Nash Run post-restoration

DISTRICT OF COLUMBIA

2016 NONPOINT SOURCE MANAGEMENT PROGRAM

ANNUAL REPORT

February 2017

District of Columbia
Department of Energy and Environment
Watershed Protection Division

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Executive Summary

In accordance with Section 319 of the Federal Clean Water Act, this report documents the activities and accomplishments by the District of Columbia 319 Nonpoint Source (NPS) Management Program. The Department of Energy and Environment (DOEE) is the lead agency for administering Section 319, including the 319(h) Grant. In this responsibility, DOEE helps to protect and improve District water quality by promoting and funding best management practice (BMP) implementation and tracking, stream restoration efforts, education and outreach, and other measures to reduce NPS pollution loads.

In fiscal year (FY) 2016, the District received 988,191 dollars through the Environmental Protection Agency (EPA) 319(h) grant and matched it with 658,797 dollars to support the District's NPS pollution reduction activities. In calendar year 2016, the District completed the installation of five RiverSmart Schools projects, audited 1,032 homes through the RiverSmart Homes program, and installed 354 rain barrels, 962 trees, and 66 rain gardens through this program. Additionally, DOEE completed two major stream restoration projects for the Pope Branch and Nash Run tributaries and started a third at Springhouse Run, which will be completed in FY 2017. DOEE has targeted three subwatersheds for more intensive restoration efforts: Hickey Run, Texas Avenue Tributary, and Nash Run. Restoration activities in these subwatersheds funded by the 319(h) grant and other funding sources have resulted in 42 stormwater retrofits treating 11.8 acres.

Mission and Goals of the District of Columbia's NPS Management Program

The mission of the District of Columbia's NPS Management Program is to prevent and control NPS pollution in the District's watersheds. Employing both regulatory and non-regulatory approaches, the NPS Management Program works to safeguard the District's water and soil resources as well as the health and welfare of citizens using those resources.

Long-term goals and short-term milestones to mark progress toward those goals are outlined in the *District Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000). DOEE completed a new draft NPS management plan in September of 2013. The plan was finalized in the summer of 2014. The plan is aimed at reducing NPS pollution from urban runoff, construction, and hydrologic/habitat modification and includes:

- Supporting activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows, and trash disposal for the purpose of attaining present designated uses by 2025 and future designated uses by 2035;
- Supporting and implementing activities that strive to restore and maintain healthy habitat, species diversity, and water flows to all of the tributaries of the Anacostia River by 2025, and to all surface waters of the District of Columbia by 2035, by restoring degraded systems and preserving healthy and threatened ones;
- Coordinating NPS Management Program efforts with other District, federal, and private sector programs and adjoining jurisdictions to provide the best delivery of services to prevent and control NPS pollution in the District of Columbia with the resources available;
- Supporting programs that aim to prevent NPS pollution from individual actions, by carrying out effective information and education campaigns that reach at least 5,000 individuals each year to targeted audiences who live, work, teach, or visit in the District of Columbia and its watersheds; and
- Implementing programs that aim to increase NPS pollution runoff prevention practices on private property reaching at least 1,000 properties per year.

The District's NPS Management Program has also created four detailed watershed implementation plans (WIPs) for three major watersheds in the District and for the District as a whole. All of these plans, including the *Oxon Run WIP* (2010), *Rock Creek WIP* (2010), the *Anacostia WIP* (2011), and the *Consolidated TMDL Implementation Plan* (2016) have been approved by EPA. Additionally, the District participated in the development of the U.S. Army Corps of Engineers facilitated Anacostia Watershed Restoration Plan which was released to the public in April 2010. These plans lay out waterbody impairments, technically appropriate implementation projects, and timelines that guide DOEE in its work.

DOEE assesses the health of all significant waterbodies in the District and prioritizes water quality improvement efforts based on data gathered from water quality monitoring. DOEE then characterizes waterbody impairments and threats; these characterizations are included in the District of Columbia's Section 305(b) reports as required by the federal Clean Water Act. The reports describe many of the District waterbodies as not supporting their swimmable (primary contact recreation) and fishable (fish consumption) designated uses.

Urban stormwater runoff is a prevalent source of pollutants to District of Columbia waterbodies. Primary NPS pollutants of concern include nutrients, sediment, toxicants (Heptachlor Epoxide and DDE), pathogens and hydrocarbons. The few waterbodies that partially or fully support a designated use are also threatened by NPS pollutants. Processes to prioritize subwatersheds for NPS implementation in the District can be found in the WIPs referenced above. To properly address the water quality problems associated with the District's urban environment, DOEE has created a new NPS management plan. The new document outlines a comprehensive strategy for managing NPS pollution in an urban environment in an effort to restore beneficial uses, and sets new goals and objectives, including specific milestones for when the goals and objectives will be achieved.

Figure 1- A RiverSmart Homes auditor meeting with a homeowner

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329)*, for the purpose of documenting progress made in FY 2016 by the District of Columbia in implementing its *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000).

Goal One: Support activities that reduce pollutant loads from urban runoff, construction activities, combined sewer overflows, and trash disposal

The District works to improve water quality in its rivers and streams through direct action and regulatory efforts. The branches within the Watershed Protection Division (WPD) responsible for regulatory management are the Technical Services Branch (TSB) and the Inspection and Enforcement Branch (IEB).

These branches aim to ensure that any development or construction activities occurring within the District properly control erosion or runoff from their sites and properly adhere to all federal and District laws relating to floodplains and waterways. In addition, they ensure that Best Management Practices (BMPs) are installed correctly and receive appropriate maintenance and upkeep.

Additionally, DOEE's Water Quality Division, Monitoring and Assessment Branch works to verify improvements in the water quality of District streams through its monitoring efforts.

Technical Services Branch

TSB works with multiple stakeholders across the private and public sectors. It evaluates environmental regulatory obligations for every building permit including all commercial and residential parcel projects, linear public right-of-way (ROW) projects, and in-stream designs. Reviewers determine each applicable obligation and work with the designer to ensure compliance. They review demolition, excavation, grading, and site design plans for erosion and sediment control (ESC) measures, hotspot concerns, post-construction land cover designations, stormwater BMPs, and floodplain management considerations. In some cases, where an applicant proposes compliance with rainwater harvesting for non-potable use, the reviewer evaluates the project's mechanical, electrical, and plumbing design to ensure adequate consideration has been given to human health. The reviewer evaluates geotechnical reports to consider opportunities for infiltration. Reviewers ensure projects with land disturbance in excess of one acre file notice with EPA and maintain an approved stormwater pollution prevention plan on site. Sites greater than 5,000 square feet but under one acre are now required to provide "Good Housekeeping Notes" on their stormwater management (SWM) plan.

The District is a leader in the development of regulations, guidance, and enforcement tools that are highly protective of the receiving waterbodies. An early adopter of ESC regulations, enacted in 1987, the District regulates all land disturbance over 50 square feet and requires on-site SWM for land disturbances over 5,000 square feet. Regulations and compliance tools were expanded in 2003 to incorporate the first-flush concept.

In 2013, a major overhaul to these regulations and compliance and enforcement tools was completed, which set a 1.2-inch retention standard for development projects disturbing an area equal to or greater than 5,000 square feet. This obligation could be met through onsite controls, a combination of on-site and off-site retention, or paying a fee-in-lieu for not meeting the stormwater retention standard.

FY 2016 was the second full year that projects had to comply with all aspects of the 2013 stormwater regulations. To facilitate this transition, TSB continues to hold regular biweekly half-day meetings for all plan reviewers. These meetings provide a technical forum to clarify procedures, work through regulatory nuances, discuss challenging site cases, examine compliance presentation strategies, and generally ensure consistency across reviewers. Plan reviewers find review times have increased significantly per project, and DOEE will hire additional plan reviewers to help with the workload in FY 2017. DOEE, with staff support from the Center for Watershed Protection (CWP), continued to develop and deliver monthly training on compliance. Compliance training included General Retention Compliance, Large Storm Design Constraints, and Specialized BMP Design sessions on green roofs, permeable paving, and rainwater harvesting, as well as sessions on ROW compliance.

FY 2016 also marked the second year of DOEE reviews of the green area ratio (GAR), the zoning requirements for environmental high-performance landscape elements. DOEE hired two landscape architects to conduct these reviews. DOEE created the GAR compliance process and a stand-alone guidance manual to support GAR plan submission, review and inspection. In 2016 DOEE held six GAR training sessions to support applicants, DOEE staff, and Department of Consumer and Regulatory Affairs and Zoning reviewers and inspectors.

TSB staff, with staff support from CWP, continues the development of training sessions. DOEE held three BMP training sessions focused on unique practices, two trainings on the process for designing BMPs for the ROW, eight trainings on general stormwater compliance, and six trainings on the stormwater retention credit trading database in 2016. TSB continued to work with the District Department of Transportation (DDOT) on updates to its green street standards and specifications to ensure these standards harmonized with DOEE SWM guidelines. DDOT green infrastructure standards were published in April 2014 and are now a required component of any District street creation or reconstruction project.

TSB staff worked with DOEE's SWM Division to develop an online database to track the submission of plans for regulatory compliance and voluntary retrofits. This allows an integrated and transparent review, approval, and inspection process for ESC, SWM, floodplain, and GAR plans, and stormwater retention credit and stormwater fee discount applications.

Over this reporting period, TSB and IEB staff also worked with the Office of Planning and the Zoning Administrator to develop the permitting process for the GAR. These staff also continued to develop the guidance manual and training materials. During the initial review months, staff met regularly to exchange reviews and discuss compliance to ensure consistency among reviewers.

Figure 2 – Inlet protection keeping sediment from a construction site with poor sediment control out of District waterways

In FY 2016 TSB accomplished the following:

- Reviewed 4,796 building permit applications and plans for regulatory compliance;
- Approved 2,265 building permit applications and plans for regulatory compliance;
- Reviewed 207 building permit applications and plans for SWM compliance;
- Approved 182 building permit applications and plans for SWM compliance;
- Processed 64 Environmental Impact Screening Forms after they were reviewed for regulatory compliance;
- Provided 12,322 customers with technical assistance;
- Filed 66 EPA Stormwater Notices of Intent for construction activities with land disturbance of one acre and greater;
- Continued to update the District's ESC Guidebook;
- Reviewed 30/65/90 percent maximum extent practicable submissions for 19 DDOT projects;
- Reviewed 145 GAR submissions; and
- Provided 252 trainings on new regulation and guidance materials through a combination of internal and public workshops.

In addition to these regulatory actions, engineers from TSB represent the District on regional and national committees and regularly attend relevant trainings on new stormwater technologies. They also attend regional workshops related to stormwater control and Chesapeake Bay restoration efforts. Some examples of this include the following:

- Committee Participant
  - Chesapeake Bay Program (CBP) Urban Stormwater Work Group
  - CBP BMP Verification Review Panel
  - DC Flood Risk Management (Silver Jackets) Team Meetings
  - District of Columbia ESC Guidebook Revision (DOEE)
  - DC CRS Program Overview Meeting
  - Mitigation Working Group Quarterly Meeting/Conference Call
  - DC Construction Codes Coordinating Board – Flood Hazard Special Committee
  - DC Construction Codes Coordinating Board – Mechanical Technical Advisory Group
  - Flood Inundation Map Task Group

  - Flood Emergency Planning Task Group
  - Interior Flooding Task Group

- Presenter
  - Low Impact Development (LID) Conference–Portland, Maine
  - Seventh Annual Bay-Wide Stormwater Retreat
  - DC Flood Summit Meeting

- Single Workshop/Training
  - Annual Association of State Floodplain Manager Conference
  - Federal Emergency Management Administration (FEMA) Elevation Certificate
  - Annual Conference of Maryland Association of Floodplain and Stormwater Managers
  - DOEE In-House Training on SWM Guidebook and Stormwater Database
  - Adaptation Futures Conference
  - Regenerative Stream System Training
  - LEED Green Associate Training
  - Bioretention and Green Roof Systems Design Training

- Courses Taken
  - Stormwater Management Reviewer Course (VA-DEQ)
  - TR-55 Hydrologic Modeling Course
  - GAR Training (DOEE)
  - FEMA E0 273 Course on Managing Floodplain Development through the NFIP
  - Bioretention and Green Roof Systems Design Course

Inspection and Enforcement Branch

IEB inspects construction sites throughout the District to ensure they are in compliance with District regulations. IEB also regularly inspects existing SWM facilities to ensure they are in working order and are properly maintained. In addition, IEB is responsible for investigating citizen complaints relating to soil erosion and drainage problems and recommending appropriate solutions.

Figure 3- An inspection of a roadway bioretention cell

DOEE performs outreach to industrial and construction facilities through workshops, brochures, and site inspections. IEB personnel use inspections to promote awareness of the proper methods of facility maintenance for stormwater regulation compliance. To aid facilities in ensuring proper maintenance of SWM facilities, IEB has established and published guidelines for their proper maintenance.

In FY 2016 IEB accomplished the following:

- Conducted 3,352 inspections at construction sites for enforcement of ESC and 1,011 inspections for SWM BMP construction;
- Issued 119 Final Approval Notices for completion of implementation of SWM BMPs for land disturbance or land cover;

- Conducted 55 GAR Inspections and 14 GAR Final Inspections;
- Completed a final draft of the GAR handbook for legal review and public comment;
- Took 105 enforcement actions, including Stop-Work Orders and Notices of Infractions, Notices of Violation, and Maintenance Notices to strengthen enforcement activities;
- Inspected 1,061 SWM facilities to ensure proper function for operation and maintenance;
- Performed 276 Maintenance Service Completion Inspections for compliance with District regulations for SWM BMP operation and maintenance;
- Issued 63 Maintenance Notices to BMP owners to perform maintenance to SWM BMPs as listed on the SWM plan;
- Continued to developed self-reporting/self-certification protocol and operating procedure of SWM BMP maintenance inspection reporting for SWM BMP owners or their agents; and
- Mailed 120 Request for Maintenance Service Information letters to SWM plan owners without record of maintenance inspection or service.

Figure 4- A collapsed sewer outfall in Fenwick Branch

IEB launched web-based stormwater database using a QuickBase platform and field tablets, enabling inspectors to manage inspection reports and enforcement notices, records of inspection, and other events related to ESC, SWM, maintenance enforcement, and erosion/drainage complaints in the field. All inspection forms and notices are now signed electronically by inspectors and the regulated community and issued in an electronic format. IEB also completed a green roof maintenance video and outreach and education materials related to inspection procedures for land disturbance in the District of Columbia, including brochures and website content. Finally, in cooperation with the SWM Division, IEB continues to field verify stormwater BMPs and update the SWM BMP-tracking database.

Monitoring and Assessment Branch

Every year DOEE monitors 36 waterbody segments to determine their health according to the Clean Water Act. The District's water quality standards assign each of these waterbodies designated uses and numeric and narrative criteria that must be met if a waterbody is to support its assigned uses. Current monitoring shows that the District's waterways do not support their designated uses related to human health or quality of habitat for aquatic life. No waterbody monitored by the Water Quality Division fully supported all of its designated uses. The water quality of the District's waterbodies continues to be impaired. The sources with major impacts on District waters are combined sewer overflows and urban runoff/storm sewers.

Table 1 – Tracking activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows, and trash disposal

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% of 2020 Goal achieved
Objective 1a: To reduce pollutant loads in targeted watersheds	Milestone 1: Install LIDs in targeted watersheds	Number of BMPs Installed				
		3	117	42	N/A	N/A
		Area Treated				
		19.06	38.0	11.8	N/A	N/A
	Milestone 2: Monitor water quality of all District streams	Number of streams monitored				
		3	4	4	N/A	N/A
		Number of pollutants monitored				
		30	30	30	N/A	N/A
	Milestone 3: Produce annual report of state of the District's waterways	Number of reports				
		1	2	1	N/A	N/A
Objective 1b: To review, permit, and inspect all BMPs installed in the District	Milestone 1: Review all erosion and sediment and stormwater permit applications	Number of permits reviewed				
		3,264	3,597	4,796	N/A	N/A
		Number of permits approved				
		2,882	1,684	1,475	N/A	N/A
	Milestone 2: Inspect all permitted BMPs	Number of site inspected				
		5,326	2,237	4,364	N/A	N/A
		Number of sites in compliance				
		724	436	913	N/A	N/A
	Milestone 3: Keep a tracking database of permitted BMPs	Total Number of BMPs Installed				
		3,893	4,065	3,757	N/A	N/A
		Number of new sites with BMPs				
		211	172	228	N/A	N/A

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% of 2020 Goal achieved
Objective 1c: To increase the number of waterbodies meeting water quality standards	Milestone 1: Install LIDs in watersheds with approved WIPs	Number of BMPs Installed				
		229	418	1378	N/A	N/A
		Area Treated (acres)				
		289.9	173	152	N/A	N/A
	Milestone 2: Monitor District streams for water quality improvements	Number of streams monitored				
		25	25	25	N/A	N/A
		Number of pollutants monitored				
		30	30	30	N/A	N/A
	Milestone 3: One water quality improvement	Measured or calculated water quality improvement				
		0	0	0	N/A	N/A

Goal Two: Support and Implement Activities That Restore and Maintain Healthy Habitat, Species Diversity, and Water Flows to All District Tributaries

WPD's Planning and Restoration Branch (PRB) is the District's lead in undertaking activities that directly protect and restore stream and wetland habitat. Additionally, DOEE's Fisheries and Wildlife Division surveys and assesses wildlife habitat in the District and the Water Quality Division's Planning and Permitting Branch reviews and issues water quality certifications for projects impacting wetlands and waterways and develops regulations to complete these projects.

Stream and Wetland Restoration

Stream restoration and wetland restoration is the act of modifying a waterway or marsh to improve its environmental health and habitat. All District streams face similar threats from urbanization due to high stormwater flows from impervious surface runoff. Erosion of the banks and beds of an urban stream is the stream's way of adjusting to accommodate the new geomorphological flow regime it is experiencing. Stream restoration attempts to create a new channel that is in stasis with the flows it conveys.

In FY 2016, DOEE continued to work towards construction of several existing projects, performed pre- and post-restoration monitoring at completed and future restoration sites, and constructed two stream restoration projects. WPD currently has 21,000 linear feet of restored stream under post-restoration monitoring and has over 35,000 linear feet of stream reaches in the design phase process to be restored in coming years.

Springhouse Run Stream Restoration

Springhouse Run is a remnant of one of the original tributaries to Hickey Run, a tributary of the Anacostia River, with a drainage area of 152 acres. The majority of the tributary is stable, although it is highly altered and armored in most areas. The armoring has resulted in a stream with poor habitat value and very limited ability to trap sediment and uptake nutrients.

DOEE coordinated the design of a stream and habitat restoration for Springhouse Run, which was completed in late 2014. A construction contract was awarded in July 2016 and construction began in early fall. The stream will be reconnected to its historic floodplain and its sinuosity will be restored. This project reach measures approximately 1,800 feet in length and lies entirely within the U.S. National Arboretum.

Figure 5– Nash Run post-restoration

An additional component of this project is to construct bioretention facilities in the parking areas near the Arboretum Visitor Center. This project is being funded in part with EPA 319 funds. The project will be completed by summer 2017.

Nash Run Stream Restoration

The Nash Run Stream Restoration and Trash Trap project was successfully completed in FY 2016. Project work commenced in January 2016 and the project was completed in June 2016. The 1,408 linear foot restoration project turned a degraded urban stream with high bank erosion rates into a stable stream with a hydrologically connected floodplain bench along both stream banks. Project work involved the excavation of over 11,000 cubic yards of sediment along both stream banks (similar to a legacy sediment removal project). Following excavation work the contractor created log vanes (from trees removed on site) as vertical grade controls in the stream and in the floodplain benches along the stream. The 55-foot wide floodplain bench will be accessed by the stream in even small rain events, dissipating the erosive force of stream flows and watering the floodplain bench. Throughout the project area DOEE planted 99 trees, over 100 shrubs, and over 1,000 herbaceous plants and grasses. Additionally, DOEE installed a floatable trash trap at the upstream-most part of the project area to capture floatable trash exiting the stormwater outfall at the top of the project area.

Table 3 - Pre-restoration Fish Index of Biological Integrity (IBI) Scores for Nash Run

	2014 Metrics	2014 IBI Score	2015 Metrics	2015 IBI Score
Number of Individuals per Square Meter	2.66	5	3.78	5
Number of Benthic Species	0	1	0	1
Percent Tolerant Fish	7.82	5	4.77	5
Percent Abundance of Dominant Species	43.66	3	42.79	3
Percent generalists, Omnivores, and Invertivores	99.69	3	100	1
Percent Round-bodied Suckers	0.16	1	0.22	1
Total IBI Score	**3.0 (Fair)**		**2.67 (Poor)**	

The completed project is a tremendous improvement to the surrounding neighborhood and the Anacostia River. DOEE needed over 20 adjacent property owners to sign temporary easement forms to allow the District execute the project on private property. The restoration project will reduce bank erosion, improve stream connectivity to its floodplain, increase the riparian cover along the stream, add wetland area to the stream corridor, and significantly reduce the stream’s contribution of trash and debris to the Anacostia River. DOEE is monitoring the health of the stream to demonstrate water quality improvement. As the project was only recently completed, post-restoration data is not yet available. Pre-restoration data can be found in Table 3.

Watts Branch Stream Restoration

The Watts Branch Stream Restoration Project was completed in early FY 2012. Since that time, DOEE has monitored the project to determine its effectiveness at achieving its design objectives. Similar to other restored stream projects, DOEE is using a combination of activities to monitor the restoration project. Restoration monitoring consists of photographic and vegetative surveys and geomorphic assessments.

Figure 6- Pope Branch post-restoration

Pope Branch Stream Restoration and Sewer Line Replacement

In 2016, DOEE and its partner, DC Water, completed the 4,780-foot-long stream restoration project at Pope Branch using regenerative stream design techniques. The stream restoration work commenced in March 2016 and ended in November 2016. The stream restoration involved the construction of over 100 boulder and cobble weirs to create a step pool stream system. At high flows the stream can access its floodplain, allowing energy to be dissipated and sediment to be deposited on to the floodplain. The step pool system also helps to dissipate energy as water circulates and spreads out in the pools before overtopping the next downstream weir. The construction access road that ran along the stream is now a walking path for residents, providing better access to the restored stream valley.

Alger Park Stream Restoration

The Alger Park Stream Restoration was advertised for bids in FY 2016 and the contract is expected to be approved in early 2017. DOEE expects the stream project to be constructed in 2017. DDOT began advancing design for upland LID projects in the watershed area that drains into Alger Park. The design phase of the LID projects should be completed in 2017 with construction work to be completed in 2018.

DOEE continued to meet with community members and community groups throughout the year to update them on the project’s progess.

Linnean Park and Linnean Gully Stream Restorations

In FY 2014, DOEE completed the installation of a regenerative stormwater conveyance (RSC) system in Linnean Park that restored 1,000 linear feet of in-stream habitat. The Linnean Park tributary was a highly degraded perennial stream that was degraded by stormwater runoff from a 24.5-acre watershed dominated by single family homes and wide suburban streets.

This project, partially funded by a National Fish and Wildlife Foundation grant, is being intensely monitored to better understand the efficacy of the RSC restoration approach. The University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory performed pre-installation monitoring for concentrations of nutrients, sediment, metals, bacteria, flow volume and velocity, water temperature, and habitat health. In FY 2016 the researchers continued post-restoration monitoring of the project area and a final report is expected in early 2017. The project is using a paired monitoring approach, studying the same set of parameters in Spring Valley, a stream and watershed of similar character that will be restored in the near future. DOEE is also performing photo monitoring of the project area to document the stability of the RSC over time.

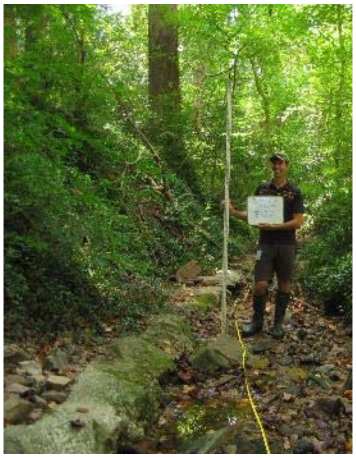

Figure 7- An exposed sewer line in Spring Valley

Spring Valley Stream Restoration

In FYs 2014 and 2015 DOEE collected pre-restoration monitoring data for the 1,100 linear-foot-long Spring Valley Park tributary. Additionally, DOEE staff performed outreach to the community to inform them about this project and encourage them to adopt practices on their properties to reduce stormwater runoff to the stream.

A solicitation for the design-build project will be issued in early FY 2017. This design-build project is expected to be under contract in by spring 2017, with construction likely occurring in FY 2018.

Pinehurst Branch Environmental Assessment

Pinehurst Branch originates at the District/Maryland border and flows approximately 1.3 miles east-southeast on National Park Service (Park Service) property to its confluence with Rock Creek. The 619-acre Pinehurst Branch watershed land use is approximately 70 percent residential and commercial development and 30 percent parkland. Approximately 70 percent of the watershed lies within the District, with the remaining in Montgomery County, Maryland. The large amount of imperviousness in the watershed has caused significant erosion in Pinehurst Branch, resulting in sediment transport to Rock Creek and exposed sanitary sewer lines in the stream. DC Water is planning to abandon or remove existing sanitary sewer lines in Pinehurst Branch in early 2018 and DOEE will coordinate with DC Water to restore the stream following completion of the sanitary sewer line work.

The Pinehurst Branch stream restoration project will be a comprehensive restoration project that addresses current degraded conditions in the stream, including eroding banks, exposed sewer lines, and invasive vegetation. The first step in restoration is to conduct an environmental assessment (EA) as required by the National Environmental Policy Act. The scope of work in this EA will explore the options to implement the proposed actions of the Pinehurst Branch restoration project that would take place on Park Service property. The EA will consider the potential to implement restoration activities that could meet the following objectives: to restore approximately 7,900 feet of degraded stream reaches; to create conditions suitable for wildlife habitat; and to improve the condition of existing wetlands.

Figure 8- A sewer overflow in Pinehurst Branch

A solicitation for development of the EA will be issued in early FY 2017 and the work is expected to be completed in FY 2018. Decisions about the design and construction of the stream restoration project will be made based upon the preferred alternative selected from the EA.

Wetland Protection

The Water Quality Division's Planning and Permitting Branch undertook a major effort in 2014 and 2015 to further protect the District's wetlands. The Branch selected a contractor that has begun work delineating wetlands throughout the District which has not been done since 1997. The new information will be mapped using geographic information system (GIS) technology to accurately create digital maps that will be publically available. Making the map electronically available will aid developers in knowing if they may impact potential wetlands, and aid the District in identifying areas with potential for wetland restoration. In FY 2016 DOEE completed a draft version of the report and the maps associated with the project. A final version of the plan is expected to be released in FY 2017.

Table 2 – Tracking activities that strive to restore and maintain healthy habitat, species diversity, and water flows to all District tributaries

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% of 2020 Goal Achieved
Objective 2a: To restore five miles of stream by 2025	Milestone 1: Restore two miles of stream by 2020	Miles of stream restored				
		0.55	0	1.17	2	86%
	Milestone 2: Restore additional three miles of stream by 2025	Miles of stream restored				
		N/A	N/A	N/A	N/A	N/A
Objective 2b: To add 100 wetland acres by 2035 bringing the total acres of wetlands in the District from 280 acres to 380 acres	Milestone 1: Increase wetland acres by 50 acres by 2025	Acres of wetland created				
		0.68	0	4.38	70	7%
	Milestone 2: Increase wetlands by an additional 50 acres by 2035	Acres of wetland created				
		N/A	N/A	N/A	N/A	N/A
Objective 2c: To protect all the District's wetlands by 2035	Milestone 1: Identify and document all District wetlands	Number of wetlands identified				
		48	48	48	N/A	N/A
		Total wetland acres				
		280	280	280	N/A	N/A
	Milestone 2: Update wetland regulations	Number of updated regulations				
		0	0	0	N/A	N/A
	Milestone 3: Protect District wetlands from degradation, encroachment, or destruction	Acres of wetlands protected				
		280	280	280	N/A	N/A

Goal Three: Coordinate NPS Management Program Efforts with Other District, Federal, and Private Sector Programs and Adjoining Jurisdictions

DOEE is not a landowning or landholding agency, thus strategic partnerships with both governmental and private entities are vitally important to make the agency's watershed protection and restoration work a success. DOEE has strong partnerships with all District government agencies, which ensures that municipal projects throughout the District are implemented under the same vision of watershed protection and restoration. Secondly, DOEE works with federal partners, including the Park Service and the National Arboretum, to ensure that streams are adequately protected and prioritized for restoration efforts. Finally, DOEE collaborates with a wide array of private groups, both for-profit and nonprofit, to ensure that projects and programs and designed and implemented effectively.

District of Columbia Agencies

All District agencies operate as state, county, and municipal agencies collectively thus expediting "state-wide" partnerships focused on NPS management and watershed restoration. There are multiple avenues for agencies to coordinate work. Below are descriptions of the key District agencies with whom DOEE has partnered over the past year to ensure that the District effectively mitigates NPS pollutants.

District Department of Transportation (DDOT)

DOEE regularly partners with DDOT's Storm Water Management Branch to green District transportation infrastructure by ensuring that DDOT projects minimize stormwater runoff. In FY 2016, DDOT worked on engineering designs for the following projects using a combination of DOEE and EPA funds:

- Partnering on the design of the reconstruction of Oregon Avenue and roadway retrofits on side streets
- Klingle Valley Watershed Green Streets
- Alger Park Upland LID
- Dix Street Green Infrastucture
- Reviewing and permitting the designs for roadway and bike trail work in Rock Creek Park
- Constructing permitted LID retrofits in the ROW

Figure 9– An urban farm project in partnership with UDC

Each of these projects will install bioretention, permeable pavement, and other appropriate volume-reduction techniques to retain stormwater runoff from streets and alleys that drain into District waterways. The Klingle, Alger, and Dix sites were chosen specifically because they outfall to existing or planned stream restoration sites.

Furthermore, DOEE has worked with the Urban Forestry Administration (UFA) within DDOT on three major efforts. First, DOEE continues to develop new ESC guidelines and is working with UFA to develop measures that reduce construction's impact on existing trees, to be completed in FY 2017. Second, DOEE and UFA continued to partner on a project to develop and implement tree planting plans on District school property and parklands. Lastly, DOEE and UFA are working together to put together a new initiative aimed at developing and implementing planting plans on large parcels to be undertaken in FY 2017.

Department of Public Works (DPW)

DOEE enters into an annual memorandum of understanding (MOU) with DPW to fund activities required by the District's Municipal Separate Storm Sewer System (MS4) permit. In FY 2016, DOEE provided DPW with funding to maintain regenerative air street sweepers; print and disseminate brochures on the District's lead collection program; and conduct a drop-off and disposal program for household hazardous waste.

Department of General Services (DGS)

DOEE has partnered with two groups within DGS. Over the past year, the Sustainability and Energy Division, which develops and executes energy conservation and sustainability initiatives for District properties, has received DOEE and EPA funding to install LID at existing buildings and innovative stormwater practices for new construction. In FY 2016, DGS completed the installation of 100,000 square feet of green roofs on five schools, one police station, and one fire station. Additionally, DOEE has worked with DGS's Office of Contracting and Procurement (OCP). OCP manages all contracts related to DOEE projects and those on other District government property with the exception of DDOT properties and District of Columbia Public Library facilities. In the FY 2016 reporting period, OCP managed several contracts for the design and installation of LID practices and stream restoration.

Department of Parks and Recreation (DPR)

DPR provides quality urban recreation and leisure services for residents of and visitors to the District. DPR supervises and maintains area parks, community facilities, swimming pools and spray parks, and neighborhood recreation centers. In FY 2016 DOEE and DPR continued to work together on tree planting efforts on DPR lands, urban vegetable gardens, and an MOU for the installation of LID on several other DPR parcels. DOEE completed the construction of one LID retrofit in FY 2016 and contracted another, and additional contracting and construction of LID retrofits will occur in FY 2017.

Figure 10– A green roof installed at the Merrit police station

Office of Planning (OP)

OP performs planning for neighborhoods, corridors, districts, historic preservation, public facilities, parks and open spaces, and individual sites. In addition, OP engages in urban design, land use, and historic preservation review. OP also conducts historic resources research and community visioning and manages, analyzes, maps, and disseminates spatial and U.S. Census data. In FY 2016 DOEE worked with OP on targeted planning efforts for small District parks (less than one acre in size) and on the development of the Anacostia Waterfront—especially the waterfront trail and Buzzard Point development.

District of Columbia Public Schools (DCPS)

DCPS is a school system that provides pre-kindergarten through high school educational programming for 45,000 students. DOEE works with DCPS and the DC Office of the State Superintendent of Education (OSSE) to ensure that environmental education is integrated into classroom programming. Each year, DOEE trains a select group of District teachers to help them better integrate watershed education lesson plans into their daily curriculum and ensure students receive "meaningful watershed education experiences" through grants to nonprofits. Additionally, DOEE worked with DCPS to plant trees on school parcels and helped retrofit several schools through RiverSmart Schools and DGS renovations.

Federal Agencies

The federal government owns large tracts of land throughout the District, particularly in waterway corridors. Therefore the District's relationship with its federal agencies is essential to ensure NPS pollution is mitigated to the maximum extent practicable. The federal presence in the District is dominated by large federal buildings in the central core of the District with large tracts of park space throughout the remainder of the District.

Department of the Interior (DOI)

DOEE works and partners with different branches of DOI including the Park Service in the National Capital Region and the U.S. Fish and Wildlife Service (FWS) to plan and implement restoration projects, in particular stream restoration projects, as many of the District's stream miles lie on Park Service owned and managed land.

In FY 2016, DOEE worked with the Park Service on contracting efforts to install LID retrofits in the parking area of the Carter Barron Tennis Center and Amphitheater, roadway retrofits in Fort Dupont, and EAs for the Fort Dupont and Pinehurst Branch tributaries. Additionally, DOEE discussed with the Park Service expedited permitting and partnering on future restoration efforts. FWS is also a partner with the planned LID retrofit work at the Carter Barron Amphitheater because of the presence of the Hays Spring amphipod in the area around the restoration project.

Figure 11– Roadside bioretention on Erie Street, SE

U.S. Department of Agriculture (USDA)

DOEE is presently partnering with the National Arboretum, managed by USDA, to implement an LID retrofit and stream restoration project on the National Arboretum's grounds. The LID part of the project, which will begin construction in FY 2017, will capture and filter stormwater from the parking areas near the visitor's center. , which drains to Hickey Run. The stream restoration project, also to begin in FY 2017, will revitalize Springhouse Run, a tributary of Hickey Run and the Anacostia River. DOEE and the Arboretum hope to replicate similar projects in future years. This project will be completed in FY 2017.

U.S. Environmental Protection Agency (EPA)

DOEE and EPA have partnered for many years to ensure that the District meets federal law and guidelines related to NPS management. DOEE and several branches of the EPA partner to ensure that the District is meeting all of its local and federal obligations, as well as working in a manner that is in concert with regional and national efforts.

DOEE receives funds from the EPA Region III 319 Grant Program annually to implement its NPS management projects, and DOEE participates in annual conferences and meetings to remain current with NPS work around the region. Additionally, DOEE has worked to complete the activities required under its 2012 MS4permit and coordinated with Region III to draft a new permit to be issued in FY 2017. Finally, the District receives funds from the EPA Chesapeake Bay Program for Bay Program goal implementation activities that work to restore the health of the Chesapeake Bay.

U.S. Geological Survey (USGS)

USGS presently operates several water monitoring stations around the District, with financial support from DOEE, that measure water height, flow, and various water quality parameters including, but not limited to, temperature, dissolved oxygen, and turbidity. The District pays a cost-share for the maintenance of the gage stations.

Non-Governmental Organizations (NGOs)

The District works with many local NGOs to accomplish mutual goals of cleaner waterways and a more livable city. DOEE works primarily with regional NGOs, universities, religious institutions, and environmental nonprofits.

Regional NGOs

There are two primary regional NGOs that the District partners with—Metropolitan Washington Council of Governments (MWCOG) and the Interstate Commission on the Potomac River Basin (ICPRB).

In June 2006, the MWCOG board adopted a resolution that established a new Anacostia Watershed Restoration Partnership (AWRP). The AWRP created the Anacostia Watershed Restoration and Protection Plan, which quantifies Anacostia restoration goals, specifies an implementation timeline, and provides explicit measurements of progress, with appropriate recognition and incorporation of related planning activities. In FY 2016 MWCOG continued to perform macroinvertebrate sampling and fish surveys to document the District's progress towards restoration of its waterways. This survey included pre-restoration monitoring for Nash Run and Springhouse Run. A summary of the monitoring in Nash Run can be found in Table 2. Additionally, DOEE is an active partner in ICPRB, a regional organization working to enhance, protect, and conserve the water quality and associated land resources of the Potomac River basin.

Universities

Over the past year the District has partnered with universities in several ways. In FY 2016 DOEE has been an active participant in the University of the District of Columbia's LID workgroup led by its Center for Agriculture, Urban Sustainability, and Environmental Sciences. DOEE has also worked with the University of Maryland to monitor several District streams to examine the effectiveness of stream restoration practices through a grant provided by DOEE. The final monitoring results will be available in FY 2017.

Nonprofit Partners

Nonprofit partners are vital to DOEE's work to reduce NPS pollution. Most commonly, DOEE, through a competitive grant process, funds local nonprofits to increase youth education and awareness about watershed protection, implement LID projects, and manage rebate programs for LID installations.

Nonprofit partners provide a valuable service to communities throughout the District, and DOEE will continue to partner with a wide array of nonprofits to help fulfill its NPS management obligations.

Nonprofit partners that DOEE worked with in FY 2016 include the following:

- The Anacostia Watershed Society, which administers DOEE's RiverSmart Rooftops and RiverSmart Communities grants and trains volunteers through its Watershed Stewardship Academy
- Groundwork Anacostia, which maintains trash traps on the Anacostia and its tributaries
- The nonprofit grantees that oversee aspects of the RiverSmart Homes program including Casey Trees and the Alliance for the Chesapeake Bay
- Washington Parks and People manages a grant planting trees at District parks and schools
- The nonprofits that oversee environmental education grants include Project Learning Tree, the District of Columbia Environmental Education Consortium, the Earth Conservation Corps, Living Classrooms, the Alice Ferguson Foundation, and Nature Bridge

Table 3 - Tracking activities that coordinate NPS efforts with other District, federal and private sector programs, and adjoining jurisdictions

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 3a: To work with local and regional partners on NPS management issues	Milestone 1: Partner with District agencies for NPS projects	Number of partnership projects annually				
		4	8	8	N/A	N/A
Objective 3b: To participate in partnership and planning meetings	Milestone 1: Participate on regional committees or planning meetings	Number of meetings				
		50	60	55	N/A	N/A
		Number of joint committees annually				
		25	25	25	N/A	N/A
	Milestone 2: Demonstrate two programmatic partnership successes annually	Number of successful partnerships				
		4	2	4	14	71%
Objective 3c: To participate on Region 3 and Bay Program Technical Advisory Committees	Milestone 1: Join technical committees	Number of committees participating on annually				
		16	25	17	N/A	N/A

Goal Four: Support Programs That Aim to Prevent NPS Pollution from Individual Actions by Carrying Out Effective Information and Education Campaigns

Almost 650,000 people currently reside in the District. Additionally, the city hosts millions of visitors each year, including tourists and those that work in the District but live outside its border. Without educated and engaged residents and visitors, the District will not be able to achieve its pollution reduction goals. A citizenry educated about NPS pollution reduction techniques is important for the following reason, among others:

- Modify their behavior and adopt environmentally sensitive practices;
- Advocate for stronger laws and regulations and for funds to enforce them; and
- Help care for practices installed by the District.

Because education is critical to the District's efforts, DOEE sponsors and conducts environmental education and outreach activities targeted at teachers, environmental educators and students throughout the District. These programs and resources include the following efforts.

Conservation Education (Project Learning Tree)

Project Learning Tree (PLT) is an internationally recognized program that trains educators in innovative techniques for exploring a wide range of environmental concepts with students, and teaching critical thinking skills that lead to environmental stewardship (grades K-12). DOEE offers PLT training workshops free to those that request it. In FY 2016, DOEE staff conducted one educator workshop for 12 staff at the Barry Farm Recreation Center.

Figure 12- Students learning about water quality monitoring

Teacher Training Workshops

Workshops in environmental education provide teachers and informal educators with environmental curricula that support the District's teaching and learning standards, and provide students with meaningful environmental education experiences via outdoor activities and events. Teachers in the RiverSmart Schools program receive 16 seat hours of training on SWM designs and classroom lessons on sustainability. In FY 2016, 32 teachers participated in the training workshop and received education resource kits for their classrooms.

DC Environmental Literacy Plan

In July 2014, Mayor Vincent Gray signed into law the Sustainable DC Omnibus Amendment Act. One of its seven subtitles is the "Environmental Literacy Plan Adoption Act," which creates a new program and staff within OSSE to further develop and implement the Environmental Literacy Plan first developed under the Healthy Schools Act. In FY 2016, DOEE continued to collaborate with stakeholders to implement the District Environmental Literacy Plan. In partnership with nonprofit organizations, DOEE drafted an Environmental Literacy Framework for District schools, a grade-by-grade approach for integrating environmental education into the curriculum. Teachers from Sustainable DC Model Schools, which are exemplary schools that already include environmental programming, helped develop the framework as well as pilot the framework in FY 2016. This framework will help identify the best places in school curricula where DOEE programming will fit. This project will also coordinate Green Career Expos for high school students to learn about green jobs and summer internships.

District of Columbia Environmental Education Consortium (DCEEC)

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

In FY 2016 DOEE and DCEEC hosted their 10th annual D.C. Teacher's Night at the U.S. Botanic Garden. Over 200 teachers registered and those in attendance learned about environmental programming from approximately 30 exhibitors representing local environmental and science education organizations. The teachers met with local environmental educators for connection with environmental education opportunities both inside and outside the classroom. Participants also took part in hands-on experiments and left with lesson plans for their classrooms.

The District held its inaugural Growing Healthy Schools Month, which is the fusion of DC School Garden Week and DC Farm to School Week. Growing Healthy Schools Month 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 Month celebrates school gardens and farm-to-school programs throughout the District. During the month of October, school staff worked with DOEE, local nonprofits, 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. In FY 2016, the event theme was biodiversity and was held at Anacostia Park. With 14 schools, 435 students and 17 teachers, the participants performed the BioBlitz dance and surveyed the Park. Twenty-two environmental exhibitors conducted hands-on activities with the youth in a gallery rotating fashion.

Meaningful Watershed Educational Experiences (MWEEs)

As part of DOEE's sub-grant program, several initiatives were funded for nonprofit partners to create MWEEs for hundreds of District youth. In FY 2014 the grant program focused on students in Wards 7 and 8. Alice Ferguson Foundation and partners Living Classrooms of the National Capital Region and Nature Bridge began a pilot project in which fifth-grade students spend three days and two nights in a natural setting learning about the environment. In FY 2016, 1,776 fifth-grade students enrolled in District Public Schools and Public Charter Schools participated in the overnight MWEE program. The Alice Ferguson Foundation continues to administer this program in partnership with NatureBridge and Living Classrooms. FY 2016 saw a significant increase in participation in this program as more schools became aware of it, in addition to over 30 schools from FY 2015 that returned in FY 2016.

In addition to the overnight MWEE program, DOEE funds a trash-focused MWEE awarded a nonprofit partner, Live It Learn It, to offer day programming at local streams in Rock Creek and Nash Run. This program reached 300 students in FY 2016.

While the program has greatly expanded since 2014, the District has fallen short of the goal set in Table 5 Objective 2d. The shortfall can be explained for several reasons, including the following:

- There are only approximately 4,200 fifth graders in the District so the goal was never attainable;
- 2016 was only the second year the program was offered city-wide. Attaining 100 percent participation in two years is unrealistic; and
- Even if running well, the program could not be expected to reach 100 percent of the students because of absences and parents not signing permission slips.

DOEE proposes in future years to change the objective goal to 2,100 students annually.

RiverSmart Schools

RiverSmart Schools works with applicant 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 participate 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.

Figure 13- A rain garden and outdoor classroom at Ludlow Taylor Elementary

In FY 2016 WPD accomplished the following:

- Provided 27 teachers with a four-day workshop on RiverSmart schools site usage and programming;
- Conducted 15 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.

DOEE also completed the design and construction of five RiverSmart Schools projects:

- The J.O. Wilson Elementary School improvement project includes a rainwater harvesting system of three above-ground cisterns of 580 gallons capacity each, a 735 square-foot rain garden, an outdoor classroom, and nature education areas. The total drainage area is 9,485 square feet with 2,536 gallons of on-site retention achieved;
- Excel Academy installed stormwater practices and an outdoor classroom. The improvements include the construction of three rain gardens that treat 7,360 square feet and retain 5,395 gallons stormwater;
- The Ludlow-Taylor Elementary School schoolyard improvement includes the construction of bioretention areas, stormwater planters, raised vegetable garden beds, and outdoor education areas. The total area treated is 11,526 square feet with 9,351 gallons of stormwater retained per the 1.2-inch storm event;
- An 800 square-foot conservation landscape garden was installed at the Capital City Public Charter School. The project includes an outdoor classroom equipped with tree stumps for student seating and chalkboard for outdoor lessons on sustainability; and
- DOEE installed a 1,000 square-foot native pollinator garden at Sousa Middle School and provided the school tools for maintenance of the site.

Storm Drain Marker Program

In FY 2016, DOEE installed 341 storm drain markers throughout the District. DOEE has renewed its storm drain marking efforts and begun geo-locating every storm drain marked. Recognizing that the number of storm drains being marked has declined, DOEE is renewing its outreach efforts for this project in FY 2017.

Outreach on Pet Waste and Enforcement of Pet Waste Regulations

In FY 2016 DOEE received 465 pet waste complaints through an online form and 311 calls. All complaints are geolocated and mapped to identify potential hotspots to target for outreach. DOEE worked with DDOT to install approximately 1,500 pet waste signs across all eight wards in the District. DOEE also installed three pet waste bag dispensers as part of a pilot program run in coordination with a community group. DOEE continued to evaluate pet waste education and outreach efforts to improve public understanding of the issue, worked to better understand the pollution prevention achieved as a result, and will expand the pilot pet waste bag dispenser program by the end of FY 2017.

Integrated Pest Management and Nutrient Management (IPM)

Two years ago the District passed legislation restricting the application of fertilizer during certain times of the year, unless soil tests show fertilizer is needed. DOEE has developed a robust outreach and education program to educate commercial applicators, vendors of fertilizer products, and the general public about the new law. In addition to letters to commercial applicators and signs for businesses, DOEE educates homeowners through outreach on the web and in person. Homeowners participating in the RiverSmart Homes program learn about proper fertilizer use, environmentally sensitive mowing, IPM.

DOEE's IPM and nutrient management program is intended to inform the public about the proper use and disposal of pesticides and the use of safer alternatives. The program provides education and outreach activities to property owners and managers about environmentally-sound practices with regard to the use of pesticides in the yard or garden and the introduction of "good" pests into the landscape. Furthermore, the DOEE Pesticide Management program trains commercial applicators in the legal and safe application of pesticides and herbicides. Commercial applicators must receive a certification through the program to legally apply pesticides and herbicides in the District. A part of this program involves the use of IPM.

Figure 14- Results of a community trash cleanup

Anacostia River Explorers

Anacostia River Explorers are boat tours that educate the public about the Anacostia River through one- and two-hour motorized and canoe tours. Participants learn about the Anacostia River's human and natural history, the threats it faces, and what solutions are being undertaken to help the River realize its full potential as an invaluable asset for the District of Columbia and its residents. There are two grantees undertaking this work for the District and in FY 2016 they held 247 tours that reached 3,688 District residents and participants.

Community Stormwater Solutions Grants

In FY 2016, DOEE launched the Community Stormwater Solutions Grant program, which provides start-up funding for community-oriented projects that raise awareness about urban watershed issues, in particular those associated with stormwater runoff. In its inaugural year, the program awarded nine grants totaling 156,500 dollars. Projects must fall into one or more of the following project areas:

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

Trash Removal

In 2010, the District and the State of Maryland promulgated a total maximum daily load (TMDL) for trash for the Anacostia River. These loads were calculated based on stream and shoreline transect sampling performed by the Anacostia Watershed Society through a grant from DOEE. NPS loads were attributed to illegal dumping. For the District's portion of watershed, an annual load allocation totaling 20,048 pounds was assigned.

Some of the tools the District is applying to meet the goals of the trash TMDL include education and outreach, stream and shoreline clean-ups, new regulations, and enhanced enforcement. From 2014 through 2016, the Alice Ferguson Foundation (AFF) worked on a DOEE grant-funded project which included implementing an education and outreach campaign throughout the District's portion of the Anacostia River watershed. Through this two-year grant, AFF conducted a study to assess the effectiveness of the campaign on reducing trash loads to the Anacostia River. AFF reported a 31% reduction in littering as a result of implementing the campaign.

Every year, thousands of pounds of trash are removed from the District's shorelines and stream banks by volunteers. DOEE has supported the Annual AFF Potomac Watershed Clean-up and the Anacostia Watershed Society Earth Day Clean-up since their inception. AFF has developed an online GIS database to track cleanups that occur throughout the Potomac River watershed on an annual basis. Using this database, DOEE was able to determine the amount of trash removed from the District's watersheds by cleanup events in 2016. DOEE estimates that 71,365 pounds of trash were removed District-wide; 14,165 pounds were removed from the Rock Creek watershed; 11,414 pounds were removed from the Potomac River watershed; and 45,336 pounds were removed from the Anacostia River watershed. In addition, 2,341 volunteers were engaged through these cleanups.

Finally, as part of the Sustainable DC Omnibus Act of 2014, the District passed a ban on expanded polystyrene, more commonly referred to as Styrofoam. The Anacostia Watershed Society determined through their monitoring study conducted in 2008 that expanded polystyrene is one of the top four-most common types of trash found in the Anacostia River. The ban became effective January 1, 2016. The ban affects all food service businesses that sell prepared foods in expanded polystyrene containers. The ban does not apply to prepackaged Styrofoam. In District FY 2016 (October 1, 2015 – September 30, 2016), DOEE inspectors determined that 77.5 percent of District businesses were in compliance with the ban.

Table 4 - Tracking activities that aim to prevent NPS pollution from individual actions, by carrying out effective information and education campaigns

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 1d: To reach 1,000 school students annually with hands-on environmental education activities (DOEE, DCPS)	Milestone 1: Reach 1,000 school students in the first year	**Number of students participating in hands on environmental education**				
		1,297	1,241	2,100	7,000	66%
Objective 2d: To support 2,100 school students annually through an overnight meaningful watershed education experience	Milestone 1: Reach 2,100 school students in the first year	**Number of students participating in overnight meaningful watershed experience**				
		696	821	1,776	14,700	22%
Objective 3d: To install BMPs on three schoolyards per year	Milestone 1: Install BMPs at three schoolyards annually	**Number of BMPs installed**				
		3	5	5	21	62%
		Square feet treated				
		183,607	127,278	28,371	N/A	N/A
		Volume captured (cubic feet)				
		12,713	8,839	2,310	N/A	N/A
		Estimated load reductions				
					N/A	N/A
Objective 4d: To train 10 teachers annually through training that integrates hands-on watershed education with system-wide standards of learning	Milestone 1: Train 10 teachers annually	**Number of teachers trained**				
		107	27	44	70	134%
	Milestone 2: Have watershed education fully immersed in standards of learning so that sponsor trainings are no longer necessary by 2025	**Incorporation of watershed education into curriculum**				
		1 Learning Standards Complete	1 Learning Standards Complete	1 Learning Standards Complete	N/A	N/A

Goal Five – Implement Programs That Aim to Increase NPS Pollution Runoff Prevention Practices on Private Property

Private property, including commercial, residential, and nonprofit lands (religious and academic institutions), is the single largest land use in the District. These lands are one of the primary sources of pollution to District waterways, contributing pollutants through combined sewer overflow events and urban stormwater runoff.

One of the greatest needs and challenges for the District is to reduce water pollution by incentivizing retrofits at the individual property level. The District has recognized that without convincing property owners to adopt NPS pollution prevention techniques on their lands, it will be difficult to achieve its water pollution reduction goals. As such, the District has developed a variety of programs, including incentives to encourage property owners to adopt NPS pollution reduction techniques. These efforts include an LID retrofit grant program and the following list of RiverSmart programs:

- RiverSmart Rooftops (Green Roof Rebate/Retrofit Program)
- RiverSmart Communities
- RiverSmart Homes
- RiverSmart Rebates for cisterns, impervious surface reduction, rain gardens and trees

Figure 15– A RiverSmart Rooftops install

RiverSmart Rooftops (Green Roof Rebate/Retrofit Program)

Historically, the District has offered a rebate for installation of a green roof on a new building or the retrofit of an existing roof. Programs offered through DOEE provided varying rebate amounts with varying constraints. In 2012, DOEE restructured this rebate program to offer a single application process with a set rebate of five dollars per square foot regardless of the roof size. In early 2013, the rebate program continued to offer a single application process with a rebate of five dollars per square foot. Participation in the program was less than predicted, so DOEE has increased the rebate amount to seven dollars per square foot. DOEE has also identified priority watersheds throughout the District, in which it is implementing a concentrated suite of stormwater practices through programs such as RiverSmart Schools, RiverSmart Homes, RiverSmart Communities, and RiverSmart Rooftops.

DOEE awarded a new grant for administration of the RiverSmart Rooftops program in October 2014. The current program offers a 10 dollars per-square-foot rebate throughout the District, and 15 dollars per-square-foot in priority watersheds.

To date, the RiverSmart Rooftops Rebates program has contributed $1,681,774.75 towards the installation of 396,503 square feet of green roof in the District. In FY 2016, the District added 249,991 square feet of green roof to its portfolio. These projects were funded both publicly and privately, and

DOEE's rebate program funded 22,137 square feet, or approximately nine percent of all green roofs installed District-wide over the reporting time period.

RiverSmart Communities Program

The RiverSmart Communities program implements SWM practices at multi-family complexes (e.g., condominiums, apartments, co-ops), businesses, religious and nonprofit institutions, and other private properties. Typical practices include permeable paving systems, bioretention, rain gardens, BayScaping, and tree planting. The program provides rebates to partially reimburse project costs to property owners. For a limited number of high-value projects the program designs, constructs, and directly pays for 100% of the project.

In FY 2016, the RiverSmart Communities program completed 39 site audits at cooperatives, condominiums, apartments, businesses, and churches and completed nine rebate projects and three design build projects. The projects included BayScaping, impervious surface removal, bioretention, and permeable pavement projects and treat 13,011 square feet of District lands. The 39 audits is above the goal of new goal of 30 audits annually for this program (see Table 5, Objective 2e). Audits are requested by property owners so the number performed is highly dependent on interest. As funds for this program are limited, there are not enough to install projects at such a high number of properties.

RiverSmart Homes Program

The District has recognized the importance of targeting homeowners for pollution reduction measures because residential property is the largest single land use in the city and, because of the relatively small lot sizes, is the least likely to be required to install SWM practices. In 2008 DOEE developed RiverSmart Homes, and LID retrofit program aimed at District single-family homes. The program started with eight demonstration sites, one in each of the District's wards. It then expanded to a pilot program in the Pope Branch watershed and has been open to all District residents since summer of 2009.

Figure 16– BayScaping and the new rain barrel type offered by RiverSmart Homes

Through this program, DOEE performs audits of homeowner's properties and provides feedback to the homeowners on what LID technologies can be safely installed on the property. DOEE also offers homeowners subsidized installations of any LID recommended at the audit, which can include shade trees, native landscaping to replace grass, rain gardens, rain barrels, and permeable pavement.

DOEE made a few substantial changes to RiverSmart Homes in FY 2016 to enrich homeowners' participation. The program increased incentives from 1,600 dollars per property to 3,000 dollars total per property, began offering a new rain barrel type for installation (see Figure 17), and changed the incentive for permeable pavement from a grant to a 10 dollars per-square-foot rebate. The program has continued in popularity with an average of 100 homeowners registering per month.

FY 2016 accomplishments include the following:

- Installed 354 rain barrels
- Planted 738 shade trees
- Installed 44 rain gardens

- Implemented BayScaping at 110 properties
- Replaced impervious surfaces with green space or pervious pavers at 63 properties
- Conducted 1,032 audits

The District notes that the number of rain barrels it installed is short of its goal (see Table 5, Objective 5e). The District's grantee for the rain barrel installation grant went out of business in 2015 and DOEE had to scramble to start a new grant, which did not start in earnest until late spring 2016. The District anticipates that the number of rain barrels installed in FY 2017 will return to pre-2015 levels.

Figure 17- A newly installed permeable pavement project

Rain Barrel Rebate Program

Property owners who purchase and install a rain barrel from an approved rain barrel list are able to apply for a rebate. In response to losing its grantee for rain barrel installations in FY 2015, DOEE increased the rebate for rain barrels from one dollar per gallon stored to two dollars per gallon stored, up to 1,000 dollars. This change ensured DOEE was able to continue offering an incentive for its most popular LID option. The rebate program includes conducting outreach to advertise the program through traditional channels and through innovative approaches, (e.g., partnerships with local hardware stores). Sixty-one rain barrels were installed and rebated in FY 2016, with an average capacity of 150 gallons each.

Rain Garden, Pervious Paver, and Impervious Surface Reduction Rebate

Any single-family homeowner in the District is eligible for the rain garden, pervious paver, and impervious surface reduction rebate, including homeowners who have already received funding through the RiverSmart Homes program. DOEE also made changes to this program in FY 2016. For permeable pavement and impervious surface reduction projects, DOEE changed the rebate to be based on the square footage of impervious area removed and replaced, rather than the square footage of impervious area treated with the retrofit. DOEE's rebate for rain gardens is still based on the square foot age of impervious area treated by the garden. Impervious areas are defined as rooftops or areas that are covered in concrete, asphalt, or other impervious materials.

The rebate reimburses homeowners 10 dollars per square foot of impervious surface removed and replaced with permeable pavement. The rebate is five dollars per square foot of impervious surface removed and replaced with vegetation. There is no maximum square footage or rebate for permeable pavement and vegetation retrofits. The rebate for rain gardens is three dollars per square foot of treatment area with a maximum rebate of 2,200 dollars per property. In FY 2016, 51 rebates were issued treating 35,409 square feet of impervious surface.

RiverSmart Efforts in Bloomingdale

Bloomingdale is an area of the District with historic flooding issues. After the neighborhood was impacted by a series of flood events in the summer of 2012, the mayor created a multi-agency taskforce to develop a plan to address flooding through short- and long-term projects. DOEE has played an integral role in this effort.

Short-Term Measures – With funding from DC Water, DOEE spearheaded the fast-track action of deployment of cisterns in the sewershed draining to the Bloomingdale neighborhood. In order to guarantee that the appropriate size and type of barrel is installed and also to ensure proper usage by residents, DOEE began conducting stormwater audits of properties in September of 2012 and continued through 2013. Over 200 audits were completed and 125 cisterns were installed in this targeted area. Under ideal maintenance scenarios, approximately 30,000 gallons can be captured during every large rain event through this implementation project.

Figure 18- A homeowner watering a newly-planted Southern Magnolia tree through RiverSmart Homes

As part of the audit, DOEE educated homeowners on the need to empty the barrels prior to each rainstorm. During the installation process, additional education was delivered by DOEE's nonprofit partner at the time, DC Greenworks, who spoke to homeowners about proper usage of cisterns.

Medium-Term Measures – The cistern installations were a rapid-response effort in the project area. As a second step in installing targeted LID, DOEE offered higher rebate amounts for green roofs, permeable pavers, and impervious surface removal in the sewershed. Residents who live in this sewershed were eligible to receive a 15 dollars per-square-foot rebate for green roofs and a 10 dollars per-square-foot rebate for permeable pavers. A five dollars per-square-foot rebate was also available for homeowners who removed driveways and patios and replaced them with vegetation. Twenty-three rebates were issued and 25,023 square feet were treated under the targeted program in FY 2016.

Tree Planting

The District of Columbia has been called "The City of Trees." It has a tree canopy cover of 35 percent, which is high for a dense urban environment, but lower than what the canopy cover has been historically, even when the city had a higher population density. In an effort to improve air and water quality, reduce the urban heat island effect, and offset greenhouse gas emissions, the District has adopted a 40-percent tree canopy goal. Mayor Bowser has adopted a Sustainability Plan that calls for achieving the canopy goal by 2032. To achieve that goal the District will need to plant an average of 10,800 trees annually (an increase of 25 percent over current efforts). Currently the Urban Forestry Administration, the agency that maintains the District's street trees, plants an average of 6,225 trees annually.

DOEE, with help from nonprofit partners such as Casey Trees and Washington Parks and People, plants trees on private, federal, and other District lands. FY 2016 accomplishments include the following:

- Planted 738 trees as part of the RiverSmart Homes and Tree Rebate Program
- 766 trees were planted on parks and school lands and 160 planting plans for these parcels were created as a part of a special effort to increase tree canopy in these areas
- 14,700 trees were planted District-wide

University of the District of Columbia East Capitol Urban Farm

In September 2015, over 1,000 volunteers worked to build the East Capitol Urban Farm—the culmination of three years of planning and partnering by public, private, and community partners. In 2014, the DC Housing Authority signed a three-year lease with UDC's College of Agriculture, Urban Sustainability, and Environmental Sciences to operate a transitional farm on three acres of land in a lower-income area of Southeast DC, located at the intersection of East Capitol Street and Southern Avenue.

With the cooperation of the Urban Waters Federal Partnership, DOEE will be enhancing SWM and installing educational signage related to SWM and healthy watersheds at the East Capitol Urban Farm. The project will result in educating the local community about the role SWM plays in protecting watersheds and improving water quality in local waterways. DOEE awarded a sub-grant to American Forests in FY 2016 to accomplish this project, which will be completed in spring 2017. More information can be found at https://www.epa.gov/urbanwaterspartners/east-capitol-urban-farm-factsheet.

Table 5 - Tracking activities that aim to increase NPS pollution runoff prevention practices on private property

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 1e: To audit 1,000 residential properties per year	Milestone 1: 1,000 audits annually	**Number of residential homes audited**				
		1,117	1,071	1,032	7,000	46%
Objective 2e: To audit 150 multi-family and commercial properties per year	Milestone 1: 30 audits annually	**Number of multi-family and commercial properties audited**				
		31	34	30	150	63%
Objective 3e: To plant 750 trees per year on private property	Milestone 1: 750 trees planted in first year	**Number of trees planted on residential properties**				
		972	943	962	5,250	55%
		Estimated canopy expansion/acreage of canopy				
		9.72	9.43	9.62	N/A	N/A
Objective 4e: To plant 8,600 tree per year in public space	Milestone 1: 8,600 trees planted annually	**Number of trees planted in public space**				
		9,560	14,700	9,893	51,600	66%
		Estimated canopy expansion/acreage of canopy				
		95.6	147.0	989	N/A	N/A
Objective 5e: To install 900 rain barrels per year on residential homes	Milestone 1: 900 rain barrels installed annually	**Number of rain barrels installed**				
		475	595	354	6,300	23%
		Estimated volume of rainwater captured (gallons)				
		1,934,695	2,423,435	1,441,842	N/A	N/A
Objective 6e: To install 100 rain gardens per year at residential homes	Milestone 1: Install 100 rain gardens per year (DOEE, Nonprofits)	**Number of rain gardens installed**				
		138	133	76	700	50.0%
		Area treated (square feet)				
		61,392	59,850	29,700	N/A	N/A
		Volume captured (gallons)				
		531,605	1,160,691	383,988	N/A	N/A

Targeted Watershed Work

DOEE has targeted watersheds in the District for focused LID and stream restoration work. In an effort to delist downstream waterbodies and/or resolve local issues such as flooding and erosion, DOEE has three such targeted efforts: the Texas Avenue watershed, the Hickey Run watershed, and the Nash Run watershed. These watersheds were selected using several criteria including the following:

- The targeted watersheds are within areas that have EPA-approved WIPs;
- The work planned in the watershed address the watershed impairments;
- The planned projects protect and improve both ecosystem and human health;
- The efforts planned aid in connecting District residents with the environment; and
- The projects are coordinated with other infrastructure projects such as roadway or sewer enhancements.

Figure 19- A degraded outfall in the Texas Avenue watershed

Texas Avenue Targeted Watershed

The Alger Park upland LID and stream restoration project lies within the Texas Avenue tributary of the Anacostia River. DOEE is using local dollars to leverage a National Fish and Wildlife Foundation grant and Clean Water State Revolving Funds to implement large- scale upland LID work in the Texas Avenue watershed, specifically in the area that drains into Alger Park.

The designs were completed for the Alger Park Stream Restoration project, advertised for bids, and a contractor was selected in FY 2016. Project work is expected to begin and be completed in FY 2017. DOEE is also partnering with DDOT to ensure that upland areas in public space are retrofitted with LID projects to reduce the volume and velocity of stormwater that enters the Texas Avenue storm sewer system. In FY 2016, DDOT completed 30-percent designs for the upland LID and plan on completing designs in FY 2017, with LID construction work to take place in FY 2018. The final component of work in Texas Avenue watershed is a community outreach, education, and engagement campaign led by DOEE's RiverSmart Homes program, focused on retrofitting private homes in the Hillcrest neighborhood in Ward 7. The goals of the program are to contact 100 percent of the watershed residents, perform audits on 50 percent of the homeowner properties, and install at least two RiverSmart practices on 25 percent of the properties audited. As the stream project commences construction in FY 2017, DOEE plans on re-engaging and recruiting more homeowners for the RiverSmart Homes program in the Hillcrest neighborhood.

In FY 2016, DOEE participated in five community meetings to update and educate residents about the impending stream restoration project. Additionally, DOEE co-led a cleanup of Alger Park on Earth Day with the Hillcrest Community Civic Association for the third year in a row. DOEE will continue to promote the RiverSmart Homes program and to recruit new participants in the Hillcrest neighborhood. To date, two percent of the watershed's load reductions have been achieved through stormwater retrofits (see

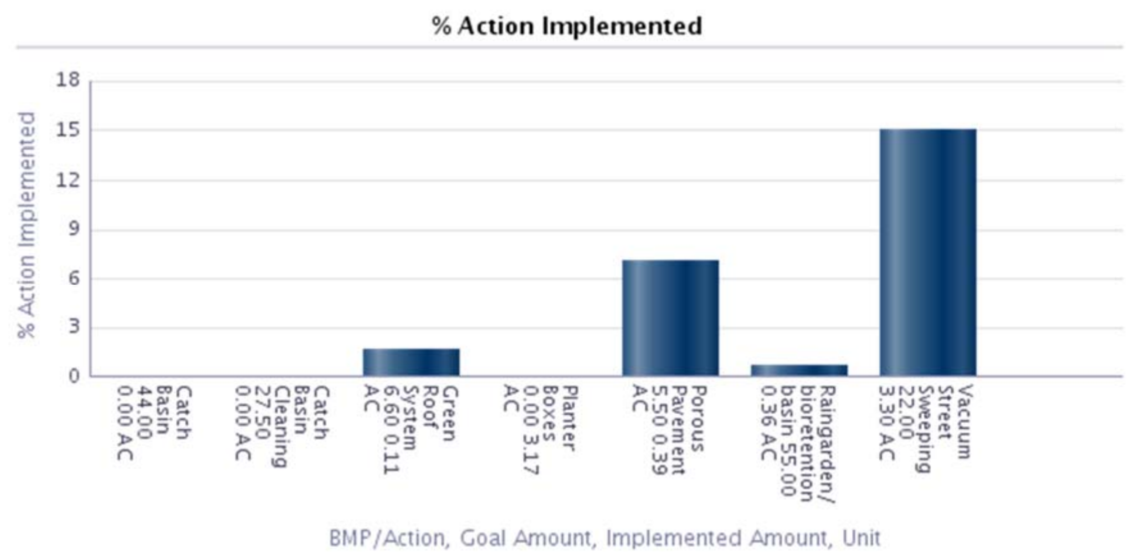

Figure 20- Percent of Goal Achieved for Tracked BMPs in Texas Avenue Tributary

Figure 21).

Table 6 - Tracking activities that reduce in-stream bank erosion, upland runoff, and pollutant loads to the Texas Avenue Tributary

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 1: To stabilize and enhance the habitat conditions in a 1,530-foot stretch of stream in the Texas Avenue watershed.	Milestone 1: Survey and assess the watershed and stream valley to establish baseline conditions	**Number reports developed**				
		1	N/A	N/A	1	100%
	Milestone 2: Develop a design report with recommendations for optimal restoration work	**Number of design reports developed**				
		1	N/A	N/A	1	100%
	Milestone 3: Develop 100-percent plans for stream enhancement work	**Number of stream restoration plan sets developed**				
		0	1	N/A	1	100%
Objective 2: To maximize treatment and storage of impervious runoff in the public space in the 35-acre watershed that drains into Alger Park	Milestone 1: Survey and assess the upland areas of the watershed for potential LID installations in public space	**Number survey reports developed**				
		1	N/A	N/A	1	100%
	Milestone 2: Develop design plan sets for LID work in the public space	**Number of LID plan sets developed**				
		1	N/A	N/A	1	100%
	Milestone 3: Install LID projects in public space throughout the watershed	**Number of LIDs installed**				
		1	0	0	N/A	N/A
		Acres treated				
		0.2	0	0	N/A	N/A

Table 7 - Continued

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 3: To maximize treatment and storage of impervious runoff on private property in the 35-acre watershed that drains into Alger Park	Milestone 1: Contact homeowners in the watershed and provide information about the RiverSmart Homes program	**Number of homes reached with information**				
		132	N/A	N/A	132	100%
	Milestone 2: Audit homes in the watershed	**Number of homes audited**				
		59	20	1	66	121%
	Milestone 3: Plant trees on private property	**Number of trees planted**				
		19	2	65	N/A	N/A
		Estimated reduction volume (gallons)				
		20,368	2,144	69,680	N/A	N/A
	Milestone 4: Install rain barrels on private property	**Number of rain barrels installed**				
		22	3	2	N/A	N/A
		Area treated (square feet)				
		4,092	558	372	N/A	N/A
		Estimated volume reduction (gallons)				
		39,727	5,417	3,611	N/A	N/A
	Milestone 5: Install permeable pavers on private property	**Number of projects installed**				
		0	0	1	N/A	N/A
		Area treated (square feet)				
		0	0	1,117	N/A	N/A
		Estimated volume reduction				
		0	0	10,835	N/A	N/A
	Milestone 6: Install rain gardens on private property	**Number of projects installed**				
		1	1	0	N/A	N/A
		Area treated (square feet)				
		408	325	0	N/A	N/A
		Estimated volume reduction				
		3,967	3,152	0	N/A	N/A

Hickey Run Targeted Watershed

The Hickey Run watershed has been targeted for restoration based on historic commercial and residential pollution impacting stream water quality. Impervious surfaces, one of the main pollutant contributors to Hickey Run, comprise approximately 41 percent of the watershed, making Hickey Run one of the most impervious of the Anacostia River's subwatersheds.

Over the past several years, DOEE has worked with local schools, libraries, parks, artists, students, and residents to clean up Hickey Run by hosting events to engage a wide range of people within the watershed to maximize the installation of LID.

In order to make a significant difference in the Hickey Run watershed, the District's goal was to install RiverSmart features in at least 25 percent of the watershed (385 homes). By the end of FY 2015 DOEE recruited 230 participants (60 percent of its goal). In order to achieve its goal, DOEE doubled the incentive available to homeowners through RiverSmart Homes by offering 2,400 dollars toward rain gardens and BayScaping on each property in the watershed.

Figure 21– Material being stockpiled for the Springhouse Run construction

An additional incentive offered to homeowners to adopt RiverSmart practices was to design and construct a "green street" on the block in the Hickey Run watershed with the highest RiverSmart Homes adoption rate. In 2015 DOEE selected the winning green street, which had a 100 percent participation rate. DOEE hosted a community meeting with the winning block and began developing the scope of work for the project. In 2016 DOEE worked to contract the design and construction of this project. Design will take place in FY 2017 and construction will commence in FY 2018.

DOEE is working to upgrade the Hickey Run trash trap located at the primary outfall to Hickey Run. DOEE developed a scope of work for this effort in FY 2016 and contracting will be complete in FY 2017. The upgrades will improve the efficiency of the BMP and increase its capacity.

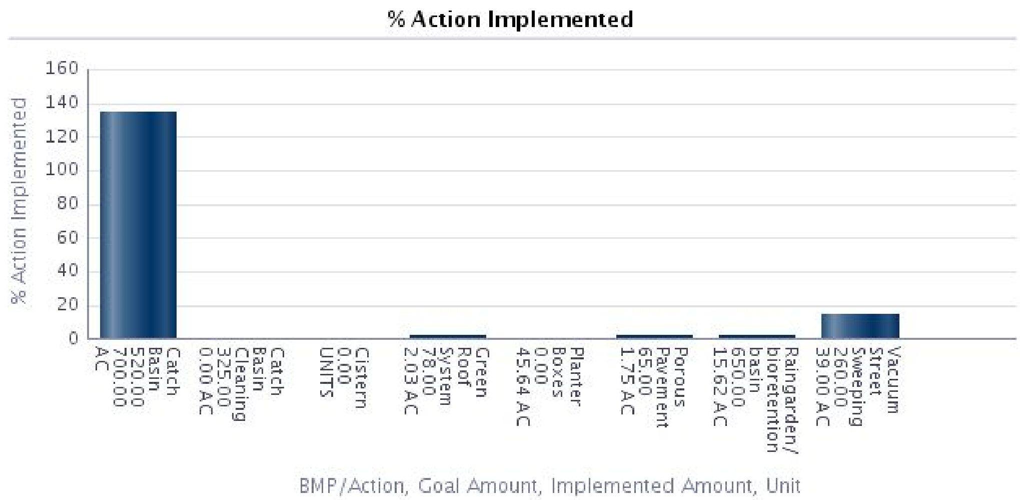

Figure 22- Percent of Goal Achieved for Tracked BMPs in Hickey Run

In addition to the upland LID work, DOEE is working to restore the mainstem of Hickey Run and a side tributary called Springhouse Run. In FY 2015, DOEE worked on contracting the construction of the stream restoration for Springhouse Run. DOEE also worked to secure funds to study the extent of contaminated soils in the mainstem of Hickey Run. In FY 2016 DOEE issued a contract for the construction of the Springhouse Run restoration project, which includes retrofitting the U.S. National Arboretum visitor parking lot with five bioretention facilities. This project will be completed by the summer of 2017. DOEE will work on contracting a contamination study for Hickey Run. To date, 41 percent of the watershed's load reductions have been achieved through stormwater retrofits (see Figure 23).

Table 7 - Tracking activities that reduce in-stream bank erosion, upland runoff, and pollutant loads to Hickey Run

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 1: To maximize treatment and storage of impervious runoff on private property in the 600-acre watershed that drains to Hickey Run	Milestone 1: Reach all homes in the watershed with information about the RiverSmart Homes program	**Number of homes reached with information**				
		1,543	Complete	Complete	N/A	N/A
	Milestone 2: Audit homes in the watershed	**Number of homes audited**				
		200	30	20	N/A	N/A
	Milestone 3: Plant 300 trees on private property	**Number of trees planted**				
		78	24	805	300	302%
		Estimated reduction volume (gallons)				
		83,616	25,728	862,960	N/A	N/A
	Milestone 4: Install 100 rain barrels on private property	**Number of rain barrels installed**				
		143	45	14	100	202%
		Estimated volume reduction (gallons)				
		258,224	81,259	25,281	N/A	N/A
	Milestone 5: Install 10 permeable paver projects on private property	**Number of projects installed**				
		10	0	5	N/A	N/A
		Area treated (square feet)				
		2,090	0	5,586	N/A	N/A
	Milestone 6: Install rain gardens on private property	**Number of projects installed**				
		17	21	24	N/A	N/A
		Area treated (square feet)				
		6,936	1,050	313,009	N/A	N/A
		Estimated volume reduction (gallons)				
		67,279	10,185	3,036,178	N/A	N/A

Table 8 - Continued

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 2: To maximize treatment and storage of impervious runoff in the public space of the 600-acre Hickey Run watershed	Milestone 1: Survey and assess the upland areas of the watershed for potential LID installations in public space	**Number survey reports developed**				
		1	N/A	N/A	1	100%
	Milestone 2: Develop design plan sets for LID work in public space	**Number of LID plan sets developed**				
		1	N/A	N/A	1	100%
	Milestone 3: Install LID projects in public space in areas throughout the watershed	**Number of LIDs installed**				
		2	10	31	N/A	N/A
		Acres treated				
		6.2	12.48	7.2	N/A	N/A
Objective 3: To stabilize and enhance the habitat conditions in an 1,800-foot stretch of stream (Springhouse Run) that is a tributary to Hickey Run.	Milestone 1: Survey and assess the watershed and stream valley to establish baseline conditions	**Number reports developed**				
		1	N/A	N/A	1	100%
	Milestone 2: Develop a design report with recommendations for optimal restoration work	**Design Reports Developed**				
		1	N/A	N/A	1	100%
	Milestone 3: Develop 100% plans for stream enhancement work	**Stream Restoration Plan Sets Developed**				
		1	N/A	N/A	1	100%
	Milestone 4: Issue a contract for stream restoration work	**Restoration Contracts Issued**				
		0	0	1	1	100%
	Milestone 5: Implement stream restoration work	**Feet of Stream Length Restored**				
		0	0	0	1,800	0%
	Milestone 6: Riparian plantings along stream banks	**Acres of Riparian Plantings**				
		0	0	0	N/A	N/A
		Number of Trees Planted				
		0	0	0	N/A	N/A

Table 8 - Continued

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 4: To stabilize and enhance the habitat conditions of the mainstem of Hickey Run, a 5,000-foot tributary of the Anacostia River.	Milestone 1: Survey and assess the watershed and stream valley to establish baseline conditions	**Number reports developed**				
		0	0	0	1	0%
	Milestone 2: Develop a design report with recommendations for optimal restoration work	**Design Reports Developed**				
		0	0	0	1	0%
	Milestone 3: Develop 100% plans for stream enhancement work	**Stream Restoration Plan Sets Developed**				
		0	0	0	1	0%
	Milestone 4: Issue a contract for stream restoration work	**Restoration Contracts Issued**				
		0	0	0	1	0%
	Milestone 5: Implement stream restoration work	**Feet of Stream Length Restored**				
		0	0	0	5,000	0%
	Milestone 6: Riparian Plantings along stream banks	**Acres of Riparian Plantings**				
		0	0	0	N/A	N/A
		Number of Trees Planted				
		0	0	0	N/A	N/A

Nash Run Targeted Watershed

Nash Run is a tributary of the Anacostia River whose mouth is a series of interlocking marsh ponds inside the grounds of the Kenilworth Aquatic Gardens. The upper portion of this tributary originates from storm drain discharges in Prince George's County, Maryland. Nash Run's watershed measures approximately 0.7 square miles (460 acres).

Figure 23– A community ribbon cutting for the Nash Run stream restoration project

In FY 2016, DOEE completed the stream restoration project at Nash Run. The stream restoration project involved the removal of over 11,000 cubic yards of soil from the project area for the creation of a low floodplain bench along the stream. In total the project restored 1,400 feet of stream, created 1.08 acres of a floodplain wetland along the stream, constructed two new culvert pipes midway through the project to help reduce flooding in the community, and installed a floatable trash trap to capture floatable trash at the beginning of the project reach. Additionally, over 1,000 herbaceous plants and grasses were planted along with 99 native trees.

Throughout the project's construction DOEE staff worked with area residents to address concerns and answer questions about the project. The agency continues to seek locations for larger upland LID projects on District parkland, school grounds, and on large private parcels through the RiverSmart Communities

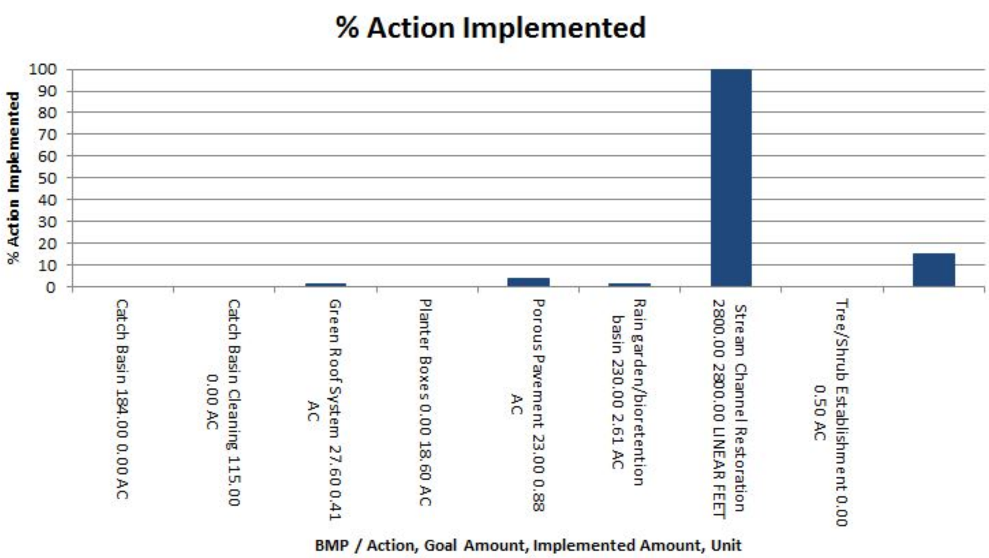

Figure 24- Percent of Goal Achieved for Tracked BMPs in Nash Run

program. DOEE already has a grant in place for post-restoration monitoring of the Nash Run project, which will help determine if the project will achieve its restoration goals. To date three percent of the watershed's load reductions have been achieved through stormwater retrofits (see Figure 25).

Table 8 - Tracking Activities that reduce stream bank erosion, upland runoff, and pollutant loads to the Nash Run Tributary

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 1: To stabilize and enhance the habitat conditions of the mainstem of Nash Run, a 1,400-foot tributary of the Anacostia River.		**Number reports developed**				
	Milestone 1: Survey and assess the watershed and stream valley to establish baseline conditions	1	N/A	N/A	1	100%
		Design Reports Developed				
	Milestone 2: Develop a design report with recommendations for optimal restoration work	1	N/A	N/A	1	100%
		Stream Restoration Plan Sets Developed				
	Milestone 3: Develop 100-percent plans for stream enhancement work	1	N/A	N/A	1	100%
		Restoration Contracts Issued				
	Milestone 4: Issue a contract for stream restoration work	0	1	N/A	1	100%
		Feet of Stream Length Restored				
	Milestone 5: Implement stream restoration work	0	0	1,400	1,400	100%
		Acres of Riparian Plantings				
	Milestone 6: Riparian Plantings along stream banks	0	0	1	1	100%
		Number of Trees Planted				
		0	0	99	N/A	N/A
Objective 2: To maximize treatment and storage of impervious runoff in public space of the 460-acre watershed that drains into Nash Run		**Number of survey reports developed**				
	Milestone 1: Survey and assess the upland areas of the watershed for potential LID installations in public space	0	0	0	1	0%
		Number of LID plan sets developed				
	Milestone 2: Develop design plan sets for LID work in public space	0	0	0	1	0%
		Number of LIDs installed				
	Milestone 3: Install LID projects in public space in areas throughout the watershed	0	6	11	N/A	N/A
		Number of acres treated				
		0	3.86	4.5	N/A	N/A

Table 9 - Continued

OBJECTIVES	MILESTONES	2014	2015	2016	2020 Goal	% 2020 Goal Achieved
Objective 3: To maximize treatment and storage of impervious runoff on private property in the 460-acre watershed that drains into Nash Run	Milestone 1: Reach homes in the watershed with information about the RiverSmart Homes program	**Number of homes reached with information**				
		46	7	3	N/A	N/A
	Milestone 2: Audit homes in the watershed	**Number of homes audited**				
		46	7	3	N/A	N/A
	Milestone 3: Plant trees on private property	**Number of trees planted**				
		19	12	480	N/A	N/A
		Estimated reduction volume (gallons)				
		20,368	12,864	514,560	N/A	N/A
	Milestone 4: Install rain barrels on private property	**Number of rain barrels installed**				
		15	13	0	N/A	N/A
		Estimated volume reduction (gallons)				
		27,086	23,475	0	N/A	N/A
	Milestone 5: Install permeable pavers on private property	**Number of projects installed**				
		0	0	2	N/A	N/A
		Area treated (square feet)				
		0	0	14,928	N/A	N/A
		Estimated volume reduction (gallons)				
		0	0	13,390	N/A	N/A
	Milestone 6: Install rain gardens on private property	**Number of projects installed**				
		5	1	3	N/A	N/A
		Area treated (square feet)				
		2040	400	179,927	N/A	N/A
		Estimated volume reduction (gallons)				
		19,836	3,880	141,232	N/A	N/A

Table 9 - Annual runoff volume and load reductions associated with the FY 2016 BMP inventory for the District of Columbia

Watershed	Annual Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium1 (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	TPCB (lbs)	E. coli (Billion MPN)
Anacostia	18,976,831	582.59	67.20	13,130.9	10,835	5,713	603.0	2.6E-01	9.1E+00	2.8E+00	3.1E+00	3.2E-02	2.1E+01	1.6E-03	5.2E-04	2.3E-03	6.0E-03	4.6E-05	1.5E-04	1.0E-01	6.9E-01	1.4E-02	4,348.6
Anacostia Lower	5,165,552	148.41	17.03	3,336.0	2,786	1,549	157.4	6.8E-02	2.4E+00	7.2E-01	7.9E-01	8.4E-03	5.4E+00	4.3E-04	1.3E-04	6.0E-04	1.5E-03	1.3E-05	4.1E-05	2.8E-02	1.8E-01	3.6E-03	1,118.2
Anacostia Upper	13,811,279	434.17	50.17	9,794.8	8,049	4,163	445.6	1.9E-01	6.8E+00	2.1E+00	2.3E+00	2.4E-02	1.6E+01	1.2E-03	3.8E-04	1.7E-03	4.4E-03	3.3E-05	1.1E-04	7.6E-02	5.1E-01	1.0E-02	3,230.5
ANATF_DC	14,809,237	453.92	52.68	10,086.8	8,625	4,371	495.1	2.1E-01	7.2E+00	2.3E+00	2.5E+00	2.6E-02	1.7E+01	1.3E-03	4.1E-04	1.9E-03	4.7E-03	3.6E-05	1.2E-04	8.2E-02	5.4E-01	1.1E-02	3,461.3
ANATF_MD	3,714,882	109.55	12.59	2,498.9	2,073	1,131	113.2	5.1E-02	1.8E+00	5.4E-01	5.9E-01	6.2E-03	4.0E+00	3.1E-04	9.9E-05	4.5E-04	1.1E-03	9.0E-06	3.0E-05	2.0E-02	1.3E-01	2.7E-03	832.1
Battery Kemble Creek	152,474	4.34	0.50	55.8	81	36	4.3	2.0E-03	6.9E-02	2.1E-02	2.3E-02	2.5E-04	1.3E-01	1.3E-05	3.9E-06	1.7E-05	4.5E-05	3.7E-07	1.2E-06	8.4E-04	5.3E-03	1.0E-04	32.6
Broad Branch	1,798,133	79.80	9.24	1,489.3	1,395	456	62.3	3.2E-02	1.1E+00	3.8E-01	4.1E-01	3.9E-03	2.3E+00	1.7E-04	6.5E-05	3.0E-04	7.6E-04	4.4E-06	1.4E-05	1.0E-02	7.5E-02	1.7E-03	559.8
C&O Canal	528,637	14.65	1.68	185.6	274	124	14.8	6.8E-03	2.3E-01	7.0E-02	7.7E-02	8.4E-04	4.5E-01	4.3E-05	1.3E-05	5.9E-05	1.5E-04	1.3E-06	4.2E-06	2.9E-03	1.8E-02	3.6E-04	109.9
Dalecarlia Tributary	1,177,608	32.99	3.78	420.1	616	276	32.9	1.5E-02	5.2E-01	1.6E-01	1.7E-01	1.9E-03	1.0E+00	9.7E-05	3.0E-05	1.3E-04	3.4E-04	2.9E-06	9.4E-06	6.5E-03	4.1E-02	8.0E-04	247.3
Dumbarton Oaks	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenwick Branch	24,960	0.69	0.08	12.4	13	5	0.9	3.2E-04	1.1E-02	3.3E-03	3.6E-03	4.0E-05	2.1E-02	2.0E-06	6.3E-07	2.8E-06	7.1E-06	6.0E-08	2.0E-07	1.4E-04	8.7E-04	1.7E-05	5.2
Fort Chaplin Tributary	12,959	0.36	0.04	7.9	7	4	0.4	1.7E-04	5.7E-03	1.7E-03	1.9E-03	2.1E-05	1.3E-02	1.1E-06	3.2E-07	1.4E-06	3.7E-06	3.1E-08	1.0E-07	7.1E-05	4.5E-04	8.7E-06	2.7
Fort Davis Tributary	4,295	0.12	0.01	2.6	2	1	0.1	5.5E-05	1.9E-03	5.7E-04	6.3E-04	6.8E-06	4.3E-03	3.5E-07	1.1E-07	4.8E-07	1.2E-06	1.0E-08	3.4E-08	2.4E-05	1.5E-04	2.9E-06	0.9
Fort Dupont Tributary	3,172	0.09	0.01	1.9	2	1	0.1	4.1E-05	1.4E-03	4.2E-04	4.6E-04	5.0E-06	3.2E-03	2.6E-07	7.9E-08	3.5E-07	9.1E-07	7.7E-09	2.5E-08	1.7E-05	1.1E-04	2.1E-06	0.7
Fort Stanton Tributary	679,363	18.83	2.16	415.9	352	204	20.7	8.7E-03	3.0E-01	9.0E-02	-	1.1E-03	6.9E-01	5.6E-05	1.7E-05	7.5E-05	1.9E-04	1.6E-06	5.4E-06	3.7E-03	2.4E-02	4.6E-04	141.2
Foundry Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hickey Run	1,773,893	50.73	5.82	1,140.0	955	540	54.1	2.3E-02	8.1E-01	2.5E-01	2.7E-01	2.9E-03	1.9E+00	1.5E-04	4.6E-05	2.1E-04	5.3E-04	4.3E-06	1.4E-05	9.8E-03	6.3E-02	1.2E-03	383.1
Kingman Lake	6,288	0.17	0.02	3.8	3	2	0.2	8.1E-05	2.8E-03	8.4E-04	9.2E-04	1.0E-05	6.3E-03	5.2E-07	1.6E-07	7.0E-07	1.8E-06	1.5E-08	5.0E-08	3.5E-05	2.2E-04	4.2E-06	1.3
Klingle Valley Run	5,863	0.16	0.02	2.9	3	1	0.2	7.5E-05	2.6E-03	7.8E-04	8.5E-04	9.3E-06	5.0E-03	4.8E-07	1.5E-07	6.5E-07	1.7E-06	1.4E-08	4.7E-08	3.2E-05	2.0E-04	3.9E-06	1.2
Lower Beaverdam Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Luzon Branch	754,065	25.50	2.96	498.6	486	149	26.7	1.1E-02	4.0E-01	1.3E-01	1.4E-01	1.4E-03	8.0E-01	6.5E-05	2.3E-05	1.1E-04	2.7E-04	1.8E-06	6.0E-06	4.2E-03	2.9E-02	6.0E-04	195.2
Melvin Hazen Valley Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nash Run	3,041,718	84.33	9.65	1,862.8	1,576	912	92.7	3.9E-02	1.3E+00	4.0E-01	4.4E-01	4.8E-03	3.1E+00	2.5E-04	7.6E-05	3.4E-04	8.7E-04	7.4E-06	2.4E-05	1.7E-02	1.1E-01	2.0E-03	632.3
Normanstone Creek	111,824	3.10	0.35	55.5	58	22	3.9	1.4E-03	4.9E-02	1.5E-02	1.6E-02	1.8E-04	9.5E-02	9.2E-06	2.8E-06	1.2E-05	3.2E-05	2.7E-07	8.9E-07	6.1E-04	3.9E-03	7.5E-05	23.2
Northwest Branch	3,864,141	113.65	13.06	2,589.2	2,150	1,176	117.7	5.2E-02	1.8E+00	5.6E-01	6.1E-01	6.5E-03	4.2E+00	3.2E-04	1.0E-04	4.6E-04	1.2E-03	9.4E-06	3.1E-05	2.1E-02	1.4E-01	2.8E-03	862.8
Oxon Run	4,524,327	170.55	21.36	2,708.7	3,461	1,401	133.0	7.7E-02	2.8E+00	9.5E-01	1.0E+00	9.5E-03	5.6E+00	4.1E-04	1.6E-04	7.6E-04	1.9E-03	1.1E-05	3.6E-05	2.5E-02	1.8E-01	4.1E-03	1,388.9
Pinehurst Branch	197,046	5.89	0.68	109.5	111	39	6.8	2.7E-03	9.4E-02	2.9E-02	3.2E-02	3.3E-04	1.8E-01	1.6E-05	5.3E-06	2.4E-05	6.1E-05	4.8E-07	1.6E-06	1.1E-03	7.1E-03	1.4E-04	44.6
Piney Branch	2,490	0.07	0.01	1.2	1	0	0.1	3.2E-05	1.1E-03	3.3E-04	3.6E-04	3.9E-06	2.1E-03	2.0E-07	6.2E-08	2.8E-07	7.1E-07	6.0E-09	2.0E-08	1.4E-05	8.6E-05	1.7E-06	0.5
Pope Branch	19,446	0.54	0.06	11.9	10	6	0.6	2.5E-04	8.6E-03	2.6E-03	2.8E-03	3.1E-05	2.0E-02	1.6E-06	4.9E-07	2.2E-06	5.6E-06	4.7E-08	1.6E-07	1.1E-04	6.8E-04	1.3E-05	4.0
Portal Branch	1,560	0.04	0.00	0.8	1	0	0.1	2.0E-05	6.9E-04	2.1E-04	2.3E-04	2.5E-06	1.3E-03	1.3E-07	3.9E-08	1.7E-07	4.5E-07	3.8E-09	1.2E-08	8.6E-06	5.4E-05	1.0E-06	0.3

Watershed	Annual Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium1 (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	TPCB (lbs)	E. coli (Billion MPN)
Potomac Lower	4,520,022	170.46	21.35	2,711.8	3,459	1,400	132.9	7.7E-02	2.8E+00	9.5E-01	1.0E+00	9.5E-03	5.6E+00	4.1E-04	1.6E-04	7.6E-04	1.9E-03	1.1E-05	3.6E-05	2.5E-02	1.8E-01	4.1E-03	1,388.3
Potomac Middle	3,103,360	195.63	22.78	1,765.4	2,275	728	123.4	5.1E-02	1.8E+00	6.2E-01	6.8E-01	6.4E-03	3.7E+00	2.7E-04	1.1E-04	5.0E-04	1.2E-03	7.5E-06	2.5E-05	1.7E-02	1.2E-01	2.7E-03	913.0
Potomac Upper	3,081,710	85.88	9.83	1,100.5	1,604	724	86.3	4.0E-02	1.4E+00	4.1E-01	4.5E-01	4.9E-03	2.6E+00	2.5E-04	7.8E-05	3.4E-04	8.8E-04	7.5E-06	2.5E-05	1.7E-02	1.1E-01	2.1E-03	643.9
POTTF_DC	9,842,024	350.20	42.20	5,712.1	6,805	2,650	314.1	1.6E-01	5.6E+00	1.8E+00	2.0E+00	1.9E-02	1.1E+01	8.7E-04	3.2E-04	1.5E-03	3.7E-03	2.4E-05	7.9E-05	5.4E-02	3.8E-01	8.3E-03	2,730.9
POTTF_MD	1,160,509	32.51	3.72	414.1	607	272	32.5	1.5E-02	5.2E-01	1.6E-01	1.7E-01	1.9E-03	9.9E-01	9.5E-05	2.9E-05	1.3E-04	3.3E-04	2.8E-06	9.3E-06	6.4E-03	4.0E-02	7.9E-04	243.8
Rock Creek Lower	249,006	7.32	0.84	135.0	138	50	8.6	3.4E-03	1.2E-01	3.6E-02	3.9E-02	4.1E-04	2.3E-01	2.1E-05	6.6E-06	3.0E-05	7.6E-05	6.0E-07	2.0E-06	1.4E-03	8.9E-03	1.8E-04	55.2
Rock Creek Upper	3,260,610	125.58	14.53	2,358.9	2,261	752	113.1	5.2E-02	1.9E+00	6.0E-01	6.6E-01	6.5E-03	3.7E+00	2.9E-04	1.1E-04	4.9E-04	1.2E-03	7.9E-06	2.6E-05	1.8E-02	1.3E-01	2.8E-03	907.6
Soapstone Creek	169,917	4.92	0.56	90.1	92	34	5.9	2.3E-03	7.8E-02	2.4E-02	2.6E-02	2.8E-04	1.5E-01	1.4E-05	4.4E-06	2.0E-05	5.1E-05	4.1E-07	1.4E-06	9.3E-04	6.0E-03	1.2E-04	37.1
Texas Avenue Tributary	804,114	32.68	3.74	579.0	465	241	24.5	1.1E-02	3.9E-01	1.2E-01	1.3E-01	1.4E-03	9.1E-01	6.8E-05	2.2E-05	1.0E-04	2.6E-04	1.9E-06	6.4E-06	4.4E-03	2.9E-02	5.9E-04	186.8
Tidal Basin	-	-	-	-	-	-	-	-	-	-	#VALUE!	-	-	-	-	-	-	-	-	-	-	-	-
Washington Ship Channel	1,286,561	144.16	16.76	1,098.1	1,305	302	58.4	2.8E-02	1.0E+00	3.7E-01	4.0E-01	3.4E-03	2.1E+00	1.3E-04	6.0E-05	2.9E-04	7.1E-04	3.1E-06	1.0E-05	7.1E-03	6.1E-02	1.5E-03	523.7
Watts Branch	1,970,111	81.11	9.65	1,989.5	1,542	591	84.7	3.5E-02	1.3E+00	4.1E-01	4.5E-01	4.3E-03	3.0E+00	1.8E-04	7.2E-05	3.4E-04	8.4E-04	4.8E-06	1.6E-05	1.1E-02	8.4E-02	1.9E-03	619.0
Watts Branch - Lower	1,029,527	39.76	4.64	1,002.2	780	309	31.4	1.8E-02	6.4E-01	2.1E-01	2.3E-01	2.2E-03	1.5E+00	9.5E-05	3.6E-05	1.7E-04	4.3E-04	2.5E-06	8.2E-06	5.8E-03	4.3E-02	9.5E-04	313.2
Watts Branch - Upper	940,584	41.35	5.01	987.3	762	282	53.3	1.7E-02	6.2E-01	2.0E-01	2.2E-01	2.1E-03	1.5E+00	8.9E-05	3.5E-05	1.7E-04	4.2E-04	2.3E-06	7.5E-06	5.2E-03	4.1E-02	9.1E-04	305.8
CSS - Anacostia	11,562,918	406.63	47.54	9,816.8	7,813	3,563	401.4	1.8E-01	6.5E+00	2.1E+00	2.3E+00	2.3E-02	1.5E+01	1.0E-03	3.7E-04	1.7E-03	4.3E-03	2.8E-05	9.2E-05	6.4E-02	4.6E-01	9.7E-03	3,135.6
CSS - Potomac	3,218,277	123.75	14.44	1,437.2	1,971	778	99.0	4.7E-02	1.6E+00	5.2E-01	5.7E-01	5.7E-03	3.2E+00	2.7E-04	9.3E-05	4.3E-04	1.1E-03	7.8E-06	2.6E-05	1.8E-02	1.2E-01	2.4E-03	791.1
CSS - Rock Creek	5,721,606	188.23	21.75	3,228.9	3,259	1,148	219.7	7.9E-02	2.7E+00	8.5E-01	9.3E-01	9.7E-03	5.3E+00	4.8E-04	1.6E-04	7.0E-04	1.8E-03	1.4E-05	4.6E-05	3.1E-02	2.1E-01	4.2E-03	1,307.8

Summary

The District of Columbia’s NPS Management Program meets the challenges of the highly urbanized setting within the District by seeking and employing innovative solutions for reducing NPS pollution. With the help of creative partnerships and cutting-edge technologies, the District will continue to make significant progress toward achieving its goals. In FY 2017 the District will work to strengthen its existing programs for regulation and enforcement, stream and wetland restoration, education and outreach, and pollution prevention. The NPS Management Program will continue to provide technical assistance and resources that will improve the quality of the District’s waterways.

Appendix A: Financial Information

FY 2016 Grant	***Source***	***Federal***	***Match***
319 Grant (FY 2016)	EPA	$988,191	$658,787
Chesapeake Bay Implementation (Sec. 117)	EPA	$875,784	$875,784
Chesapeake Bay Regulatory Enhancement (Sec. 117)	EPA	$623,036	$623,036

Appendix B: Agency Partners

Lead Agency
DC Department of Energy and Environment, Watershed Protection Division

District Government
Deputy Mayor's Office for Planning and Economic Development (DMPED)
DC Department of General Services (DGS)
DC Department of Parks and Recreation (DPR)
DC Department of Public Works (DPW)
DC Department of Transportation (DDOT)
DC Metropolitan Police Department (MPD)
DC Office of Planning (OP)
DC Office of the State Superintendent of Education (OSSE)
DC Public Charter School Board
DC Public Schools (DCPS)
DC State Board of Education
DC Water and Sewer Authority (DC Water)
University of the District of Columbia (UDC)
Urban Forestry Administration (UFA)

Federal Government
Architect of the Capitol
National Park Service (Park Service)
US Army Corps of Engineers (USACE)
US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)
US Environmental Protection Agency (EPA)
US Environmental Protection Agency, Chesapeake Bay Program (CBP)
US Fish and Wildlife Service (USFWS)
US Geological Survey (USGS)

Local Groups
Alice Ferguson Foundation (AFF)
Anacostia Watershed Society (AWS)
Casey Trees
DC Environmental Education Consortium (DCEEC)
DC Greenworks
DC Habitat for Humanity
Earth Conservation Corps (ECC)
Friends of Takoma Recreation Center
Golden Triangle Business Improvement District
Groundwork Anacostia
Interstate Commission on the Potomac River Basin (ICPRB)
Living Classrooms of the National Capital Region
Marina Environmental Education Fund (MEEF)
Metropolitan Washington Council of Governments (MWCOG)
North of Massachusetts Avenue (NoMa) Business Improvement District
Potomac Conservancy
Project Learning Tree (PLT)
Rock Creek Conservancy
Student Conservation Association (SCA)

Sustainable Community Initiative (SCI)
Washington Parks and People (WPP)
William Penn House