Annual Report

2021 Nonpoint Source Management Program

District of Columbia
Department of Energy
and Environment

Reporting Period:

October 1, 2020 –
September 30, 2021

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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 (District) 319 Nonpoint Source (NPS) Management Program during Fiscal Year (FY) 2021, which runs from October 1, 2020 through September 30, 2021. The District Department of Energy and Environment (DOEE) is the lead agency for administering Section 319, including 319(h) funding. DOEE helps to protect and improve District water quality by promoting, funding, and tracking the implementation of best management practices (BMP), stream restoration efforts, education and outreach, and other measures to reduce NPS pollutant loads. Despite declines in BMP implementation due to the coronavirus pandemic and a significant increase in the wastewater sector loads due to annual variability, the District continued to meet its planning targets in FY 2021 for nitrogen, phosphorus, and sediment runoff reduction.

In FY 2021, the District received $1,051,000 through the Environmental Protection Agency (EPA) 319(h) grant and matched it with $700,667 to support the District's NPS pollution reduction efforts. Over the course of FY 2021, some of the District's accomplishments include removing over 600,000 pounds of trash from District waterways, the installation of multiple LID retrofit projects on public and private property, and training over 500 employees on proper pollution prevention strategies. DOEE's NPS management work was still impacted by the COVID-19 pandemic throughout FY 2021, resulting in more virtual trainings and limited contact with the public.

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

The mission of the District's NPS Management Program is to prevent and control NPS pollution in District waterways. Implementing 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.

DOEE's *Nonpoint Source Management Plan for the District of Columbia, 2019* outlines a comprehensive strategy for managing NPS pollution in an urban environment to restore beneficial uses, and sets new goals and objectives, including specific milestones for when the goals and objectives will be achieved. The format and goals in this annual report were organized to reflect the goals outlined in the approved management plan. 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, litter prevention, and trash removal;
- Supporting and implementing activities that restore and maintain healthy habitat, species diversity, and water flows to all tributaries to the Anacostia River, Rock Creek, and Potomac River;

- Installing LID practices on public and private properties throughout the District to maximize reduction in stormwater runoff;
- Coordinating NPS Management program efforts with other District, federal, and private sector programs and adjoining jurisdictions;
- Supporting programs that aim to prevent NPS pollution from individual actions by carrying out effective information and education campaigns; and
- Coordinate a pollution prevention program that reduced stormwater pollution from industrial and commercial facilities in the District by providing compliance assistance and encouraging the adoption of practices that will improve water quality in District waterways.

The District's NPS Management Program is administered by DOEE's Watershed Protection Division (WPD), which consists of the Restoration Branch and the Partnering and Environmental Conservation Branch. The mission of WPD is to protect and restore the environmental health of the District's watershed by restoring streams and wetlands, providing incentives to control NPS pollution, and conducting outreach and education. The Restoration Branch manages large-scale LID, stream, and restoration projects, as well as the RiverSmart Homes, RiverSmart Communities, and other incentive programs included in the NPS Management Program that conserve the soil and water resources of the District to protect watersheds from pollution. The Partnering and Environmental Conservation Branch is responsible for RiverSmart Schools, Community Stormwater Solutions, and other initiatives that cultivate partnerships through engagement, education, and financial, technical, and compliance assistance to enforce District laws that achieve clean water goals and support communities.

The District has also created an EPA-approved *Consolidated TMDL Implementation Plan* (2016), which supersedes the *Oxon Run WIP* (2010), the *Rock Creek WIP* (2010), and the *Anacostia River WIP* (2011). The plan identifies water body impairments, technically appropriate implementation projects, and timelines that guide DOEE in its work. When prioritizing water quality improvement efforts, DOEE assesses the health of all significant waterbodies in the District and prioritizes based on data gathered from water quality monitoring. DOEE then characterizes waterbody impairments and threats that are included in the District'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 waterbodies. Primary NPS pollutants of concern include nutrients, sediment, toxicants, 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 *Consolidated TMDL Implementation Plan* referenced above.

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 UC 1329),* for the purpose of documenting progress made in FY 2021 by the District of Columbia in implementing its *Nonpoint Source Management Plan for the District of Columbia, 2019.*

Goal One: Support Activities that Reduce Pollutant Loads from Urban Runoff, Litter Prevention, and Trash Removal

Inspection and Enforcement

Anacostia Clean Up and Protection Act

The District continues to implement the Anacostia Clean Up and Protection Act of 2009 (Bag Law), which required any business that is selling food or beverages to charge five cents for every disposable bag distributed, with limited exceptions. The Bag Law is working to keep trash out of District waterbodies by incentivizing residents to use reusable bags and reduce consumption of disposable bags. Additionally, funds from the disposable bag fee are funding important projects aimed at reducing NPS pollution, including the maintenance of trash traps, stream restoration, reusable bag distribution, and environmental education.

During FY 2021, DOEE sent emails to 25 grocery and pharmacy chains to remind them of the Bag Law requirements, and over 5,000 postcards to businesses with a food license to remind them to remit the bag fee to the Office of Tax and Revenue. DOEE inspected 157 businesses for Bag Law compliance and found a 69% compliance rate. Routine Bag Law inspections were suspended from September 2020 through March 2021 due to COVID-19 safety orders enacted by the Mayor.

Sustainable DC Omnibus Amendment Act

In 2008, the Anacostia Watershed Society (AWS) determined through their monitoring that expanded polystyrene (more commonly referred to as Styrofoam™) was one of the top-four-most common types of trash found in the Anacostia River. As part of the Sustainable DC Omnibus Act of 2014 (Food Service Ware Regulations), the District passed a ban on disposable food service ware made of expanded polystyrene and other products that cannot be recycled or composted. The ban on polystyrene went into effect in January of 2016 while additional compostable/recyclable requirements became effective in January 2017. In October 2018, the list of acceptable recyclable items was updated to ban single-use plastic straws and stirrers. The ban on these products affected all businesses and organizations in the District that serve food. The foam ban was expanded in January 2021 to include the retail sale of foam coolers and shipping materials.

The Zero Waste Omnibus Amendment Act of 2020 limits the distribution of disposable food service ware (such as utensils, condiment packets, and straws) only to customers that request them. This amendment act also created a grant program to support businesses that are transitioning from disposable to reusable food service ware. The disposable utensils requirements will be effective in January 2022 and the grant program will be open in the Spring of 2022.

In FY 2021, DOEE sent almost 2,000 mailers to retail businesses to inform them of the amendment of the District's Food Service Ware Regulations. DOEE also inspected 254 businesses for compliance with the Food Service Ware Regulations and found a compliance rate

of 78%. Routine Food Service Ware Regulations inspections were suspended from September 2020 through March 2021 due to COVID-19 safety orders enacted by the Mayor.

Comprehensive Stormwater Management Enhancement Amendment Act

The Comprehensive Stormwater Management Enhancement Amendment Act of 2008 (Coal Tar and High-PAH Sealant Ban), effective July 1, 2009, prohibits the sale, use, and permitting of coal tar-based pavement products in the District. The law was amended in March 2019 to expand the list of banned products to include other sealants that do not contain coal tar but contain high amounts of polycyclic aromatic hydrocarbons (PAH). When stormwater washes particles and dust from these sealants, down storm drains, and into local streams and rivers, it threatens aquatic life in the Anacostia River, Potomac River, and the Chesapeake Bay. The Coal Tar and High-PAH Sealant Ban helps to protect human health and the environment by reducing the amount of toxic PAHs in District communities and ecosystems.

In FY 2019, DOEE received funding from the Chesapeake Bay Program's Goal Implementation Team Toxic Contaminants Workgroup to hire a contractor and develop protocol for determining PAH concentration in pavement sealants and generate a list of low-PAH products. This protocol is being developed alongside drafted regulations for the High-PAH Pavement Sealant Ban.

The drafted regulations have been awaiting approval by the District Office of the Attorney General and District Office of Planning and Legislative Affairs since March 2021. Because of this, the protocol and regulations have been delayed. It is anticipated that both will be finalized in FY 2022.

In FY 2021, DOEE performed 53 coal tar inspections and found a compliance rate of 100%.

Trash Removal

In 2010, the District and the State of Maryland established 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 AWS through a grant from DOEE. For the District's portion of watershed, an annual load allocation totaling 103,188 pounds of trash was assigned.

In FY 2021, DOEE continued to work with the Alice Ferguson Foundation (AFF) on implementing an education and outreach campaign throughout the District's portion of the Anacostia river watershed to inform residents and visitors of the challenges associated with trash in the city's waterways. DOEE also continued to work with the DC Metropolitan Police Department, the District Department of Public Works, and the National Park Service (Park Service) to implement the DumpBusters program.

In FY 2021, 665,907 pounds of trash were removed from District waterways. The breakdown of how much trash was collected through each method can be seen in Figure 1.

Source of Trash Collection	Amount of Trash Removed (lbs)
Trash Traps	5,905
Organized Shoreline Cleanups	47,282
Street Sweeping	2,444

Skimmer Boats	610,000
Bag Law	272
Total	665,907

Figure 1 - Breakdown of trash removed from District waterways in FY 2021

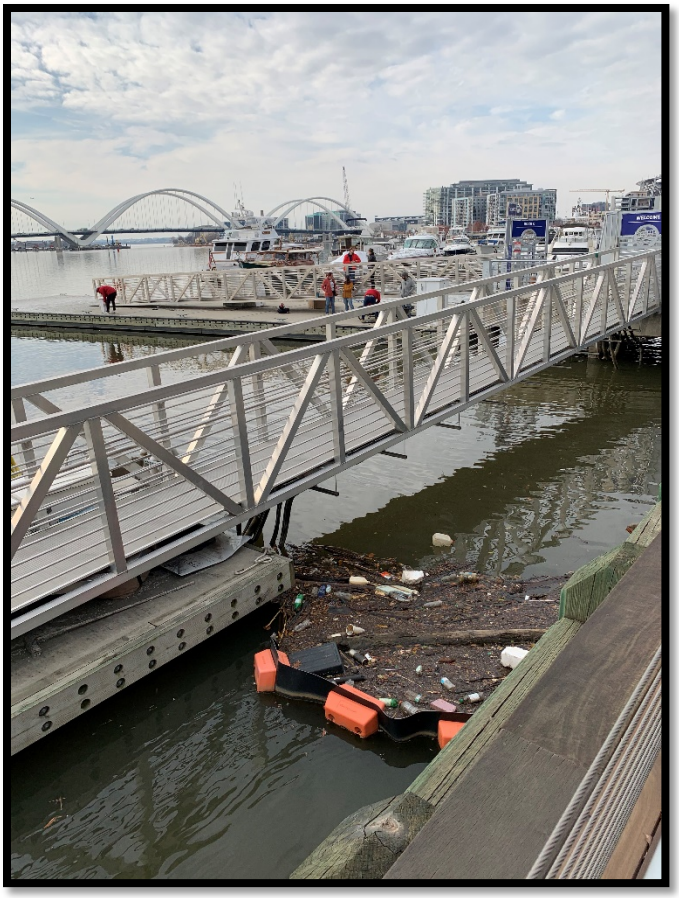

Figure 2 – The location at Yards Marina that a piloted Seabin will be installed

Trash Free Shorelines

DOEE started the Trash Free Shorelines program in FY 2021, which aims to capture and remove litter from the shorelines of the Anacostia River and Washington Shipping Channel by piloting and testing new trash reduction technology. The first technology to be piloted through this program will be Seabins™, a new type of trash skimmer that is designed to act as a floating garbage bin that can intercept and collect floating debris, macro and micro plastics, and micro fibers that are present in the waterway.

Anacostia Riverkeeper (ARK) was selected as the grantee for this project in June 2021. The remainder of FY 2021 was spent developing a workplan and quantifiable goals for the grant program. Installation and pilot testing of the trash skimmers is anticipated to be done in FY 2022 at the Yards Marina in the District's southeast quadrant (Figure 2).

Table 1 - Goal One: Support Activities that Reduce Pollutant Loads from Urban Runoff, Litter Prevention, and Trash Removal

Objectives by 2023	Milestone	2019	2020	2021	2022	2023	Total
To complete at least 2,750 inspections of businesses regulated by the Anacostia Clean Up and Protection Act (Bag Law)	550 inspections per year	554 inspections	217 inspections	157 inspections			928 inspections
To complete at least 1,500 inspections of entities regulated by the Sustainable DC Omnibus Amendment Act 2014 (Food Service Ware Regulations)	300 inspections per year	319 inspections	154 inspections	254 inspections			727 inspections
To educate 1,000 businesses regulated by the Bag Law and Food Service Ware Regulations and the public about any changes in requirements in an effective and efficient manner	Educate 200 businesses per year	5,000 businesses	17 businesses	7,000 businesses			12,017 businesses
To complete at least 300 inspections of regulated properties to ensure compliance with the Comprehensive Stormwater Management Enhancement Amendment Act of 2008 (Coal Tar and High-PAH Sealant Ban)	60 inspections per year	63 inspections	45 inspections	53 inspections			161 inspections
To remove 600,000 pounds of trash through a combination of street, stream, and shoreline clean-up efforts; maintenance of trash traps; skimmer boat operations; street sweeping; and implementation of litter reduction policies	120,000 pounds of trash removed per year	131,000 pounds	534,972 pounds	665,907 pounds			1,331,879 pounds

Goal Two: Support and Implement Activities that Restore and Maintain Healthy Habitats, Species Diversity, and Water Flows to all Tributaries to the Anacostia River, Rock Creek, and Potomac River

Stream and Wetland Restoration

Stream and wetland restoration is the act of modifying a waterway or marsh to improve its environmental health and habitat.

Due to urbanization, 44% of the District is impervious surface. This causes all District streams to face similar threats from high amounts of impervious surface runoff. Consequently, stormwater flows increase and the geomorphological flow of streams ultimately changes, eroding their banks and beds. Stream restoration attempts to alleviate the stress of the increased stormwater flow by creating a new channel to better manage stormwater runoff.

In FY 2021, DOEE awarded project design contracts, advanced the designs of several projects, and conducted public outreach to ensure that residents living near projects sites were properly informed. No projects were completed in FY 2021.

Over the last three years, DOEE has experienced delays in contracting and construction that has delayed the implementation of multiple ongoing stream restoration and outfall repair projects. However, several projects will be going into construction in FY 2023 and will move DOEE much closer to meeting our stream and wetland restoration and outfall repair goals as outlined in the *NPS Management Plan*.

Alger Park Stream Restoration

The restoration of 1,540 linear feet of stream in Alger Park was completed in FY 2016. The project used regenerative stream restoration techniques and added more than half an acre of wetland to the stream corridor. The project planted over 3,000 native wetland plants, 300 native shrubs, and 300 native trees. DOEE conducted outreach in the watershed related to our RiverSmart Homes program to maximize installation of private home LID practices in the area draining to Alger Park. Prior to restoration, conservative estimates showed that Alger Park had one of the most eroded stream beds in the District, losing more than 100 tons of sediment per year.

In FY 2019, the District Department of Transportation (DDOT) completed the construction of 28 upland LID projects in the watershed area that drains to Alger Park. These LID projects reduce the volume and velocity of stormwater reaching the stream while also improving the quality of water reaching it. In FY 2020, the Latin American Youth Center's River Corps program monitored Alger Park for stream stability and organized a trash clean-up around Alger Park. In FY 2021, DOEE submitted a draft success story on the restoration of Alger Park and began post-restoration monitoring of the restoration site.

Branch Avenue Park Stream Restoration

Branch Avenue Park is a triangular wooded parcel in the District's southeast quadrant that is bound by major roads on each side. A stream flows through this park, entering from an enclosed storm drain system in the northwest region of the park and leaving through an enclosed storm drain system in the southeast region. The downstream storm drain system discharges into Oxon Run, a tributary to the Potomac River.

DOEE completed designs for the Branch Avenue Park Stream Restoration project in FY 2019, with construction completed in FY 2020. This project restored 580 feet of perennial stream and 150 feet of an eroded ephemeral gully. DOEE began post-restoration monitoring of the Branch Avenue stream in FY 2021.

Congress Heights Stream Restoration

The Congress Heights Recreation Center is located in the Oxon Run watershed and is approximately four acres, one of which is impervious surface. In FY 2018, DOEE began the process of contracting to restore a woodland stormwater gully located on the south side of the Congress heights Recreation Center by implementing a Regenerative Stormwater Conveyance (RSC) channel. The construction for this RSC technique was completed in October 2019 and includes the use of boulder step pools that safely convey storm flows while encouraging stormwater treatment and infiltration in the gully along the existing conveyance channel. In total, 400 linear feet of stream was restored. DOEE conducted a plant-mortality walkthrough in September 2020 to assess the health of the project's vegetation. It was determined that more than 15% of the plants within the project were failing. Failing plants were replaced in May 2021 to optimize the plant health and runoff reduction of the restoration site.

Fort Dupont Stream Restoration

The District has commenced a comprehensive project to restore the Fort Dupont watershed with five main components:

- Community outreach and educational activities focused on watershed restoration;
- Upland LID work on private property within the watershed through voluntary implementation efforts;
- Installation of LID on Park Service or public right of way areas;
- Stream restoration; and
- Wetland restoration

DOEE began efforts to achieve these goals in FY 2017. In FY 2018, DOEE partnered with Park Service and the Eastern Federal Lands Division of the Federal Highway Administration to install over 2,500 feet of bioswales along the roadways that transect Fort Dupont. These bioswales catch and filter roadway runoff before it enters the stream network, helping to reduce the velocity and improve the quality of water entering the Fort Dupont stream during a rain event.

In FY 2019, DOEE worked on an Environmental Assessment (EA) which identified 10 initial project areas to be included in the Fort Dupont Stream and Wetland Restoration Project. Project areas 1-9 will be stream design projects utilizing Regenerative Stream Design as the primary

approach to restoration, include approximately 13,000 feet of perennial stream restoration, and be exclusively comprised of stream restoration combined with outfall stabilization. The tenth project area will consist of daylighting 425 feet of piped stream between the nearby bike trail and the Anacostia River, as well as designing the land around it to create a tidal wetland complex behind the seawall (Figure 3). DOEE anticipates up to 7 acres of wetlands to be restored in this area. The stream design contract was awarded in FY 2020.

Figure 3 - Area to be restored as wetland where Fort Dupont outfalls into the Anacostia River

In FY 2021, designs at Fort Dupont advanced towards the 60% phase. After the 30% design phase submittal, DOEE and Park Service agreed that wetland work should be added to the Anacostia River-side of the sea wall at the tenth project site. This would bring this project to 17,000 feet of stream restoration and up to 10 acres of wetland restoration.

Fort Dupont presently does not meet water quality standards for swimming use, recreation use, aquatic life, and fish consumption. The primary pollutants that are preventing the stream from meeting water quality standards are *E. coli* and a high amount of total suspended solids (TSS). The stream restoration at Fort Dupont will drastically reduce the TSS runoff loads, which could ensure that the stream meets water quality standards for secondary contact use and aquatic life.

Oxon Run Stream Restoration

The District's upper portion of Oxon Run has natural streambanks that suffer from high rates of erosion due to the flashy nature of the stream during storm events. Severe bank erosion has caused massive tree loss, excessive downstream sedimentation, and the exposure of a large sanitary sewer line in multiple locations. The middle portion of this stream is a trapezoidal concrete structure installed in the 1960s to reduce flood risk in the nearby neighborhoods. The concrete channel provides little to no habitat areas for aquatic or terrestrial species and creates a barrier for larger fish. Additionally, the lower portion of Oxon Run has naturalized stream banks that are highly unstable.

After a large community outreach effort in FY 2020, DOEE worked with Park Service, the District's Department of Parks and Recreation (DPR), DC Water, the State Historic Preservation Office, and DDOT to develop a statement of work for a solicitation for stream design and environmental assessment services. In early FY 2021, the request for proposals was posted and bid on. The selection process for a vendor should be finalized in FY 2022.

Park Drive Gully Restoration

The Park Drive Gully Restoration project is in the southeast quadrant of the District and has two different restoration sites: Fort Davis and Texas Avenue. Both sites ultimately drain into the Anacostia River and are in Fort Davis Park (owned by Park Service).

In FY 2019, DOEE requested bids for a design-build project to restore the Fort Davis and Texas Avenue gully sites. After a lengthy contracting process, the contract was awarded in FY 2021 to restore 1,300 feet of eroded gully through RSC restoration techniques.

Pinehurst Branch Stream Restoration

Pinehurst Branch originates at the District/Maryland border and flows approximately 1.3 miles east-southeast on Park Service property to its confluence with Rock Creek. The land use of Pinehurst Branch's 619-acre watershed is approximately 70% residential and commercial development and 30% parkland. Approximately 70% of the watershed lies within the District, with the remaining 30% in Montgomery County, Maryland. The large amount of impervious surfaces in the watershed has caused significant erosion in Pinehurst Branch, resulting in sediment transport to Rock Creek and exposed sanitary sewer lines throughout the stream. DC Water had abandoned or removed existing sanitary sewer lines in Pinehurst Branch and DOEE will coordinate with them to restore the stream over the next few years.

The Pinehurst Branch stream restoration project will restore approximately 7,900 feet of degraded stream reaches, create conditions suitable for wildlife habitat, and improve the conditions of existing wetlands.

In FY 2017, DOEE began an EA process to explore options on how to implement the restoration to achieve these objectives. A contract for the EA was awarded in FY 2019 with the actual assessment beginning in FY 2020. As archaeological and Environmental Assessment work continued in FY 2021, project partners came to the consensus that more information is needed before the public can be presented with a viable option for restoration. The existing EA contract was abandoned and a new solicitation for data collection, preliminary design, and completion of the EA is currently in development.

Spring Valley Stream Restoration

The Spring Valley Park Stream is a 1,100-foot stream and tributary to the Potomac River. DOEE began collecting pre-restoration monitoring data in FY 2014 with the intent to replace the existing incised stream channel with a stable stream channel. In FY 2017, DOEE awarded a design-build contract for the restoration of the Spring Valley Park Stream. DOEE met with community members during the restoration to inform them about this project and encourage them to adopt practices on their properties to reduce stormwater runoff to the stream.

In September 2019, DOEE completed the Spring Valley Stream Restoration. The restored channel has been sized to convey increased stormwater flows at a shallower flow depth. This will reduce shear stress on the channel and minimize potential bank erosion in the future. In 2020, additional native planting occurred to help stabilize the project area, and maintenance was performed by the River Corps program.

In FY 2021, DOEE conducted post-restoration monitoring of the site to ensure it's being maintained and functioning properly. DOEE is in the process of developing a draft success story of the Spring Valley stream restoration to submit to EPA in FY 2022.

Stickfoot Branch Stream Restoration

In FY 2017, DOEE entered into an agreement with DC Water to restore a headwater tributary of Stickfoot Branch that drains into the Anacostia River. In FY 2019, DOEE issued a contract to execute an EA and develop stream designs for this restoration project. Designs were advanced to the 30% design phase and all NEPA compliance was completed in FY 2020. In FY 2021, 90% of the designs were submitted, with completion expected in early FY 2022.

This project will involve the restoration of over 850 feet of degraded urban stream and improving the protection of a sanitary sewer line within the restoration area (Figure 4).

Figure 4 - Eroded stream bank to be restored at Stickfoot Branch

Outfall Repair

Branch Avenue Park Outfall Repair

In addition to the stream restoration at Branch Avenue Park, two degraded outfalls were repaired and stabilized in FY 2020. A recreational trail was also installed through the park for residents to have access to the restored stream. DOEE began post-restoration monitoring of the Branch Avenue stream and outfall project site in FY 2021.

Park Drive Outfall Repair

As a part of the Park Drive gully restoration, four outfalls within the project area will be repaired and stabilized. DOEE awarded a design-build contract for this work in FY 2021.

Spring Valley Outfall Repair

As part of the Spring Valley Stream Restoration project, two outfalls within the project area were repaired and construction was completed in September 2019. A recreational trail was also installed through the park, creating a loop, allowing residents access to the restored stream. In

FY 2020, additional native planting occurred to help stabilize the project area, and maintenance was performed by the River Corps program. Inspections of the outfalls in FY 2020 resulted in additional routine maintenance of the outfalls in FY 2021. The outfalls remain functioning and properly maintained.

Stickfoot Branch Outfall Repair

In addition to the stream restoration occurring at Stickfoot Branch, DOEE has issued a contract to conduct an EA and develop designs for the repair of four storm sewer outfalls within the restoration area. Designs for these outfall repairs were started in FY 2020 and reached 90% completion by the end of FY 2021. Designed are expected to be completed in early FY 2022.

Table 2 - Goal Two: Support and Implement Activities that Restore and Maintain Healthy Habitat, Species Diversity, and Water Dlows to all Tributaries to the Anacostia River, Rock Creek, and Potomac River

Objective by 2023	Milestone	2019	2020	2021	2022	2023	Total
To restore 4 miles of stream or 12 percent of the District's total stream/river length	0.8 miles of stream restored per year	.21 miles	.21 miles	0 miles			.42 miles
To restore and maintain 10 acres of wetlands	2 acres of wetlands restored and maintained per year	0 acres	0 acres	0 acres			0 acres
To repair 50 outfalls, or substitute a portion of outfall repairs with stream restoration with a demonstration that the in-stream water quality benefits of restoration exceed those derived from outfall repairs	Restore 10 outfalls per year (or substituted a portion of outfall repairs with stream restoration work)	2 outfalls	2 outfalls	0 outfalls			4 outfalls

Goal Three: Install LID Practices on Public and Private Properties Throughout the District to Maximize Reductions in Stormwater Runoff

Public Property LID Installations

Parkland LID Retrofits

DOEE recently developed a new program to retrofit parkland sites around the District. These "Parkland LID Retrofits" aim to improve water quality in the Anacostia and Potomac Rivers for the benefit of District residents, visitors, wildlife, and the environment. These retrofits will also provide high quality outdoor recreational space and facilities for children and adults to learn, play, and connect with nature.

In FY 2019, DOEE worked with DPR to complete LID retrofits for Amidon Park and Congress Heights Recreation Center.

The partnership between DOEE and DPR continued into FY 2021 when the following five LID retrofits were completed on parkland.

- Palisades Recreation Center: The installation of a bioretention system was completed in November 2020 (Figure 5). This LID retrofit provides a stormwater retention volume of 1,761 cubic feet.
- Douglass Recreation Center: The installation of a bioretention system was completed in January 2021. This LID retrofit provides a stormwater retention volume of 2,031 cubic feet.
- Benning Park/Woody Ward Recreation Center: The conversion of asphalt into a pocket park for community recreational use and the installation of a bioretention system and a water quality swale was completed in May 2021. This LID retrofit provides a stormwater retention volume of 6,574 cubic feet.
- Fort Greble Park: Two bioretention systems and large parcel tree planting was completed in June 2021. This LID retrofit provides a stormwater retention volume of 1,797 cubic feet.

Figure 5 - Completed stormwater retention LID at Palisades Recreation Center

DOEE also completed the designs and began the construction of an LID project at the Fort Stevens Recreation Center in FY 2021. It is expected that this project will be complete in FY 2022.

Carter Barron Stormwater Retrofit Project

The Carter Barron Stormwater Retrofit project area is a 30-acre site located in the northwest quadrant of the District. The project area was identified as a priority restoration area by U.S. Fish and Wildlife Service (FWS), Park Service, and DOEE due to its impact on the existing habitat along Rock Creek. Nestled within Rock Creek Park, the site is home to the Carter Barron Amphitheatre and the Rock Creek Tennis Center and sits at the headwaters of the Blagden Run watershed. The Blagden Run watershed averages 69% impervious cover and the project area includes 11 acres of impervious surface, or approximately 15% of the imperviousness in the whole watershed.

Before LID installation, the targeted 11-acre impervious area had no stormwater controls due to being developed prior to the promulgation of the District's stormwater regulations. During rain events, stormwater swiftly left the project area from drainage outfalls, concentrating flows into erodible gullies, lowering localized infiltration and the groundwater table, and therefore impacting and reducing native habitat along Rock Creek. Stormwater also left the project area through overland flow and a storm sewer that drains directly to Blagden Run.

The goal of the Carter Barron Stormwater Retrofit project was to fully retrofit the targeted 11-acre impervious area with green stormwater infrastructure (GSI) to restore natural hydrology, prevent erosion, reduce stormwater pollution, and protect and restore existing natural habitat for federally listed endangered species and other species. The project was completed in August 2019 and subsequently won the 2019 Best Retrofit in the Chesapeake Bay award. Retrofitting this 11-acre impervious area will capture more than 5,000,000 gallons of stormwater runoff annually. There are no updates for this project in FY 2021.

Hamlin Street Stormwater Retrofit Project

The Hamlin Street LID Stormwater Retrofit project is located within the District's Hickey Run watershed at the southeastern side of the 2000 block of Hamlin Street NE. Approximately 3.1 acres of land drain towards this project area, 1.3 acres of which are impervious surfaces. In

addition to this retrofit project, due to the high ratio of impervious surfaces within the project area, DOEE's RiverSmart Homes program has also been utilized. Currently, the project area has no stormwater controls because it was developed prior to the promulgation of the District's stormwater regulations.

DOEE issued a contract for the design of an LID stormwater retrofit at the Hamlin Street project site in FY 2020. In FY 2021, designs for the project were completed and all permits were approved. Construction began on the project in September 2021 and is expected to be completed by January 2022.

Hickey Lane Stormwater Retrofit Project

The Hickey Lane LID Stormwater Retrofit project is located within the U.S. National Arboretum (USNA) at the intersection of R Street NE and Hickey Lane NE. The project site was identified as a priority LID retrofit area by USNA because it has a contributing drainage area of approximately 8.1 acres of land, with approximately 2.2 acres of it from impervious cover. The purpose of this project is to reduce stormwater runoff and pollution, prevent erosion, restore natural hydrology, and increase natural habitat in the Hickey Run watershed.

DOEE issued a contract for the design of an LID stormwater retrofit at the Hickey Lane project site in FY 2020. In FY 2021, designs for the project were completed and the permitting process began. DOEE anticipates that all permits for the project will be approved in early FY 2022, with construction beginning in March 2022.

Tenleytown Mainstreet Stormwater Retrofit Project

In 2018, DOEE awarded a grant to the Center for Watershed Protection to install a LID stormwater retrofit in the District's Tenleytown neighborhood on the corner of Wisconsin Avenue NW, 42nd Street NW, and Emery Place NW. This is a voluntary stormwater management project with the goal of adding green infrastructure to the city and collaborating with the DC Business Improvement Districts and Main Streets. Upon completion this project will provide 670 cubic feet of stormwater retention through a curb extension bioretention and permeable paver patio.

In FY 2021, a traffic control study for this busy corner was completed and confirmed that an extended bioretention cell would not disrupt traffic patterns. Designs for the project were completed are currently making their way through the approval process.

RiverSmart Schools

RiverSmart Schools is a program that works with schools within the District to install LID practices in an effort to reduce runoff and NPS pollution while providing stormwater-related educational resources.

In FY 2021, DOEE completed the design and construction of the following RiverSmart Schools LID projects:

- The Friendship-Armstrong Public Charter School project was a voluntary project to install large outdoor classrooms, remove an asphalt parking lot, and install stormwater BMPs that treat 2,182 square feet of area.
- The St. Thomas More Academy School project had concrete removed and replaced with a 1,471 square foot bioretention and an adjacent outdoor classroom space.
- The Stanton Elementary Schoolyard Improvement project removed asphalt and installed 800 square feet of stormwater management BMPs and an outdoor classroom area.
- The Noyes Elementary Schoolyard Improvement project removed impervious eroded land and installed a 200 square foot conservation landscape garden.

University of the District of Columbia

DOEE awarded a grant to the University of the District of Columbia (UDC) in 2018 to install an innovative stormwater management practice on the University's campus. After multiple location changes and design changes, it was decided that the retrofit would consist of a bioretention planter with modifications to increase stormwater retention and reduce maintenance.

The design and construction of this project was completed in FY 2021. In spring 2021, UDC installed electrical and monitoring equipment to gather data on the retrofit's stormwater retention efficacy during rain events within the first year of installation. Monitoring of wet weather events and data collection have been successful to date and will continue into FY 2022.

Private Property LID Installations

RiverSmart Communities

RiverSmart Communities is a program aimed solely at installing LID retrofits on non-profit and religious institutional properties. The program provides full funding for design and construction costs to participants on the condition that the non-profit partner will perform outreach and education on watershed protection and relevant DOEE programs. In FY 2021, RiverSmart Communities had a total of eight project areas:

- Project Area 1: Our Lady of Victory Catholic Church
- Project Area 2: Allen Chapel AME
- Project Area 3: Whittefriers Hall
- Project Area 4: Rising Sun Baptist Church
- Project Area 5: Mt. Airy Baptist Church
- Project Area 6: Stoddard Baptist Nursing Home
- Project Area 7: Zion Baptist Church
- Project Area 8: First Baptist Church

Figure 6 - Finished planting at Allen Chapel AME

Project areas 1-4 applied for the RiverSmart Communities program and were selected in FY 2020 (Figure 6). The designs and implementation of these projects were completed in FY 2021 and had a combined stormwater treatment area of 20,505 square feet.

Project areas 5-8 applied for the RiverSmart Communities program and were selected in FY 2021. During this reporting period, the site selection, design charettes, and specific BMP selections for these project areas were completed. The plan review process has began and the completion of these project areas is anticipated for Spring 2022.

RiverSmart Homes

Residential property is among the largest single land uses in the city. Typical residential lots tend to be smaller in size and thus, least likely to be regulatorily-required to install stormwater management practices. Because of this, the District has recognized the importance of targeting and engaging homeowners for pollution reduction measures.

In 2008, DOEE developed RiverSmart Homes, a LID retrofit program aimed at 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 2009.

Through RiverSmart Homes, DOEE audits residential properties and provides feedback to the homeowners on what LID technologies can be safely installed to help manage stormwater.

DOEE also offers homeowners subsidized installations of any LID practices recommended by the audit, which can include rain barrels, shade trees, rain gardens, native landscaping to replace grass or invasive species (BayScaping), and permeable pavement.

Accomplishments for the RiverSmart Homes program during FY 2021 include the following:

- 1,413 property audits;
- 308 rain barrel installations;
- 96 rain garden installations;
- 461 BayScape garden installations; and

- 66 Impervious surface removal projects, totaling 46,616 square feet.

Rain Barrel Installation and Rebate Program

The Rain Barrel Installation and Rebate Program is a component of RiverSmart Homes that allows District residents to have up to two rain barrels installed on their property for a small copayment, with DOEE subsidizing the rest of the cost. Alternatively, homeowners can purchase and install their own rain barrel and receive a rebate of $2 for every gallon of capacity in the rain barrel or cistern. This rebate program has a maximum of $1,000 per property.

In FY 2021, RiverSmart Homes installed 308 rain barrels on residential properties throughout the District and issued $11,959.89 in rebates to District residents. These rain barrels will capture approximately 38,720 gallons of water for every 1.25 inch rainstorm/annually.

Due to the COVID-19 pandemic, the Rain Barrel Installation and Rebate Program had difficulty with supply chain issues when trying to source rain barrels. Due to low inventory and the inability to access barrels, a lower number of rain barrels were installed than expected.

Landscaping Installation and Rebate Program

The Landscaping Installation and Rebate Program is a component of RiverSmart Homes that allows District residents to have up to two conservation landscaping projects (e.g., rain gardens and BayScapes) installed on their property for a small copayment, with DOEE subsidizing the rest of the cost. Rain gardens are areas landscaped with native plants that are connected to a downspout in order to collect and absorb stormwater from a rooftop. BayScaping is native plant gardening with the goal of replacing sloped areas (or areas causing high stormwater runoff) with plants native to the Chesapeake Bay. Alternatively, homeowners are welcome to install their own rain gardens and apply for a rebate of $3 for every square foot of treatment area, with a maximum rebate of $2,200 per property.

In FY 2021, RiverSmart Homes installed 96 rain gardens and 461 BayScape gardens, resulting in over 60,120 square feet of native plant landscapes. The average treatment area for rain gardens was 470 square feet. With rain gardens of this size, these projects will capture approximately 34,968 gallons of water for every 1.25 inch rain storm.

Permeable Surface Rebate Program

The RiverSmart Permeable Surface Rebate Program is a component of RiverSmart Homes that allows District residents to receive a rebate to replace impervious surfaces with vegetation or permeable pavers.

In FY 2020, the program modified its eligibility area to the Municipal Separate Storm Sewer System (MS4) service area. This eligibility modification brought the rebate program in line with the eligibility area of RiverSmart Rooftop rebates. Additionally, the program instituted a maximum, one-time rebate of $4,000 per property.

Properties within the service areas are eligible for rebate of $5 for every square foot of existing impervious surface that is converted into vegetation or for rebates of $10 for every square foot of existing impervious surface that is converted into permeable pavers.

Figure 7 - Program staff conducting outreach for the Permeable Paver Rebate Program

In FY 2021, the Permeable Surface Rebate Program rebated 66 projects totaling 46,616 square feet of permeable areas and issued $192,442.50 to District residents in rebates. These permeable surface projects will treat over 1,000,000 gallons of stormwater annually.

RiverSmart Rooftops

The District continues to offer a rebates for the installation of green roofing on both new buildings and/or the retrofit of an existing roof structure. The current RiverSmart Rooftops program has been in effect since FY 2012 and has given varying rebate amounts throughout the years. In the fall of 2020, the program changed its eligibility criteria to only include properties located within the MS4. This programmatic change was implemented with the goal to focus on installing projects where stormwater has a high impact on our streams. Currently, the program offers $15 rebate for every square foot of green roof that is voluntarily installed within the MS4.

In FY 2021, DOEE had 95 residents completed initial applications for a green roof rebate. Of the initial 95 applications, nine projects were fully installed. A total of 8,415 square feet of green roofs were installed through the RiverSmart Rooftops program this fiscal year. These green roofs will treat approximately 126,225 gallons of stormwater annually.

Tree Planting

The District has been called “The City of Trees,” in recognition of its significant tree canopy in a dense urban environment. The tree canopy in the District is currently at 38 percent. While this is considered high tree coverage for an urban area, it is lower than the District’s canopy cover has been in the past, even at times of higher population density. To improve air and water quality,

reduce the urban heat island effect, and offset greenhouse gas emissions, the District adopted a 40 percent tree canopy goal. Mayor Bowser adopted a Sustainability Plan that calls for achieving the tree canopy goal by 2032. To achieve that goal, the District will need to plant an average of 10,800 trees annually.

In FY 2021, the annual tree planting goal was exceeded with 13,470 trees being planted across the District by multiple stakeholders. DDOT's Urban Forestry Division planted 9,738 trees.

DOEE funded the planting of 3,732 trees on private, federal, and other District lands, including the following:

- 1,926 trees on private property through the RiverSmart Homes installation program;
- 290 trees on private property through the RiverSmart Homes rebate program;
- 124 trees on parkland and federal sites as part of stream restoration projects; and
- 1,392 trees across District, federal, and private lands by the Large Parcel Tree Planting Program.

Each tree planted will harvest an average of 56 gallons of water per 1.25 inch rainstorm.

Table 3 - Goal Three: Install LID Practices on Public and Private Properties Throughout the District to Maximize Reductions in Stormwater Runoff

Objective by 2023	Milestone	2019	2020	2021	2022	2023	Total
To retrofit 30 District facilities with LID projects	Install 6 LID retrofit projects on District facilities per year	8 projects	5 projects	10 projects			22 projects
To retrofit 15 facilities with LID projects through our RiverSmart Communities Program	Install 3 LID retrofit projects on private facilities per year	5 projects	4 projects	4 projects			13 projects
To install 1,250,000 square feet or green roof	Install 250,000 square feet of green roof per year	675,809 square feet	909 square feet	8,415 square feet			685,133 square feet
To audit 5,000 residential homes through the RiverSmart Homes program	Audit 1,000 residential homes per year	1,226 audits	891 audits	1,413 audits			3,530 audits
To plant 50,000 trees	Plant 10,000 trees in the District per year	15,692 trees	12,974 trees	13,470 trees			42,136 trees
To install 3,000 rain barrels	Install 600 rain barrels per year	226 rain barrels	447 rain barrels	308 rain barrels			981 rain barrels
To install 500 rain gardens	Install 100 rain gardens per year	82 rain gardens	85 rain gardens	96 rain gardens			263 rain gardens

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

Partnerships and Coordination

The District comprises only a small portion of the watersheds that it resides in: 17 percent of the Anacostia River watershed, 0.5 percent of the Potomac River watershed, and 0.1 percent of the Chesapeake Bay watershed. Furthermore, DOEE is not a landowning or landholding agency.

Because of this, strategic regional partnerships and collaboration with both governmental and private entities have become vital to the successful implementation of the agency's watershed protection and restoration work.

Local and Regional Partners

Almost 30 percent of the District is federal land, so coordinating with federal agencies is a critical component of efforts to reduce urban runoff. Starting in FY 2018, DOEE began convening with major federal landholding agencies within the District to develop nitrogen and phosphorus reduction strategies as part of the process for developing the District's Phase III WIP for the Chesapeake Bay. These federal agencies are:

- United States Department of Agriculture
- United States Department of Defense (USDOD)
- General Services Administration
- National Park Service
- Smithsonian Institute

Additionally, DOEE continued coordination with local and regional partners throughout FY 2021 by participating in:

- 25 meetings with Park Service to discuss stream restoration efforts;
- One meeting with Park Service and USDOD to discuss annual BMP submissions;
- 14 meetings with DC Water to coordinate restoration efforts;
- Three Urban Forestry Advisory Committee meetings;
- Three Natural Resource Damage Assessment meetings;
- 16 Kingman Island and Kingman Lake Coordination meetings;
- One Watershed Partners Meeting;
- Four Anacostia Watershed Steering Committee meetings;
- Four Quarterly Environmental Stakeholder meetings;
- 19 Green Infrastructure Maintenance Coordination meetings; and
- 8 Anacostia Waterfront Working Group meetings.

Chesapeake Bay Program

The Chesapeake Bay Program (CBP) is a unique regional partnership that has led and directed the restoration of the Chesapeake Bay. The District has been a partner in this program since its

inception in 1983. By working with other legislative bodies and participating advisory groups, the partners have committed to work together through a series of Chesapeake Agreements. The 2014 Chesapeake Watershed Agreement includes 10 goals to advance a vision of clean water, abundant life, conserved lands, public access to water, a vibrant cultural heritage, and a diversity of engaged citizens and stakeholders. DOEE is the agency responsible for carrying out the District's program activities related to the Chesapeake Bay.

In FY 2021, DOEE participated in:

- Zero executive council meetings because there were none hosted;
- 12 CBP management board meetings; and
- 43 meetings on over 15 Region 3 CBP implementation teams, working groups, advisory committees or similar.

Partnership and Planning Meetings

In June 2006, the Metropolitan Washington Council of Governments (MWCOG) adopted a resolution that established the Anacostia Watershed Restoration Partnership (AWRP). The AWRP is comprised of a steering committee, management committee, and the citizen's advisory committee that provide a cooperative framework to support the restoration of the Anacostia River and its tributaries. In FY 2021, DOEE participated in:

- Four management committee meetings;
- Three steering committee meetings; and
- Six Chesapeake Bay and Water Resources Policy Committee meetings.

Community Stormwater Solutions Grants

DOEE's Community Stormwater Solutions Grant Program provides start-up funding for community-oriented projects that raise awareness about urban watershed issues, particularly those associated with stormwater runoff. To qualify for the Community Stormwater Solutions Grant Program funding, projects must contain one or more of the following criteria:

- Installation of GSI;
- Maintenance of existing GSI;
- Provide pathways to green jobs that are focused on stormwater solutions;
- Restore natural habitat;
- Clean up areas affected by high volumes of litter and address littering sources;
- Reduce sources of pollution to District waterbodies;
- Engage communities, raise awareness, and bring about behavioral changes on issues impacting water quality;
- Support the existing DOEE restoration and engagement efforts at Kingman and Heritage Islands; and
- Supports the education priorities at Anacostia High School.

In FY 2020, partnered with the Chesapeake Bay Trust (the Trust) to administer the Community Stormwater Solutions Grant program by awarding the Trust $400,000 over two years. The Trust

used that funding to evaluate the program and run a competitive grant selection process. At the end of FY 2020, the Trust had selected 16 grantees to receive a total of $295,002 but did not finish the award process by the end of the FY.

In FY 2021, DOEE finalized the award process for the 16 Community Stormwater Solutions grantees. The primary focus during this grant selection process was to foster engagement in, restoration of, and support for, existing efforts at Kingman and Heritage Islands.

Table 4 - Goal Four: Coordinate NPS Management Program Efforts with Other District, Federal, and Private Sector Programs and Adjoining Jurisdictions

Objective by 2023	Milestone	2019	2020	2021	2022	2023	Total
To meet with DC Water, Park Service, or other local and regional partners at least 30 times on NPS management issues	At least 6 coordination meetings on NPS management issues per year	6 meetings	6 meetings	98 meetings			110 meetings
To participate in 5 CBP Executive Council meetings	Participate in 1 CBP Executive Council meeting per year	1 meeting	1 meeting	0 meetings			2 meetings
To participate in 60 CBP Management Board meetings	Participate in 12 CBP Management Board meetings per year	11 meetings	12 meetings	12 meetings			35 meetings
To participate in at least 40 Region 3 and CBP Goal Implementation Team, Working Group, and Advisory Committee or similar meetings	Participate in at least 8 region 3 CBP Goal Implementation Team, Working Group, and Advisory Committee or similar meetings per year	8 meetings	28 meetings	43 meetings			79 meetings
To participate in at least 30 MWCOG meetings (including Anacostia Watershed Restoration Partnership, Chesapeake Bay Policy Committee, and Water Resources Technical Committee meetings)	Participate in at least 6 MWCOG meetings per year	13 meetings	11 meetings	13 meetings			37 meetings
To issue 50 grants to entities to further NPS work in the District	Issue at least 10 grants per year to entities to further NPS work in the District	11 grants	16 grants	16 grants			43 grants

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

Education and Outreach

The District has a population of over 650,000 people, as well as millions of visitors each year. Without properly educated and engaged residents and visitors, the District would not be able to achieve its pollution reduction goals. Proper education and engagement on NPS issues within the District is important to modify public behavior, encourage the adoption of environmentally sensitive practices, advocate for stronger laws and regulations that help reduce NPS pollution, and more. Because education plays such a critical role in the District's efforts to reduce NPS pollution issues, DOEE sponsors and conducts environmental education and outreach activities that are targeted at teachers, environmental educators, and students throughout the District.

RiverSmart Schools

In addition to schoolyard LID projects, RiverSmart Schools provides training workshops in environmental education to teachers and informal educators with environmental curricula that support the District's teaching and learning standards, as well as training teachers on how to properly maintain LID sites. In FY 2021, RiverSmart Schools provided 40 teachers with training workshops on RiverSmart School site usage and programming. These trainings were conducted virtually due to the COVID-19 pandemic.

Meaningful Watershed Educational Experiences

Historically, DOEE has worked with nonprofit partners to create meaningful watershed educational experiences (MWEEs) for District students and youth. These experiences are usually multiday programs that teach students about their local watershed and the Chesapeake Bay through classroom lessons, field experiences, action projects, and reflection activities.

Figure 8 - Residents on an Anacostia Boat Tour

Due to the COVID-19 pandemic, overnight MWEEs in FY 2021 shifted to a virtual model with for the first time. Over 15 videos were created and over 1,896 activity boxes were distributed to reach 1,393 students during programming. Since in-person MWEEs have been infeasible due to the COVID-19 pandemic, funding for the new Nature Near Schools program was released in Spring 2021 and awarded to five grantees. This program allows MWEE style programming to occur at 15 schools in the District to ensure that students have in-person, outdoor programming at or near their school grounds.

Anacostia River Explorers

Anacostia River Explorers are boat tours that educate the public about the Anacostia River through 1- and 2-hour motorized boat 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 and its residents (Figure 8).

The two grantees undertaking this work for the District in FY 2021 held 287 in-person boat tours on the Anacostia River and engaged a total of 3,083 residents.

Adopt-Your-District

Adopt-Your-District is a program implemented in FY 2018 that allows volunteers to adopt parks, blocks, or segments of streams throughout the District. This program is a collaboration effort between DOEE, DPR, Park Service, and the Office of the Clean City. Specifically, DOEE oversees the Adopt-A-Stream portion of the program. In FY 2021, DOEE assisted in identifying parks of interest and establishing correct government contacts for 17 District residents and organizations that were interested in adopting a park through the Adopt-A-Park program.

Under the Trash Free Communities grant, DOEE extends funds to AFF to run the Adopt-A-Stream program. Through Adopt-A-Stream, volunteers collect data on the types of trash present at their adopted stream bank and then organize and complete clean-up events at least twice per year. In FY 2021, 26 volunteers participated in two Adopt-A-Stream trainings. Unfortunately, no volunteers from these trainings adopted a stream in FY 2021.

Figure 9 - Storm drain markers installed during an outreach activity

Storm Drain Marking Program

In FY 2021, DOEE installed a total of 286 storm drain markers throughout the District (Figure 9). DOEE has maintained its geolocated database of marked storm drains. Since the majority of storm drain markers are installed through community events or organized in-person efforts, the COVID-19 pandemic has significantly impacted DOEE's ability to install storm drain markers the last two years.

Watershed Stewards Academy

The Watershed Stewards Academy (WSA) is an eight-week course taught by DOEE and AWS staff for District residents who want to address pollution problems in their local watersheds. The program is funded by a DOEE grant to AWS and is part of the National Capital Region Watershed Stewards Academy, which is a coalition of watershed protection groups in the

Potomac, Rock Creek, Anacostia, and East Patuxent watersheds. Once they have completed the course, these residents are considered Master Watershed Stewards. These alumni then serve as resource people and community leaders in the effort to clean up local waterways and coordinate efforts to infiltrate and reduce stormwater runoff.

In FY 2021, WSA trained 56 District residents to become Master Watershed Stewards. For the first time, this was done through a hybrid class model by having a portion of the training online and a portion of the training in-person.

Job Training Programs

Green Zone Environmental Program (GZEP)

Every summer, Green Zone Environmental Program (GZEP) partners with the Marion Barry Summer Youth Employment Program to provide youth and young adults, ages 14-24, with an opportunity to learn about energy and environmental issues, complete community-based environmental projects, and prepare for careers.

In the summer of 2021, DOEE administered GZEP virtually for the second time due to the COVID-19 pandemic. WPD led two virtual training sessions that taught 75 youth and young adults how to identify tree species and about community watershed mapping.

River Corps

River Corps is a 5-month long green infrastructure and job training program that DOEE initiated in 2017 and is administered by the Latin American Youth Center. In this program, young people learn how to maintain LID sites, inspect RiverSmart Homes installations, perform trash cleanups, remove invasive plant species, and photo monitor upcoming existing stream restoration projects.

RiverCorps was able to be held at full capacity in FY 2021, providing 21 youths with hands-on job training. Changes to modes of transportation were made to accommodate social distancing, trainings were held outdoors, and grantee staff worked primarily from home in order to accommodate the COVID-19 pandemic. In FY 2021, RiverCorps outperformed expectations by removing invasive plant species from a total of 26 acres of parkland.

Table 5 - Goal Five: Support Programs that Aim to Prevent NPS Pollution from Individual Actions by Carrying Out Effective Information and Education Campaigns

Objective by 2023	Milestone	2019	2020	2021	2022	2023	Total
To provide 12,500 school students with an overnight MWEE	Provide 2,500 schools students with an overnight MWEE per year	2,520 students	925 students	1,393 students			4,838 students
To train 100 teacher through training that integrates hands-on watershed education system-wide standards of learning	Train 20 teachers per year	17 teachers	32 teachers	40 teachers			89 teachers
To implement the Anacostia River Explorers program to provide free boat tours to at least 5,000 residents on the importance of restoring the Anacostia River	Provide free boat tours on the importance of restoring the Anacostia River to at least 1,000 District residents per year	4,873 residents	1,399 residents	3,803 residents			10,075 residents
To engage and train at least 75 volunteers in the Adopt-A-Stream Program	Engage and train at least 15 volunteers per year in the Adopt-A-Stream Program	17 volunteers	45 volunteers	26 volunteers			88 volunteers
To install 2,000 storm drain markers in the District	Install 400 storm drain markers in the District per year	135 markers	101 markers	286 markers			522 markers
To train a minimum of 75 District residents on issues addressing watershed restoration and water quality through the Watershed Stewards Academy	Train 15 District residents per year in issues addressing watershed restoration and water quality	31 residents	78 residents	56 residents			165 residents
To educate 750 youth enrolled in job training programs on the importance of watershed protection	Educate 150 youth per year	270 youth	64 youth	96 youth			430 youth

Goal Six: Pollution Prevention: Coordinate a Pollution Prevention Program that Reduces Stormwater Pollution from Industrial and Commercial Facilities in the District by Providing Compliance Assistance and Encouraging the Adoption of Practices that will Improve Water Quality in District Waterways

Pollution Prevention Team

DOEE developed a Pollution Prevention (P2) program to work with sister agencies to ensure that municipal facilities that have become critical sources of pollution are in compliance with federal and local stormwater regulations. In 2018, the program expanded from one to three personnel to be able to include other pollution prevention initiatives throughout the District. Today, the P2 program provides compliance assistance and education for entities and activities that pose the National Pollutant Discharge Elimination System critical source list, snow and ice removal, and common household activities that affect NPS pollution.

Stormwater Pollution Prevention Plans

To make all of the District government compliant with reducing NPS, DOEE's stormwater P2 team helps other District agencies in developing and implementing Stormwater Pollution Prevention Plans (SWPPPs). SWPPPs are facility-specific plans that aim to reduce or eliminate the creation of pollutants or wastes at the source through aggressive and practical pollution prevention methods. These SWPPPs are meant to address three primary objectives:

- Assure facility compliance with the District's MS4 permit;
- Identify potential sources of pollution associated with the activities at a facility that may affect the quality of stormwater discharges; and
- Provide detailed commitments for daily practices and good housekeeping at each facility to ensure that pollution prevention goals are reached.

In FY 2021, the P2 team reviewed and provided feedback on 29 SWPPPs for varying District facilities.

Snow and Ice Removal

DOEE works with the District snow team to address vehicle washing, snow disposal operations, and salt storage throughout the city. These efforts include developing the Districts first snow plan in FY 2017, which included site maps for proper snow disposal sites throughout the city and salt dome and vehicle wash facility walkthroughs.

Presently, DOEE plays a role in snow and ice removal operations and emergency response management during winter weather events by developing and leading snow trainings for District employees, contractors, and downtown Business Improvement Districts. These presentations teach District light- and heavy-plow operators and manual street and bridge teams about stormwater permitting, how to minimize stormwater pollution from snow and ice removal operations, good housekeeping practices, and how to respond to spills, leaks, and drips.

In FY 2021, the P2 team held 17 trainings on proper snow and ice removal techniques. This resulted in 381 employees being proficient on good housekeeping, spill response, and techniques to reduce salt use.

Pollution Prevention Workshops

DOEE's P2 team also targets the automotive repair industry and commercial buildings by conducting workshops throughout the year to educate business owners and provide compliance assistance and stormwater pollution prevention strategies.

In FY 2021, DOEE trained a total of 515 employees on proper pollution prevention strategies by conducting the following workshops:

- 28 Compliance with Stormwater Regulations workshops;
- 3 Multi Sector General Permit for Industrial Stormwater Runoff workshops; and
- 29 Site Walkthrough and Mock Inspection workshops.

Table 6 - Goal Six: Pollution Prevention: Coordinate a Pollution Prevention Program that Reduces Stormwater Pollution from Industrial and Commercial Facilities in the District by Providing Compliance Assistance and Encouraging the Adoption of Practices that will Improve Water Quality in District Waterways

Objective by 2023	Milestone	2019	2020	2021	2022	2023	Total
To provide feedback on 100 SWPPPs for District facilities to ensure they are accurate and complete	Provide feedback on 20 SWPPPs for District facilities per year	28 SWPPPs	17 SWPPPs	29 SWPPPs			74 SWPPPs
To provide trainings for 1,000 municipal snow and ice removal staff on good housekeeping, spill response, and techniques that reduce salt use	Provide annual trainings to 200 municipal snow and ice removal staff per year	860 staff	11 staff	381 staff			1,252 staff
To conduct 10 workshops for the automotive repair industry and commercial buildings, to provide compliance assistance and stormwater pollution prevention strategies	Conduct 2 workshops per year; 1 for the automotive repair industry and 1 for commercial buildings, to provide compliance assistance and stormwater pollution prevention strategies	3 workshops	2 workshops	60 workshops			65 workshops

Each calculation represents the annual total for that category. All measurements of pollutants are in pounds (lbs) per year unless otherwise noted.

Table 7 - Annual Runoff Volume and Load Reduction for the FY 2021 BMP Inventory for the District of Columbia

Watershed	Area Treated (acres)	Number of Practices	TN	TP	TSS	Fecal Cloriform (billion MPN)	BOD	Oil and Grease	Arsenic	Copper	Lead	Mercury	Zinc	Chlordane	DDD	DDE	DDT	Dieldrin	Heptachlor Epoxide	PAH1	PAH2	PAH3	TPCB	*E. coli* (billion MPN)
Anacostia	72.17	1000	469.0667	54.7964	10794.1975	8862.0858	4643.4829	608.2577	0.21386	7.44319	2.30967	0.026385	17.27630	0.0012853	0.00042293	0.00190730	0.0048720	0.0000	0.0001	0.083525	0.55790	0.3931	0.0112	3556.6730
Broad Branch	6.62	91	20.2796	2.3056	357.3058	371.6286	140.8737	24.6990	0.00921	0.31651	0.09561	0.001136	0.60950	0.0000586	0.00001796	0.00007972	0.0002049	1.72596E-06	5.69566E-06	0.003920	0.02482	0.01609758	0.0004822	149.147896
Dalecarlia	3.05	37	34.859	3.99247	448.21037	647.0076	279.9661	33.40052	0.01584	0.54740	0.16785	0.00195	1.05249	0.00010	0.00003	0.0001	0.00036	0.0000029	0.00001	0.00657	0.04216	0.02845	0.00083	259.6674
Dumbarton Oaks	1.74	11	22.4550	2.6326	458.9491	433.3484	115.9190	22.0585	0.00989	0.35452	0.11659	0.001220	0.71073	0.0000529	0.00002025	0.00009458	0.0002376	1.42022E-06	4.68671E-06	0.003251	0.02388	0.02024812	0.00052458	173.918259
Fenwick Branch	0.99	10	9.8094	1.1228	175.8015	183.2689	69.9365	12.2618	0.00455	0.15623	0.04710	0.000561	0.30058	0.0000290	0.00000886	0.00003930	0.0001010	8.56847E-07	2.8276E-06	0.001946	0.01229	0.00792436	0.000238144	73.5523935
Fort Chaplin	0.0058		0.1166	0.0086	0.0000	0.0000	0.0000	0.0000	0.00000	0.00000	0.00000	0.000000	0.00000	0.0000000	0.00000000	0.00000000	0.0000000	0	0	0.000000	0.00000	0	0	0
Fort Davis	0.03	19	0.9154	0.1002	17.7757	15.0359	8.7097	0.8848	0.00037	0.01282	0.00386	0.000046	0.02931	0.0000024	0.00000073	0.00000322	0.0000083	7.0298E-08	2.31983E-07	0.000160	0.00101	0.00065014	1.9538E-05	6.0344295
Fort Dupont	0.016	5	0.0439	0.0050	0.9707	0.8211	0.4756	0.0483	0.00002	0.00070	0.00021	0.000003	0.00160	0.0000001	0.00000004	0.00000018	0.0000005	3.83897E-09	1.26686E-08	0.000009	0.00006	3.5504E-05	1.06697E-06	0.32954003
Fort Stanton	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hickey Run	14.48	88	96.4173	12.0447	2354.1574	1903.8506	911.5999	212.0733	0.04516	1.58612	0.50029	0.005572	3.71148	0.0002612	0.00009006	0.00040909	0.0010481	7.29642E-06	2.40782E-05	0.016600	0.11591	0.08590879	0.002367446	764.083561
Klingle Valley	0.0019	0	0.0144	0.0016	0.2583	0.2693	0.1027	0.0180	0.00001	0.00023	0.00007	0.000001	0.00044	0.0000000	0.00000001	0.00000006	0.0000001	1.25887E-09	4.15427E-09	0.000003	0.00002	1.1642E-05	3.49879E-07	0.10806226
Luzon Branch	7.06	44	122.5133	14.0594	2198.2916	2286.9727	868.5414	158.8061	0.05670	1.94821	0.58857	0.006996	3.75082	0.0003612	0.00011061	0.00049071	0.0012610	1.06412E-05	3.51159E-05	0.024163	0.15294	0.09902171	0.002969719	917.844188
Melvin Hazen	0.01	5	0.4485	0.0491	7.0469	7.3462	2.8033	0.4915	0.00018	0.00626	0.00189	0.000023	0.01205	0.0000012	0.00000036	0.00000158	0.0000041	3.4346E-08	1.13342E-07	0.000078	0.00049	0.00031764	9.54582E-06	2.94828497
Nash Run	4.98	46	88.3288	10.1947	2011.6274	1671.8713	933.0441	101.2967	0.04081	1.41254	0.43304	0.005036	3.25925	0.0002517	0.00008023	0.00035923	0.0009199	7.28574E-06	2.40429E-05	0.016581	0.10801	0.07334738	0.002140698	670.98195
Normanstone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oxon Run	12.82	131	177.7200	20.4173	2318.2742	3313.4779	1429.7475	171.9980	0.08058	2.79280	0.86294	0.009941	5.39004	0.0004974	0.00015867	0.00071433	0.0018212	1.44789E-05	4.77804E-05	0.032925	0.21284	0.14679638	0.004228835	1329.81754
Pinehurst	34.86	36	20.1107	2.2999	361.3280	374.3493	140.2889	24.5965	0.00925	0.31835	0.09648	0.001141	0.61396	0.0000585	0.00001807	0.00008035	0.0002063	1.71879E-06	5.67201E-06	0.003904	0.02483	0.01626473	0.000484424	150.239814
Piney Branch	0.01	10	0.4250	0.0486	7.6195	7.9395	3.0256	0.5305	0.00020	0.00677	0.00204	0.000024	0.01302	0.0000013	0.00000038	0.00000170	0.0000044	3.70685E-08	1.22326E-07	0.000084	0.00053	0.00034341	1.03132E-05	3.18639159
Pope Branch	0.02	13	0.2412	0.0225	2.5781	2.1807	1.2632	0.1283	0.00005	0.00186	0.00056	0.000007	0.00425	0.0000003	0.00000011	0.00000047	0.0000012	1.01957E-08	3.36457E-08	0.000023	0.00015	9.4292E-05	2.8337E-06	0.87520458
Portal branch	0.01	5	0.2425	0.0232	2.3630	2.4633	0.9400	0.1648	0.00006	0.00210	0.00063	0.000008	0.00404	0.0000004	0.00000012	0.00000053	0.0000014	1.15169E-08	3.80058E-08	0.000026	0.00017	0.00010651	3.20091E-06	0.98862008
Rock Creek	76.9	458	342.1033	39.4486	6308.1923	6421.5520	2321.5042	434.9307	0.15645	5.42290	1.66898	0.019303	10.53188	0.0009653	0.00030844	0.00138345	0.0035348	2.79857E-05	9.23527E-05	0.063625	0.41348	0.28270957	0.008218288	2577.19919
Soapstone	4.45	36	26.6241	3.2285	520.9108	507.6250	158.2951	51.5924	0.01197	0.42177	0.13549	0.001476	0.83255	0.0000695	0.00002425	0.00011073	0.0002793	1.9394E-06	6.40002E-06	0.004414	0.03040	0.02305734	0.000636337	203.728105
Texas Avenue Tributary	0.013	4	0.0879	0.0101	1.9415	1.6422	0.9513	0.0966	0.00004	0.00140	0.00042	0.000005	0.00320	0.0000003	0.00000008	0.00000035	0.0000009	7.67794E-09	2.53372E-08	0.000017	0.00011	7.1008E-05	2.13394E-06	0.65908005
Watts Branch	2.11	77	8.7442	1.0810	200.8897	161.6744	74.7809	20.3733	0.00381	0.13434	0.04260	0.000470	0.31518	0.0000218	0.00000763	0.00003472	0.0000890	6.03575E-07	1.9918E-06	0.001372	0.00974	0.00733631	0.000199807	64.8857336
Totals	242.3467	2126	1441.5667	167.8930	28548.6893	27176.4107	12106.2515	1878.7073	0.65902	22.88702	7.07489	0.081308	48.42267	0.0040172	0.00130088	0.00585084	0.0149521	0.0001	0.0004	0.263197	1.73174	1.2019	0.0346	10906.8686

Summary

The District'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 new technologies, the District will continue to make significant progress towards achieving its goals. In FY 2022, 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.