GOVERMENT OF THE
DISTRICT OF COLUMBIA

Municipal Separate Storm Sewer System

NPDES Permit No. DC0000221

2015
MS4 Annual Report

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Prepared by:

District Department of the Environment

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DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

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List of Acronyms and Abbreviations

AFF	Alice Ferguson Foundation
AFV	Alternative Fuel Vehicle
AWS	Anacostia Watershed Society
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSS	Combined Sewer System
CWA	Clean Water Act
DCMR	District of Columbia Municipal Regulations
DCPS	District of Columbia Public Schools
DCRA	Department of Consumer and Regulatory Affairs
DOEE	District Department of the Environment
DOEE	Department of Energy and Environment
DDOT	District Department of Transportation
DGS	Department of General Services
DOH	Department of Health
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
GPS	Global Positioning System
GSA	General Services Administration
HWD	District Department of the Environment Hazardous Waste Division
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
OCC	Office of the Clean City
OCTO	Office of the Chief Technology Officer
OP	Office of Planning
Permit	National Pollutant Discharge Elimination System Permit
PROW	Public Right-of-Way
RCRA	Resource Conservation and Recovery Act
RSR	RiverSmart Rewards
SRC	Stormwater Retention Credit
SWAP	Stormwater Advisory Panel
SWEEP	Solid Waste Education and Enforcement Program
SWM	Stormwater Management
SWMD	District Department of the Environment Stormwater Management Division
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TWG	Technical Working Group
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WLA	Wasteload Allocation
WPD	Watershed Protection Division
WQD	District Department of the Environment Water Quality Division

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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) 2015 (October 1, 2014 through September 30, 2015). 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's stormwater management program 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 Section 6.2.1of 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 of Columbia Water and Sewer Authority (DC Water), the Department of Public Works (DPW), the District Department of Transportation (DDOT), and the Department of General Services (DGS).

1.2 Authorized Discharges

The MS4 Permit allows discharges of stormwater from the MS4 to 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, and to contribute towards meeting the District water quality standards and, to the maximum extent practicable, the Waste Load Allocations 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. Along with the MS4 Program implementation 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 will continue to meet the requirements of the Permit, including attaining each annual numeric performance requirement, and making progress toward each five-year numeric performance requirement. Overall, the District has met or is on track to meet the Permit's requirements.

2 LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINISTRATION

2.1 Legal Authority

As required by Section 2 of the MS4 Permit the District developed and 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).

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 those 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 District will reevaluate this analysis for the updated SWMP, which will reflect any changes to the MS4 Program or revenue, required by Section 6.2.1.p of the MS4 Permit.

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 FY 2015 obligations (see 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 2016 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 2016 MS4 Permit-required programs. It is important to note that the budget includes capital funds that are often expended over multiple years. Table 2 provides a summary of the Enterprise Fund expenditures for FY 2015 for Permit required deliverables. Tables 1 and 2 meet the requirements of Section 6.2.1.k of the MS4 Permit.

Table 1 FY 2016 Budget

Permit Section	Topic	FY 2016 Budget
	General MS4 Permit Management	3,700,000
4.1	Standard for Long-Term Stormwater Management	500,000
4.1	Impervious Surface Retrofits, bioretention, green roofs, outfall repairs, tree canopy and other capital investments	4,500,000
4.1	Green Landscape Incentives / RiverSmart Programs	3,700,000
4.2	Operation and Maintenance of Stormwater Capture Practices	500,000
4.3	Management of District Government Areas	330,000
4.3	Enhanced Street Sweeping	575,000
4.4	Management of Commercial Institutional Areas	206,000
4.5	Management of Industrial Facilities and Spill Response	130,000
4.6	Stormwater Management for Construction Sites[2]	0
4.7	Illicit Discharges and Improper Disposal	130,000
4.8	Flood Control Practices[3]	0
4.9	Public Education and Public Participation	700,000
4.1	TMDL Wasteload Allocation Planning and Implementation	1,550,000
4.1	Trash TMDL Implementation	610,000
5.1	Revised Monitoring Program	300,000
5.2	Interim Monitoring	325,000
Total		**17,756,000**

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 2015 MS4 Program Expenditures by Program

Activity	Fund Source	Total
MS4 Monitoring, TMDL development, and IDDE	Stormwater Enterprise Fund	1,231,228
Construction plan review; construction and maintencance inspection; and restoration project management	Stormwater Enterprise Fund	724,998
Pubic Space Green Infrastructure Programs and trees	Stormwater Enterprise Fund	2,434,324
Green Infrastructure Retrofits (non public space) and education	Stormwater Enterprise Fund	1,712,651
MS4 program administration, program implementation, regulatory development and fee collection	Stormwater Enterprise Fund	2,313,121
Enhance street sweeping, hazardous waste collection and outreach	Stormwater Enterprise Fund	603,617
Contracts - TMDL implementation planning, revised monitoring planning, catch basin cleaning, catch basin optimation planning and outfall survey	Stormwater Enterprise Fund	1,657,017
Other related expenses (legal and office expenses)	Stormwater Enterprise Fund	169,210
Stream restoration and design	Bag Law Fund	198,779
Trash reduction, green instracture installation and enviro education	Bag Law Fund	970,055
Total FY15 Expenditures		**12,015,000**

2.3 Stormwater Management Program Administration and Permitee 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. On February 13, 2009, 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 April 19, 2010. The District submitted comments on the draft MS4 Permit for EPA's consideration on June 20, 2010. EPA issued the final permit 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.

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 the Department of General Services (DGS), Department of Public Works (DPW), Department of Transportation (DDOT) and DC Water to implement Permit activities. DOEE has executed independent MS4 MOUs with these agencies which specify activities to be implemented by the agencies as required under the Permit and specify reimbursement amounts for implementation of these activities. Copies of these MOUs are included in Appendix A of this report. An overview of District agency responsibilities for MS4 permit compliance is shown in Table 1. This table summarizes the Matrix of Responsibilities from the MOU executed on December 14, 2000, and updated in 2008, which assigned responsibilities District Agencies for compliance with the Permit. The Matrix of Responsibilities and the 2000 MOU have been submitted previously and can be found most recently in Appendix A of the 2014 Annual Report.

Table 3 Agencies Responsible for District MS4 Permit Compliance

Responsible Agency	Compliance Activity
DOEE	MS4 program administration Source identification 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

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).

The goal of the SWAP is to improve water quality of the Anacostia and Potomac Rivers through strategic and collaborative implementation of shared responsibilities under the District's MS4 Permit. This is a cabinet-level group of District agencies with stormwater management responsibilities. The SWAP was established by the Comprehensive Stormwater Management Enhancement Amendment Act of 2009 and is chaired by DOEE's Director. The SWAP provides a forum for coordinating agency stormwater responsibilities and executive decision-making to overcome obstacles and resolve disputes. This year the SWAP met on October 15, 2015. The TWG is required to meet monthly to provide ongoing, staff-level coordination on stormwater issues.

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 2015 no new critical partners were identified. Additionally, DOEE continues to hold quarterly meetings with non-governmental organizations (NGOs) to discuss partnership opportunities.

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 2009 Stormwater Management Plan (SWMP). A draft Revised Stormwater Management Plan was submitted to EPA and for public comment on February 20, 2015. The draft plan can be found at http://doee.dc.gov/draftswmp. The final Revised Stormwater Management Plan will be submitted in January 2016. No substantive comments on the draft SWMP were received during the public comment period.

The Consolidated TMDL Implementation Plan, submitted to EPA in May 2015, will drive the District's determination of any future implementation needs that may need to be addressed in the updated SWMP, a requirement of Section 6.2.1.h of the MS4 Permit. This plan will also establish the framework for tracking the effects of stormwater management in the District, a requirement of Section 6.2.l.j of the MS4 Permit. 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 Tables 9 and 10 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

*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 a program in accordance with the MS4 Permit and the District Stormwater Management Plan (SWMP). The Stormwater Management Program is using 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 are described throughout the 2015 Annual Report.

Table 5 details the District's compliance with the MS4 Permit's numeric performance standards.

Table 5 Numeric Performance Standards and Compliance

Numeric Requirement	Time Period	FY 2015 Achievement	Achievements to Date
Retrofit 18,000,000 square feet of impervious surfaces	Permit term	2,089,230 square feet	4,1,63,683 square feet[4][5]
Retrofit 1,500,000 square feet of impervious surfaces in the transportation right-of-way	Permit term	446,899 square feet	1,226,041 square feet
Plant 4,150 trees within the MS4 area (net increase)	Annually	8,451 trees	28,289 trees
Install 350,000 square feet of green roofs on District properties	Permit term	143,160 square feet	895,173 square feet
Remove 103,188 lbs. of trash annually from the Anacostia River	By the fifth year of the permit	112,582 lbs	Not Applicable

4 Discussion on District retrofit program and retrofit calculation is found in Section 4.1.5.4.
5 DOEE is currently working to verify an additional 6,111,253 square feet of contributing drainage area from Stormwater Management Plans entered into the previous Stormwater Database in FY 2015. A complete electronic record for each BMP will be created in the new Stormwater Database which will result in an increase in the FY 2015 retrofit achievements.

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 thereby reduce the runoff that harms District streams and rivers. More information on the SRC trading program can be found in sections 2.1.2 and 2.1.3 of this report.

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

DOEE continues to hold training sessions for the public and District agency staff.

Table 6 FY 2015 Stormwater Regulation Trainings

Training Date	Training Topic	Intended Audience
9/25/2015	Stormwater Database	Public
9/22/2015	General Compliance	Public
9/17/2015	Plan Review	DOEE Plan Reviewers
9/3/2015	Plan Review	DOEE Plan Reviewers
9/2/2015	Stormwater Database	Public
8/27/2015	Stormwater Database	Public
8/25/2015	Inspector	DOEE Inspectors
8/20/2015	Stormwater Database	Public
8/20/2015	Plan Review	DOEE Plan Reviewers
8/6/2015	Plan Review	DOEE Plan Reviewers
8/5/2015	Stormwater Database	Public
7/29/2015	General Compliance	DGS Project Managers
7/27/2015	Inspector	DOEE Inspectors
7/23/2015	Plan Review	DOEE Plan Reviewers
7/22/2015	Stormwater Database	Public
7/16/2015	Green Area Ratio	Public
7/15/2015	Stormwater Database	Public
7/9/2015	Plan Review	DOEE Plan Reviewers
7/1/2015	SRC/RSR/Database	Public
6/25/2015	Plan Review	DOEE Plan Reviewers
6/24/2015	Stormwater Database	Public
6/15/2015	Stormwater Database	Public
6/11/2015	Plan Review	DOEE Plan Reviewers
6/9/2015	General Compliance	Public

Training Date	Training Topic	Intended Audience
5/28/2015	SRC/RSR/Database	Public
5/28/2015	Plan Review	DOEE Plan Reviewers
5/27/2015	Stormwater Database	Public
5/21/2015	Stormwater Database	Public
5/19/2015	General Compliance	Public
5/14/2015	Plan Review	DOEE Plan Reviewers
5/1/2015	Stormwater Database	Public
4/30/2015	Green Area Ratio	Public
4/30/2015	TOPS	DDOE
4/29/2015	General Compliance	Public
4/24/2015	Office Hours	Public
4/23/2015	SRC/RSR/Database	Public
4/21/2015	Stormwater Database	Public
4/7/2015	General Compliance	Public
4/2/2015	Plan Review	DOEE Plan Reviewers
4/1/2015	Stormwater Database	Public
3/27/2015	Office Hours	Public
3/18/2015	Plan Review	DOEE Plan Reviewers
3/5/2015	Plan Review	DOEE Plan Reviewers
2/24/2015	Stormwater Database	Public
2/19/2015	Plan Review	DOEE Plan Reviewers
2/12/2015	Stormwater Database	Public
2/11/2015	SRC/RSR/Database	Public
2/5/2015	Stormwater Database	Public
2/5/2015	Plan Review	DOEE Plan Reviewers
1/22/2015	Plan Review	DOEE Plan Reviewers
1/15/2015	Green Area Ratio	Public
1/13/2015	SRC/RSR/Database	Public
1/12/2015	Stormwater Database	Public
1/8/2015	Plan Review	DOEE Plan Reviewers
1/7/2015	Stormwater Database	Public
12/16/2014	Stormwater Database	Public
12/15/2014	Permeable Pavement	Public
12/11/2014	Stormwater Database	Public
12/9/2014	Constraints, Design Details, Large Storms	Public
12/3/2014	General Compliance	Public
12/2/2014	Stormwater Database	Public
11/27/2014	Plan Review	DOEE Plan Reviewers
11/25/2014	Stormwater Database	Public
11/20/2014	Rainwater Harvesting	Public
11/19/2014	Stormwater Database	Public
11/18/2014	Constraints, Design Details, Large	Public

Training Date	Training Topic	Intended Audience
	Storms	
11/13/2014	SRC/RSR/Database	Public
11/13/2014	Plan Review	DOEE Plan Reviewers
11/12/2014	Stormwater Database	Public
11/6/2014	General Compliance	Public
10/30/2014	Plan Review	DOEE Plan Reviewers
10/16/2014	Plan Review	DOEE Plan Reviewers
10/14/2014	SRC/RSR/Database	Public
10/9/2014	Green Roof	Public
10/2/2014	Plan Review	DOEE Plan Reviewers
10/1/2014	SRC/RSR/Database	DDOE

FY 2016 Goals: Additional trainings for District staff and the public will continue to be held throughout FY 2016.

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 OP's development of Green Area Ratio requirements under the zoning code. To read more information about these initiatives:

- Sustainable DC http://sustainable.dc.gov
- The Green Area Ratio (GAR) http://doee.dc.gov/GAR
- The Green Building Act http://green.dc.gov/publication/green-building-act-2006
- 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 a new 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 Stomwater 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 achieved with SRCs or payment of the in-lieu fee (ILF). In FY 2015, DOEE held 25 trainings on how to use the Stormwater Database for the general public.

Applicants are now able to check the status of plans being reviewed by DOEE and submit supporting documentation online.

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 to DOEE. The database notifies DOEE of new applications. Staff review and make a decision to approve or disapprove each application and the database notifies public users of DOEE's decision.

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

FY 2016 Goals: DOEE will continue to migrate historic data into the database. Updates about the operation and implementation of the BMP tracking 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.

Several factors affected development of the SRC trading program in FY 2015. First, transition period 2A for major land disturbing activities ended on January 15th and transition period 2B for major substantial improvement activities ended on July 14th. During these transition periods, regulated sites could achieve their entire SWRv offsite with SRCs or through payment of ILF. Once the periods ended, sites had to achieve half of their SWRv onsite before becoming eligible to meet the remainder offsite. This change affects regulated sites' decisions about whether to meet their retention volume onsite or offsite.

Further, the Stormwater Database made more information available to potential SRC market participants, allowing them to make better decisions about whether SRCs provide them with a good compliance option. In particular, new reports on SRCs for Sale, Expected SRCs, and the prices of completed trades, help potential market participants to understand the availability of SRCs and the potential costs of SRC purchases.

Finally, as the first full fiscal year with retention requirements in place and applicable to all regulated sites, FY 2015 resulted in larger numbers of engineers and developers becoming aware of the stormwater rule. DOEE's efforts at training, providing outreach materials, and support during plan review processes further helped to make the regulated community aware of retention requirements under the new rule.

These factors contributed to the growth of the SRC trading program in FY 2015. This year, DOEE certified SRC from five sites, which is an increase from one site in FY2014. Further, in FY 2015, a site paid ILF to meet its retention requirement and a second transfer of SRCs occurred (one had also occurred in FY2014).

The Registry, as well as other analyses and information on the SRC trading program, are available at http://DOEE.dc.gov/src.

FY 2016 Goals: DOEE expects SRC trades to increase throughout FY2016. In addition, DOEE plans to stimulate transactions through several projects. For example, a purchase guarantee program will provide some sellers with a guaranteed price for their SRCs in order to stimulate supply and then demand. DOEE also continues to provide trainings, assist participants with their SRC applications, and will publish reports on the status of the program and other issues in FY 2016.

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 GAR and DOEE's RiverSmart programs fulfill the requirements of section 4.1.4. RiverSmart programs are fully funded from local sources, Enterprise Fund or Anacostia Clean Up and Protection Fund. 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

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 2015 DOEE held three training sessions, reviewed 88 plans, and approved 43 plans for the GAR. Specific information about the GAR, including the GAR Guidebook, regulations, and score forms are available at http://green.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 RiverSmart Homes aimed at single family homes. The program started with eight demonstration sites—one in each ward of the city. It then expanded to a pilot program in the Pope Branch watershed of the city. The RiverSmart Homes Program is now mature and has been operating citywide since summer of 2009. In FY 2015, 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: http://DOEE.dc.gov/riversmarthomes.

FY 2015 RiverSmart Homes accomplishments include the following:

- Installed 595 rain barrels
- Planted 517shade trees
- Installed 133 rain gardens
- Implemented Bayscaping at 145 properties
- Installed pervious pavers at 31 properties
- Conducted 1,068 stormwater site audits

RiverSmart Schools

DOEE's RiverSmart Schools Program works with schools to install 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. To view information on the RiverSmart Schools Program: http://green.dc.gov/service/riversmart-schools.

In FY 2015 DOEE completed the construction of four RiverSmart Schools projects; Washington Yu Ying Public Charter School, Mary McLeod Bethune Public Charter School, Latin American Montessori Bilingual Public Charter School, and the Bundy School

FY 2015 RiverSmart Schools accomplishments include the following:

- Installed 1 cistern
- Installed 3 rain gardens
- Installed 1 green roof

RiverSmart Communities

The RiverSmart Communities program offers technical and financial assistance to multifamily residential properties, houses of worship, commercial properties, embassies and universities to install practices such as rain gardens, Bayscaping, pervious pavement, and rain cisterns to control stormwater pollution. Properties city-wide can apply for a rebate for up to 60% of the project cost for stormwater retrofits. Properties in priority watersheds can apply for design/build assistance and will be required to pay a smaller copayment, approximately 20% of the project cost. View information RiverSmart Communities at http://DOEE.dc.gov/service/riversmart-communities.

FY 2015 RiverSmart Communities accomplishments include the following:

- Implemented projects at 7 properties
- Installed 2 cisterns
- Installed 1 bioretention cell
- Installed permeable pavers at 1 property
- Removed impervious surfaces at 2 properties

RiverSmart Rooftops

The District offers rebates for new green roofs on existing buildings of any size and new construction projects that add a green roof that exceeds their requirements for a stormwater management permit. The 2014-2015 green roof rebate program provided base funding of $10 per square foot, and up to $15 per square foot in targeted watersheds. Based on District stormwater management priorities, DOEE has selected eight (8) areas on which to focus. The targeted sub-watersheds are:

1. Dumbarton Run
2. Hickey Run
3. Nash Run
4. Oxon Run
5. Pope Branch
6. Alger Park
7. Watts Branch
8. Spring Valley
9. Springhouse Run

To view a map of the targeted sub-watersheds:
http://www.arcgis.com/home/webmap/viewer.html?webmap=a1ea297206d14ef9b9349a6d0468486e&extent=-77.1297,38.8338,-76.9081,38.9442

The RiverSmart Rooftop Program is administered by the Anacostia Watershed Society for DOEE with funds from the Anacostia River Clean Up and Protection Fund and the Stormwater Enterprise Fund. In FY 2015 29,876 square feet of green roofs were installed through the Green Roof Rebate Program. To view information on DOEE's Green Roof Rebate Program go to http://www.anacostiaws.org/programs/stewardship/green-roofs.

Rain Barrel Rebate

Property owners who purchase and install approved rain barrels may apply for $1/gallon rebate. The barrel must hold at least 50 gallons to qualify. The Rain Barrel Rebate Program includes outreach to advertise the program through traditional channels and through innovative approaches (e.g., partnerships with local hardware stores). Homeowners are eligible to receive up to two rebates per property. The Rain Barrel Rebate Program is administered by the nonprofit organization, DC Greenworks, and paid for through the Enterprise Fund and the Anacostia River Clean Up and Protection Fund. To view information on the Rain Barrel Rebate Program: www.DOEE.dc.gov/service/riversmart-homes-rain-barrels.

In FY 2015 the Rain Barrel Rebate Program installed 81 rain barrels.

Shade Tree Rebate Program

The Shade Tree Rebate Program provides rebates to individuals who purchase and plant a tree on residential or commercial private property. Small and medium canopy trees are eligible for rebates up to $50 per tree and select species noted for their large canopy and environmental benefits qualify for rebates up to $100 per tree. In FY 2015, 82 trees were planted through the Shade Tree Rebate Program. To view information on the Shade Tree Rebate go to http://DOEE.dc.gov/service/riversmart-rebates.

The Rain Garden, Pervious Paver, and Impervious Surface Removal Rebate Program

The Rain Garden, Pervious Paver, and Impervious Surface Removal Rebate Program is for single-family homeowners in the District. The rebate is based on how many square feet of impervious area a property owner is treating with the rain garden or pervious pavers/impervious surface removal. Impervious areas can either be rooftops or areas that are covered in concrete, asphalt, or other impervious surfaces. The rebate reimburses homeowners $1.25 per impervious square foot treated. The minimum square footage that a property owner must treat is 400 square feet, which would total a $500 rebate. The maximum rebate is $1,000 or treating 800 square feet or more of impervious surface. In FY 2015, DOEE had issued 57 rebates for impervious surface removal which retrofitted 40,285 square feet of impervious surface.

To view the Rain Garden, Pervious Paver, and Impervious Surface Removal Rebate application package go to: http://DOEE.dc.gov/publication/rain-garden-pervious-paver-and-impervious-surface-removal-rebate-application

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 SRC Trading 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. Information on the FY 2015 implementation of the SRC Trading Program can be found in Section 4.1.3 of this report. To view information on the Stormwater Retention Credit Trading Program go tohttp://DOEE.dc.gov/src.

RiverSmart Rewards

RiverSmart Rewards 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.

RiverSmart Rewards offers a discount of up to 55% off the DOEE Stormwater Fee charged on a property's water and sewer utility bill. In order to be eligible for a discount, a property must install and maintain green infrastructure practices that function to retain stormwater runoff. Eligible green infrastructure practices include bioretention, rainwater harvesting, permeable pavement systems, green roofs, and newly planted or preserved trees. All stormwater

management practices 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 eligible green infrastructure practices. 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 FY14, DOEE launched a Simple Application available to properties with green infrastructure practices managing stormwater from less than 2,000 square feet of impervious area. Most RiverSmart Homes participants qualify to use the Simple Application. In FY 2015, DOEE integrated RiverSmart Rewards' web-based data management system with the newly developed Stormwater Database to track discount applications, calculate discount eligibility, and to record approvals and disapprovals. DOEE also coordinates administration of RiverSmart Rewards with DC Water, which established a discount program on October 1, 2013 for its Clean Rivers Impervious Area Charge (IAC). When a property is approved for a RiverSmart Rewards discount, it is also automatically eligible for DC Water's Clean Rivers IAC Incentive Program. The maximum discount for the IAC is 4%. As with the DOEE Stormwater Fee, the maximum discount is available for GI installations that retain the runoff from a 1.2" storm.

In FY 2015, DOEE initiated the process of automatically enrolling participants of RiverSmart Homes, RiverSmart Schools, RiverSmart Rebates, RiverSmart Rooftops, and RiverSmart Communities. Auto-enrollments will start in early FY16.

DOEE received 404 discount applications and approved 335 discounts in FY 2015. These approvals included eight Standard Applications and 327 Simple Applications. Please note that many applications received in FY 2015 were not processed by the end of FY 2015 due to the high number of applicants. These applications will be processed in early FY16.

The below tables summarize FY 2015 RiverSmart Rewards accomplashments.

Table 7 RiverSmart Rewards Accomplishments

Major Drainage Basin	Number of RSR Applications Approved	Total Value of Monthly Discountes	Number of BMPs on approved applications	Total Contributing Drainage Area (sf)	Volume Eligible for RiverSmart Rewards Discount (gal)
Anacostia	170	$8,132.04	396	104,684	86,473
Potomac	34	$6,013.80	82	22,722	19,260
Rock Creek	131	$4,905.72	385	88,120	93,919
Total	335	$19,051.56	863	215,525	199,652

For additional information on RiverSmart Rewards go to http://doee.dc.gov/riversmartrewards

FY 2016 Goals: The District will continue to implement green landscaping incentive programs. This will include all the listed RiverSmart Programs, GAR, SRC and RSR.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Retrofit Plan

DOEE submitted the District's draft Retrofit Plan on January 22nd, 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 stormwater management regulations and Stormwater Management Guidebook that require development projects to retain stormwater runoff. In addition, these performance metrics present a methodology for crediting the area of retrofits for projects that achieve more or less than the 1.2" retention standard. To view the District's Draft Stormwater Retrofit Plan and calculator utilized to determine retrofit credit: http://DOEE.dc.gov/stormwaterretrofitplan.

4.1.5.2 Federal Facilities

The District lacks legal jurisdiction over federal lands to require the installation of structural retrofits to control stormwater pollutants that originate on federal lands. However, the District partners with many federal agencies to control stormwater runoff and to protect the Chesapeake Bay.

The EPA Chesapeake Bay Program is active in overseeing all other jurisdictions as they implement the Bay-wide TMDL. They also oversee the Watershed Implementation Plans (WIPs) being implemented by each state and the District of Columbia. The DC WIP outlines all the BMPs and actions that each federal agency committed to perform on their District properties. Many federal agencies have reported making substantial progress on these BMPs, with only a few agencies reporting they lack budget for the activities listed.

Additionally, the District worked with federal agencies, EPA Region III, and the Bay Program to develop and sign an MOU, which commits the signatories to work with DOEE on stormwater-related activities, particularly the items outlined in the WIP.

4.1.5.3 Volume and Pollutant Reductions

DOEE calculated the potential pollutant load and volume reductions achieved through the DC Retrofit Program, see Table 8.

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

Table 8 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)	Trash (lbs)
Anacostia	24,040,220	14,015	737.26	85.12	17,062	11.78	3.65	27.32	4	473.08
Rock Creek	7,024,039	3,868	205.76	23.66	3,787	3.27	1	6.34	1.1	220.07
Potomac	14,151,133	7,783	415.59	47.95	5,424	6.57	2.02	12.66	2.21	455.44
Total	**45,215,393**	**25,666**	**1,358.61**	**156.73**	**26,273**	**21.62**	**6.68**	**46.33**	**7.31**	**1,148.58**

4.1.5.4 Numeric Performance Requirement for Retrofits

In FY 2015, the District retrofitted 2,089,230 square feet of impervious surface, see Table 9.

Since the start of the Permit Term in 2012 the District has retrofitted a total of 4,163,638 square feet of impervious surface. Data reported in Table 9 has been normalized to the 1.2" using the calculator included in the District's Stormwater Retrofit Plan.

DOEE is currently working to verify an additional 6,111,253 square feet of contributing drainage area from Stormwater Management Plans entered into the previous Stormwater Database in FY 2015. A complete electronic record for each BMP will be created in the new Stormwater Database which will result in an increase in the FY 2015 retrofit achievements.

Table 9 FY 2015 Retrofit Projects

Projects	Number of Practices	Impervious Surface Retrofitted (square feet)[1]
RiverSmart Homes Rain Barrels[2]	595	139,293
RiverSmart Homes Rain Gardens[3]	133	81,067
RiverSmart Homes BayScaping	145	15,047
RiverSmart Homes Permeable Pavers[4]	31	18,530
RiverSmart Schools Cisterns[5]	1	NA
RiverSmart Schools Bioretention	3	8,375
Green Roofs[6]	29	147,372
RiverSmart Communities Cisterns	2	NA
RiverSmart Communities Bioretention7	1	6,600
RiverSmart Communities Permeable Pavers	1	2,614
RiverSmart Communities Impervious Surface Removal	2	2,311
RiverSmart Communitites Bayscaping	1	158
Impervious Surface Removal and Permeable Paver Rebates	57	54,508
Rain Barrel Rebates	81	11,644
DOEE Stormwater Database Projects	362	1,154,812
Retrofits in the Public Right-of-Way	NR	446,899
Total	**1,444**	**2,089,230**

[1]Retrofit size has been normalized to the 1.2" using the calculator included in the District's Stormwater Retrofit Plan.
[2]RiverSmart Homes rain barrels are assumed to treat 210 sf of rooftop area to the 1-inch level.
[3]RiverSmart Homes rain gardens assumed to retain 1 inch of runoff from 450 sf of impervious surface.
[4] RiverSmart Homes permeable pavers assumed to retain 1inch from retrofitted surface area.
[45]RiverSmart Schools cisterns are 500 gallons.
[6] Green roof calculations assume a 4-inch roof depth and 25 percent porosity for all roofs, for an assumed 1-inch retention capacity.
[7]RiverSmart Schools bioretention cells assumed to retain 1 inch from impervious parking lots.
NR= not reported

Retrofit Projects in the Public Right-of-Way

DDOT coordinated with other public and private groups to retrofit PROW areas for stormwater retention. In FY 2015, DDOT retrofitted 446,899 square feet of impervious surface in the PROW, Table 10. To date 1,226,041 square feet of the PROW have been retrofitted.

Table 10 Completed Retrofit Projects in the PROW

Site Name	Sewer System	Watershed	LID Type	Total Drainage Area
101 N St NW - O St/ Dunbar High School	CSO	Anacostia	bioretention, permeable pavement, and tree spaces	60,751
Riversmart Washington Lafayette	MS4	Rock Creek	bioretenton and permeable pavement	124,566
Riversmart Washington MacFarland	CSO	Rock Creek	bioretenton and permeable pavement	223,409
Flexipave	Citywide	Citywide	Flexipave installation	38,173
TOTAL				**446,899**

Table 11 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 11 Total District Land Area by Watershed

Watershed	Land Area (square feet)	Impervious Surface (square feet)	Percent Impervious Surface	Percent of Impervious Surface Reduced Annually through the District Retrofit Program
Anacostia River	799,376,208	375,943,090	47%	0.19%
Potomac River	450,972,034	192,341,236	43%	0.35%
Rock Creek	457,299,523	190,713,157	42%	0.17%
Total	**1,707,647,766**	**758,997,483**	**44%**	**0.26%**

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 will be triggered by two different categories of projects:

- Sites that disturb 5,000 square feet (SF) or more of land will be 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 SF of land has been the trigger under the stormwater management regulations established in 1988. These projects are referred to as major land-disturbing activities.
- Major substantial improvement projects, which are renovations of existing structures that have a combined building and associated land disturbance that is 5,000 SF or more and for which the project cost exceeds 50% of the pre-project value of the structure, will be 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 DGS Office of Sustainability and Energy Management to identify retrofit project opportunities, as well as to incorporate LID into new construction. DGS staff participates in monthly MS4 TWG meetings, and the Director of DGS is a member of the SWAP.

FY 2016 Goals: DOEE will continue to fund and install LID 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 has developed an 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.

Additionally, over the past year the Director of DOEE has begun a push to further emphasize the importance of tree planting and tree care in the District of Columbia. This push is because trees have multiple environmental, health, and public safety benefits so tree planting can help DOEE and the District achieve multiple goals. These goals includeimproving air and water quality, reducing the urban heat island effect, reducing energy use and reducing incidences of asthma and heat stroke, among many other benefits.

DOEE worked this fiscal year to put together a coalition of partners including federal and city agencies, non-profits, businesses, and major landholders to better coordinate tree planting and

tree care. DOEE is in the process of hiring a staff person to lead tree planting and tree policy efforts at DOEE and coordinate with other agencies. Additionally DOEE and DDOT held a "Tree Summit" in December of 2015.

4.1.6.2 Tree Planting in the District

Researchers estimate that street tree annual survival rates ranged from 94 to 97 percent. Based on this research the District is assuming a five percent mortality rate. Using this assumption, the District has achieved a net increase of 8,451 trees in the MS4. DOEE and UFA are currently building capacity to track tree mortality and replacement tree survival. This will help the District meet its tree canopy goals.

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.

4.1.6.3 Tree Canopy Goal

The District has set a goal that 40 percent of the District will be covered with a healthy tree canopy by 2032. According to the 2014 Tree Report Card (the most recent report) by Casey Trees, the District tree canopy has currently been assessed at 36 percent. Sustainable DC estimates that the District and its partners will need to plant 8,600 trees per year to cover 40 percent of the District with a healthy tree canopy by 2032. The District has exceeded this goal by planting 15,044 trees in FY 2015. As required by Section 4.1.6.3 of the MS4 Permit Table 12 documents tree planting efforts in FY 2015.

Table 12 FY 2015 Tree Plantings in the District of Columbia

Program	Trees Planted Districtwide	Trees Planted in MS4 Area
RiverSmart Homes Tree Planting	517	353
Casey Trees Tree Planting	2,356	1,228
UFA Districtwide Tree Planting	10,843	6,685
Tree Rebates	426	42
Stream Restoration Tree Planting	17	17
National Park Service Tree Planting	NR	NR
Sustainable DC/Parks and Schools Tree Planting	749	494
Pepco Tree Program	136	77
Any other programs	NR	NR
Total Trees Planted	**15,044**	**8,896**
Net Trees Planted	**14,434**	**8,451**
Estimated Annual Stormwater Volume Reduction (gallons)*	19,461,287	10,932,420

NR: Not reported in FY 2015
*100 trees is assumed to cover 1 acre
1 inch of rainfall per acres is equal to 27,000 gallons of stormwater
CWP credits a 10% reduction in stormwater from tree cover

FY 2016 Goals:

1. DDOT has committed to plant 10,000 street trees across all eight Wards.

2. Through its RiverSmart Homes and Tree Rebate programs, DOEE anticipates the planting of over 1,000 trees on private property in the District.

3. DOEE will be continue stream restoration projects which will also involve planting hundreds of trees.

4. DOEE and DDOT hosted a Tree Summit on December 18, 2015 to discuss collaborative efforts and needs.

5. The National Park Service has committed to planting 1,000 trees as part of the Canopy 3,000 Initiative. This initiative's goal is to plant an additional 3,000 trees in 2016.

4.1.7 Green Roof Projects

4.1.7.1 Structural Assessment

In FY 2014 DGS completed a draft DC Smart Roof Cost-Benefit Report that estimates the costs and benefits of applying cool, green, or solar roofs on District owned buildings. As of this reports publication the draft report has not been finalized. The final report will be included in future Annual Reports.

4.1.7.2 Green Roof Installations

The District continues to aggressively retrofit existing rooftops and install new green roofs on District building.

FY 2015 green roof accomplisments included:

- 143,160 square feet of green roofs were installed Districtwide
- 53,695 square feet of green roofs were installed in the MS4 area
- 29,876 square feet of green roofs installed through the RiverSmart Rooftops Program
- 895,173 square feet of green roofs have been installed since the start of the Permit term
- 4,873,752.56 gallons of stormwater retained through green roof installations in FY 2015

4.1.7.3 Green Roof Tracking

DOEE continues to track green roof projects as required by Section 4.1.7.3 of the MS4 Permit. DOEE is regularly updating the database as additional green roofs are installed and verified through our inspection program. Table 13 has a detailed summary of District green roof installations in FY 2015.

Table 13 Summary of District Green Roof Installations Completed in FY 2015

Watershed	Sewer System	Project Name	Ownership	Total Size (square feet)	Rebate Program
Anacostia	CSS	Atlantic Plumbing	Private	8,533	N
Potomac	CSS	Residential	Private	780	Y
Anacostia	CSS	Bundy School	Municipal	2,500	N
Anacostia	CSS	Residential	Private	397	Y
Anacostia	CSS	1115 H St	Private	1,698	Y
Anacostia	MS4	Brookland School	Municipal	6,400	N
Potomac	MS4	Residential	Private	555	Y
Anacostia	MS4	Merritt Police Station	Municipal	21,000	N
Anacostia	MS4	Fort Totten North	Private	6,535	N
Anacostia	CSS	2030 AP	Private	1,163	N
Potomac	CSS	GWU	Private	10,150	Y
Rock Creek	CSS	Residential	Private	220	Y
Anacostia	CSS	Congressional Cemetery	Private	600	Y
Potomac	MS4	4105 Brandywine St NW	Private	1,605	Y
Rock Creek	CSS	LaCasa Supportive Housing	Municipal	2,907	N
Anacostia	MS4	2221 14th Street	Private	2,255	N
Anacostia	MS4	Fort Stanton Recreation Center	Municipal	4,617	N
Potomac	CSS	627 K Street NW	Private	15,869	N

Watershed	Sewer System	Project Name	Ownership	Total Size (square feet)	Rebate Program
Potomac	CSS	1045 Wisconsin NW	Private	3,535	N
Rock Creek	CSS	Safeway	Private	5,941	N
Potomac	CSS	NYU	Private	5,463	N
Potomac	CSS	900 G Street	Private	4,450	N
Anacostia	MS4	Gateway DC	Municipal	10,325	N
Potomac	CSS	1525 14th Street	Private	4,394	N
Potomac	CSS	1200 Seventeenth	Private	6,895	Y
Rock Creek	MS4	Residential	Private	403	Y
Rock Creek	CSS	Monsignor Romero Apartments	Private	6,347	N
Potomac	CSS	The Drake	Private	6,573	Y
Potomac	CSS	Georgetown Post Office	Private	1,050	N
Total				**143,160**	

FY 2016 Goals: DOEE will continue tracking, inspecting and funding green roof installations throughout the District of Columbia. DGS and DOEE will continue to report on the progress of the green roof structural assessment grant and meeting the green roof numeric requirement of the MS4 Permit.

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 practices 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.

DOEE has held several sessions specifically for District staff. Agencies that have participated in these trainings include DOEE, DDOT, DGS, DCRA, DC Water, and DHCD. In FY 2015, these trainings included:

- Eight training sessions on general compliance with DOEE's stormwater regulations.
- 33 training sessions on the Stormwater Database and SRC and RiverSmart Rewards Database.

DOEE also holds recurring meetings and training for DOEE staff, including plan reviewers and inspectors. In FY 2015, DOEE held 25 internal training sessions. DOEE plan reviewers meet regularly to discuss issues in the implementation of the regulations and receive training on topics including compliance calculations and unusual site conditions.

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.

The District has expanded educational training for District agency employees, particularly with regard to Stormwater Pollution Prevention techniques and good housekeeping training.

FY 2016 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.

Information about the electronic inventory of practices on private property can be found in Section 4.2.1. The new Stormwater Management Database is how the District will 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 2016 Goals: DOEE will launch the updated BMP tracking database in early FY 2015.

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. The webpage also contains a link to downloadable versions of several spreadsheets developed to assist with determining project compliance, and calculating SRCs that a project could 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 Guidebook training: http://green.dc.gov/node/619262

FY 2016 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://green.dc.gov/node/619262.

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 2016 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 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. Take-home materials will be 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 controls, storage and handling of materials exposed to stormwater, and responsible for monitoring, inspections, and documenting corrective actions are required to be trained at least once a year.

Personnel are trained in the following if related to their job duties:

- Stormwater pollution overview.
    - Impacts of stormwater pollution.
    - Regulation of stormwater:
        - Requirements of Municipal Separate Stormwater Sewer System (MS4) permit
        - Requirements of Multi-Sector General Permit (MSGP)
- Stormwater Pollution Prevention Plans (SWPPP)
    - Overview, including identification of pollutants of concern
    - Structural BMPs
    - Preventative Maintenance
    - Good Housekeeping including material management practices
    - Spill prevention and response procedures
    - Industry specific requirements, if applicable
- Location and maintenance of on-site controls.
- Tracking and Reporting:
    - Inspection schedule and procedures.
    - Record keeping requirements, including for illicit discharges.
    - Annual reporting requirements.
    - Guidelines for taking corrective actions, updating SWPPPs, and submitting a Notice of Termination (NOT) under the MSGP.

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

FY 2016 Goals: DOEE will establish a schedule to inspect municipal vehicle maintenance, material storage, and operations facilities. DOEE will work with District agencies to finalize or update SWPPPs for DGS, DC Water, DCHA, DPW, and DDOT. DPW will continue to maintain and purchase additional AFVs as needed.

DOEE will continue trainings for District Employees, which will include:

1. Stormwater pollution prevention and spill response training at District facilities needing MSGP coverage.
2. Pollution Prevention for facility maintenance and landscaping at District facilities.
3. Incorporate presentations on stormwater pollution prevention into mandatory, annual training for snow plow operators with DPW and DDOT.

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

4.3.4.1 Intergrated 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 Pesticide Education and Control Amendment Act of 2012 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 can not 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 appliance 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. In FY 2015 DOEE certified 30 applicators.

DOEE is also responsible for regulating worker protection, ensuring compliance of 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 not registered in the District or with the EPA, pesticides suspected of being shipped or distributed in violation of the District Pesticide Operations Act, pesticides displayed for sale in a manner to endanger human health and for pesticides that 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 their installation. The Cooperative Plant Management Task Force, established by the 2013 Sustainable DC Mayor's Order 2013-209, 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. Also, 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 pesticide use. 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, 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 aims to reduce stormwater runoff that harms the District's waterways and the Chesapeake Bay. RiverSmart Homes is a partnership between DOEE and non-profit groups, including Casey Trees, DC Greenworks, the Alliance for Chesapeake Bay, and District homeowners. RiverSmart programs provide financial incentives to help District property owners install green infrastructure, such as rain barrels, green roofs, rain gardens, permeable pavement, shade trees, and more. RiverSmart program encourages native planting 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 to effectively limit the use pesticides and fertilizers.

4.3.4.4 Fertilizer Program

The District provides incentives and education to curb the use of turf-grass fertilizer. The Anacostia River Clean Up and Protection Fertilizer Act of 2012 is a subtitle of the Sustainable DC Amendment Act of 2012. It is intended to reduce fertilizer runoff and subsequent harm to aquatic ecosystems, fisheries, and water quality. Section 203 of the Act outlines the fertilizer application requirements. The Act is a legal requirement that applies to all individuals and entities paid to apply fertilizer in the District. 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, and the proper use and calibration 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. The legislation also requires retail establishments that sell fertilizer for turf to prominently display educational information. The Act is available at dcclims1.dccouncil.us/images/00001/20130124112432.pdf.

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 activites 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 lawas 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 2016 Goals: DOEE will work with relevant sister agencies to include Integrated Pest Management 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

There are approximately 25,000 catch basins located within the public right-of-way in the District. Approximately 19,674 catch basins are in the MS4 area, with the remainder in the CSS area. DC Water conducts the operation and maintenance of pipes and conduits carrying stormwater flow and does not differentiate between the two systems for maintenance purposes and works to keep all catch basins clean.

FY 2015 catch basin cleaning and repair activities:

- DC Water cleaned 26,028 catch basins across the District
- DC Water repaired 288 catch basins across the District

Figure 1 shows the thirteen-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.

DC Water is developing and testing a mobile application to track catch basin cleaning in the field and improve the accuracy of these records. Information on the development of this mobile application will be included in future Annual Reports.

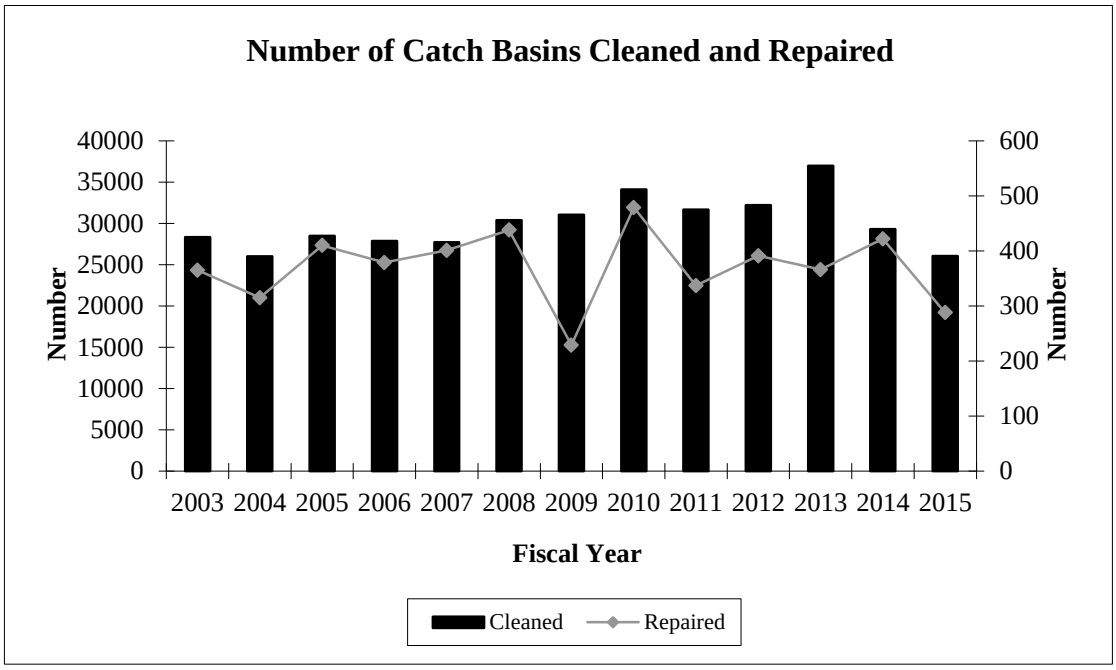


Figure 1 Number of Catch Basins Cleaned and Repaired

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 an Optimal Plan for Catch Basin Cleaning, Inspection, and Repair Report and an Outfall Repair Schedule and Report to EPA Region III. These documents were posted to the DC Register for public comment and submitted to EPA for review and approval. DOEE and DC Water are currently collaborating to update the Draft reports in response to EPA comments. Upon EPA approval of the deliverables, the District will begin implementing the recommendations of the plans. 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 and 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 2015, DC Water removed 320 tons of debris. Since 2000, DC Water's skimmer boats have removed a total of 8,766 tons of debris from the Anacostia River. Figure 2 shows the 14-year trend of floatables tonnage removed from the District's rivers.

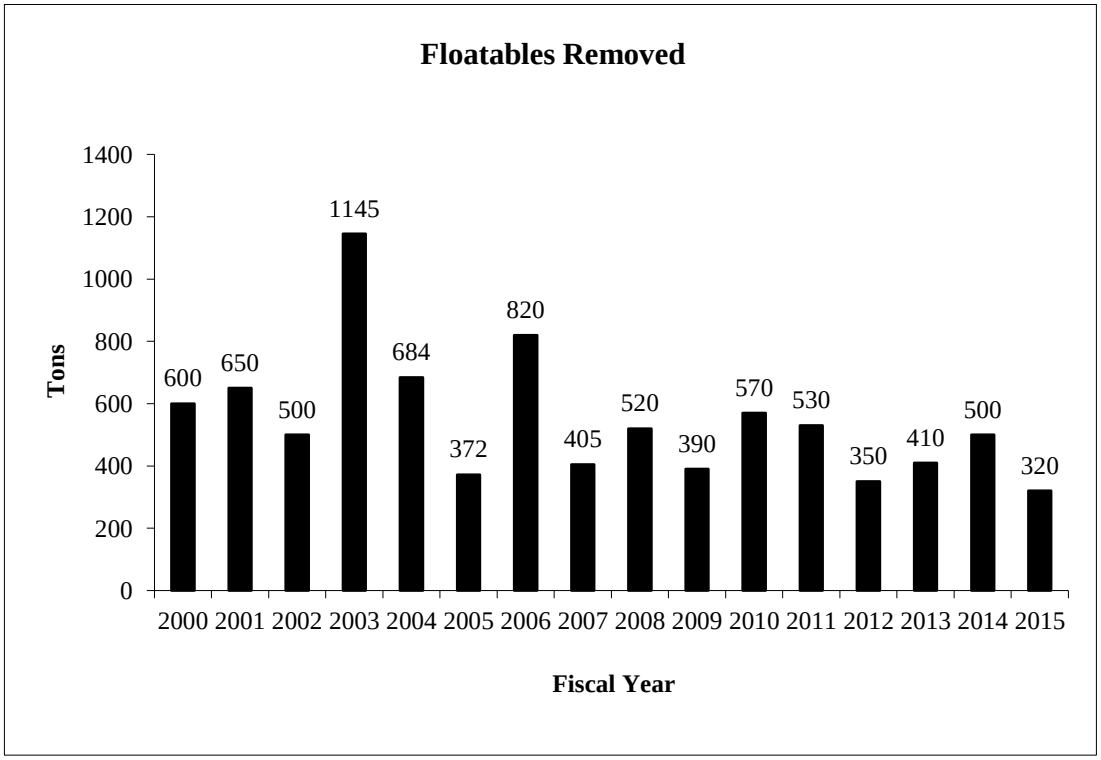


Figure 2 Trend in Floatables Removal Program

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 2.10.1 of this report.

FY 2016 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. The District will fully implement the Catch Basin Optimization Plan upon the Plan's final approval by EPA.

4.3.6 Streets, Alleys, and Roadways

Street Sweeping

DPW is responsible for street sweeping activates in the District. DPW uses two basic methods to clean and sweep streets: mechanical street sweeping and litter vacuum personnel, 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 14 illustrates the 14-year trend of street sweeping and litter receptacle activities.

FY 2015 street sweeping accomplishments are:

- Downtown miles swept – 8,357
- Highway miles swept – 3,979
- Ward miles swept – 6,866
- Inbound/Outbound miles swept – 3,105
- Signed sweeping miles swept – 19,308
- Total miles swept – 41,615
- Total acres swept in MS4 - 613
- Total tons removed through daytime operations – 4,471

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

Table 14 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

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

Snow and Ice Removal

As required by Section 4.3.6.4 of the MS4 Permit, the District implements a snow removal and deicing program operating plan to ensure safe passage on its roadways using deicing materials that provide the minimum impact practicable to the storm water runoff from snow and ice that enters the MS4. In FY 2015, The District mobilized trucks 24 times based on weather predictions.

As required by Section 4.3.6.3, the District investigates and implements techniques to reduce the impacts from deicing salts and salt storage. The District's Snow Team (DPW and DDOT) utilized several BMPs in FY 2015, including utilizing anti-icing materials, made out of a beet juice-brine mixture (Geo-melt), along with deicers, primarily road salt, 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 all plow operators must complete before heading out to their routes. The District's Snow team also utilizes several snow applications to 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, 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 15. 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.

Table 15 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 permeable surfaces that require less use of deicing materials. There are many studies that have examined the performance of pervious 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.

Section 4.1.5 of the Annual Report details the use of permeable materials in Green Alleys, RiverSmart Homes, RiverSmart Washington, and RiverSmart Communities. As previously stated, RiverSmart Washington is a multi-agency project to install LID neighborhood-wide on public and private lands to measure stormwater runoff volume reduction. The RiverSmart Washington projects and DDOT's Green Alleys program represent the first significant installations of porous and permeable materials in the public right-of-way.

DDOT is implementing post-construction monitoring to study the long-term effects of the RiverSmart Washington projects. Porous materials are one of the many types of BMPs installed as part of this project. Completion of these projects will begin to provide a suitable baseline to conduct the evaluation of the relationship between porous and permeable surfaces and use of deicing materials.

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. During FY 2015 DOEE worked to better incorporate Stormwater BMPs into the

District's Snow Plan. DOEE conducted research and began planning how to incorporate additional stormwater BMPs into the District's FY 16 Snow Plan. This included preparing for trainings with DPW and DDOT snow plow operators on minimizing exposure, good housekeeping, and spill prevention and response for snow and ice removal operations.

FY 2016 Goals: DPW is continuing to expand the use of liquid applications, Snow Plow Driver Training Program, and use of Automated Vehicle Location (AVL) technology to better manage District resources. DDOE 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 2015 31 municiple facilities were included in this database. DOEE WQD 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 and will synchronize with DGS's Salesforce Database and DOEE's Stormwater Database, and 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 best management practices (BMPs) and compliance non-structural "good housekeeping" BMPs. In doing so, the Stormwater Application will assist facilities with 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

No District owned facilities within the MS4 area have individual NPDES permits. Whereas 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). However, there are several non-District owned facilities within the District that have an individual Permit, Table 16.

Table 16 Facilities with Individual Permits

Permit No.	Facility Name	Type	Issue date	Expiration Date
DC0021199	D.C. WASA (BLUE PLAINS)	Major	8/31/2010	9/30/2015
DC0022004	GenOn Potomac River Generating Station (formerly Mirant)	Major	4/20/2000	4/19/2005
DC0000221	MS4 -Government of the DC	Major	10/07/2011	10/07/2016
DC0000094	PEPCO-Potomac Electric CO	Major	6/19/2009	6/18/2014
DC0000019	WASH Aquedeuct-Dalecarlia Plant	Major	10/20/2008	11/19/2013
DC0000248	JFK Center for Performing Arts	Minor	7/25/2007	7/24/2012
DC0000345	National World War II Memorial	Minor	4/5/2010	4/30/2015
DC0000141	Naval Station Washington	Minor	12/23/2009	1/22/2015
DC0000175	Super Concrete	Minor	11/25/2008	11/24/2013
DC0000361	Walter Reed Army Medical Center	Minor	7/23/2008	7/31/2013
DC0000337	Washington Metro Authority	Minor	4/20/2012	4/20/2017
DC0000035	GSA West Heating Plant	Minor	4/25/2012	5/24/2017

On June 4, 2015 the EPA issued a revised the Multi Sector General Permit (MSGP) for stormwater discharges from industrial activities. The new version is very similar to the previous 2008 version, and includes changes that streamline the application and reporting process, enhance environmental protections, and increase clarity.

Significant changes in the 2015 MSGP include:

- Electronic application submittals and reporting is now required and is conducted through new online systems: NPDES e-Reporting Tool (NeT) and NetDMR.
- Increased Endangered Species Act Protection. Operators must determine how their facility might impact federally listed species and critical habitat.
- A screening process for historic properties assesses the potential impacts from the installation of stormwater controls, and identifies actions for mitigating impacts.
- Sector-specific control measures have been revised to be more specific.
- Stormwater Pollution Prevention Plan documentation has been streamlined and information in these plans will now be made public.

- Facilities will no longer be required to do a yearly comprehensive site inspection; routine site inspections and quarterly visual assessment of stormwater discharges are still required.
- There are now specific deadlines for taking corrective action if a facility discovers an exceedance in stormwater pollution.
- Saltwater benchmark values for monitoring metal pollutants are now included.
- Stronger guidelines for airport deicing operations.

To resolve initial ambiguity about which District facilities should obtain coverage under the MSGP, DOEE had numerous discussions with EPA Region 3, which has helped to provide clarity.
With District Facilities and Agencies, DOEE held 13 in-person meetings, in addition to numerous phone and email conversations, to assist District facilities in gaining coverage under the revised 2015 MSGP, including with the District of Columbia's Department of Housing (DCHA), DDOT, DGS, Department of Public Works (DPW), Office of the State Superintendent of Education (OSSE), Metropolitan Police Department (MPD), Fire and Emergency Services (FEMS), and DC Water. Generally, these meetings covered MSGP requirements, how to apply, SWPPP development, Endangered Species Criterion selection, and employee training.

To assist with MSGP compliance, as well as SWPPP development at non-MSGP facilities, DGS has provided a contractor to develop facility SWPPPs that included MSGP requirements and control measures used at the facility to address potential sources of pollution.

DGS is also leading an effort to develop a pollution prevention database, which will help to track facility pollution prevention activities such as inspections, training, etc. This database is intended to serve facilities required to comply with MSGP and other facilities with pollution prevention obligations and activities.

Below is a list of facilities with activities believed to need MSGP coverage: The District is working to verify if additional facilities need coverage.

District Facilities:

1. 1403 W St, NE (DDOT Street and Bridge Maintenance)
2. 414 Farragut St, NE (DDOT Street and Bridge Maintenance)
3. 1835 West Virginia Ave, NE (DPW Fleet Fueling Facility)
4. 2200 Adams Place NE (DPW Fleet fueling facility)
5. 3200 Benning Road (DPW SWMA Transfer Station)
6. 4901 John McCormack (Bates) Rd NE (DPW SWMA Transfer Station)
7. 4902 John McCormack (Bates) Rd NE (DPW Fleet fueling facility)
8. 3320 Idaho Ave NW (DPW Fleet fueling facility)
9. 100 42nd St NE (DPW Fleet fueling facility)
10. 2455 Alabama Ave NE (DPW Fleet fueling facility)
11. 550 Water St SW (DPW Fueling station)
12. 4 DC Village Lane, SW (OSSE Bus parking and DPW fueling facility)
13. 2000 Adams Place NE (OSSE Bus parking, and DPW fueling facility)

FY 2016 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 stormwater best management practices (BMPs) and compliance non-structural "good housekeeping" 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 stormwater pollution prevention plans.
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 2015 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 2016 Goals: The District will continue meet the requirements of Section 4.3.9 of the MS4 Permit.

4.3.10 Municipal Official Training

As required by Section 4.3.10 of the MS4 Permit the District continues to implement a training program for District staff 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. Additionally, DOEE and DDOT have held numerous trainings regarding the stormwater regulations and database. In FY 2015, DOEE held 26 internal training sessions for inspectors and plan reviewers, Table 6. DOEE staff held 13 in-person trainings and meetings with District facility staff to assist in gaining coverage under the revised 2015 MSGP.

FY 2016 Goals: DOEE has already scheduled many more training opportunities in FY 16, and is adding new training topics. These include training on MSGP compliance, Pollution Prevention, 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.

4.4 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 MS4 Tracking 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. The condition and effectiveness of the control measures are also documented during these inspections. 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, and possibly notice of infraction.

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. DOEE Water Quality Division (WQD) maintains a database of industrial, commercial, institutional, municipal, and federal facilities within the MS4 area. 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 160 commercial and institutional critical sources stormwater pollution within the District's MS4 area during FY 2015. During FY 2015 18 municipal facilities were included on the critical source inventory. By the close of FY 2015, 31 municipal facilities were included in the critical source inventory.

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 2015 DOEE inspected a total of 126 critical sources, and performed a total of 17 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. In FY 2015 18 municipal facilities were inspected. After critical sources are inspected they are tracked via the Critical Sources Database, Appendix B

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.

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 best management practices 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 and are tracked to verify that inspections are occurring. 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 2016 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. FY 2015 DOEE identified 160 industrial, commercial and institutional facilities within the District's MS4. Included in this critical source inventory are 10 individual NPDES permit holders and 31 municipal facilities.

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. Appendix C details the FY 2015 NPDES Compliance Monitoring Strategy Report.

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 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 USEPA Region III.

In accordance with the Permit, the District tracks industrial facilities within the District that are subject to regulation under the CERCLA,Table 17. 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 17 List of DC Sites with an EPA CERCLIS ID

CERCLIS EPA ID	SITE NAME	FEDERAL FACILITY
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
DCD024224545	CENTURY DRY CLEANERS	N
DCN000305704	DIAMOND ORDNANCE FUZE LAB	Y
DCN000306926	FLORIDA AVENUE DUMP	N
DC8210021004	FORT LESLEY J. 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	N
DCD003254273	NPS - ANACOSTIA PARK SECTIONS E & F	Y
DCN000305662	POPLAR POINT NURSERY	Y
DCD983967951	POTOMAC POWER RESOURCES BENNING GENERATING STATION	N
DC0001401637	SEAFARERS YACHT CLUB ER	N
DCN000306928	SMITHSONIAN INSTITUTION - NATIONAL MUSEUM OF NATURAL HISTORY	Y
DC9751305997	ST ELIZABETH HOSPITAL - WEST	N
DCR000501270	ST. ELIZABETHS WEST CAMPUS - GSA	Y
DCN000306841	THE LAUNDRY BASKET	N
DCN000306885	UNITY HEALTH CARE CLINIC - WATER CONTAMINATION SITE	N
DCN000306920	US SECRET SERVICE - ARIEL RIOS BLDG	N

CERCLIS EPA ID	SITE NAME	FEDERAL FACILITY
DC4210021156	WALTER REED ARMY MEDICAL CENTER	Y
DCD983971136	WASHINGTON D.C. CHEMICAL MUNITIONS SITE (SPRING VALLEY)	N
DCD077797793	WASHINGTON GAS - EAST STATION	N
DC9170024310	WASHINGTON NAVY YARD	Y
DCD982567414	Z CLEANERS	N

Based on data extracted from the online EPA CERCLIS database on December 2015 (www.epa.gov.enviro).

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 2015 there are 58 RCRA LQGs, 69 RCA SQGs, and 969 CEQGs and DOEE's HWD conducted 58 inspections.

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.

DDOE has also worked with sister agencies to develop, implement and update SWPPPs for appropriate facilities, with facilties requiring MSGP coverage being a priority. In FY 2015, DGS and DOEE revised and/or created draft SWPPPs for 20 District facilites. These facilities are managed by either DPW, DDOT, OSSE, or DCHA. DOEE is working with facility managers at these facilities to finalize the draft SWPPPs and ensure they are implemented.

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. Additional information about this application is found in Section 4.3.7

DOEE inspectors provide onsite compliance assistance to facility staff through the MS4 Inspection and Enforcement Program. Additionally, Appendix Q of the 2013 SWMG provides guidance on good housekeeping practices to prevent potential construction site pollutants from interacting with stormwater.
Appendix Q of the 2013 SWMG can be found at:
http://DOEE.dc.gov/sites/default/files/dc/sites/DOEE/publication/attachments/Appendix%20Q%20%20pollution%20Prevention%20Through%20Good%20Housekeeping.pdf.

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, Appendix D.

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 the Clean Water Act.

FY 2016 Goals: The District will continue to implement the provisions of Section 4.5 of the MS4 Permit. Additionally, In FY 2016 Stormwater Pollution Prevention Plans 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 3 details the 15-year trend in plan review and approval.

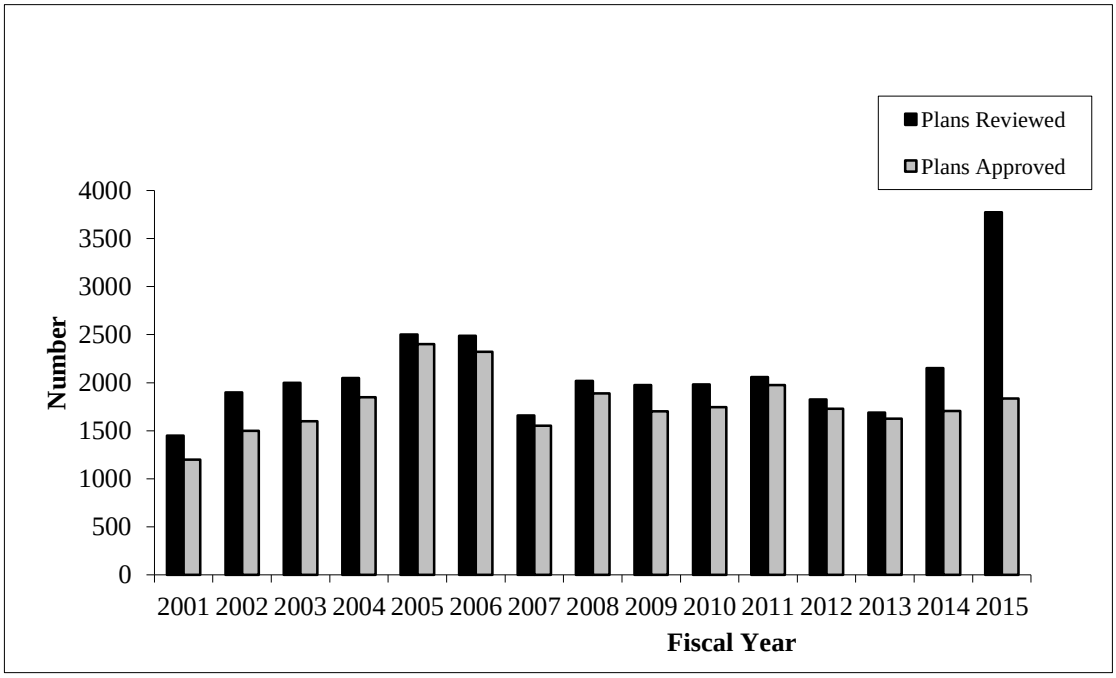


Figure 3 Trend in Plan Review and Approval

In FY 2015, DOEE accomplished the following:

- Reviewed a total of 3,775 Stormwater Management and Erosion and Sediment Control Plans
- Approved 1,834 Stormwater Management and Erosion and Sediment Control Plans

4.6.3 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 Appendix H of the 2014 Annual Report.

The Final Rulemaking on Civil Infractions: Schedule of Fines was adopted as final on August 15, 2014. The Rulemaking amends Chapter 36 (Department of Health (DOH) Infractions) and create a new Chapter 40 (Department of Environment) of Title 16. The DCMR Title 16, Chapter 40, § 4010 outlines the schedule of fines for all soil erosion and sediment control infractions. The Final Rulemaking can be found at http://doee.dc.gov/publication/notice-final-rulemaking-civil-infractions-schedule-fines.

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 violation and enforcement actions, see Appendix E. Figure 4 shows the 15-year trend of enforcement actions in the construction inspection program.

In FY 2015, the District accomplished the following:

- Conducted 1,085 inspections at construction sites for enforcement of stormwater management regulations
- Conducted 1,152 inspections at construction sites for enforcement of erosion and sediment control
- Issued 94 enforcement actions, including stop work orders and civil infractions for erosion and sediment control

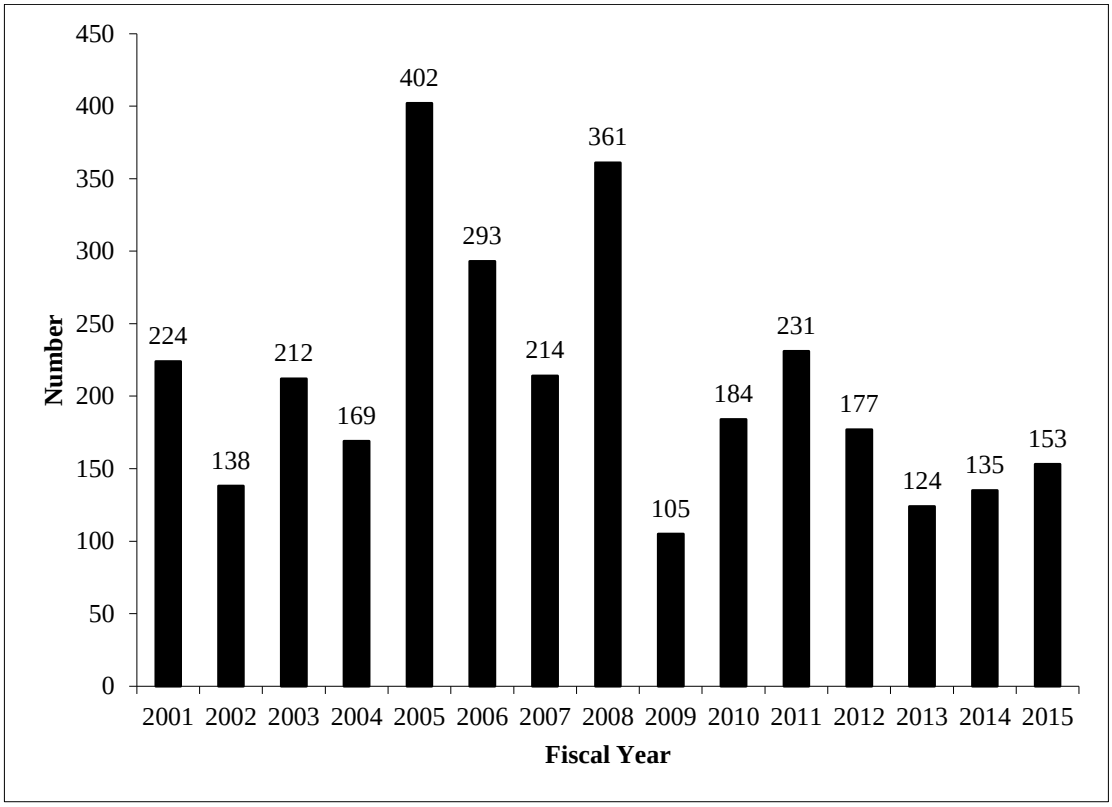


Figure 4 15-Year Trend in Enforcement Actions

The District has a new BMP tracking database that addresses the recordkeeping, paperwork, and data management requirement of the MS4 Permit. This database will track compliance with the District's updated stormwater management regulations, including the construction and ongoing maintenance of BMPs. A critical feature will be the ability for inspection personnel to access the new database in the field to review and update records during and immediately after an inspection

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 were they are found, 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 2016 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 and their BMPs its 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 2015 DOEE responded to a total of 61 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 39 follow up inspections were conducted. A total of 33 directives were issued in 2015. A listing of DOEE IDDE investigations is included in Appendix F.

DOEE's enforcement procedures are addressed in *The Environmental Enforcement Guidelines*, see Appendix D. 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 Sewershed 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. DOEE is still cross referencing and reconciling the results of the Outfall Repair Schedule and anticipates slight adjustments to outfall numbers through continued inspections and desktop analyses. DOEE is encouraged that, despite methodology and terminology differences, two separate outfall inventory efforts have resulted in such similar numbers. Table 18 details the current inventory of outfalls by watershed in the District. A map of known outfalls is found in Figure 5.

Table 18 MS4 Outfalls Identified by Watershed

Watershed	Number of Outfalls
Anacostia River	188
Potomac River	206
Rock Creek	172
Total	**566**

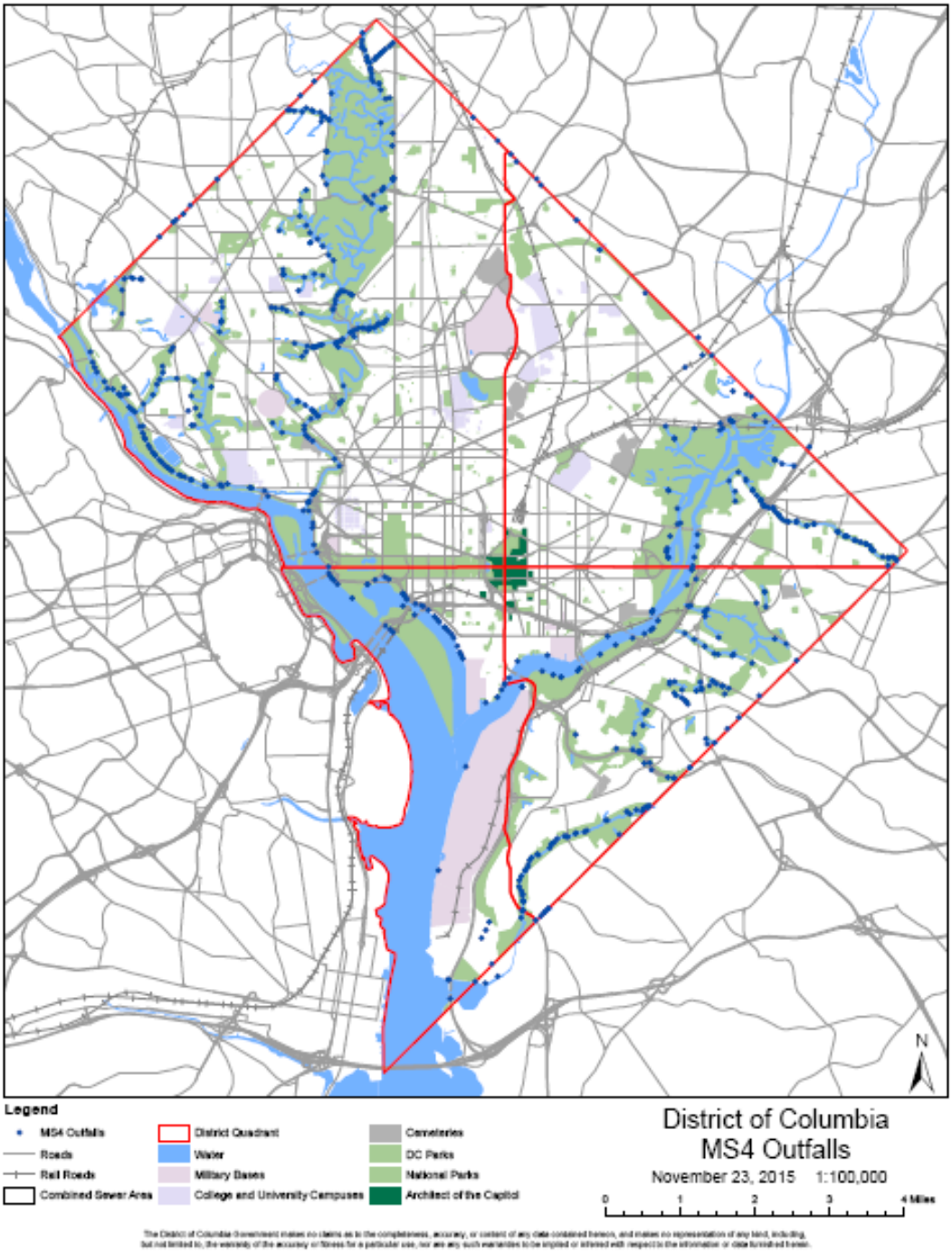


Figure 5 Known MS4 Outfalls in the District of Columbia

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.

Motor Vehicle Fluids and Auto body Repair

DOEE conducted a training session for autobody shops and fleet maintenance facilities on October 9, 2014 at the DOEE offices. This was a broad training that included inspections, air pollution, and other requirements as well as a presentation on general stormwater BMPs for the land transportation and auto service industry.

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. DOEE partners with the District's Department of Transportation to hang these signs. Prior to 2014, a small number of signs were posted across all eight wards based on recommendations from District's Department of Health (DOH). For the last two years, the locations of new signs have been based solely on complaints from District residents. Residents can file pet waste complaints online or over the phone. Complaints are stored in a central database and analyzed using GIS. In 2014 and 2015, DOEE posted 147 and 436 signs in complaint hotspots, respectively. DOEE has procured an additional 1,000 signs to post in the future.

DOEE is also pursuing more robust interagency partnerships to address pet waste issues. In 2015, DOEE and the Executive Office of the Mayor (EOM) launched an interagency working group to bring together agencies that address pet waste issues in various ways. The working group includes representatives from DOEE, EOM, DOH, the Department of Public Works, and the Metropolitan Police Department. In 2016, DOEE will begin to disseminate pet waste complaint data to these agencies on a regular basis.

DOEE is also working with EOM to launch a pilot program that deploys pet waste bag dispensers. DOEE and EOM are currently exploring potential funding mechanisms that will enable the program to be scaled up so that bag dispensers can be deployed across the District.

Household Hazardous Waste

DPW continues to provide household hazardous waste (HHW) collection and seasonal leaf collection. During FY 2015, 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 2015 HHW Collections can be found in Appendix G.

FY 2015 DPW HHW, leaf collection, and holiday collection accomplishments included:

- 21,465 total gallons of HHW were collected
- 14,288 linear feet of HHW were collected
- 349 tons of holiday trees
- 5,823 tons of leaves (Figure 6)

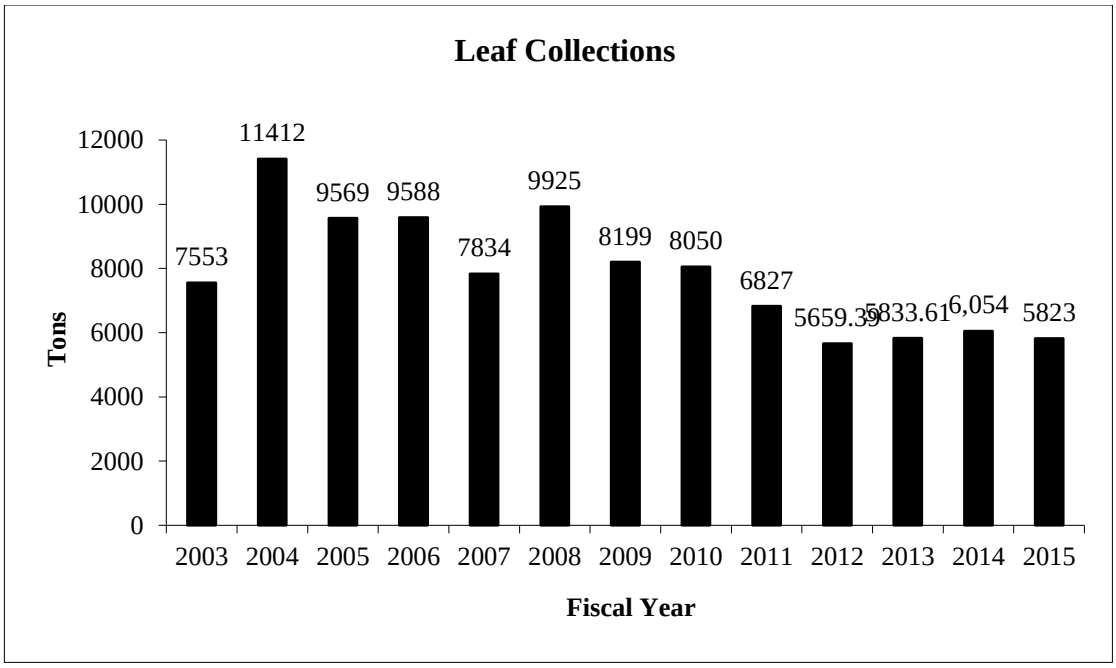


Figure 6 Leaf Collection Trend

4.7.4 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.

In FY 2015 DPW's SWEEP accomplished:

- 10,752 requests for action and responses from SWEEP
- 8,813 responses answered within 5 days
- 4,640 requests for action for illegal dumping61 tickts issued for Illegal Dumping ; non-witnessed
- 8 tickets issued for Illegal Dumping ; from a vehicle; witnessed
- 2 tickets issued for Illegal Dumping ; solid/hazardous waste
- 2 tickets issued for Illegal Dumping ; property to property

In December 2008, the Council of the District of Columbia passed the Anti-Littering Amendment Act of 2008. The legislation provided new tools to support the enforcement of littering. The Act also established a new violation for littering from a vehicle. It provides that "No person shall dispose or cause or allow the disposal of litter from a vehicle upon any public or private property. Litter shall include all rubbish, waste matter, refuse, garbage, trash, debris, dead animals, or other discarded materials of every kind and description." (DC Municipal Regulations § 18-2221.6). The penalty for the offense is a $100 fine.

MPD issued 67 tickets for littering from a vehicle and 44 littering NOVs.

4.7.5 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.

In FY 2015 DOEE staff:

- Conducted 83 inspections
- Issued one NOV

In FY 2015, DOEE completed the data collection phase of an internal study measuring the prevalence of sealed parking lots and driveways in the District. As part of this study, DOEE randomly selected 258 paved sites from the largest 5,232 paved areas in the District to sample. The study's results will be evaluated both District-wide and at the watershed level. DOEE is currently analyzing the results of the study and plans to release a summary report in FY16.

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

4.7.6 Anacostia Clean Up and Protection Act Enforcement

As required by Section 4.7.6 of the MS4 Permit, 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 reducing 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.

In FY 2015, DOEE staff:

- Performed 553 total inspections
- Issued 145 NOVs
- Issued 39 NOIs
- Distributed 17,000 reusable bags to District residents
- Designed a new series of reusable bags focused on restoring the Anacostia River
- Tabled at local community events

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. Over the course of the year, DOEE received four tips via 311.

To view information about the Bag Law at http://green.dc.gov/bags

4.7.7 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 begins 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 service ware products beginning January 1, 2017. DOEE's Stormwater Management Division is charged with implementing this new law and subsequently has spent the last fiscal year preparing for this ban to take effect.

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.

In September 2015, DOEE announced a formal comment period on proposed regulations for the District's foam ban. The proposed regulations establish guidelines for DOEE's enforcement of the requirements and outline the course of appeal for entities that have been issued enforcement actions. 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 that take effect in 2017.

Once the ban takes effect in 2016, DOEE will begin enforcement, initially focusing on providing compliance assistance and issuing warnings, before issuing fines to regulated entities that continue to distribute foam products. DOEE has also established a partnership with the District Department of Health (DOH) to help maximize inspection and enforcement resources. DOH's inspectors will be providing information to DOEE staff about food establishments that are using foam products as part of their routine inspections.

FY 2016 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. Starting on January 1, 2015, DOEE will be begin foam ban enforcement efforts.

6. 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:

FY 2015 Flood Control Program accomplishments:

- 294 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).

- 56 Environmental Impact Screening Forms were reviewed and five 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).

- 3,736 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 was formalized in 2014 through an interagency Memorandum of Understanding (MOU) currently signed by 12 federal and District agencies. However, the full team extends well beyond these agencies. DC Silver Jackets first began meeting in April of 2012 as the Potomac River Flood Coordination Group. The Department of Energy and Environment (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. The goal is to leverage information and resources, improve public risk communication, and create a mechanism to collaboratively solve flood risk issues.

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.

Potomac River FloodFighting Exercise

The District of Columbia's Flood Emergency Manual (FEM), dated March 2006, provides plans for Federal, District, and public agencies to respond to flood emergencies in the District, including emergency closures and the operation of the existing U.S. Army Corps of Engineers Flood Risk Management projects to include the Potomac Park Levee 17th Street closure structure. Without the proper implementation of a flood emergency plan, flood risk in the District is high. There are numerous agencies that have roles and responsibilities during a flood, and they all must be fully prepared to respond. Therefore, members of the District's Silver Jackets team are currently updating the FEM. The team will test the effectiveness of the plan through a flood-fighting tabletop exercise. The exercise will be a one-day event where representatives from all necessary agencies walk through a planned-storm scenario and determine what actions they would take. Afterwards, the team will regroup to address any changes that may need to be made to the draft FEM. This exercise will ensure better effectiveness of the FEM and will help the affected agencies to be better prepared for future

flood events. The updated FEM will also feed into a later project to develop a city-wide flood emergency plan.

Washington D.C. and Vicinity Local Flood Risk Management Project

DC Silver Jackets prioritized ensuring the coordination and completion of the "17th Street closure" in Washington, DC. The 17th Street closure structure is situated between the Lincoln Memorial and the Washington Monument, and it reduces risk to human safety and critical infrastructure in downtown District of Columbia from flooding of the Potomac River. It was constructed and is regulated by the Corps of Engineers, and is operated and maintained by the National Park Service. The 17th Street closure is a removable structure that can be erected in the event of high water to attach to the floodwalls on both sides of 17th Street and consists of aluminum panels between steel posts. Stone cladding application on the 17th Street floodwall was designed to blend in with the historic landscape of the National Mall. The closure is part of the Potomac Park Levee System and the Washington, D.C. and Vicinity Local Flood Protection Project. The team is also looking into similar permanent closures at 23rd Street, 2nd and P streets; and raising the Potomac Park Levee 3.5 feet to increase the level of protection to the authorized flow rate.

New Online Mapping Tools Show Predicted Flooding Along Potomac and Anacostia Rivers

DC Silver Jackets is developing an online flood inundation mapping tool project that will help government leaders, emergency managers, and the public better predict flood impacts during high-water events in the D.C. metropolitan area. This tool will provide two sets of maps: one that shows predicted riverine flooding along the Potomac River; and another that shows predicted tidal/storm surge flooding along the Potomac and Anacostia rivers. The tool will be housed on USGS and NWS websites and is expected to go live in the winter of 2015.

D.C. Flood Emergency Manual Update

DC Silver Jackets is working on updating the D.C. Flood Emergency Manual and will be holding a tabletop exercise in late 2015 to test the current manual.

Federal Triangle Flood Mitigation

DC Silver Jackets evaluates ways to reduce flood risk in the "Federal Triangle" section of the city through continuous collaboration, identification and quantification of flood risk, providing assistance in implementing projects, and improving outreach on flood risk. To view more information about the District's Silver Jacket Team go to http://www.nfrmp.us/state/factDC.cfm

FY 2016 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 develop the flood inundation map and outreach program.

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 targets:

- 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 (MWEE), Environmental Ambassadors)
- 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)

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

In FY 2015, DOEE undertook a comprehensive outreach campaign to prepare food service entities in the District for January 1st effective data of the Foam Ban. DOEE's outreach campaign has included the following activities: a door-to-door canvassing campaign of local businesses, managing a social media campaign on Twitter, filming original videos of business that have already made the switch to foam free products, sending three direct mailings to regulated entities, creating and managing a public tip line for residents to report businesses using foam, and making individual phone calls and sending e-mails to regulated entities and relevant stakeholders. Finally, DOEE has also tabled about the new law at community events throughout the city.

4.9.2 Measurement of Impacts

In FY 2015 DOEE continues to fund a grant focused on studying and changing littering behavior. Additional details about this grant can be found in Section 4.10.1 of this report.

4.9.3 Recordkeeping

As required by Section 4.9.3 of the MS4 Permit DOEE continues to track and record stormwater related public education and outreach activities.

Items the District tracks are:

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

4.9.4 Public Involvement and Participation

As required by Section 4.9.4 of the MS4 Permit the District continues to provide the opportunity for direct public involvement through a variety of programs.

In FY 2015, WPD installed 333 storm drain markers with the help of private citizens, youth groups, individuals from various volunteer groups, and DCPS school groups throughout the District of Columbia.

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.

The District has created a working group of stakeholders consisting of non-profit groups, and federal and District agencies to review progress throughout the development of the Consolidated TMDL Implementation Plan. This working group holds regular meetings provide information on the progress on the development of this plan.

Additional education and outreach programs include:

- DC Environmental Literacy Plan
- RiverSmart Schools
- District of Columbia Environmental Education Consortium
- The Anacostia River Environmental Education Fair
- Meaningful Watershed Education Experiences (MWEE)
- Environmental Ambassadors
- Trash and Litter Education
- Coal Tar Program
- Bag Law Outreach
- RiverSmart Washington
- IPM
- Clean Marina

DC Environmental Literacy Plan

In FY 2015, DOEE continued to collaborate with stakeholders to implement the DC Environmental Literacy Plan. In partnership with nonprofit organizations, DOEE has completed an Environmental Literacy Framework (ELF) for District schools, a grade-by-grade approach for integrating environmental education into the curriculum. The ELF was

initially developed in 2013-2014 and was open for public comment and review by teachers in the District and environmental educators through the US.

During the second year of the grant, eight model schools were selected (one in each ward). Two of the eight model schools are also DOEE RiverSmart schools. The schools were each given a $3,000 mini-grant for an individualized implementation plan.

Teachers from these schools helped develop the framework, as well as pilot the framework in FY 2015. This framework will help identify the best places in school curriculum where DOEE programming will fit. Four Green Career Expos were also held over the course of the grant to provide students with an introduction to a variety of green careers.

Change before and after the development of the individualized implementation plans was measured by an Environmental Education Self-Assessment taken by teachers at each of the model schools. All eight model schools implemented their plans, and adjusted it as needed throughout the second year of the grant.

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 2015 DOEE, Watershed Protection Division 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.

Additionally DOEE completed the construction of three (3) RiverSmart Schools LID projects. Some highlights of these projects are:

- Washington Yu Ying Public Charter School – Installation of step pool rain gardens along the side and rear of the school, a 500 gallon cistern tank, and landscaping to enhance outdoor educational opportunities. Based upon the values generated by the retention compliance calculator, the LID features would provide a stormwater retention credit (SRC) of 3,966 gallons.
- Mary McLeod Bethune Public Charter School – Improvements include the installation of a rain garden with a rainwater harvesting element adjacent to a modular environmental classroom. Four (4) raised bed sustainable food garden were installed as part of the outdoor classroom. These features generated approximately 859 gallons of stormwater retention credit (SRC).

- Latin American Montessori Bilingual PCS – Improvements include the installation of rain gardens at the rear of the school, stormwater planters, and landscaping to enhance outdoor educational opportunities. The features generated approximately 3,811 gallons of stormwater retention credit.

District of Columbia Environmental Education Consortium (DCEEC)

DOEE helps organize a network of environmental educators throughout the District. 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 2015 DOEE and DCEEC hosted their 9th Annual D.C. Teacher's Night at the U.S. Botanic Garden on October 1, 2015. Over 250 teachers registered and 150 attended and 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 fourth annual Growing Healthy Schools Week, 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. Growing Healthy Schools Week celebrates school gardens and farm to school programs throughout the District. During the week, school staff worked with local non-profits, farms and chefs to coordinate inspiring activities aimed at engaging the broader community, increasing environmental literacy, building program capacity, and connecting students to their food.

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. By exemplifying an ethic of stewardship and responsible action, the Youth Summit emphasizes youth leadership and innovation. On May 29, 2015, 28 exhibitors and over 450 students attended the event at Anacostia Park.

Meaningful Watershed Educational Experiences (MWEEs)

DOEE funded non-profit partners to create meaningful watershed educational experiences for hundreds of District young people.

Outcomes include:

- 608 DCPS fifth graders in Wards 7 and 8 completed two-day, three-night Overnight Meaningful Watershed Educational Experiences.
- 213 DCPS fifth grader is Wards 1-6 completed two-day, three-night Overnight Meaningful Watershed Educational Experiences.

Environmental Ambassadors

DOEE funded non-profit partners to work with a group of children and youth to serve as role models for third (3rd) to eighth (8th) graders (target population). The Environmental Ambassadors functioned as "opinion leaders" – respected and admired by other members of the community. These opinion leaders espouse a certain lifestyle - such as respecting the environment by recycling, or properly disposing of trash – and their peers wish to emulate them. Outcomes include:

- Earth Conservation Corps worked with 48 students from Brent Elementary School. The students accepted the Trash Ambassadors challenge and created a short video.
- Living Classrooms of the National Capital Region worked with 25 students from Eastern Senior High School. These students learned about green careers and worked with 15 students from Eliot-Hine Middle School in Eastern High School's greenhouse and garden.
- Earth's Natural Force Connections recruited 14 students to become ENF Rangers. The ENF Rangers perform songs and dances with environmental messages. The Rangers completed four assemblies at seven schools, with at least 100 students attending each assembly at their school.
- Drafted a RiverSmart Schools toolkit for teachers. The toolkit packet includes resource information and funding opportunities for school communities to use for expansion of the outdoor classrooms.

Bag Law

FY 2015 Bag Law Program accomplishments include:

- Designed a new series of reusable bags focused on restoring the Anacostia River.
- Bag Law inspectors tabled at local community events
- Distributed 17,000 reusable bag to District residents

Foam Ban

In FY 2015, DOEE undertook a comprehensive outreach campaign to prepare food service entities in the District for this new law. Additional information about the foam ban outreach ios found in Section 4.7.7 of this report.

Integrated Pest Management/Nutrient Management

DOEE continues to implement the Integrated Pest Management/Nutrient Management program. Educational materials, such as brochures and videos that provide suggestions on proper lawn fertilization, disposal of household waste, and application of pesticides and herbicides, were distributed to gardeners, homeowners and teachers. The materials were primarily distributed through the Environmental Resource Center at environmental events where the target audience is teachers and District residents.

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 2014 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 February 20, 2015 the Draft Revised Stormwater Management Plan was published for public comment in the *D.C. Register* and posted to the DOEE website, http://doee.dc.gov/draftswmp. During the 60 day public comment period no comments were received by DOEE. This public comment period fulfills the requirements of Section 4.9.4.1 of the MS4 Permit.Communication

As required by Section 4.9.4.2 of the MS4 Permit the District has established a method of routine communication to environmental groups. 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.

4.9.4.2 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/

4.9.4.3 Public Education Materials

As required by Section 4.9.4.4 of the MS4 Permit, public education materials are routinely developed or updated. In FY 2015, the following education materials were created:

- Foam ban flyers and stickers
- Bag Law reusable bags
- District of Columbia Green Financial Incentives Factsheet
- DPW Leaf Collection Schedule Brochure
- RiverSmart Rewards bill insert
- Environmental Specification Guidance for Landscaping Services

4.9.4.4 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.DOEE.dc.gov
- https://twitter.com/DOEE_DC
- https://www.facebook.com/DDOE.DC/
  http://www.youtube.com/user/DOEEPublicInfo

FY 2016 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 is on track to meet the October 7, 2016, deadline for removing 103,188 pounds of trash annually from the Anacostia River. As required by Section 4.10.1 of the MS4 Permit, the draft Anacostia River Trash TMDL Implementation Plan was published for public comment on December 19, 2013. To view this draft plan go to http://doee.dc.gov/Draft%20Anacostia%20River%20Watershed%20Trash%20TMDL%20Implementation%20Strategy.

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)

The District met it's 2015 commitments for continuing to implement all of the practices noted in 2014. 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

To date, the District has installed seven trash traps in the Anacostia River watershed. Four of those traps have been installed within hotspot sewersheds. Figure 7 below provides an updated map displaying the location of all trash traps currently installed. DOEE is exploring opportunities to install trash traps at other hotspot sewershed outfalls in 2016.

Stream Clean-Up Activities

The District sponsors several clean-up events on an annual basis throughout the Anacostia watershed. Examples include, the Alice Ferguson Foundation's Potomac Trash Clean-Up and the Anacostia Watershed Society Annual Anacostia River Earth Day clean-up. In 2013, the Alice Ferguson Foundation received a grant from the National Geographic Society's FieldScope program to create an online GIS. The total amount of trash collected at each cleanup event in the District can be found in Appendix H. The portion of that the District is counting towards meeting its TMDL goal is noted in Table 19.

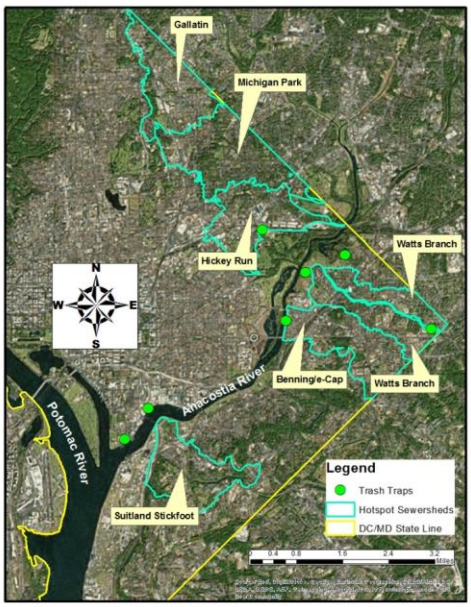


Figure 7 Trash Trap Locations and Sewersheds

DC Department of Small and Local Business Development Clean Teams Program

The Department of Small and Local Business Development (DSLBD) provides grant money for the creation of Clean Teams in small commercial areas throughout the District. DSLBD funds Clean Teams for:

- 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 21 grantees operating throughout the District. Figure 8 below provides a map of all of the current Clean Team areas. A total length of 41,500 ft, mostly in the District's public right of way, is maintained by Clean Teams.

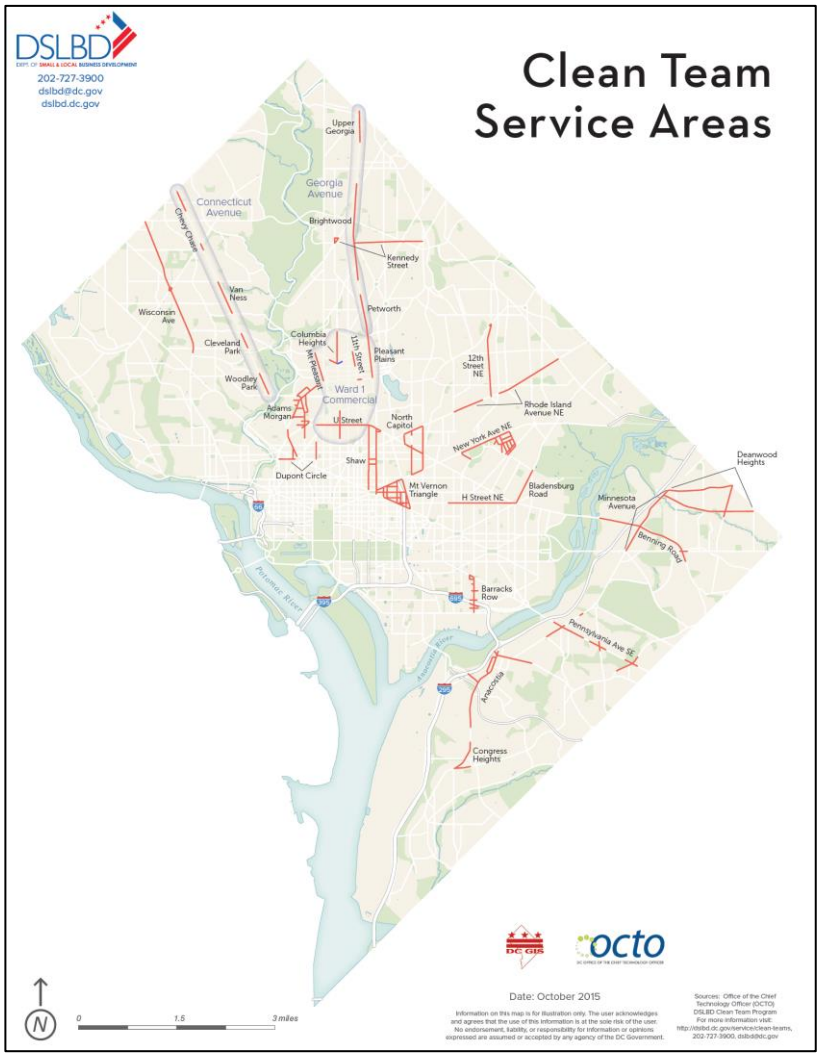


Figure 8 Clean Team Service Areas

Since mid FY 2014, DSLBD has been collecting weight data from each Clean Team. Several times per year, Clean Teams transport the collected trash to the District's Fort Totten Trash Transfer Station for weighing. That data is then entered into a Quickbase databased managed by DSLBD. To calculate the total trash captured per year by each Clean Team, DSLBD uses the following methodology :

Equation 1 Clean Team Trash Annaul Capture Methodology

Average of all litter sampling events (lbs) **X** Number of days per week each team operates **X** 52 weeks per year
= **Total Annual Trash Collected by Each Clean Team**

While all other trash BMPs are tracked on a calendar year basis, data is monitored and summarized on a fiscal year basis for this BMP by DSLBD. Nevertheless, The data captured represents one year's worth of effort and should be counted towards the annual trash reduction required by the MS4 permit.

In FY 2015, DSLBD estimated that the Clean Teamshave captured a total of 2,050,429 lbs of trash since 2010. To avoid double counting, DOEE only counts the trash collectedwithin both the MS4 drainage area and the Anacostia River watershed, but outside the environmental hotspots. DOEE is excluding the environmental hotspots for this calculation since that area is currently being addressed by street sweeping. This will avoid double counting trash captured by street sweeping and Clean Team activities.

DOEE is using the following methodology to calculate the total FY 2015 annual trash reduction achieved by this practice:

1) DOEE uses the total trash collected from the Clean Team areas inside the MS4 drainage and the Anacostia watershed, but outside of the environmental hotspots. Below is the total trash collected for the three Clean Team areas that DOEE is counting towards the FY 2015 MS4 pPrmit commitment:

   Area 1 (New York Ave) = 472,467lbs
   Area 2 (Minnesota Ave)= 148,720 lbs
   Area 3 (Anacostia) = 697,745 lbs

2) Next, for each Clean Team area, the total trash collected is reduced by 80% to account for beverage containers collected that may contain liquid:

   Area 1 total X 20% = 94,493 lbs
   Area 2 total X 20% = 29,744 lbs
   Area 3 total X 20% = 139,549 lbs

3) Next, for each Clean Team area, the total trash collected is multiplied by 50% s to account for organic matter:

   Area 1 total X 50% = 47,247 lbs
   Area 2 total X 50% = 14,872 lbs
   Area 3 total X 69,775 lbs

4) Lastly, for each Clean Team area, the total trash collected is multiplied by the proportion of the total area cleaned within the MS4, but outside an environmental hotspot, to the total Clean Team area.

   Area 1 Total X 5% = 2,286 lbs
   Area 2 Total X 8% = 1,229 lbs
   Area 3 Total X 21% = 14,434 lbs

This calculation, for purposes of the 2015 Annual Report, provides a reduction of 17,949 lbs of trash. DOEE will continue to work to refine this calculation, along with other BMP calculations, as new and more detailed data on BMP effectiveness is collected.

Street Sweeping Environmental Hotspots

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. Copies of the enhanced street sweeping program studies were previously submitted to EPA and can be found in Attachement 11 of the response to EPA comments on the 2013 MS4 Annual Report. DPW continued to implement the enhanced street sweeping program in 2015.

Education and Outreach

Through funding from DOEE, the Alice Ferguson Foundation (AFF) has actively engaged the local community in litter prevention by partnering with local businesses on the display of education and outreach materials; conducting community trash clean-ups; disseminating reusable bags; and working with community organizations on litter awareness and prevention. In addition, AFF has been monitoring the effectiveness of the campaign. AFF has conducted on-line behavioral surveys, as well as trash counts and visual behavioral studies along blocks in neighborhoods in the Anacostia watershed. Through these studies AFF will be gathering data on how the campaign has affected littering behavior.

In June of 2015, DOEE renewed their grant with AFF allowing for an additional year of work. AFF will continue to implement the campaign, and is conducting additional work researching littering behavior in the District's Hispanic population. In addition, AFF is continuing to implement trash behavioral surveys to assess the effectiveness of the campaign. This project will be completed in June 2016.

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 2015. Section 4.7 also provides an update on litter enforcement activities undertaken by the DC MPD in FY 2015.

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.

Summary of 2014 Trash Load Reductions

Table 19 below displays the current progress made by the District at reducing 103,188 lbs of trash per year from reaching the Anacostia River

Table 19 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	1,092	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.
	River Terrace Trash Trap	775	775	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

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				before weighing.
Trash Traps	Kenilworth Bandalong	2,658	2,658	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	2,288	1,716	Annual average taken from empirical data collected between 2009 and 2015. 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

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				of water.
	James Creek Bandalong	134	134	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.
	Earth Conservation Corps Trash Booms	1,506	126	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.

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
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	35.902	5,192	Based on empirical data collected during cleanup events within the District's portion

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
				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 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	1,074,769	9,354	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

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				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	2,050,429	17,949	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

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				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 4.10.1.
Education and Outreach	Watershed Wide Anacostia Campaign	NA	NA	Efficiency being assessed. DOEE is awaiting results from a grant funded project being undertaken by the Alice Ferguson Foundation. The grant project was renewed during the summer of 2015 which will allow roughly another year's worth of data to be collected on the effectiveness of the campaign. Results should be ready in July 2016.
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

Activity Category	Activity	Amount of Trash Removed (pounds)	Annual Load Reduction (pounds)	Calculation Methodology
				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)		**3,289,526.902**	**112,582**	

FY 2016 Goals: DOEE will continue to implement all of the BMPs noted in Table 19 above.

DOEE expects to enhance existing BMPs and implement a new BMP in FY 2016.

1. DOEE expects to have the BMP efficiency for the anti-littering campaign completed by the 2016 annual reporting deadline. DOEE's current grant with the Alice Ferguson Foundation was extended for an additional year during the summer of 2015. This will allow for an additional year's worth of monitoring data to be collected to help assess the effectiveness of the campaign. In addition, the campaign implementation activities will continue to take place.
2. DSLBD is establishing a new Clean Team for Benning Rd in 2016. Benning Rd is a major corridor which connects areas east and west of the Anacostia River. Data collected by the Clean Team in this area will be presented in the 2016 annual report, and will be included in the total trash reduction for this project presented to EPA.
3. DOEE is planning to install a large cage-like trap at an MS4 outfall in NE DC, Figure 9. The sewershed for the device is a trash hotspot and is estimated to be over 600 acres in size. This sewershed also contains the Ft. Totten trash transfer station operated by DPW. The outfall slated for installation empties into an unnamed tributary to the northwest branch of the Anacostia. This BMP is being designed and installed by Clearwater Mills, Inc. of Baltimore, MD which is the same company that designed, built, and is currently maintaining, the Baltimore Water Wheel trash trap.

Figure 9 Location of New Trash Trap Installation

4.10.2 Hickey Run TMDL Implementation

In FY 2015 DOEE is continuing the Hickey Run Hero Program to increase stormwater management on residential properties in the watershed. More information about the Hickey Run Hero program can be found at http://DOEE.dc.gov/service/hickeyrun.

In FY 2015, DOEE continued to cordinate a restoration project on Springhouse Run, a tributary of Hickey Run. This project is currently being negotiated for contract.

The Terre Kleen (TK45), installed in Hickey Run on October 26, 2011, is being monitored and maintained on a weekly basis. Additionally, every three months the BMP is cleaned of trash and sediment, and oil absorbent socks are replaced. The contract for monitoring and maintenance is through DGS and managed by DOEE. In 2012, the U.S. Geological Survey installed a stream gage just downstream of the BMP. To view gage data, including height, temperature, conductivity, and turbidity:
http://waterdata.usgs.gov/dc/nwis/uv/?site_no=01651770&PARAmeter_cd=00065,00060,62620

FY 2016 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 during FY 2015. A draft of the Consolidated TMDL IP was published for public comment and submitted to EPA in May of 2015. Throughout these efforts, DOEE continued to engage stakeholders, convening stakeholder meetings on several occasions:

- Meeting Seven – Revised Monitoring, Gap Analysis (11/3/2014)
- Meeting Eight – Revised Monitoring, Implementation Plan (2/9/2015)
- Meeting Nine – Implementation Plan (3/16/2015)

DOEE also completed several project deliverables, including:

- Final Comprehensive Baseline Analysis
- Scenario Analysis
- Draft Consolidated TMDL Implementation Plan

These deliverables are available on the Project website at: http://dcstormwaterplan.org/documents-and-deliverables/.

DOEE published the draft Consolidated TMDL IP for a 90-day public comment period in May of 2015. Several sets of detailed comments were received. DOEE is developing a response to these comments and will update the draft Consolidated TMDL IP as appropriate based on this response. DOEE expects the revision to be complete during the first half of FY16.

2016 Goals: DOEE will respond to comments on the draft Consolidated TMDL IP and update the IP as necessary based on this response.

5 MONITORING AND ASSESSMENT CONTROLS

5.1 Revised Monitoring Program Development Status

A key component of the Consolidated TMDL Implementation Plan is the revised monitoring program framework. The high-level objectives of the revised monitoring program include:

Estimating wet weather pollutant loading for the parameters identified in the permit (e.g., E. coli, total nitrogen, total phosphorus, TSS, select metals, and trash)
Evaluating health of receiving waters
Identifying pollution sources
Tracking performance toward compliance with TMDL Wasteload allocations

In FY 2015, DOEE published the draft MS4 Revised Monitoring Plan for a 90-day public comment period in May of 2015. A copy of this plan can be found at http://dcstormwaterplan.org/documents-and-deliverables/.

FY 2016 Goals: DDOE will implement the Revised monitoring program upon EPA approval.

5.2 Interim Monitoring

In FY 2015 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 20, 2016. As well as in the subsections below as required by Section 5.7 of the MS4 Permit.

5.2.1 Wet Weather Discharge Monitoring

Water quality monitoring for chemical constituents took place at six monitoring stations throughout the District during the 2015 sampling period, Table 20 and Figure 10. Detailed maps of each of the monitoring stations is found in Appendix J.

Table 20 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	12/1/2014 3/20/2015 8/20/2015	7/13/2015 8/14/2015
	A2	Gallatin & 14th St NE (Across from the intersection of 14th St and Gallatin St, NE)	662	12/1/2014 3/20/2015 6/1/2015	5/28/2015 8/4/2015
Rock Creek	B1	Walter Reed (Fort Stevens Drive NW)	23	11/24/2014 4/3/2015 6/1/2015	5/28/2015 8/4/2015
	B2	Soapstone Creek (Connecticut Avenue and Albemarle Street, NW)	320	11/24/2014 3/20/2015 6/1/2015	5/28/2015 8/4/2015
Potomac River	C1	Battery Kemble Creek (49th and Hawthorne Streets, NW)	11	11/24/2014 4/3/2015 6/1/2015	NDF 8/4/2015
	C2	Oxon Run (Mississippi Avenue and 15th Street, SE)	43	12/1/2014 4/3/2015 8/20/2015	7/13/2015 8/14/2015

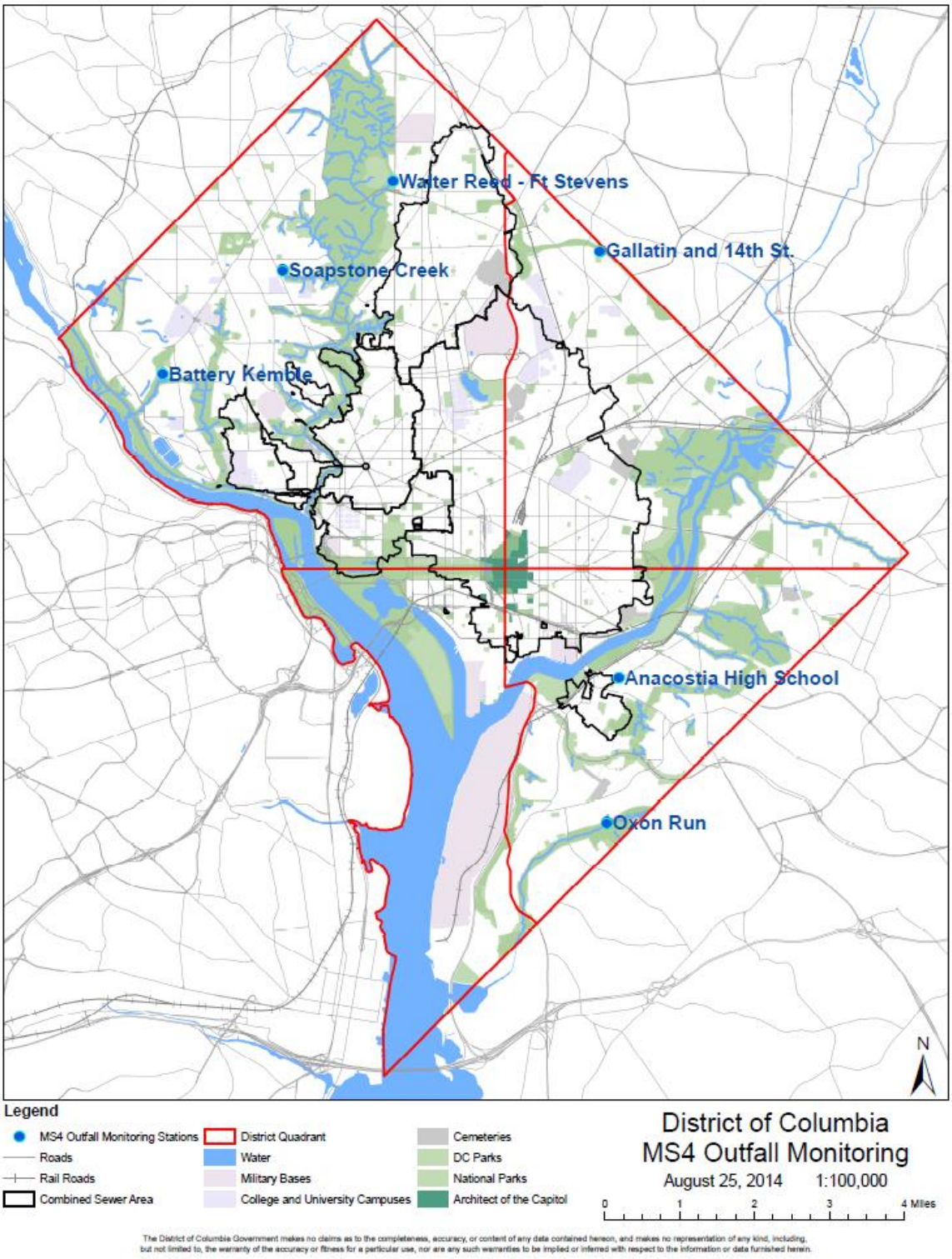


Figure 10 District MS4 Monitoring Stations

Table 21 details the ambient water quality results for wet weather sampling. Table 22 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 EPA via NetDMR on January 20, 2016. Appendix I includes detailed wet weather sampling data for each monitoring site.

Table 21 Ambient Water Quality Data for Wet Weather Sampling

Site	Location	Date	Water Temp (°F)	pH	DO* (mg/L)	TRC (mg/L)
A1	Anacostia High School	12/1/2014	53.96	7.6	10.6	0.00
		3/20/2015	44.06	7.52	12.38	0.00
		8/20/2015	75.38	7.64	7.35	0.00
A2	Gallatin and 14th St. NE	12/1/2014	55.40	7.13	10.21	0.00
		3/20/2015	42.98	7.13	10.56	0.00
		6/1/2015	75.02	7.8	7.41	0.00
B1	Walter Reed	11/24/2014	56.66	6.35	10.48	0.00
		4/3/2015	57.56	6.83	6.25	0.00
		6/1/2015	73.04	7.22	7.75	0.00
B2	Soapstone Creek	11/24/2014	57.56	6.36	10.36	0.00
		3/20/2015	44.78	7.26	11.89	0.00
		6/1/2015	75.56	7.08	8.55	<0.03
C1	Battery Kemble Creek	11/24/2014	52.88	6.8	10.64	0.00
		4/3/2015	54.68	7.21	8.21	0.00
		6/1/2015	71.06	7.16	7.65	<0.03
C2	Oxon Run	12/1/2014	56.12	6.7	10.57	0.00
		4/3/2015	57.02	6.53	6.64	0.00
		8/20/2015	71.24	7.14	9.15	<0.03

* Field measurements were taken as % saturation

Table 22 Summary of Wet Weather Monitoring

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	2.57 (n=3)	0.19 (n=3)	15.53 (n=3)	490 (n=3)	ND (n=3)	0.0146 (n=3)	0.0040 (n=3)	0.0503 (n=3)
A2	3.67 (n=3)	0.10 (n=3)	34.76 (n=3)	576 (n=3)	0.0002 (n=3)	0.0157 (n=3)	0.0068 (n=3)	0.0646 (n=3)
B1	2.30 (n=3)	0.31 (n=3)	48.29 (n=3)	707 (n=3)	ND (n=3)	0.0233 (n=3)	0.0114 (n=3)	0.0779 (n=3)
B2	4.42 (n=3)	0.37 (n=3)	40.44 (n=3)	1600 (n=3)	0.00021* (n=3)	0.0323 (n=3)	0.0109 (n=3)	0.0893 (n=3)
C1	2.43 (n=3)	0.31 (n=3)	29.21 (n=3)	395 (n=3)	ND (n=3)	0.1374 (n=3)	0.0058 (n=3)	0.0243 (n=3)
C2	2.10 (n=3)	0.11 (n=3)	13.42 (n=3)	58 (n=3)	ND (n=3)	0.0142 (n=3)	0.0047 (n=3)	0.0470 (n=3)

* If a sample result is below the reporting limit, one-half the reporting limit is used in the calculation of the geometric mean
ND: Not detected at or above the reporting limit
TN: Total nitrogen
TP: Total phosphorus
TSS: Total suspended solids

5.2.1.1 Trash Monitoring

In 2015, DOEE continued with its monitoring program for trash. Table 23 provides information about each monitoring location.

Table 23 Trash Monitoring Station Information

Watershed	Site	Physiographic Province	Station	Land use	Acres
Rock Creek	WR	Piedmont	Walter Reed (Ft Stevens Rd & 16th St, NW)	Mixed density residential	23
Potomac	BK	Piedmont	Battery Kemble (Garfield St & 49th St, NW)	Low density residential	11
	OR	Coastal Plain	Oxon Run (Mississippi Ave & 15th St, SE)	Residential 46%, Public Land 45%, Commercial 5%, Utilities 4%	43
Anacostia	BR	Coastal Plain	Benning Road (Benning Rd & Anacostia Ave, NE)	Commercial	12
	McD	Coastal Plain	McDonald's (Minnesota Ave & Burroughs Ave, NE)	Residential 65%, Commercial 23%, Industrial 12%,	7.4
	NYA	Coastal Plain	New York Ave BMP (New York Ave & South Dakota Ave, NE)	Transportation right of way	1.5

The trash traps were made to fit over an outfall, with a box or sock of one-inch metal poultry netting that collected trash and natural debris emanating from the pipe. When an acceptable rain event was predicted, traps were deployed at one or more monitoring sites. After the rain ended, traps and any material contained within the trap 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, before appreciable degradation of any organic matter. The trap contents were hand-sorted to separate trash from natural debris. The natural fraction was weighed and properly discarded. The trash fraction was further sorted into its individual components and quantified using the categories used for the Anacostia River trash TMDL. The total trash fraction was then weighed and properly discarded.

Monitoring conducted for the development of the Anacostia trash TMDL 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, who gained approval from 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 24 details the rain event characteristics of sampled storms.

Table 24 Storm Events Sampled

Date	Precipitation (inches)	Duration (hours)	Peak Intensity	Days from Previous Rain	Sites Sampled
01/03/15	0.54	24	0.250	5	McDonalds
03/14/15	0.61	16	0.09	4	Benning Rd, McDonalds, NY Avenue
03/20/15	0.49	11	0.08	6	Walter Reed, Battery Kemble, Oxon Run
04/14/15	0.63	12	0.12	5	Benning Rd, NY Avenue
04/25/15	0.27	6	0.06	4	Walter Reed, Battery Kemble, Oxon Run
05/16/15	0.62	1	1.50	11	McDonald, NY Ave
07/08/15	0.31*	4*	0.66	4	Benning Rd
07/27/15	0.56**	1**	1.60	9	Walter Reed, Battery Kemble
11/19/15	0.63	11.5	0.29	9	Walter Reed, Battery Kemble, Oxon Run

Precipitation amount, duration, and days from previous rain taken from National Weather Service Washington Reagan National Airport KDCA weather station
Intensities calculated from H St Corridor-NoMa KDCWASHI27 Weather Underground station
* Event data taken from H Street Corridor-NoMa KDCWASHI27 Weather Underground station
** Event data taken from Brightwood KDCWASHI113 Weather Underground station

Table 5 details the results of FY 2015 trash monitoring. The greatest average, amount of trash was captured at Benning Rd followed by the following sites in order: Oxon Run (Potomac), Walter Reed (Rock Creek), McDonald's (Anacostia), New York Avenue (Anacostia) and Battery Kemble.

Table 25 Trash Monitoring Results

Station	Date	Rain Amount (inches)	Trash Weight (pounds)
Walter Reed (Rock Creek)	03/20/2015	0.49	0.438
	04/25/2015	0.27	0.188
	07/27/2015	0.56	4.875
	11/19/2015	0.63	0.750
Battery Kemble (Potomac)	03/20/2015	0.49	0.0006
	04/25/2015	0.27	0.000
	07/27/2015	0.56	0.078
	11/19/2015	0.63	0.000
Oxon Run (Potomac)	03/20/2015	0.49	1.125
	04/25/2015	0.27	0.813
	11/19/2015	0.63	4.500
Benning Road (Anacostia)	03/14/2015	0.61	0.500
	04/14/2015	0.63	0.625
	07/08/2015	0.31	6.750
McDonald's (Anacostia)	01/03/2015	0.54	0.250
	03/14/2015	0.61	0.094
	05/16/2015	0.62	2.438
New York Ave BMP (Anacostia)	03/14/2015	0.61	0.375
	04/14/2015	0.63	0.125
	05/16/2015	0.62	2.188

A total of 2,084 items of trash were collected during sampling. The number of items in major categories is shown in Figure 7. 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. Paper and plastic bags were a slightly smaller portion of the trash than in previous studies.

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, but excluded whole Styrofoam clamshells, which were counted in the take-out category. Expanded polystyrene foam is only five percent of the trash by number of items but because it floats it is a highly visible form of pollution.

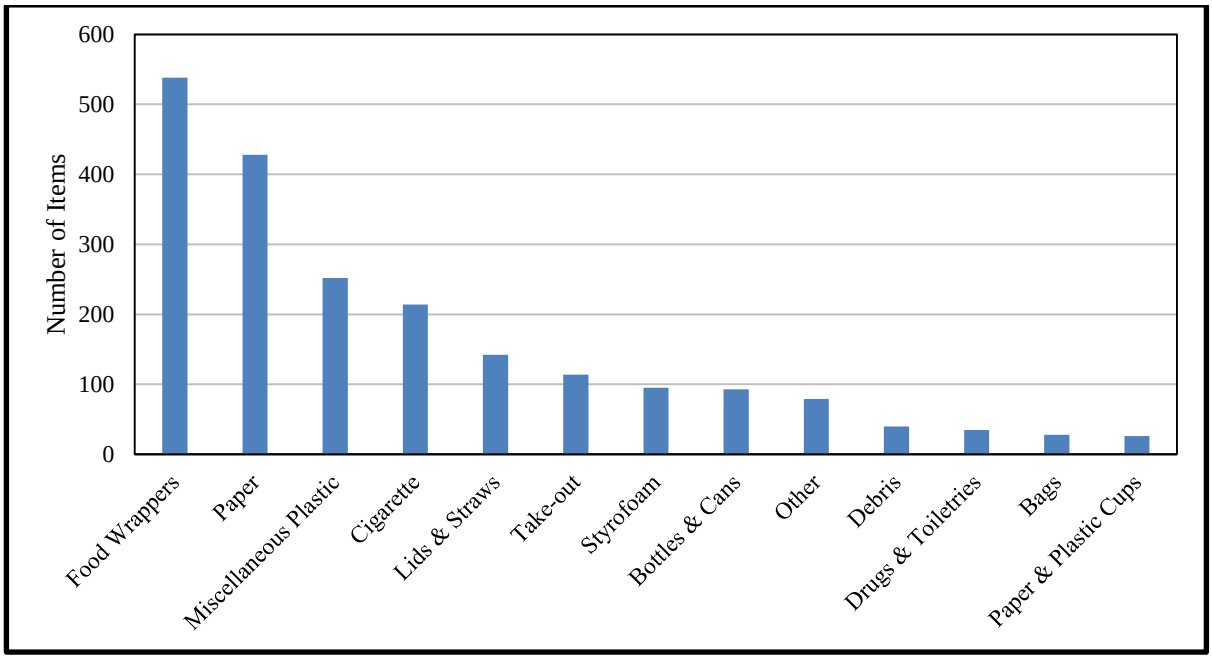


Figure 11 Items Collected From All Stations During 2015 Sampling

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 2).

Equation 2 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.

The geometric mean of the measured event mean concentration (EMCs) were calculated for each monitoring station (Equation 3).

Equation 3 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 4). The annual pollutant loads for the selected pollutants is detailed in Table 26.

Equation 4 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 26 Annual Pollutant Loading

Station	TSS (lb./yr.)	TN (lb./yr.)	TP (lb./yr.)	Cd (lb./yr.)	Cu (lb./yr.)	Pb (lb./yr.)	Zn (lb./yr.)	E. Coli (MPN/ 100ml)
Anacostia High School	62,143	6,056	273	ND	23.88	14.33	100.64	8.2E+12
Gallatin & 14th St. NE	102,811	14,071	1,128	1.47	90.70	30.40	343.19	2.0E+14
Water Reed	4,588	633	32	0.07	1.62	0.00	6.64	2.2E+13
Soapstone Creek	38,025	569	498	0.55	39.09	0.00	88.84	3.8E+14
Battery Kemble Creek	19,325	1,998	218	ND	96.83	5.02	2.08	5.1E+13
Oxon Run	54,371	14,588	713	ND	84.26	13.41	254.46	1.1E+14
Load Estimates Anacostia Watershed (lbs./yr.)	1,434,725	175,056	12,182	12.79	996.61	389.01	3,860.38	1.8E+15
Load Estimates Potomac Watershed (lbs./yr.)	6,728,927	1,514,447	85,012	0.00	16,534.45	1682.77	23,424.04	1.5E+16
Load Estimates Rock Creek Watershed (lbs./yr.)	505,076	14,240	6,282	7.35	482.57	0.00	1,131.72	4.8E+15
Total Load Estimates (lbs./yr.)	8,668,729	1,703,743	103,475	20.14	18,013.63	2071.78	28,416.14	2.1E+16

5.2.1.3 Water Quality Trend Analysis

Tables 27, 28, and 29 present the range in concentrations (minimum and maximum) for each watershed.

Table 27 Summary of Selected Parameters in the Potomac River Watershed

Parameters	2005-2011*		2013-2015**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.00022	0.016	ND	0.0036
Copper, Total	0.0032	0.65	0.014	0.25
Lead, Total	0.0036	0.38	0.0028	0.022
Zinc, Total	0.0095	0.98	0.016	0.32
Total suspended solids	5.2	558	9	120
Total Phosphorous	0.039	2.6	0.072	0.46
Total Nitrogen	1	9.2	1.9	5.7

*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 9 sampling events

Table 28 Summary of Selected Parameters in the Anacostia River Watershed

Parameters	2001-2012*		2013-2015**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.0003	0.012	ND	0.0037
Copper, Total	0.006	0.45	0.014	0.917
Lead, Total	0.0014	0.1	0.0033	0.014
Zinc, Total	0.02	0.89	0.0055	0.27
Total Suspended Solids	6	1400	10	75
Total Phosphorous	0.017	1.5	0.10	0.45
Total Nitrogen	0.9	13.0	2.5	5.6

*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 9 sampling events

Table 29 Summary of Selected Parameters in the Rock Creek Watershed

Parameters	2003-2011*		2013-2015**	
	Concentration (mg/L)		Concentration (mg/L)	
	Low	High	Low	High
Cadmium, Total	0.0005	0.031	ND	0.00077
Copper, Total	0.0028	0.36	0.012	0.12
Lead, Total	0.003	0.28	0.0036	0.026
Zinc, Total	0.017	0.344	0.036	0.094
Total Suspended Solids	5.0	2,600	6.5	110
Total Phosphorous	0.076	13	0.17	0.63

*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 nine sampling events

5.2.2 Storm Event Data

The National Oceanic and Atmospheric Administration (NOAA) rain gauge located at Reagan National airport is used to track rain conditions for the District and surrounding areas, Table 30. The Annual precipitation within the District of Columbia for the 2015 monitoring period was 44.22 inches. Table 31 details the measurements of storms sampled in the FY 2015 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 30 Precipitation Record for the District of Columbia

Year	Month	Rainfall (inches)*	Number of Days in Month with Storms >0.10 inches	Monthly Average (inches)
2014	November	2.64	5	3.17
	December	3.50	8	3.05
2015	January	3.73	8	2.81
	February	1.68	5	2.62
	March	4.04	7	3.48
	April	3.41	9	3.06
	May	1.92	4	3.99
	June	11.94	12	3.78
	July	5.01	5	3.73
	August	1.16	4	2.93
	September	2.15	4	3.72
	October	3.04	5	3.40
Total		**44.22**		

* Rain gauge Reading at Ronald Reagan National Airport.

Table 31 Storm Characteristics

Date	Precipitation (inches)	Duration (hours)	Time to Previous Measurable Rainfall (approx. days)	Sites Sampled
11/24/14	0.31	7	6	B1, B2, C1
12/1/2014	0.86	38	5.5	A1, A2, C2
3/20/15	0.49	11	5.5	A1, A2, B2
4/3/15	0.19	8	7	B1. C1, C2
6/1/15	2.49	12	11	A2 B1, B2, C1
8/20/15	0.17	17	9	A1, C2

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 32 details the water quality sampling and laboratory requirements.

Table 32 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_2SO_4	Composite	Total Nitrogen	Calculation	mg/L	1.0
500 mL Plastic H_2SO_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

Bottle Type	Sample Type	Parameter	Method	Units	Monitoring Detection Limit
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 2014 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).

Sampling location and dates are found in Table 20. Table 33 detail the ambient water quality results for dry weather sampling.

Table 33 Dry Weather flow Quality Data from Dry Weather Sampling

Site	Location	Date	Water Temp (°F)	pH	DO* (mg/L)	TRC (mg/L)
A1	Anacostia High School	7/13/2015	71.78.	7.49	8.46	0.00
		8/14/2015	73.04	7.44	8.10	0.00
A2	Gallatin and 14th St. NE	5/28/2015	70.52	7.43	10.87	0.00
		8/4/2015	73.76	6.87	8.21	0.00
B1	Walter Reed	5/28/2015	63.86	7.48	10.54	0.01
		8/4/2015	71.6	6.76	9.86	0.00
B2	Soapstone Creek	5/28/2015	63.14	7.1	10.36	0.00
		8/4/2015	68.9	7.27	9.35	0.00
C1	Battery Kemble Creek	NDF	--	--	--	--
		8/4/2015	71.5	7.66	8.15	0.00
C2	Oxon Run	7/13/2015	73.04	6.79	8.36	0.00
		8/14/2015	70.7	6.90	8.71	0.00

NDF – No Dry Weather Flow
* Field measurements were taken as % saturation

The water quality monitoring data for dry weather sampling is found in Table 34. 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 Appendix K.

Table 34 Summary of Dry Weather Monitoring (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	2.22 (n=2)	0.36 (n=2)	6.61 (n=2)	1213 (n=2)	ND (n=2)	0.0114 (n=2)	0.0075 (n=2)	0.0318 (n=2)
A2	2.30 (n=2)	ND (n=2)	3.0 (n=2)	130 (n=2)	ND (n=2)	0.0067 (n=2)	0.0012 (n=2)	0.0320 (n=2)
B1	3.57 (n=2)	ND (n=2)	1.28 (n=2)	669 (n=2)	ND (n=2)	0.0034 (n=2)	ND (n=2)	0.0137 (n=2)
B2	2.48 (n=2)	ND (n=2)	1.49 (n=2)	620 (n=2)	0.0007 (n=2)	0.0177 (n=2)	ND (n=2)	0.0290 (n=2)
C1	0.01 (n=2)	ND (n=2)	0.50 (n=2)	10 (n=2)	ND (n=2)	0.0001 (n=2)	0.0001 (n=2)	0.0010 (n=2)
C2	1.92 (n=2	0.06 (n=2)	6.00 (n=2)	593 (n=2)	ND (n=2)	0.0057 (n=2)	0.0026 (n=2)	0.0188 (n=2)

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 ensuring elimination of all suspected sources of illicit connection and improper disposal identified during dry weather screening. The District's IDDE program description and implantation 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 35 provides the existing land use by planning area in the District (MS4 and CSS).

Table 35 Acres of Existing Land and Water Use by Planning Area

	Planning Area											
Land Use Type	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

	Planning Area											
Land Use Type	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 (%)
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

Flow measurements are included in the Wet Weather Sampling Data in Appendix I.

5.6 Monitoring and Analysis Procedures

The District 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 31.

5.7 Reporting of Monitoring Results

The MS4 Permit Section 5.7 and 6.2.1.b requires all monitoring results and trends to be reported in the Annual Report. Section 5 of this report fulfils these requirements. All monitoring results are submitted via NetDMR as required by the MS4 Permit and one copy of the Annual Report is sent to EPA Region III and National Marine Fisheries Service North East Region.

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
  - Sampling protocols
  - Location/Collection time
  - Sample collection procedures
  - Field notes
  - Sampling personnel
- Storm Event Data
  - 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
- Storm Water Analysis Data
  - Field test results
  - 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 22, 2016. A summary of monitoing 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 at http://DOEE.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports.

6.2.1 Annual Report

The 2015 Annual Report follows the format of the MS4 Permit and addresses each Permit requirement. The required elements of Section 6.2.1 a-p are addressed throughout the 2015 Annual Report. The activities described as "FY16 Goals" in each section of the Annual Report fulfill the Section 6.2.1.l 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

As part of the District's Consolidated TMDL Implementation Planning process, DOEE developed a TMDL Implementation Plan Modeling Tool (IPMT) in 2014. The project team used the IPMT to conduct the initial baseline analysis, evaluate progress made toward WLA attainment (using BMP implementation to-date), and to forecast pollutant reductions associated with implementation of the new stormwater regulations using future development scenarios provided by the Office of Planning. DOEE anticipates updating the IPMT at the end of each annual reporting cycle with BMP implementation data tracked in the new stormwater database. These data can be used to model pollution reductions made towards TMDL IP milestones and to guide adaptive management strategies if necessary.

Additional details on model selection, development, the geodatabase, and BMP efficiencies are documented in Chapter 4 (Model Development) of the Consolidated TMDL Implementation Plan, which is available online at: http://dcstormwaterplan.org/wp-content/uploads/TMDL_IP_with_Appendices.pdf

DDOE's IP Modeling Tool tracks and accounts for pollutant load generation and load reduction for all of the waterbodies and pollutants of interest that have MS4 WLAs. It consists of three parts:

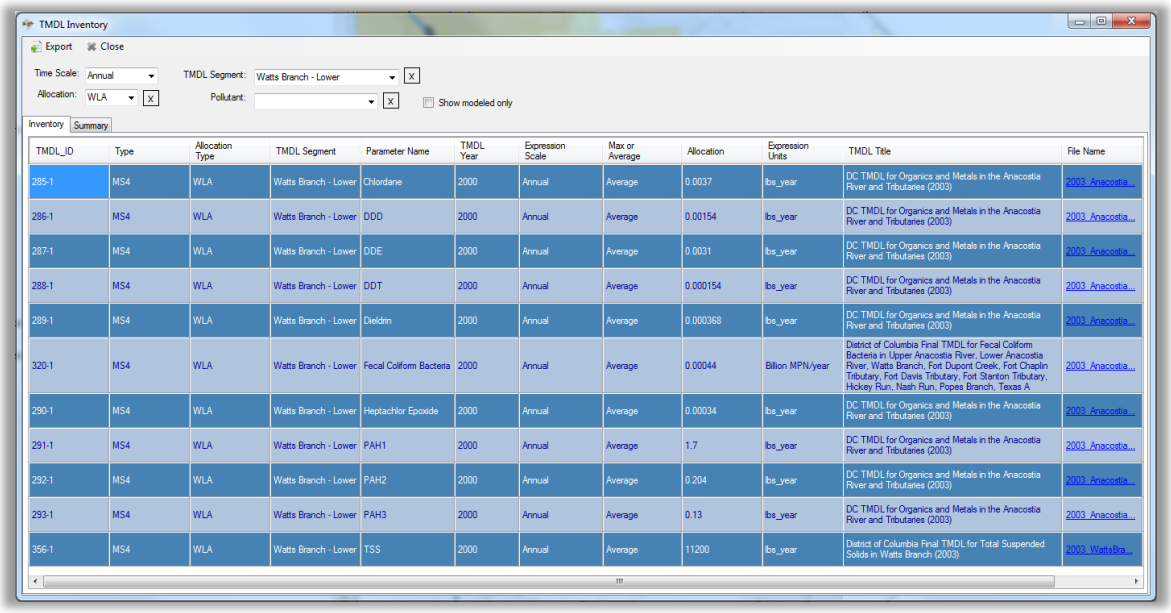
1. *Runoff Module:* The runoff module calculates the runoff volume for a typical year of rainfall using a Modified Version of the Simple Method (CWP and CSN, 2008). It includes model input sections for precipitation, area, runoff coefficients, composites based on land cover, and summary attributes.

2. *Pollutant Load Module:* This module calculates the pollutant loads using event mean concentrations (EMCs), stream bank erosion loads, and/or trash load rates in conjunction with runoff volume from the runoff module described above.

3. *BMP Module:* Consists of the current BMP inventory and the assumed BMP pollutant load reduction efficiencies in order to calculate load and runoff reductions provided by

the BMPs. The IPMT's graphical user interface (GUI), allows for customized viewing of BMP location information with access to BMP performance characteristics.

The IPMT also includes a comprehensive TMDL inventory that provides users with access to details for any waterbody, pollutant, TMDL document, decision rationale document, and numeric waste load allocation, Figure 12.



TMDL_ID	Type	Allocation Type	TMDL Segment	Parameter Name	TMDL Year	Expression Scale	Max or Average	Allocation	Expression Units	TMDL Title	File Name
285-1	MS4	WLA	Watts Branch - Lower	Chlordane	2000	Annual	Average	0.0037	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
286-1	MS4	WLA	Watts Branch - Lower	DDD	2000	Annual	Average	0.00154	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
287-1	MS4	WLA	Watts Branch - Lower	DDE	2000	Annual	Average	0.0031	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
288-1	MS4	WLA	Watts Branch - Lower	DDT	2000	Annual	Average	0.000154	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
289-1	MS4	WLA	Watts Branch - Lower	Dieldrin	2000	Annual	Average	0.000368	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
320-1	MS4	WLA	Watts Branch - Lower	Fecal Coliform Bacteria	2000	Annual	Average	0.00044	Billion MPN/year	District of Columbia Final TMDL for Fecal Coliform Bacteria in Upper Anacostia River, Lower Anacostia River, Watts Branch, Fort Dupont Creek, Fort Chaplin Tributary, Fort Davis Tributary, Fort Stanton Tributary, Hickey Run, Nash Run, Popes Branch, Texas A	2003_Anacostia...
290-1	MS4	WLA	Watts Branch - Lower	Heptachlor Epoxide	2000	Annual	Average	0.00034	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
291-1	MS4	WLA	Watts Branch - Lower	PAH1	2000	Annual	Average	1.7	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
292-1	MS4	WLA	Watts Branch - Lower	PAH2	2000	Annual	Average	0.204	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
293-1	MS4	WLA	Watts Branch - Lower	PAH3	2000	Annual	Average	0.13	lbs_year	DC TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)	2003_Anacostia...
356-1	MS4	WLA	Watts Branch - Lower	TSS	2000	Annual	Average	11200	lbs_year	District of Columbia Final TMDL for Total Suspended Solids in Watts Branch (2003)	2003_WattsBra...

Figure 12 Example TMDL Inventory

The District has used the modules above to estimate runoff, pollutant loads, and reductions associated with the BMPs that have been implemented at part of the Consolidated TMDL Implementation Planning process. Pollutant load reductions, percent reduction required, and projected WLA attainment dates are provided for each TMDL, waterbody, and pollutant are presented in Appendix D of the Consolidated TMDL Implementation Plan.

The volume of stormwater removed from the MS4 as a result of implementing stormwater controls for FY 2015 is provided in section 4.1.5.3 of this Annual report.

The District anticipates continuing to assess the performance of BMPs (including stormwater retention practices) by updating and running the BMP module with the controls enacted in the appropriate reporting period. In addition to tracking load reductions by TMDL, waterbody, and pollutant, DDOE is considering the addition of a summary of the modeled pollutant reductions throughout the MS4 area by major drainage basin in future annual reports.

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