A1	Anacostia High School	10/28/15	58.6	7.80	8.75	8,976.6
		5/21/16	55.3	8.45	10.86	13,165.7
		9/19/16	57.8	7.84	10.07	10,472.7
A2	Gallatin and 14 th St. NE	10/28/15	56.6	6.10	6.30	4,488.3
		5/21/16	60.2	6.48	11.34	2,244.2
		7/28/16	72.2	7.14	8.21	5,610.0
B1	Walter Reed	12/14/15	61.0	6.93	11.93	11.7
		5/21/16	60.2	6.82	2.86	52.4
		7/28/16	78.4	6.37	9.86	698.2
B2	Soapstone Creek	10/28/15	64.6	6.70	2.86	5,984.4
		5/21/16	59.9	6.52	10.78	2,064.6
		7/29/16	78.4	6.95	12.2	17,953.3
C1	Battery Kemble Creek	12/14/15	66.2	6.98	11.36	0.5
		5/21/16	59.9	7.33	9.50	134.6
		7/29/16	76.3	6.84	9.94	15.6
C2	Oxon Run	12/14/15	63.9	7.22	12.96	668.5
		5/21/16	55.2	6.54	10.87	2,462.2
		7/29/16	71.4	6.39	7.09	771.4

* Field measurements were taken as % saturation

Table 31 Summary of Wet Weather Monitoring Results (Geometric Mean)

Site	TN (mg/L)	TP (mg/L)	TSS (mg/L)	E. Coli (MPN/100mls)	Cd (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)
A1	2.61 (n=3)	0.31 (n=3)	16.76 (n=3)	456 (n=3)	ND (n=3)	0.0341 (n=3)	0.0147 (n=3)	0.0825 (n=3)
A2	2.88 (n=3)	0.26 (n=3)	8.41 (n=3)	498 (n=3)	ND (n=3)	0.0212 (n=3)	0.0087 (n=3)	0.0815 (n=3)
B1	2.65 (n=3)	0.16 (n=3)	6.54 (n=3)	122 (n=3)	ND (n=3)	0.0132 (n=3)	0.0051 (n=3)	0.0399 (n=3)
B2	2.83 (n=3)	0.32 (n=3)	22.20 (n=3)	280 (n=3)	ND (n=3)	0.0308 (n=3)	0.0064 (n=3)	0.0692 (n=3)
C1	3.28 (n=3)	0.23 (n=3)	29.05 (n=3)	151 (n=3)	ND (n=3)	0.0758 (n=3)	0.0098 (n=3)	0.0320 (n=3)
C2	2.39 (n=3)	0.09 (n=3)	3.21 (n=3)	165 (n=3)	ND (n=3)	0.0202 (n=3)	0.0036 (n=3)	0.0833 (n=3)

ND: Not detected at or above the reporting limit

5.2.1.1 Trash Monitoring

In FY 2016, DOEE changed the existing trash monitoring approach from traditional outfall monitoring to in-stream transect monitoring. The “in-stream” monitoring approach has been utilized by the Anacostia Watershed Restoration Partnership in Prince George’s and Montgomery Counties, MD. By switching approaches a dataset that spans all three jurisdictions in the Anacostia River watershed will be created, which can be used to assess the effectiveness of the Anacostia River Trash TMDL. In addition, like the outfall monitoring program, the in-stream monitoring is being conducted in the Rock Creek and Potomac River watersheds as well.

DOEE awarded a grant to the Metropolitan Washington Council of Governments (MWCOG) to implement the new monitoring program in June of 2016. Thirteen monitoring sites were established throughout all three major watersheds in the District. Data on count for thirty different types of trash is collected at all 13 sites. Weight data for all trash types is collected at the six sites in the Anacostia watershed. Weight data will help determine whether or not trash reduction measures are working to meet the load reductions required under the Anacostia River trash TMDL. In addition, count data collected on trash types may help to determine if specific policies in the District, such as the Bag Fee and Foam Ban, are effective.

All monitoring sites and sampling protocols were vetted through the EPA’s Region III before being finalized.

The below subsections summarize both the outfall monitoring project data between 2013 and 2016 and the 2016 in-stream monitoring data.

2016 MS4 Outfall Trash Monitoring Results

Table 32 below provides information concerning the stations sampled in all three watersheds, as well as dates for each sample taken over the three year duration of the monitoring project. Three trash samples were collected at all stations, while additional samples were collected at two out of the six stations.

Table 32 Trash Monitoring Station Information

Watershed	Site	Station	Land Use	Acres	Sample Dates
Rock Creek	WR	Walter Reed Ft Stevens Rd & 16 th St, NW	Mixed density residential	23	09/12/2013, 11/16/2013, 12/22/2013, 02/03/2014, 06/25/2014, 08/31/2014, 03/20/2015, 04/25/2015, 07/27/2015, 11/19/2015, 01/15/2016
Potomac	BK	Battery Kemble Garfield St & 49 th St, NW	Low density residential	11	09/12/2013, 11/16/2013, 12/22/2013, 02/03/2014, 04/15/2014, 06/25/2014, 03/20/2015, 04/25/2015, 07/27/2015, 11/19/2015, 01/15/2016
	OR	Oxon Run Mississippi Ave & 15 th St, SE	Residential 46%, Public land 45%, Commercial 5%, Utilities 4%	43	02/03/2014, 04/25/2014, 08/20/2014, 10/21/2014, 11/23/2014, 01/03/2015, 03/20/2015, 04/25/2015, 11/19/2015, 03/13/2016
Anacostia	BR	Benning Road Benning Rd & Anacostia Ave, NE	Commercial	12	04/15/2014, 06/08/2014, 08/11/2014, 09/13/2014, 11/05/2014, 12/16/2014, 03/14/2015, 04/14/2015, 07/08/2015
	McD	McDonald's Minnesota Ave & Burroughs Ave, NE	Residential 65%, Commercial 23%, Industrial 12%,	7.4	09/21/2013, 11/26/2013, 12/29/2013, 04/15/2014, 06/03/2014, 10/21/2014, 01/03/2015, 03/14/2015, 05/16/2015, 01/15/2016
	NYA	New York Ave BMP New York Ave & South Dakota Ave, NE	Transportation right of way	1.5	10/07/2013, 11/26/2013, 12/29/2013, 10/21/2014, 11/23/2014, 01/03/2015, 03/14/2015, 04/14/2015, 05/16/2015, 01/15/2016

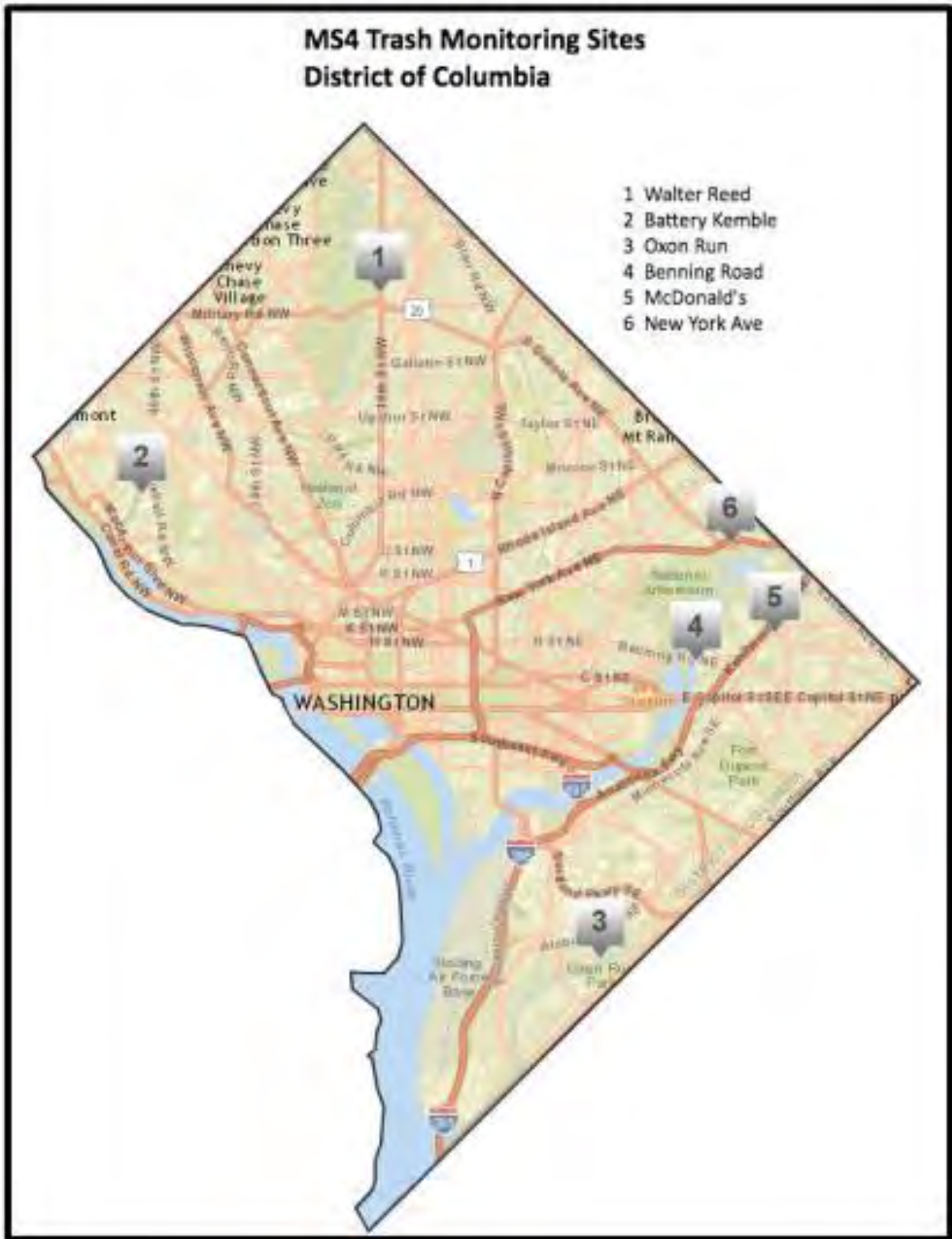


Figure 21 Outfall Trash Monitoring Stations

As during previous years, samples were obtained by placing custom made trash traps at the end of storm sewer pipes and collecting solid material exiting from the outfall during a rain event. When an acceptable rain event was predicted, traps were deployed at one or more monitoring sites. After the rain ended, the traps and any material they contained, were retrieved. Trap contents were transferred to labeled plastic trash bags for transport. The bagged samples were set on a sloped concrete pad and small slits were cut in the bottom of the bags to allow water to drain away.

The samples were processed within 72 hours of collection, to prevent any appreciable degradation of organic matter. The trap contents were hand-sorted to separate trash from natural debris. The natural debris was weighed and properly discarded. The trash was further sorted into its individual components and quantified using the categories used in the development of the 2008 Anacostia River Watershed Trash Reduction Plan, <http://doee.dc.gov/publication/2008-anacostia-river-trash-study>. The total trash was then weighed and properly discarded.

Monitoring conducted for the development of the Anacostia trash TMDL between 2009 and 2010 in the coastal plain showed that at least 0.25 inches of rainfall is necessary to move trash through the District's MS4. Only samples from storms at least 0.25 inches in magnitude were monitored at stations found within the coastal plain. However, under the direction of DOEE and EPA, samples collected at Piedmont stations were only collected from storms at least 0.10 inches in magnitude. This was due to greater slopes found in the Piedmont province that could affect flow velocity and movement of trash through the MS4. Table 33 details the rain event characteristics of storms sampled throughout the three year study period.

Table 33 Trash Monitoring Rain Events Sampled

Date	Precipitation (inches)	Duration (hours)	Intensity (in/hr)	Days from Previous Rain	Sites Sampled
09/12/13	0.13	1	1.00	10	WR
09/12/13	0.64	6	1.00	10	BK
09/21/13	0.87	8	1.00	5	McD
10/07/13	1.13	5	1.68	16	NYA
11/16/13	0.42	7	0.12	9	WR, BK
11/26/13	2.20	30	0.72	8	McD, NYA
12/22/13	0.24	2.5	0.40	5	WR, BK
12/29/13	1.31	9	0.32	6	McD, NYA
02/03/14	1.48	13	0.24	5	WR, BK, OR
04/15/14	1.53	21	0.84	7	BK, BR, McD
04/25/14	0.39	3	0.32	3	OR
06/03/14	0.87	2	2.20	5	McD
06/08/14	0.45	5	0.34	3	BR
06/25/14	0.45	1	2.00	3	WR, BK
08/11/14	1.63	20	1.28	7	BR
08/20/14	0.26	1.5	0.12	3	OR
08/31/14	0.27	3	0.24	8	WR
09/13/14	0.27	1.5	0.48	7	BR
10/21/14	1.09	24	0.40	6	OR, McD, NYA
11/05/14	0.27	8	0.52	7	BR
11/23/14	0.31	5	0.16	6	OR, NYA
12/16/14	0.40	4	0.44	7	BR
03/14/15	0.61	16	0.10	4	BR, McD, NYA
03/20/15	0.49	11	0.32	6	WR, BK, OR
04/14/15	0.63	12	0.12	5	BR, NYA
04/25/15	0.27	6	0.06	4	WR, BK, OR
05/16/15	0.62	1	1.50	11	McD, NYA
07/08/15	0.31	4	0.88	4	BR
07/27/15	0.56	1	1.60	9	WR, BK
11/19/15	0.63	11.5	0.29	9	WR, BK, OR
01/15/16	0.33	6	0.20	5	WR, BK, McD, NYA
03/13/16	0.44	12	0.11	9	OR

Average Trash Loading Values

Over a three year period, a minimum of nine samples were collected at each station during most seasons of the year. The average values for each station are shown in Table 34 and Figure 22.

Calculations were performed for all samples to give the following units of measurement:

- Pounds/acre/inch of rain – this unit serves as the basic loading rate used for the Anacostia Trash TMDL
- Pounds/acre/inch of rain/hour – this unit shows the effects of storm intensity of trash loads.

Battery Kemble consistently discharged the lightest load using each load calculation method. Benning Road discharged the heaviest loads in terms of weight per inch of rain, and McDonald’s discharged the heaviest loads in terms of intensity. Both Benning Road and McDonald’s samples occasionally had a serious silt coating that could not be cleaned off and affected the weight of trash sample. Seasonal trends in trash loadings were not observed among all of the stations.

Table 34 Average Trash Loading Rates Over a Three Year Period

Station	Pounds/acre/ inch rain	Pounds/acre/inch rain/hour
Walter Reed	0.30	0.25
Battery Kemble	0.02	0.02
McDonald’s	0.51	3.66
New York Ave	0.65	0.99
Benning Road	1.33	1.34
Oxon Run	0.14	0.42

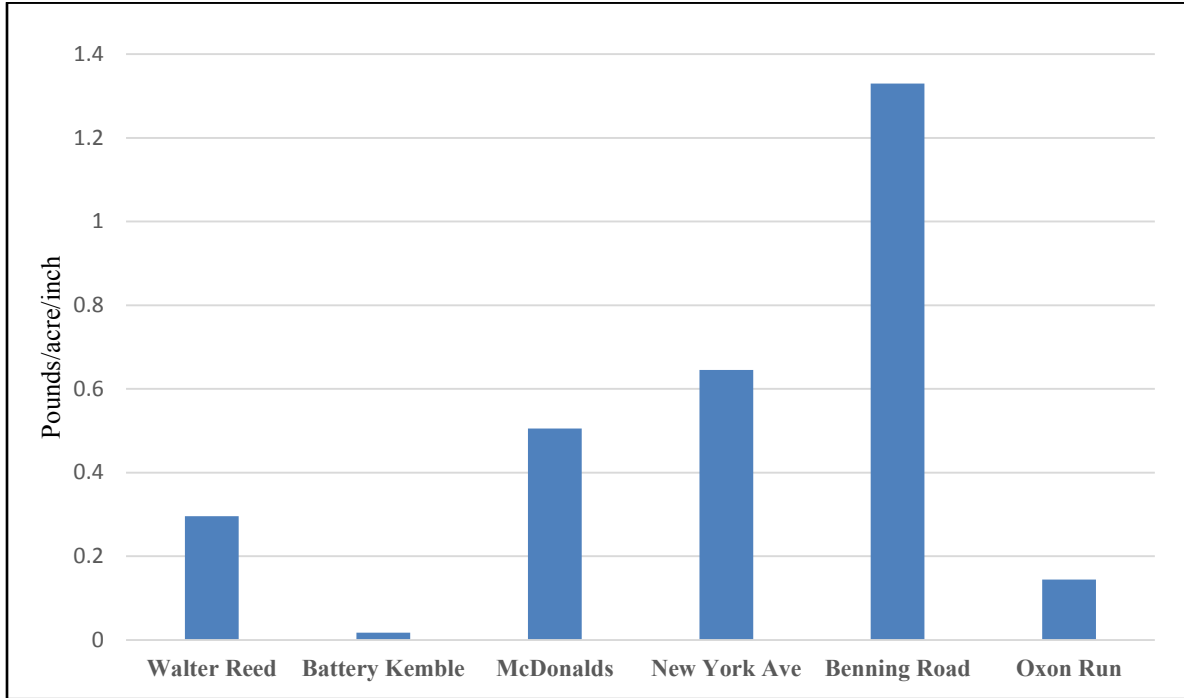


Figure 22 Average Trash Loading Rates (lbs/acre/in)

The average weight of trash moved at each station based upon the maximum 15-minute storm intensity is shown in Figure 23.

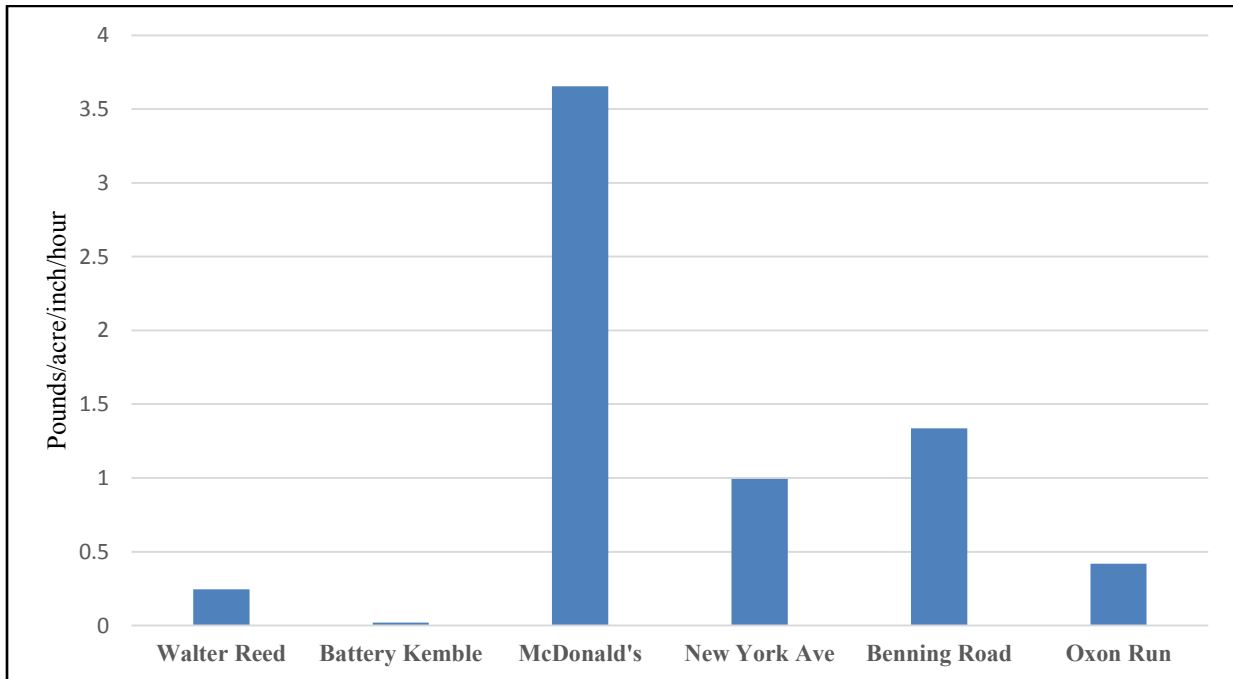


Figure 23 Effects of Intensity on Average Trash Loading Rates (pounds/acre/inch/hour)

Trash Composition

A total of 14,525 items of trash were collected during the three year project. The number of items in each major category is shown in Figure 24 below. As in all previous studies, the food wrappers were the most abundant item encountered. Bottles and various beverage containers were not a dominant fraction by number of items, but they are highly visible and occupy a large volume in the trash samples. Expanded polystyrene foam was aggregated into one number that included fragments and pieces of cups and takeout containers, whole cups and plates, packing material, and miscellaneous foam pieces; however, whole Styrofoam clamshells were excluded, as they were accounted for in the take-out category. Although expanded polystyrene foam comprised approximately 8 percent of the trash by number of items, it is a highly visible form of pollution due to its low density, which causes it to float.

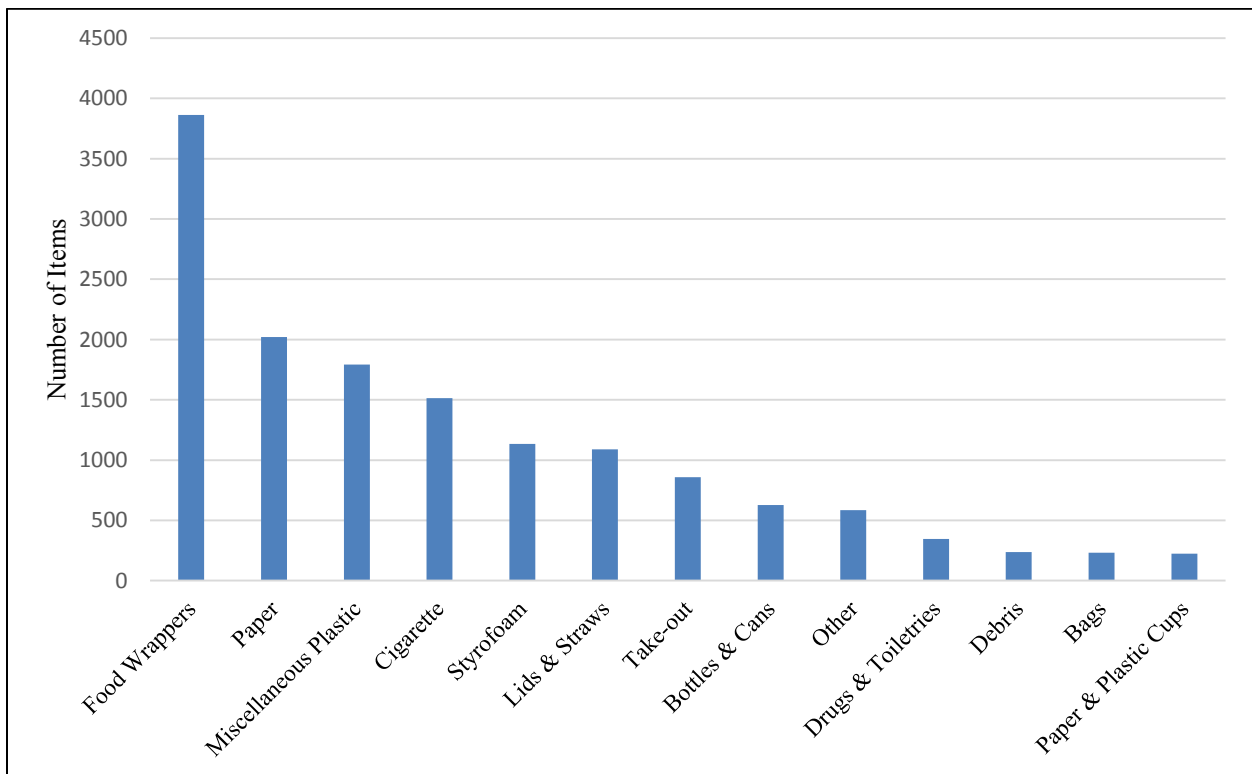


Figure 24 Composition of Trash Collected at all Monitoring Stations Over the Three Year Study Period

2016 In-Stream Monitoring Results

DOEE provided a grant to MWCOG in 2016 to conduct an in-stream trash monitoring program at 13 sites across the District. Figure 25 is a map showing the location of all 13 sites.

Table 35 serves as a key for the site names.

Twice per year, MWCOG staff conducts count surveys at all 13 sites. The first survey is conducted mid-summer and the second survey is conducted in early Fall before first leaf fall. These surveys require walking the 500 foot length of the stream in order to count and identify every piece of trash – according to the trash categories identified in the TMDL – within the banks full width. In addition, the six Anacostia watershed sites undergo pick surveys, where MWCOG staff collects every piece of trash from the upstream 250 feet of the designated 500 foot length. Each trash item is sorted by category, and an aggregate weight for each category is determined. Photos are taken at each site.

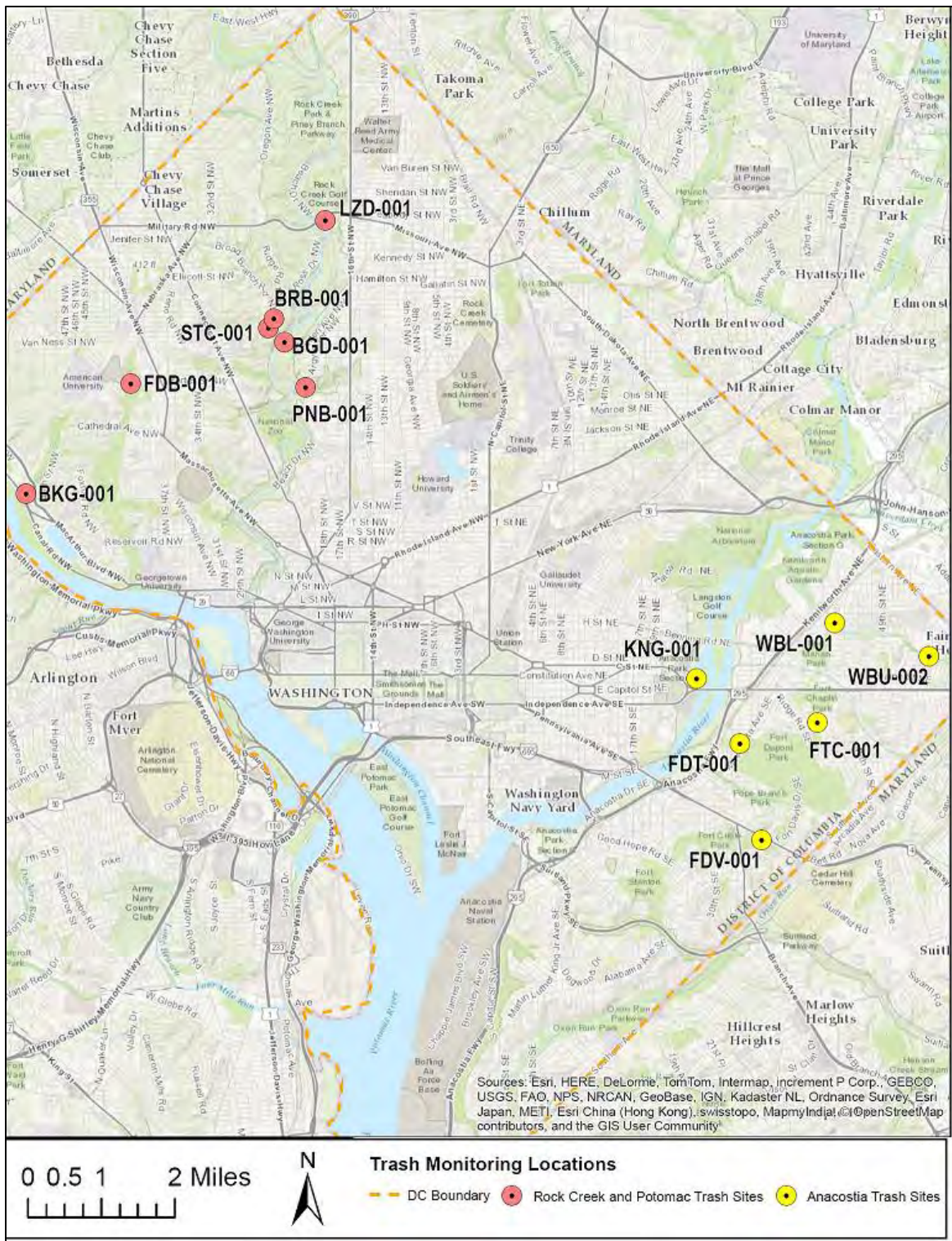


Figure 25 Location of In-Stream Trash Monitoring Sites

Table 35 Stream Name and Site ID

Watershed	Stream Name	Site ID
Rock Creek	Blagden Run	BGD-001
Rock Creek	Broad Branch	BRB-001
Rock Creek	Luzon Branch	LZD-001
Rock Creek	Piney Branch	PNB-001
Rock Creek	Soapstone Creek	STC-001
Potomac	Battery Kemble	BKG-001
Anacostia	Watts Branch Upper	WBU-oo2
Anacostia	Fort Davis	FDV-001
Anacostia	Fort Dupont	FDT-001
Anacostia	Fort Chaplin	FTC-001
Anacostia	Watts Branch Lower	WBL-001
Anacostia	Kingman Lake	KNG-001

Figure 26 displays the proportions of the six categories of trash most commonly found by weight and count across all 13 sites. In terms of count, food packaging was most commonly found. Carry-out bags made up the majority of the total weight of trash found. Additional results from the 2016 In-Stream Trash Monitoring Program are found in Attachment I.

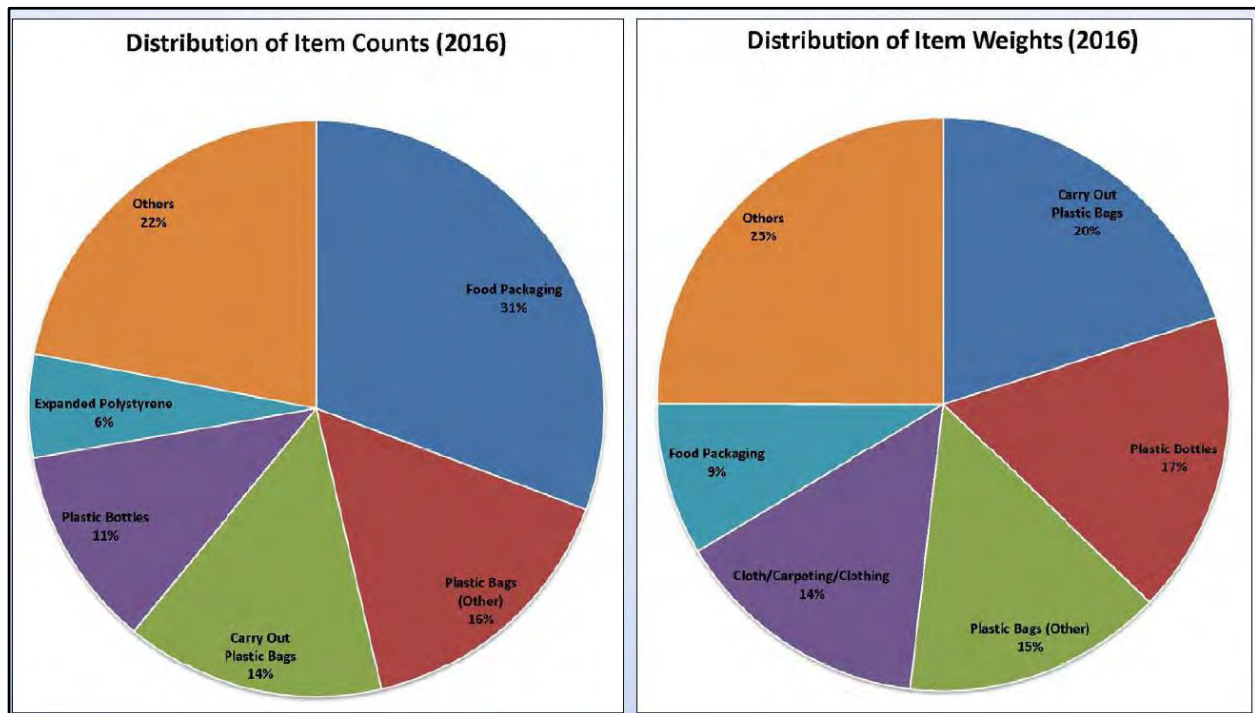


Figure 26 Proportions of Trash Observed Across all 13 monitoring sites for Counts and the Six Sites in the Anacostia for Weight

5.2.1.2 Estimates of Cumulative Pollutant Loading

The Simple Method is used to estimate stormwater runoff pollutant loads for urban areas. The Simple Method estimates pollutant loads for chemical constituents as a product of annual runoff volume and pollutant concentrations, Equation 1. The geometric mean of the measured event mean concentration (EMCs) were calculated for each monitoring station, Equation 2.

Equation 1 Simple Method

$$L = \sum_{i=1}^{\text{No. of landuse types}} \left(\frac{P}{12} \times CF \times Rv_i \times C_i \times A_i \times 2.72 \right)$$

Where:

- L = Pollutant loading (lb./year for chemical constituents, MPN/yr. for bacteria)
- P = Average annual rainfall (inches)
- CF = Correction factor (0.9) to adjust for storms where no runoff occurs (dimensionless) (EPA 1992)
- Rv_i = Runoff coefficient for the land use type (dimensionless)
- C_i = Average event mean concentration (EMC) (mg/L for chemical constituents)
- A_i = Land use area (acres)
- 2.72 = Unit conversion factor for chemical constituents in concentration units of mg/L; 12,334,885 for bacteria in units of MPN/100 mL.

Equation 2 Event Mean Concentration

$$\text{Geomean of EMCs} = \left[\prod_{j=1}^m \text{EMC}_j \right]^{\frac{1}{m}}$$

Where:

- EMC_j = Event Mean Concentration of storm
- m = Number of storms at monitoring location

The total cumulative pollutant load for each of the three watersheds was calculated using the data from each monitoring site in a watershed. This calculation assumes that the two sampling stations are representative of the respective Potomac River, Anacostia River and Rock Creek watersheds. Given this assumption, a simple ratio is used to cover a cumulative load for each watershed, **Equation 3**. The annual pollutant loads for the selected pollutants is detailed in Table 36.

Equation 3 Cumulative Pollutant Load

$$L_A = \left(\frac{\sum L_i}{\sum A_i} \right) (A_t)$$

- L_A = Estimated subwatershed cumulative pollutant load (lb./year)
- A_t = Subwatershed total area (acres)
- L_i = Pollutant loading for each monitoring site (lb./year)
- A_i = Size of each monitoring site (acres)

Table 36 Annual Pollutant Loading

Station	TN (lb/yr)	TP (lb/yr)	TSS (lb/yr)	E. Coli (MPN/100ml)	Cd (lb/yr)	Cu (lb/yr)	Pb (lb/yr)	Zn (lb/yr)
Anacostia High School	25	3	20,633	2.55E+12	0.00	41.98	18.10	102
Gallatin & 14th St. NE	10,190	920	29,758	7.99E+12	0.42	75.01	30.78	288
Water Reed	357	22	880	7.45E+10	0.00	1.78	0.69	5
Soapstone Creek	519	519	35,990	2.06E+12	0.00	49.93	10.38	112
Battery Kemble Creek	1,915	134	21,116	4.00E+11	0.00	44.25	5.72	1
Oxon Run	7,231	272	9,712	2.26E+12	0.00	61.11	10.89	252
Load Estimates Anacostia Watershed (lbs/yr)	109,714	9,416	1,057,629	1.79E+14	5.00	814.58	281.88	2,279
Load Estimates Potomac Watershed (lbs/yr)	835,058	37,122	2,814,788	2.43E+14	0.00	9620.58	1,516.86	23,145
Load Estimates Rock Creek Watershed (lbs/yr)	10,376	6,404	437,008	2.53E+13	0.00	612.88	131.11	1,393
Total Load Estimates (lbs/yr)	955,148	52,942	4,309,426	4.47E+14	5.00	11048.04	1,929.85	26,817

5.2.1.3 Water Quality Trend Analysis

Table 37, Table 38, and Table 39 present the historic range of concentrations (minimum and maximum) for each watershed.

Table 37 Summary of Selected Parameters in the Potomac River Watershed

Parameters	2005-2011*		2013-2016**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.00022	0.0160	ND	0.0085
Copper, Total	0.00320	0.6500	0.0100	0.2500
Lead, Total	0.00360	0.3800	0.0019	0.0220
Zinc, Total	0.00950	0.9800	0.0160	0.3200
Total suspended solids	5.20000	558.0000	3.0000	120.000
Total Phosphorous	0.03900	2.6000	0.0230	0.4600
Total Nitrogen	1.00000	9.2000	1.2000	5.7000

*Samples were collected from seven (7) stations for a total of 33 sampling events from 2005 thru 2011

** Samples were collected from two (2) stations for a total of 30 sampling events

Table 38 Summary of Selected Parameters in the Anacostia River Watershed

Parameters	2001-2012*		2013-2016**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.0003	0.0120	ND	0.0037
Copper, Total	0.0060	0.4500	0.0140	0.9170
Lead, Total	0.0014	0.1000	0.0033	0.0140
Zinc, Total	0.0200	0.8900	0.0055	0.2700
Total Suspended Solids	6	1400	4	75
Total Phosphorous	0.0170	1.5000	0.1000	0.4600
Total Nitrogen	0.9000	13.0000	1.7000	5.6000

*Samples were collected from nine (9) stations for a total of 99 sampling events from 2001 thru 2012

** Samples were collected from two (2) stations for a total of 30 sampling events

Table 39 Summary of Selected Parameters in Rock Creek Watershed

Parameters	2003-2011*		2013-2016**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.0005	0.0310	ND	0.00077
Copper, Total	0.0028	0.3600	0.0100	0.1200
Lead, Total	0.0030	0.2800	0.0033	0.0260
Zinc, Total	0.0170	0.3440	0.0270	0.0940
Total Suspended Solids	5	2,600	1	110
Total Phosphorous	0.0760	13.0000	0.1300	0.8700

*Samples were collected from six (6) - 10 stations for a total of 47 sampling events from 2003 thru 2011

** Samples were collected from two (2) stations for a total of 30 sampling events

5.2.2 Storm Event Data

The National Oceanic and Atmospheric Administration (NOAA) rain gauge located at Ronald Reagan Washington National Airport is used to track rain conditions for the District and surrounding areas, Table 40. The Annual precipitation within the District of Columbia for the 2016 monitoring period totaled 35.71 inches. Table 41 details the measurements of storms sampled during the 2016 monitoring period. This information includes, as required by the MS4 Permit, the date, duration, and size of storm events, and time to previous sampled storm. The required flow measurements can be found in Section 5.5 of this report.

Table 40 Precipitation Record for the District of Columbia

Year	Month	Rainfall (inches)*	Number of Days in Month with Storms >0.10 inches	Monthly Average (inches)
2015	November	2.10	6	2.76
	December	4.84	11	3.12
2016	January	2.68	7	3.10
	February	3.79	5	2.83
	March	1.60	5	3.54
	April	2.05	5	3.14
	May	5.65	12	3.72
	June	3.68	7	3.85
	July	3.13	10	4.15
	August	2.79	3	4.05
	September	2.50	6	3.58
	October	0.90	3	3.09
Total		35.71		40.93

* Rain gauge reading at Ronald Reagan Washington National Airport.

Table 41 Sampled Storm Characteristics

Date	Precipitation (inches)	Duration (hours)	Time to Previous Measurable Rainfall (approx. days)	Sites Sampled
10/28/15	0.65	9	20	A1, A2, B2
12/14/15	0.13	3	12	B1, C1, C2
5/21/16	0.65	48	3.5	A1, A2, B1, B2, C1, C2
7/29/16	0.37	9	9	A2, B1, B2, C1, C2
9/19/16	0.46	6	29	A1

5.2.3 Sample type, Collection, and Analysis

The District conducted the water quality sampling and analysis in accordance with the requirements specified in the MS4 Permit, SWMP, and EPA regulations. Table 42 details the water quality sampling and laboratory requirements.

Table 42 Sample Analysis Requirements

Bottle Type	Sample Type	Parameter	Method	Units	Monitoring Detection Limit
1000 mL Plastic, Sterile	Grab	E. coli	SM9221F	MPN/ 100 mL	200
500 mL Plastic H ₂ SO ₄	Composite	Total Nitrogen	Calculation	mg/L	1.0
500 mL Plastic H ₂ SO ₄	Composite	Phosphorus, Total	SM4500-P B, E	mg/L	0.010
1-L Plastic Unpreserved	Composite	Total Suspended Solids	SM2540D	mg/L	1.0
1000 mL Plastic HNO ₃	Composite	Cadmium, Total	EPA 200.8	mg/L	0.00050
1000 mL Plastic HNO ₃	Composite	Copper, Total	EPA 200.8	mg/L	0.0010
1000 mL Plastic HNO ₃	Composite	Lead, Total	EPA 200.8	mg/L	0.0010
1000 mL Plastic HNO ₃	Composite	Zinc, Total	EPA 200.8	mg/L	0.0050

5.2.4 Sampling Waiver

For FY 2016 the District was able to collect all required monitoring samples for the chemical and physical constituents listed in Table 4 of the MS4 Permit.

5.3 Dry Weather Monitoring

5.3.1 Dry Weather Screening Program

The District continues with the dry weather screening program as described in the SWMP. Dry weather sampling will commence on scheduled days following periods of dry weather (seventy-two (72) hours of no precipitation). Table 43 detail the ambient water quality results for dry weather sampling.

Table 43 Quality Data from Dry Weather Sampling

Site	Location	Date	Water Temp (°F)	pH	DO *(mg/L)	Estimated Flow (gpm)
A1	Anacostia High School	4/18/16	64.4	7.42	11.60	112.20
		7/12/16	69.5	6.50	1.86	95.40
A2	Gallatin and 14 th St. NE	4/18/16	59.4	7.18	13.59	140.30
		7/12/16	70.6	6.78	8.71	733.10
B1	Walter Reed	4/18/16	56.9	6.98	13.29	0.64
		7/26/16	71.8	7.02	11.46	0.78
B2	Soapstone Creek	4/18/16	61.7	7.45	12.29	327.30
		7/26/16	70.3	7.44	10.23	163.60
C1	Battery Kemble Creek	4/18/16 (NDF)	--	--	--	--
		7/26/16 (NDF)	--	--	--	--
C2	Oxon Run	4/18/16	62.4	6.68	11.44	55.50
		7/12/16	67.7	6.61	4.16	159.80

NDF – No Dry Weather Flow

* Field measurements were taken as % saturation

The water quality monitoring data for dry weather sampling is found in Table 44. The geometric mean for each parameter was calculated to represent the event mean concentration (EMC). The

analysis for dry weather monitoring included additional parameters of concern. The full dry weather monitoring results are included in Attachment J.

Table 44 Summary of Dry Weather Monitoring (Geometric Mean)

Site	TN (mg/L)	TP (mg/L)	TSS (mg/L)	E. Coli (MPN/100mL)	Cd (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)
A1	1.98 (n=2)	0.008 (n=2)	5.43 (n=2)	200 (n=2)	0.0010 (n=2)	0.0066 (n=2)	0.0012 (n=2)	0.0211 (n=2)
A2	2.89 (n=2)	0.013 (n=2)	1 (n=2)	15 (n=2)	0.0002 (n=2)	0.0051 (n=2)	0.0012 (n=2)	0.0218 (n=2)
B1	4.57 (n=2)	0.004 (n=2)	0.1 (n=2)	510 (n=2)	0.0005 (n=2)	ND (n=2)	ND (n=2)	0.0131 (n=2)
B2	4.06 (n=2)	0.008 (n=2)	1.59 (n=2)	59 (n=2)	0.0002 (n=2)	0.0156 (n=2)	0.0003 (n=2)	0.0151 (n=2)
C1**	(n=0)	(n=0)	(n=0)	(n=0)	(n=0)	(n=0)	(n=0)	(n=0)
C2	3.79 (n=2)	0.005 (n=2)	1.61 (n=2)	643 (n=2)	ND (n=2)	0.0018 (n=2)	ND (n=2)	0.0110 (n=2)

* If a sample result is below the detection limit, one-half the detection limit is used in the calculation of the geometric mean

** no dry weather flow was observed at this site

ND: Analyte not detected at or above the reporting limit

5.3.2 Screening Procedures

Details on screening procedures can be found in Section 4.7.

5.3.3 Follow-up on Dry Weather Screening Results

The District continues to implement an IDDE program for locating and eliminating all suspected sources of illicit connections and improper disposals identified during dry weather screening.

The District's IDDE program description and implementation activities can be found in Section 4.7 of this report.

5.4 Area and Source Identification Program

The District is highly urbanized, with little available land for further development. The MS4 drainage area contains approximately 26,500 acres, which is two-thirds of the District. The Combined Sewer System (CSS) drainage area encompasses approximately 12,640 acres, which is one-third of the District. All new development and redevelopment of existing areas is subject to the District's stormwater management regulations with a review by DOEE. The land use and impervious area must be indicated on all stormwater management plans submitted to DOEE for

review and inspection. No single development plan reviewed to date has sufficient land area to make a significant impact to the MS4 system. The cumulative impacts of the proposed and new developments have not resulted in a significant change for the existing land use activities in the portion of the District served by the MS4. Table 45 provides the existing land use by planning area in the District (MS4 and CSS).

Table 45 Acres of Existing Land and Water Use by Planning Area

Land Use Type	Planning Area											
	Capitol Hill	Central Washington	Far northeast & southeast	Far southeast & southwest	Lower Anacostia waterfront/near southwest	Mid city	Near northwest	Rock creek east	Rock creek west	Upper northeast	Citywide	Percent (%)
Public Rights-of-Way	759	899	1,338	906	477	628	716	1,311	1,760	1,223	10,018	25
Single Family Detached Homes	6	0	775	164	7	15	84	919	2,324	641	4,936	13
Single Family Attached Homes/ Row Homes	520	10	641	328	30	497	340	606	290	611	3,874	10
Low-Rise Apts.	43	10	436	555	106	136	110	85	185	189	1,856	5
High-Rise Apts.	4	26	20	44	26	59	65	25	109	25	402	1
Commercial	97	448	129	63	122	144	220	106	170	296	1,795	5
Industrial	5	16	12	5	42	21	6	16	0	295	418	1
Local Public Facilities	72	47	154	441	47	54	75	131	67	102	1,110	3
Federal Facilities (excl. parks)	47	481	4	1,067	409	1	1	412	283	76	2,781	7
Institutional	42	67	71	117	22	142	249	163	659	730	2,262	6
Permanent Open Space	296	678	1,321	729	533	141	354	878	2,011	1,038	7,980	20
Rail, Utilities Communication,	1	36	223	74	11	97	6	83	4	321	857	2
Vacant	66	58	179	188	51	36	33	22	111	99	843	2
Total Land	1,958	2,776	5,305	4,687	1,884	1,971	2,259	4,757	7,982	5,645	39,225	100
Water	117	509	135	1,791	1,295	46	239	19	313	89	4,554	
Total Land and Water	2,075	3,284	5,440	6,474	3,179	2,017	2,498	4,776	8,288	5,735	43,766	

5.5 Flow Measurements

Wet weather sampling measurements for flow are found in Table 46. Dry weather sampling measurements for flow are found in Table 47.

Table 46 Flow Measurements for Wet Weather Sampling

Site	Location	Date	Estimated Flow (gpm)
A1	Anacostia High School	10/28/15	8,976.6
		5/21/16	13,165.7
		9/19/16	10,472.7
A2	Gallatin and 14 th St. NE	10/28/15	4,488.3
		5/21/16	2,244.2
		7/28/16	5,610.0
B1	Walter Reed	12/14/15	11.7
		5/21/16	52.4
		7/28/16	698.2
B2	Soapstone Creek	10/28/15	5,984.4
		5/21/16	2,064.6
		7/29/16	17,953.3
C1	Battery Kemble Creek	12/14/15	0.5
		5/21/16	134.6
		7/29/16	15.6
C2	Oxon Run	12/14/15	668.5
		5/21/16	2,462.2
		7/29/16	771.4

Table 47 Dry Weather Measurements for Flow

Site	Location	Date	Estimated Flow (gpm)
A1	Anacostia High School	4/18/16	112.20
		7/12/16	95.40
A2	Gallatin and 14 th St. NE	4/18/16	140.30
		7/12/16	733.10
B1	Walter Reed	4/18/16	0.64
		7/26/16	0.78
B2	Soapstone Creek	4/18/16	327.30
		7/26/16	163.60
C1	Battery Kemble Creek	4/18/16	NDF
		7/26/16	NDF
C2	Oxon Run	4/18/16	55.50
		7/12/16	159.80

NDF: No Detectable Flow

5.6 Monitoring and Analysis Procedures

The District's monitoring is conducted using the procedures approved in 40 C.F.R Part 136, http://www.epa.gov/region9/qa/pdfs/40cfr136_03.pdf.

Detection limits for the District's water quality monitoring can be found in Table 42.

5.7 Reporting of Monitoring Results

All monitoring results are submitted via NetDMR as required by the MS4 Permit. All monitoring results are also summarized and reported in the MS4 Annual Report. One copy of the Annual Report is sent to both EPA Region III and the National Marine Fisheries Service Greater Atlantic Region Fisheries Office each year.

5.8 Additional Monitoring

The District did not monitor any pollutant more frequently than required by the MS4 Permit.

5.9 Retention of Monitoring Information

The District continues to retain all monitoring records in electronic and hard copy files as required by the MS4 Permit.

5.10 Record Content

DOEE maintains a record of rainfall event, sampling, and analysis data.

This data includes:

- Description of Sampling, including
 - Sampling protocols;
 - Location/Collection time;
 - Sample collection procedures;
 - Field notes;
 - Sampling personnel;
- Storm Event Data, including
 - Date and duration of storm events sampled;
 - Rainfall measurements;
 - Duration between storm event sampled and the end of the previous measurable storm event;
 - Estimate of the total volume of the discharge sampled; and,
- Storm Water Analysis Data, including
 - Field test results; and,
 - Laboratory results.

6 REPORTING REQUIREMENTS

The District continues to comply with the reporting requirements and deliverable dates of the MS4 Permit.

6.1 Discharge Monitoring Report

As required in Section 5.7 and 6.1 of the MS4 Permit, monitoring results were submitted to EPA via NetDMR on January 18, 2017. A summary of monitoring results can be found in Section 5 of this report.

6.2 Annual Reporting

The District continues to submit the Annual Report to EPA Region III and publish the reports to the DOEE website, located at <http://DOEE.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports>.

6.2.1 Annual Report

The 2016 Annual Report follows the format of the MS4 Permit and addresses each Permit requirement. The required elements of Section 6.2., a-p, are addressed throughout this report. The activities described as “FY 2017 Goals” in each section of the Annual Report fulfill the Section 6.2.1.1 requirement to provide a summary of commitments for the next year.

6.2.2 Annual Report Meeting

DOEE fulfilled the requirements of this Permit section on February 21, 2013 upon completion of the 1st Annual Report meeting with EPA Region III staff.

7 MODELING

The District’s TMDL Implementation Plan Modeling Tool (IPMT) was developed in 2014 to estimate stormwater runoff; conduct an initial baseline analysis of pollutant loading, evaluate progress made toward WLA attainment (using BMP implementation to-date), and to forecast pollutant reductions associated with implementation of the new stormwater regulations. The IPMT also includes a comprehensive TMDL inventory that provides users with access to details for each waterbody, pollutant, TMDL document, decision rationale document, and numeric wasteload allocation.

DOEE updates the IPMT at the end of each annual reporting cycle with the specifications of BMPs that have been implemented in that time frame. These data are then used to model pollution reductions made toward implementation milestones and, if necessary, guide adaptive management strategies.

Additionally in FY 2016, in response to comments received on the Consolidated TMDL Implementation Plan, the model was modified to evaluate alternative BMP implementation scenarios. Other key enhancements during this period include improved numeric (tabular) and

graphic reports for tracking progress towards annual benchmarks and five-year milestones, the inclusion of updated documentation, including a draft of the IPMT user manual, and additional BMP data that supports enhanced (District-wide) mapping functionality.

The volume of stormwater removed from the MS4 as a result of implementing stormwater controls for FY 2016 is provided in Section 4.1.5.3 of this Annual report.

The implementation activities of this section fulfil the reporting requirements of Section 6.2.1.g and Section 7 of the MS4 Annual Report.

8 ATTACHMENTS

- A. Memorandum of Understanding (43 pages)
- B. Critical Sources Inspections (3 pages)
- C. List of FY 2016 Erosion and Sediment Control Enforcement Actions (7 pages)
- D. FY 2016 IDDE Investigations (3 pages)
- E. FY 2016 Household Hazardous Waste Collection (3 pages)
- F. FY 2016 Trash Cleanup Event Data (4 pages)
- G. Monitoring Location Maps (9 pages)
- H. Wet Weather Monitoring Data (1 page)
- I. Monitoring for Trash in District Waters 2016 Annual Progress Report (15 pages)
- J. Dry Weather Monitoring Data (1 page)

Attachment A: Memorandum of Understanding (43 pages)

GOVERNMENT OF THE DISTRICT OF COLUMBIA



**MEMORANDUM OF UNDERSTANDING
BETWEEN
DISTRICT DEPARTMENT OF TRANSPORTATION (“DDOT”) AND
DEPARTMENT OF ENERGY AND ENVIRONMENT (“DOEE”):**

Tree Policy, Coordination and Responsibilities for FY 16-19

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I. INTRODUCTION

This Memorandum of Understanding (“MOU”) is entered into between the District Department of Transportation, through its Urban Forestry Administration (“DDOT”) and the Department of Energy and Environment (“DOEE”), collectively referred to herein as the “Parties.”

The Parties wish to establish the roles and responsibilities for each agency related to the health and maintenance of the tree canopy, tree planting, and other related environmental goals. This Agreement will improve coordination and collaboration, and assist the Parties in meeting the District of Columbia’s tree canopy and other environmental goals. The environmental goals include: reducing stormwater runoff; improving air quality, mitigating urban heat island effects; cleaning up the Anacostia River and watershed; ensuring environmental justice and equity in underserved communities; and creating a more diverse ecosystem where wildlife can thrive. In order to achieve these goals, the Parties will align their existing and future programs as they relate to trees.

DDOT’s Urban Forestry Administration (“DDOT-UFA”) manages the “street trees”, those within the public rights-of-way, including certain elements of green infrastructure, and administers the Urban Forest Preservation Act of 2002, D.C. Code § 8-651.01 *et seq.* DDOT-UFA’s provides expertise on forest health, urban forest management and green infrastructure implementation and maintenance. DDOT-UFA employs a staff of certified arborists and landscape architects.

DOEE is the District’s leading authority on energy and environmental issues. DOEE’s mission is to improve the quality of life for the residents and natural inhabitants of the nation’s capital by protecting and restoring the environment, conserving our natural resources, mitigating pollution, increasing people’s access to clean and renewable energy, and educating the public on ways to secure a sustainable future. DOEE houses the District’s statutorily-designated Stormwater Administrator and coordinates District agencies in meeting the mandates of the District’s EPA MS4 permit. Trees play an integral role in achieving this mission.

The purpose of this MOU is to better align the efforts, strategies, policies and programs of the Parties to achieve the District’s tree and environmental goals. Coordination and clear responsibilities are critical, as both Parties are constrained by limited staff and funding.

II. PROGRAM GOALS AND OBJECTIVES

The District of Columbia has established the goal to achieve a 40% healthy tree canopy by 2032¹. The District seeks to reduce stormwater runoff, minimize the extent of impervious surfaces, mitigate heat island effects, and restore wildlife habitat. The Parties share these goals. The Parties' measurable objectives are to develop a partnership to accomplish their jointly-held goals, staff the Urban Forestry Advisory Council ("UFAC"), develop a format, and provide the information for an annual report to the Executive Office of the Mayor and the Council of the District of Columbia.

Parts I and II appear for the convenience of the Parties. Other than using the terms in these parts to resolve ambiguities, statements in them shall not be read to modify the express provisions below.

III. SCOPE OF SERVICES/RESPONSIBILITIES OF THE PARTIES

A. BOTH DDOT and DOEE SHALL

- 1) Set the overall policy and strategy for achieving the District's tree canopy and planting goals;
- 2) Educate, engage and perform outreach to District residents and property owners about the benefits of trees and their impact on the District and its environment;
- 3) Coordinate and provide guidance to local contractors and non-profits to ensure that, depending on their location, all new tree plantings achieve the District's tree and other environmental goals;
- 4) Identify opportunities to leverage local and federal funds to increase tree plantings, planning and related activities;
- 5) Work with local contractors and non-profits to increase their capacity to achieve the District's tree canopy and environmental goals;
- 6) Identify tree policies and programs in which desired outcomes may inadvertently run counter to other District policy objectives, and develop win-win solutions;
- 7) Provide staff support to the Urban Forestry Advisory Council by coordinating and scheduling all activities necessary for the Advisory Council to function effectively;
- 8) Share data to improve accounting of existing trees and new plantings;

¹ Sustainable DC, Nature, Goal 2, Action 2.5 – Page 77,

http://sustainable.dc.gov/sites/default/files/dc/sites/sustainable/page_content/attachments/DCS-008%20Report%20508.3j.pdf

- 9) Respond to legislation that may impact the District's tree canopy, policy and practices;
- 10) Conduct regular analysis of the District's tree canopy;
- 11) Coordinate current and future programs, policies, projects, funding streams, data and performance measures to achieve the desired tree outcomes; and
- 12) Agree on deliverables that achieve the responsibilities of the parties outlined in this section and convene quarterly meetings to review progress, ongoing projects and issues that need be addressed.

B. DDOT SHALL

- 1) House, fund and manage the Office of the State Forester;
- 2) Collaborate with DOEE's designated tree coordinator;
- 3) Partner with DOEE to:
 - a) Review, revise and improve the District's tree policies and meet its goals;
 - b) Develop additional strategies to enhance the District's ability to meet its environmental goals; and
 - c) Implement initiatives to advance existing and additional strategies;
- 4) In particular, for non-street trees, develop with DOEE a strategy and package of initiatives to increase the planting and care of non-street trees;
- 5) Identify funding, if any, that can be used to plant and maintain non-street trees;
- 6) Identify for DOEE, with GIS data, parcels for planting opportunities;
- 7) Share with DOEE the data that DDOT collects on the District's tree canopy; and
- 8) Provide training, as the Parties agree, for DOEE staff regarding urban forestry practices and standards.

C. DOEE SHALL

- 1) Collaborate with DDOT's Office of the State Forester;
- 2) Partner with DDOT to:
 - a) Review, revise and improve the District's tree policies and meet its goals;

- b) Develop additional strategies to enhance the District’s ability to meet its environmental goals; and
 - c) Implement initiatives to advance existing and additional strategies;
- 3) In particular, for non-street trees, develop with DDOT a strategy and package of initiatives to increase the planting and care of non-street trees;
 - 4) Identify funding, if any, that can be used to plant and maintain non-street trees;
 - 5) Share with DDOT DOEE’s non-street tree data;
 - 6) Share with DDOT DOEE’s plans and programming for non-street tree planting, including its Riversmart and Stormwater programs;
 - 7) Attend and participate in DDOT training, as the Parties agree, regarding urban forestry practices and standards;
 - 8) Coordinate with DDOT and other District environmental stakeholders in order to maximize the use of trees to promote and achieve the District’s environmental goals;
 - 9) Coordinate with DDOT to develop and implement initiatives that will increase planting and improve maintenance of non-street trees on:
 - a) Private property;
 - b) Federal land; and
 - c) District land;
 - 10) Develop a native tree planting guidebook that will:
 - a) Build on the provisions of Sustainable DC’s “Build on Sustainable DC Nature Action” 2.5; and
 - b) Inform:
 - i) Local contractors, non-profits and District residents and property owners about different trees species’ care and maintenance requirements;
 - ii) The reader regarding the impacts that different tree species have on the District’s tree canopy, wildlife, public health, public safety and property values;
 - iii) The reader regarding the effect that tree choices have on the District’s achieving its environmental goals.

IV. DURATION OF MOU

The period of this MOU shall be from the date of signing until the end of Fiscal Year 2019, unless terminated in writing by either Party prior to the expiration. The Parties

intend to renew this MOU at the end of Fiscal Year 2019 for an additional five (5) year term.

V. AUTHORITY FOR MOU

The authority for this MOU is D.C. Official Code § 50-921.04(5)

VI. FUNDING PROVISIONS

A. COST OF SERVICES

1. This MOU involves no exchange of funds.

VII. CONFIDENTIAL INFORMATION

The Parties to this MOU will use, restrict, safeguard, and dispose of all information related to services provided pursuant to this MOU in accordance with all relevant federal and local statutes, regulations, and policies, specifically the Freedom of Information Act (“FOIA”).

VIII. TERMINATION

Either Party may terminate this MOU in whole or in part by giving thirty (30) calendar days advance written notice to the other Party. Written notice includes email with confirmation that the message was received and read.

IX. NOTICE

The following individuals are the contact points for each party:

DOEE:

Jeffrey Seltzer, P.E.

Associate Director, Stormwater Management Division

1200 First Street, N.E., 5th Floor

Washington, DC 20002

Email: Jeffrey.seltzer@dc.gov

Desk: 202-535-1603

DDOT:

Earl Eutsler

Acting Associate Director, Urban Forestry Administration

55 M Street, S.E., Suite 400

Washington, DC 20003
Email: Earl.entsler@dc.gov
Desk: (202) 645-6140

X. MODIFICATIONS

The terms and conditions of this MOU may be modified only upon written agreement.

XI. COMPLIANCE WITH THE LAW

The Parties shall comply with all applicable laws, rules and regulations whether now in force or hereafter enacted or promulgated.

XII. DISPUTE RESOLUTION

The Parties' Directors or their designees shall resolve disputes under this MOU. In the event that the Parties are unable to resolve a dispute, either party may refer the matter to the Office of the City Administrator ("OCA"). The decision of OCA shall be final.

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SIGNATURES ARE ON FOLLOWING PAGE

MOU DDOT and DOEE – Trees FY16-19

SIGNATURES:

The Parties agree to this MOU.

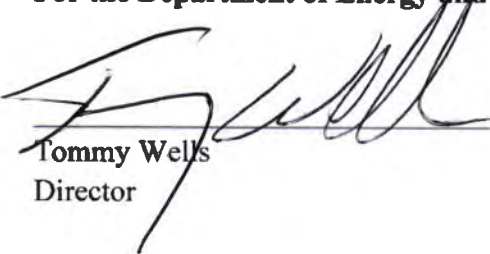
For the District Department of Transportation



Leif Dormsjo
Director

Date: 12/16/15

For the Department of Energy and Environment



Tommy Wells
Director

Date: 12/17/15

Approved for legal sufficiency,



Beth Mullin, Interim General Counsel

Date: 12/17/15

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Department of Energy and Environment



June 17, 2016

Mr. Christopher Shorter
Director
The District of Columbia Department of Public Works
Franklin D. Reeves Municipal Center
2000 14th Street, NW
Washington, DC 20009

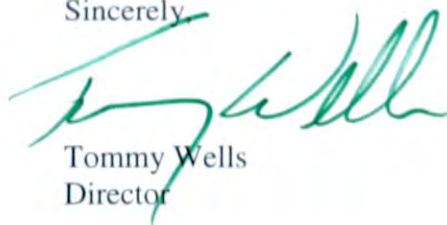
Subject: Amendment to FY 2015 MS4 Enterprise Fund MOU with DOEE for DPW FY 2016
Activities

Dear Mr. Shorter:

Attached you will find a copy of an amendment to the FY 2015 MS4 Enterprise Fund Memorandum of Understanding (MOU) between DOEE and DPW. This MOU amendment will allow DOEE to provide FY 2016 MS4 Enterprise funding to DPW to implement a weekly household hazardous waste collection program; disseminate leaf litter collection brochures to District residents; and maintain regenerative-air street sweepers. All of these activities are vital to reducing harmful stormwater runoff from reaching the District's waterways.

Thank you for your continued support in working with DOEE. If you have any questions concerning the MOU please contact Mr. Jeffrey Seltzer, Associate Director of DOEE's Stormwater Management Division, at (202) 535-1603. Once again it is a pleasure working with you and your staff on important environmental initiatives. We look forward to continuing that relationship in the future.

Sincerely,



Tommy Wells
Director

Attachment

DISTRICT OF COLUMBIA

**MEMORANDUM OF UNDERSTANDING
BETWEEN
DEPARTMENT OF ENERGY & ENVIRONMENT
AND
DEPARTMENT OF PUBLIC WORKS
REGARDING MS4 STORMWATER PERMIT FISCAL ADMINISTRATION
AMENDMENT # 1**

The Memorandum of Understanding (MOU) between the Department of Public Works (DPW) and the Department of Energy & Environment (DOEE), dated September 14, 2015, is amended to specify the amount of funds to be transferred to DPW from the FY 2016 MS4 Enterprise Fund, identify the activities to be conducted for FY 2016 by DPW to comply with the MS4 Permit, and update the duration of the MOU.

PART III.B.7: After subsection 6 on page 4, insert the following text:

7. For FY 2016, DOEE has approved the following funding to DPW, as follows:

- a. DOEE has reviewed a request for funding provided by DPW for FY16 MS4 activities.
- b. DOEE approves the total cost for DPW services under the MOU to not exceed the amount stated in the table below, based on the actual cost spent by DPW.
- c. DOEE approves funding only for the activities listed below and has transferred the funds to DPW. The total amount shall be used to conduct the following activities in the priority indicated:

Activity	Amount	Priority
Hazardous waste collection from permanent DPW drop-off facility (Fort Totten)	\$ 275,000	1
Public education (leaf collection brochures)	\$ 35,000	2
Operation and maintenance of MS4 regenerative air sweepers.	\$ 240,000	3
Total Amount	\$ 550,000	

PART IV: Delete Sections A through C on page 4 and replace them with the following text:

- A. This MOU shall be effective through September 30, 2016.
- B. The duration may be extended only in writing.

C. The extension of this MOU shall be subject to the availability of funds at the time.

PART VI.A: Delete Section A on page 5 and replace it with the following text:

A. COST OF SERVICES, if any

- 1. Total cost for services under this MOU shall not exceed \$550,000.00 for the fiscal year for project items identified in Part III.B.
- 2. Funding from DOEE shall be applied only to the items identified.
- 3. Funding shall not exceed actual cost.

All other provisions of the MOU shall remain the same.

DEPARTMENT OF ENERGY AND THE ENVIRONMENT

Tommy Wells 6/17/16

 Tommy Wells, Director Date

Beth Mullin by Amy B... 6/16/16

 Beth Mullin, Deputy General Counsel Date
 For legal sufficiency

DISTRICT DEPARTMENT OF PUBLIC WORKS

 Christopher Shorter, Director Date

DISTRICT OF COLUMBIA

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DEPARTMENT OF ENERGY AND ENVIRONMENT (DOEE)
AND
THE DEPARTMENT OF PUBLIC WORKS (DPW):**

MS4 STORMWATER PERMIT NON-SWEEPING FY 15

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I. INTRODUCTION

This Memorandum of Understanding ("MOU") is entered into between the Department of Energy and the Environment ("DOEE") and the Department of Public Works ("DPW"), collectively referred to herein as the "Parties." This introduction section appears for the Parties' convenience, and statements in it shall not be read to modify the express provisions below.

Stormwater discharges to the waters of the United States from the District's municipal separate storm sewer system (MS4) are authorized by the NPDES Permit issued to the District of Columbia as Permittee, No. DC0000221 (Nov. 9, 2012) (Final Signed Limited Modification, available at <http://www.epa.gov/reg3wapd/npdes/depermits.htm>). On November 9, 2012, the US Environmental Protection Agency ("EPA") re-issued the District's MS4 Permit Number DC0000221, to authorize stormwater discharges, to the District of Columbia as Permittee. The

NPDES permit commits the District to undertake measures to improve the quality of stormwater discharges authorized. Each of the Parties have been assigned activities in the Stormwater Management Plan.

The MS4 Task Force has been established with representatives from DOEI, DPW, the District Department of Transportation ("DDOT"), the District of Columbia Water and Sewer Authority ("DC Water", formerly "WASA"), Department of General Services ("DGS"), Department of Parks and Recreation ("DPR"), and the Office of Planning ("OP"), to manage activities required in the MS4 Permit, pursuant to the Comprehensive Stormwater Management Enhancement Amendment Act of 2008, D.C. Official Code § 8-152.01 et seq.

DOEI's Director, or his designee, was made the Stormwater Administrator, with primary responsibility for heading the Stormwater Administration, pursuant to the District Department of the Environment Establishment Act of 2005, D.C. Official Code § 8-151.03(b)(2). DOEI's name was changed in 2015, as cited below.

The stormwater management activities in the Implementation Plan are supported by fees collected by DC Water and deposited in the Stormwater Permit Compliance Enterprise Fund (Stormwater Fund). The Stormwater Administrator is authorized to certify the sufficiency of the Stormwater Fund to meet MS4 Permit budget requests. It may be necessary for some or all parties in the MS4 Task Force to take action to amend, program, reprogram or supplement their respective budgets in order to lawfully undertake activities required by the MS4 permit.

In the event that not all the activities can be funded, priority will be given to the projects that provide the most benefit in reducing stormwater pollution and can be implemented most expeditiously, as the Parties determine.

The purpose of this MOU is to administer finances and reimbursements from the Stormwater Fund for activities conducted to reduce pollutants to the District of Columbia, under the MS4 National Pollution Discharge Elimination System administered by the US Environmental Protection Agency (NPDES) Permit (MS4 Permit).

DOEI has requested the services of DPW to conduct activities to reduce pollutants to the District of Columbia, under the MS4 Permit.

This MOU specifies the amount of funds to be transferred to DPW from the specified period's Stormwater Fund, identifies the activities to be conducted by DPW to comply with the MS4 Permit, and states the duration of the MOU. This MOU does NOT address implementation of an enhanced street sweeping program; that is the subject of a separate MOU.

II. PROGRAM GOALS AND OBJECTIVES

The goal of the Project is to improve water quality in the waters of the District of Columbia affected by the MS4, for the benefit of District of Columbia residents, visitors, wildlife and the

environment. This Goals and Objectives section appears for the Parties' convenience, and statements in it shall not be read to modify the express provisions below.

A further goal of the Project is to reduce the stormwater pollutants that enter the local waters (i.e. rivers, streams, estuaries) of the District of Columbia, as required under the current applicable MS4 Permit.

The Parties' objectives are to: conclude satisfactorily the activities addressed in the section on scope of services; and to carry out the purposes of the MOU expeditiously and economically.

III. SCOPE OF SERVICES

DOEE and DPW agree to do the following:

A. RESPONSIBILITIES OF DPW

DPW will:

1. Request in writing funding from DOEE.
2. Justify the need for funding, with:
 - a. A list of projects and the amount of funding needed for each project; and
 - b. An explanation that the activities to be funded are above and beyond activities carried out by DPW before April 19, 2000.
3. Carry out the funded activities.

B. RESPONSIBILITIES OF DOEE

DOEE will:

1. Review DPW's budget request.
2. If it deems necessary, request additional information from DPW to justify the project or activity.
3. In the event of a budget shortfall, allocate remaining funds giving priority to the projects that DOEE determines would provide the most benefit in reducing stormwater pollution.
4. Request that DPW make up the difference if DOEE determines that the fiscal year's

revenues from the Stormwater Fund will be less than the anticipated costs of the Stormwater Administration for the relevant period.

5. Transfer of the identified funds from DOEE to DPW for the approved activities, subject to availability.
6. For FY 2015, DOEE has approved the following funding to DPW, as follows:
 - a. DOEE has reviewed a request for funding provided by DPW for FY15 MS4 activities.
 - b. DOEE approves the total cost for DPW services under the MOU to not exceed the amount stated in the table below, based on the actual cost spent by DPW.
 - c. DOEE approves funding only for the activities listed below and has transferred the funds to DPW. The total amount shall be used to conduct the following activities in the priority indicated:

Activity	Amount	Priority
Hazardous waste collection from permanent DPW drop-off facility (Fort Totten)	\$ 275,000	1
Public Education (leaf collection brochures)	\$ 35,000	2
Operation and maintenance of MS4 regenerative air sweepers	\$ 240,000	3
Total Amount	\$ 550,000	

IV. DURATION OF MOU

- A. The period of this MOU shall be for FY 2015, through September 30, 2015, unless terminated in writing by a Party prior to the expiration.
- B. The duration may be extended only in writing.
- C. The extension of this MOU shall be subject to the availability of funds at the time.

V. AUTHORITY FOR MOU

- A. The Parties are authorized to enter into this MOU pursuant to D.C. Official Code § 1-301.01(k) (District agencies), that authorizes District agencies to enter into a MOU for orders placed with other departments, at actual cost.
- B. DOEE is further authorized to enter into this MOU pursuant to the following:

1. The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188, as amended), D.C. Official Code §8-103.01 *et seq.*, including: §8-103.13 (2012) (Mayor regulates construction bearing upon water quality);
2. The District Department of the Environment Establishment Act of 2005, effective February 15, 2006 (D.C. Law 16-51, §§101 *et seq.*, as amended), including D.C. Official Code §8-151.03 (2012) (establishment of DOEE and consolidation of environmental functions); § 8-151.03(b)(2) (stormwater administration, including the monitoring and coordinating the activities of all District agencies that are required to maintain compliance with the stormwater permit, receiving and expending funds from the Stormwater Permit Compliance Enterprise Fund); §8-151.07 (2011 Supp.) (Director guides and enforces environmental services and federal actions, promulgates and enforces rules and programs, liaises with other agencies);
3. The Comprehensive Stormwater Management Enhancement Amendment Act of 2008, effective March 25, 2009 (D.C. Law 17-371, §2(b), as amended), including D.C. Official Code §8-152.01 (2012) (monitor, coordinate and secure information from District agencies required to comply with the Stormwater Permit and administer the stormwater program within DOEE); §8-152.03 (2012) (stormwater fee discount program); §8-152.04 (2012) (establish an enterprise grant fund program);
4. Mayor's Order 2006-61, dated June 14, 2006 (delegation and transfer of authority to DOEE Director); and
5. Mayor's Order 2015-191, dated July 23, 2015 (change name from District Department of the Environment [DDOE] to DOEE).

VI. INTRA-DISTRICT FUNDING PROVISIONS

A. COST OF SERVICES, if any

1. Total cost for services under this MOU shall not exceed \$550,000.00 for all project items identified in Part III.B.
2. Funding from DOEE shall be applied only to the items identified.
3. Funding shall not exceed actual cost.

B. PAYMENT

1. DOEE shall pay the amount stated in section "A", just above.
2. DOEE shall advance the amount stated for the fiscal year, through an Intra-District advance.

3. Advances to DPW for the services to be performed goods to be provided shall not exceed the amount of this MOU.
4. Unspent or unobligated funds at the end of the fiscal year shall be returned toDOEE's Stormwater Fund.
5. DPW shall submit a reconciliation report for the fiscal year by November 30 of the following fiscal year that shall explain the amounts charged for the period. The reconciliation report shall include copies of: (1) list of materials and their costs; (2) Labor costs, including hourly rates for each class of workers; and (3) contractor overheads.

VII. DISPUTE RESOLUTION

- A. The Parties will make every effort to resolve any disputes concerning this MOU at the Project staff level.
- B. In the event that the Parties' staff are unable to resolve a dispute, the matter will be elevated to the Parties' directors or their designees, for resolution within thirty (30) days.
- C. In the event that the Parties are unable to resolve a financial issue, the matter shall be referred to the D.C. Office of the Chief Financial Officer.

VIII. COMPLIANCE AND MONITORING

Since this MOU's funds include District of Columbia funds, DPW will be subject to scheduled and unscheduled monitoring reviews by the District of Columbia to ensure compliance with all applicable requirements.

IX. RECORDS AND REPORTS

DPW shall maintain records and receipts for the expenditure of all funds provided for a period of no less than three years from the date of expiration or termination of the MOU and, upon the District of Columbia's request, make these documents available for inspection by duly authorized representatives of DOEE and other officials as may be specified by the District of Columbia at its sole discretion.

X. SPECIAL PROVISIONS FOR TERMINATION OF THE MOU

Either Party may terminate this MOU in whole or in part by giving 30 calendar days advance written notice to the other Party.

XI. NOTICE

The following individuals are the official contacts for each Party under the MOU:

For DOEE:

Jeffrey Seltzer, P.E.
Stormwater Administrator
Department of Energy and Environment
1200 First Street, NE
Washington, DC 20002
Phone 202-535-1603
jeffrey.seltzer@dc.gov

For DPW:

Hallie Clemm
Department of Public Works
2000 14th Street, NW, 6th Floor
Washington, DC 20009
Phone 202- 645-5141
hallie.clemm@dc.gov

XII. MODIFICATIONS

The terms and conditions of this MOU may be modified only upon prior written agreement by the Parties.

XIII. MISCELLANEOUS – FOLLOW DISTRICT LAW

The Parties shall comply with all applicable laws, rules and regulations whether now in force or hereafter enacted or promulgated.

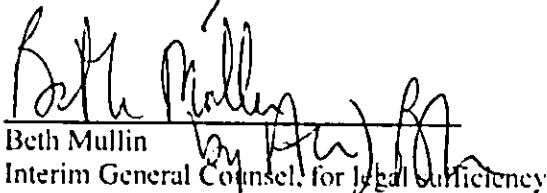
SIGNATURES

The Parties agree to this MOU, as follows:

DEPARTMENT OF ENERGY AND ENVIRONMENT


Tommy Wells, Director

9/8/15
Date


Beth Mullin
Interim General Counsel, for legal sufficiency

9-8-15
Date

DEPARTMENT OF PUBLIC WORKS


Christopher Shorter, Interim Director

9-14-15
Date

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DISTRICT OF COLUMBIA
MEMORANDUM OF UNDERSTANDING BETWEEN
THE DEPARTMENT OF ENERGY AND ENVIRONMENT (DOEE)
AND
THE OFFICE OF THE CHIEF FINANCIAL OFFICER,
FOR THE OFFICE OF TAX AND REVENUE (OCFO OTR):
BAG BILL

AMENDMENT # 1 – FY 16

INTRODUCTION

In accordance with the Mayor's Order 2015-191, approved July 23, 2015, the District Department of the Environment (DDOE) will now be referred to as the Department of Energy and Environment (DOEE).

This Amendment #1 amends the Memorandum of Understanding, dated June 26, 2015, between the Department of Energy and Environment and the Office of the Chief Financial Officer, for the Office of Tax and Revenue ("MOU"). The purpose of this amendment is to extend the term of the MOU through fiscal year 2016 (ending September 30, 2016) and increase the cost figure.

AMENDMENTS

1. Part V. DURATION OF THE MOU, paragraph A: *Delete the sentence and insert the following sentence referring to the date of the last signature and the new end date, so that the paragraph reads as follows:*

A. The period of this MOU shall be from June 26, 2015, through September 30, 2016.

2. Part VII. INTRA-DISTRICT FUNDING PROVISIONS, paragraph A, section 1: *Delete the sentence and insert the following sentence so that the section reads as follows:*

1. Total cost for services with funds provided by DOEE under this MOU shall not exceed fifty-one thousand, three hundred and two dollars (\$51,302) (\$42,553 for salary and \$8,749 for fringe benefits), unless DOEE specifically authorizes a change in writing;

ADDITIONAL PROVISIONS

The Parties make no other changes to the MOU.

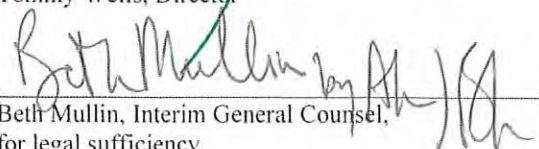
SIGNATURES

The following parties agree:

DEPARTMENT OF ENERGY AND ENVIRONMENT

 9/8/15

Tommy Wells, Director Date

 9/7/15

Beth Mullin, Interim General Counsel, for legal sufficiency Date

THE OFFICE OF THE CHIEF FINANCIAL OFFICER

 11/24/2015

Jeffrey S. DeWitt, Chief Financial Officer Date

**MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DISTRICT DEPARTMENT OF THE ENVIRONMENT
AND
THE OFFICE OF THE CHIEF FINANCIAL OFFICER, FOR THE OFFICE OF TAX
AND REVENUE**

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II. INTRODUCTION

This Memorandum of Understanding (“MOU”) is entered into between the District Department of the Environment, the buyer agency (“DDOE” or “Buyer”), and the Office of the Chief Financial Officer (“OCFO”), for Office of Tax and Revenue (“OTR”), the seller agency (“OTR” or “Seller”), collectively referred to herein as the “Parties” and individually as a “Party.”

OTR will provide compensable services to DDOE in the form of the collection, audit, and transmittal of funds for the benefit of the Anacostia River Clean Up and Protection Fund (“the Fund”). The Fund is comprised of fees from disposable carryout bags (“Fees”) contained on Sales and Use Tax Returns and voluntary tax contributions made via a check-off box on the District’s Individual Income Tax Returns (“Contributions”).

III. PROGRAM GOALS AND OBJECTIVES

The purpose of this MOU is to clarify and establish the responsibilities between DDOE and OTR in administering the Anacostia River Clean Up and Protection Act of 2009, effective September 23, 2009 (D.C. Law 18-55, as amended; D.C. Official Code §§ 8-102.01 *et seq.* ("Act")).

Under the Act, retail establishments that sell food or alcohol are required to charge consumers, at the time of a purchase, a fee of five cents (\$0.05) (or other amount as a statutory amendment may provide) for each disposable carryout bag. Retail establishments must remit a portion of these fees to OTR. The Fees collected by OTR are to be processed and deposited in the Fund, which is administered by DDOE. The Act requires that a voluntary tax contribution be made available on the District's Individual Income Tax Form. These monies are also to be deposited in the Fund. Finally, the Act requires OTR to provide services enabling the District to collect such revenues designated for the Fund from businesses and individuals in the District.

IV. SCOPE OF SERVICES

DDOE and OTR agree to do the following, which are necessary to achieve the purposes of the MOU expeditiously and economically. The first section states the services required from DDOE, and the second section states the services required from OTR:

A. Services from DDOE:

1. Administer the Fund into which the Fees OTR collects shall be deposited;
2. Conduct inspections and enforcement of the Act, imposing penalties on retail establishments in violation of the Act;
3. Provide OTR with funding for the services listed in this MOU;
4. Conduct public outreach to notify the public and retail establishments of the Act;
5. Maintain a single point-of-contact ("POC") whom OTR can contact should implementation, enforcement, or other issues arise; and
6. On a quarterly basis, provide to OTR POC a list of businesses inspected by DDOE, including their trade name, corporate name, site address and corporate address.

B. Services from OTR:

1. Include and maintain a check-off box for voluntary Contributions to the Fund made on the District's Individual Income Tax Return form;
2. Deposit Contributions into the Fund;
3. Receive and deposit Fees from retail establishments into the Fund;
4. Conduct outreach to retail establishments to make them aware of requirements of the Act as it relates to remittance of Fees;

5. Coordinate with District of Columbia Department of Consumer and Regulatory Affairs ("DCRA") to secure current listings of retail establishments regulated by the Act and ensure that those businesses pay the Fees through regular OTR audits;
6. Enforce against retail establishments failing to comply with remittance requirements of the Act;
7. Provide to DDOE POC periodic reports of Fees remitted to the District on the monthly, quarterly, and annual Sales and Use Tax Returns;
8. Provide to DDOE POC periodic reports of voluntary Contributions to the Fund made through Individual Income Tax Returns;
9. Perform necessary due diligence to ensure that all remittances of the Fees and Contributions are properly recorded in the tax system and are captured in the reports to DDOE POC;
10. On a quarterly basis, for each business inspected by DDOE, report to DDOE POC whether:
 - a. The business has remitted any Fees as provided under the Act;
 - b. The business has failed to remit Fees in violation of the Act;
 - c. The business' compliance status cannot be determined yet because of the frequency with which the business files Sales and Use tax returns.
11. Provide to DDOE POC an annual reconciliation of expenditures incurred performing services under this MOU;
12. Return, by the end of the first quarter of the following fiscal year, the portion of DDOE's advance payment to OTR not used for the payment of goods and services; and
13. Maintain a single POC who will provide DDOE with the information and reports listed above.

V. DURATION OF MOU

- A. The period of this MOU shall be from the date the last Party signs the MOU through September 30, 2015.
- B. The Parties expect that this arrangement will continue into future fiscal years, with amendments as required.
- C. The duration may be extended only in writing.
- D. The extension of this MOU shall be subject to the availability of funds at the time.

VI. AUTHORITY FOR MOU

- A. D.C. Official Code § 1-301.01(k) (District agencies) authorizes the Parties to enter into this MOU for orders placed with other departments, at actual cost.
- B. DDOE is further authorized to enter into this MOU pursuant to the following:
 - 1. The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188, as amended), D.C. Official Code §8-103.01 *et seq.*, including §8-103.13 (Mayor regulates construction bearing upon water quality);
 - 2. The District Department of the Environment Establishment Act of 2005, effective February 15, 2006 (D.C. Law 16-51, §§101 *et seq.*, as amended), including D.C. Official Code §8-151.03 (establishment of DDOE and consolidation of environmental functions); §8-151.03(b)(2) (stormwater administration, including monitoring and coordinating the activities of all District agencies that are required to maintain compliance with the stormwater permit, receiving and expending funds from the Stormwater Permit Compliance Enterprise Fund); and §8-151.07 (Director guides and enforces environmental services and federal actions, promulgates and enforces rules and programs, liaises with other agencies);
 - 3. The Comprehensive Stormwater Management Enhancement Amendment Act of 2008, effective March 25, 2009 (D.C. Law 17-371, §2(b), as amended), including D.C. Official Code §8-152.01 (monitor, coordinate and secure information from District agencies required to comply with the Stormwater Permit and administer the stormwater program within DDOE); §8-152.03 (stormwater fee discount program); and §8-152.04 (establish an enterprise grant fund program);
 - 4. The Anacostia River Clean Up and Protection Act of 2009, effective Sept. 23, 2009 (D.C. Law 18-55, as amended); D.C. Official Code §8-102.01 *et seq.*, particularly §8-102.05 (establishment of the Anacostia River Clean Up and Protection Fund), §8-102.03 (OTR handling of funds and reporting), §8-102.04(d) (use of revenues), §8-102.06 (establishment of public information and outreach campaigns); and
 - 5. Mayor's Order 2006-61, dated June 14, 2006 (delegation and transfer of authority to DDOE Director).

VII. INTRA-DISTRICT FUNDING PROVISIONS

- A. Cost of Services, if any:
 - 1. Total cost for services with funds provided by DDOE under this MOU shall not exceed forty-five thousand, one hundred and five dollars (\$45,105) (\$36,971 for salary and \$8,134 for fringe benefits), unless DDOE specifically authorizes a change in writing;

2. Funding from DDOE shall be applied only to services specified in this MOU; and
 3. Only the actual costs for the goods and services provided shall be charged. Overhead cost for OTR staff is not funded.
- B. Payment:
1. DDOE shall pay for goods and services through an intra-District advance to OTR for the total amount of this MOU;
 2. DDOE shall make the transfer after the following:
 - a. The Parties sign the MOU;
 - b. OCFO approves the transfer; and
 - c. OTR transmits an invoice or other funds transfer document;
 3. If DDOE has paid OTR, OTR shall submit a reconciliation for each fiscal year, within 56 days (eight weeks), which shows and explains the amounts charged to the budget for that period, with each reconciliation to include the following:
 - a. Description of the activity that was performed;
 - b. List of materials and their costs;
 - c. Labor costs, including hourly rates, for each laborer; and
 - d. Copies of invoices, receipts, and other documentation to evidence completion of the projects;
 4. Payment to OTR shall not exceed the amount of this MOU;
 5. OTR shall reimburse DDOE for services that OTR has failed to perform and for funding not utilized;
 6. If reimbursement is required, OTR shall reimburse at the earlier of the following:
 - a. The date when all fiscal reconciliation of DDOE funds has been completed; or
 - b. Approximately four (4) months from the date of notice of the termination, specifically 112 days (16 weeks).

VIII. DISPUTE RESOLUTION

- A. DDOE's Director and OTR's Director, or their designees, shall resolve disputes under this MOU.

- B. In the event that the Parties are unable to resolve a dispute, either Party may refer the matter to the Office of Financial Operations and Systems ("OFOS"). The decision of OFOS shall be final.

IX. COMPLIANCE AND MONITORING

Since this MOU's funds include District of Columbia funds, OTR will be subject to scheduled and unscheduled monitoring reviews by the District of Columbia to ensure compliance with all applicable requirements.

X. RECORDS AND REPORTS

Since this MOU's funding includes District of Columbia funds, OTR shall maintain records and receipts for the expenditure of all funds provided for a period of no less than three (3) years from the date of expiration or termination of services. OTR shall arrange to make these documents immediately available for inspection by request of representatives of DDOE or the District. If funding is federal, in whole or in part, documents must be similarly available to representatives of the District or the federal Government.

XI. SPECIAL PROVISIONS FOR TERMINATION OF THE MOU

Any Party may terminate this MOU in whole or in part by giving twenty-eight (28) days advance written notice to the other Party on one of the following grounds:

- A. Lack of funding;
- B. Changes in applicable law;
- C. Changes in the structure or nature of the program;
- D. Elimination of the program or service;
- E. Failure of either Party to follow Federal or District laws, rules, or regulations; or
- F. Failure of either Party to follow the terms of this MOU.

XII. NOTICE

The following individuals are the official contacts for each Party under the MOU:

For DDOE:
Jeffrey Seltzer, Associate Director
Stormwater Management Division
District Department of the Environment
1200 First Street, NE, 5th Floor
Washington, DC 20002
Phone 202-535-1603
Fax 202-535-1364

MOU DDOE OTR FY 15 Bag Bill

Email: jeffrey.seltzer@dc.gov

For OTR:
William Bowie, Assistant General Counsel
Office of Tax and Revenue
1101 4th Street SW, 7th Floor
Washington, DC 20024
Phone 202 442-6512
Fax 202 442-6479
Email: william.bowie@dc.gov

XIII. MODIFICATIONS

The terms and conditions of this MOU may be modified only upon prior written agreement by the Parties.

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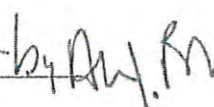
XIV. MISCELLANEOUS – FOLLOW DISTRICT LAW

The Parties shall comply with all applicable laws, rules, and regulations whether now in force or hereafter enacted or promulgated.

IN WITNESS WHEREOF, the Parties hereto have executed this MOU as follows:

DISTRICT DEPARTMENT OF THE ENVIRONMENT

for  5-26-15
Tommy Wells Date
Director

 by  5-26-15
Amy E. McDonnell Date
General Counsel, for legal sufficiency

THE OFFICE OF THE CHIEF FINANCIAL OFFICER

 JUN 26 2015
Jeffrey S. DeWitt Date
Chief Financial Officer

DISTRICT OF COLUMBIA
MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DEPARTMENT OF ENERGY AND THE ENVIRONMENT
AND
THE DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY:
MS4 PERMIT ACTIVITIES FY 2016 and 2017

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I. INTRODUCTION AND PURPOSE

This Memorandum of Understanding (“MOU”) is entered into between the Department of Energy and Environment (“DOEE”) and the District of Columbia Water and Sewer Authority (“DC Water”) collectively referred to herein as the “Parties,” for the period of Fiscal Years 2016 and 2017.

The purpose of this MOU is for DOEE to secure the services of DC Water to help implement discrete provisions of the District of Columbia’s (“District’s”) U.S. Environmental Protection Agency National Pollutant Discharge Elimination System (“NPDES”) Municipal Separate Storm Sewer System Permit (“MS4 Permit”), effective November 9, 2012. Another purpose is to fund such work with assistance from the MS4 Enterprise Fund. The first two Parts of this MOU, I and II, appear for the Parties’ convenience, and statements in them shall not be read to modify the provisions below them.

II. PROGRAM GOALS AND OBJECTIVES

The goal of this MOU is to improve water quality in the Anacostia and Potomac Rivers and their tributaries for the benefit of District residents, visitors, wildlife, and the environment.

The objective of this MOU is to reduce stormwater pollutants entering the local waters (i.e., rivers, streams, and estuaries) of the District of Columbia as required under the present MS4 Permit. The MS4 Permit obligates the District to: clean and maintain catch basins; develop an optimal catch basin inspection, cleaning, and repair plan; and develop an MS4 outfall inspection and repair schedule to meet local water quality goals for surface water.

Under the MS4 Permit’s Settlement Agreement, dated January 11, 2013, DC Water agreed to undertake specific tasks towards compliance with the requirements of the MS4 Permit. This is the Parties’ stipulated annual MOU specifying funding for services of DC Water and DOEE to maintain compliance with the District’s MS4 Permit. (*Gov’t of DC MS4*, NPDES Permit No. DC 0000221, NPDES App. No. 11-05, Settlement Agreement, ¶4.(b)(i), p 4 [US EPA EAB 1/11/13], dismissed per agreement [Order of 1/14/13])

III. SCOPE OF SERVICES/RESPONSIBILITIES OF THE PARTIES

A. DC Water shall:

1. Provide water quality catch basin maintenance services and reports in accordance DC Water’s Standard Operating Procedures for Water Quality Catch Basin Maintenance Service (Attachment B):
 - a. Inspect and clean each DOEE-identified water quality catch basin within the MS4 area at least once during each fiscal year; and
 - b. Within one (1) month of the end of each fiscal year, provide a report of the cleaning and inspection dates for each water quality

catch basin. After the DC Water “Catch Basin Application” is deployed, DC Water will provide a report on the water quality catch basins that will include the cleaning and inspection dates for each water quality catch basin and the percentage that the basin was filled with debris at the start and finish of each inspection. Alternatively, DC Water may choose to provide DOEE with access to the “Catch Basin Application” that will display this information.

2. Participate in and support the District’s MS4 Technical Working Group activities, presently chaired by DOEE;
3. Share with DOEE, upon request, information on DC Water utilities located in the MS4 area, including location and attribute data, for water and sewer gravity lines, outfalls, and pump stations; and
4. Provide technical assistance to DOEE’s proposed project to characterize and quantify the materials removed from catch basins during cleaning.

B. DOEE shall:

1. By August 1 of each year, provide an updated list of newly installed water quality catch basins located in the MS4 area and a Geographic Information System layer of water quality catch basins for which DOEE has X and Y coordinates;
2. If EPA Region III provides additional comments on the “MS4 Report on Optimal Plan for Catch Basin Cleaning, Inspection, and Repair” or “MS4 Outfall Repair Schedule and Report,” notify DC Water of any additional requirements to provide a response to EPA’s comments and negotiate a work plan and budget for this task;
3. Secure funding for and pay for completed activities listed in the Cost of Services table, found in Attachment A;
4. Make staff available to participate in the technical matters required by this MOU; and
5. Timely review proposals, plans, designs, reports, and other transmittals requiring a response.

IV. DURATION OF MOU

- A. This MOU shall be effective as of the date of the last signature.
- B. The term of this MOU shall be from the date of the last signature through September 30, 2017, unless terminated.
- C. The term may be extended only in writing signed by both Parties.
- D. The extension of this MOU shall be subject to the availability of funds at the time.
- E. The Parties contemplate extending this MOU.

V. AUTHORITY FOR MOU

- A. D.C. Official Code § 1-301.01(k) (District agencies) authorizes the Parties to enter into this MOU for orders placed with other agencies, at actual cost.
- B. DC Water is authorized to enter into this MOU pursuant to D.C. Official Code §34-2202.03(10), which authorizes DC Water to enter into contracts with the District.
- C. DOEE is further authorized to enter into this MOU pursuant to the following:
 - 1. The Water Pollution Control Act of 1984, effective March 16, 1985 (D.C. Law 5-188, as amended), D.C. Official Code §8-103.01 *et seq.*, including §8-103.13 (Mayor regulates construction bearing upon water quality);
 - 2. The District Department of the Environment Establishment Act of 2005, effective February 15, 2006 (D.C. Law 16-51, §§101 *et seq.*, as amended), including D.C. Official Code §8-151.03 (establishment of DDOE, now known as DOEE, and consolidation of environmental functions); §8-151.03(b)(2) (stormwater administration, including the monitoring and coordinating the activities of all District agencies that are required to maintain compliance with the storm water permit, receiving and expending funds from the Storm Water Permit Compliance Enterprise Fund); §8-151.07 (Director guides and enforces environmental services and federal actions, promulgates and enforces rules and programs, and liaises with other agencies);
 - 3. The Comprehensive Stormwater Management Enhancement Amendment Act of 2008, effective March 25, 2009 (D.C. Law 17-371, §2(b), as amended), including D.C. Official Code §8-152.01 (monitor, coordinate, and secure information from District agencies required to comply with the MS4 Permit and administer the stormwater program within DOEE);

§8-152.03 (stormwater fee discount program); §8-152.04 (establish an enterprise grant fund program); and

4. Mayor's Order 2006-61, dated June 14, 2006 (delegation and transfer of authority to DOEE Director).

VI. FUNDING PROVISIONS

A. Cost of services shall not exceed the totals in Attachment A for Fiscal Years 2016 and 2017.

1. The unspent balance from Fiscal Year 2016 may be available for Fiscal Year 2017, subject to availability of funds.
2. Funding for the activities listed in Attachment A shall not exceed the actual costs of the goods and services. "Actual costs" includes directs, fringes and overheads. DC Water may charge and recover overheads and fringes for its contractors, pursuant to its standard practices.
3. Funding for each activity shall not exceed the cost specified in Attachment A. DC Water must request in writing, and receive DOEE's written approval, for a reallocation of funds from one activity to another or an increase in funds for one or more activities.
4. DOEE shall not pay funds for which it has not received budget authority for a fiscal year.
5. DC Water shall not perform work to be funded by DOEE if DOEE gives notice that DOEE has not received budget authority.

B. Payment:

1. DOEE shall pay DC Water for services detailed in this MOU by check or electronic funds transfer based on an itemized invoice, within 45 days of receipt of each accepted invoice.
2. DC Water shall submit invoices quarterly and include a coversheet with the invoice number, invoice date, and a summary table detailing expenses. With each invoice, DC Water shall attach supporting documentation for each reimbursable expense and include a budget and status update, including a management report that compares budget to actual funds spent, and that includes the following:
 - a. Description of the activity that was performed;
 - b. List of materials and their costs; and

c. DC Water staff and contractor services costs.

C. Anti-deficiency considerations:

DOEE's and DC Water's obligations to fulfill financial obligations of any kind pursuant to any and all provisions of this MOU, or any subsequent agreement entered into by the Parties pursuant to this MOU, are and shall remain subject to the provisions of the following: (1) the federal Anti-Deficiency Act, 31 U.S.C. §§1341, 1342, 1349, 1351; (2) the District of Columbia Anti-Deficiency Act, D.C. Official Code §§ 47-355.01-355.08; (3) D.C. Official Code § 47-105; and (4) D.C. Official Code § 1-204.46, as the foregoing statutes may be amended from time to time, regardless of whether a particular obligation has been expressly so conditioned.

VII. COMPLIANCE AND MONITORING

Since this MOU's funds include District of Columbia funds, DC Water will be subject to scheduled and unscheduled monitoring reviews by the District to ensure compliance with all applicable requirements. If funding is federal, in whole or in part, DC Water will be subject to monitoring reviews of the District and the federal government.

VIII. RECORDS AND REPORTS

Since this MOU's funding includes District of Columbia funds, DC Water and each of its contractors/grantees paid under this MOU shall maintain records and receipts for the expenditure of all funds provided for a period of no less than three (3) years from the date of expiration or termination of each activity. DC Water shall arrange with its contractors to make these documents immediately available for inspection by request of representatives of DOEE or the District. If funding is federal, in whole or in part, documents must be made similarly available to representatives of the District or the federal government.

IX. CONFIDENTIAL INFORMATION

The Parties to this MOU will use, restrict, safeguard, and dispose of all information related to services provided pursuant to this MOU in accordance with all relevant federal and District of Columbia statutes, regulations, and policies.

X. TERMINATION OF THE MOU

A Party may terminate this MOU in whole or in part by giving twenty-eight (28) days advance written notice to the other Party.

Except as follows in this paragraph, a party shall not be obligated to perform a service/responsibility upon receipt of a notice of termination. DC Water shall be

reimbursed for costs incurred, or to which it has already been irrevocably committed, performing approved services as of the day following the date on which DC Water received written notice of termination

XI. NOTICE

The following individuals are the official contacts for each Party under the MOU:

FOR DOEE:

Mr. Jeffrey Seltzer, P.E.
Associate Director, Stormwater Management Division
Department of Energy and Environment
1200 First Street, NE, 5th Floor
Washington, DC 20002
Phone: 202-535-1603
Fax: 202-535-1363
Email jeffrey.seltzer@dc.gov

FOR DC WATER:

Dr. Mohsin Siddique
Supervisor, Environmental Planning
District of Columbia Water and Sewer Authority
5000 Overlook Avenue, SW
Washington, DC 20032
Phone 202-787-2634
Fax: 202-787-2453
Email mohsin.siddique@dcwater.com

XII. MODIFICATIONS

This MOU may be modified only upon written agreement.

XIII. FOLLOW THE LAW

The Parties shall comply with all applicable laws, rules, and regulations whether now in force or hereafter enacted or promulgated.

XIV. DISPUTE RESOLUTION

The Parties shall resolve adjustments and/or disputes arising from services between agencies under this MOU, with the following procedures:

- A. The Parties will make every effort to resolve any disputes concerning this MOU at the staff level;

- B. In the event that the Parties' staff are unable to resolve a dispute, either Party may raise the matter to the Director of DOEE and the General Manager of DC Water for resolution within thirty (30) days; and
- C. If the DOEE Director and DC Water General Manager are unable to resolve the dispute, the aggrieved Party may invoke the Termination procedures.

XV. FORMAT, COPIES, AND DEFINITIONS

A. EXHIBITS

Referenced exhibits, attachments and appendices shall be deemed incorporated herein.

B. COUNTERPARTS

This document may be executed in counterparts, each separately and together constituting one and the same document.

C. ELECTRONIC FORMAT

Execution and delivery of this MOA by facsimile or by electronic mail attachment shall be sufficient for all purposes.

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D. DEFINITION

“Writing” or “written” or “in writing” includes electronic format, including email with confirmation that the message was received and read. The term denotes a tangible or electronic record of a communication or representation, including handwriting, typewriting, printing, photostat, fax, photography, word processing computer output, and e-mail. A “signed” writing includes an electronic symbol or process attached to, or logically associated with, a writing, and executed or adopted by a person with the intent to sign the writing.

XVI. SIGNATURES

The Parties agree to this MOU.

DEPARTMENT OF ENERGY AND ENVIRONMENT


Tommy Wells
Director

7/27/16
Date



Beth Mullin
Deputy General Counsel, for legal sufficiency

7-27-16
Date

DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY


George S. Hawkins
General Manager & CEO

7-29-2016
Date


Gregory Hope
Principal Counsel, for legal sufficiency

7/29/16
Date

ATTACHMENT A**DOEE Funding for DC Water Activities**

This MOU addresses the following activities.

COST OF SERVICES

	Activities	FY 2016 Amount (\$)	FY 2017 Amount* (\$)
1	Clean and maintain water quality catch basins.	\$0	\$0
2	Undertake DC Water MS4 Technical Workgroup Staff Activities.	\$1,974	\$1,974
3	Share DC Water's utility location datasets.	\$0	\$0
4	Provide technical assistance to DOEE's catch basin content pilot study.	\$10,000 ¹	Unspent balance from FY16
	Total	\$11,974¹	\$1,974 + Unspent balance from FY16¹

Notes:

¹These costs are preliminary, and may be revised after DC Water receives DOEE's request for services regarding the catch basin content pilot study.

ATTACHMENT B

**DC Water
Water Quality Catch Basin Cleaning Job Plan**

It is highly recommended that supervisors, leads, and field personnel read this job plan and be current on materials referenced herein prior to starting work.

PROJECT DESCRIPTION/DEFINITION. This Job Plan has been developed to assist DSS staff in performing Water Quality catch basin (WQCB) cleaning work. WQCB cleaning refers to a two employee crew removing debris and sediment from a Water Quality catch basin using necessary equipment. All Chambers of the WQCB are to be vacuumed with a vacuum truck or similar equipment.

BLOCK 100 – DETAILS. Project description (definition); recommended training, required personal protective equipment (PPE), and other equipment; and coordination steps that must be performed before beginning the task.

Minimum recommended training: DSS Operations staff is required to fulfill the training requirements noted in their respective Job Safety training matrix. Contact supervisor for details.

Minimum recommended Personal Protective Equipment (PPE) (ensure sufficient quantity and working order):

Hard hat/Visor	Safety glasses	Steel-toe work boots
Safety vests	Work gloves	

Minimum recommended equipment and material (ensure sufficient quantity and working order):

Equipment			
Jet Vacuum Combination Truck with all accessory truck equipment	Pickaxe/Manhole Hook	Shovel (s)	Hook Pole
Broom			
Materials			
Date verification decal	Worksheet/Clipboard/Pens		
Site Safety Equipment			
Traffic Wand	Traffic Safety Signage	Traffic Cones	Traffic Barricades

Coordination steps: Complete the following coordination steps for scheduled work before going to the job site. **NOTE:** In cases where the customer calls to report an emergency, Customer Service will dispatch an inspection crew and notify the supervisors and repair foreman as required.


1. Supervisor: Notify Department of Energy and Environment (DDOE) Inspection and Enforcement Branch (IEB) 72 hours before scheduled preventative maintenance (PM) service on WQCB area.


Contacts: (202) 535-2977 or ieb.scheduling@dc.gov
2. Supervisor: Provide crews with assigned work area to be cleaned marked on a map
3. Cleaning Crew: Confirm with Supervisor the assigned work area and locations of catch basins identified for cleaning. Make sure that the catch basin cleaning truck is ready and equipped for the work to be performed and the crew is also equipped with the required PPE and hand equipment to perform the work. At the end of the work day, mark catch basins that have been cleaned as well as catch basins that were skipped on the day's Work Order.
4. Lead: If there are vehicles obstructing the catch basin's work area, check the catch basin to identify when it was last cleaned and to verify that it requires cleaning. If cleaning is required, mark on the map and revisit location later in the work day. If vehicle is still obstructing later in the day, mark on the map and revisit later in the work week. If the catch basin is obstructed by an illegally parked vehicle, notify the Command Center to coordinate its removal.

BLOCK 200 – SHUTDOWN PROCEDURES. Not Applicable. Catch Basin cleaning should be scheduled for performance during periods of dry weather, or as soon after a rainfall event that low flow will allow proper and safe cleaning.

BLOCK 300 – EXECUTION. This block includes the necessary step-by-step requirements to perform the task.

Responsible Party	Execution Task
Crew Members	10. Once catch basin is located, the non-driver crew member (ND) should exit truck and, using the pick, remove manhole lid and determine if the catch basin needs cleaning. If it does, proceed to next step. If it does not, record on map and Work Order and go on to next catch basin.
Crew Members	20. Driver crew member (D) will pull truck next to catch basin. The ND will assist with ground guiding the D to proper stopping point for alignment with the catch basin.
Crew Members	30. Place traffic safety devices to the front, rear and side of the truck and at least 2 feet from the front, rear and side of the manhole to be opened. Do not leave an open manhole/catch basin unattended.
Crew Members	40. Using the pickaxe, open any remaining manhole(s) or catch basin grates not previously opened. If the WQCB grit, storage or weir chambers are dry (i.e., no standing water) upon inspection, create a work order for the resealing of the joints and corners. Evaluate for any indication of illicit discharge. Notify supervisor immediately if there are any signs of illicit discharge.

Responsible Party	Execution Task
	 <p><i>Photo: Lids of all the manholes are opened.</i></p>
Crew Members	<p>50. If there is any large debris (e.g. construction materials, branches, etc) that are too large for the vacuum, notify the supervisor to send out a stetco. Go to next catch basin.</p>
Crew Members	<p>60. Using the high powered vacuum, suck out all of the debris, standing water and sediment. Use the high pressure washer to break up any remaining material in the catch basin while capturing the slurry with the vacuum.</p>

Responsible Party	Execution Task
	 <p>Photo: Two man operation, high pressure washer and vacuum</p>
Crew Members	<p>70. If necessary, after cleaning, use the jet of the vacuum truck to clean the downstream pipe and pull back sediment that may have entered the pipe.</p>
Crew Members	<p>80. Inspect the WQCB for cracks or physical damage. Create repair work order if there is any damage. Make sure that the work area is clean before breaking down cleaning, traffic, and site safety equipment.</p>
Crew Members	<p>90. After power washing and vacuuming the wash water, the WQCB should be charged with clean water to the elevation of the overflow weirs.</p>
Crew Members	<p>100. When vehicle is full, take to Benning Rd or alternate approved disposal facility.</p>

BLOCK 400 – START-UP. Not applicable.

BLOCK 500 – PROJECT CLOSE-OUT. The last task in IBM’s Maximo Asset Management Solutions system is to enter post-coordination activities, which might include the following:

Responsible Party	Project Close-Out Task
Lead	<p>10. Turn in marked up map showing which catch basins were cleaned and which were skipped, with the reason why, to the crew’s supervisor for future cleaning scheduling.</p>
Supervisor	<p>20. Schedule catch basins to be cleaned in the next cycle. Also, determine if any catch basins need to be cleaned more often based on crew member notes.</p>

Attachment B: Critical Sources Inspections (3 pages)

Name	Address	Date
Winstar Services, Inc.	2405 22nd St., NE	10/22/2015
Right Hour Auto	2201 Channing Street, NE	10/27/2015
Midas	1620 Rhode Island Ave., NE	10/29/2015
Transco Inc.	3399 Benning Rd, NE	10/29/2015
Global Cleaners	3700 Martin Luther King Jr Ave., SE	10/29/2015
12th St., Cleaners	3525 12th St., NE	10/29/2015
Georgia Ave, BP	7605 Georgia Ave., NW	11/4/2015
C and C Custome Cleaners	5511 Connecticut Ave., NW	11/4/2015
Georgetown Auto	2149 Queens Chapel Rd., NE	11/10/2015
T & A Auto Service	1215 Kenilworth Ave., NE	11/17/2015
Putnam's Exxon	6350 Georgia Ave., NW	11/17/2015
National Auto	1810 Edwin St., NE	11/18/2015
Pan Am Taxi	2204 Lawrence Ave., NE	11/18/2015
Murphy's Autobody	1708 Good hope Rd., SE	11/24/2015
Auto Clinic	4251 Minnesota Ave., NE	11/24/2015
Y & G Auto Repair	1851 Adams St., NE	12/3/2015
Midas	1620 Rhode Island Ave., NE	12/3/2015
ASE Quality Auto care	1830 Rhode Island Ave., NE	12/3/2015
First Transit	1710 17th St., NE	12/8/2015
Z Auto Service	5207 Nannie Helen Burroughs Ave., NE	12/8/2015
Tenleytown Exxon	4244 Wisconsin Ave., NW	12/10/2015
Jindal-Andre Auto Services	1636 Bladensburg Rd., NE	12/14/2015
USA Motors	45 Q St., SW	1/5/2016
Precision Truck Repair	1075 Kenilworth Ave., NE	1/5/2016
Capitol collision	934 Michigan Ave., NE	1/6/2016
Dial Cab Company	2838 Bladensburg Rd., NE	1/6/2016
Uptown Cleaners	3333 Connecticut Ave., NW	1/13/2016
Metro Police	550 Water St., SW	1/14/2016
Fire Department Boat Maintenance	550 Water St., SW	1/14/2016
Ma Linh Transportation LLC	1729 Bladensburg Rd., NE	2/4/2016
Ronnie's Transmission Shop	1800 Rhode Island Ave., NE	2/4/2016
Royal Import/ Best Value Tire Service	2712 Bladensburg Rd., NE	2/4/2016
M and G Auto and Tire Center	1801 Adams St., NE	2/22/2016
SA Auto Repair	3011 Martin Luther King Jr. Ave., SE	2/22/2016
AA Maksaba Auto Repair and Service	2417 Evarts St., NE	2/22/2016
Spring Valley Exxon	4861 Massachusetts Ave., NW	2/29/2016
Connecticut Ave Amoco	5001 Connecticut Ave., NW	2/29/2016
Presidential Cleaners	5514 Connecticut Ave., NW	2/29/2016
AYT Auto	2121 West Virginia Ave., NE	3/9/2016
Big jones Auto	1851 Adams St., NE	3/9/2016
Parker's Exxon	4812 Macarthur Boulevard, NW	3/17/2016
Stadium Exxon	2651 Benning rd., NE	3/18/2016
Distad's Tire and Auto	2320 Martin Luther King Jr. Ave., SE	3/18/2016
Kangaroo Auto Crew	2251 Fairlawn Ave., SE	3/18/2016
DP Auto Service	4940 Connecticut Ave., NW	3/22/2016
Z Auto Service	5207 Nannie Helen Burroughs Ave., NE	3/23/2016

Name	Address	Date
Circle Exxon	5521 Connecticut Ave., NW	3/23/2016
Meritt Cab Association Auto Repair	1801 Adams St., NE	3/29/2016
BT&T Auto Service	3010 Rhode Island Ave., NE	3/29/2016
Tash Cleaners	1921 Benning Rd., NE	3/29/2016
A1Engine and Diesel	1515 Kenilworth Ave., NE	3/30/2016
Fort Davis Exxon	3825 Alabama Ave., SE	3/30/2016
DPW DC Impound Lot	5001 Shepherd Pkwy, SW	4/8/2016
DPW Parking Area	1725 15th St., NE	4/13/2016
DPW Fueling Site	100 42nd St., NE	4/13/2016
DPW Fueling Site	2455 Alabama Ave., SE	4/13/2016
United Ventures consortium Auto Re	2711 26th St., NE	4/20/2016
Imperial Autobody	6420 Chillum Place, NW	4/20/2016
Brookland Exxon	1020 Michigan Ave., NE	4/25/2016
Aki Auto Repair	2034 West Virginia Ave., NE	4/25/2016
Zips Dry Cleaners	4418 Connecticut Ave., NW	4/25/2016
NPS Rock Creek Maintenance	5000 Glover Rd., NW	4/28/2016
Pepco buzzard Point	1st and V St., SW	5/3/2016
F and D Auto Repair	2325 18th St., NE	5/26/2016
Capitol Citi Car Wash	1329 Kenilworth Ave., NE	5/26/2016
Wash and Shine	5020 Wisconsin Ave., NW	5/31/2016
President Valet II	4837 Wisconsin Ave., NW	6/22/2016
American Valet	4519 Wisconsin Ave., NW	6/22/2016
Han Cleaners	4425 Wisconsin Ave., NW	6/22/2016
Metro Motors	3426 18th St., NE	6/28/2016
GTS Auto Service	2310 18th Pl., NE	6/28/2016
Ashaar Brothers Car Wash	2327 18th Street, NE	6/28/2016
US Arboretum	3501 New York Ave., NE	7/14/2016
East Potomac Golf Course	970 Ohio Dr., SW	7/14/2016
Ham's towing	1239 Kenilworth Ave., NE	7/18/2016
Rufus Auto Restorer	2902 Bladensburg Rd., NE	7/18/2016
Washington Auto Transmission Servi	4451 Nannie Helen Burroughs Ave., NE	7/18/2016
Tenart LLC	7605 Georgia Ave., NW	7/20/2016
Merci Motor Auto Sales	3010 Rhode Island Ave., NE	7/20/2016
Georgia BP	6300 Georgia Ave., NW	7/20/2016
Ghuman In/ Gold Star Auto Services	39 Q St., SW	7/21/2016
Dr. king's Brushless Car Wash	2735 Martin Luther King Jr. Ave., SE	7/21/2016
Service Cleaners	2841 Alabama Ave., SE	7/21/2016
Mayflower Auto Sales	2106 Rhode Island Ave., NE	7/27/2016
Fort Totten DPW Fueling Station	4902 Bates Rd., NE	7/27/2016
M&M Properties LLC	600 Gallatin St., NE	7/28/2016
DDOT operations Warehouse	1735 15th St., NE	7/28/2016
Fort Totten Transfer Station	4900 Bates Rd., NE	7/29/2016
Benning Rd., Transfer Station	3200 Benning Rd., NE	7/29/2016
Rex Cleaners	7346 Georgia Ave., NW	8/1/2016
Embassy Cleaners	4215 Connecticut Ave., NW	8/1/2016
Palace Cleaners	5019 Wisconsin Ave., NW	8/1/2016

Name	Address	Date
Kenilworth BP	1535 Kenilworth Ave., NE	8/2/2016
City Auto Service	1420 Rhode Island Ave., NE	8/2/2016
Carmass Auto	1736 Rhode Island Ave., NE	8/2/2016
Capitol tours LLC	6100 Chillum Pl., NE	8/8/2016
ECC	2800 Sherman Ave., NW	8/10/2016
MPD Fuel Station 2nd D	3320 Idaho Ave., NW	8/15/2016
DPW	1835 West Virginia Ave., NE	8/15/2016
Collision Auto Clinic	2206 Lawrence Ave., NE	8/16/2016
Pan-Am Auto Repair	2204 Lawrence Ave., NE	8/16/2016
Eastern Auto Repair	6129 Kansas Ave., NE	8/16/2016
German Tech Auto Services Inc.	2040 West Virginia Ave., NE	8/16/2016
AMA Tires	2040 West Virginia Ave., NE	8/16/2016
West Virginia Autobody	2040 West Virginia Ave., NE	8/16/2016
Advanced Auto Services	1850 Adams St., NE	8/16/2016
Jesse Taylor Seafoods	1100 Maine Ave., SW	8/23/2016
Fisherman's Wharf	1100 Maine Ave., SW	8/23/2016
Virgo Vending	1100 Maine Ave., SW	8/23/2016
Northeast Auto Body	3188 Bladensburg Rd., NE	8/25/2016
Good Hope Auto Center	2300 Pennsylvania Ave., Se	8/25/2016
HM Auto Service	3820 Minnesota Ave., NE	8/25/2016
Smart Automotive	2615 Evarts St., NE	8/29/2016
Caliber Collision	6250 Chillum Pl., NW	8/29/2016
Georgia Ave., Amoco	6300 Georgia Ave., NW	8/29/2016
Saltwater Seafoods, Captain White	1100 Maine Ave., SW	8/29/2016
Capitol Paving of DC	1525 W St., NE	8/30/2016
Dean Ave Cleaners	4309 Nannie Helen Burroughs Ave., NE	8/17/2016
OSSE Bus Depot	4 A DC Village Lane SW	9/6/2016
Leaf and Snow Management	2400 East Capitol St., NE	9/6/2016
DDOT Bridge and Road Maintenance	414 Farragut St., NE	9/7/2016
DPW Salt Storage	3815 Fort Dr., NW	9/7/2016
WMATA Bladensburg	2250 26th St., NE	9/8/2016
WMATA Bus Division	2251 26th St., NE	9/8/2016
UDC	4200 Connecticut Ave., NW	9/14/2016
Ft. Mcnair	300 5th Ave., SW	9/15/2016
Right Hour Auto	2201 Channing St., NE	9/16/2016
Bureau of Printing and Engraving	301 14th St., SW	9/26/2016
Fort Meyer Construction Corp	2237 33rd St., NE	12/16/2015

Attachment C: List of FY 2016 Erosion and Sediment Control Enforcement Actions (7 pages)

INTERNAL (DDOE) NOI NUMBER	Respondent #1 Name	Enforcement Action
DDOE-15-E500735	WACAP LLC	NOI
DOEE-15-E500729	Pennstation LLC	NOI
DOEE-16-E500798	B2M2 LLC	NOI
DOEE-15-E500760	Monacco Exclusive Renovation LLC	NOI
DDOE-15-E500716	Meridian Construction Co. Inc.	NOI
DDOE-15-E500717	Meridian Construction Co., Inc.	NOI
DDOE-15-E500723	Sikder, Mohammad	NOI
DDOE-14-E500704	Broughton Construction Co. Inc.	NOI
DOEE-15-E500751	2024 16th Street LLC	NOI
DDOE-15-E500750	M2Shepherd LLC	NOI
DDOE-15-E500728	1538 New Jersey Avenue LLC	NOI
DOEE-15-E500753	Abraham Onnoony	NOI
DOEE-16-E500790	Corcoran and Kendall Development LLC	NOI
DDOE-14-E500710	Jackson Place, LLC	NOI
DDOE-14-E500701	Bennett Group	NOI
DDOE-15-E500722	Sikder, Mohammad	NOI
DOEE-15-E500774	911 12th Street, NE	NOI
DOEE-16-E500833	Hamel Builders	NOI
DOEE-16-E500873	Clark Construction	NOI
DOEE-16-E500866	Dilan Investments	NOI
DOEE-16-E500861	1920 3rd Street Condos LLC	NOI
DOEE-16-E500864	Tower 16 Electrical Division	NOI
DOEE-16-E500854	1920 3rd Street Condos LLC	NOI
DOEE-16-E500856	MR GALLERY SQUARE LLC	NOI
DOEE-16-E500852	3542 Warder Street LLC	NOI
DOEE-16-E500850	Coakley Williams Construction	NOI
DOEE-16-E500843	Art Place at Ft. Totten LLC	NOI
DOEE-16-E500844	1026 8th Street NE LLC	NOI
DOEE-16-E500841	1155 W Street LC	NOI
DOEE-16-E500840	Luxor Investments, LLC	NOI
DOEE-16-E500830	Yu Yi Chen	NOI
DOEE-16-E500834	Douglas Development Corporation	NOI
DOEE-16-E500827	Penn Avenue Partnership LLC	NOI
DOEE-16-E500821	Rwp LLC C/O Pn Hoffman	NOI
DOEE-16-E500822	The Wharf DC	NOI
DOEE-16-E500825	St. Augustine's Episcopal Church	NOI
DOEE-16-E500823	Coakley Williams Construction	NOI
DOEE-16-E500819	Balfour Beatty Construction	NOI
DOEE-16-E500816	1001 Monroe St LLC	NOI
DDOE-16-E500810	37 Todd Place LLC	NOI
DOEE-16-E500815	Congressional 761 Kenyon LLC	NOI
DOEE-16-E500817	16 T Street NE LLC	NOI
DDOE-16-E500813	Newton St Development 3 LLC	NOI
DOEE-16-E500829	NOMA Development, LLC	NOI
DOEE-16-E500806	913 12Th Street LLC	NOI
DOEE-16-E500801	MATCAP, LLC	NOI
DOEE-16-E500802	MATCAP, LLC	NOI

INTERNAL (DDOE) NOI NUMBER	Respondent #1 Name	Enforcement Action
DOEE-16-E500795	Clark Construction Group, LLC	NOI
DOEE-16-E500793	Meridian Construction Co., Inc.	NOI
DOEE-16-E500792	Anchor Construction Corporation	NOI
DOEE-16-E500791	HGLM2 LLC	NOI
DOEE-15-E500778	244 South Capitol Residential LLC	NOI
DOEE-15-E500776	Clark Construction Group, LLC	NOI
DOEE-15-E500765	Clark Construction	NOI
DOEE-15-E500766	Capitol Holdings I, LLC	NOI
DOEE-15-E500770	Meier Development LLC	NOI
DOEE-15-E500764	3624 10th Street LLC	NOI
DOEE-15-E500762	Trinidad Scattered Sites LLC	NOI
DOEE-15-E500763	5204 13th LLC	NOI
DOEE-15-E500756	1838 11th Street NW, LLC	NOI
DDOE-15-E500748	817 Varnum LLC	NOI
DDOE-15-E500749	Smoot Construction	NOI
DDOE-15-E500746	Jackson Place, LLC	NOI
DDOE-15-E500744	Jackson Place LLC	NOI
DDOE-15-E500742	Clark Construction Group, LLC	NOI
DDOE-15-E500740	Kadcon Corporation	NOI
DDOE-15-E500738	Jemal's Hecht's LLC	NOI
DDOE-15-E500737	Rosenstadt, Jordan M.	NOI
DDOE-15-E500734	KOP LLC	NOI
DOEE-15-E500754	Hamel Builders	NOI
DDOE-15-E500725	AMT-Warder St., LLC	NOI
DDOE-15-E500726	AMT-Warder St., LLC	NOI
DDOE-15-E500724	Sikder, Mohammad	NOI
DDOE-15-E500720	233 S Inc.	NOI
DDOE-15-E500719	WACAP LLC	NOI
DDOE-15-E500721	Fort Totten North LLC	NOI
DDOE-15-E500714	The Board of Trustees of Israel Baptist Church	NOI
DDOE-15-E500715	Whiting-Turner Contracting Company	NOI
DDOE-14-E500711	539 Randolph St NW LLC	NOI
DDOE-14-E500712	Kipp DC	NOI
DDOE-14-E500709	1159 Oates Street NE LLC	NOI
DDOE-14-E500708	JT Development LLC	NOI
DDOE-14-E500707	MCN Build	NOI
DDOE-14-E500703	306 Evarts St. Partnership	NOI
DDOE-14-E500706	Bennett Group	NOI
DDOE-15-E500741	Menkiti, Obiora I	NOI
DOEE-16-E500803	1239 Kenyon Street LLC	NOI

Plan number	Primary Street Address	Inspection Date	Inspection Type	Enforcement Action
1502	909 NEW JERSEY AVENUE SE	12/17/2015	Maintenance Inspection	NOV
1304	2100 11TH STREET NW	1/4/2016	Maintenance Inspection	NOV
s6621	1424 BUCHANAN STREET NW	2/12/2016	Construction Inspection	NOV
s6838	1026 8TH STREET NE	4/7/2016	Construction Inspection	NOV
674	1802-1856, 1839-1853 WOODMONT PLACE SE	4/7/2016	Construction Inspection	NOV
s6852	5903 EADS STREET NE	3/22/2016	Construction Inspection	NOV
s7003	5400 BLOOCK DIX ST., & 1300 BLOCK 55TH ST., NE BLOCK OF DIX STREET NE	5/4/2016	Construction Inspection	NOV
s7003	5400 BLOOCK DIX ST., & 1300 BLOCK 55TH ST., NE BLOCK OF DIX STREET NE	5/4/2016	Construction Inspection	NOV
s7029	5026 C STREET SE	5/9/2016	Construction Inspection	NOV
s7036	2823 R STREET SE	5/9/2016	Construction Inspection	NOV
s7045	3300 & 33RD 3300 BLOCK OF LOUD PLACE & 1100 OF 33RD PLACE, SE PLACE SE	5/10/2016	Construction Inspection	NOV
773	2327 CHAMPLAIN STREET NW	5/11/2016	Maintenance Inspection	NOV
4013	1433 35TH STREET SE	5/10/2016	Construction Inspection	NOV
s7162	4223 GRANT STREET NE	5/27/2016	Construction Inspection	NOV
s7587	4000 BLK FIRST & BRANDYWINE & ATLANTIC STREET 4000 BLK FIRST & BRANDYWINE & ATLANTIC STREET STREET SE	7/27/2016	Construction Inspection	NOV
s7604	2219 U PLACE SE	7/29/2016	Construction Inspection	NOV
217	2400 GOOD HOPE ROAD SE	8/23/2016	Maintenance Inspection	NOV

Plan number	Primary Street Address	Inspection Date	Inspection Type	Enforcement Action
s7854	4205 MILITARY ROAD NW	9/8/2016	Construction Inspection	NOV
3325	751 P STREET NW	3/9/2016	Maintenance Inspection	NOV
s6382	4529 MACARTHUR BOULEVARD NW	2/22/2016	Construction Inspection	NOV
4781	5701 BROAD BRANCH ROAD NW	2/18/2016	Construction Inspection	NOV
4781	5701 BROAD BRANCH ROAD NW	7/1/2016	Construction Inspection	NOV
3559	7053 SPRING PLACE NW	3/11/2016	Construction Inspection	NOV
3560	7051 SPRING PLACE NW	3/11/2016	Construction Inspection	NOV
3795	5180 SOUTH DAKOTA AVENUE NE	3/1/2016	Construction Inspection	NOV
3656	600 MASSACHUSETTS AVENUE NW	5/19/2016	Construction Inspection	NOV
3672	1600 PENNSYLVANIA AVENUE SE	2/23/2016	Maintenance Inspection	NOV
3833	3624 10TH STREET NW	3/1/2016	Construction Inspection	NOV
3749	1000 F STREET NW	8/8/2016	Construction Inspection	NOV
3172	400 ATLANTIC STREET SE	2/2/2016	Construction Inspection	NOV
3172	400 ATLANTIC STREET SE	3/21/2016	Construction Inspection	NOV
5147	3874 HALLEY TERRACE SE	5/4/2016	Construction Inspection	NOV
3980	5209 D STREET SE	5/6/2016	Construction Inspection	NOV
3934	2826 Q STREET SE	9/1/2016	Construction Inspection	NOV
3752	2390 SOUTH CAPITOL STREET SE	3/24/2016	Construction Inspection	NOV
3752	2390 SOUTH CAPITOL STREET SE	3/24/2016	Construction Inspection	NOV
3866	1780 COLUMBIA RD NW	7/11/2016	Construction Inspection	NOV
4000	4525 BENNING ROAD SE	4/7/2016	Construction Inspection	NOV
s6180	4428 GAULT PLACE NE	5/28/2016	Construction Inspection	NOV
3877	601 EDGEWOOD STREET NE	7/19/2016	Construction Inspection	NOV
3877	601 EDGEWOOD STREET NE	8/23/2016	Construction Inspection	NOV
3877	601 EDGEWOOD STREET NE	9/16/2016	Construction Inspection	NOV
s7169	1125 MORSE STREET NE	6/15/2016	Construction Inspection	NOV

Plan number	Primary Street Address	Inspection Date	Inspection Type	Enforcement Action
s656	1815 LAMONT STREET NW	1/6/2016	Construction Inspection	NOV
4585	64 NEW YORK AVENUE NE	7/6/2016	Construction Inspection	NOV
4585	64 NEW YORK AVENUE NE	7/20/2016	Construction Inspection	NOV
s527	1528 CHURCH STREET NW	11/16/2015	Construction Inspection	NOV
s666	1748 W STREET SE	4/29/2016	Construction Inspection	NOV
s5319	406 U STREET NW	12/16/2015	Construction Inspection	NOV
4734	2701 NAYLOR ROAD SE	9/7/2016	Construction Inspection	NOV
s5883	6002 CLAY STREET NE	3/7/2016	Construction Inspection	NOV
4684	6001 BOUNDARY ROAD SW	3/18/2016	Construction Inspection	NOV
s5184	5240 41ST STREET NW	3/2/2016	Construction Inspection	NOV
4059	5510 AND 5512 4TH STREET NE	2/23/2016	Construction Inspection	NOV
s5417	1112 8TH STREET NE	3/22/2016	Construction Inspection	NOV
s5388	3674 SOUTHERN AVENUE SE	5/6/2016	Construction Inspection	NOV
4712	5300 BLAINE STREET NE	8/1/2016	Construction Inspection	NOV
4772	401 MISSISSIPPI AVENUE SE	4/21/2016	Construction Inspection	NOV
s5879	4926 FOOTE STREET NE	5/6/2016	Construction Inspection	NOV
s5296	3515 WOODLEY ROAD NW	8/4/2016	Construction Inspection	NOV
s7264	3200 6TH STREET SE	7/11/2016	Construction Inspection	NOV
s6362	1251 F STREET NE	3/31/2016	Construction Inspection	NOV
s5460	1609 23RD STREET SE	5/9/2016	Construction Inspection	NOV
4817	3240 FESSENDEN STREET NW	3/10/2016	Construction Inspection	NOV
s5450	5147 CATHEDRAL AVENUE NW	3/10/2016	Construction Inspection	NOV
s5666	1115 7TH STREET NE	3/22/2016	Construction Inspection	NOV
s6193	4924 FOOTE STREET NE	5/6/2016	Construction Inspection	NOV
s6193	4924 FOOTE STREET NE	5/27/2016	Construction Inspection	NOV
s7271	4425 RENO ROAD NW	9/8/2016	Construction Inspection	NOV
s7399	3202 PENNSYLVANIA AVENUE SE	6/30/2016	Construction Inspection	NOV
s7680	4519 KLINGLE STREET NW	8/9/2016	Construction Inspection	NOV
3685	222 MASSACHUSETTS AVENUE NW	5/4/2016	Construction Inspection	NOV
4003	3700 O STREET NW	8/5/2016	Construction Inspection	NOV
3969	830 RIDGE ROAD SE	5/6/2016	Construction Inspection	NOV

Plan number	Primary Street Address	Inspection Date	Inspection Type	Enforcement Action
4001	1200 MISSISSIPPI AVENUE SE	4/22/2016	Construction Inspection	NOV
4763	1801 MISSISSIPPI AVENUE SE	9/28/2016	Construction Inspection	NOV
s567	2700 MARTIN LUTHER KING JR AVENUE SE	5/11/2016	Construction Inspection	NOV
s956	5043 A STREET SE	5/4/2016	Construction Inspection	NOV
4717	1616, 1618, 1622 U STREET SE	12/21/2015	Construction Inspection	NOV
4717	1616, 1618, 1622 U STREET SE	2/3/2016	Construction Inspection	NOV
4717	1616, 1618, 1622 U STREET SE	2/17/2016	Construction Inspection	NOV
4717	1616, 1618, 1622 U STREET SE	3/16/2016	Construction Inspection	NOV
s6604	2700 MARTIN LUTHER KING JR. AVENUE SE	8/17/2016	Construction Inspection	NOV
s7062	2638 DOUGLAS PLACE SE	7/13/2016	Construction Inspection	NOV

Attachment D: FY 2016 IDDE Investigations (3 pages)

Name	Address	Date	IDDE Case Number
SSO	19th and Mississippi Ave., SE	10/6/2015	151006
Beaverdam Creek		10/28/2015	151028
Langston Golf Course	Benning Road Bridge	10/29/2015	151029
USNA SSO	Hickey Lane	10/29/2015	151029.1
Allied Aviation	Reagan National Airport	10/30/2015	151030
Soapstone Creek	Outfall 849	11/3/2015	151103
Sewage Discharge	Outfall 720	11/5/2015	151105
Haines Point SSO	Haines Point	11/18/2015	151118
Water Main Break	Oxon Run	12/3/2015	151203
Potomac Discharge	Roosevelt Island	12/21/2015	151221
Huezo Trucking	99 M St., SE	1/6/2015	160106.1
MD Jamestown Rd	4500 Jamestown Rd., MD		160106
truck washing	1229 1st St., SE	1/8/2016	160108
SSO	Firth Sterling and Sumner Rd., SE	1/13/2016	160113
Concrete to river	NY Ave bridge over Anacostia	1/15/2016	160115
Snow Emergency, Snow Storage (DPW and DDOT)	2390 South Capitol St., SE	1/26/2016	160126
Snow Emergency, Snow Storage (DPW and DDOT)	32 R St., SW	1/26/2016	160126
Snow Emergency, Snow Storage (DPW and DDOT)	965 Florida Ave., NW	1/26/2016	160126
Snow Emergency, Snow Storage (DPW and DDOT)	1936 Montana Ave., NE	1/26/2016	160126
Snow Emergency, Snow Storage (DPW and DDOT)	RFK Stadium	1/26/2016	160126
Sheen Investigation	JBAB building 91	2/3/2016	er 160203
Dominion Power spill	Roach's Run	2/10/2016	160210
Outfall Foam	Pope Branch	3/1/2016	160301
Sewage Complaint	2302 E St., NE	3/4/2016	160304
Dump Truck Crash	Shepherd Pkwy at 295 off ramp	3/8/2016	160308
Turbid Discharge near outfall 298	Gangplank Marina	3/9/2016	160309
Soapstone Creek	4455 Connecticut Ave., NW	3/14/2016	160314
Concrete in drain	5701 Broad Branch Rd., NW	3/15/2016	160315
Water main break	Dumbarton Oaks Stream	3/15/2016	160315.1
Seven Eleven	950 Division Ave., NE	3/17/2016	160317
Discharge reported	Outfall 2027	3/17/2016	160317.1
fisherman's wharf	1100 Maine Ave., SW	3/17/2016	160317.2
White Glove Services	4200 Nannie Helen Burroughs Ave.,	3/23/2016	160323
Residential oil leak	2115 2nd St., NW	3/24/2016	160324
Up and Up Car Spa	2317 15th St., NE	3/26/2016	160326

Name	Address	Date	IDDE Case Number
White Foam	Pierce Mill Rock Creek	12/19/2338	160330
Wetland Issue	3810 Fort Lincoln Dr., NE	4/12/2016	160412
Watts Branch	Jay St., NE at Watts Branch	4/14/2016	160414
Nash run	Outfall 1035	4/14/2016	160414.1
Illicit Sanitary Connection	2000 Adams Pl. NE	4/21/2016	160421
Gangplank Marina	Gangplank Marina	4/29/2016	160429
SSO Report		5/5/2016	160502
Fire hydrant discharge	4461 Westover Pl., NW	5/3/2016	160503
Oil in stream	Outfall 1035	5/4/2016	160504
Sudsy discharge	3133 Connecticut Ave., NW	5/13/2016	160513
Diesel release from vessel	Capital yacht Club	5/17/2016	160517
Turbid discharge	25 Potomac Ave., SE	5/2/2016	160520
Sediment Discharge	Outfall 851	5/20/2016	160520.1
Fisherman's Wharf	1100 Maine Ave., SW	5/24/2016	160524
Turbid discharge	Outfall 851	5/24/2016	160524.1
Dirt Discharge	608 Nicholson St., NW	5/25/2016	160525
Hillwood Estate	4155 Linnean Ave., NE	6/7/2016	160607
Mineral Oil Release	1203 Talbert St., SE	6/10/2016	160610
Green discoloration	First and Potomac Ave., SE	6/14/2016	160614
Sudsy Discharge	6817 Georgia Ave., NW	6/16/2016	160616
Potable water discharge	Maine Ave., near Haines Point	6/17/2016	160617
Sudsy discharge	Dumbarton Oaks Stream	6/20/2016	160620
Capitol Paving	16th and Somerset Pl., NW	6/27/2016	160627
DC Water pipe	Mill creek	6/30/2016	160630
Dust/Paint	Under Francis Memorial Bridge	7/7/2016	160707
SSO	Outfall 107	7/7/2016	160707.1
SSO	2528 Sheridan rd., SE	7/14/2016	160714
Foam Shaving	4012 Edmunds St., NW	7/15/2016	160715
Petroleum Discharge	Outfall 218	7/22/2016	160722
SSO report	Outfall 243	8/2/2016	160802
Car Wash complaint	4501 Benning Rd., NE	8/16/2016	160816
	1401 Okie St., NW		160816.1
Takoma Motors	2212 Lawrence Ave., NE		160816.2
SS Failure	Oxon Run in stream	8/18/2016	160818
Latex Paint	Dumbarton Oaks Stream	8/26/2016	160826
	DC General Boiler Plant		160906
Tidal Basin	Tidal Basin Paddleboats	9/7/2016	160907
Aggregate Recycling	1721 South Capitol St., SW	9/15/2016	160915
Stream Foaming	Rock Creek at Beach and Broad Bra	9/20/2016	160920
construction dewatering	6825 Georgia Ave., NW	6/17/2016	160617
Ivy City	1401 W St., NE IVY CITY	2/18/2016	er 160218
reported fish kill	C and O Canal at foundry Branch Tu	3/23/2016	er 160323
train derailment CSX	train tracks at Rhode Island Ave., NE	5/1/2016	er 160501
fish kill report	Ohio Drive near tidal gates	6/6/2016	er 160606

Name	Address	Date	IDDE Case Number
oil on river	4th and Water St., SE	6/28/2016	er 160628
mineral oil release	Across from Roosevelt Island (VA)	7/15/2016	er 160718
diesel spill from generator	1160 1st Street, NE	7/29/2016	er 160729
fish kill reported	constitution Gardens	8/16/2016	er 160816

Attachment E: FY 2016 Household Hazardous Waste Collection (3 pages)

WASHINGTON D.C. PERMANENT FACILITY HHW SUMMARY REPORT- FORT TOTTEN													
FY 2016													
CATEGORIES AND AMOUNTS OF WASTE													
	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	
WASTE CATEGORY													TOTALS
Lab Pack Waste Aerosols (gallons)	330	165	220	220	165	220	165	275	165	330	55	110	2,420
Lab Pack Waste Aerosols (cubic yards)	0	1	0	8	1	0	0	0	1	0	1	0	12
Lab Pack Flammable Liquids (cubic yards)	21	28	21	10	17	15	19	19	27	35	10	14	236
Bulk Flammable Liquids (gallons)	440	440	385	385	385	220	330	385	330	440	385	275	4,400
Bulk Paint (gallons)	110	55	110	165	55	0	0	55	0	110	55	0	715
Lab Pack Flammable Solid (gallons)	0	5	0	0	55	0	0	0	0	0	0	0	60
Lab Pack Oxidizing (gallons)	55	55	55	55	55	55	0	55	55	55	55	55	605
Lab Pack Waste Pesticide Liquid (gallons)	330	275	275	165	165	275	165	220	275	165	165	165	2,640
Lab Pack Waste Pesticide Solid (gallons)	165	165	275	55	110	220	110	220	220	110	55	55	1,760
Lab Pack Toxic Liquid (gallons)	55	0	55	0	0	0	0	0	0	0	0	0	110

FY 2016													
CATEGORIES AND AMOUNTS OF WASTE													
	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	
WASTE CATEGORY													TOTALS
Lab Pack Waste Corrosive Acidic (gallons)	110	55	0	55	55	0	0	165	55	110	0	55	660
Lab Pack Waste Corrosive Basic (gallons)	605	440	495	330	440	385	275	605	330	385	275	220	4,785
Bulk Used Oil (gallons)	0	0	0	0	0	0	0	0	0	0	0	0	0
Bulk Non-Regular Used Oil (gallons)	0	0	0	0	0	0	0	0	0	0	0	0	0
Bulk Anti Freeze (gallons)	0	0	0	0	0	0	0	0	0	0	0	0	0
Lab Pack Asbestos (gallons)	0	55	0		55	0	55	110	0	0	0	0	275
Lab Pack Asbestos (cubic yards)		0	0	1	0	0	0	0	0	0	0	0	1
Lab Pack Florescent Bulbs (gallons)	385	220	275	110	110	275	275	165	0	220	110	165	2,310
Lab Pack Fluorescent Tubes (linear feet)	1,200	2,400	1,000	1,000	2,000	1,200	1,392	360	7,760	2,028	660	1,520	22,520
Lab Pack Waste Mercury (gallons)	55	55	0	55	0	0	0	0	0	55	0	5	225
Lab Pack Propane (gallons)	55	165	55	110	110	55	55	55	55	110	110	0	935
Lab Packed Pressurized Cylinder (each)	0	0	9	0	10	0	0	8	0	9	7	24	67
Lab Pack Fire Extinguishers (gallons)	110	55	55	55	110	55	110	55	55	55	55	0	770
Lab Pack Dry Cell Batteries (gallons)	55	0	0	0	0	0	0	0	0	0	0	0	55

FY 2016													
CATEGORIES AND AMOUNTS OF WASTE													
	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	
WASTE CATEGORY													TOTALS
Lab Pack Non-Regulated Dry Sealed Batteries (gallons)	0	0	0	0	0	0	165	0	0	0	0	0	165
Summary Totals													
Total Cubic Yards	249												
Total Gallons	22,890												
Total Linear Feet	22,520												

Attachment F: FY 2016 Trash Cleanup Event Data (4 pages)

Entity	Event Date	Location	Watershed	Number of Volunteers	Bags of Trash	Bags of Recyclables	Tires	Pounds of Bulk Trash (lbs)	Gross Total Weight (pounds)	Method for Data Collection
Anacostia Riverkeeper	1/18/2016	Pope Branch Park	Anacostia River	Unknown	Total Trash Collected = 2,761 lbs			1,314	4,075	All items were bagged and weighed separately with hand scales.
Anacostia Riverkeeper	4/16/2016	Anacostia Park - Anacostia River Festival	Anacostia River	Unknown	Total trash Collected = 1,887 lbs			820	2,707	All items were bagged and weighed separately with hand scales.
Joint Base Anacostia/Anacostia Watershed Society	4/23/2016	Joint Base Anacostia Bolling	Anacostia River	128	78	-	23	-	2,525	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Community Boathouse	4/23/2016	Anacostia Community Boathouse	Anacostia River	67	80	-	-	-	2,000	Assumed weight of 25 lbs per bag and 25 lbs per tire
Living Classrooms, Inc.	4/23/2016	Kingman Island	Anacostia River	76	59	-	1	-	1,500	Assumed weight of 25 lbs per bag and 25 lbs per tire
DOEE/Anacostia Watershed Society	4/23/2016	Alger Park	Anacostia River	22	32	-	10	-	1,050	Assumed weight of 25 lbs per bag and 25 lbs per tire
DOEE/Anacostia Watershed Society	4/23/2016	Ft. Dupont	Anacostia River	75	110	-	39	-	3,725	Assumed weight of 25 lbs per bag and 25 lbs per tire
DOEE/Anacostia Watershed Society	4/23/2016	River Terrace Park	Anacostia River	75	99	44	2	-	3,625	Assumed weight of 25 lbs per bag and 25 lbs per tire
Eastern Power Boat Club	4/23/2016	Eastern Power Boat Club, 1301 Water St SE	Anacostia River	30	61	72	5	-	3,450	Assumed weight of 25 lbs per bag and 25 lbs per tire
Horton's Kids	4/24/2016	Horton's Kids Community Center	Anacostia River	140	80	-	-	-	2,000	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Watershed Society	4/23/2016	Anacostia Park -- On Water	Anacostia River	18	10	-	3	-	325	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Watershed Society	4/23/2016	Anacostia Park-- On Land	Anacostia River	20	31	-	-	-	775	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Twining/Dupont Park	Anacostia River	48	10	-	25	-	875	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Watershed Society	4/23/2016	Kenilworth Aquatic Gardens	Anacostia River	268	78	-	-	-	1,950	Assumed weight of 25 lbs per bag and 25 lbs per tire

Entity	Event Date	Location	Watershed	Number of Volunteers	Bags of Trash	Bags of Recyclables	Tires	Pounds of Bulk Trash (lbs)	Gross Total Weight (pounds)	Method for Data Collection
DOEE/Cleaner Ward 7	5/21/2016	Quarles St and Anacostia Ave NE	Anacostia River	5	17	-	-	-	425	Assumed weight of 25 lbs per bag and 25 lbs per tire
We Love U Foundation/DOEE/Cleaner Ward 7	5/22/2016	Fort Dupont Park	Anacostia River	160	224	-	135	-	8,975	Assumed weight of 25 lbs per bag and 25 lbs per tire
We Love U Foundation/DOEE/Cleaner Ward 7	6/19/2016	Jay St nE/Kenilworth Park	Anacostia River	60	44	-	34	-	1,950	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Watershed Society	7/14/2016	Anacostia Park-- On Land	Anacostia River	100	38	10	1	50	1,275	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	7/19/2016	Kenilworth Park	Anacostia River	4	6	-	-	-	150	Assumed weight of 25 lbs per bag and 25 lbs per tire
Anacostia Riverkeeper and the Ocean Conservancy	9/27/2016	Kingman Island	Anacostia River	Unknown	Total Trash Collected= 1,521 lbs			1,004	1,004	All items were bagged and weighed separately with hand scales.
Horton's Kids/Alice Ferguson Foundation	11/11/2016	Horton's Kids Community Center	Anacostia River	50	20	14	2	75	975	Assumed weight of 25 lbs per bag and 25 lbs per tire
Greater Fellowship Full Gospel Baptist Church	6/4/2016	Greater Fellowship Full Gospel Baptist Church	Potomac River	9	6	2	-	-	200	Assumed weight of 25 lbs per bag and 25 lbs per tire
Restore Sheperd Parkway	4/23/2016	Shepherd Parkway	Potomac River	106	74	-	107	-	4,525	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/16/2016	Fletcher's Cove	Potomac River	117	-	-	-	3,000	3,000	Assumed weight of 25 lbs per bag and 25 lbs per tire
Washington Canoe Club	4/17/2016	Washington Canoe Club	Potomac River	26	30	18	-	814	2,014	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/27/2016	Glover Archbold Park South	Potomac River	52	6	11	-	-	425	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Glover Archbold Park-Whitehaven	Potomac River	32	9	21	-	-	750	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Whitehaven Park @ Foxhall Road	Potomac River	17	11	-	-	-	275	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/29/2016	Glover Archbold Park/Canal Rd	Potomac River	7	4	5	-	-	225	Assumed weight of 25 lbs per bag and 25 lbs per tire

Entity	Event Date	Location	Watershed	Number of Volunteers	Bags of Trash	Bags of Recyclables	Tires	Pounds of Bulk Trash (lbs)	Gross Total Weight (pounds)	Method for Data Collection
Alice Ferguson Foundation	3/26/2016	Carter Barron	Rock Creek	12	3	-	-	-	75	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Carter Barron	Rock Creek	19	8	6	-	-	350	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Picnic Area 22 (Ross Dr. & Joyce Rd.)	Rock Creek	23	15	11	-	-	650	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	3/1/2016	Picnic Area 22 (Ross Dr. & Joyce Rd.)	Rock Creek	16	13	-	-	200	525	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/30/2016	Soapstone Valley	Rock Creek	20	14	14	-	-	700	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/1/2016	Peirce Mill	Rock Creek	33	7	-	-	-	175	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Pinehurst Tributary, Rock Creek Park	Rock Creek	19	26	12	1	250	1,225	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/22/2016	Fenwick Tributaries to Rock Creek	Rock Creek	95	3	-	-	-	75	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Fenwick Tributaries to Rock Creek	Rock Creek	9	3	-	-	-	75	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Portal Branch (Tributary to Fenwick Branch)	Rock Creek	24	20	15	-	-	875	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/24/2016	Pierce Mill	Rock Creek	35	7	3	-	-	250	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/15/2016	Pierce Mill	Rock Creek	17	2	-	-	-	50	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Edgewater Stables	Rock Creek	20	30	20	-	-	1,250	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Melvin Hazen West	Rock Creek	43	20	13	3	165	1,065	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	16th St and Holly St NW	Rock Creek	22	26	-	1	-	675	Assumed weight of 25 lbs per bag and 25 lbs per tire

Entity	Event Date	Location	Watershed	Number of Volunteers	Bags of Trash	Bags of Recyclables	Tires	Pounds of Bulk Trash (lbs)	Gross Total Weight (pounds)	Method for Data Collection
Alice Ferguson Foundation	4/23/2016	West Beach Drive	Rock Creek	17	15	14	-	100	825	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Beach Dr and Calvert Street NW	Rock Creek	32	32	21	-	-	1,325	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/23/2016	Broad Branch	Rock Creek	15	19	-	2	150	675	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Wilson Aquatic Center	Rock Creek	14	11	8	-	-	475	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Fort Reno Park	Rock Creek	49	15	13	-	-	700	Assumed weight of 25 lbs per bag and 25 lbs per tire
Rock Creek Conservancy	4/23/2016	Wisconsin Ave And Fessenden St NW	Rock Creek	65	32	18	-	-	1,250	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	2/13/2016	Pinehurst Tributary	Rock Creek	19	26	12	1	250	1,225	Assumed weight of 25 lbs per bag and 25 lbs per tire
Alice Ferguson Foundation	4/8/2016	Rapids Bridge	Rock Creek	11	5	-	-	-	125	Assumed weight of 25 lbs per bag and 25 lbs per tire

Summary	Total
Total collected from Rock Creek Watershed (lbs)	14,615
Total collected from Potomac River Watershed (lbs)	11,414
Total collected from Anacostia River Watershed (lbs)	45,336
Total Trash Collected (lbs)	71,365
Total number of volunteers engaged throughout year	2,341

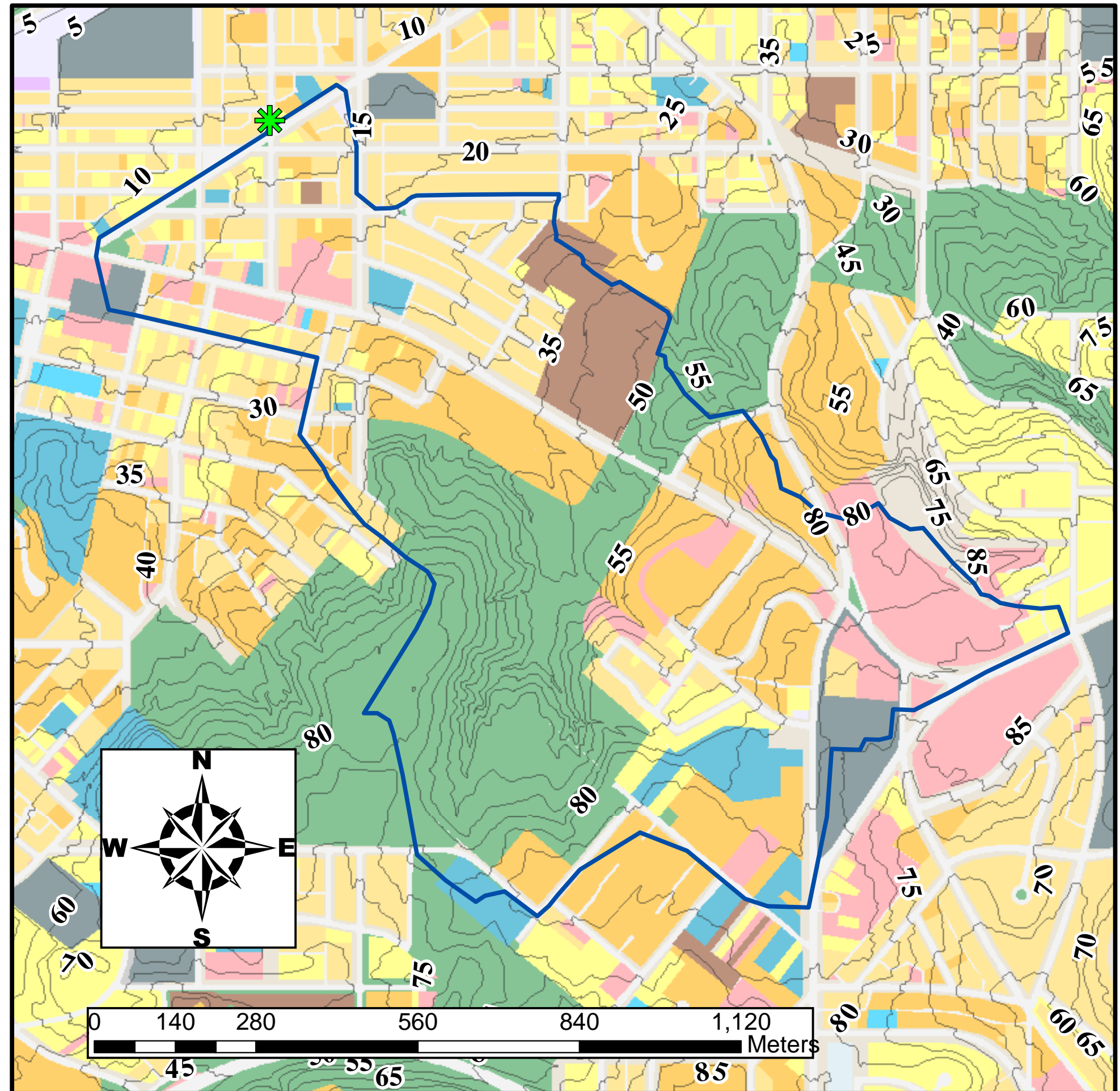
Attachment G: Monitoring Location Maps (9 pages)

Anacostia High School

Site 3 (M12A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  5m Topo Lines
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

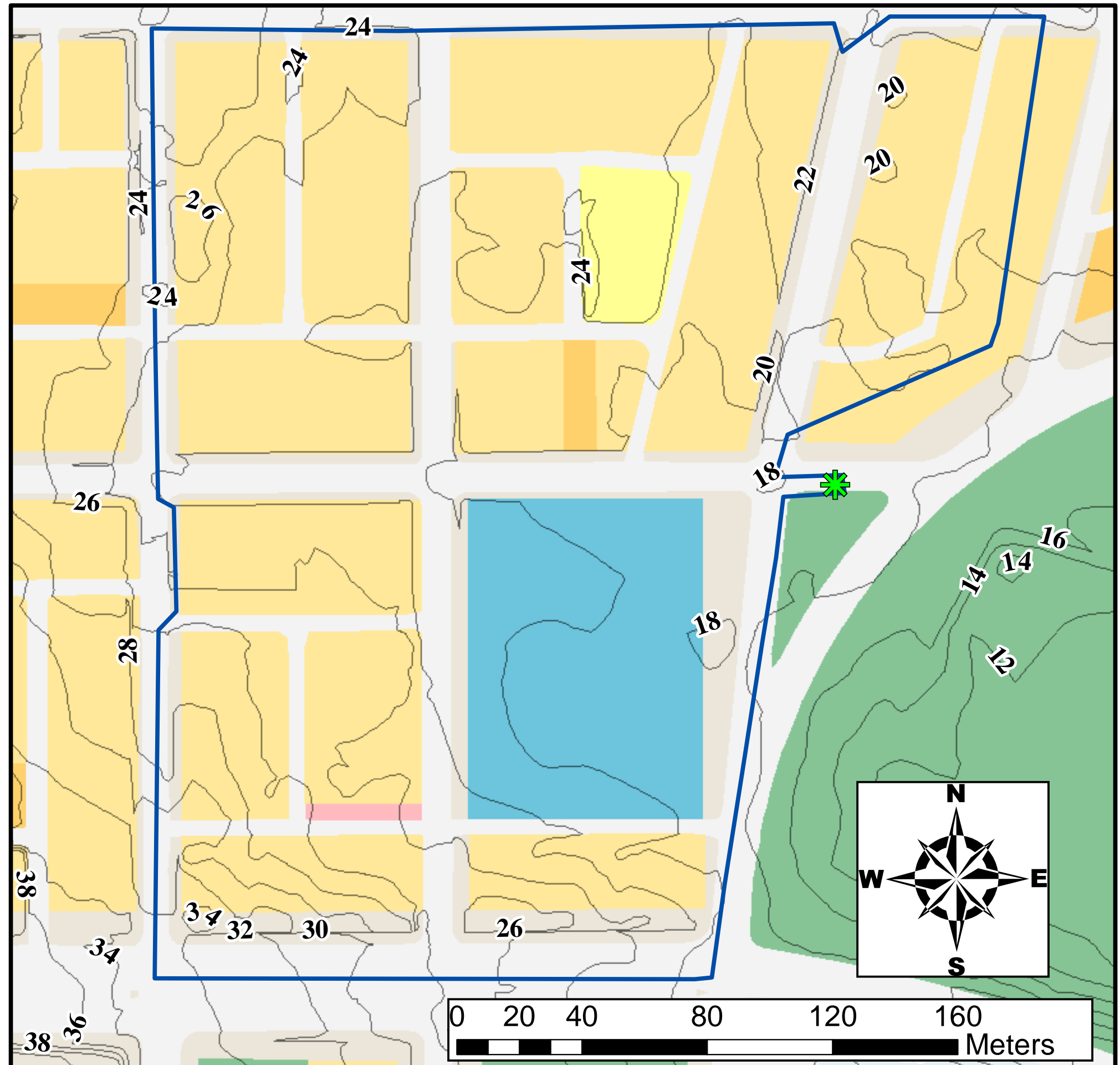


East Capitol St.

Site 7 (MS7A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  1m Topo
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

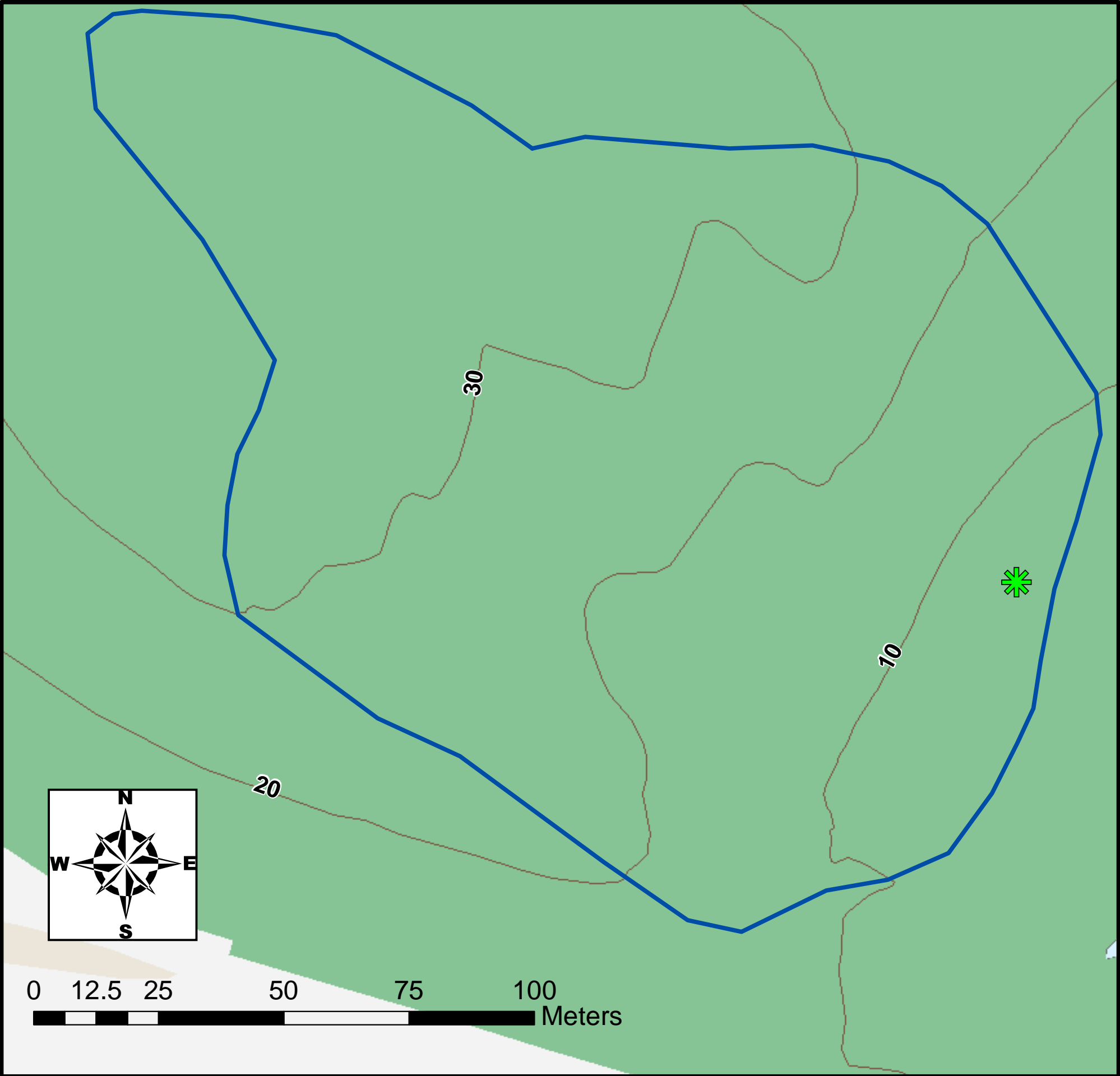


Ft. Lincoln - Newton BMP

Site 8 (MS8A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  10m Topo
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water



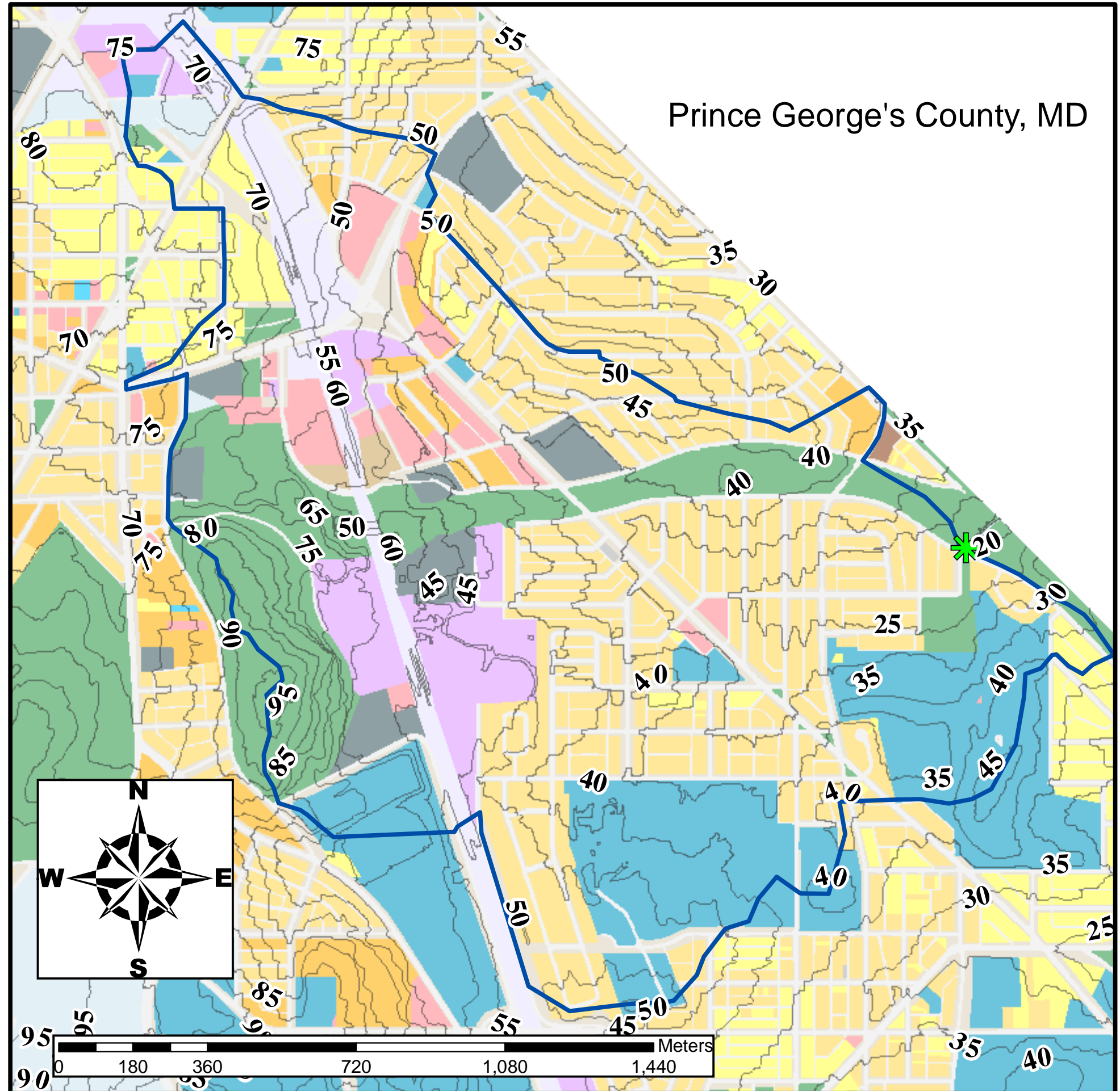
Gallatin & 14th St NE

Site 4 (M13A)

Prince George's County, MD

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  5m Topo Lines
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

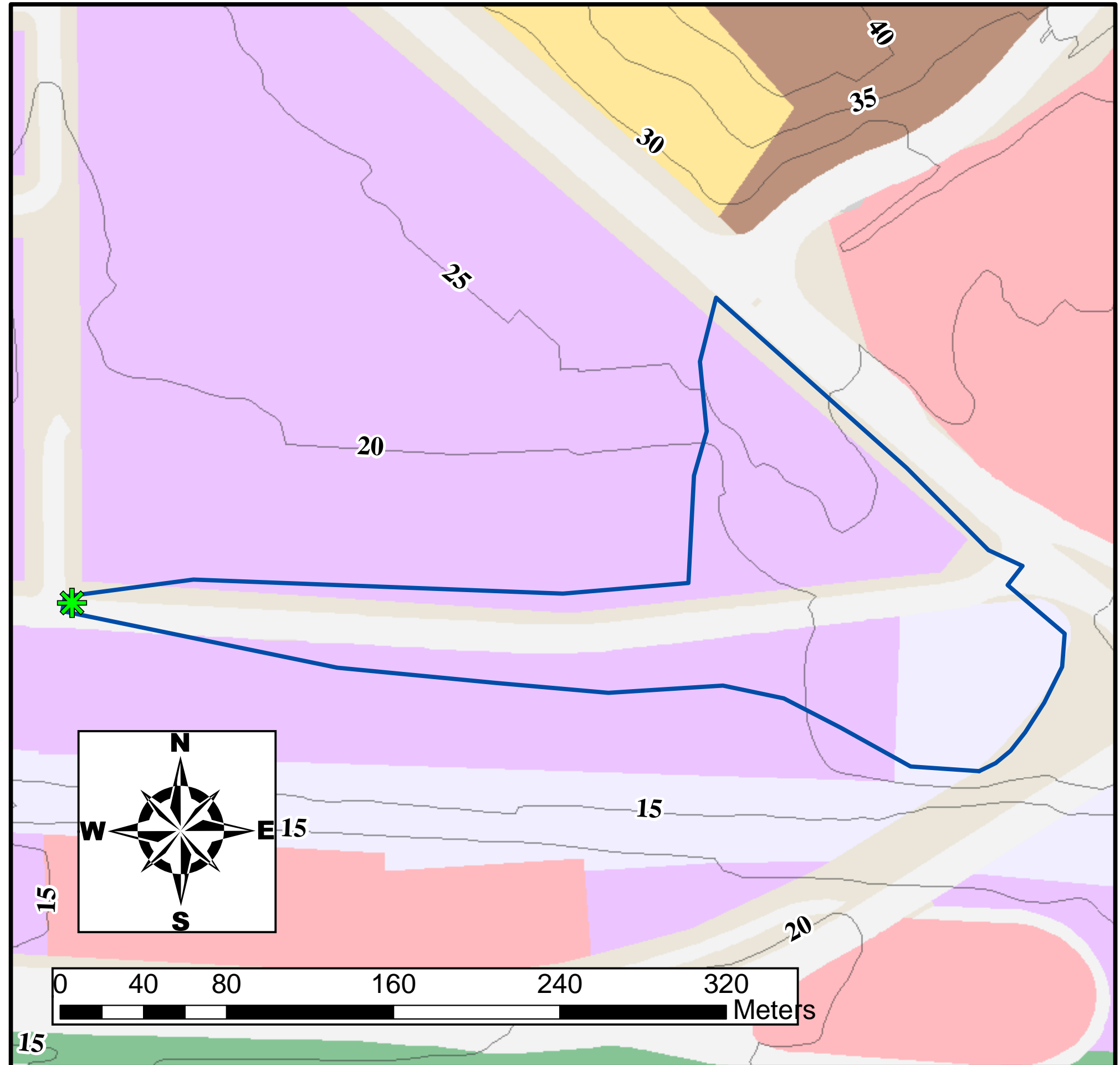


Hickey Run

Site 9 (MS9A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  5m Topo Lines
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

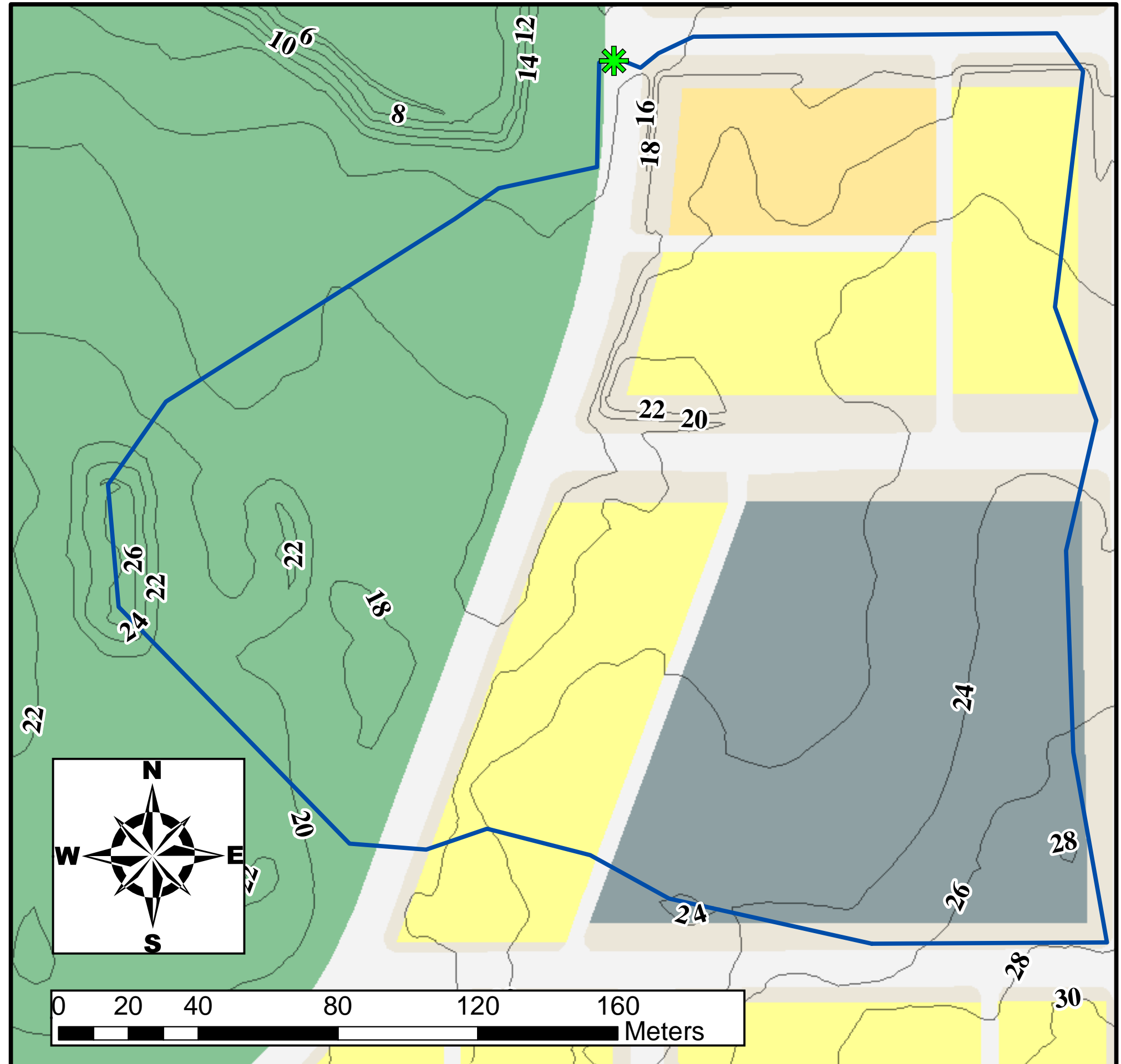


Nash Run

Site 6 (M15A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  1m Topo
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

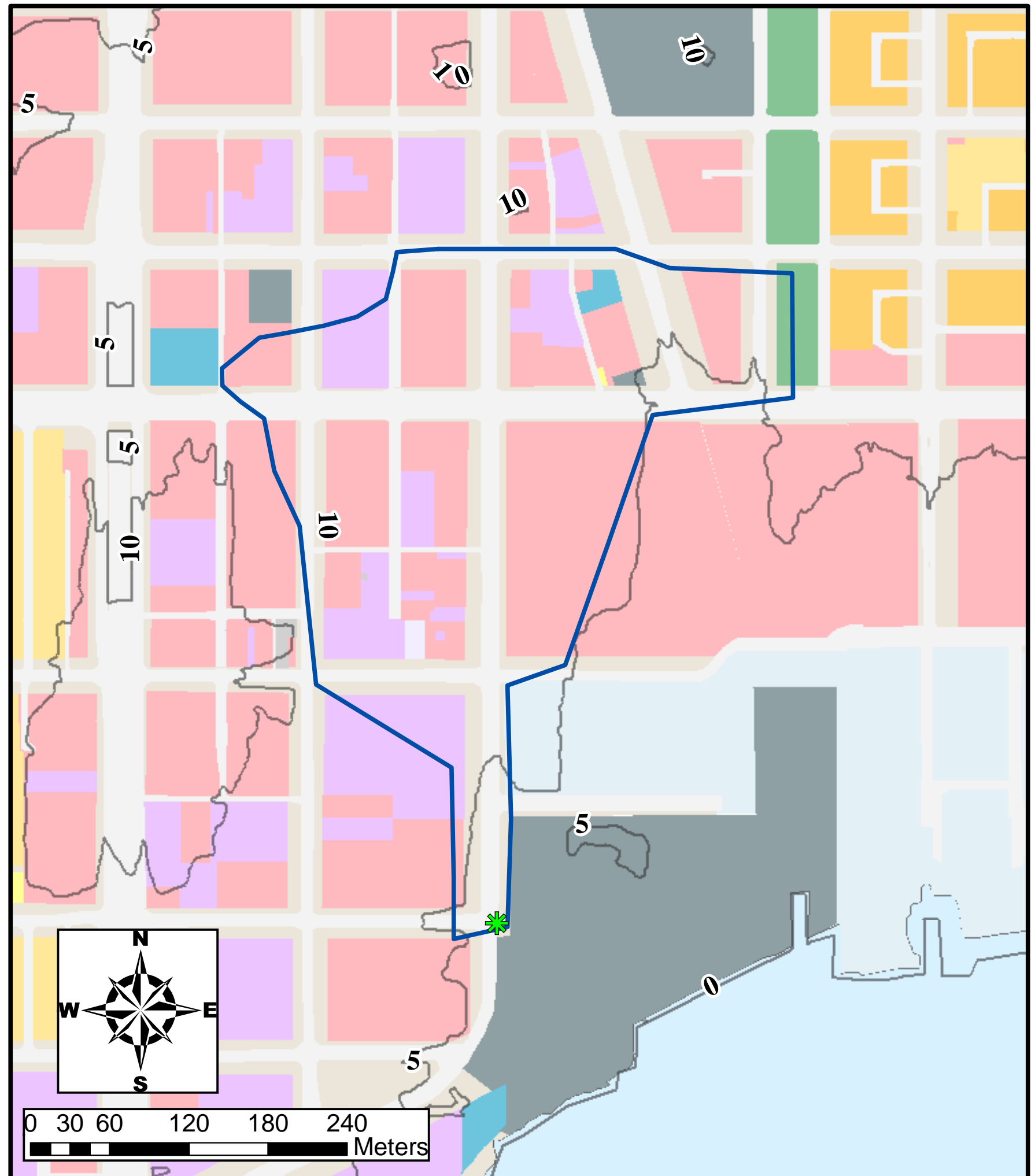


St Stormwater Pump Station

Site 2 (M11A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  5m Topo Lines
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

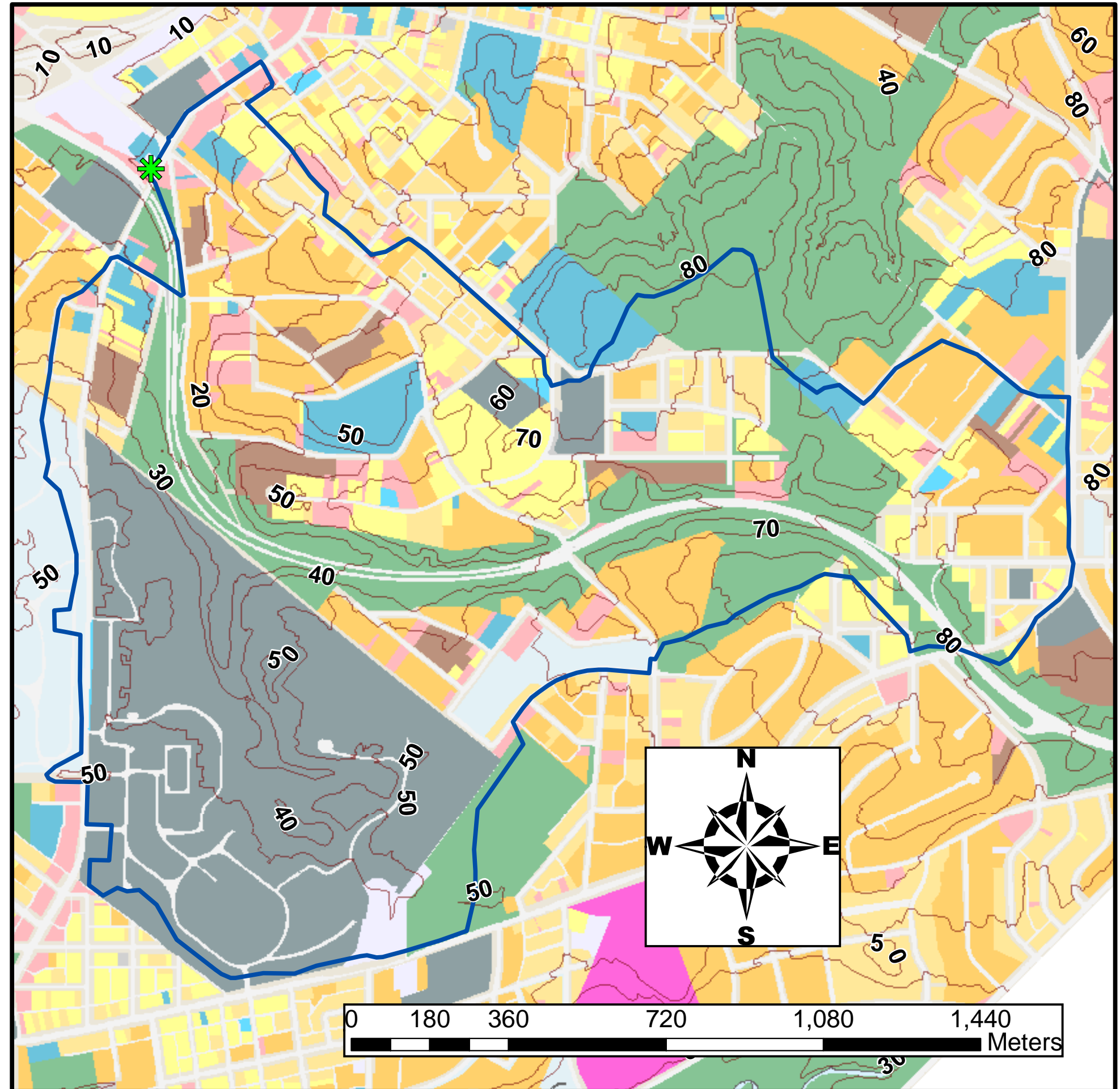


Stickfoot Sewer

Site 1 (M10A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  10m Topo
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water



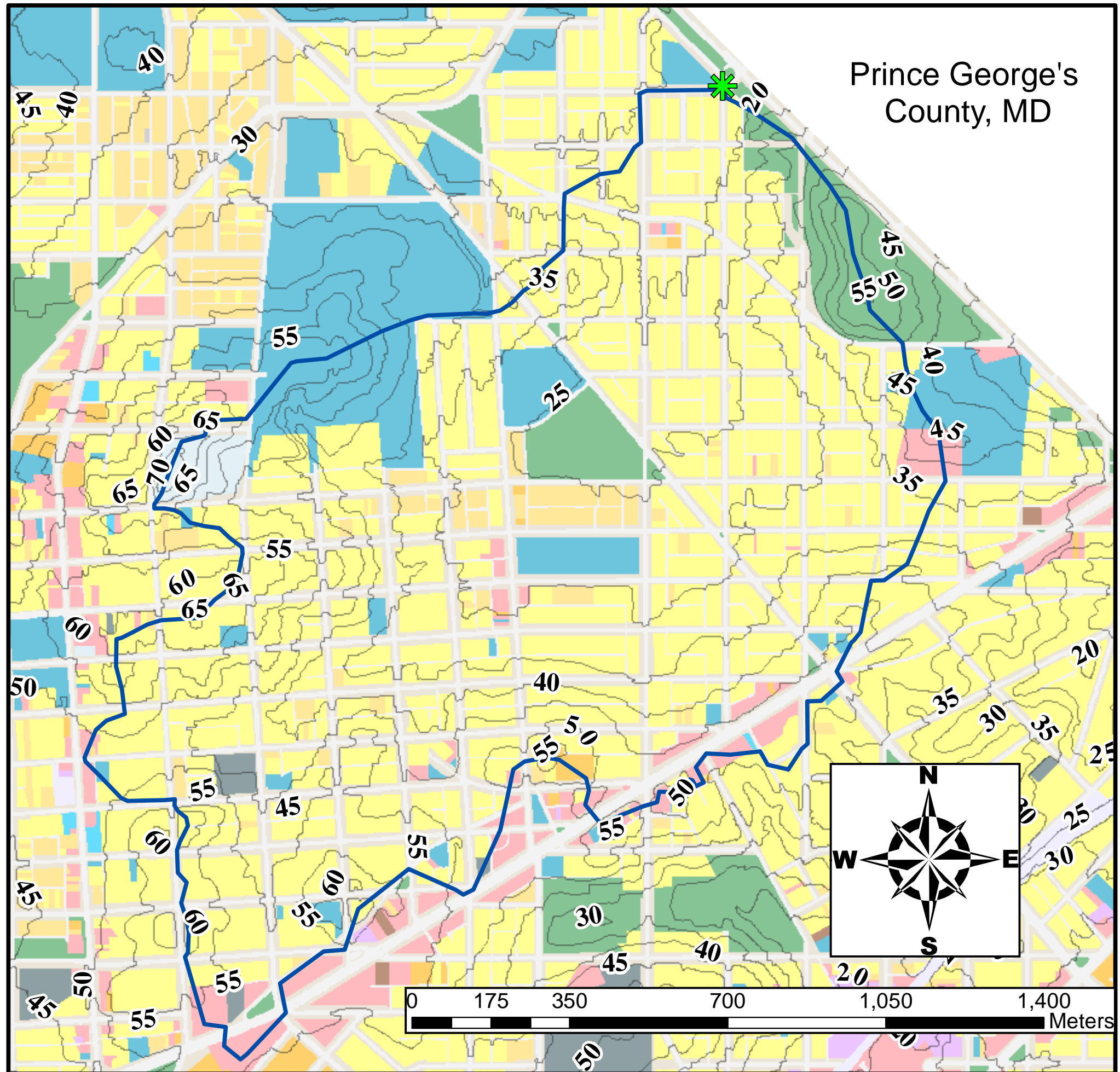
Varnum and 19th PI NE

Site 5 (M14A)

Legend

-  Water Quality Monitoring Sites
-  Water Quality Monitoring Sites Drainage Area
-  5m Topo Lines
- Existing Land Use
- Land Use Designation
 -  Low Density Residential
 -  Low-Medium Density Residential
 -  Medium Density Residential
 -  High Density Residential
 -  Commercial
 -  Transport, Communication, Utilities
 -  Industrial
 -  Mixed Use
 -  Institutional
 -  Federal Public
 -  Local Public
 -  Public, Quasi-Public, Institutional
 -  Parks and Open Spaces
 -  Parking
 -  Roads; Alleys; Median
 -  Transportation Right of Way
 -  Undetermined
 -  Water

Prince George's
County, MD



Attachment H: Wet Weather Monitoring Data (1 page)

Parameter	Units	Anacostia High School			Gallatin & 14th St., NE			Water Reed/Fort Stevens			Soapstone Creek			Battery Kemble			Oxon Run		
		10/28/2015	5/21/2016	9/19/2016	10/28/2015	5/21/2016	7/29/2016	12/14/2015	5/21/2016	7/29/2016	10/28/2015	5/21/2016	7/29/2016	12/14/2015	5/21/2016	7/29/2016	12/14/2015	5/21/2016	7/29/2016
		Wet 1	Wet 2	Wet 3	Wet 1	Wet 2	Wet 3	Wet 1	Wet 2	Wet 3	Wet 1	Wet 2	Wet 3	Wet 1	Wet 2	Wet 3	Wet 1	Wet 2	Wet 3
Cadmium	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0085	ND	ND
Chlorophyll a	ug/L	ND	21	2	ND	5.8	4.2	ND	2.1	ND	2	4.2	29	3.8	ND	ND	ND	2.1	3.8
Copper	mg/L	0.023	0.0206	0.0839	0.025	0.0268	0.0142	0.0202	0.0112	0.0101	0.049	0.0229	0.0261	0.0439	0.0539	0.184	0.0102	0.0159	0.0507
E. Coli	MPN/100 mL	920	240	430	1600	220	350	220	170	49	240	540	170	130	240	110	540	170	49
Fecal Coliforms	MPN/100 mL	920	240	430	1600	220	350	220	170	49	240	540	170	130	240	110	540	170	49
Hardness (As CaCO3)	mg CaCO3/L	40	52	70	40	66	60	110	69	28	100	66	35	260	180	40	120	75	80
Lead	mg/L	0.0086	0.0258	0.0143	0.012	0.0124	0.0044	0.0064	0.0042	0.005	0.0085	0.0094	0.0033	0.0051	0.0194	0.0095	0.0019	0.0061	0.0039
Nitrogen, Total as N	mg/L	4.44	2.34	1.71	3.61	2.65	2.51	4.71	2.43	1.63	6.52	2.21	1.58	4.61	4.06	1.89	4.34	2.54	1.24
Phosphorus, Total (as P)	mg/L	0.43	0.32	0.21	0.46	0.21	0.19	0.23	0.14	0.13	0.87	0.26	0.15	0.13	0.31	0.3	0.023	0.16	0.17
Total Suspended Solids	mg/L	22	23	9.3	22	4.5	6	9.7	7.8	3.7	29	17	ND	24	73	14	2.5	3.3	4
Zinc	mg/L	0.084	0.0882	0.0759	0.1	0.0867	0.0624	0.0602	0.039	0.027	0.11	0.0541	0.0557	0.0209	0.0423	0.0369	0.061	0.0966	0.0981
Estimated Flow Rate	gpm	8,979	13165.7	10,473	4488.3	2244.2	5,610	11.7	52	698	5,984	2,065	17,953	1	135	16	668.57	2,462	771

ND - Analyte not detected at or above reporting limit

Attachment I: Monitoring for Trash in District Waters 2016 Annual Progress Report (15 pages)

Monitoring for Trash in District Waters 2016 Annual Progress Report



Prepared for:



Prepared by:



Stream Trash Monitoring

In June 2016, the District of Columbia Department of Energy and Environment (DOEE) awarded a grant to the Metropolitan Washington Council of Governments (COG) to monitor stream sites for trash. COG staff worked closely with DOEE to identify 13 wadeable streams in the District that are appropriate for employing the monitoring protocols (Figures 1 and 2). The instream trash survey was performed two times: summer 2016 and fall 2016. At all 13 sites, COG staff conducted *count surveys*, where every trash item within the 500 foot long stream reach was recorded and catalogued according to the 22* trash category types. In addition, *pick surveys* occurred at the 6 Anacostia watershed sites, where COG staff collected every piece of trash from the upstream 250 feet of the designated 500 foot length. Each item is then placed into one of the categories, and an aggregate wet weight is determined for each category. In doing so at these sites, COG can generate a reasonable estimate of instream trash accumulation/loading rates between survey periods.

*The TMDL sorted trash into 20 categories, but due to recent legislation in the Anacostia watershed jurisdictions, COG now separates out “carry out plastic bags” and “expanded polystyrene Styrofoam”, which will identify trends in those items.

Overall Progress and Results Summary

- COG and DOEE identified 13 locations for instream trash monitoring. Five sites are located in the Rock Creek watershed, two sites are in the Potomac Watershed, and six sites are in the Anacostia watershed. As mentioned above, all six Anacostia watershed sites undergo an additional level of observation (*pick surveys*).
- COG staff completed the Quality Assurance Project Plan and submitted the plan to DOEE.
- Representative photos and verbal trash rankings for each site can be found on pages 5-9.
- The total number of items from *count surveys* can be found in Tables 1 and 2 and Figure 3. The Anacostia watershed sites' trash counts were higher than those in the Rock Creek and Potomac watershed sites.
- Luzon Branch, Piney Branch, Foundry Branch, Fort Dupont, Fort Chaplin, Watts Branch Upper and Watts Branch Lower were ranked as “high” trash level sites for the summer surveys. In the fall, two of those sites (Foundry Branch and Fort Dupont Tributary) saw lower trash levels and were categorized as “moderate” and “light”, respectively. This is likely attributed to the fact that summer surveys were the first time these sites have been “cleaned”, and the survey removed historical trash that was no longer there during the subsequent fall surveys. The other 5 sites remained as “high” trash level sites.
- Strainers (natural or anthropogenic blockages that collect floating debris) of various sizes are found in several of the trash sites:
 - Blagden Run and Foundry Branch each have one large strainer that collect a large amount of trash.
 - Luzon Branch has a large debris dam at the Beach Drive culvert entrance which is collecting a large amount of trash.
 - In the summer survey, Fort Dupont had multiple strainers that collected significant amounts of trash. In the fall survey, the strainers were still in place but did not accumulate trash.
 - Fort Chaplin had multiple strainers that collect a large amount of trash in both the summer and fall.
 - Watts Branch Lower and Watts Branch Upper both have multiple small strainers that collect trash. However, most of the trash is accumulating in the plants up in the streambanks at or above the bankful areas.

- Results from the 2016 *pick surveys* can be found in Tables 3 and 4 and Figure 4. The sites with the highest total weights are Fort Chaplin, Watts Branch Lower, and Watts Branch Upper. Estimates of monthly accumulation were also highest in these 3 sites, with 10.7 lbs/month, 16.3 lbs/month, and 18.8 lbs/month for the 250 foot lengths, respectively. The Kingman Lake site was more difficult to wade and observe the trash in the spring survey, which may be why more trash was observed and collected in the fall.
- Figures 5 and 6 summarize the distribution of item counts and weights by category (summer and fall 2016 surveys are combined):
 - Carry out plastic bags and plastic bags (other) collectively account for 30% of item counts and 35% of the item weights. This suggests that both types of plastic bags are a significant component of the trash that is reaching waterbodies in the District.
 - Food packaging at 31% and expanded polystyrene at 6% are in the top 5 categories for counts, but their contribution to trash weights is significantly less; food packaging accounts for 9% of the total trash weight and expanded polystyrene is not one of the top 5 categories.
 - Plastic bottles are also a significant component of trash in District waterbodies. They accounted for 11% of the total number of items and 17% of the total trash weight.
 - Cloth/Carpeting/Clothing accounts for 14% of the total trash weight, but it is not one of the top item counts. This is expected, as these items soak up water and COG's protocol uses wet weights.
- The weights of both carry out plastic bags and plastic bags (other) remained constant from the summer survey to the fall survey in Watts Branch Upper and Watts Branch Lower (Figure 7). This indicates there are relatively steady sources of plastic bags to this stream from the land surface and storm drain system.

Figure 1. Map of Rock Creek and Potomac Watershed Trash Monitoring Stations

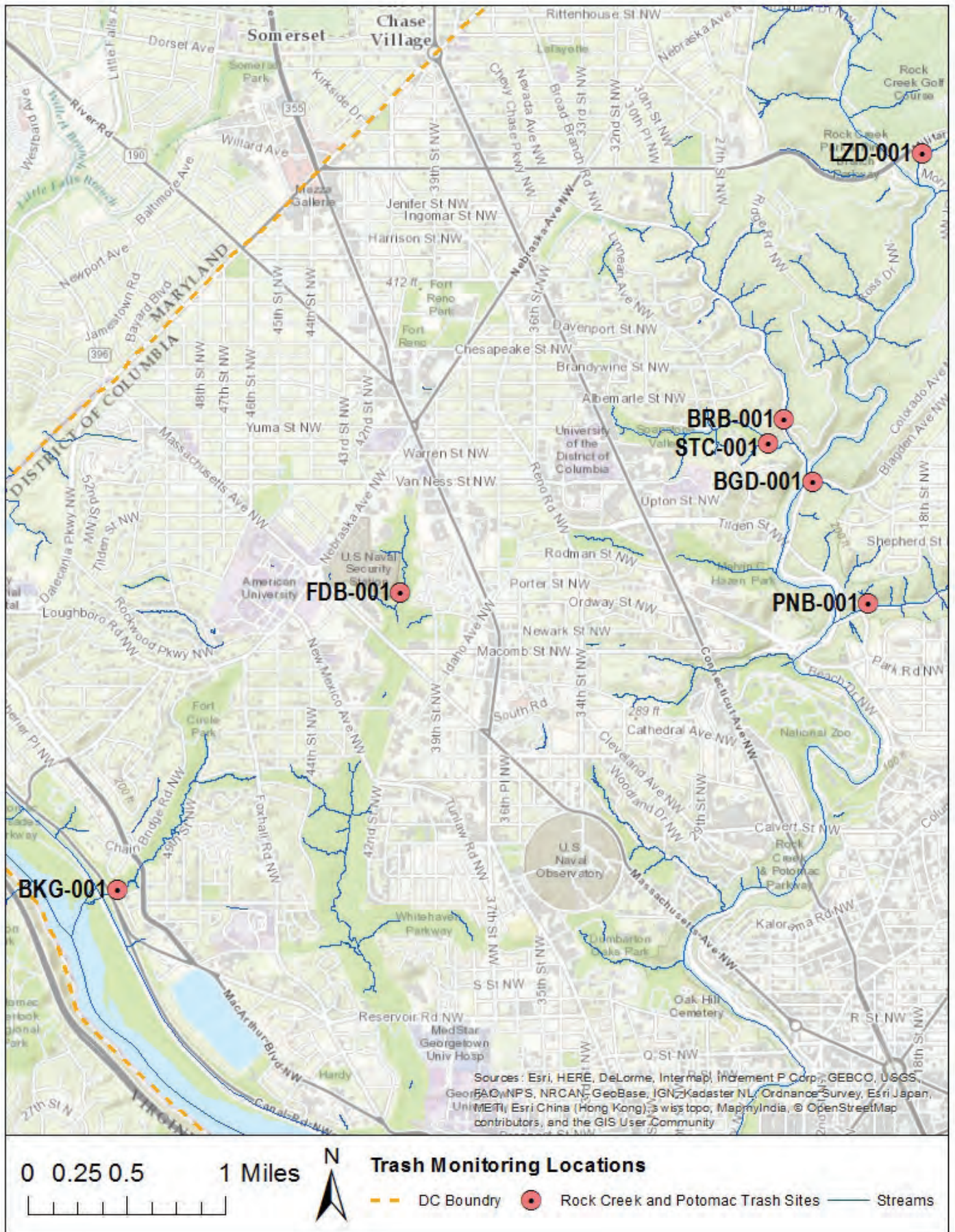
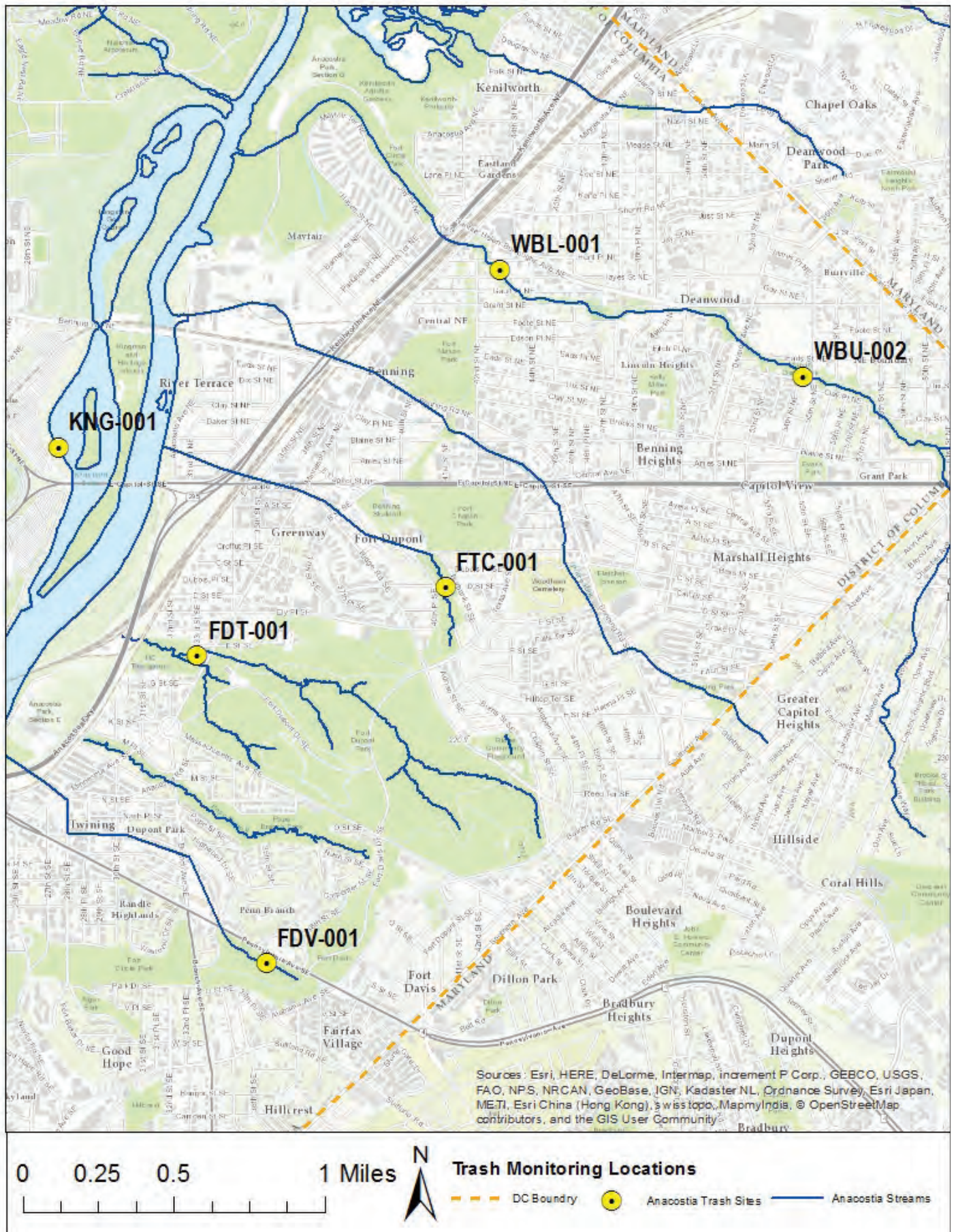


Figure 2. Map of Anacostia Watershed Trash Monitoring Stations



I. Rock Creek Trash Sites

SITE ID: LZD-001	STATION NAME: Luzon Branch	TRASH RATING ¹ : High (Summer) High (Fall)
------------------	----------------------------	--



SITE ID: BRB-001	STATION NAME: Broad Branch	TRASH RATING ¹ : Light (Summer) Light (Fall)
------------------	----------------------------	--



SITE ID: STC-001	STATION NAME: Soapstone Creek	TRASH RATING ¹ : Light (Summer) Light (Fall)
------------------	-------------------------------	--



SITE ID: BGD-001	STATION NAME: Blagden Run	TRASH RATING ¹ : Moderate (Summer) Moderate (Fall)
------------------	---------------------------	--



SITE ID: PNB-001	STATION NAME: Piney Branch	TRASH RATING ¹ : High (Summer) High (Fall)
------------------	----------------------------	--



II. Potomac Trash Sites

SITE ID: FDB-001	STATION NAME: Foundry Branch	TRASH RATING ¹ : High (Summer) Moderate (Fall)
------------------	------------------------------	--



SITE ID: BKG-001	STATION NAME: Battery Kemble	TRASH RATING ¹ : Very Light (Summer) Very Light (Fall)
------------------	------------------------------	--



III. Anacostia Trash Sites

SITE ID: WBL-001	STATION NAME:: Watts Branch Lower	TRASH RATING ¹ : High (Summer) High (Fall)
------------------	-----------------------------------	--



SITE ID: WBU-002	STATION NAME: Watts Branch Upper	TRASH RATING ¹ : High (Summer) High (Fall)
------------------	----------------------------------	--



SITE ID: FTC-001	STATION NAME: Fort Chaplin	TRASH RATING ¹ : High (Summer) High (Fall)
------------------	----------------------------	--



SITE ID: KNG-001	STATION NAME: Kingman Lake	TRASH RATING ¹ : Very Light (Summer) Light (Fall)
------------------	----------------------------	---



SITE ID: FDT-001	STATION NAME: Fort Dupont	TRASH RATING ¹ : High (Summer) Light (Fall)
------------------	---------------------------	---



SITE ID: FDV-001	STATION NAME: Fort Davis	TRASH RATING ¹ : Moderate (Summer) Moderate (Fall)
------------------	--------------------------	--



All photos sourced from COG Survey

¹=

No. of Items/100 ft	Verbal Ranking
0 - 10.0	None - Very Light
10.1 - 25.0	Light
25.1 - 50.0	Moderate
>= 50.1	High

Table 1. Total Number of Items per 500 ft. *Count Survey* (Summer 2016)

Site ID	Site Name	Subwatershed	Total Number of Items	Verbal Ranking ¹	Number of Strainers
LZD-001	Luzon Branch	Rock Creek	572	High	2
BGD-001	Blagden Run	Rock Creek	167	Moderate	1
STC-001	Soapstone Creek	Rock Creek	85	Light	1
BRB-001	Broad Branch	Rock Creek	65	Light	0
PNB-001	Piney Branch	Rock Creek	446	High	0
FDB-001	Foundry Branch	Potomac	262	High	3
BKG-001	Battery Kemble	Potomac	40	Very Light	2
FDV-001	Fort Davis	Anacostia	151	Moderate	2
FDT-001	Fort Dupont	Anacostia	279	High	4
FTC-001	Fort Chaplin	Anacostia	1021	High	3
WBL-001	Watts Branch Lower	Anacostia	639	High	0
WBU-002	Watts Branch Upper	Anacostia	849	High	2
KNG-001	Kingman Lake	Anacostia	31	Very Light	0

Table 2. Total Number of Items per 500 ft. *Count Survey* (Fall 2016)

Site ID	Site Name	Subwatershed	Total Number of Items	Verbal Ranking ¹	Number of Strainers
LZD-001	Luzon Branch	Rock Creek	461	High	2
BGD-001	Blagden Run	Rock Creek	139	Moderate	1
STC-001	Soapstone Creek	Rock Creek	74	Light	0
BRB-001	Broad Branch	Rock Creek	55	Light	0
PNB-001	Piney Branch	Rock Creek	407	High	0
FDB-001	Foundry Branch	Potomac	207	Moderate	2
BKG-001	Battery Kemble	Potomac	29	Very Light	2
FDV-001	Fort Davis	Anacostia	118	Light	2
FDT-001	Fort Dupont	Anacostia	93	Light	3
FTC-001	Fort Chaplin	Anacostia	650	High	2
WBL-001	Watts Branch Lower	Anacostia	901	High	1
WBU-002	Watts Branch Upper	Anacostia	1190	High	1
KNG-001	Kingman Lake	Anacostia	84	Light	0

Table 3. Item Weights per 250 ft. *Pick Survey* (Summer 2016)

Site ID	Site Name	Total Number of Items in Upper 250	Weight of Plastic Bags (Other) (lbs)	Weight of Carry Out Plastic Bags (lbs)	Weight of Expanded Polystyrene (lbs)	Weight of Plastic Bottles (lbs)	Total Weight (lbs)
FDV-001	Fort Davis	76	6.39	1.10	0.02	3.31	15.87
FDT-001	Fort Dupont	140	5.95	3.75	0.33	2.65	33.73
FTC-001	Fort Chaplin	637	24.47	17.64	0.40	11.02	94.12
WBL-001	Watts Branch Lower	549	8.82	18.74	0.76	18.74	46.75
WBU-002	Watts Branch Upper	494	6.17	19.84	0.77	7.05	73.04
KNG-001	Kingman Lake	15	0.00	0.00	0.09	1.34	2.59

Table 4. Item Weights per 250 ft. *Pick Survey* (Fall 2016)

Site ID	Site Name	Total Number of Items	Weight of Plastic Bags (Other) (lbs)	Weight of Carry Out Plastic Bags (lbs)	Weight of Expanded Polystyrene (lbs)	Weight of Plastic Bottles (lbs)	Total Weight (lbs)	Monthly Accumulation (lbs per month) (n=3) *(n=2)
FDV-001	Fort Davis	11	0.66	0.11	0.01	0.11	2.91	1.0
FDT-001	Fort Dupont	29	0.44	0.00	0.01	0.17	3.12	1.0
FTC-001	Fort Chaplin	280	2.43	4.85	0.13	5.51	32.04	10.7
WBL-001	Watts Branch Lower	645	4.41	8.60	1.52	9.04	48.99	16.3
WBU-002	Watts Branch Upper	527	7.93	17.64	0.62	7.50	56.28	18.8
KNG-001*	Kingman Lake	74	0.26	1.69	0.29	5.26	11.31	5.7

Figure 3. Total Number of Trash Items for 500 ft *Count Surveys* (2016)

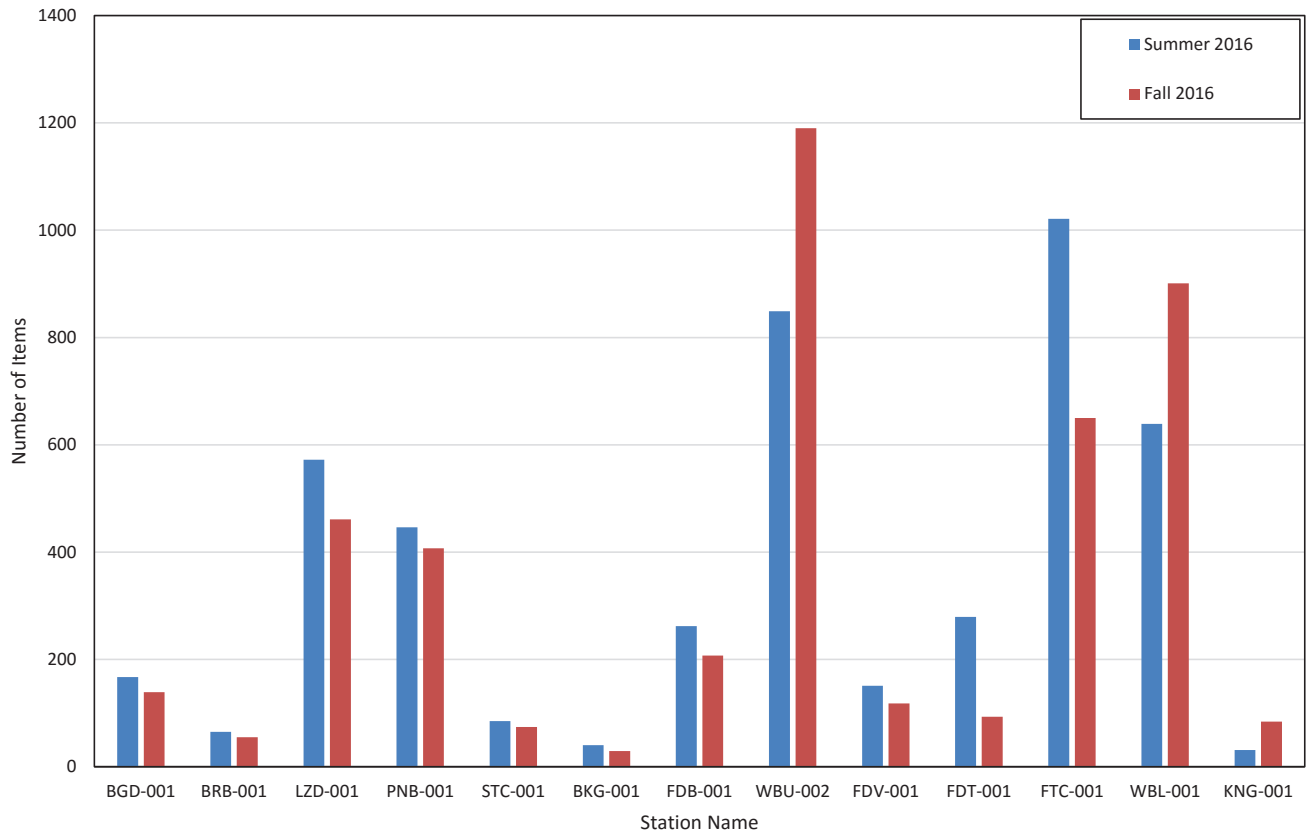


Figure 4. Total Weights for 250 ft *Pick Surveys* (2016)

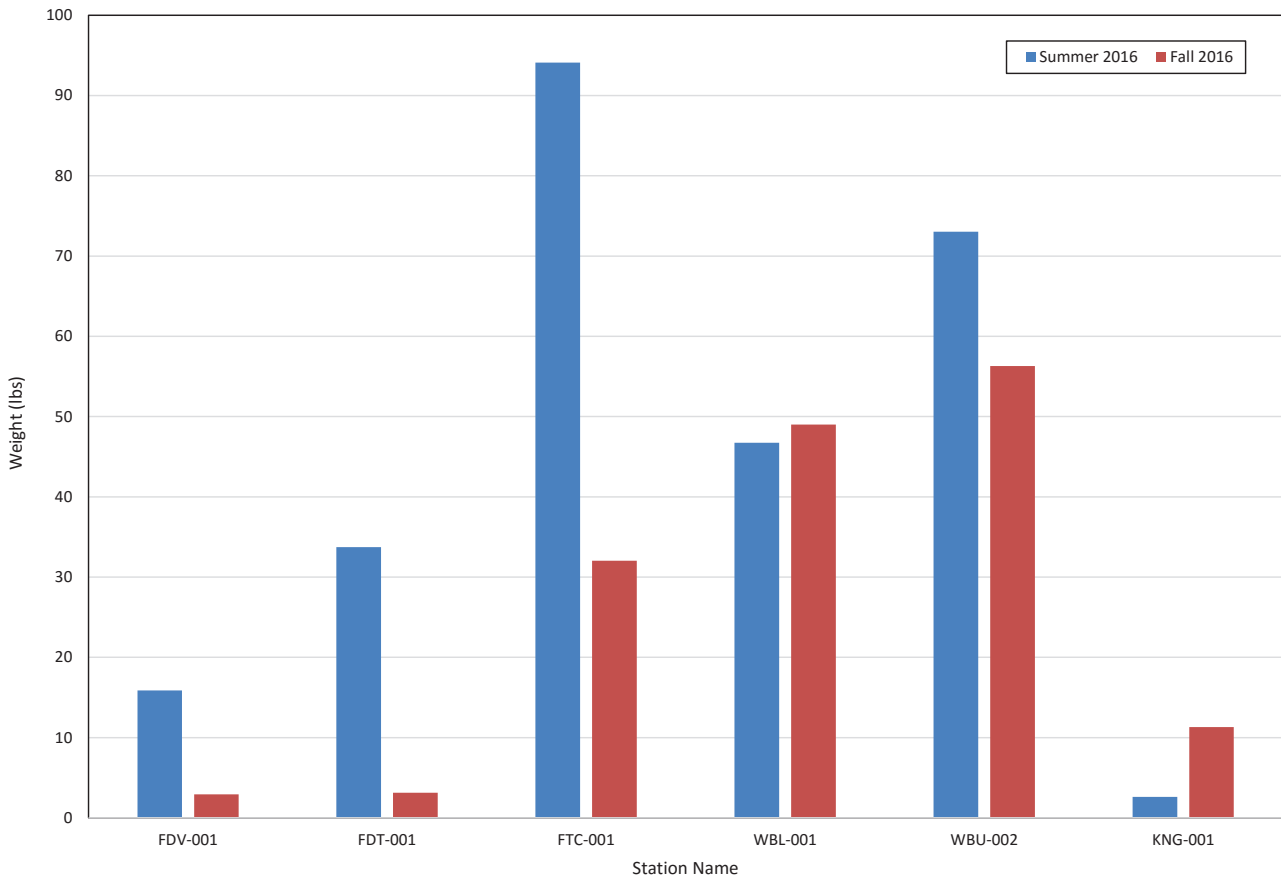


Figure 5. Distribution of Item Counts (2016)

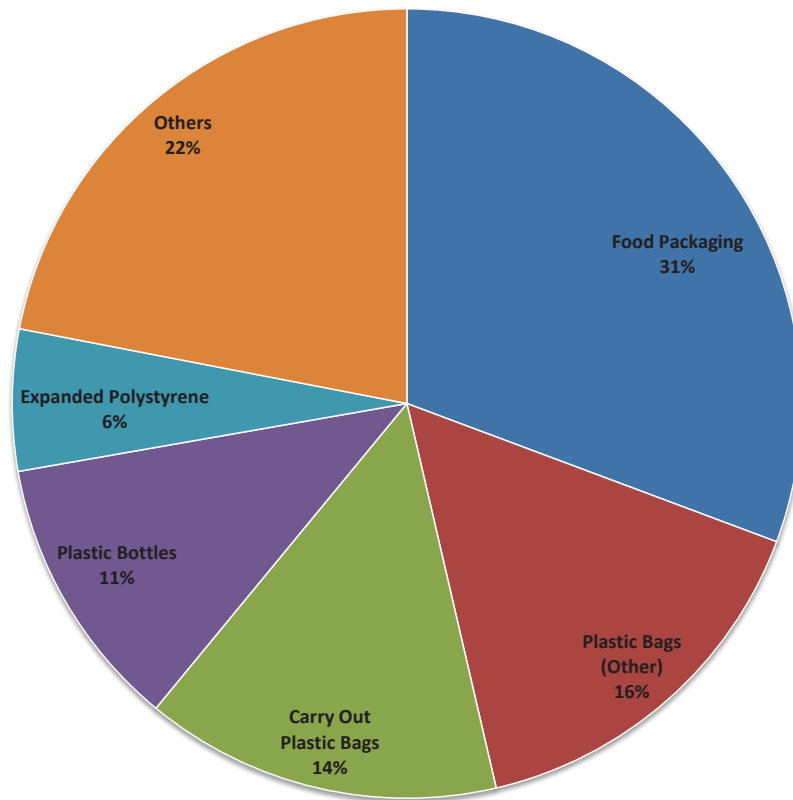


Figure 6. Distribution of Item Weights (2016)

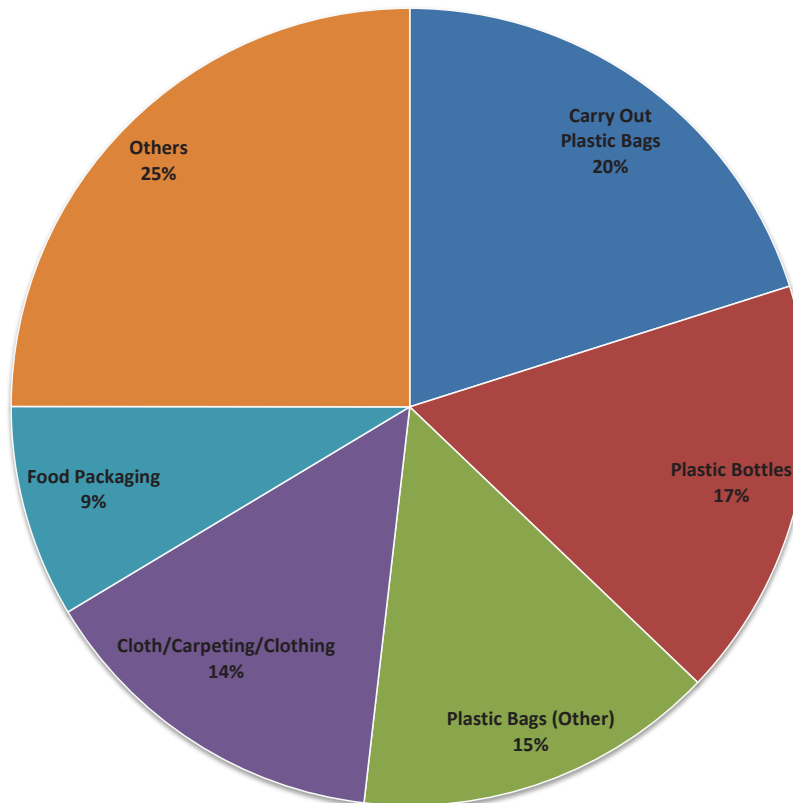
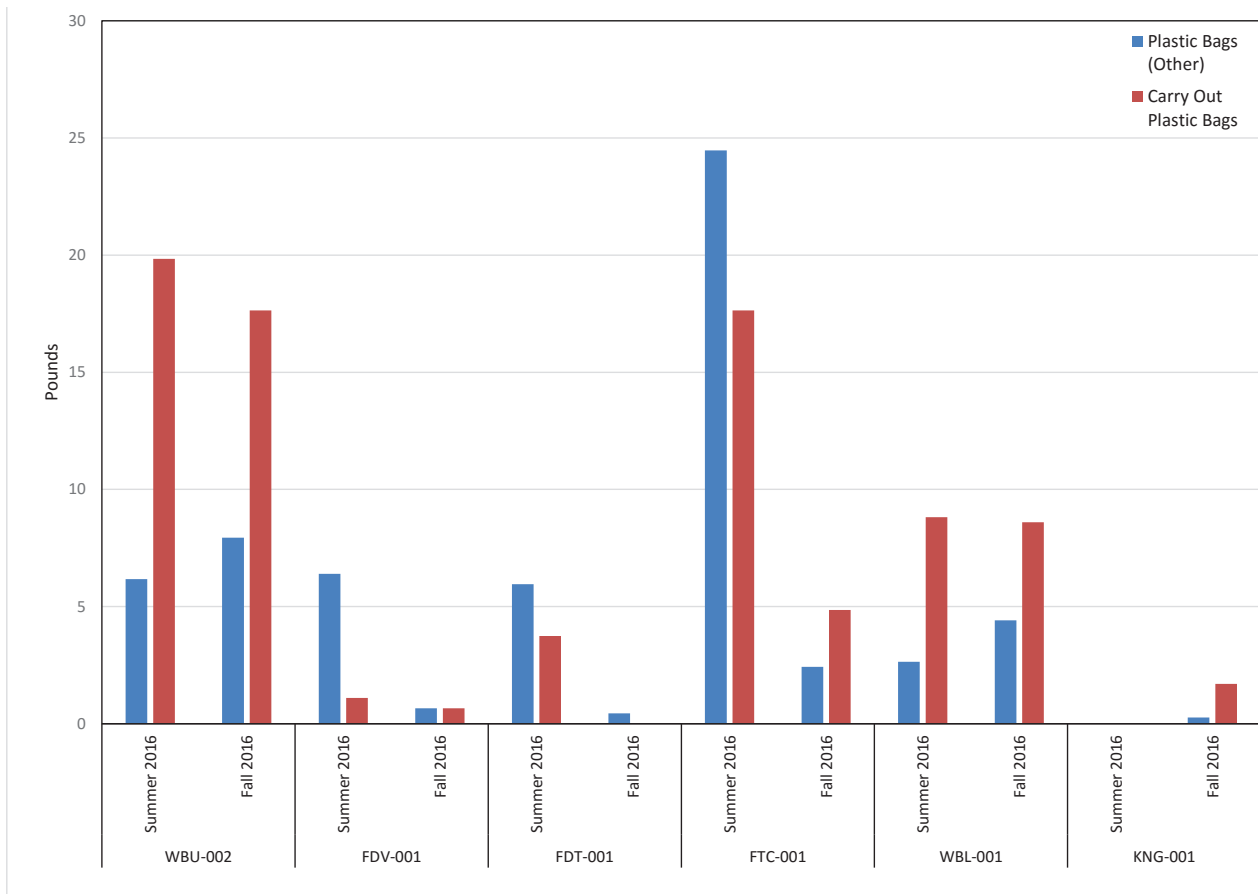


Figure 7. Plastic Bag Weights from Anacostia Watershed *Pick Surveys* (2016)



All tables and figure are sourced from COG

Attachment J: Dry Weather Monitoring Data (1 page)

Parameter	Units	Anacostia High		Gallatin & 14th St NE		Walter Reed		Soapstone Creek		Battery Kemble Creek		Oxon Run	
		4/18/2016	7/12/2016	4/18/2016	7/12/2016	4/18/2016	7/26/2016	4/18/2016	7/26/2016	4/18/2016	7/26/2016	4/18/2016	7/12/2016
1,1,2,2-Tetrachloroethane	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
1,1,2-Trichloroethane	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Arsenic	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Bis(2-Ethylhexyl)phthalate	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
BOD	mg/L	2.1	2.4	ND	ND	ND	ND	ND	3.6	NDF	NDF	ND	ND
Cadmium	mg/L	0.001	ND	0.0005	ND	0.0005	0.0005	0.0005	ND	NDF	NDF	ND	ND
Chloroform	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Chlorophyll a	ug/L	26	ND	ND	ND	ND	ND	1.9	ND	NDF	NDF	ND	2
Chromium	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
COD, Total	mg/L	ND	12	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Copper	mg/L	0.0021	0.0207	0.0053	0.0049	ND	ND	0.0062	0.0394	NDF	NDF	0.0014	0.0023
Cyanide, Total	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Dieldrin	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
E. Coli	MPN/100 mL	200	>1600	ND	22	200	1300	ND	350	NDF	NDF	450	920
Fecal Coliform	MPN/100 mL	920	540	ND	13	780	1300	35000	350	NDF	NDF	1300	1600
Fecal Streptococcus	MPN/100 mL	28	23	45	49	1100	4900	5400	1700	NDF	NDF	1800	130
gamma-BHC	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Hardness (As CaCO ₃)	mg CaCO ₃ /L	190	230	190	220	380	400	380	340	NDF	NDF	130	130
Lead	mg/L	ND	0.0012	0.0012	ND	ND	ND	ND	0.0012	NDF	NDF	ND	ND
Nickel	mg/L	0.0105	0.0088	0.0128	0.0098	0.018	0.0129	0.0092	0.0056	NDF	NDF	0.0091	0.0071
Nitrogen, Total	mg/L	2.67	1.47	3.86	2.16	4.72	4.42	3.85	4.29	NDF	NDF	3.88	3.71
Oil & Grease	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
PCB, Total	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	ND	ND
Phenolics, Total Recoverable	mg/L	ND	0.25	ND	0.26	ND	0.041	ND	0.15	NDF	NDF	ND	ND
Phosphorus, Dissolved (As P)	mg/L	0.058	0.52	0.22	0.32	0.023	0.04	0.063	0.2	NDF	NDF	0.0045	0.0033
Phosphorus, Total (As P)	mg/L	0.09	ND	0.22	ND	0.022	ND	0.072	ND	NDF	NDF	ND	0.035
Tetrachloroethene	ug/L	ND	590	ND	530	ND	1200	ND	760	NDF	NDF	7	6.5
Total Dissolved Solids	mg/L	360	ND	460	ND	970	ND	600	ND	NDF	NDF	270	550
Total Suspended Solids	mg/L	4.6	6.4	2.3	0.7	0.71	ND	1.1	2.3	NDF	NDF	2.6	ND
Trichloroethylene	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	NDF	NDF	1.6	1.6
Zinc	mg/L	0.0183	0.0243	0.0323	0.0147	0.0117	0.0146	0.0103	0.0221	NDF	NDF	0.0109	0.0111
Estimated Flow Rate		112.2	95.4	140.3	733.1	0.64	0.76	327.3	163.6	NDF	NDF	55.5	159.89