



National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit

Montgomery County, Maryland

FY23 Annual Report
July 1, 2022 to June 30, 2023



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Acronyms and Abbreviations

µmho/cm	micromho(s) per centimeter
Act	Stormwater Management Act of 2007
BIBI	benthic index of biological integrity
BMP	best management practice
CA	community/condo association
CBT	Chesapeake Bay Trust
CIP	capital improvement program
County	Montgomery County
CY	calendar year
D ₅₀	particle size
DEP	Montgomery County Department of Environmental Protection
DFM	Montgomery County Division of Facility Management
DGS	Montgomery County Department of General Services
DHCA	Montgomery County Department of Housing and Community Affairs
DO	dissolved oxygen
DOT	Montgomery County Department of Transportation
DPS	Montgomery County Department of Permitting Services
ECCD	Energy, Climate and Compliance Division
EMC	event mean concentration
EPA	U.S. Environmental Protection Agency
EPT	Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies)
ESC	erosion and sediment control
ESD	environmental site design
FAP	financial assurance plan
FFG	functional feeding groups
FY	fiscal year
GHP	Good Housekeeping Plan
GIS	geographic information system
HOA	homeowners association
IA	impervious area/acreage
ID	identification
IDDE	illicit discharge detection and elimination
ISR	impervious surface restoration
KCI	KCI Technologies, Inc.
MCPS	Montgomery County Public Schools
MDE	Maryland Department of the Environment
MEP	maximum extent practicable
M-NCPPC	Maryland-National Capital Park and Planning Commission
MS4	Municipal Separate Storm Sewer System

MS4 Permit	Municipal Separate Storm Sewer System Permit Number 06-DP-3320 MD0068349
NOI	notice of intent
NOV	notice of violation
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
Permit	Municipal Separate Storm Sewer System Permit Number 06-DP-3320 MD0068349
ROE	right of entry
ROW	right-of-way
RPC	responsible personnel certification
SDE	Spatial Database Engine
SFR	single-family residence or residential
SMP	Salt Management Plan
SOP	standard operating procedure
SR	stream restoration
SSO	sanitary sewer overflow
SVP	Stream Valley Park
SW Industrial GP	General Permit for Discharges of Stormwater Associated with Industrial Activity
SW-WLA	stormwater wasteload allocation
SWIM	stormwater inspection and maintenance program
SWM	stormwater management
TMDL	total maximum daily load
WLA	wasteload allocation
WQPC	water quality protection charge
WSSC	Washington Sanitary Sewer Commission
WWTP	wastewater treatment plant



National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System

Executive Summary of Accomplishments
July 1, 2022, to June 30, 2023



Montgomery County (the County) manages multiple programs that assess and address impacts from stormwater and surface water pollution. By implementing a comprehensive stormwater management program, the County staff and partners work to protect and improve water quality in the County's streams and waterways.

A significant component of the County's stormwater program is its Municipal Separate Storm Sewer System (MS4) Permit, a 5-year permit issued by the Maryland Department of the Environment (MDE).

MDE issued the current permit to the County on November 5, 2021. The permit has a 5-year term.

For most urban and suburban areas like Montgomery County, what goes into our storm drains makes its way into our local streams. Those streams are part of larger watersheds that lead to major rivers, like the Potomac River, and eventually the Chesapeake Bay. Because our waters are interconnected and not confined by county or state lines, MDE regulates everything that goes through the storm drain systems by issuing the County an MS4 permit. The reason for the permit is to protect water quality and ensure the County is meeting the requirements of the Clean Water Act.

STORMWATER – WHAT'S THE PROBLEM?

As the County has become more developed, its natural landscapes have been replaced with impervious areas such as asphalt, concrete, buildings, and roadways.

Before development, water from rain or snow melt was absorbed naturally into the soil or flowed over the ground to a nearby stream. Development has disrupted this natural water flow cycle.

Currently during rain and snow melt, this stormwater runoff flows across paved surfaces and picks up whatever is in its path – oil, litter, pesticides, fertilizer, leaves, animal waste, and more.

Instead of filtering into the ground, stormwater runoff can also cause flash flooding and significant erosion, as well as damage to properties and infrastructure, as it flows over land or through storm drains to local streams.

WHAT'S THE SOLUTION?

Effective stormwater management:

- Improves the quality of stormwater runoff, by reducing the pollutants it carries to local waterways.
- Reduces the quantity of stormwater, by helping more of it soak into the ground.

Permit Reporting Structure

Stormwater management involves several methods to address the quality and quantity of stormwater runoff at several points between when the rainfall hits impervious surfaces and becomes stormwater runoff and when the stormwater runoff is discharged into the County's streams:

1. Using stormwater BMPs to control and reduce pollution in stormwater runoff before it enters the County's stormwater system.
2. Maintaining the County's storm drains, pipes, and other stormwater infrastructure.
3. Reducing the amount of polluted stormwater runoff discharging into the County's streams.

Elements of the 2021 Permit require efforts to improve stormwater management at each of these points. Other permit elements are more cross-cutting and address multiple aspects, including increasing public education, implementing plans to control the quantity of pollutants that can enter watersheds, and ensuring the County's stormwater programs have adequate funding. The management, restoration, and monitoring programs required by this 2021 Permit are designed to reduce stormwater quantity and improve stormwater quality at all points to the maximum extent practicable. This executive summary of accomplishments follows the structure of the 2021 MS4 Permit, and provides the County's fiscal year 2023 (FY23) accomplishments, progress, and compliance with meeting the requirements in the permit, and protecting water quality.

Management Programs

To control stormwater quantity and quality, the County implements a diverse set of management programs that target stormwater facility maintenance and inspections, erosion and sediment control (ESC), the detection and elimination of illicit discharges of pollutants, management of pollutants from County property, and public outreach and education. More detail on each of these programs is found in the FY23 MS4 Annual Report and the National Pollutant Discharge Elimination System (NPDES) MS4 Geodatabase.

Stormwater Management Program - Inspection and Maintenance

All new development and redevelopment in the County must comply with MDE stormwater design standards. In some cases, the County's requirements are stricter than state standards. Examples include requiring sediment control and stormwater management to be addressed for any new home or commercial building construction, regardless of how much ground is disturbed. The County's Department of Permitting Services (DPS) is responsible for implementing the programmatic requirements for stormwater management plan review and permitting.

A Best Management Practice (BMP) is a device designed to temporarily store or treat runoff to reduce pollution, and provide other amenities. BMPs include structural practices such as constructed stormwater retention ponds, and nonstructural Environmental Site Design (ESD) practices such as micro-bioretentions.



Quail Valley Stormwater Pond Retrofit.

During FY23, DPS approved 86 concept designs, 716 final plans, 20 redevelopments, and 292 waivers.

The County's Department of Environmental Protection (DEP) is responsible for the triennial inspection and preventative maintenance of stormwater management facilities under the County's jurisdiction. These facilities include BMPs owned by the County, Montgomery County Public Schools, and the Maryland-National Capital Park and Planning Commission, as well as environmental site design (ESD) practices located on County property and rights-of-way. In addition to inspections, the DEP stormwater facility maintenance program oversees structural and nonstructural maintenance of all facilities under the County's jurisdiction.

Environmental Site Design (ESD) is a design strategy for maintaining pre-development runoff characteristics and protecting natural resources. ESD BMPs integrate site design, natural hydrology, and smaller controls to capture and treat runoff. These practices include micro-bioretentment, rain gardens, permeable pavement, and green roofs.



SWM BMP at Third District Police Station maintained by DEP in FY23.

DEP also conducts maintenance follow-up inspections outside of the triennial inspection program. These inspections verify completed maintenance work, confirm compliance, and investigate public complaints. The stormwater inspection and maintenance group issues notices of violation (NOVs) or citations to property owners responsible for noncompliant structural and/or nonstructural BMPs. The total number of inspections completed in FY23 is provided in Figure 1.

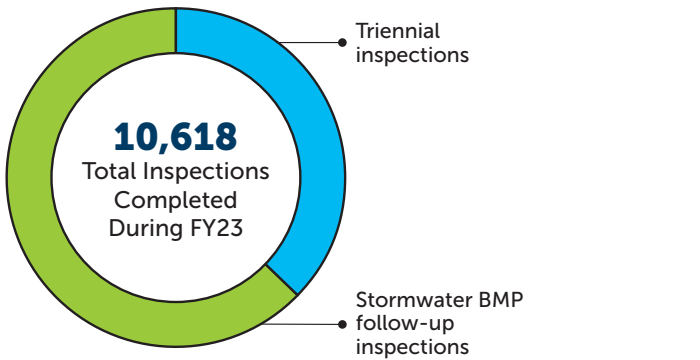


Figure 1. Total Inspections Completed

Erosion and Sediment Control

DPS implements an ESC program designed to reduce pollutants during construction of new development and redevelopment. County staff review permit applications, inspect ESC practices, issue NOVs, and collect fines. Figure 2 provides the number of ESC enforcement actions taken during FY23.

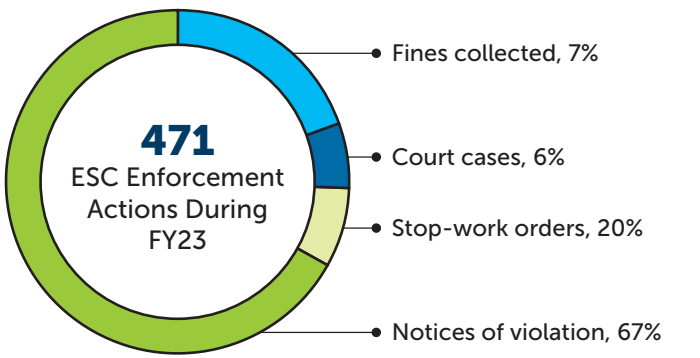


Figure 2. ESC Enforcement Actions During FY23

Illicit Discharge Detection and Elimination

The County implements an inspection and enforcement program to ensure that pollutants are found and prevented from entering the storm drain system and our streams. This program includes the following actions:

- Inspecting storm drain outfalls and looking for pollutants in stormwater. (Figure 3)
- Conducting surveys of properties in different commercial and industrial areas of the County. (Figure 4)
- Implementing an enforcement program by investigating water quality and illegal dumping complaints and issuing citations, NOVs, and warnings as appropriate.

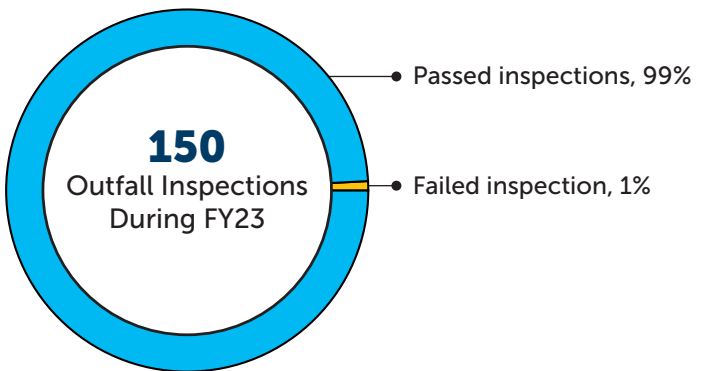


Figure 3. Summary of FY23 Outfall Inspections

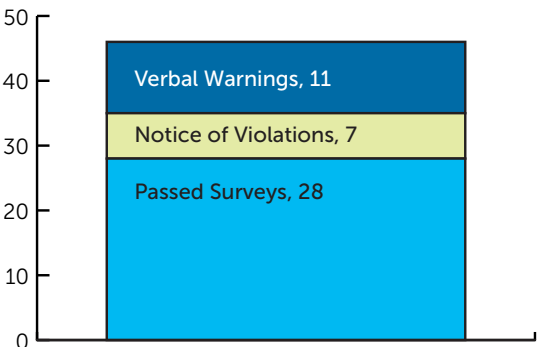


Figure 4. Summary of FY23 Commercial and Industrial Surveys



Storm drain outfall inspected in 2023.

Property Management and Maintenance

All County agencies that operate maintenance facilities must comply with the General Permit for Industrial Activities. The County's 11 facilities, the Town of Poolesville's facility, and the Montgomery County Public Schools' six facilities maintain a stormwater pollution prevention plan and implement good housekeeping, such as routine sweeping. County facilities are inspected monthly, and stormwater outfalls on the sites are inspected quarterly. Annual training, including ways to minimize the use of hazardous substances, pollutants, and contaminants and prevent their exposure to precipitation and stormwater runoff, is delivered to all facility operation employees.

In addition, the County administers a street sweeping program that prevents tons of pollutants from entering the County's streams. The County's Department of Transportation removes material from clogged inlets, storm drains, drainage ditches, and adjacent drainage areas. The County also implements several programs to reduce trash and litter that may enter streams. These programs focus on direct litter removal and litter reduction programs. Direct litter removal involves removing litter and debris from our streets, sidewalks, and communities before it enters the storm drain or ends up in our streams. Litter reduction programs help reduce the sources of litter. Several programs run by the County provide enforcement and compliance of our laws and outreach and education to prevent and stop littering. During FY23, the County's street sweeping, inlet cleaning and litter removal programs removed 558 tons of debris and litter.

Public Education and Outreach

The County continues to implement a robust public education and outreach program designed not only to meet Permit requirements, but also increase local awareness of stormwater management benefits and bring associated behavior changes to protect the County's water quality.

The My Green Montgomery

(<https://mygreenmontgomery.org/>) online education portal continued as the news and communication arm of the DEP. The public education programming provided social media posts on Facebook, Instagram, Twitter, YouTube, and Nextdoor.

DEP events continued to focus on targeting specific audiences, increasing stormwater and water quality awareness, and encouraging residents to take specific environmentally-friendly actions. Figure 5 provides a breakdown of the public education and outreach efforts conducted in FY23.



Community litter clean-up along Turkey Branch Parkway with students from Liberty Promise and Council Member Fani-Gonzalez.

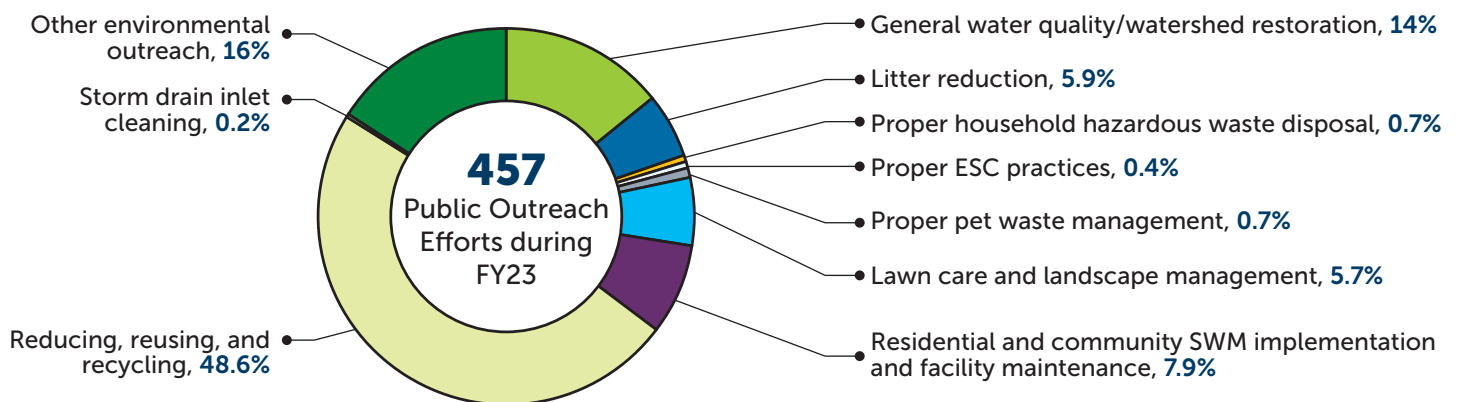


Figure 5. Public Outreach Efforts during FY23

Stormwater Restoration

Watershed restoration work performed in the County is implemented to improve water quality under the guidelines set by MDE in the MS4 Permit. The work is funded primarily through the County's Water Quality Protection Charge. The permit requires the County complete restoration of 1,814 impervious acres by November 4, 2026. The County is making tremendous progress toward meeting this goal. In FY23, the County has completed 63 percent of the restoration goal. Figure 6 shows the County's current progress, as well as the yearly restoration benchmarks from the Permit.



ESD BMP installed with the Glenmont Forest Green Street project completed in July 2022.

The restoration work the County does to improve water quality includes street sweeping, inlet cleaning, outfall stabilization and stream restoration, planting of street trees and canopy trees through Tree Montgomery, installation of small scale BMPs funded by RainScapes and Clean Water Montgomery Grants, and capital program funded ESD and stormwater pond retrofits. Figure 7 is a summary of the work completed in FY23. Figure 8 shows the percent of impervious areas treated by BMP type and the associated number of projects per BMP type for the County's restoration work completed through FY23.

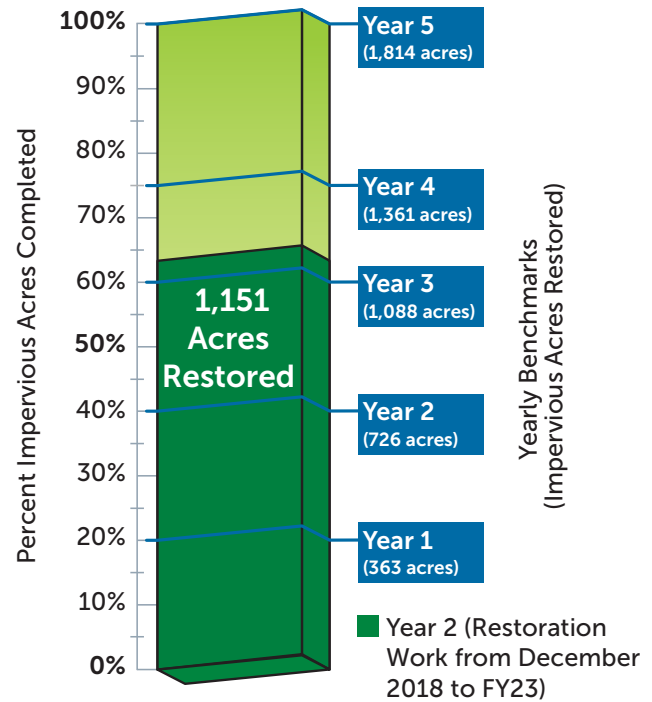


Figure 6. Annual Restoration Progress

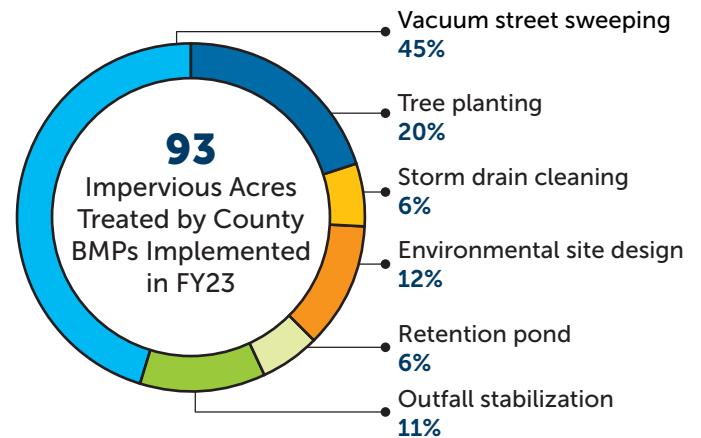


Figure 7. Summary of Stormwater Restoration Projects and Alternate BMPs Implemented during FY23

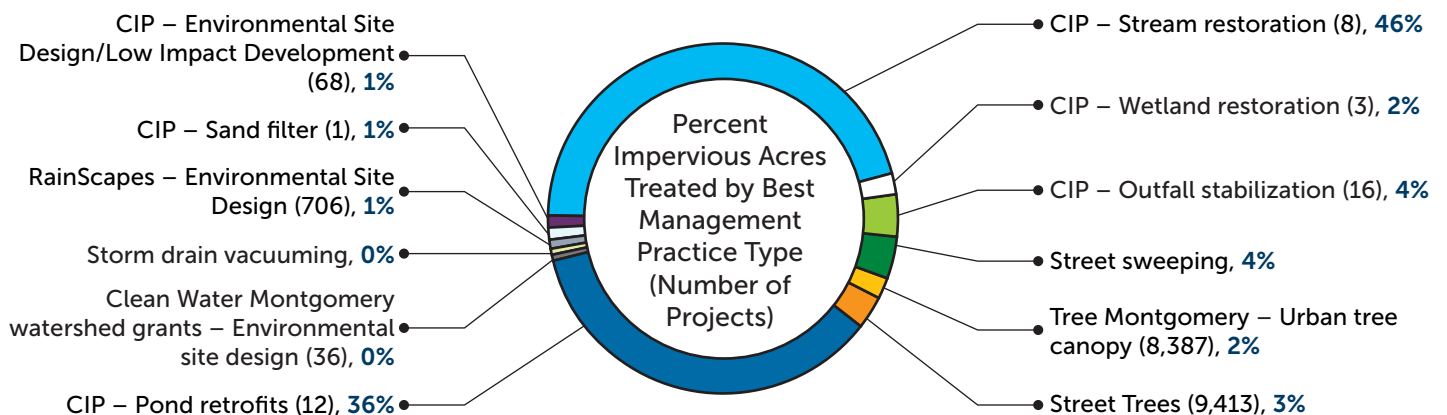


Figure 8. Stormwater Restoration Progress

Assessment of Controls

To monitor BMP effectiveness, the County conducted a 13-year monitoring study for the Breewood Tributary Watershed Restoration Project. The monitoring plan was established in 2009 and includes chemical, physical, and biological monitoring. Between 2015 and 2018, DEP completed the installation of many restoration BMPs, including 25 ESD practices, three RainScapes, and stream restoration.

The monitoring was completed in 2022. The overall conclusions from the study indicate that the environmental conditions in the Breewood watershed appear better than before the restoration. Stream channel configuration and stability have greatly improved. The stream habitat appears to be better than the prior condition. Stream hydrology improved during small storms with reduced and delayed peak flows. Reductions in total suspended solids and some metals suggest BMPs are effective at reducing some pollutants and reducing erosion. These factors all indicate improving water quality.

However, the restoration work has not reduced nitrogen levels in storm flows and aquatic benthic macroinvertebrate communities have not shown significant improvement.

Environmental conditions may not have improved enough to support sensitive benthic macroinvertebrate species. Restoration results are in line with expectations set forth in recent literature documenting benthic macroinvertebrate community shifts due to stream restoration in Montgomery County ([Hilderbrand 2020](#)).



DEP Aquatic Biologists and Interns doing summer fish monitoring.

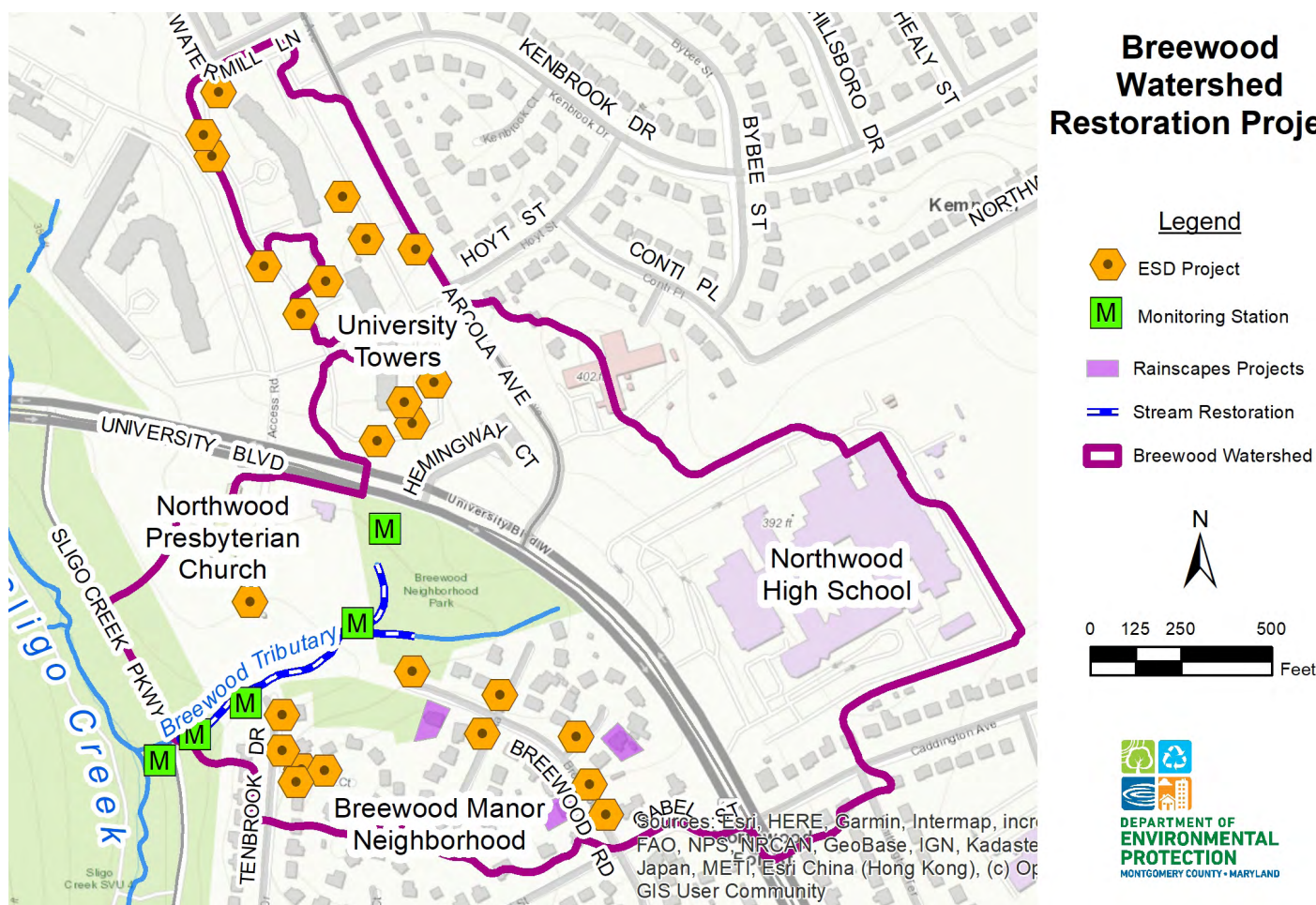


Figure 9. Locations of Monitoring Stations and Restoration Projects in the Breewood Watershed

The **Water Quality Protection Charge (WQPC)** funds the County's stormwater management programs. The WQPC is assessed based on how much impervious area is on an owner's property, thereby contributing to stormwater runoff. WQPC credits are granted to property owners who install and maintain stormwater facilities on their properties to reduce and/or treat stormwater runoff.

Program Funding

During FY23, reported expenditures associated with all MS4 Permit requirements were \$70,218,646, which is a decrease of 7 percent over FY22 MS4 Permit expenditures. The decrease in expenditures is due to mild winter weather in FY23, which significantly reduced expenditures for winter weather activities.

The County has demonstrated its commitment to meet stormwater initiatives by budgeting \$85 million for FY24. The program funding includes revenue generated from the WQPC, BMP monitoring fee, tree canopy fee, stormwater waivers fee and bag tax.

Highlights of the budget include continuing the planning and implementation of stormwater management projects, public outreach, stream monitoring, and other actions needed to continue to comply with the County's MS4 Permit. Expanding the use of contracts and partnerships through a new Capital Improvement Program continues to help the County meet Permit goals in a more cost-effective manner.



RainScapes conservation landscaping.

Total Maximum Daily Load

The County has 23 local TMDLs for bacteria, nitrogen, phosphorus, sediment, trash, and PCBs. A TMDL is a regulatory term that describes the maximum amount of pollutants that a water body can receive while still meeting water quality standards. The Permit requires the County to develop a Countywide Stormwater TMDL Implementation Plan for each fiscal year. This plan was provided to MDE in December 2023 and covers the County's progress for FY22 and FY23.



Bioretention garden installed at Northwood Presbyterian Church as part of the Breewood Tributary Restoration Project.

1. Introduction

This submission by the Montgomery County (the County) Department of Environmental Protection (DEP) to the Maryland Department of the Environment (MDE) fulfills the annual progress report requirement as specified in Part V of the Municipal Separate Storm Sewer System (MS4) Permit Number 20-DP-3320 MD0068349 (MS4 Permit or the Permit). DEP is submitting its second report in this current permit cycle (November 5, 2021, through November 4, 2026), the georeferenced database, referred to in this report as the National Pollutant Discharge Elimination System (NPDES) MS4 Geodatabase, and supplemental databases (MDE 2017; MDE 2021). The NPDES MS4 Geodatabase has been developed in accordance with MDE's NPDES MS4 Geodatabase Design and User's Guide (Version 1.2; MDE 2017) and Draft Supplement to the Geodatabase Design and User's Guide (Version 1.2 Draft Updates; MDE 2021). This report highlights the progress the County has made between July 1, 2022, and June 30, 2023.

The County continues to implement restoration projects required to meet the current permit restoration goal and local total maximum daily loads (TMDLs). As of fiscal year 2023 (FY23), the County has achieved 63 percent of its restoration goal by deploying street-sweeping and catch basin cleaning programs, installing environmental site design (ESD) projects, constructing stream restorations, constructing pond retrofits and outfall stabilization projects, and volunteer programs such as RainScapes and Tree Montgomery.

The County continues to maintain adequate legal authority, conduct illicit discharge detection and elimination (IDDE) inspections, implement a best management practice (BMP) inspection and maintenance program, enhance property management programs to reduce stormwater pollution, expand water quality pollution awareness outreach programs, and assure adequate funding for Permit-required programs.

In December 2023, the County submitted a Countywide TMDL stormwater implementation plan to MDE. The Countywide TMDL stormwater implementation plan shows the County's progress toward meeting wasteload allocations (WLAs) for approved local TMDLs and Chesapeake Bay TMDLs.

This FY23 MS4 Annual Report has been organized based on the headings in Permit Part IV (Standard Permit Conditions) to document the implementation of required elements. Required elements of the Permit are presented in a box format at the beginning of each main section.

2. Standard Permit Conditions

2.A Permit Administration

The Permit language of the County's MS4 Permit Part IV.A, Permit Administration, is provided as follows:

<< Montgomery County shall designate an individual to act as a liaison with the MDE (Department) for the implementation of this Permit. The County shall provide the coordinator's name, title, address, phone number, and email address. Additionally, the County shall submit in its annual reports to the Department an organizational chart detailing personnel and groups responsible for major NPDES program tasks in this Permit. The Department shall be notified in annual reports of any changes in personnel or organization relative to NPDES program tasks. >>

The designated individual to act as a liaison with the MDE is as follows:

Amy Stevens, Chief
Planning, Outreach, and Monitoring Section
Department of Environmental Protection
2425 Reddie Drive, 4th Floor
Wheaton, Maryland 20902
240-777-7766
Amy.Stevens@montgomerycountymd.gov

Table 2.A-1 lists County personnel responsible for major NPDES program tasks and their contact information (as of September 2023).

Table 2.A-1. Organization Chart for Montgomery County Permit-required Programs

Permit Section	Permit Section Description	Department	Name	Title	Telephone
Part IV.A	Organization Chart—Liaison with MDE for Permit Implementation	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV.B	Legal Authority	OCA	Walter Wilson	Associate County Attorney	240-777-6759
Part IV.C	Source Identification	DEP	Vicky Wan	Chief, Strategic Services Division	240-777-7722
Part IV. D.1	Stormwater Management (Implementation, Information, and Construction Inspections)	DPS	Linda Kobylski	Chief, Land Development Division	240-777-6346
Part IV. D.1	Stormwater Management Facility Inspections and Maintenance	DEP	Pam Parker	Chief, Stormwater BMP Inspection and Maintenance Section	240-777-7758
Part IV. D.2	Erosion and Sediment Control	DPS	Linda Kobylski	Chief, Land Development Division	240-777-6346
Part IV. D.3	IDDE (Outfall Inspection and Commercial and Industrial Surveys)	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV. D.3	IDDE (Compliance and Enforcement)	DEP	Steve Martin	Supervisor, Environmental Compliance Group	240-777-7746
Part IV. D.4	Property Management and Maintenance	DGS	David E. Dise	Director	240-777-6191
Part IV. D.4	Property Management and Maintenance	DOT	Richard Dorsey	Chief, Division of Highway Services	240-777-7600
Part IV.D.4	Property Management and Maintenance	DEP	Willie Wainer	Chief, Recycling and Resource Management Division	240-777-6402
Part IV.D.4	Property Management and Maintenance (Trash and Litter Control Efforts)	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV.D.5	Public Education	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV.E	Stormwater Restoration	DEP	Frank Dawson	Chief, Watershed Restoration Division	240-777-7732

Permit Section	Permit Section Description	Department	Name	Title	Telephone
Part IV.E	Stormwater Restoration	DOT	Dan Sheridan	Chief, Transportation Planning and Design Section	240-777-7283
Part IV.F	Countywide TMDL Stormwater Implementation Plan	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV.G	Assessment of Controls	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part IV.H	Program Funding	DEP	Anthony Skinner	Chief Business Operations	240-777-6438
Part V.	Program Review and Annual Progress Reporting	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766
Part VI.	Special Programmatic Conditions	DEP	Amy Stevens	Chief, Planning, Outreach, and Monitoring Section	240-777-7766

Notes:

DEP = Department of Environmental Protection, 2425 Reedie Drive, 4th Floor, Wheaton, Maryland 2090

DGS = Department of General Services, 101 Monroe Street, 9th Floor, Rockville, Maryland 20850

DPS = Department of Permitting Services, Division of Land Development Services, 2425 Reedie Drive, 4th Floor, Wheaton, Maryland 20902

DOT = Department of Transportation, Division of Highway Services, 101 Orchard Ridge Drive, 2nd Floor, Gaithersburg Maryland 20878

OCA = Office of the County Attorney, 101 Monroe Street, 3rd Floor, Rockville, Maryland 20850

2.B Legal Authority

The Permit language of the County's MS4 Permit Part IV.B, Legal Authority, is provided as follows:

<< Montgomery County shall maintain adequate legal authority to meet this Permit's requirements in accordance with NPDES regulations at 40 CFR §122.26 throughout the term of this Permit. In the event that any provision of its legal authority is found to be invalid, the County shall notify the Department in writing within 30 days and make the necessary changes to maintain adequate legal authority within one year of notification. All changes shall be included in the County's annual report. >>

2.B.1 Montgomery County Code

County laws in Montgomery County Code Chapter 19, Erosion, Sediment Control, and Stormwater Management, provide sufficient legal authority to enable the County to meet the MS4 Permit requirements. Beyond Chapter 19, other legislation has been enacted to support water quality protection programs required under the Permit. The laws are as described in Table 2.B-1.

Table 2.B-1. MS4 Permit Requirements and Established Legal Authority

MS4 Permit Section	Montgomery County Code	Authority Description
IV.D.1. Stormwater Management	Chapter 19, Article II: Storm Water Management	Governs County stormwater management (SWM) program, including BMP inspection and maintenance requirements
IV.D.2. Erosion and Sediment Control	Chapter 19, Article I: Erosion and Sediment Control	Establishes countywide erosion and sediment control requirements
IV.D.3. Illicit Discharge Detection and Elimination	Chapter 19, Article IV: Water Quality Control	Prohibits non-permitted pollutant discharge to waterbodies and establishes an inspection and enforcement regime
IV.D.4.c.iii. Reduce pollutants associated with the maintenance of County-owned properties	Chapter 19, Chapter 33B: Pesticides	Restricts using certain substances on lawns, places notification requirements on pesticide retailers and applicators, and requires the Montgomery County Parks Department to implement a pesticide-free program
IV.D.4.e. Evaluate current litter-control problems	Chapter 48, Article VI: Solid Waste, Disposable Food Service Products and Packaging Materials Chapter 52, Article IX: Taxation, Carryout Bag Tax	Requires disposable food service ware purchased and used in the County to be either recyclable or compostable Generates revenue for the County's SWM programs and reduces paper or plastic bags provided at point of sale
IV.D.3.f. and g. Respond to illegal discharges, dumping, and spills	Chapter 48, Article I: Solid Waste, In General	Prohibits disposing of garbage and other solid waste on certain public and private properties

2.B.2 Co-permittees

The County continues its oversight, inspection, and enforcement authority over the Towns of Chevy Chase, Kensington, Poolesville, and Somerset; Chevy Chase Village; and one special tax district, the Village of Friendship Heights. The Town of Somerset is not listed under Part I.B Permit Area of the 2021 Permit but continues to be overseen by the County following Part I.B Permit Area of the 2010 Permit. Municipality contacts are shown in Table 2.B-2.

Montgomery County Public Schools (MCPS) designated Brian Mullikin, Division of Maintenance Environmental Team Leader, and Agustin Diaz, Environmental Specialist, as staff responsible for implementing SWM programs and coordinating Permit issues.

Table 2.B-2. List of Contacts for Co-permittees

Co-permittee	Contact Name and Title	Address	Telephone
Montgomery County Public Schools	Brian Mullikin, MHS Environmental Team Leader	8301 Turkey Thicket Drive, Building A, 1st Floor Gaithersburg, Maryland 20879	240-740-2324
Chevy Chase Village	Shana R. Davis-Cook, Village Manager Jacqueline Parker, Director of Municipal Operations	Chevy Chase Village Hall 5906 Connecticut Avenue Chevy Chase, Maryland 20815	301-654-7300
Village of Friendship Heights	Julian Mansfield, Village Manager	4433 South Park Avenue Chevy Chase, Maryland 20815	301-656-2797
Town of Chevy Chase	Todd Hoffman, Town Manager	4301 Willow Lane Chevy Chase, Maryland 20815	301-654-7144
Town of Kensington	Matthew J. Hoffman, Town Manager	3710 Mitchell Street Kensington, Maryland 20895	301-949-2424
Town of Poolesville	Wade Yost, Town Manager	P.O. Box 158 Poolesville, Maryland 20837	301-428-8927
Town of Somerset ^[1]	Matthew Trollinger, Town Manager	4510 Cumberland Avenue Chevy Chase, Maryland 20815	301-657-3211

^[1] The Town of Somerset is not listed under Part I.B Permit Area of the 2021 Permit but continues to be overseen by the County under Part I.B Permit Area of the 2010 Permit.

MHS = Master of Health Science

2.C Source Identification

The Permit language of the County's MS4 Permit Part IV.C, Source Identification, is provided as follows:

<< Sources of pollutants in stormwater runoff jurisdiction-wide shall be identified by Montgomery County and linked to specific water quality impacts on a watershed basis. A georeferenced database shall be submitted annually in accordance with *Maryland Department of the Environment, National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System, Geodatabase Design and User's Guide (Version 1.2, May 2017)*, (hereafter MS4 Geodatabase) or as noted below that includes information on the following:

1. Storm drain system: all infrastructure, major outfalls, inlets, and associated drainage areas delineated (to be submitted as a supplemental geodatabase);
2. Industrial and commercial sources: industrial and commercial land uses and sites that the County has determined have the potential to contribute significant pollutants (to be submitted as a supplemental geodatabase);
3. Urban best management practices (BMPs): stormwater management facility data for new and redevelopment, including outfall locations and delineated drainage areas;
4. Impervious surfaces: public and private land cover delineated, controlled and uncontrolled impervious areas based on, at a minimum, Maryland's hierarchical eight-digit sub-basins;
5. Monitoring locations: locations established by Montgomery County for chemical, biological, and physical monitoring of watershed restoration efforts and the 2000 Maryland Stormwater Design Manual, unless participating in the pooled monitoring program, as described in PART IV.G; and
6. Water quality improvement projects: Restoration projects implemented in accordance with PART IV.E.3 including stormwater BMPs, programmatic initiatives, and alternative control practices in accordance with the *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits (2021)*, hereafter (2021 Accounting Guidance), including projects proposed, under construction, and completed with associated drainage areas delineated. >>

The County has transitioned the MS4 Permit data into the required MDE NPDES MS4 Geodatabase (Version 1.2, May 2017). The transition to the NPDES MS4 Geodatabase has taken the County over a year to implement. Due to the complexity of transitioning the data, the County has identified several gaps in the data.

2.C.1 Storm Drain System

The County's storm drain system data are provided in the Supplemental Geodatabase. This data set contains the known storm drain infrastructure, major outfalls, and inlets. The NPDES MS4 Geodatabase includes the outfall feature class and outfall drainage area feature class.

2.C.2 Industrial and Commercial Sources

The industrial and commercial land uses and sites that the County has determined to have the potential to contribute significant pollutants are submitted in the Supplemental Geodatabase.

2.C.3 Urban Best Management Practices

SWM facility data, outfalls, and associated drainage area data can be found in the BMP Feature Class, BMP Drainage Area Feature Class, Outfall Feature Class, and Outfall Drainage Area Feature Class of the NPDES MS4 Geodatabase.

The County continued to identify and close data gaps for urban BMPs that were previously not collected or collected in a format that does not meet the requirements of the NPDES MS4 Geodatabase. A description of those data gaps for each feature class follows:

- BMP Feature Class:
 - QUAN_MGMT, PE-REQ, and PE_ADR – These data are not available for most of the records because the County did not track this information in a database format. The County is working on gathering these data for permits issued after FY22 and will populate new BMPs added to the NPDES MS4 Geodatabase with this data, if available. BMPs with a 2022 or earlier built date will not have these data.
 - IMP_ACRES – A few records do not have impervious acres (IAs) calculated. The County will populate these data after the IAs are calculated.
 - PE_PRE_CONV and PE_TOTAL_STORAGE – These data are not available for some restoration BMPs. The County is working on gathering this information and will populate the NPDES MS4 Geodatabase with these data after they are available.
 - WQT_IMP_ACR_CREDIT, TN_REDUCTION, TP_REDUCTION, and TSS_REDUCTION – Most of the BMPs from new and redevelopment and past restoration projects do not have this calculated. The County will populate these data after they are calculated.
 - WM_IMP_ACR_CREDIT and GSI_IMP_ACR_CREDIT – These data for extra credit are not being claimed for some BMPs, therefore, the data are not populated.
 - TOT_IMP_ACR_CREDIT – These data have not been calculated for some BMPs. The County will populate these data after they are calculated.
 - IMPL_COST – Cost data were not available for the individual BMPs for some past restoration projects. The County is gathering the restoration project cost data and will populate the NPDES MS4 Geodatabase with these data after they are available.
- BMP Drainage Area Feature Class:
 - The County has not delineated drainage areas for 136 BMPs. The County will continue to work on delineating these drainage areas.
- Outfall Feature Class:
 - Approximately 500 records were misreported as outfalls in the outfall feature class in FY22. These records are removed in FY23 reporting.
 - SIZE_OUTFALL – These data are not available. The County will continue to work on gathering and populating these data.
 - OUT_YEAR – These data are not available. Because this field cannot be null, a placeholder date of January 1, 1900 is provided. The County will continue to work on gathering and populating these data.

- Outfall Drainage Area Feature Class:
 - Currently the County has not delineated drainage areas for 10,796 outfalls. The County will continue to work on delineating these drainage areas.

2.C.4 Impervious Surfaces

The Impervious Surface Associated Table of the NPDES MS4 Geodatabase summarizes the County's impervious surfaces. The controlled and uncontrolled impervious surface within the County's permit area by Maryland's hierarchical eight-digit sub-basins are summarized below in Table 2.C-1.

Table 2.C-1. Impervious Surfaces by Maryland HUC-8 Sub-basins

MD HUC-8 Sub-basins	Impervious Surface within the County's Permit Area (acres)	Impervious Surface Controlled (acres)	Impervious Surface Uncontrolled (acres)
Anacostia River	7,886.22	3,411.29	4,474.93
Cabin John Creek	3,534.91	572.72	2,962.19
Lower Monocacy River	257.90	44.28	213.62
Potomac Direct	6,041.24	1,377.65	4,663.59
Rock Creek	8,329.02	2,074.43	6,254.59
Rocky Gorge Dam	1,536.39	468.02	1,068.37
Seneca Creek	7,407.04	3,872.11	3,534.93
Upper Patuxent River	202.37	16.90	185.48
Total:	35,195.09	11,837.39	23,357.70

2.C.5 Monitoring Locations

The locations established by the County for chemical, biological, and physical monitoring of Breewood restoration project is provided in the NPDES MS4 Geodatabase. Following are descriptions of data gaps of the Chemical Monitoring Associated Table:

- Chemical Monitoring Associated Table:
 - TPH_dt, TPH EMC, ENTEROCOCCI_dt, and ENTEROCOCCI EMC – Few records have a null value because first-flush samples are not collected for storms that begin late at night for safety reasons.
 - ECOLI_dt and ECOLI EMC – The value for these fields are null. *E.coli* is not sampled as was approved in the 2009 sampling plan.

2.C.6 Water Quality Improvement Projects

The NPDES MS4 Geodatabase contains the geographic information system (GIS) coverage and associated attribute information for watershed restoration projects completed, under construction, and under design. As mentioned, the County invested a considerable effort over the last year to transition the MS4 data to the NPDES MS4 Geodatabase format. As part of this effort, the County discovered data

gaps for water quality improvement projects data that were previously not collected or were collected in a format that does not meet requirements for the NPDES MS4 Geodatabase. Following are descriptions of those data gaps for each feature class:

- Alternative BMP Line Feature Class:
 - IMPL_COST – Cost data were not available for individual BMPs for some past restoration projects. The County is working on gathering the restoration project cost data and will populate the NPDES MS4 Geodatabase with these data after they are available.
- Stream Restoration Protocols Associated Table:
 - PROTOCOL – A total of 84 records do not have a protocol populated because the projects were either credited toward the FY2002 Permit (issued July 5, 2001) and the FY2010 Permit (issued February 16, 2010) or they were constructed or under construction prior to the finalization of the accounting guidance. The field was populated with “Planning” to indicate the planning rate was used to calculate the final credit. Protocol calculation will not be provided for these records.
- Alternative BMP Point Feature Class:
 - IMPL_COST – Cost data were not available for wastewater treatment plant (WWTP) connections and septic denitrification points because this work was completed by the private owner. This gap will not be filled and remain as \$0.
 - BUILT_DATE – Built date information for WWTP connections is not available. The County is working on gathering these data and will populate the database, if available.
- Alternative BMP Polygon Feature Class:
 - TN_REDUCTION, TP_REDUCTION, and TSS_REDUCTION – These data have not been calculated for projects credited towards the 2010 Permit. The County will populate these data after they are calculated.
 - IMPL_COST – Cost data were not available for individual BMPs for some past restoration projects. The County is working on gathering the restoration project cost data and will populate the NPDES MS4 Geodatabase with these data after they are available.

2.C.7 Other Data Gaps

Data gaps for other feature classes and associated tables that are not included in the prior sections are listed below. These data gaps are because the data were not previously collected or were collected in a format that does not meet the requirements of the NPDES MS4 Geodatabase. Following are descriptions of those data gaps for each feature class:

- BMP Inspections Associated Table:
 - INSP_STATUS – The County’s asset maintenance management system incorporated a pass/fail inspection status field in FY23. The inspection status field was populated for the BMPs inspected during the calendar year. All other BMPs will be assigned an inspection status as it gets inspected in the future.
 - INSP_DATE – Approximately 41 percent of the County’s BMP inspection data do not have a valid inspection date. A small percentage of these BMPs were voluntarily installed as part of the County’s RainScapes and Watershed Restoration Grant programs. The County started an inspection program for these BMPs and will continue populating the inspection date as the

BMPs are inspected. The County also has several thousand single-family residential (SFR) BMPs installed on private property through the new development and redevelopment permit process. Most of these BMPs were permitted without an easement. The County has an inspection program specific for these BMPs and continues to work on conducting the inspection, however, several thousand BMPs do not have a valid inspection date. More information is provided on these SFR BMPs in Section 2.D.1.d of this report.

- Alternative BMP Inspections Associated Table:
 - INSP_DATE and ALTBMP_STATUS – The County data provided for Alternative BMP Inspections Associated Table has known data gaps for inspection date and status for streams, outfalls, RainScapes impervious surface removal, trees, and septic systems. The County is working on developing a program to ensure all trees are inspected and inspection data and status are tracked. The County has a contractor performing stream and outfall inspection and will close this gap for this data over the next 3 years. The County is working on addressing the data gaps for inspection data of Best Available Technology (BAT) septic systems, street sweeping, and inlet cleaning.
 - WWTP connections records do not have inspection dates and statuses. The septic systems have been retired, and sewer system inspection is handled by Washington Sanitary Sewer Commission (WSSC). The County believes these records should not require inspection data and inspection status.
- Stormwater Management Associated Table:
 - PLAN_EXPT – This information is not tracked. The County does not issue SWM exemptions. If a project is exempt from SWM requirements, then no application is required.
 - WAIV_REQ, WAIV_REQ_QT, COMB_REQ, and TOTAL_REQ – This information is not tracked by the County. Each project is reviewed on its' merits and full stormwater compliance is required by the County where feasible.
- Erosion Sediment Control Associated Table:
 - OTHER_ISSUED, OTHER_ACTIVE, and DIST_ACTIVE_OTH – This information is not available.
- Quarterly Grading Permits Feature Class:
 - QUARTER - This information is not tracked.
- Municipal Facilities Feature Class:
 - The County will populate the data field for good housekeeping and salt management plans in accordance with the MS4 Permit schedule.

2.D Management Programs

2.D.1 Stormwater Management

The Permit language of the County's MS4 Permit Part IV.D.1, Stormwater Management, is provided as follows:

- << An acceptable stormwater management program will be maintained by the County in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland. Activities to be undertaken by the County shall include, but not be limited to, the following:
- a. Implementing the stormwater management design policies, principles, methods, and practices found in the latest version of the *2000 Maryland Stormwater Design Manual*. This includes the following:
 - i. Complying with the Stormwater Management Act of 2007 (Act) by implementing environmental site design (ESD) to the maximum extent practicable (MEP) for all new and redevelopment projects
 - ii. Tracking the progress toward satisfying the requirements of the Act and annually identifying and reporting the problems and modifications necessary to implement ESD to the MEP
 - iii. Reporting annually the modifications that have been or need to be made to all ordinances, regulations, and new development plan review and approval processes to comply with the requirements of the Act
 - b. Maintaining programmatic and implementation information related to the stormwater management program including, but not limited to, the following:
 - i. Number of Concept, Site Development, and Final plans received and number of those approved (plans that are resubmitted as a result of a revision or in response to comments should not be considered as a separate project)
 - ii. Number of redevelopment projects received and number of those approved
 - iii. Number of stormwater exemptions issued
 - iv. Number and type of waivers received and issued, including those for quantity control, quality control, or both (multiple requests for waivers may be received for a single project and each should be counted separately, whether part of the same project or plan)
 - c. Maintaining construction inspection information according to COMAR 26.17.02 for all ESD treatment practices, structural stormwater management facilities, and stable stormwater conveyance and capacity to receiving waters, including the number of inspections conducted and violation notices issued by the County.
 - d. Conducting preventative maintenance inspections, according to COMAR 26.17.02, of all ESD treatment systems, structural stormwater management facilities, and stable stormwater conveyance and capacity to receiving waters, at least on a triennial basis. Documentation identifying the ESD systems and structural stormwater management facilities inspected, the number of maintenance inspections, follow-up inspections, the enforcement actions used to ensure compliance, the maintenance inspection schedules, and any other relevant information will be submitted in the County's annual reports. >>

2.D.1.a Implementing Stormwater Management Design

DPS administers SWM design policies, principles, methods, and practices found in the latest version of the *2000 Maryland Stormwater Design Manual* in the County (MDE 2000). DPS also has additional requirements for some SWM practices. New development and redevelopment in the County complies with or exceeds the requirements of the Stormwater Management Act of 2007 (Act).

Local SWM requirements are stricter than state minimum standards. MDE standards include a SWM exemption for projects that disturb fewer than 5,000 square feet, while DPS requires sediment control and SWM to be addressed for any new home or commercial building construction regardless of the disturbance area. This requirement accounts for many SWM waivers issued by DPS during FY23, because single-family residential teardown projects would not have been required to address SWM by the state minimum standards. DPS also exceeded the state standard for SWM compliance for redevelopment projects when it incorporated ESD into the Montgomery County Code. DPS requires all redevelopment projects to address ESD to the maximum extent practicable (MEP). This approach, while generally successful in obtaining ESD compliance on most projects, can be expected to generate additional waivers due to limitations of existing site conditions, such as poor soils and shallow receiving storm drain systems.

DPS tracks progress on satisfying Act requirements. During FY23, no problems or modifications were identified, and no modifications were made to ordinances, regulations, or approval processes.

2.D.1.b Program Implementation

DPS is responsible for implementing programmatic requirements for SWM plan review and permitting. Table 2.D-1 summarizes reviews and approvals during FY23. A full list of all SWM plans is provided in NPDES MS4 Geodatabase, SWM Associated Table.

Table 2.D-1. MS4 Permit and Plan Reviews during FY23

MS4 Permit Requirement	Quantity
Approved concept designs	86
Site development	5
Final plans ^[1]	716
Redevelopment	20
Waivers ^[2]	292

^[1] Total sediment control plan approvals within FY23 are based on unique grading permit numbers and includes permits issued for SWM concept applications submitted in previous years, multiple permits under the same concept file number, and projects for which a separate stormwater conceptual submission is not required.

^[2] Total includes full and partial waivers for residential and nonresidential projects, including teardown and rebuild of existing SFR homes on existing recorded lots for which a separate stormwater concept submission is not required. Many residential rebuilds require at least a partial waiver of stormwater requirements. Whether or not a waiver is granted, all must provide ESD to the MEP on the lot. Teardown and rebuild on existing SFR lots accounted for all but 16 waivers issued during FY23.

2.D.1.c Construction Inspections

Section 2.D.2 provides details for the County's ESC program and inspections during construction. Data for construction inspections are provided in NPDES MS4 Geodatabase, Erosion Sediment Control Associated Table.

2.D.1.d Best Management Practice Documentation, Maintenance, and Inspections

Inventory and Maintenance Responsibilities

The DEP Stormwater BMP Inspection and Maintenance (SWIM) Program oversees inspection and maintenance of all SWM BMPs under County jurisdiction. DEP performs all triennial preventative maintenance inspections on SWM BMPs to identify maintenance needs. DEP performs structural maintenance on BMPs owned by the County, MCPS, and the Maryland-National Capital Park and Planning Commission (M-NCPPC), as well as structural and nonstructural maintenance on ESD BMPs located on County property and rights-of-way (ROWs). DEP is also responsible for performing structural maintenance of BMPs on residential properties where maintenance responsibility has been transferred to the County (the private property owner remains responsible for nonstructural maintenance). Property owners are responsible for all maintenance on ESD BMPs on their property. SWM BMPs are also in place for private commercial and residential properties where all structural and nonstructural maintenance is the responsibility of the property owner.

The data reported for FY23 represent DEP's inspection and maintenance responsibilities as defined in Montgomery County Code (Chapter 19) and Part IV.D.1.d of the 2021 MS4 Permit. Data for all inspections are provided in NPDES MS4 Geodatabase, BMP Inspections Associated Table.

Stormwater Management Best Management Practice: Inspections and Enforcement

DEP conducts, tracks, and reports all SWM BMP inspections, including the following:

- Triennial preventative maintenance inspections, which also includes water quality protection charge (WQPC) inspections by SFR property owners for WQPC credit.
- Maintenance follow-up inspections, which also include unscheduled inspections for compliance, enforcement, and responses to complaints.

DEP also annually inspects County-owned property and maintained high and significant hazard dams and levees. To enforce SWM BMP Maintenance, DEP issues notices of violation (NOVs). The number of FY23 SWM BMP triennial inspections, follow-up inspections, and NOVs are summarized in Table 2.D-2.

Table 2.D-2. SWM BMP Inspections and Enforcement Completed during FY23

Inspection Type	Quantity
SWM BMP Triennial Inspections	3,953
SWM BMP Follow-up Inspections	6,665
SWM BMP Maintenance Notices of Violation	834

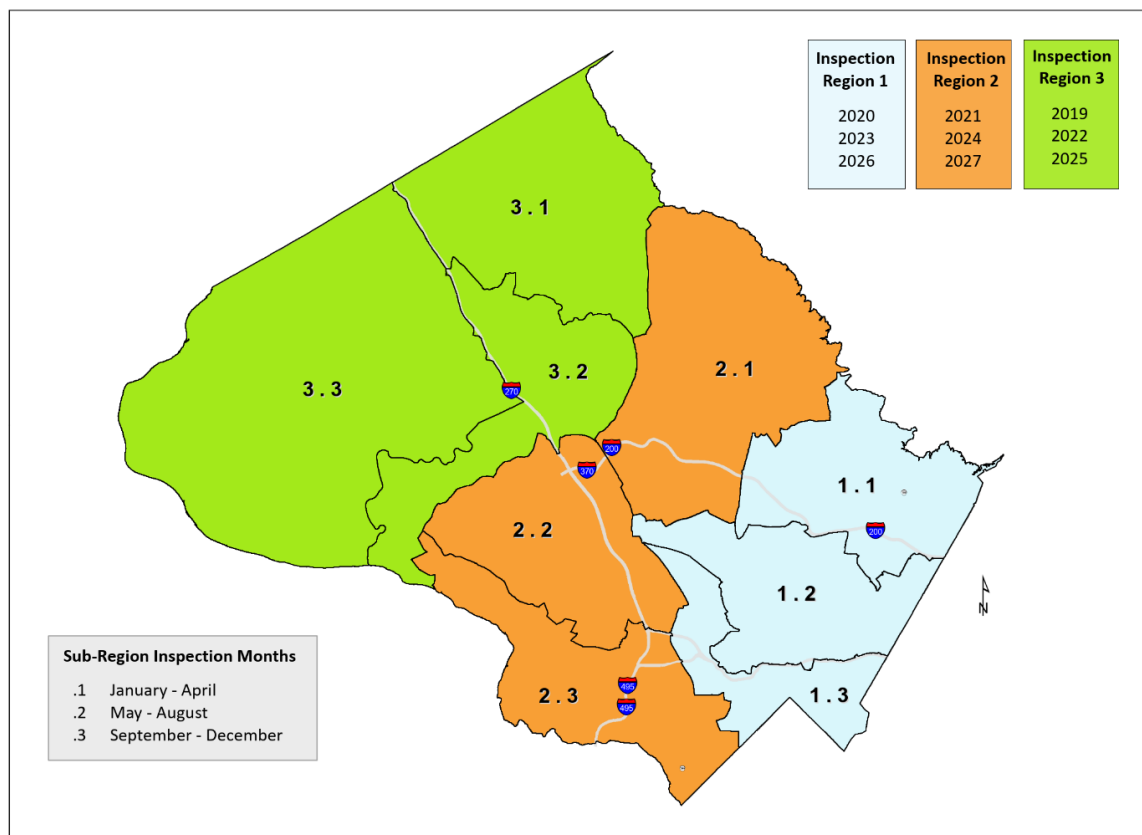
Stormwater Management Best Management Practice: Triennial Inspections

The purpose of the triennial inspections, which are conducted under DEP's triennial inspection contract, is to identify repairs and maintenance needs. The County is divided into three geographical regions for triennial inspections, and each geographical region is divided into three subregions, as depicted on Figure 2.D-1. Figure 2.D-1 also shows the calendar year (CY) that the triennial inspections will be performed for any given inspection region, through 2027. Fiscal reports will always include inspection and maintenance information for two regions because DEP schedules work on CY. The number of triennial inspections conducted in FY23 are listed in Table 2.D-2.

DEP inspects ESD BMPs located primarily on nonresidential and public property where the County has a SWM easement and maintenance agreement. ESD BMPs on SFR properties are inspected under a different program. Where DEP has right of entry (ROE) to perform inspections, DEP makes additional efforts to contact the private residents to inform them of the inspection and provide information on the practice, its function, and maintenance.

When ESD BMPs were first required by Montgomery County Code (beginning July 2010), the County did not require easements on SFR properties that would allow the County access to inspect permitted ESD BMPs. DPS began requiring easements for ESD on SFR properties on January 1, 2017. However, many permits were approved before January 1, 2017, including a large number (more than 5,800) of existing ESD BMPs on SFR lots where DEP has no legal access via an easement to conduct inspections. Thus, the County continues to have thousands of SFR BMP where DEP cannot perform inspections.

Figure 2.D-1. Triennial Stormwater Inspection Regions and Subregions



As MDE noted in the comments on the FY22 MS4 Annual Report, SFR ESD BMPs “remain the County’s largest hurdle to ramping up its triennial inspections. The County should continue these efforts to fulfill its triennial inspection requirement.”

To address MDE’s comment, DEP has taken the following actions to increase the number of triennial inspections of ESD BMPs on SFR properties:

- DEP continues to promote the online self-inspection approach that allows property owners to claim credit against their WQPC for any ESD BMPs on their property. DEP considers self-certification to be equivalent to a triennial inspection. The online inspection form provides ESD BMP maintenance information, and DEP continues to work with private property owners to provide resources to help

them perform yearly inspections and required maintenance on the ESD BMPs on their property. DEP recommends owners inspect their ESD BMPs annually and perform maintenance as necessary.

- DEP sends postcards with WQPC credit program information to SFR property owners with ESD BMPs. DEP then approves compliant self-inspections. In FY24, DEP will continue outreach and education efforts to reach SFR property owners where no ROE is provided.
- DEP conducts site visits to verify asset maintenance conditions reported by SFR property owners who participate in the WQPC self-inspection program. The goal of this effort is to conduct annual audits of 10 percent of the approved applications for the credits granted in the prior levy year. This goal was accomplished for FY23. Audits verify that the actual field conditions of the BMPs are accurately self-reported by the property owners in their online WQPC credit application.
- During FY22, a partnership was launched with the Alliance for the Chesapeake Bay and surrounding jurisdictions through a National Fish and Wildlife Foundation grant to develop a residential SWIM Program for Private Property Owners in the Anacostia Watershed. The inspections and outreach through this program will begin in FY24.

Stormwater Management Best Management Practice: Follow-up Inspections

DEP conducts maintenance follow-up inspections outside of the triennial inspection program. These inspections verify completed work, confirm compliance, and investigate public complaints. Table 2.D-2 summarizes the completed follow-up inspection. The number of all enforcement actions is provided in NPDES MS4 Geodatabase, SWM Associated Table.

Stormwater Management Best Management Practice: Maintenance Enforcement

DEP issues NOVs to enforce SWM BMP Maintenance. The number of NOVs issued in FY23 are included in Table 2.D-2. During FY23, no maintenance violations required issuance of citations or additional enforcement actions outside of the NOVs. However, two BMPs failed inspection. For BMPs that failed inspection, DEP takes action to resolve the issue. Table 2.D-3 lists BMPs that failed inspection and how the issue is being resolved.

Table 2.D-3. BMPs that Failed Inspection

BMP Identification	Location	Year Failed	Reason Failed	Resolution
15564	Montgomery County Airpark	FY23	High-hazard dam does not meet MDE 378 standards	DEP retrofit project ongoing
11025	Montgomery Village Golf Course	FY23	Privately owned SWM pond built before 1971. Corroded barrel and riser and serious erosion of dam embankment. MDE Dam Safety Division issued NOV to property owner on November 26, 2019. There has been no further action on the part of the property owner to do repairs.	Under enforcement action. Matter was referred to MDE Dam Safety again on February 16, 2023, but MDE has taken no further action.

2.D.2 Erosion and Sediment Control

The Permit language of the County's MS4 Permit Part IV.D.2, Erosion and Sediment Control, is provided as follows:

<< An acceptable erosion and sediment control program shall be maintained by the County and implemented in accordance with the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland. Activities to be undertaken by the County shall include, but not be limited to:

- a. Implementing program improvements identified in any Department evaluation of the County's erosion and sediment control enforcement authority;
- b. Ensuring that construction site operators have received training regarding erosion and sediment control compliance and hold a valid Responsible Personnel Certification as required by the Department; and
- c. Reporting quarterly, information regarding earth disturbances exceeding one acre or more. Quarters shall be based on calendar year and submittals shall be made within 30 days following each quarter. The information submitted shall cover permitting activity for the preceding three months. >>

DPS is responsible for implementing the County's erosion and sediment control (ESC) program. The ESC program goal is designed to reduce pollutant loads from new development and redevelopment during construction. The County employs inspection and enforcement actions by issuing violation notices and stop-work orders to enforce compliance with the ESC program. The following are elements of the County's ESC program:

- Reviewing the grading permit applications for earth disturbance
- Inspecting and enforcing grading and ESC regulations
- Inspecting all ESD treatment practices, structural stormwater management facilities, and stable stormwater conveyance and capacity
- Conducting compliance investigations
- Reporting earth disturbances exceeding 1 acre

ESC program implementation information is provided in NPDES MS4 Geodatabase Erosion Sediment Control Associate Table and Quarterly Grading Permit Feature Class. Table 2.D-4 summarizes the ESC enforcement actions taken by DPS during FY23.

Table 2.D-4. ESC Program Inspection and Enforcement Summary during FY23

ESC Program Element	Quantity
ESC inspections	19,814
NOV	316
Stop-work orders	92
Number of court cases	28
Number of fines collected	35
Amount of fines collected	\$25,550

2.D.2.a Improvements Required by Maryland Department of the Environment

MDE's biennial evaluation of the County's ESC program, as part of its review of the County's application for the delegation of ESC enforcement authority, started on September 2021. Continued delegation was granted through June 30, 2024 (end of FY24), by a letter from Raymond P. Bahr, Deputy Program Manager of the MDE Water and Science Administration. In the letter dated April 4, 2022, Bahr stated the following: "[MDE] also determined the County's program is in compliance with the ESC program elements stipulated in the County's municipal separate storm sewer system (MS4) permit (20-DP-3320, MD0068349)" (MDE 2022a). MDE did not identify any improvements that the County was required to make in its ESC program.

2.D.2.b Responsible Personnel Certification

MDE offers an online responsible personnel certification (RPC) program that provides personnel with convenient training that can be scheduled by the individual staff member. Because MDE conducts RPC training online according to its own correspondence, training-related data is not provided in this report. DPS verifies that personnel have attended training and hold a valid certification.

2.D.2.c Quarterly Reporting of Grading Permits

The County does not provide MDE the grading permits on a quarterly basis because MDE has strengthened their notice of intent (NOI) process and receives this information via that process. The County provides FY23 grading permit data for earth disturbances in the County measuring greater than 1 acre in the NPDES MS4 Geodatabase.

2.D.3 Illicit Discharge Detection and Elimination

The County's MS4 Permit Part IV.D.3, IDDE, is as follows:

<< The County shall implement an inspection and enforcement program to ensure that all discharges into, through, or from the MS4 that are not composed entirely of stormwater are either issued a permit by the Department or eliminated. Activities shall include, but not be limited to:

- a. Reviewing all County outfalls to prioritize field screening efforts in areas with the greatest potential for polluted discharges. The County must submit the process developed to prioritize outfall screenings to the Department for approval with the first year annual report;
- b. Submitting a plan and schedule for field screening the prioritized outfalls for the Department's approval with the first year annual report. The plan and schedule shall include the annual screening of at least 150 outfalls. Each outfall having a dry weather discharge shall be sampled at the time of screening using a chemical test kit. An alternative program may be submitted by the County for the Department's approval that methodically identifies, investigates, and eliminates illegal discharges into, through, or from the County's MS4;
- c. Conducting annual visual surveys of commercial and industrial areas as identified in PART IV.C.2 above for discovering, documenting, and eliminating pollutant sources. Areas surveyed and the results of the surveys shall be reported annually;
- d. Maintaining written standard operating procedures for outfall screenings, illicit discharge investigations, annual visual surveys of commercial and industrial areas, responding to illicit discharge complaints, and enforcement implementation;
- e. Maintaining an ordinance, or other regulatory means, that prohibits illicit discharges into the storm sewer system;
- f. Maintaining a program to address and respond to illegal discharges, dumping, and spills; and
- g. Using appropriate enforcement procedures for investigating and eliminating illicit discharges, illegal dumping, and spills. When a suspected illicit discharge discovered within the County's jurisdiction is either originating from or discharging to an adjacent MS4, the County must coordinate with that MS4 to resolve the investigation. Significant discharges shall be reported to the Department for enforcement and/or permitting. >>

The MS4 Permit requires the County to implement an inspection and enforcement program to ensure all discharges to and from the MS4 that are not comprised entirely of stormwater are either permitted by MDE or eliminated. The NPDES MS4 Geodatabase includes all outfalls used to identify sites for IDDE screening (Outfall Feature Class) and a list summarizing the results of the FY23 IDDE outfall screening (IDDE Screening Feature Class).

2.D.3.a Selection Process

DEP uses a comprehensive approach to outfall screening that includes screening outfalls each year in a different region of the County, with regions rotating every year. Outfalls near commercial and industrial properties are targeted because these areas have the greatest potential for polluted discharges. The County selects specific outfalls to be screened for illicit discharge using an iterative process. First, watersheds are selected for screening on a rotational basis. Outfalls from the selected watersheds that had pollution issues during a previous screening cycle are the first additions to the yearly list. Outfalls

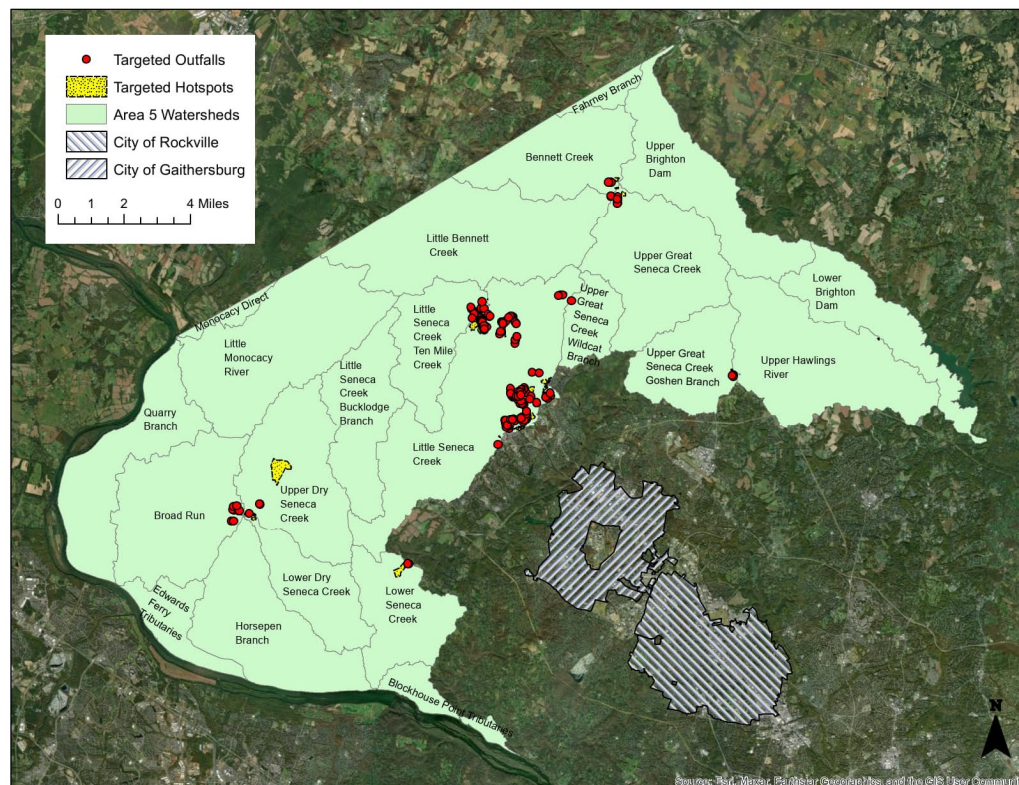
are then added by proximity to commercial and industrial properties, inlets, and streams. Beginning with the closest outfalls, the distance is gradually increased until at least 150 total outfalls have been selected. The standard operating procedures (SOPs) in Appendix A1 provide the annual procedures for identifying and selecting outfalls.

2.D.3.b Plan, Schedule, and Outfall Screening Results

The areas screened during FY23 are in the upper region of the County, predominantly in Clarksburg, Damascus, Germantown, and Poolesville. NPDES MS4 Geodatabase, IDDE Screening Feature Class, provides all outfalls screened during FY23. All outfalls encountered are categorized, documented, and sampled when dry-weather flow is found. Outfalls with no flow are assessed for physical indicators such as pipe benthic growth, corrosion, algae, and structural issues. Outfalls found not currently listed in the County's inventory are assigned identification (ID) numbers in the field, photographed, and their location is marked with a global positioning system point. The ID numbers and pertinent data are forwarded to the DEP GIS team for inclusion in the storm drain inventory. Structures, such as road and driveway culverts, that are mistakenly identified in the system as outfalls, are corrected. The SOPs (Appendix A1) detail the annual procedures for performing the outfall screening.

DEP contracted with KCI Technologies, Inc. (KCI) to perform outfall field screening for FY23. During May 2023, KCI screened outfalls near commercial and industrial areas in Clarksburg, Damascus, Germantown, and Poolesville in the upper region of the County. These areas are located within the Seneca Creek, Potomac Direct, and Lower Monocacy watersheds (Figure 2.D-2).

Figure 2.D-2. Locations of the FY23 IDDE Screening Targeted Outfalls and Targeted Hotspots



Note: DEP does not screen outfalls in the cities of Rockville and Gaithersburg.

KCI screened 150 outfalls; no new outfalls were identified during the screening process. Of the 150 outfalls screened, 18 outfalls were found with dry-weather flows, and 16 of the 18 dry-weather flows had enough flow to collect a sample. Of the 16 outfalls with dry-weather flows sampled, 1 outfall had a suspicious discharge. The results of the investigations is provided in Table 2.D-5. An update on the status of this ongoing investigation will be provided in the FY24 MS4 Annual Report.

Table 2.D-5. Investigation Results of Suspected Illicit Discharges during FY23

Outfall ID	Location	Problem Found	Resolution
CT122P0082	20151 Fisher Ave, Poolesville, MD	Elevated chlorine	Source tracked to Western County Outdoor Pool. Repairs to leaking pipes at pool are currently ongoing.

2.D.3.c Commercial and Industrial Areas Visual Surveys

The MS4 Permit requires the County to conduct annual surveys of commercial and industrial areas to assess the potential for, and eliminate if discovered, pollutant sources. DEP conducted 46 surveys of commercial and industrial sites primarily in Clarksburg, Damascus, Germantown, and Poolesville. In addition, DEP selected areas for outfall screening near the commercial and industrial areas, which are detailed in the following subsections.

Based on the surveys, DEP investigated water quality, grease, and solid waste issues, which resulted in 7 NOVs, and 11 verbal warnings. The formal enforcement actions are summarized in Table 2.D-6, and the entire list of 46 investigated issues is provided in Appendix A2.

Table 2.D-6. Stormwater Discharge Enforcement Cases Based on Commercial and Industrial Survey Results for FY23

Case Number	Location Description	Issue	Enforcement Action	Resolved
20231270	Clarksburg Sunoco	Water Quality	NOV	Yes
20231271	Clarksburg Outlets	Grease	Verbal warning	Yes
20231277	Neelsville Village Center	Water Quality and Grease	Verbal warning	Yes
20231284	Milestone Shopping Center	Grease	Verbal warning	Yes
20231292	Germantown Walmart	Water Quality and Grease	NOV	Yes
20231298	All Flavors Restaurant	Grease	NOV	Yes
20231300	Cuguini Restaurant	Grease	NOV	Yes
20231304	House of Poolesville Restaurant	Grease	NOV	Yes
20231308	Germantown McDonalds	Water Quality	Verbal Warning	Yes
20231309	20320 Seneca Meadows Pkwy	Solid Waste	Verbal warning	Yes
20231348	Germantown Wegmans	Grease	Verbal warning	Yes

Case Number	Location Description	Issue	Enforcement Action	Resolved
20231357	Congratulations Construction	Water Quality	NOV	Yes
20231366	Exxon and Milestone Auto Service	Solid Waste	Verbal warning	Yes
20231367	Free State Gas Station	Water Quality	Verbal warning	Yes
20231430	Mr. M Auto Service	Water Quality	Verbal warning	Yes
20231433	Moyers Moving Company	Water Quality and Solid Waste	Verbal warning	Yes
20231709	Damascus Shopping Center	Grease and Solid Waste	NOV	Yes
20231856	Carroll Motor Fuels	Solid Waste	Verbal warning	Yes

In the FY22 MS4 Annual Report, several commercial and industrial survey inspections resulted in enforcement cases that were not resolved before the end of FY22. Information on the cases and their resolution date that took place in FY23 is provided in Table 2.D-7.

Table 2.D-7. Stormwater Discharge Enforcement Cases Based on Commercial and Industrial Survey Results for FY22 – Updated Status of Ongoing Issues

Case Number	Location Description	Issue	Enforcement Action	Date Resolved
20221373	Fox Chapel Shopping Center	Solid Waste and Grease	Verbal Warning	1/30/23
20221776	Montgomery Village Plaza	Solid Waste	Verbal Warning	8/23/22
20222162	N-Route Warehouse	Solid Waste	Verbal Warning	4/4/23
20222164	Criswell Nissan	Water Quality	Verbal Warning	8/14/23

2.D.3.d Standard Operation Procedures

DEP maintains a set of SOPs for IDDE efforts. These procedures cover outfall screenings, illicit discharge investigations, annual visual surveys of commercial and industrial areas, responding to illicit discharge complaints, and enforcement implementation. These procedures are stored as computer files and can be readily accessed by all personnel involved with IDDE efforts.

MDE requested the following items be addressed in the County's SOP that was submitted with the FY22 MS4 Annual Report:

"The Department has the following recommendations for the SOPs:

- Provide more detail on progressive enforcement steps (for example, verbal warning, notice of violation, and citation) and timelines allowed to make corrections.
- Include the Hotspot Assessment Form and example photographs of poor housekeeping practices.

- Provide the specific number of feet from an inlet or stream that a screening location is chosen. The SOP currently identifies it as ‘X feet.’”

The County’s SOPs have been revised to incorporate changes requested by MDE (Appendix A1.)

The County added Section 5 (*Achieving Compliance Through Enforcement Actions*) to the SOP to illustrate the progressive enforcement steps that are taken, as well as the timelines allowed to make corrections. The assessment forms and example photographs were included in the SOP, and the County revised the SOP to provide the number of feet from a specific inlet or stream. The SOP states the following:

- **For commercial and industrial hotspots:** Search possible commercial and industrial properties for properties 100 feet from inlets and 250 feet from outfalls and streams until 40 hotspots can be determined.
- **For targeted outfalls:** Determine targeted outfalls for screening by selecting outfalls within 100 feet of an inlet and within 100 feet of a stream until 150 minimum can be reached.

2.D.3.e Ordinance and Regulatory Means

DEP addresses water quality issues through the Montgomery County Water Quality Ordinance, Montgomery County Code Chapter 19, Article IV, Section 19-50, subsections (a), (b), and (c).

2.D.3.f Illegal Discharges, Dumping, and Spills

During FY23, the County met MS4 Permit requirements to maintain a program to address and respond to illegal discharges, dumping, and spills. Information on illegal dumping can be found on the County’s website (DEP n.d.[c]). Illicit discharge issues tracked to sources outside the County are coordinated with the source location jurisdiction. Illicit discharge sources identified as coming from a state-permitted facility is reported to MDE. The County maintains a 311-call service center that citizens can use to report environmental concerns. DEP is responsible for investigating and enforcing the cleanup of nonemergency small quantity fuel, oil, or chemical spills that do not pose an immediate risk to public health or safety. The County’s fire and rescue service responds to emergency and large quantity spills.

DEP works with WSSC by performing follow-up site visits for reported sanitary sewer overflows (SSOs) in the County and performed 39 site visits during FY23. These follow-up site visits verify that SSOs have been corrected, demonstrate a reasonable effort to confirm all affected areas have been adequately treated and cleaned up and ensure adequate public notice signage has been posted in affected areas. Moreover, DEP is continuing to work with WSSC’s fats, oils, and grease program regarding restaurant grease issues, which directly affect stormwater quality in the County.

2.D.3.g Enforcement

During FY23, 347 complaints were made concerning the illegal dumping of solid waste. The DEP Energy, Climate, and Compliance Division (ECCD) investigated illegal dumping complaints and issued 20 formal enforcement actions (three civil citations with fines totaling \$1,500 and 17 NOVs) and numerous warning letters. Most complaints concerned bags of trash, vegetation (leaves and brush), or other unwanted materials either dumped or being stored on private or public property. Only a small percentage of these cases represented a potential for direct runoff of contaminated material into storm drains or receiving systems. Complaint resolution invariably involved removing and properly disposing of trash and debris and properly storing (for example, under cover) other materials.

During FY23, the ECCD investigated 224 water quality issues: 162 complaints, 39 SSOs, and 23 hazardous materials-related cases. These investigations resulted in 52 formal enforcement actions (18 civil citations with fines totaling \$10,250.00 and 34 NOVs), and numerous warning letters.

During FY23, DEP began investigating an issue in Willet Branch. Since summer 2020, the Little Falls Watershed Alliance (LFWA) has been collecting samples of fecal indicator bacteria (FIB) *E. coli* (funded by DEP) at several sites throughout the Little Falls Watershed. During summer 2021, LFWA reached out to the County and WSSC with data showing high levels of FIB coming from an outfall in the Willet Branch tributary. Due to the high FIB, they worked with a private laboratory to collect microbial source information. The information indicated very high levels of human-derived bacteria.

Using the information provided by LFWA and WSSC, the County engaged a contractor to perform a bacteria source track down in the storm drain network upstream of Willet Branch. While the investigation is ongoing, 16 sampling locations throughout the storm drain network have been analyzed for signs of an illicit discharge including *E. coli* and *Enterococcus* bacteria. Results indicate elevated levels of bacteria in portions of the storm drain network. The County is moving forward with additional monitoring and microbial source tracking with hopes of identifying a specific source. An update on this investigation will be provided in the FY24 MS4 Annual Report.

During the Willett Branch investigation, staff from KCI alerted DEP to various water quality issues witnessed while in the field. DEP immediately opened cases and investigated a total of eight reported issues, which are summarized in Table 2.D-8.

Table 2.D-8. FY23 Enforcement Cases Based on Willett Branch Study

Case Number	Location Description	Issue	Enforcement Action	Resolved
20231205	6900 Arlington Road	Water Quality	Verbal Warning	Yes
20231206	EuroMotorcars Bethesda	Water Quality	NOV	Yes
20231207	Mamma Lucia Bethesda	Water Quality and Grease	NOV	Yes
20231208	Hawkers Asian Street Food	Water Quality	Written Notice	Yes
20231209	4801 Woodmont Avenue	Water Quality	Verbal Warning	Yes
20231388	City of Lights China	Water Quality	Verbal Warning	Yes
20231389	Butchers Alley	Grease	Verbal Warning	Yes
20231390	Giant Bethesda	Water Quality	Verbal Warning	Yes

2.D.4 Property Management and Maintenance

The Permit language of the County's MS4 Permit Part IV.D.4, Property Management and Maintenance, is provided as follows:

- << a. Coverage under Maryland's NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (SW Industrial GP) is typically required at facilities where the following activities are performed: maintenance or storage of vehicles or equipment; storage of fertilizers, pesticides, landscaping materials, hazardous materials, or other materials that could pollute stormwater runoff. The County shall:
- i. Ensure that a Notice of Intent (NOI) has been submitted to the Department for each County-owned industrial facility requiring coverage under the SW Industrial GP; and
 - ii. Submit with the annual report a list of County properties currently covered under the industrial stormwater permit.
- b. The County shall develop, implement, and maintain a good housekeeping plan (GHP) for County-owned properties not required to be covered under Maryland's SW Industrial GP where the activities listed in PART IV.D.4.a are performed. The GHP shall be submitted to the Department by the County in its third year annual report and implemented thereafter. A standard GHP may be developed for all County-owned property or separate GHPs may be developed for properties with similar use (e.g., recreation and parks properties, school properties). The GHP shall include, but not be limited to:
- i. A description of property management activities;
 - ii. A map of the locations of properties covered by the GHP;
 - iii. A list of potential pollutants and their sources that result from facility activities;
 - iv. Written procedures designed to reduce the potential for stormwater pollution from property activities, including illicit discharges, dumping, and spills;
 - v. Written procedures for annually assessing County properties in order to prevent the discharge of pollutants, spills, and leaks into its municipal separate storm sewer system;
 - vi. Written procedures for performing stormwater conveyance system inspections for removing debris that may cause clogging, backups, and flooding; and
 - vii. Annual training for all appropriate County staff and contractors regarding best practices for preventing, reducing, and eliminating the discharge of pollutants during property activities.
- c. The County shall continue to implement a program to reduce pollutants associated with the maintenance of County-owned properties including, but not limited to, local roads and parks. The maintenance program shall include the following activities where applicable:
- i. Street sweeping in the amount identified in Appendix B and annually updated thereafter in accordance with PART IV.E.6;
 - ii. Inlet and conveyance system inspection and cleaning in the amount identified in Appendix B and annually updated thereafter in accordance with PART IV.E.6; and
 - iii. Reducing the use of pesticides, herbicides, fertilizers, and other pollutants associated with vegetation management. This can include, but is not limited to:
 - Developing and implementing an Integrated Pest Management Plan according to EPA guidelines;

- Custom fertilizer property management plans based on soil testing;
 - Targeted application or “spot application” of pesticides;
 - Alternative and organic fertilizers;
 - Manual weed removal, mowing, and trimming;
 - Annual training and applicator certification and licensing as required by Maryland Department of Agriculture to ensure accurate application of chemicals according to manufacturer’s recommendations;
 - Subcontracting to a certified pest control applicator licensed business for some or all of properties;
 - Piloting biological pest control programs; and
 - Establishing “no mow” areas.
- d. The County shall reduce the use of winter weather deicing and anti-icing materials, without compromising public safety, by developing a County Salt Management Plan (SMP) to be submitted to the Department in its third year annual report and implemented thereafter. The SMP shall be based on the guidance provided on best road salt management practices described in the Maryland Department of Transportation, State Highway Administration’s Maryland Statewide Salt Management Plan, developed and updated annually as required by the Maryland Code, Transportation §8-602.1. The County’s SMP shall include, but not be limited to:
- i. A plan for evaluation of new equipment and methods, and other strategies for continual program improvement;
 - ii. Training and outreach:
 - Creating a local “Salt Academy” that annually provides County winter weather operator personnel and contractors with the latest training in deicer and anti-icer management, or the participation of County personnel and contractors in a “Salt Academy” administered by another MS4 permittee or State agency; and
 - Developing and distributing best salt management practices outreach for educating residents within the County.
 - iii. Tracking and reporting:
 - Starting with the fourth year annual report, during storm events where deicing or anti-icing materials are applied to County roads, track and record the amount of materials used, and snowfall in inches per event, if applicable; and
 - Report the deicing or anti-icing application by event or date, and the monthly and annual pounds used per lane mile per inch of snow.
- e. The County shall evaluate current litter control problems associated with discharges into, through, or from portions of its MS4 that are not already addressed under the TMDL implementation plan for trash (litter and floatables) (see Appendix A). Additionally, the County shall continue to remove from or prevent from entering its storm drain system 225 tons of litter and debris in the first year of permit issuance or as updated annually thereafter in accordance with PART IV.E.6.
- f. The County shall report annually on the changes in its Property Management and Maintenance programs and the overall pollutant reductions resulting from implementation of the components of the programs listed in this section. >>

2.D.4.a Industrial Stormwater Permit

The County has 11 facilities covered under the General Permit for Discharges of Stormwater Associated with Industrial Activity (SW Industrial GP), MCPS has six facilities, and the Town of Poolesville has 1 facility. Table 2.D-9 lists the County, MCPS, and Town of Poolesville facilities.

MDE accepted NOIs for these facilities in August 2014 for coverage until December 31, 2018. MDE issued a final determination for a modification to their General Permit, identified as General Permit 12-SW-A with an effective date of December 7, 2018. The General Permit 12-SW-A expiration date is the same as that for General Permit 12-SW (that is, December 31, 2018).

MDE is developing a renewal permit and until the permit is reissued the existing permit will be administratively extended (according to its terms). On June 1, 2020, MDE signed a consent decree stating that it will no longer issue new registrations under expired General Permit 12SW-A. On December 10, 2020, MDE published a notice of tentative determination and public hearing proposing to replace General Permit 12-SW with the renewal designation of 20-SW. A public hearing was held on March 3, 2021, and the deadline for comments on the draft permit was April 19, 2021. MDE issued the final renewal permit for the SW Industrial GP, effective February 1, 2023. The County will submit an NOI, fee, and stormwater pollution prevention plan no later than July 31, 2023, to prevent a lapse in coverage.

2.D.4.b Good Housekeeping Plan

The Good Housekeeping Plan (GHP) requirement requires the County to identify County-owned properties that meet the following criteria: (1) is not required to be covered under the SW Industrial GP and (2) performs activities listed in Part IV.D.4.a of the 2021 Permit (that is, “maintenance or storage of vehicles or equipment; storage of fertilizers, pesticides, landscaping materials, hazardous materials, or other materials that could pollute stormwater runoff”). The County is working with other MS4 jurisdictions and MDE on developing the GHP template and identifying County-owned properties that require a GHP. The GHP will be submitted with the FY24 MS4 Annual Report and implemented thereafter.

Table 2.D-9. County and Co-permittee Facilities Covered under the Industrial Stormwater Permit

County or Co-permittee	Lead Agency	Facility Name	Facility Type (Category)	State Permit Number
Montgomery County	DGS	Equipment Maintenance and Transit Operation Center	Transportation (viii)	12SW0277
Montgomery County	DGS	Kensington Small Transit Shop	Transportation (viii)	12SW2311
Montgomery County	DGS	Seven Locks Automotive Equipment Section and Bethesda Depot	Transportation (viii)	12SW0265
Montgomery County	DGS	Brooksville Maintenance Facility Transit Shop and Silver Spring Depot	Transportation (viii)	12SW0278
Montgomery County	DOT	Colesville Depot	Transportation (viii)	12SW0267
Montgomery County	DOT	Poolesville Depot	Transportation (viii)	12SW0268
Montgomery County	DOT	Damascus Depot	Transportation (viii)	12SW0269
Montgomery County	DOT	Gaithersburg Depot	Transportation (viii)	12SW2487
Montgomery County	DEP	Shady Grove Processing Facility	Recycling/Salvage (vi)	12SW0262
Montgomery County	DEP	Gude Landfill	Landfills (v)	12SW0263
Montgomery County	DEP	Oaks Landfill	Landfills (v)	12SW0264
MCPS	DFM	Randolph Depot	Transportation (viii)	12SW0522
MCPS	DFM	Shady Grove Depot	Transportation (viii)	12SW0523
MCPS	DFM	Bethesda Depot	Transportation (viii)	12SW0524
MCPS	DFM	Clarksburg Depot	Transportation (viii)	12SW0525
MCPS	DFM	West Farm Depot	Transportation (viii)	12SW1258
MCPS	DFM	Central Facilities Maintenance Depot	Transportation (viii)	12SW3325
Town of Poolesville	WWTP	Poolesville WWTP	Treatment Works (ix)	12SW1790

Notes:

DFM = Division of Facility Management

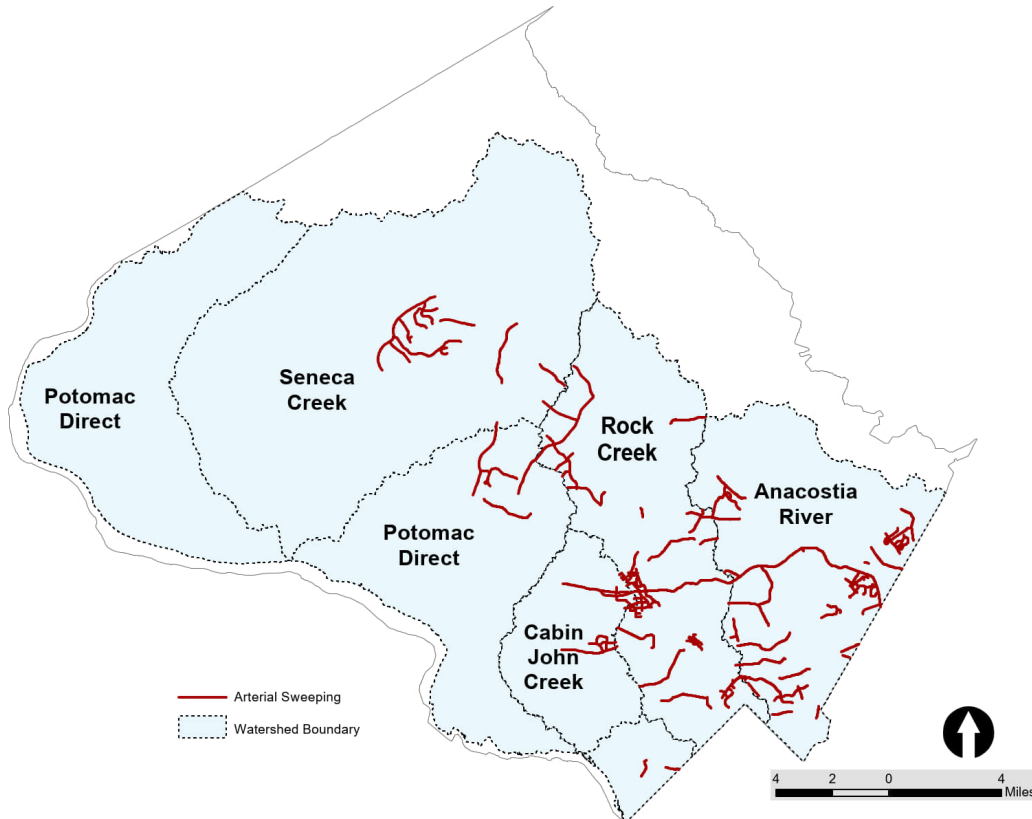
2.D.4.c Maintenance Program of County Properties

The Permit requires the County to reduce pollutants associated with County properties by implementing a maintenance program that includes the following: sweeping streets; cleaning inlets; reducing the use of pesticides, herbicides, fertilizers, and other pollutants associated with roadway vegetation management; and controlling the overuse of winter-weather deicing materials. This section describes pollutant-reduction methodologies related to the County's ongoing maintenance programs. The overall goal of these activities is to reduce the amount of trash and sediment from entering streams and waterways, improve aesthetics, and aid in meeting Maryland environmental goals.

2.D.4.d Street-sweeping Program

DEP administers an arterial street-sweeping program. Arterial routes are larger roads with more commercial activity, traffic, and observed trash. The arterial routes are swept at night when traffic volumes are low. This is intended to reduce traffic impacts, promote safety, avoid parked cars, and reduce energy consumption. The sweeping is regularly inspected to ensure consistent quality. In FY23, the County adjusted the arterial sweeping program to increase efficiency and reduce additional pollutants. The frequency was changed from one cycle every 2 weeks to one cycle monthly, except for spring and fall when a cycle is swept every 1 to 2 weeks. The mileage was increased from 221.9 lane miles per cycle to 335.2 lane miles per cycle. Because of the reduced frequency, the cost remained approximately the same. A total of 654 tons of debris and trash were collected. Figure 2.D-3 shows the arterial routes swept in FY23.

Figure 2.D-3. Montgomery County Arterial Street-sweeping Routes during FY23



2.D.4.e Inlet and Conveyance System Inspection and Cleaning

DOT's inlet cleaning program includes removing materials from clogged inlets, storm drains, drainage ditches, outfalls, and adjacent drainage areas. This is performed by using a vacuum truck, excavators, and manual labor. Material removed via vacuum truck is disposed of at the Oaks Landfill Leachate Pre-treatment Facility. Other organic and inorganic materials are disposed of at the Shady Grove Transfer Station.

During FY23, DOT used a pump truck to remove predominantly organic materials from 52 inlets. This totaled 41.62 tons of material deposited at the Oaks Landfill Leachate Pre-treatment Facility. The inlets are located in Bethesda, Gaithersburg, and Silver Spring. The total material removed for FY23 increased by 81 percent due to addressing increased storm drain failures and maintenance requests.

As part of DOT's storm water maintenance program, it maintains thousands of miles of drainage ditches as part of the storm water conveyance system. The drainage ditches normally flow stormwater directly into inlets, basins, or outfalls before entering streams and rivers. Each year, DOT receives numerous service requests of clogged and silted drainage ditches and swales. In FY23, DOT serviced 15,949 linear feet of drainage ditches and removed 6,660 tons of silt, dirt from eroded areas, and other organic materials.

2.D.4.f Pollutants Associated with Vegetation Management

Montgomery Weed Control, Inc. conducts the County's state-required roadside weed spraying program for noxious weeds. The County has an integrated pest management plan, which includes specialized spray equipment and targeted application that achieves cost-efficient control using minimum herbicides. Operational BMPs are always followed, and all personnel employed by Montgomery Weed Control, Inc. are registered with the County as pesticide applicators and trained in compliance with the state Pesticide Applicator's Law. During FY23, the County applied 3.4 gallons of clopyralid and 2.44 gallons of glyphosate. Other than for noxious weed control, the County uses no other pesticides and no fertilizers for roadside vegetation management.

2.D.4.g Salt Management Plan

DOT plows and salts roads as part of its winter-weather roadway treatment program. All application equipment is calibrated once a year. DOT has an online system to track the status and progress of roadway treatment and plowing during winter-weather events. The County is responsible for applying winter-weather treatment for approximately 5,400 miles. During a typical winter, the County applies sodium chloride salt brine, an anti-icing technique, to approximately 1,600 lane miles of emergency roads.

During FY23, the County encountered a very mild, wet winter of predominately rain events with a very small mixture of sleet or ice. Due to the mild winter, salt brine was not applied during FY23. DOT's deicing application of salt was also significantly reduced in FY23, with a total application of 504 tons of salt to treat bridges and overpasses. DOT mobilized during four events with approximately 300 trucks loaded with salt for each event. With careful monitoring of road conditions, it was determined to not treat the roads and all salt was returned to the salt facilities except for the 504 tons applied to bridges and overpasses. By comparison, during FY22, 30,071 tons of salt as applied to the roads and approximately 200,000 gallon so salt brine was applied.

The Permit-required Salt Management Plan (SMP) obligates the County to reduce the use of winter-weather deicing and anti-icing materials without compromising public safety. The SMP is based on the guidance provided on best road salt management practices described in the Maryland DOT State

Highway Administration's Salt Management Plan (MDOT n.d.), which is developed and updated annually as required by the Maryland Code, Transportation Section 8-602.1. The SMP will be submitted with the FY24 MS4 Annual Report and implemented thereafter.

2.D.4.h Litter Control Evaluation

The Permit requires the County to evaluate current trash and litter control efforts; develop strategies to reduce trash, floatables, and debris in its watersheds that are not already addressed under the Anacostia Trash TMDL; and provide public education to aid these efforts (refer to Section 2.D.5, Public Outreach). The County implements several programs throughout the County to reduce trash and litter on our land and in the streams. These programs and efforts conducted by the County and described in this section of the report provide information on the trash and litter reduction in areas outside the Anacostia Watershed. The County uses the following two categories of programming to remove litter from our waterways: direct litter removal and litter reduction programs.

2.D.4.i Direct Litter Removal

Direct litter removal removes litter and debris from streets, sidewalks, and communities before it enters the storm drain or ends up in County streams; this removal includes similar programs that address the Anacostia Trash TMDL found in Section 2.D.4.c of this report.

DEP and DOT programs that remove trash includes arterial street sweeping, inlet conveyance cleaning, and roadside litter cleanup. DEP and DOT provide two types of programming that offer volunteers an opportunity to remove trash and litter from their communities. DEP Stream Stewards volunteer program provides cleanup supplies to groups who want to do a community cleanup; individuals who join the plogging program can also clean trash on their own time. DOT's Adopt-A-Road Program supplies community groups with equipment in exchange for their voluntary services of picking up trash and litter along roadways. Volunteers are asked to hold two cleanups a year along their designated road.

2.D.4.j Litter Reduction Programs

Litter reduction programs target reducing the source of litter by combining the enforcement of County laws with public outreach and education. These efforts are intended to change residents and businesses behavior.

The County has several different agencies that enforce solid waste laws that prohibit littering and dumping of trash. The Department of Housing and Community Affairs Enforcement Division investigates and enforces violations of litter on private property as part of their Clean and Lien Program. DEP has an Illegal Dumping Enforcement Program where resident complaints concerning illegal dumping are investigated and enforcement actions taken. The DEP Recycling and Resource Management Division manages the education and enforcement of the County's solid waste laws and recycling regulations for single-family residents, multi-family properties and businesses, organizations, and local, state, and federal government facilities, as they are all required to recycle and reduce waste and aim for Zero Waste.

The County has also passed several pieces of legislation that specifically target the use of certain plastic products. These bills include a carryout bag tax of 5 cents for each disposable bag provided at the point of sale, a ban on the use and sale of all number 6 polystyrene food service ware and packaging peanuts, and a law requiring that restaurants and food service businesses provide straws to dine-in customers only upon request and be reusable or made of marine degradable or home compostable materials. Plastic straws must always be made available upon request to comply with disability rights laws.

The County provides outreach and education on recycling and litter reduction through a variety of methods, including virtual training, social media, in-person trainings, attending events, volunteers, and printed educational and instructional materials. Some campaigns are more general, such as the “Reduce, Reuse, and Recycle Right” campaign, which aims to educate residents, multi-family properties and businesses, and organizations on how to reduce waste and recycle properly. Other campaigns are more specific to certain types of materials, such as the Skip the Straw and Switch from number 6 Plastics campaigns, which are focused on straws and number 6 polystyrene food service ware, respectively.

The County conducted a social media plogging promotion and challenge issued to County residents to pick up litter while walking, jogging, or running in local neighborhoods. Annually, the County holds a holiday campaign, which includes social media, bus advertisements, and events to encourage residents to have more environmentally friendly holiday practices, including using reusable shopping bags. More information about DEP’s public education program is available in Section 2.D.5 of this report.

Table 2.D-10 summarizes the County’s work towards the required removal and prevention of 225 tons of litter and debris from entering the storm drain system outside the Anacostia Watershed. This table also outlines both the removal and prevention of litter and debris Countywide and from the Anacostia Watershed. More detail about trash and litter reduction in the Anacostia Watershed is provided in the FY22 and FY23 Countywide Stormwater TMDL Implementation Plans.

Table 2.D-10. Material Removed or Prevented from Entering Storm Drain System during FY223

Program	Tons Removed from Outside Anacostia Watershed	Tons Removed from Anacostia Watershed	Total Tons Removed from the County
Adopt-a-Road	23.54	2.86	26.40
Arterial street sweeping	446.70	207.4	654.10
DHCA Clean and Lien ^[1]	35.66	0.00	35.66
Illegal dumping enforcement	0.09	0.00	0.09
Inlet and conveyance system cleaning	39.25	2.37	41.62
Litter collected along roadside drainage areas	9.74	5.34	15.08
Trash Trap	0.00	0.01	0.01
Stream Steward volunteer cleanup program	2.57	0.70	3.27
Total removed:	557.55	218.68	776.23

^[1] This number includes trash removed from the Anacostia Watershed. The County is working with DHCA to separate out the totals by watershed for FY23.

DHCA = Montgomery County Department of Housing and Community Affairs

2.D.4.k Changes in the Property Management and Maintenance Programs

During FY23, the County did not make changes to its Property Management and Maintenance programs affecting the overall pollutant reductions resulting from implementation of these programs.

2.D.5 Public Education

The Permit language of the County's MS4 Permit Part IV.D.5 Public Education is provided as follows:

<< The County shall continue to implement a public education and outreach program to reduce stormwater pollution and flooding. Education and outreach efforts may be integrated with other aspects of the County's activities. These efforts are to be documented and summarized in each annual report, with details on resources (e.g., personnel and financial) expended and method of delivery for education and outreach. The County shall implement a public outreach and education campaign that includes, but is not limited to:

- a. Maintaining a website with locally relevant stormwater management information and promoting its existence and use;
- b. Maintaining a compliance hotline or similar mechanism for public reporting of water quality complaints, including suspected illicit discharges, illegal dumping, spills, and flooding problems;
- c. Providing information to inform the general public about the benefits of:
 - i. Increasing water conservation;
 - ii. Residential and community stormwater management implementation and facility maintenance;
 - iii. Proper erosion and sediment control practices;
 - iv. Removing debris from storm drain inlets to prevent flooding;
 - v. Increasing proper disposal of household hazardous waste;
 - vi. Improving lawn care and landscape management (e.g., the proper use of herbicides, pesticides, and fertilizers, ice control and snow removal);
 - vii. Proper residential car care and washing;
 - viii. Litter reduction;
 - ix. Reducing, reusing, and recycling solid waste; and
 - x. Proper pet waste management.

The County shall conduct a minimum of 130 outreach efforts per year. These efforts may include distributing printed materials such as brochures or newsletters; electronic materials such as website pages mass media such as newspaper articles or public service announcements (radio or television); and conducting targeted workshops on stormwater management for the public. >>

The County maintains a robust public education program to reduce stormwater pollution and continues to operate and expand those program activities. This section provides a summary on the status of the County's MS4 Permit public education efforts. Public education program funding is provided in the NPDES MS4 Geodatabase, Fiscal Analysis Associated Table (MDE 2017; MDE 2021).

2.D.5.a Montgomery County Department of Environmental Protection Website

The Permit requires the County to maintain a website with locally relevant SWM information and promote its existence. The County's Clean Water Montgomery website has several pages dedicated to providing information on watershed restoration, stormwater, RainScapes, stream monitoring, and WQPC (DEP n.d.[a]). The DEP general website, which includes pages on watershed restoration,

sustainability, trash and recycling, and water supply and wastewater, had over 2.4 million views in FY23 (DEP n.d.[b]). The My Green Montgomery online education portal continued as the news and communication arm of the DEP (My Green Montgomery n.d.).

DEP's social media platforms continued to gain popularity during FY23, and water quality and recycling focused content was featured on all platforms throughout FY23. DEP's public education programming provided social media posts on Facebook, Instagram, Twitter, YouTube, and Nextdoor.

2.D.5.b Compliance Hotline

The Permit requires the County to maintain a compliance hotline for public reporting of water quality complaints, including suspected illicit discharges, illegal dumping, spills, and flooding problems. The County meets this requirement by maintaining a call center that allows residents to call one number (311) for all concerns in the County, including surface water quality concerns. More information can be found on the 311 homepage (Montgomery County Public Information Office n.d.)

2.D.5.c Public Education and Outreach Program Efforts

The Permit requires that the County conduct a minimum of 130 outreach efforts per year. During FY23, the County conducted 457 of these outreach efforts. These outreach efforts were provided by DEP, DPS, and DOT. Table 2.D-11 summarizes the County's outreach efforts by the subjects listed in Part IV.D.5.c of the Permit, and Table 2.D-12 summarizes the delivery method of those outreach efforts. During FY23, DEP also released 422 social media posts and Table 2.D-13 summarizes those by subject.

Table 2.D-11. Public Outreach Efforts during FY23

Public Education Topics	MS4 Permit Section	Number of Efforts
General water quality and watershed restoration	Part IV.D.5.c	64
Residential and community SWM implementation and facility maintenance	Part IV.D.5.c.ii	36
Proper ESC practices	Part IV.D.5.c.iii	2
Removing debris from storm drain inlets to prevent flooding	Part IV.D.5.c.iv	1
Increasing proper disposal of household hazardous waste	Part IV.D.5.c.v	3
Improving lawn care and landscape management, including winter salt education	Part IV.D.5.c.vi	26
Litter reduction	Part IV.D.5.c.viii	27
Reducing, reusing, and recycling solid waste	Part IV.D.5.c.ix	222
Proper pet waste management	Part IV.D.5.c.x	3
Other environmental outreach	Not applicable	73
Total:		457

Table 2.D-12. Public Education Delivery Methods during FY23

Delivery Method	Number of Outreach Efforts
Blog post	16
E-newsletter	66
Fair and festivals	34
Giveaway (for example, reusable bag, plants, or tchotchke)	6
In-person presentation	102
Lawn signs	1
Mailer	3
Media coverage	37
Media press release	18
Meeting (for example, public, board)	14
Print flyer brochure	4
School	27
Tabling event	22
Training workshop	24
Video	2
Virtual event	31
Volunteer event	41
Webinar	7
Other	2
Total:	457

Table 2.D-13. Social Media Efforts during FY23

Public Education Topics	MS4 Permit Section	Number of Posts
General water quality and watershed restoration	Part IV.D.5.c	14
Water conservation	Part IV.D.5.c.i	7
Residential and community SWM implementation and facility maintenance	Part IV.D.5.c.ii	35
Proper disposal of household hazardous waste	Part IV.D.5.c.v	11
Lawn care and landscape management, including winter salt education	Part IV.D.5.c.vi	91
Litter reduction	Part IV.D.5.c.viii	2
Solid waste reduction, reuse, and recycling	Part IV.D.5.c.ix	256
Proper pet waste management	Part IV.D.5.c.x	6
Total:		422

During FY23, the DEP continued to be the primary agency that provided environmental education and outreach to the County. The DEP events continued to focus on targeting specific audiences, increasing stormwater and water quality awareness, and encouraging residents to take specific environmentally friendly actions. Highlights from FY23 DEP public education events are listed as follows:

- **Clean Water Montgomery** – DEP released a video highlighting the Clean Water Montgomery (CWM) campaign. CWM focuses on revitalizing the health of our streams by inspiring action and thinking critically about how our behaviors impact our water (DEP 2022b).
- **Clean Water Montgomery (WQPC)** – In this video, Ann English, the County’s RainScapes program manager, explains the WQPC (that is, who pays and how the funds are used). This is part of DEP’s CWM campaign (DEP 2023c).
- **Food is Too Good to Waste Campaign** – DEP continued a broad-based multimedia educational campaign that provided residents and businesses with practical tips to reduce food waste. The campaign was distributed in English, Spanish, and Mandarin languages via cable television, radio, streaming, web banners, print materials, and direct person-to-person outreach at designated shopping centers (DEP 2022c; DEP 20223a).
- **Recycling at Work** – DEP staff worked in partnership with the County’s Alcohol Beverage Services (ABS) department to identify additional materials generated that could potentially be recycled instead of thrown in the trash and provided recommendations to improve the onsite recycling program at the County’s distribution warehouse. These efforts resulted in the placement of additional recycling collection containers throughout the site and an increase in employee awareness of and participation in ABS’ recycling program (DEP 2023b).
- **Glenmont Forest Block Party** – In July 2022, County Executive Marc Elrich joined the Glenmont Forest Neighbors Civic Association, the Grandview Circle of Opportunities, DEP, Impact Silver Spring, and other organizations and residents to dedicate the Glenmont Forest Community’s new “Green Streets” project. The Glenmont Forest and Wheaton Hills Green Streets project includes 53 small-scale projects that include tree boxes, rain gardens, and other types of landscaping designed to filter or infiltrate stormwater runoff. A unique feature of this project is the implementation of interactive signage, which will offer an educational challenge throughout the community (DEP 2022a).

2.E Stormwater Restoration

The language of the County's MS4 Permit Part IV. E, Stormwater Restoration, is provided as follows:

<< In compliance with §402(p)(3)(B)(iii) of the CWA, MS4 permits must require stormwater controls to reduce the discharge of pollutants to the MEP and such other provisions as the Department determines appropriate for the control of such pollutants. Additionally, by regulation at 40 CFR §122.44, BMPs and programs implemented pursuant to this permit must be consistent with applicable stormwater WLAs developed under EPA established or approved TMDLs (see list of EPA established or approved TMDLs attached and incorporated as Appendix A). The impervious acre restoration requirements and associated pollutant reductions described below for Montgomery County are consistent with Maryland's Phase III Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL and 2025 nutrient load targets, and for local TMDL implementation targets described by the County in its TMDL Watershed Implementation Plans.

1. By November 4, 2026, Montgomery County shall commence and complete the restoration of 1,814 impervious acres that have not been treated to the MEP by implementing stormwater BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance.
2. By November 4, 2022, Montgomery County shall complete the stormwater BMPs, programmatic initiatives, or alternative control practices listed in the Year 1 BMP Portfolio provided in Appendix B. Montgomery County may replace individual practices listed in Appendix B with others that meet the requirements of the 2021 Accounting Guidance as long as the total restoration at the end of year one meets the implementation benchmark schedule in Table 1.

"Benchmark" as used in this permit is a quantifiable goal or target to be used to assess progress toward the impervious acre restoration requirement or WLAs, such as a numeric goal for stormwater control measure implementation. If a benchmark is not met, the County should take appropriate corrective action to improve progress toward meeting permit objectives. Benchmarks are intended as an adaptive management aid and generally are not considered to be enforceable.

3. Montgomery County may acquire Nutrient Credits for Total Nitrogen (TN), Total Phosphorus (TP), and Total Suspended Solids (TSS) in accordance with COMAR 26.08.11 to meet its impervious acre restoration requirement in PART IV.E.3 of this permit. For acquiring Nutrient Credits in place of impervious acre restoration, an equivalent impervious acre shall be based on reducing 18.08 pounds of TN, 2.23 pounds of TP, and 8,046 pounds of TSS. The maximum allowable credits obtained from trades with wastewater treatment plants shall not exceed 330 equivalent impervious acres restored.
4. Any Nutrient Credits acquired by Montgomery County for meeting the restoration requirements of this permit shall be maintained and verified in accordance with COMAR 26.08.11 and reported to the Department in annual reports unless they are replaced at a one to one acre ratio by local stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance.
5. Montgomery County shall use the annual restoration benchmark schedule provided in Table 1 below to achieve its impervious acre implementation requirement by the end of the permit term.

Metric	Year 1	Year 2	Year 3	Year 4	Year 5
Cumulative Percent Impervious Acre Restoration Completed	20%	40%	60%	75%	100%

6. In each year's annual report, Montgomery County shall:
- Submit to the Department a list of BMPs, programmatic initiatives, and alternative control practices to be completed in the following year to work toward meeting its impervious acre restoration benchmark:
 - The list of BMPs, programmatic initiatives, or alternative control practices shall be submitted in the Year 1 BMP Portfolio format provided in Appendix B; and
 - Montgomery County may replace individual practices listed in its annual BMP Portfolio as long as the total implementation rate at the end of each year meets the annual restoration benchmark schedule in Table 1.
 - Evaluate progress toward meeting its annual restoration benchmark according to the schedule in Table 1 and adjust the benchmark appropriately based upon:
 - Actual BMP implementation rates; and
 - Anticipated implementation rates and annual restoration benchmark schedule needed in the remaining years of this permit for meeting the final impervious acre restoration requirement by November 4, 2026. >>

2.E.1 2021 MS4 Permit Impervious Restoration Goal

The County's MS4 Permit issued on November 5, 2021, requires the County to implement restoration practices in accordance with MDE's 2021 accounting guidance, *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated (MDE 2021)*, to meet the allocated 1,814 IAs restoration goal by November 4, 2026. The County has various programs and initiatives to meet the restoration goal.

- Capital improvement program (CIP)** – The DEP CIP program installs new BMPs, retrofits existing BMPs, and applies alternative practices such as stream restoration. New BMPs installations are typically constructed on public properties (for example, schools) or within public ROWs (Green Streets) in neighborhoods where space is limited. Existing BMPs are upgraded by increasing their capacity to trap and reduce stormwater pollution during storms to provide more water quality treatment. Stream restoration projects are often sited in areas where SWM is already in place or restoration projects are planned. Restoration techniques typically use natural materials such as rock, logs, and native plants to help slow stormwater flow. DEP includes native planting, wetland planting, and native trees where appropriate to maximize restoration benefits (DEP 2021).
- Outfall stabilization** – DOT is responsible for maintaining the County's storm drain system. DOT repairs and stabilizes County-owned storm drain outfalls using stream restoration techniques. While some sites are stabilized in response to public requests, DOT often partners with other agencies, such as DEP and M-NCPPC, to repair outfalls on public land.
- Street trees** – DOT is charged with planting and maintaining trees planted in public ROWs. Residents can contact the County's 311 call center to request tree planting and maintenance. Maintenance activities include pruning, tree removal, stump removal, and tree preservation (DOT n.d.).

- **RainScapes** – The DEP’s RainScapes program promotes and implements environmentally friendly landscaping and small-scale ESD projects on residential, institutional, and commercial properties. The program offers technical and financial assistance to encourage property owners to implement eligible RainScapes techniques, such as rain gardens, rain barrels or cisterns, conservation landscaping, pavement removal, or replacement with permeable pavements (DEP n.d.[l]).
- **Tree Montgomery** – Tree Montgomery is a program developed and implemented by DEP to plant large shade trees throughout the County. The program increases canopy cover and helps raise awareness of the benefits of trees. Trees planted under this program are funded by the Tree Canopy Law that was introduced by County Executive Isiah Leggett and passed in 2013 by the County Council (DEP n.d.[e]).
- **Clean Water Montgomery Watershed grants** – Since 2015, DEP has administered a watershed grant program through the Chesapeake Bay Trust (CBT). The grant program funds projects that reduce pollutants through community-based restoration practices, as well as projects focused on public engagement through education, outreach, and stewardship (DEP n.d.[f]).
- **Street sweeping** – DEP administers an arterial street sweeping program in the County. The sweeping routes under this program are typically larger roads with more commercial activity and high traffic. The routes are swept once every 2 weeks.
- **Storm drain cleaning** – DOT maintains the County’s stormwater conveyance system. As a part of their stormwater maintenance program, DOT removes material from clogged inlets, storm drains, drainage ditches, and adjacent drainage areas. Material is typically removed by using a vacuum truck or by manual labor. Residents can report drainage concerns or request for maintenance through the County’s 311 call center (DEP n.d.[g]).

2.E.2 Progress towards 2021 Permit Impervious Restoration Goal

The County has continued to implement restoration projects since the 2010 restoration goal was met in anticipation of the Permit being reissued with a new restoration goal. All projects completed since the 2010 Permit impervious surface restoration (ISR) requirement was met in December 2018 can be credited towards the 2021 Permit restoration goal. By November 4, 2023, the County had completed restoration of 1,151 of the 1,814 acres restoration goal and report a completion rate of 63 percent for the Year 2 benchmark. The acres include projects carried over from 2018 and all work completed between FY19 and up to FY23. Table 2.E-1 reports the County’s restoration benchmark schedule. Table 2.E-2 provides the implementation by program and BMP type completed through FY23.

Table 2.E-1. Actual Annual Restoration Benchmark Schedule

Metric	Year 1 (Actual)	Year 2 (Actual)	Year 3 (Anticipated)	Year 4 (Anticipated)	Year 5 (Anticipated)
Cumulative percent IA restoration completed	60% ^[1]	63%	71%	79%	100%

^[1] Year 1’s IA restoration credit includes six carryover projects from 2018 and all restoration efforts between FY19 and FY22.

Figure 2.E-1. Existing and Expected Progress of Meeting the 2021 Permit Restoration Goal

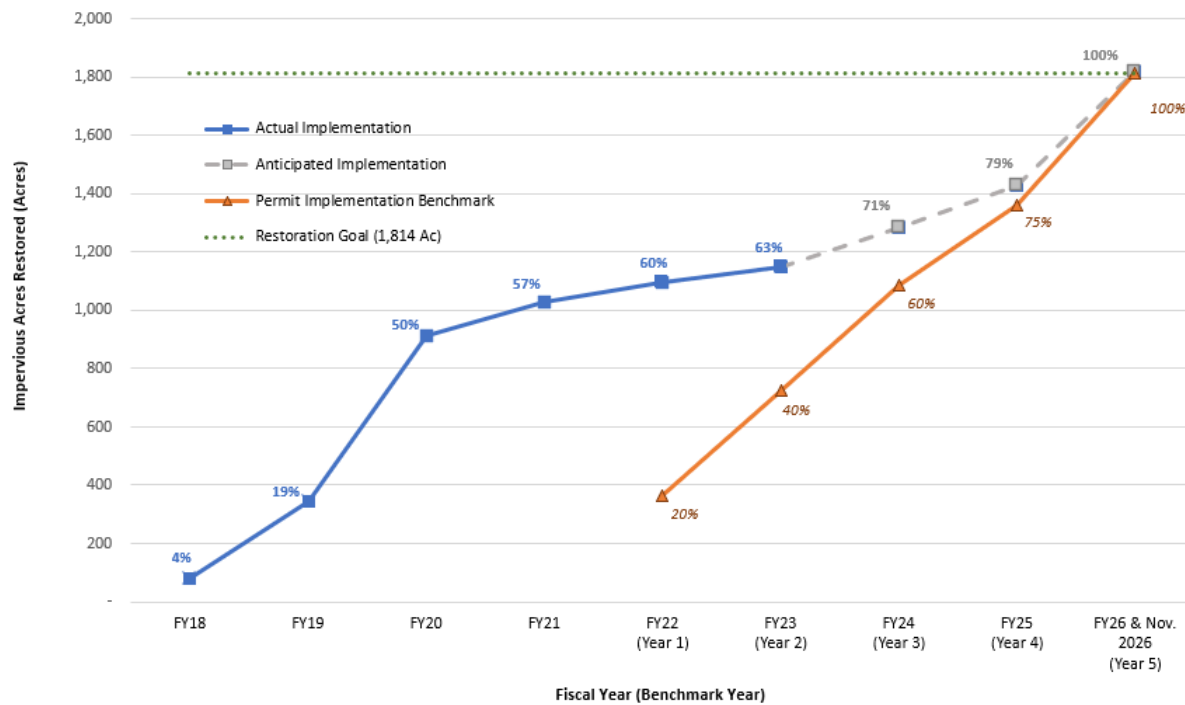


Table 2.E-2. Restoration Implementation Completed through FY23

Restoration Program Practices and BMPs	Number	Impervious Acres Treated
Street Sweeping ^[1]	Not applicable	42
Storm Drain Vacuuming ^[1]	Not applicable	6
CWM Watershed Grants – Environmental Site Design	36	2
RainScapes – Environmental Site Design	706	16
Tree Montgomery and RainScapes – Urban Tree Canopy	8,387	23
Street Trees	9,413	38
CIP – Environmental Site Design/Low-impact Development	68	14
CIP – Pond Retrofits	12	408
CIP—Outfall Stabilization	16	44
CIP – Sand Filter	1	6
CIP – Stream Restoration	8	530
CIP – Wetland Restoration	3	22
Total	18,650	1,151

^[1] Street sweeping and storm drain vacuuming is an annual practice that is averaged over the 5-year Permit term. This level of effort will need to continue in Years 3 through 5 to maintain the restoration reported in Year 2.

MDE requested the following items be addressed in the County's Year 1 benchmark progress that was reported in the FY22 MS4 Annual Report, as follows:

"After review, the Department has determined that the County:

- has used the default planning rate (0.02) for all stream restoration projects. The County is advised that this rate is to be used only for planning purposes; to claim full impervious credit, the County must utilize the stream restoration protocols in accordance with Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated (2021 Guidance) and convert these values into equivalent IAs.
- Additionally, the StrRestProtocols table in the MS4 Geodatabase must be populated.
- Approximately 40 acres were claimed through annual practices (street sweeping and storm drain cleaning). The County claimed 36.07 acres of street sweeping and swept a total of 221.85 lane miles. According to the 2021 Guidance, at the street sweeping rate of 1 pass per 2 weeks, the calculation should be $221.85 \text{ lane miles} \times 0.156 = 34.6 \text{ acres of credit}$. Please ensure that correct formulas are used when calculating impervious acre credit or provide further information on how the County calculated 36 acres."

The County has populated the StrRestProtocols table in the MS4 Geodatabase for the FY23 report. Out of the 16 stream restoration projects reported for Year 1 in the FY22 MS4 Annual Report, 14 projects used the planning rate for credit calculation. The outfall stabilization projects reported for Year 1 also used the default planning rate. These projects were either constructed or under construction before the finalization of the 2021 Guidance. These projects were included in the MEP portfolio that was submitted to MDE in March 2020. All completed stream restoration projects and outfall stabilization projects moving forward will be calculated and reported using the protocols.

The 36.07 acres of equivalent IAs reported for street sweeping in FY22 was an average of street sweeping from FY19 to FY22 in the Anacostia River and Rock Creek watersheds. This has been updated to 34.61 acres, accounting only for the FY22 street sweeping (1 pass per 2 weeks at a total of 221.9 miles swept). Additionally, RainScapes conservation landscaping practices are now accounted for using the approved guidance from MDE. The revised IAs restored for Year 1 is reflected in Table 2.E-3.

The County continue to make progress towards meeting the restoration goal in FY23. Table 2.E-4 summarizes projects completed during FY23, Year 2 of the Permit, and Table 2.E-5 summarizes projects to be completed in FY24, Year 3 of the Permit. Details of all completed, under construction, and planned projects can be found in the NPDES MS4 Geodatabase. Structural and ESD BMPs are reported in the *BMP* and *BMPDrainageArea* feature classes. Stream restoration and outfall stabilization projects are reported in *AltBMPLine* feature class. Alternative BMPs with a point location (such as septic system pumping) are reported in *AltBMPPoint* feature class. Land use change alternative BMPs (such as tree planting) are reported in *AltBMPPoly* feature class.

Table 2.E-3. Year 1 Completed Projects for the 2021 Permit

BMP Name	BMP Type	Number of BMPs	Impervious Acres Treated	Length Restored (feet)/Lane Miles (miles)/Mass Loading (pounds)^[1]
Annual BMP – Street sweeping ^[2]	Vacuum street sweeping	Not applicable	34.61 ^[2]	221.85 miles
Annual BMP – Storm drain cleaning	Storm drain vacuuming	Not applicable	3.90 ^[2]	45,920 pounds
Avenel Golf Course (TPC at Avenel)	Extended detention structure, wet	1	86.10	Not applicable
Bedfordshire	Extended detention structure, wet	1	25.44	Not applicable
B’Nai Israel Regional Pond	Retention pond (wet pond)	1	88.90	Not applicable
Derwood Station (Crabbs Branch SVP)	Extended detention wetland	1	5.26	Not applicable
Derwood Station (Crabbs Branch SVP)	Extended detention wetland	1	4.98	Not applicable
Fallsreach HOA	Extended detention structure, wet	1	25.44	Not applicable
Flints Grove HOA	Extended detention structure, wet	1	31.73	Not applicable
Greencastle Lakes (CA)	Retention pond (wet pond)	1	33.88	Not applicable
Hunters Woods III SWM (Cabin Branch SVP)	Retention pond (wet pond)	1	11.39	Not applicable
Kemp Mill Forest (Ravenswood HOA)	Shallow marsh	1	12.16	Not applicable
Little Falls Library	Bioretention	1	0.80	Not applicable
Montgomery Village (Horizon Run Condominium)	Extended detention structure, wet	1	10.97	Not applicable
Northwood Presbyterian Church	Micro-bioretention	1	0.52	Not applicable
Potomac Chase (Muddy Branch SVU)	Extended detention structure, wet	1	36.65	Not applicable
Quail Valley #2 (Cabin Branch SVP)	Sand filter	1	6.29	Not applicable
The Plantations (Plantations Two CA)	Extended detention structure, wet	1	33.77	Not applicable
Watkins Meadow	Extended detention structure, wet	1	18.55	Not applicable
Sherwood Elementary School	Bio-swale	1	0.23	Not applicable
Sherwood Elementary School	Micro-bioretention	1	0.18	Not applicable
University Towers	Environmental site design	12	4.12	Not applicable

BMP Name	BMP Type	Number of BMPs	Impervious Acres Treated	Length Restored (feet)/Lane Miles (miles)/Mass Loading (pounds) ^[1]
Broad Run SR	Stream restoration	1	217.00	11,785 feet
Fallsreach SR	Stream restoration	1	20.00	1,000 feet
Flints Grove SR	Stream restoration	1	24.00	1,200 feet
Glenstone SR – Greenbriar Branch (Phase 2)	Stream restoration	1	157.30	7,865 feet
Glenstone SR – Sandy Branch (Phase 3)	Stream restoration	1	84.78	4,119 feet
Grosvenor Tributary – Luxmanor SR (M-NCPPC)	Stream restoration	1	12.85	500 feet
Quail Valley 2 SR	Stream restoration	1	3.60	180 feet
Stoneybrook Tributary SR (M-NCPPC)	Stream restoration	1	10.10	2,525 feet
10205 Hatherleigh Drive	Outfall stabilization	1	1.10	55 feet
10617 Stable Lane	Outfall stabilization	1	2.60	130 feet
614 Bennington Drive	Outfall stabilization	1	1.40	70 feet
9100 Charred Oak Drive (Site 2)	Outfall stabilization	1	2.00	100 feet
9124 Charred Oak Drive (Site 1)	Outfall stabilization	1	2.94	147 feet
928 Windmill Lane	Outfall stabilization	1	0.38	19 feet
Berkshire Drive at Aubinoe Farm Drive	Outfall stabilization	1	0.80	40 feet
Glen Road	Outfall stabilization	1	4.00	200 feet
Hampden Street	Outfall stabilization	1	4.00	200 feet
Kemp Mill Road	Outfall stabilization	1	2.00	100 feet
Lockridge Drive	Outfall stabilization	1	2.68	134 feet
Margate Road	Outfall stabilization	1	2.72	136 feet
Whisperwood Lane	Outfall stabilization	1	2.84	142 feet
Woodbine Drive at Beach Drive	Outfall stabilization	1	3.60	180 feet
Tree Montgomery (FY19)	Urban tree canopy	531	1.49	Not applicable

BMP Name	BMP Type	Number of BMPs	Impervious Acres Treated	Length Restored (feet)/Lane Miles (miles)/Mass Loading (pounds) ^[1]
Tree Montgomery (FY20)	Urban tree canopy	986	2.76	Not applicable
Tree Montgomery (FY21)	Urban tree canopy	1,900	5.33	Not applicable
Tree Montgomery (FY22)	Urban tree canopy	1,578	4.42	Not applicable
Street Trees (FY19)	Street tree	1,948	7.79	Not applicable
Street Trees (FY20)	Street tree	1,823	7.29	Not applicable
Street Trees (FY21)	Street tree	1,709	6.84	Not applicable
Street Trees (FY22)	Street tree	1,668	6.67	Not applicable
RainScapes (FY19)	Environmental site design	67	1.13	Not applicable
RainScapes (FY20)	Environmental site design	117	1.65	Not applicable
RainScapes (FY21)	Environmental site design	133	1.62	Not applicable
RainScapes (FY22)	Environmental site design	181	9.47	Not applicable
Clean Water Montgomery Watershed Grants (FY19)	Environmental site design	4	0.21	Not applicable
Clean Water Montgomery Watershed Grants (FY20)	Environmental site design	15	0.90	Not applicable
Clean Water Montgomery Watershed Grants (FY21)	Environmental site design	2	0.22	Not applicable
Clean Water Montgomery Watershed Grants (FY22)	Environmental site design	8	0.05	Not applicable
Total:		12,723	1,096	

^[1] These include operation and maintenance BMPs and upland BMPs with no associated length, lane miles, or mass loading metric.

^[2] Street sweeping and Storm drain cleaning is an annual practice that is averaged over the 5-year Permit term. This level of effort will need to continue in Years 2 through 5 in order to maintain the restoration reported in Year 1.

CA = community/condo association

HOA = homeowners association

SR = stream restoration

SVP = Stream Valley Park

SVU = stream valley unit

TPC = Tournament Players Club

Table 2.E-4. Year 2 Completed Projects for the 2021 Permit

BMP Name	BMP Type	Number of BMPs	Impervious Acres Treated	Length Restored (feet)/ Lanes Miles (miles)/ Mass Loading (pounds) ^[1]
Annual BMP – Street sweeping	Vacuum Street Sweeping	Not applicable	42.11 ^[2]	335.20 miles
Annual BMP – Storm drain cleaning	Storm Drain Vacuuming	Not applicable	5.49 ^[2]	83,240 pounds
Glenmont Forest Green Streets	Environmental Site Design	52	8.10	Not applicable
Quail Valley I	Retention Pond (Wet Pond)	1	5.28	Not applicable
Glenstone SR – Lake Potomac Dr (Phase 4)	Outfall Stabilization	1	8.70	195 feet
9315 Hollyoak Ct Outfall Repair	Outfall Stabilization	1	2.04	169 feet
Tree Montgomery	Urban Tree Canopy	3,932	9.5	Not applicable
Street Trees	Street Tree	2,265	9.06	Not applicable
RainScapes	Environmental Site Design	208	2.18	Not applicable
Watershed Grants	Environmental Site Design	7	0.55	Not applicable
Total:		5,927	93	

^[1] These include operation and maintenance BMPs and upland BMPs with no associated length, lane miles, or mass loading metric.

^[2] Street sweeping is an annual practice that is averaged over the 5-year Permit term. This level of effort will need to continue in Years 3 through 5 to maintain the restoration reported in Year 3.

Table 2.E-5. Proposed Projects to be Completed in Year 3 of the 2021 Permit

BMP Name	BMP Type	Number of BMPs	Impervious Acres Treated	Length Restored (feet)/ Lane Miles (miles)/ Mass Loading (pounds) ^[1]
Annual BMP – Street sweeping	Vacuum Street Sweeping	Not applicable	44.61 ^[2]	335.20 miles
Annual BMP – Storm drain cleaning	Storm Drain Vacuuming	Not applicable	5.49	Not applicable
Clearspring Manor	Extended Detention Structure, Wet	1	23.73	Not applicable
Montgomery County Airpark	Extended Detention Structure, Wet	1	59.70	Not applicable
Watkins Mill	Retention Pond (Wet Pond)	1	8.39	Not applicable
Clearspring Manor SR	Stream Restoration	1	18.16	580 feet
Daniel Road	Outfall Stabilization	1	3.80	190 feet
Tree Montgomery	Urban Tree Canopy	3,000	8.40	Not applicable
Street Trees	Street Tree	1,500	5.90	Not applicable
RainScapes	Environmental Site Design	TBD	1.60	Not applicable
Total:		4,505	130	

^[1] These include operation and maintenance BMPs and upland BMPs with no associated length, lane miles, or mass loading metric.

^[2] Street sweeping is an annual practice that is averaged over the 5-year Permit term. This level of effort will need to continue in Years 3 through 5 to maintain the restoration reported in Year 3.

2.F Countywide Total Maximum Daily Load Stormwater Implementation Plan

The Permit language of the County's MS4 Permit Part IV.F, Countywide TMDL Stormwater Implementation Plan, is provided as follows:

- <<1. Where Montgomery County has submitted an implementation plan for a TMDL identified in Appendix A and that plan has yet to be approved, the County shall, within one year of the effective date of this permit, address all outstanding comments needed for the Department's approval of the plan.
2. Within one year of EPA's approval or establishment of a new TMDL, Montgomery County shall submit an implementation plan to the Department for approval. The TMDL implementation plan shall be based on the Department's TMDL analyses, or equivalent and comparable Montgomery County water quality analyses, that includes:
 - a. A list of stormwater BMPs, programmatic initiatives, or alternative control practices that will be implemented to reduce pollutants for the TMDL;
 - b. A description of the County's analyses and methods, and how they are comparable with the Department's TMDL analyses; and
 - c. Final implementation dates and benchmarks for meeting the TMDL's applicable stormwater WLA. Once approved by the Department, any new TMDL implementation plan shall be incorporated in the Countywide TMDL Stormwater Implementation Plan and subject to the annual progress report requirements under PART IV.F.3 of this permit.
3. For all TMDLs and WLAs listed in Appendix A, the County shall annually document, in one Countywide Stormwater TMDL Implementation Plan, updated progress toward meeting these TMDL WLAs. This Countywide Stormwater TMDL Implementation Plan shall include:
 - a. A summary of all completed BMPs, programmatic initiatives, alternative control practices, or other actions implemented for each TMDL stormwater WLA;
 - b. An analysis and table summary of the net pollutant reductions achieved annually and cumulatively for each TMDL stormwater WLA;
 - c. An updated list of proposed BMPs, programmatic initiatives, and alternative control practices, as necessary, to demonstrate adequate progress toward meeting the Department's approved benchmarks and final stormwater WLA implementation dates; and
 - d. Updates on the County's efforts to reduce trash, floatables, and debris, and show progress toward achieving the annual trash reduction allocation required by the Anacostia trash TMDL. The updates shall describe the status of trash elimination efforts including resources (e.g., personnel and financial) expended and the effectiveness of all program components including:
 - i. Quantifying annual trash reductions using the Department's TMDL analysis or an equivalent and comparable County trash reduction model;
 - ii. The public education and outreach strategy to initiate or increase residential and commercial recycling rates, improve trash management, and reduce littering; and

- iii. An annual evaluation of the local trash reduction strategy including any modifications necessary to improve source reduction and proper disposal.
4. Montgomery County shall provide continual outreach to the public and other stakeholders, including other jurisdictions or agencies holding stormwater WLAs in the same watersheds, regarding its TMDL stormwater implementation plans. Montgomery County shall solicit input from the public, collaborate with stakeholders, and incorporate any relevant comments that can aid in achieving local stormwater WLAs. To allow for public participation, Montgomery County shall:
- a. Maintain a list of interested parties for notification of TMDL development actions;
 - b. Provide notice on the County's webpage outlining how the public may obtain information on the development of TMDL stormwater implementation plans and opportunities for comment;
 - c. Provide copies of TMDL stormwater implementation plans to interested parties upon request;
 - d. Allow a minimum 30-day comment period before finalizing TMDL stormwater implementation plans; and
 - e. Document in final TMDL stormwater implementation plans how the County provided public outreach and adequately addressed all relevant comments. >>

2.F.1 Total Maximum Daily Load Stormwater Implementation Plan Updates

The 2021 Permit requires the County to address all outstanding comments on implementation plans for TMDLs identified in Appendix A of the Permit and to submit updated TMDL Implementation Plans to MDE for approval within one year of the Permit's effective date. The following updated draft local TMDL Implementation Plans were provided to MDE on December 23, 2022, with the FY22 MS4 Annual Report:

- *Anacostia River Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Nutrients, Sediment, and Trash* (DEP 2022d)
- *Cabin John Creek Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Sediment* (DEP 2022e)
- *Lower Monocacy River Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Phosphorus and Sediment* (DEP 2022f)
- *Potomac River Montgomery County Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Sediment* (DEP 2022g)
- *Rock Creek Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Phosphorus and Sediment* (DEP 2022h)
- *Rocky Gorge Reservoir and Triadelphia Reservoir Watersheds TMDL Stormwater Wasteload Allocation Implementation Plan for Phosphorus and Sediment* (DEP 2022i)
- *Seneca Creek Watershed TMDL Stormwater Wasteload Allocation Implementation Plan for Sediment* (DEP 2022j)

The County is waiting for comments from MDE on the 2022 updated TMDL IP and anticipates the comments in FY24. The County is also working on updating TMDL implementation plans for bacteria and polychlorinated biphenyl (PCB), which are being prepared in accordance with *Guidance for Developing Bacteria TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans (WIPs)* (MDE 2022b) and *Guidance for Developing Local PCB TMDL (Total*

Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans (WIPs) (MDE 2022c), respectively. The County expects that these updated plans will be provided to MDE in early 2024.

2.F.2 New Total Maximum Daily Load Stormwater Implementation Plans

The 2021 Permit requires the County to develop and submit an implementation plan to MDE for approval within 1 year of the U.S. Environmental Protection Agency's (EPA's) approval or establishment of a new TMDL. No TMDLs assigning stormwater wasteload allocations (SW-WLAs) to the County's MS4 were approved by the EPA during FY23.

2.F.3 Countywide Stormwater Total Maximum Daily Load Implementation Plan

The County submitted the FY23 Countywide Stormwater TMDL Implementation Plan to MDE in December 2023.

2.F.4 Public and Stakeholder Outreach

Public outreach and stewardship play an important role in improving water quality conditions. The County is committed to continuing and expanding programs and activities to educate and involve the community, with focused efforts to provide outreach to culturally diverse communities. The County will provide notice on the County's website, as well as to interested parties on the final updated local TMDL Implementation Plans once MDE has approved the Plans.

2.G Assessment of Controls

The Permit language of the County's MS4 Permit Part IV.G, Assessment of Controls, is provided as follows:

<<Montgomery County shall conduct BMP effectiveness and watershed assessment monitoring, and polychlorinated biphenyls (PCB) source tracking for assessing progress toward improving local water quality and restoring the Chesapeake Bay. The *2021 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments*, (hereafter 2021 Monitoring Guidelines) shall be referenced for addressing the technical guidelines and requirements outlined below.

1. BMP Effectiveness Monitoring: By March 5, 2022, or by July 1 of each year, the County shall notify the Department which option it chooses for BMP effectiveness monitoring. The two options are:
 - a. The County shall collaborate with the Department in a Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust (CBT) for determining monitoring needs and selecting appropriate monitoring studies. To implement the required monitoring, the County shall pay \$100,000, or an amount to be proposed by the jurisdiction based on demonstrated past permit monitoring expenditures, annually into a pooled monitoring CBT fund. Enrollment in the program shall be demonstrated through a memorandum of understanding (MOU) between the County CBT by September 1 of each year. The terms of the BMP effectiveness MOU are described in the 2021 Monitoring Guidelines. The County shall remain in the program for the duration of this permit term; or
 - b. The County shall continue monitoring the Breewood Tributary or select and submit for the Department's approval a new BMP effectiveness study for monitoring by March 5, 2022. Monitoring activities shall occur where the cumulative effects of watershed restoration activities, performed in compliance with this permit, can be assessed. The minimum criteria for chemical, biological, and physical monitoring are as follows:
 - i. Chemical Monitoring:
 - Twelve (12) storm events shall be monitored per year at each monitoring location with at least two occurring per quarter. Quarters shall be based on the calendar year. If exceptional weather patterns (e.g., dry weather periods) or other circumstances (e.g., equipment failures) occur during the reporting year, the County shall provide documentation of such circumstance(s);
 - Discrete samples of stormwater flow shall be collected at the monitoring stations using automated or manual sampling methods;
 - At least three (3) samples determined to be representative of each storm event shall be submitted to a laboratory for analysis according to methods listed under 40 CFR Part 136, and event mean concentrations (EMCs) shall be calculated;
 - Baseflow sampling shall occur quarterly at the mid-point of each season (e.g., February 15 for the first quarter, May 15 for the second quarter);
 - Stormwater flow and baseflow measurements shall be recorded at the outfall and in-stream stations for the following parameters:
 - Total Suspended Solids (TSS)
 - Bacteria (*E.coli* or *Enterococcus* spp.)
 - Chloride

- Discharge (flow)
 - Biochemical Oxygen Demand (BOD₅) or Total Organic Carbon (TOC)
 - Orthophosphate
 - Total Nitrogen (TN)
 - Nitrate + Nitrite
 - Total Ammonia (sewer signal)
 - Total Phosphorus (TP)
 - Continuous measurements shall be recorded for the parameters listed below at the in-stream monitoring station or other practical location based on the approved study design:
 - Temperature
 - pH
 - Discharge (flow)
 - Turbidity
 - Conductivity
 - Data collected from stormwater, baseflow, and continuous monitoring shall be used to estimate annual and seasonal pollutant loads and reductions, and for the calibration of watershed assessment models; and
 - If the County elects to continue monitoring the Breewood Tributary, or selects a new BMP effectiveness study for monitoring, the County shall submit a revised sampling plan for approval to address the new monitoring parameters provided above with the first annual report. An approved sampling plan under a prior MS4 permit for the County shall continue until the Department approves a new sampling plan proposed under this permit.
- ii. Biological Monitoring:
- Benthic macroinvertebrate samples shall be gathered each spring between the outfall and in-stream stations or other practical locations based on a Department approved study design; and
 - The County shall use the Maryland Biological Stream Survey (MBSS) sampling protocols for biological and stream habitat assessment.
- iii. Physical Monitoring
- A geomorphologic stream assessment shall be conducted between the outfall and in-stream monitoring locations or in a reasonable area based on the approved monitoring design. This assessment shall include annual comparison of permanently monumented stream channel cross-sections and the stream profile; and
 - A hydrologic and/or hydraulic model shall be used (e.g., TR-20, HEC-2, HEC-RAS, HSPF, SWMM) in the fourth year of the permit to analyze the effects of rainfall; discharge rates; stage; and, if necessary, continuous flow on channel geometry.
- iv. Annual Data Submittal: The County shall describe in detail its monitoring activities for the previous year and include the following:
- EMCs submitted on the Department's long-term monitoring MS4 Geodatabase as specified in PART V below;

- Chemical, biological, and physical monitoring results and a combined analysis for the approved monitoring locations;
 - Any available analysis of surrogate relationships with the above monitoring parameters; and
 - Any requests and accompanying justifications for proposed modifications to the monitoring program.
2. Watershed Assessment Monitoring: By March 5, 2022, or by July 1 of each year, the County shall notify the Department which option it chooses for watershed assessment monitoring. The County must implement one of the two options as follows:
- a. The County shall collaborate with the Department in a Pooled Monitoring Advisory Committee administered by CBT for determining appropriate watershed assessment monitoring. To implement the required monitoring, the County shall pay up to \$197,968 annually into a pooled monitoring CBT fund. The final cost will be dictated by the chosen proposal. Enrollment in the program shall be demonstrated through an MOU between the County and CBT to be signed by September 1 of each year. The terms of the Watershed Assessment Monitoring MOU are described in the 2021 Monitoring Guidelines. The County shall remain in the program for the duration of this permit term; or
 - b. The County shall submit a comprehensive plan for watershed assessment and trend monitoring by March 5, 2023 related to stream biology and habitat, bacteria, and chlorides and commence monitoring upon the Department's approval. The plan shall follow the 2021 Monitoring Guidelines and include:
 - i. Biological and habitat assessment monitoring at randomly selected stream sites using MBSS protocols;
 - ii. Bacteria (i.e., *E.coli*, *Enterococcus* spp., or fecal coliform) monitoring; and
 - iii. Chloride assessments at two locations.
3. PCB Source Tracking: Within one year of permit issuance, Montgomery County shall develop a PCB source tracking monitoring plan for all applicable TMDL WLAs where watershed reductions are required to meet water quality standards. Montgomery County shall submit results and provide updates annually on the monitoring efforts.>>

The 2021 Permit requires the County to notify MDE on a selected option for BMP Effectiveness and Watershed Assessment Monitoring. A letter to Lee Currey, director of MDE's Science Services Administration informed MDE on March 4, 2022, that the County will continue to monitor the Breewood Tributary through the end of CY22 and then will enter into a pooled monitoring agreement with CBT on July 1, 2023. The letter also stated that the County will conduct the required watershed assessment and trend monitoring. MDE approved this plan in their July 22, 2022. Monitoring work reported in this section is performed on a CY basis. The FY23 report covers monitoring activities completed in CY22.

Chemical, biological, and physical monitoring results of BMP effectiveness are described in detail in Section 2.G.1. The narrative covers both previous years and the 2022 results. The County submitted its Assessment of Controls data for FY23 in the NPDES MS4 Geodatabase. This included the Chemical Monitoring and Biological Monitoring associated tables, and the Monitoring Site and Monitoring Drainage Area feature classes. The data submitted is for CY 2022.

2.G.1 Best Management Practice Effectiveness Monitoring

In December 2022, the County completed 13 years of monitoring the Breewood Tributary for BMP effectiveness monitoring required by the Permit. The monitoring was conducted in accordance with the monitoring plan approved by MDE in 2009.

The Breewood Tributary is located within the Sligo Creek Subwatershed of the Anacostia River Watershed. Figure 2.G-1 shows the locations of the Breewood Tributary drainage area and chemical, physical, and biological monitoring stations. The Breewood Tributary is a 1,200-foot first-order stream in a small catchment (63 acres) that is 42-percent impervious. The catchment is predominantly a medium density (0.25 acre) residential area that contains a condominium complex, townhouse development, senior living center, high school, and church. Two primary roads are in the upper portion of the catchment: University Boulevard and Arcola Avenue.

In FY15, DEP completed construction of 10 ROW ESD Green Street practices along residential roads within Breewood Manor and three RainScapes on individual residential properties. Overall, these projects address runoff from 54 residential properties. Additionally, 1,200 linear feet of stream restoration was completed in FY15. This restoration included a regenerative instream conveyance to reduce nitrogen and slow runoff. In May 2017, DEP completed construction of a bioretention project at the end of Breewood Road. DEP also completed construction of 12 ESD practices to treat runoff from the University Towers and one ESD practice at the Northwood Presbyterian Church in July 2018. Figure 2.G-2 shows the locations of the restoration projects.

2.G.1.a Breewood Tributary Chemical Monitoring

In 2022, DEP completed water chemistry monitoring at one outfall and one instream station in Breewood Tributary in the Sligo Creek Subwatershed of the Anacostia Watershed. The monitoring is intended to evaluate the effectiveness of restoration efforts, consisting of stream restoration and stormwater retrofit projects, in improving water quality. Methods are as described in the *Quality Assurance and Quality Control Document for Water Chemistry Monitoring at Breewood Road Tributary* (DEP 2010).

Storm Events and Sampling

Rainfall data were obtained from DEP's Wheaton Pond rain gauge. Field teams collected baseflow samples monthly and conducted automated stormwater runoff monitoring at a target rate of three storm events per quarter. A total of 126 storms and 142 baseflow events were monitored from 2009 through 2022. For each storm event, samples were collected along the rising, peak, and falling limbs of the hydrograph. A storm event mean concentration (EMC) was subsequently calculated from the results of these three samples.

Figure 2.G-1. Locations of Stream Chemistry, Biological, Physical Habitat, and Geomorphology Monitoring Stations

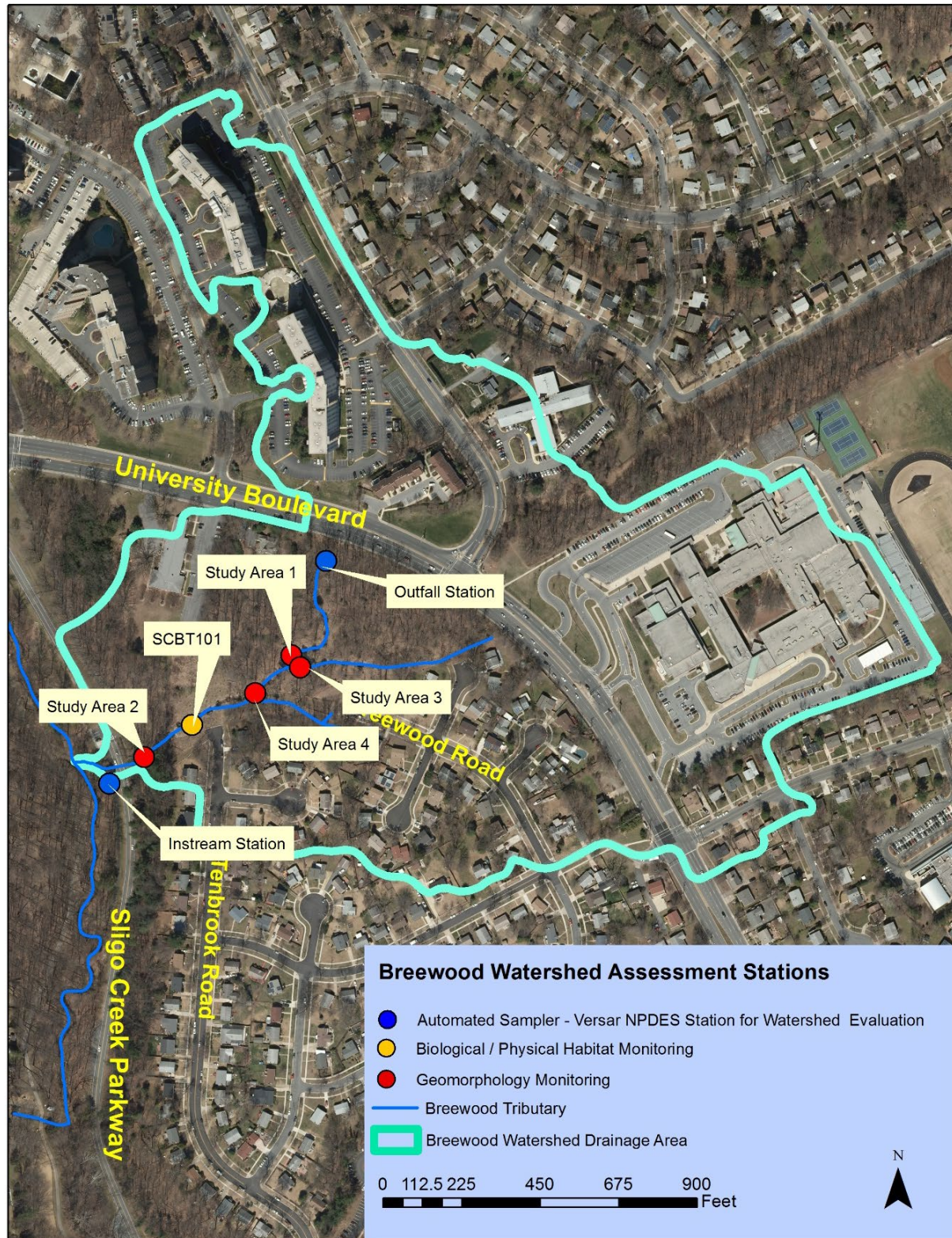
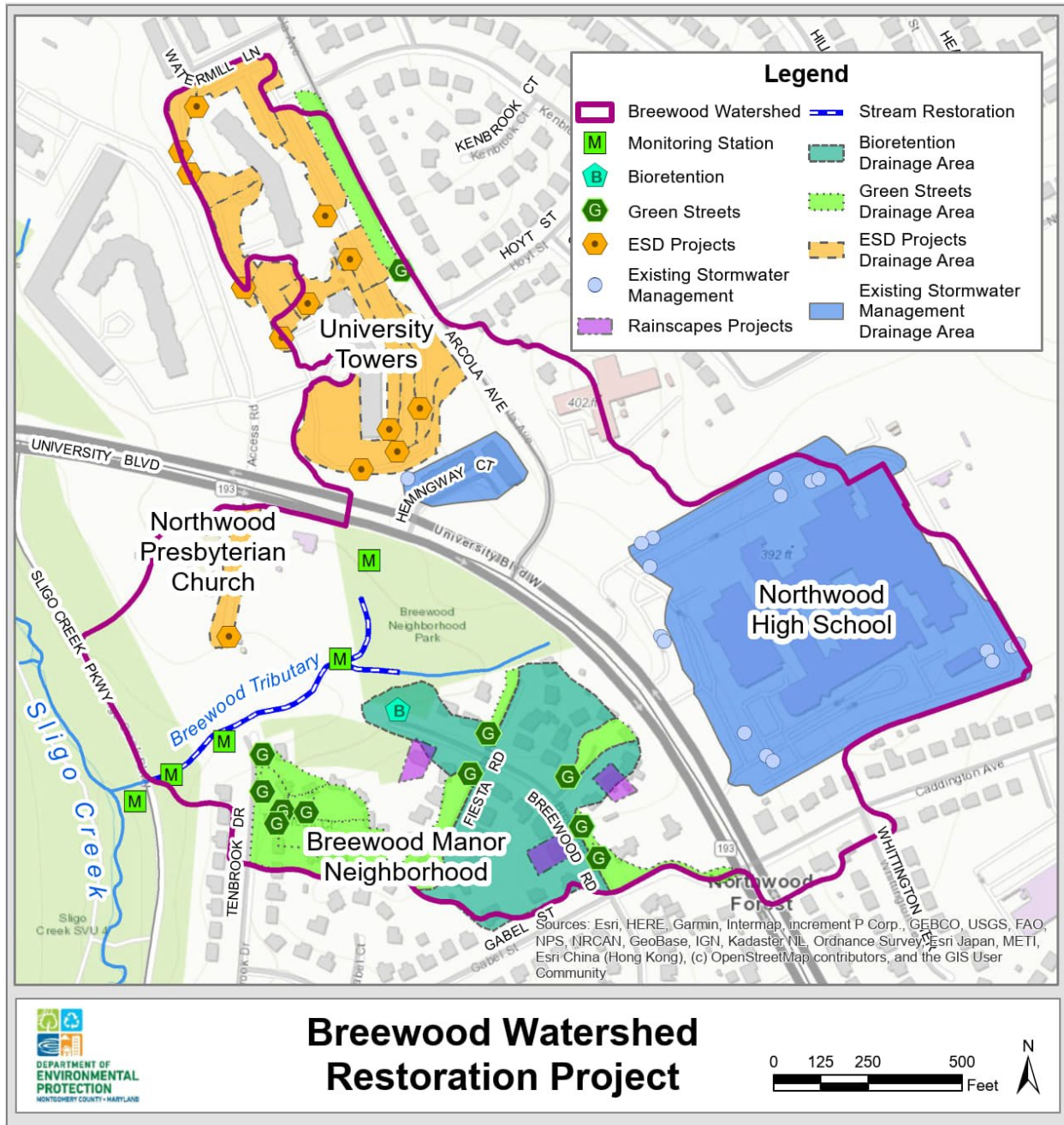


Figure 2.G-2. Locations of the Breewood Tributary Restoration Projects



A total of 10 storms were successfully captured during 2022. There were seven failed attempts to sample during the year. In 2017, the County revised the study rainfall criterion to any event greater than 0.3 inch to balance the need to meet Permit terms with the desire to obtain a representative and unbiased data set. Obtaining 12 monthly samples is challenging due to the difficulty in accurately predicting rainfall patterns, especially during summer when most events are short duration thunderstorms, and because of the limited number of rainfall events in a month. A total of 126 storm events were sampled from 2009 through 2022.

Due to storm timing, samples for total petroleum hydrocarbons and Enterococcus were not collected for storms on January 1, February 3, October 1, and December 15, 2022. For safety reasons, first flush samples are not collected for storms that begin late at night. As a result, some fields in the NPDES MS4 Geodatabase are null. A total of 12 baseflow samples were collected at the instream station in 2022. The outfall station was generally dry between storms but there was enough flow to sample during 2 months in 2022. A total of 142 baseflow events were sampled from 2009 through 2022.

Chemical Analysis

For water chemistry, effectiveness of the restoration projects was determined from storm EMCs. Storm EMCs represent the flow weighted average pollutant concentrations based on samples collected at discrete intervals during a storm. Pollutant loadings, which are the sum of pollutants transported in both stormflow and baseflow in pounds, were also evaluated. Because annual total flows vary greatly depending on rainfall, loading results show high variance and may not respond significantly to restoration efforts. This can be especially true for soluble pollutants such as nitrogen, which are transported through groundwater after infiltration by BMPs. Analyses of water chemistry data, comparing pre-restoration to post-restoration results, and comparing outfall to instream results, indicate the following varying effectiveness in improving water chemistry:

- There was evidence of limited effectiveness of the University Towers retrofits.
- There were significant reductions between pre-restoration EMCs and post—restoration EMCs for copper during larger storms.
- Effectiveness of the aggregate restoration projects in the overall watershed was significant for selected pollutants.
 - Post-restoration EMCs were significantly lower than pre-restoration EMCs for TSS, copper, lead, and zinc during large storms and for total Kjeldahl nitrogen, TSS, copper, lead, and zinc during small storms.
 - Post-restoration EMCs were significantly higher than pre-restoration EMCs for hardness and nitrate and nitrite for all storm sizes.

The great degree of variation in annual rainfall patterns limits the ability to draw conclusions on loadings but, in general, they indicate effectiveness in reducing water pollution, especially for TSS and pollutants that bind to particulates and can be removed by filtration and settling. Streambank stabilization was probably an important factor in preventing pollutants from entering stream flows. Limited reductions, or increases, in soluble nitrogen concentrations and loads are likely related to the difficulty in removing dissolved pollutants from stormwater.

Hydrology

Drainage area size and land use to both the outfall and instream stations affected flow rate, total storm flow volume, and flow response to rainfall. As expected for rain events, the stream stage rose at the

instream station later than first flow appearance of flow at the outfall station. Storm flow appears at the outfall faster because its drainage area contains higher percentages of impervious area and connectivity. Flow rate values and total storm flow volumes were generally greater at the instream station than expected given its greater drainage area. The instream station is also less responsive to small events because of the relatively lower amount of impervious area and greater travel time through the system.

Effectiveness of an individual retrofit project (that is, University Towers), as well as the entire suite of restoration projects, were evaluated. Statistics examined include duration of elevated flow for a given storm, peak flow rate, delay in stormflow in response to rainfall, and measurements of delay between the onset of elevated flow between stations. The purpose of the analysis is to determine whether the restoration projects succeeded in reducing the intensity of storm flows and increasing infiltration into groundwater. An analysis of hydrology data comparing pre-restoration to post-restoration conditions noted the following after restoration:

- Duration of elevated flow was significantly longer at both the outfall and the instream stations (storm sizes: 0.25 inch to 1 inch).
- The proportion of lower peak flows during storms increased for both the small storm and large storm size category at the outfall station but only for the small storm category at the instream station. The distribution of peak flows were significantly smaller at the instream station.
- Delay of onset of stormflow in response to rainfall was significantly longer at the instream station for both small- and large-sized storms.
- Flow delay time between the outfall and instream stations for a given storm significantly increased for all storm sizes.

These results suggest that restoration work has been effective in slowing storm flows and smoothing hydrographs for the small storm sizes that individual structures were designed to control. Larger storms produce runoff amounts greater than the design capacity of the various BMPs. These improvements in hydrology, along with streambank restoration, have likely reduced erosion and prevented TSS and other pollutants from entering the stream. This is confirmed by the relative stability seen in the geomorphology results discussed later.

2.G.1.b Breewood Tributary Biological Monitoring

Overview

As shown on Figure 2.G-1, the biological monitoring station is located in the Breewood Tributary upstream of the Sligo Creek Parkway and instream water chemistry monitoring station. Before channel restoration, DEP scientists monitored benthic macroinvertebrates (aquatic insects) at SCBT101 from 2010 to 2014. Fish are not monitored in the Breewood Tributary due to its extremely small drainage area and lack of adequate flow and habitat conditions for healthy fish populations. The Breewood Tributary was restored in 2015; during that time, benthic macroinvertebrates were not sampled due to active site construction. Post-restoration biological sampling began in 2016.

DEP uses a benthic index of biological integrity (BIBI) to assess stream conditions at SCBT101. Pre-restoration (2010 through 2014) benthic community results data were collected and compared with post-restoration (2016 and later) data to evaluate watershed restoration success. The BIBI is composed of eight metrics of benthic macroinvertebrate community composition and function. DEP examines several of these more detailed metrics, including percentage of functional feeding groups (FFGs) present, taxa richness, taxa composition, and pollution tolerance. Each measurement responds in a

predictable way to increasing levels of stressors. Changes in individual metrics may be observed as the biological community shifts, and these smaller-scale changes might be seen before the overall BIBI score changes. FFG classifications organize benthic macroinvertebrates by their feeding strategies (Camann 2003; Cummins 1994). The five FFGs usually examined in a bioassessment are as follows:

- **Collector gatherers** are the most generalized in feeding and habitat needs and are usually the most abundant FFG because their food source of fine particulate organic matter is abundant.
- **Filtering collectors** filter small particulate organic matter that float in the current.
- **Shredders** reduce coarse material (such as leaves) into fine material that can then be transported downstream for use by collectors. Shredders also are considered specialized feeders and sensitive organisms and typically well-represented in healthy streams.
- **Scrapers** scrape and graze on diatoms and other algae. Many taxa in this group are sensitive to environmental degradation and associated with high-quality streams.
- **Predators** attack and consume other insects and macroinvertebrates.

Benthic Macroinvertebrate and Habitat Results

During pre-restoration, the Breewood Tributary stream condition ranged from poor (20 percent) to fair (45 percent) (Figure 2.G-3). The single occurrence of fair occurred in 2011; the number of taxa in the Breewood Tributary samples was low to moderate (ranging from 5 taxa in the 2010 sample to 14 taxa in years 2011 and 2013 samples). Shredders only accounted for 5 percent of the FFGs present and no scrapers were found. Collectors accounted for 66 percent of the individuals in the pre-restoration samples, and the dominant taxa were members of the *Chironomidae* (midge) family, which tend to tolerate pollution and other environmental stressors (Pederson and Perkins 1996; Jones and Clark 1987). *Chironomidae* decreased from 91 percent in 2010 to 55 percent in 2014, and no obvious cause for this shift was apparent. Since restoration, the stream condition score has generally been higher.

Figure 2.G-4 shows the average proportion of each FFG at SCBT101 for pre-restoration years 2010 through 2014, compared with reference stream reach, Good Hope Tributary to Paint Branch (PBGH108). This site was selected as a reference site because it is similar in size and in good condition, providing an accurate comparison before and after Breewood restoration.

During the first year of post-restoration (2016), the BIBI increased to fair (50 percent); 13 taxa were present, indicating moderate species richness. Shredders accounted for 1 percent (one *Tipula* species) of the total sample. Scrapers were found for the first time and accounted for 32 percent of the sample; however, all were members of the family *Physidae*, tolerant snails. Collector gatherers, filterers, and predators accounted for 16 percent, 27 percent, and 24 percent, respectively, of the sample (Figure 2.G-5). *Chironomidae* accounted for 26 percent of the 2016 sample. During the second year of post-restoration (2017), the BIBI declined to poor (40 percent); 10 taxa were present, indicating moderate species richness. Shredders accounted for 1 percent (one *Tipula* species) and scrapers accounted for only 3 percent of the sample. As in 2016, all were members of the family *Physidae*, tolerant snails. Collector gatherers, filterers, and predators accounted for 22 percent, 54 percent, and 20 percent, respectively, of the sample (Figure 2.G-6). *Chironomidae* accounted for 45 percent of the 2017 sample.

Figure 2.G-3. Breewood Tributary (SCBT101) Percent BIBI Scores

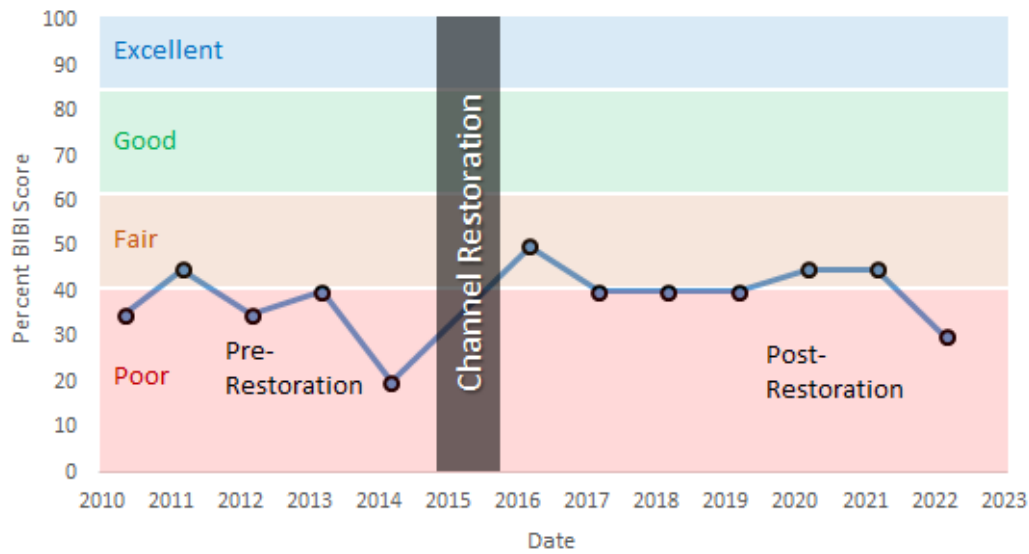


Figure 2.G-4. Pre-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope Tributaries (PBGH108)

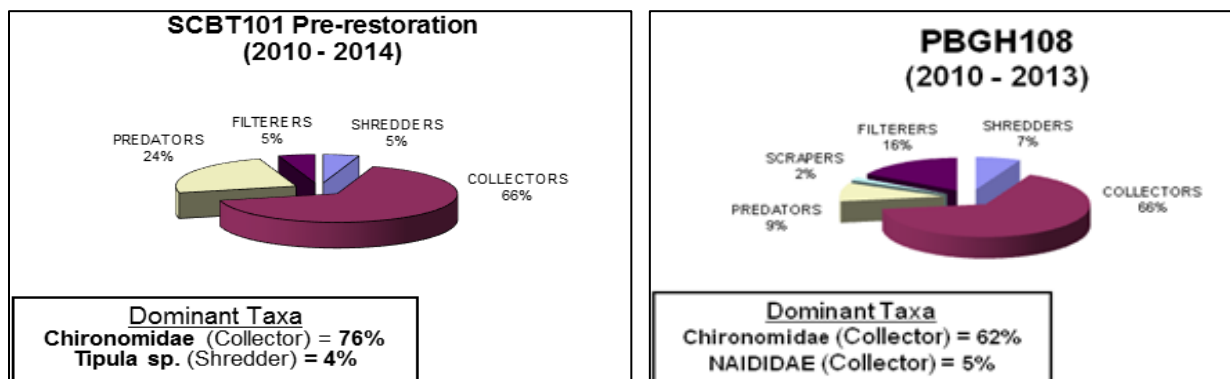


Figure 2.G-5. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2016

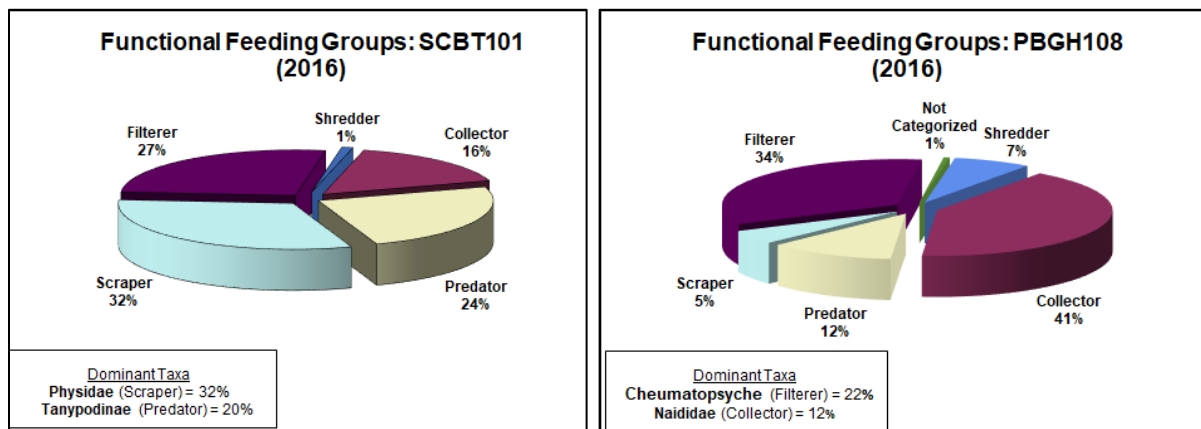
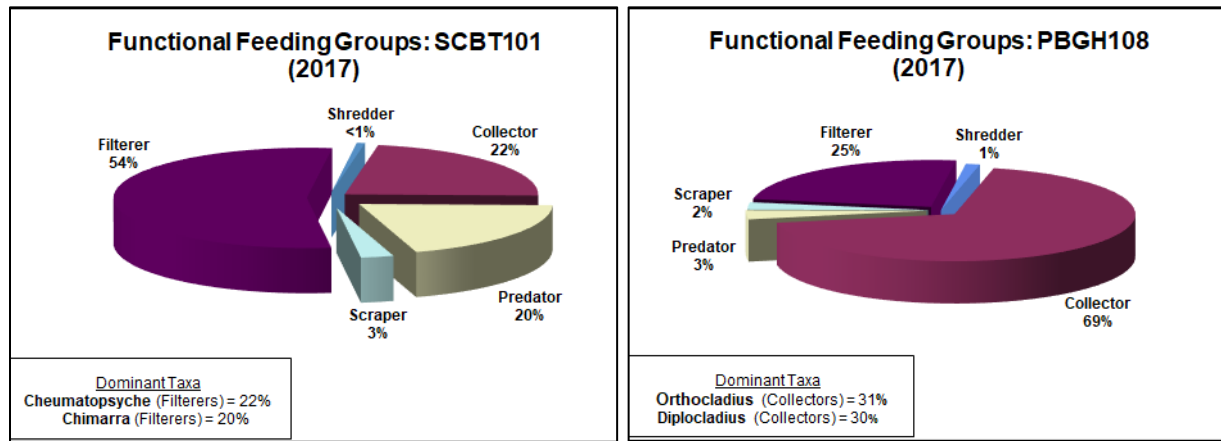
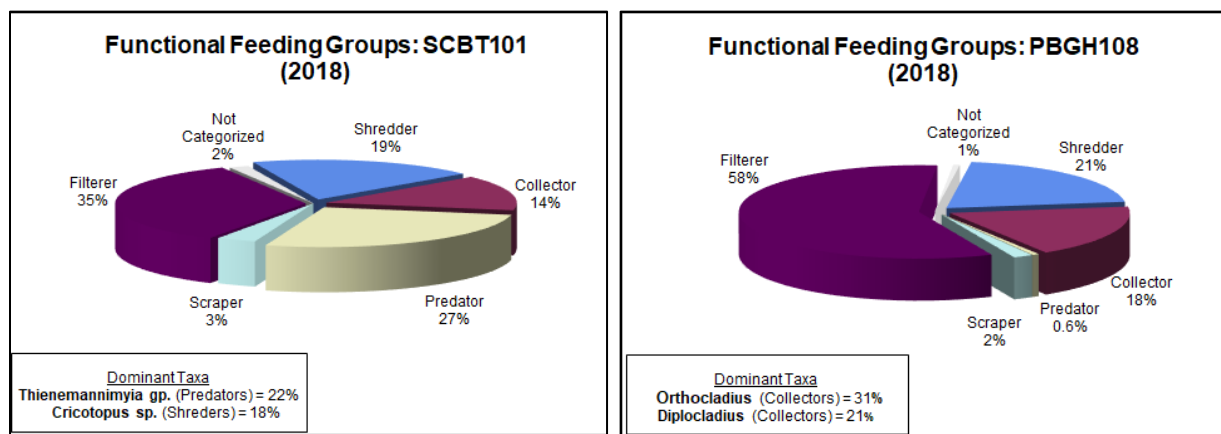


Figure 2.G-6. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2017



During the third year of post-restoration (2018), BIBI remained poor (40 percent); 13 taxa were present, indicating moderate species richness. Shredders accounted for 19 percent (two species: *Tipula* and *Cricotopus*) and scrapers accounted for still only 3 percent of the sample (but were composed of three species: family *Physidae* or tolerant snails; *Oulimnius*, a tolerant beetle; and *Stagnicola*, a tolerant snail), while only one taxa was represented in 2017. Collector gatherers, filterers, and predators accounted for 14 percent, 35 percent, and 27 percent, respectively, of the sample (Figure 2.G-7). *Chironomidae* accounted for 50 percent of the 2018 sample.

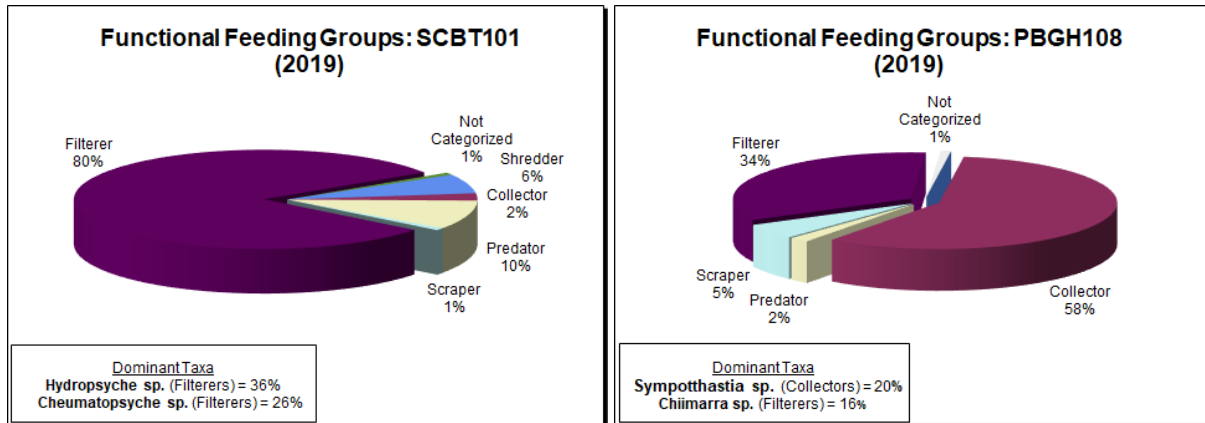
Figure 2.G-7. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2018



During the fourth year of post-restoration (2019), the BIBI remained poor (40 percent); nine taxa were present, which equals the lowest number observed since restoration. Moreover, differences observed in the FFG composition relative to previous years were considerable. The most striking difference was the increase in filterers observed. In 2019, this group accounted for 80 percent of the sample. Previously, this group accounted for only between 25 to 50 percent of the sample. The number of predators declined to 9 percent of the sample, whereas previously they accounted for 20 to 27 percent of the sample. Shredders remained relatively stable, accounting for 6 percent of the total sample. Scrapers accounted for less than 1 percent of the sample and consisted of a single species (*Stenelmis*). Collector gatherers accounted for just 2 percent of the sample and consisted of a single species (*Orthocladius*;

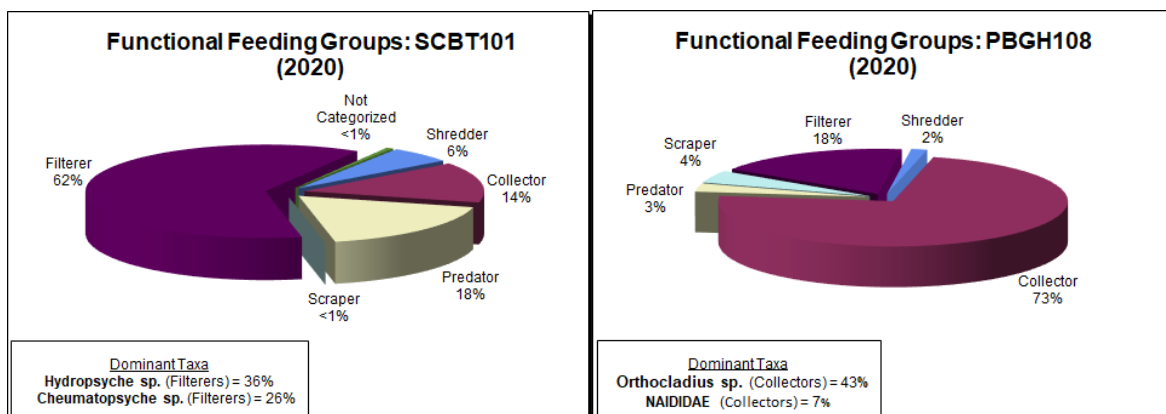
Figure 2.G-8). The number of *Chironomidae* observed in 2019 significantly declined, accounting for only 16 percent of the sample, whereas in 2018, this group accounted for 50 percent of the sample.

Figure 2.G-8. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2019



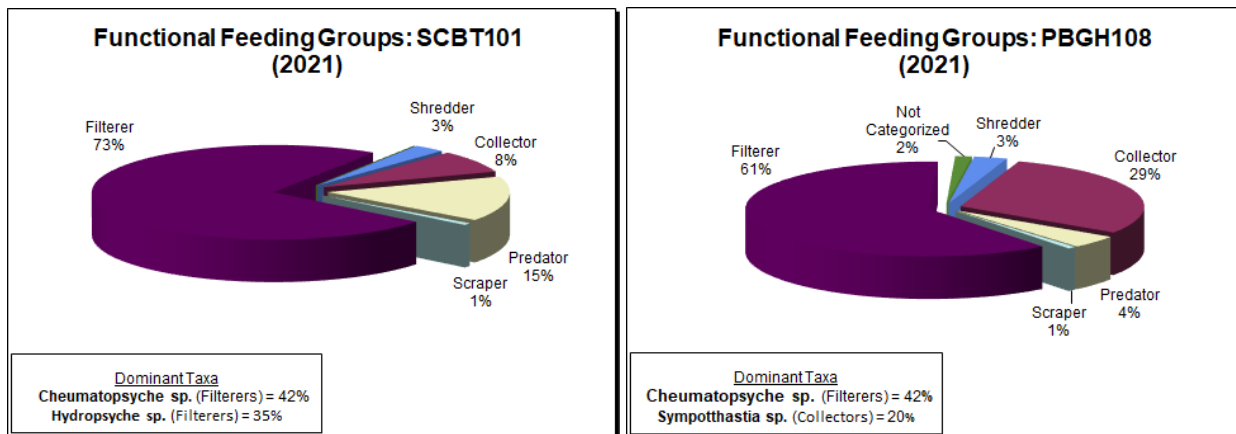
During 2020, the fifth year of post-restoration, the BIBI improved to fair (45 percent); 12 taxa were present. This is a 25-percent increase in taxa richness from 2019. The percentage of filterers present declined from 80 percent in 2019 to 62 percent in 2020. Before 2019, this group accounted for only 25 to 50 percent of the sample. The number of predators accounted for 18 percent of the sample in 2020, which is an increase from the previous year and more in line with previously reported proportions. Shredders remained stable, accounting for 6 percent of the total sample. Scrapers accounted for just 1 percent of the sample and consisted of a single species (*Cricotopus*). The proportion of collector gatherers increased to 16 percent of the sample (Figure 2.G-9). The proportion of *Chironomidae* observed in 2020 accounted for 33 percent of the sample.

Figure 2.G-9. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2020



During 2021, the sixth year of post-restoration, the BIBI was also rated as fair (45 percent); 13 taxa were present. This is an 8-percent increase in taxa richness from 2020. The percentage of filterers present increased from 62 percent in 2020 to 73 percent in 2021. Before 2019, this group accounted for only 25 percent to 50 percent of the sample. The number of predators accounted for 15 percent of the sample in 2021, which is a 3-percent decrease from the previous year. Shredders declined slightly, accounting for only 3 percent of the total sample. Scrapers accounted for 2 percent of the sample (three individuals identified to family *Grambidae*). The proportion of collector gatherers decreased to 8 percent of the sample (Figure 2.G-10). The proportion of *Chironomidae* observed in 2021 accounted for 6 percent of the sample; this is the lowest proportion ever recorded at this monitoring station.

Figure 2.G-10. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2021



During 2022, the seventh year of post-restoration, the BIBI was rated as poor (30 percent); 12 taxa were present. This is an 8-percent decrease in taxa richness from 2021. The percentage of filterers present decreased sharply from 73 percent in 2021 to just 19 percent in 2022. The percentage of predators increased from 15 percent in 2021 to 28 percent of the sample in 2022. Shredders increased slightly, from 3 percent in 2021 to four percent of the total sample. Scrapers were not observed in the sample collected in 2022. The proportion of collector gatherers increased dramatically from eight percent of the sample in 2021 to 47 percent in 2022 (Figure 2.G-11). The proportion of *Chironomidae* observed in 2022 accounted for 77 percent of the sample; this is the highest proportion ever recorded at this monitoring station and is likely attributable to sampling or subsampling error.

DEP used additional metrics to characterize the benthic macroinvertebrate community of the Breewood Tributary. The biotic index, which measures tolerance to organic pollution, has generally declined (that is, shown improvement) since restoration (Figure 2.G-12). In 2022, the index was 6.53 (out of 10), indicating a moderately low tolerance to organic pollution. The high number of chironomids found in the sample negatively affect this score for 2022.

Figure 2.G-11. Post-restoration FFG Comparison in the Breewood (SCBT101) and Good Hope (PBGH108) Tributaries, 2022

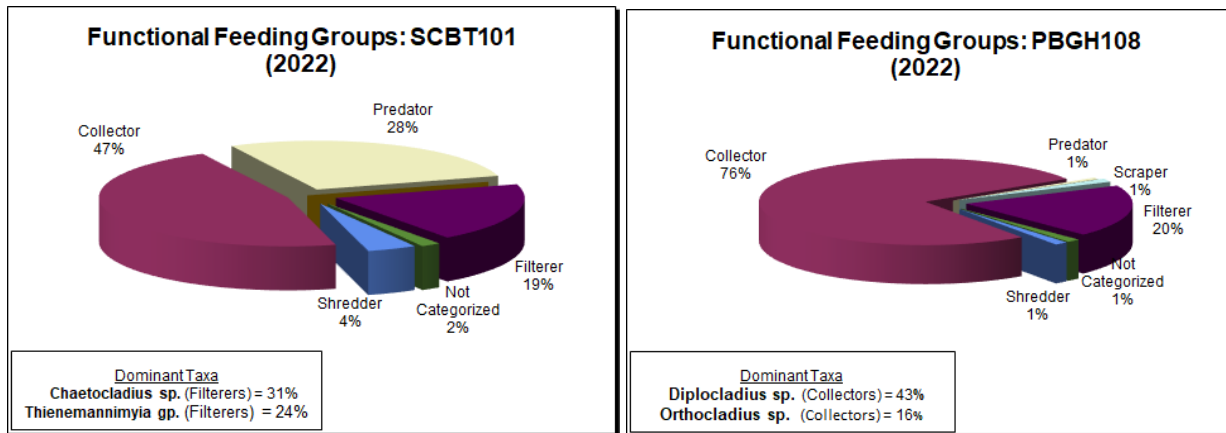
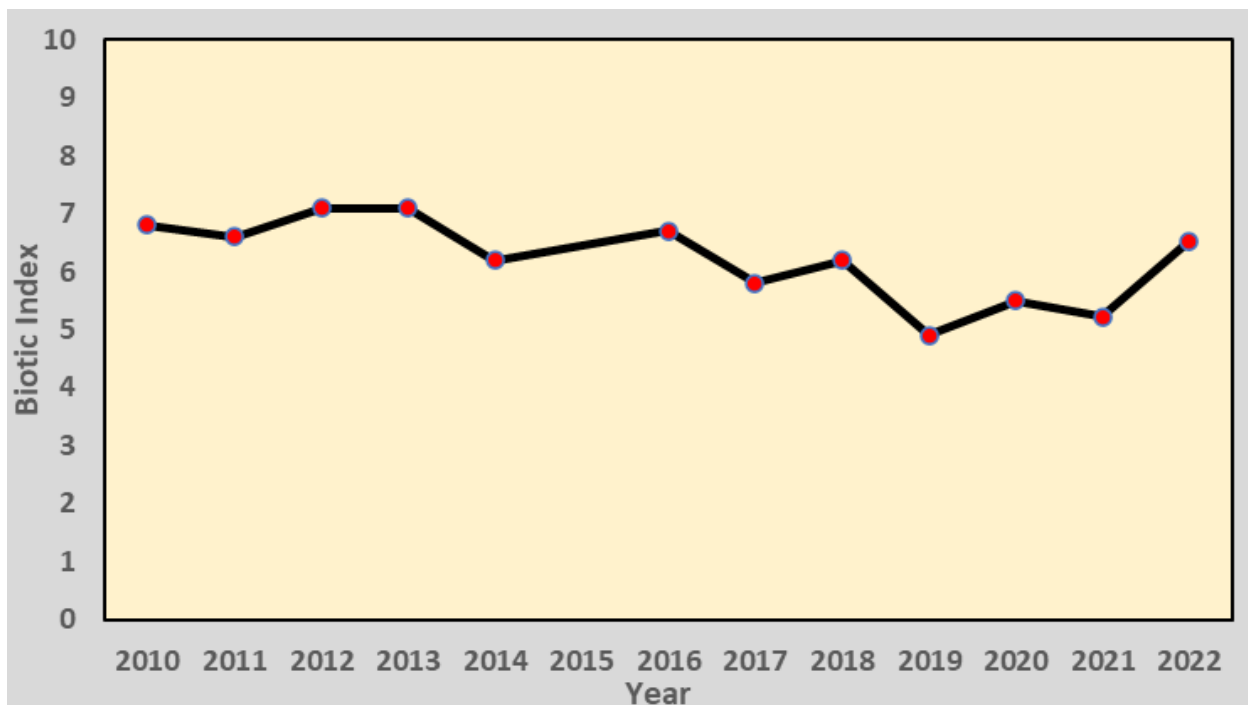


Figure 2.G-12. Breewood Tributary (SCBT101) Biotic Index Scores, 2010 through 2022



The BIBI score analysis includes determining the presence of *Ephemeroptera* (mayflies), *Plecoptera* (stoneflies), and *Trichoptera* (caddisflies) (EPT) taxa; EPT are sensitive species commonly associated with high-quality streams. Before the Breewood Tributary restoration, very few EPT taxa were present, and those consisted primarily of moderately tolerant caddisfly larvae. The proportion of EPT individuals ranged from 1 to 7 percent of the total sample. Post-construction, although similar numbers of caddisfly genera were observed, the proportion of EPT individuals increased and now ranges from 16 to 80 percent of the total sample. In 2022, EPT taxa consisted entirely of *Trichoptera* and accounted for 17 percent of the sample. This is a substantial decline from 2021. The number of *Chimarra* species consisted of less than 1 percent of the sample in 2014 but accounted for 6 percent of the 2016 sample, 20 percent of the 2017 sample, 12 percent of the 2018 sample, 17 percent of the 2019 sample, and 20 percent of the 2020 sample. This taxon accounted for only 3 percent of the 2021 sample and less than 2

percent of the 2022 sample. *Chimarra* are slightly less tolerant than the other *Trichoptera* genera observed. Post-construction data indicate the community structure has shifted in response to the restoration. In 2019, an abrupt shift in species composition was observed to a community dominated by *Trichoptera* (80 percent). The results of the 2020 survey show that *Trichoptera* still comprised more than 58 percent of the sample. In 2021, *Trichoptera* accounted for 73 percent of the sample. In 2022, *Trichoptera* accounted for 17 percent of the sample, which is largely due to the high number of Chironomidae in the sample. It is not clear if the abrupt shift back to a Chironomidae-dominated community will persist or if this is possibly a result of a sampling error or water quality issue. What may have caused this is not evident from the habitat analysis described in Section G.1.c, so this shift may be the result of recent upstream water quality improvement projects.

Physical Habitat Analysis

Starting in 2010, DEP annually assessed the physical habitat at SCBT101. Pre-restoration monitoring established a baseline for comparison with future habitat assessments. Results indicate the pre-restoration (2010 through 2014) habitat consistently rated fair, receiving an average score of 41 percent and a range from 36 to 49 percent. Before restoration, DEP found that the stream had poor riffle quality, high embeddedness values, bank instability, and a narrow riparian zone, which lowered the overall habitat score. DEP observed an increase in riffle quality in 2011 and 2012, which contributed to the overall increase in habitat score.

Figure 2.G-13 illustrates a comparison of the Breewood Tributary BIBI and habitat conditions with those in the Paint Branch reference stream reach from 2010 to 2021. The reference station, PBGH108, was not monitored during 2014. Habitat scores were not available for analysis in 2020. While restoration substantially changed the stream channel, improving instream fish cover, embeddedness, and bank stability, the epifaunal substrate was negatively impacted immediately following the restoration. In recent years, there have been minor improvements in both biology and habitat. Figure 2.G-13 shows two distinct clusters of scores for biology versus habitat (pre- and post-restoration), which is encouraging. However, the graph also indicates that the gap between the actual and expected biology scores is growing, which is not unexpected since benthic recruitment in an urban system is limited.

In Situ Water Chemistry Data

DEP recorded in situ water chemistry measurements in the Breewood Tributary and the reference stream are concurrent with the physical habitat assessment. As shown in Table 2.G-1, most water quality parameters (DO, pH, and temperature) were within the expected range at SCBT101 and the reference stream.

Conductivity, expressed in micromhos per centimeter ($\mu\text{mho}/\text{cm}$), was the only parameter that consistently varied among the streams, being elevated (maximum 1,282 $\mu\text{mho}/\text{cm}$) at SCBT101 in 2017 compared with a maximum of 360 $\mu\text{mho}/\text{cm}$ in 2020 at the reference stream. The conductivity readings have increased at both stations since monitoring began but have increased at a greater rate at SCBT101 than at the reference stream. Salt in road runoff from the University Boulevard outfall upstream of the station is the most likely explanation for the unusually high conductivity values recorded. DEP will continue to track conductivity values to evaluate whether this pattern is consistent and, therefore, a chronic influence on the benthic community.

Figure 2.G-13. BIBI versus Habitat Condition at Breewood Tributary and Reference Stream, 2010 through 2022

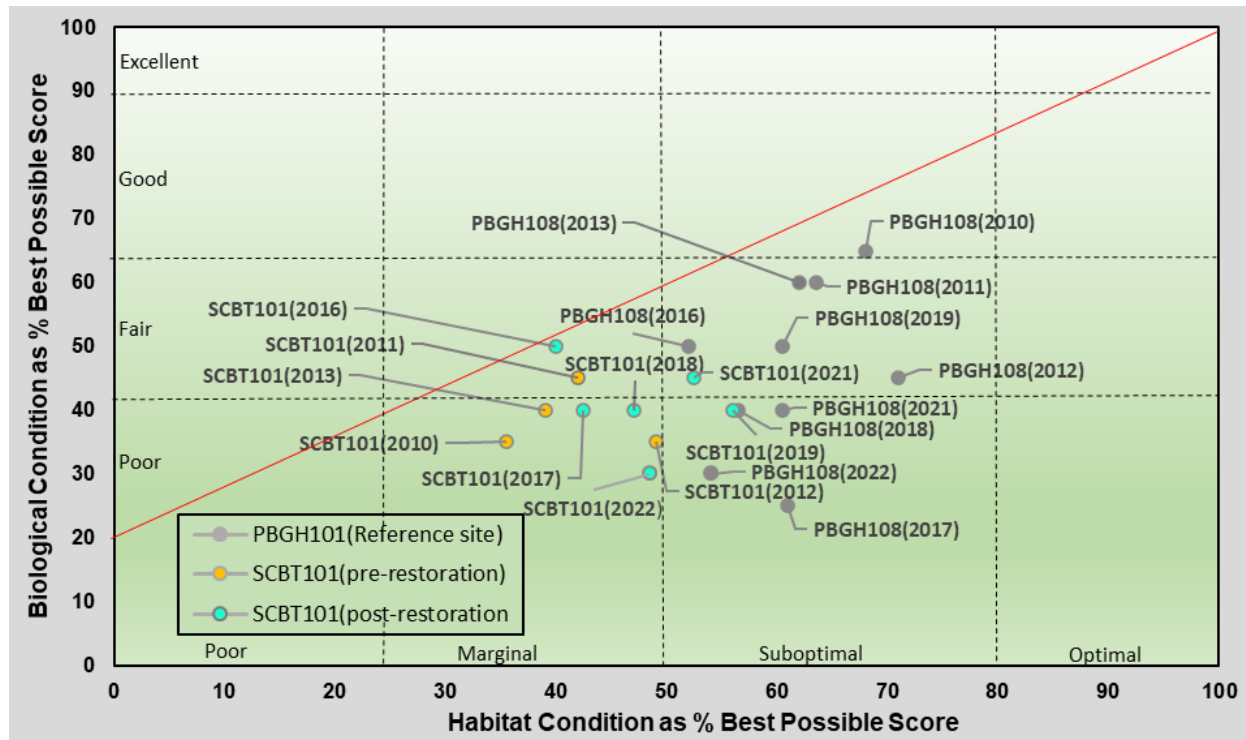


Table 2.G-1. In Situ Water Chemistry Results at Breewood Tributary (SCBT101) and Good Hope Tributary (PBGH108) Reference Stream^[1]

Station	Type	Benthic Community Rating	Date	DO (mg/L)	DO Saturation (percent)	pH	Conductivity (µmho/cm)	Temperature (°C)	
								Air	Water
SCBT101	Benthic	Poor	5/7/2010	8.73	87	7.30	566	21	15.4
SCBT101	Benthic	Fair	3/9/2011	10.57	87	7.83	727	5	7.8
SCBT101	Benthic	Poor	3/19/2012	10.35	90	5.9	565	22	14.3
SCBT101	Benthic	Poor	3/21/2013	11.47	95	7.86	660	2	6.9
SCBT101	Benthic	Poor	3/20/2014	9.05	83	7.56	966	12	12.0
SCBT101	Benthic	Fair	3/9/2016	10.06	90	7.78	Not applicable ²	23	11.2
SCBT101	Benthic	Poor	3/20/2017	9.64	87	7.48	1282	12	10.8
SCBT101	Benthic	Poor	3/28/2018	12.06	112	6.83	948	10	11.6
SCBT101	Benthic	Poor	3/5/2019	9.17	84	6.99	1037	15	10.8
SCBT101	Benthic	Fair	3/4/2020						
SCBT101	Benthic	Fair	3/4/2021	10.8	98	6.44	1022	14	10.7
SCBT101	Benthic	Poor	3/22/2022	5.39	85	9.03	1020	15	12.9
PBGH108	Benthic	Good	4/22/2010	10.69	90	6.24	166	12	11.0

Station	Type	Benthic Community Rating	Date	DO (mg/L)	DO Saturation (percent)	pH	Conductivity (µmho/cm)	Temperature (°C)	
								Air	Water
PBGH108	Benthic	Fair	4/18/2011	10.60	104	6.79	143	17	14.4
PBGH108	Benthic	Fair	4/11/2012	11.27	110	7.36	157	14	10.6
PBGH108	Benthic	Fair	3/20/2013	12.31	102	6.27	212	9	7.2
PBGH108	Benthic	Fair	3/17/2016	11.3	108	7.41	239	23	11.2
PBGH108	Benthic	Poor	3/21/2017	10.54	87	7.73	336	7	7.0
PBGH108	Benthic	Poor	3/19/2018	13.36	107	6.80	278	19	5.3
PBGH108	Benthic	Fair	3/11/2019	10.59	94	6.50	352	16	9.5
PBGH108	Benthic	Poor	3/20/2020	9.32	89	7.52	227	23	13.2
PBGH108	Benthic	Poor	3/8/2021	13.15	100	6.9	360	16	4.1
PBGH108	Benthic	Poor	3/14/2022	14.1	127	6.77	244	28	10.5

^[1] PBGH108 was not monitored in 2014. Neither station was monitored in 2015 when the stream restoration was done. Water quality data are not available for SCBT101 in 2020.

^[2] Conductivity probe failed calibration (recorded value was 1017)

°C = degree(s) Celsius

mg/L = milligram(s) per liter

2.G.1.c Breewood Tributary Physical Monitoring

In 2010 and 2011, DEP established two study areas (20 expected bankfull widths) to assess physical geomorphology changes over time in the Breewood Tributary. Study Area 1 (established in 2011) extends from the outfall channel below University Boulevard to Breewood Tributary (pre-restoration). Study Area 2 (established in 2010) extends downstream from the end of Tenbrook Drive to just upstream from Sligo Creek Parkway and includes the biological monitoring station at SCBT101 (Figure 2.G-1).

Figures 2.G-14 and G-15 depict representative cross-sections of Study Areas 1 and 2 before (2011 through 2013) and after (2015 through 2021) restoration. Pre-restoration surveys indicate degraded, entrenched channels with steep banks, little-to-no floodplain connection, low sinuosity, and high erosion potential. A geomorphic assessment of the Breewood Tributary was not conducted in 2014 due to ongoing stream restoration activities. The Breewood Tributary restoration was completed in 2015; the first post-restoration surveys were conducted during the following winter.

Restoration activities involved installing a series of pools and riffle grade controls to mitigate the high erosive flows from the University Boulevard outfall. After restoration, pools dominated the reach at 68 percent, compared with grade control riffles at 32 percent. Throughout monitoring activities, particle size (D_{50}) at Study Area 1 were highly variable; this D_{50} variability most likely resulted from alternate periods of deposition and scouring due to high stormflows from the outfall. At Study Area 2, average D_{50} increased after restoration. In 2013, the last year of preconstruction, D_{50} was 8.7 millimeters. Following restoration, average D_{50} has remained above 40 millimeters. Moreover, after restoration, Study Area 2 D_{50} increased by approximately 500 percent; this could indicate less deposition of fine materials downstream of the restored reach, though the results are also likely affected by the installation of large boulders in the upstream riffle (Table 2.G-2).

Table 2.G-2. Bed Material Composition and Median Grain Size (D₅₀) Analysis

Station and Area	Date	D ₅₀	Description
SCBT101-A1	6/7/2011	0.062	Silt and clay
SCBT101-A1	3/1/2012	0.65	Coarse sand
SCBT101-A1	2/20/2013	0.55	Coarse sand
SCBT101-A1	No data for 2014	No data for 2014	No data for 2014
SCBT101-A1	2/8/2016	0.062	Silt and clay
SCBT101-A1	12/5/2016	39	Very coarse gravel
SCBT101-A1	1/11/2018	0.062	Silt and clay
SCBT101-A1	12/11/2018	51	Very coarse gravel
SCBT101-A1	1/08/2020	0.062	Silt and clay
SCBT101-A1	11/24/2020	0.062	Silt and clay
SCBT101-A1	12/1/2021	8	Medium gravel
SCBT101-A1	12/12/2022	0.062	Silt and clay
SCBT101-A2	7/8/2010	2.8	Fine gravel
SCBT101-A2	3/9/2011	12	Medium gravel
SCBT101-A2	2/28/2012	2.8	Very fine gravel
SCBT101-A2	2/15/2013	8.7	Medium gravel
SCBT101-A2	No data for 2014	No data for 2014	No data for 2014
SCBT101-A2	2/8/2016	40	Very coarse gravel
SCBT101-A2	12/9/2016	40	Very coarse gravel
SCBT101-A2	1/22/2018	55	Very coarse gravel
SCBT101-A2	1/26/2019	50	Very coarse gravel
SCBT101-A2	12/5/2019	53	Very coarse gravel
SCBT101-A2	11/18/2020	48	Very coarse gravel
SCBT101-A2	12/2/2021	45	Very coarse gravel
SCBT101-A2	12/13/2022	55	Very coarse gravel

Figures 2.G-14 and G-15 show how drastically restoration changed the cross-sections of Study Areas 1 and 2. The channel bed was raised and banks were graded to open the cross-sections and allow the stream to access the floodplain. Post-restoration (2015 through 2021) cross-section surveys indicate improved width and depth and entrenchment ratios except for Study Area 2 cross-section 2. This cross-section was not elevated during the restoration, although brush bundles were installed to protect the banks. The brush bundles were placed in the cross-section, making accurately measuring the earthen bank difficult. Further, the brush bundles are unstable, which accounts for the variation in Study Area 2, cross-section 2 since 2015. Entrenchment ratios of 1 to 1.4 represent entrenched streams, 1.41 to 2.2 indicate moderately entrenched streams, and greater than 2.2 represent only slightly entrenched streams with a well-developed floodplain.

Figure 2.G-14. Representative Cross-Sections from Breewood Tributary Study Area 1

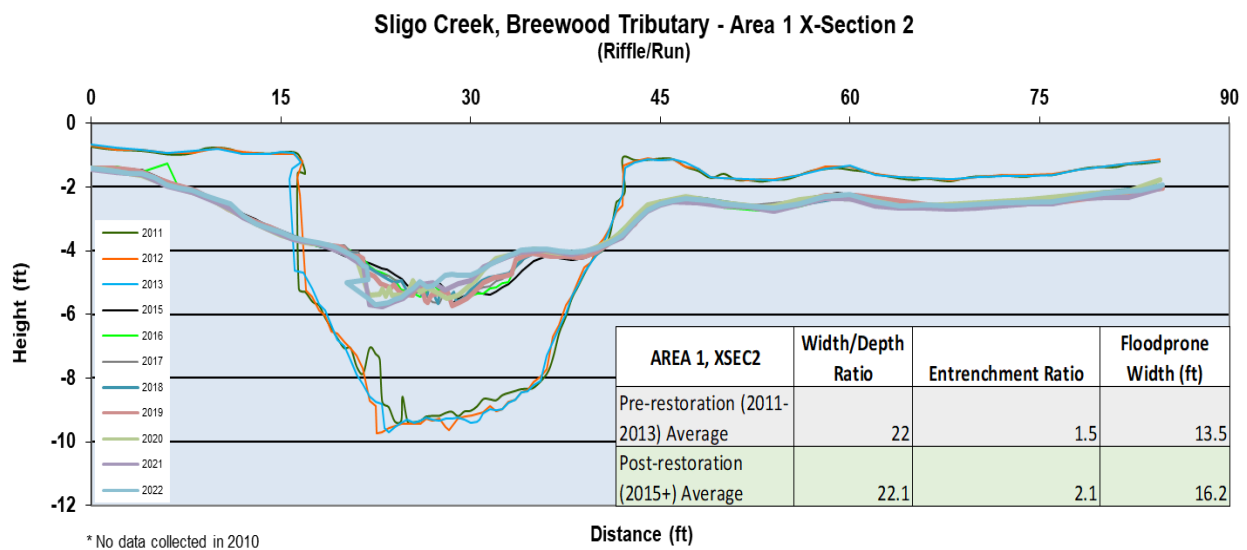
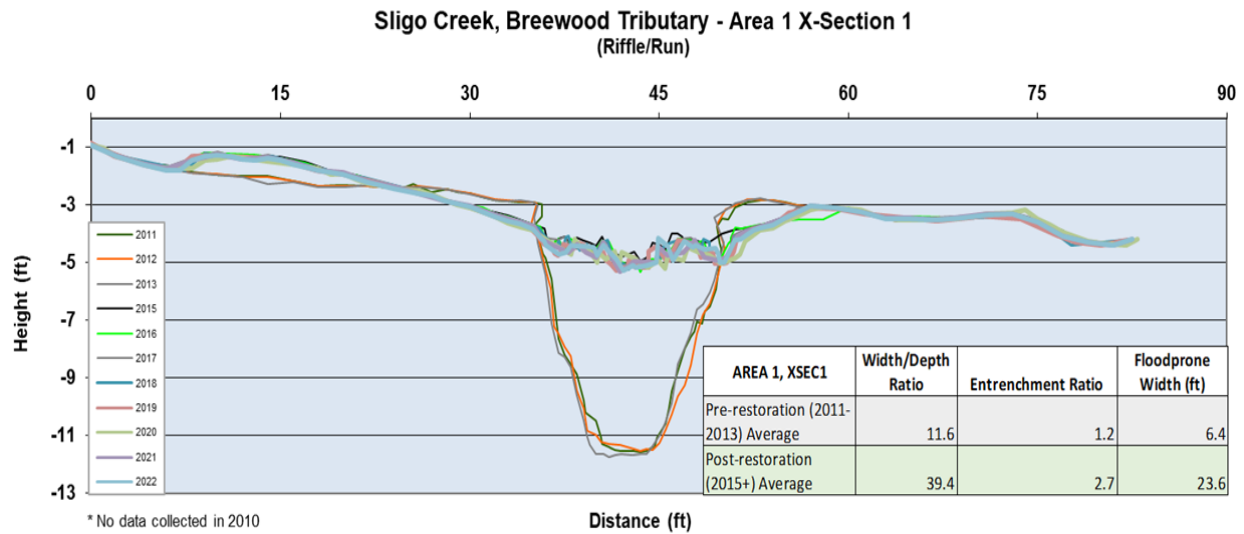
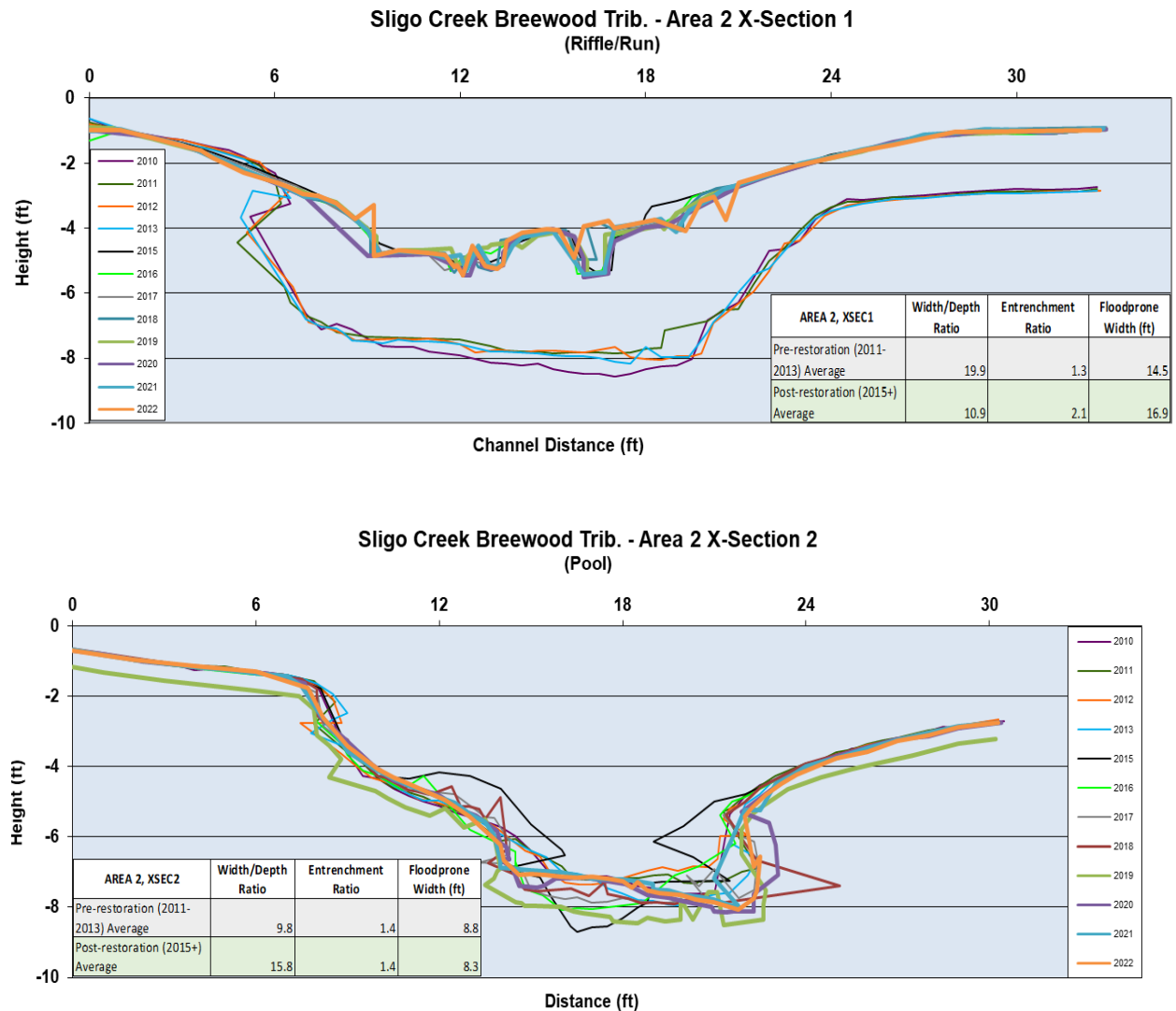


Figure 2.G.15. Representative Cross-Sections from Breewood Tributary Study Area 2



Restoration has resulted in a more stable channel, with lower erosion potential. Erosive stormflows that were once confined and concentrated in an entrenched channel with erodible soils now have space in the floodplain to spread out and slow down. The design intends for water to filter through the hyporheic zone to reduce surface-flow volumes and improve water quality. Figure 2.G-16 represents a cross-section within Study Area 1, demonstrating the severe down-cutting that was prevalent pre-restoration in this part of the Breewood Tributary. Figure 2.G-17 shows the Breewood Tributary post-restoration.

Figure 2.G-16. Pre-restoration Upstream View of Sligo Creek Breewood Tributary Study Area 1, 2013



Figure 2.G-17. Post-restoration Upstream View of Sligo Creek Breewood Tributary Study Area 1, 2015



2.G.1.d Overall Conclusions

Environmental conditions in the Breewood watershed appeared to be better than before restoration. Channel configuration and stability have greatly improved. The stream habitat appears to be better than the previous conditions. Stream hydrology improved during small storms with reduced and delayed peak flows. Reductions in TSS and some metals suggest BMPs are effective at reducing certain pollutants and erosion. These factors all indicate that water quality is improving. However, the work has not

reduced nitrogen levels in storm flows and aquatic benthic macroinvertebrate communities have not shown significant improvement. Environmental conditions may not have improved enough to support sensitive benthic macroinvertebrate species. Restoration results are in line with expectations set forth in recent literature documenting benthic macroinvertebrate community shifts due to stream restoration in the County (Hilderbrand 2020).

2.G.2 Watershed Assessment Monitoring

The County is responsible for fulfilling the 2021 MS4 Permit watershed assessment and trend monitoring requirements. The County provided MDE with a comprehensive plan for watershed assessment and trend monitoring in February 2023. Comments from MDE on the plan have been received. DEP is addressing the comments and will provide a revised plan to address the comments in a separate transmittal before December 31, 2023. After the MDE approves the plan, the County will begin bacteria monitoring at four sites and chloride monitoring at two sites. The County will continue its biological monitoring program.

2.G.3 PCB Source Tracking

The Permit requires submittal within 1 year of Permit issuance (or by November 5, 2022) of a PCB source tracking monitoring plan for all applicable TMDL WLAs where watershed reductions are required to meet water quality standards. The County is working on updating TMDL implementation plans for PCB, which are being prepared in accordance with *Guidance for Developing Local PCB TMDL (Total Maximum Daily Load) Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans (WIPs)* (MDE 2022c). The County expects that the updated PCB TMDL IP plans will be provided to MDE in early 2024.

2.H Program Funding

The Permit language of the County's MS4 Permit Part IV.H, Program Funding, is provided as follows:

- <<1. Annually, a fiscal analysis of the capital, staffing, operation, and maintenance expenditures necessary to comply with all conditions of this permit shall be submitted by Montgomery County as required in PART V below.
2. Adequate program funding to comply with all conditions of this permit shall be maintained. Lack of funding does not constitute a justification for noncompliance with the terms of this permit.>>

The MS4 Permit requires the County to submit the annual fiscal analysis of the capital, staffing, operation, and maintenance expenditures by providing the expenditures for the reporting period and proposed budget for the upcoming year. This information is provided in database format in the NPDES MS4 Geodatabase, Fiscal Analysis Associated Table (MDE 2017; MDE 2021).

2.H.1 Expenditures and Appropriated Budget

During FY23, reported expenditures associated with all MS4 Permit requirements were \$70,218,646, which marked a decrease of 7 percent over FY22 MS4 Permit expenditures. The decrease in expenditures is due to mild winter weather in FY23, which significantly reduced expenditures for winter-weather activities.

Table 2.H-1 provides the total capital and operating expenditures for the FY23 reporting period. The expenditure data presented in Table 2.H-2 and NPDES MS4 Geodatabase, Fiscal Analysis Associated Table (MDE 2017; MDE 2021), represent the FY23 expenditures for MS4 Permit implementation by DEP, DOT, DGS, DPS, DHCA, and MCPS. The following programs and efforts are included:

- Operating and personnel expenditures for SWM, ESC, IDDE, property management, public education, stormwater restoration, TMDL, Assessment of Controls, and DEP administrative and reporting expenditures.
- Capital and personnel expenditures from SWM, property management, stormwater restoration, and TMDL.
- Debt service payment for DEP and DOT CIP restoration and outfall projects.

Table 2.H-1. FY23 Operating and Capital Expenditures

Expenditure Type	Expenditure
Operating ^[1]	\$56,836,859
Capital ^[2]	\$13,381,787
Total expenditures:	\$70,218,646

Notes:

^[1] Operating expenditures are the same as what is provided in NPDES MS4 Geodatabase, Fiscal Analysis Associated Table, OP_COST field (MDE 2017; MDE 2021).

^[2] Capital expenditures are the same as what is provided in NPDES MS4 Geodatabase, Fiscal Analysis Associated Table, CAP_COST field (MDE 2017; MDE 2021).

The funding for the operating and capital budget includes revenue generated from the WQPC, BMP monitoring fee, tree canopy fee, stormwater waiver fee, and carryout bag tax.

The FY24 appropriated budget is provided in Table 2.H-2 and in NPDES MS4 Geodatabase, Fiscal Analysis Associated Table (MDE 2017; MDE 2021). This information represents the appropriated budget in FY24 for MS4 Permit implementation by County DEP, DOT, DGS, DPS, and DHCA. The FY24 budget information was gathered for the programs previously listed for the expenditure fiscal analysis.

Table 2.H-2. FY24 Appropriated Budget

Appropriated Type	Budget
Operating ^[1]	\$58,933,182
Capital ^[2]	\$26,469,000
Total FY23 budget:	\$85,402,182

Notes:

^[1] FY24 appropriated operating budget is the same as what is provided in NPDES MS4 Geodatabase, Fiscal Analysis Associated Table, OP_BUDGET field (MDE 2017; MDE 2021).

^[2] FY24 appropriated capital budget is the same as what is provided in NPDES MS4 Geodatabase, Fiscal Analysis Associated Table, CAP_BUDGET field (MDE 2017; MDE 2021).

2.H.2 Financial Assurance Plan

On April 18, 2023, the County submitted a final 2022 Financial Assurance Plan (FAP) to MDE. Maryland law requires Phase I MS4 jurisdictions to project annual and 5-year costs to meet the MS4 Permit requirements. The FAP must demonstrate that the jurisdiction has sufficient funding in its current and subsequent FY budgets to meet its estimated costs for the 2-year period immediately following the FAP filing date. MDE MS4 guidance requires the FAP to include annual and projected 5-year costs needed to meet the Permit's ISR goal. The County's 2022 FAP demonstrates its commitment to fulfill the requirements of the MS4 Permit ISR requirement.

On July 20, 2023, MDE acknowledged receipt of the County's 2022 FAP and stated that the County has demonstrated that it has sufficient funding in its FAP.

The expenditures and revenue data provided to MDE in the County's FAP use different assumptions than the information required for this MS4 Annual Report. While the assumptions are based on the same information, they cannot be directly compared.

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Appendix A

Illicit Discharge Detection and Elimination

Appendix A1

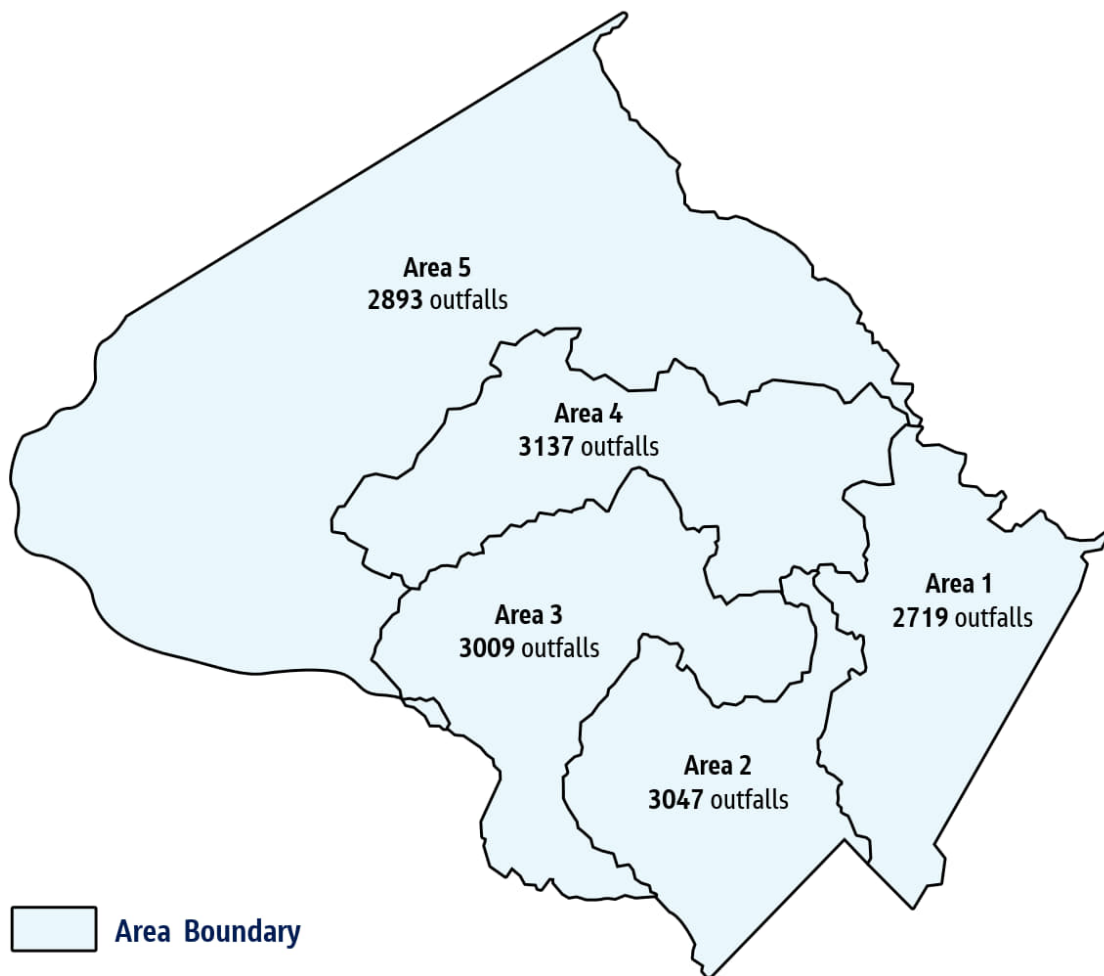
Montgomery County Illicit Discharge Detection and Elimination Standard Operating Procedures

Appendix A1

Montgomery County Illicit Discharge Detection and Elimination Standard Operating Procedures (revised September 5, 2023)

At a minimum, the Montgomery County Department of Environmental Protection (DEP) will survey 150 outfalls and 40 hotspots within a given mapped area during each fiscal year. The areas will rotate annually wherein all of Montgomery County will be surveyed during a 5-year period (Figure A-1). This appendix details Montgomery County's standard operating procedures (SOPs) for its illicit discharge detection and elimination (IDDE) program.

Figure A-1. Illicit Discharge Detection and Elimination Areas and Number of Outfalls per Area



A.1 Annual Illicit Discharge Detection and Elimination Standard Operating Procedures

This section lists the annual illicit discharge detection and elimination (IDDE) standard operating procedures (SOPs).

A.1.1 Section 1. Identifying Target Commercial and Industrial Hotspots and Outfalls for Surveying

1. Identify target commercial and industrial hotspots:
 - a. Define hotspots as properties zoned as commercial or industrial.
 - b. Determine number of commercial versus industrial hotspots to survey during each cycle as a percentage of the area's total combined commercial and industrial properties.
 - c. Resurvey hotspots that required enforcement action during the previous survey cycle as part of the 40 minimum hotspots surveyed.
 - d. Do not resurvey hotspots that did not have issues during the previous survey cycle if possible.
 - e. Determine hotspots to be surveyed based on proximity to inlets and outfalls and streams with hotspots closer to inlets and having higher priority.
 - f. Use staff knowledge about known hotspots to identify hotspots to be surveyed.
2. Identify target outfalls:
 - a. Define outfalls as outfall structures owned and maintained by Montgomery County.
 - b. Resurvey outfalls that had pollution issues during the previous survey cycle as part of the 150 minimum outfalls surveyed.
 - c. Determine outfalls to be surveyed based on proximity to commercial and industrial properties and inlets.

A.1.2 Section 2. Selecting Hotspots and Outfalls

1. Select hotspots:
 - a. In Geographic Information System (GIS), use the *Property Layer* from the County's Spatial Database Engine (SDE) to select all properties that have an industrial or commercial land use code in the "Land Use Codes" field (refer to Table A-1).

Table A-1. Specific Land Use Codes

Type	Code	Description
Industrial	200	Industrial Park (multiple buildings, single ownership of land)
Industrial	201	Industrial Production, Multiple Occupancy – Mixed Industrial Use
Industrial	202	Industrial Production, Multiple Occupancy – Mixed Industrial Use (condominium)

Type	Code	Description
Industrial	203	Industrial Production, Single Industrial Use (fee simple)
Industrial	204	Industrial Production, Single Industrial Use (condominium)
Industrial	205	Mixed Industrial and Commercial
Industrial	206	Mixed Light Industrial (Single Occupancy)
Industrial	637	Warehouse Storage Facilities (nontransportation, communications, and utilities) – primary storage of goods to be used elsewhere
Commercial	501	Regional Shopping Center (large – Montgomery Mall, White Flint, Lake Forest, Wheaton Plaza)
Commercial	502	Sub Regional Shopping Center
Commercial	503	Convenience Center (major anchor is grocery or drug store) – several stores at one location
Commercial	504	Highway Commercial
Commercial	531	Department Store
Commercial	521	Lumber and Other Building Materials
Commercial	541	Groceries – Retail
Commercial	551	Motor Vehicles – Retail
Commercial	553	Gasoline Service Stations
Commercial	641	Automobile Repair
Commercial	559	Other Automotive – Retail Trade
Commercial	580	Fast Food Eating Places
Commercial	581	Eating and Drinking (non-fast food)

- b. Remove properties surveyed during previous survey cycle that did not have issues.
 - c. Identify commercial and industrial properties 100 feet from inlets and 250 feet from outfalls and streams for survey until 40 hotspots are found; increase or decrease search radius by increments of 50 feet until 40 or more targeted hotspots are found.
 - d. Create maps for each hotspot that includes property address and contact information for management and owner.
 - e. Disseminate an equal number of hotspots amongst staff for surveying.
2. Select outfalls:
- a. Use *the outfall layer* from the County's SDE to determine a minimum 150 outfalls.
 - b. Automatically select outfalls with pollution issues from the previous survey cycle to be resurveyed as part of the 150 minimum outfalls.

- c. Identify targeted outfalls within 100 feet of an inlet and within 100 feet of a stream for survey until the 150 minimum outfalls is reached; increase or decrease search radius by increments of 50 feet until 150 or more targeted outfalls are found.
- d. Compile a list of unique outfall IDs from the “Feature ID” field in the *outfall layer’s* attribute table (for example, JP123P0989) .
- e. Disseminate an equal number of outfalls amongst staff for surveying.
- f. Conclude all surveys by June 30 of the survey year.

A.1.3 Section 3. Performing Hotspot Surveys

1. Conduct pre-hotspot survey:
 - a. Have staff familiarize themselves with the hotspot and its business.
 - b. Review property map and determine entrance and parking situation.
 - c. If site access is limited, contact the property owner to arrange hotspot survey.
 - d. Fill out the hotspot assessment form (HAF; attached) with property information.
2. Conduct hotspot surveys:
 - a. Arrive to site and announce intentions to property owner or manager if present; obtain contact information if unknown.
 - b. Walk as much of the property as possible and around buildings; complete HAF during walk if possible.
 - c. Note and photograph any violations (refer to Figures A-2 and A-3.
 - d. Finish completing the HAF at car if unfinished.
3. Conduct post-hotspot survey:
 - a. Have staff create a case within DEP’s CaseBase investigation database for each hotspot surveyed: Water Quality, Surface Water or Hotspot Survey.
 - b. Provide case description as “<Year> hotspot survey of <property>.”
 - c. Provide case location as the property addressed surveyed.
 - d. Add any property owner or manager information to contacts.
 - e. Scan the HAF into PDF and attach it to the case as “Sample Results” document.
 - f. Input all actions as description of the visit.
 - g. If problems are found, take the appropriate enforcement action to ensure compliance (refer to Section 5 for enforcement actions).

A.1.4 Section 4. Performing Outfall Surveys

1. Conduct pre-outfall survey:
 - a. Ensure the following necessary equipment is taken:
 - Personal items (for example, proper clothing, water, food, and bug spray; waders and high boots are recommended)

- Fully charged iPad with access to Online Outfall Application and Explorer Mapping app
 - Test kits for chlorine, detergents, copper, and phenols
 - Oakton, Hydrolab, or device to measure water temperature and conductivity
 - Tape measure
 - Gloves
 - Liquid-waste container
 - Outfall Field Sheet (attached)
- b. Familiarize yourself with outfall to be surveyed, noting access points and parking.
2. Conduct outfall surveys:
- a. Provide required information on Online Outfall Application (attached).
- b. If flow present, then proceed as follows:
- i. Perform required chemical tests (chlorine, detergents, copper, and phenols).
 - ii. Collect required temperature and conductivity water parameters.
 - iii. Determine flow using fill method or application measurement method (see attached outfall screening and monitoring field sheets).
- c. If suspicious flow is found, dry weather flow found to be exceeding any chemical parameter limits, as set by MDE, and/or containing suspicious discoloration, odors, floatables or conditions deemed suspicious by the investigator, is found (refer to definition of pollution and suspicious flow), then proceed as follows:
- i. Halt survey and immediately investigate suspicious flow.
 - ii. Call in additional help if necessary.
 - iii. Investigate up-pipe until source is found or investigation is inconclusive.
- d. If no suspicious flow found, then complete online form, photograph the outfall, attach photographs to form, upload the form, and confirm successful upload before moving on.
- e. If the suspicious flow source is found, take appropriate enforcement action to ensure compliance (refer to Section 5 for enforcement actions).
3. Conduct post-outfall survey:
- a. Check CaseBase and ensure PDF form, correct location, and pictures are uploaded.
- b. Enter survey actions into CaseBase.
- c. Follow-up on outfalls with suspicious flow within 2 weeks of initial survey (weather permitting), and complete Outfall Follow-up Form (attached) with each follow-up visit.
- d. Forward follow-up site visits to IDDE lead staff.
- e. Forward any mistakes entered or changes needed to information technology (IT) staff.
- f. Forward newly found outfalls found to IT to add to geographic information system (GIS) layer.

A.1.5 Section 5. Achieving Compliance Through Enforcement Actions

1. When violations are found, establish primary goal to bring the offender into compliance.
2. Take appropriate enforcement action for violations discovered:
 - a. Issue verbal or written warnings as first enforcement step for first-time offenders or lesser issues.
 - b. Issue a notice of violation (NOV) as a second step when warnings do not achieve compliance.
 - c. Issue civil citations with fines of \$500 as the last enforcement step when the NOV does not achieve compliance; use civil citations for repeat offenders or egregious violations.
3. Use timeframe for achieving compliance:
 - a. Ensure offenders cease any activity that causes violations and pollution immediately.
 - b. Depending on the nature of the violation, request offenders to come into compliance within 30 days of the NOV (provided pollution is immediately ceased).
 - c. Work with offenders to ensure they achieve compliance and extend compliance deadlines if reasonable.
 - d. Issue civil citation(s) if compliance is not achieved within an agreed-upon timeframe.

A.1.6 Section 6. Common Violations Observed During Hotspot Surveys

Figures A-2 and A-3 show IDDE violations identified during past surveys.

Figure A-2. Poor Housekeeping at Businesses



Figure A-3. Grease Spills and Poorly Maintained Used Grease Containers



Date: Time: Assessed by: Temp(F)

Watershed: Subwatershed: Wet pavement? ☐ Yes ☐ No

SITE INFORMATION

Name & Address	Site Type: <input type="radio"/> Commercial	<input type="radio"/> Industrial	<input type="radio"/> Other	
	<input type="checkbox"/> Retail	<input type="checkbox"/> Food Services	<input type="checkbox"/> Construction	<input type="checkbox"/> Waste Mgmt
	<input type="checkbox"/> Offices	<input type="checkbox"/> Vehicle Services	<input type="checkbox"/> Manufacturing	<input type="checkbox"/> Warehouse/Storage
	<input type="checkbox"/> Other: <input type="text"/>	<input type="checkbox"/> Other: <input type="text"/>		

Site Contact & Phone:

Site Notes

WASTE MANAGEMENT

☐ No observed issues in this section

Type of Waste: ☐ Solid Waste ☐ Grease ☐ Recycling ☐ Hazardous ☐ Yard Trim ☐ Other:

Container Condition: ☐ Active Leaking ☐ Recent/Fresh Staining on ground ☐ Waste overflowing ☐ No Lid/Open

Checked ☐ :

Checked ☐ :

Notes

VEHICLE OPERATIONS

☐ No observed issues in this section

Vehicle Activities: ☐ Maintenance/Repair/Autobody ☐ Vehicle Wash ☐ Fueling ☐ Storage ☐ Painting

Is there evidence of any of the following occurring outdoors? ☐ Repairs ☐ Washing ☐ Painting

Are vehicle spills/leaking present? ☐ Yes Are parking lot stains recent or fresh? ☐ Yes

Checked ☐ :

Checked ☐ :

Notes

OUTDOOR MATERIALS

☐ No observed issues in this section

Materials stored outside without cover: ☐ Liquids ☐ Solids ☐ Loose Bulk Materials ☐ Other:

Are bulk materials/solids stored without containment or overhead cover? ☐ Yes

Are liquid materials stored without secondary containment or overhead cover? ☐ Yes

Is staining or discoloration present around any of the stored materials? ☐ Yes

Are storage containers leaking? ☐ Yes

Checked ☐ :

Checked ☐ :

Notes

FACILITY CONDITION <input type="checkbox"/> No observed issues in this section							
Is HVAC runoff or any other dry weather flow runoff present? <input type="checkbox"/> Yes		Are inlets on the property in poor condition? <input type="checkbox"/> Yes		Is there evidence of erosion on the site? (gullies/rills/channels, etc.) <input type="checkbox"/> Yes		Is dragout present? <input type="checkbox"/> Yes	
Is evidence of poor cleaning practices for maintenance or construction? (Soap/sud puddles, stains leading to the stormdrain, etc.?) <input type="radio"/> Yes							
Checked <input type="checkbox"/> : <input type="text"/> Checked <input type="radio"/> : <input type="text"/>							
Notes <input type="text"/>							
HOTSPOT STATUS				Outfalls/Inlets Present? List any outfalls/inlets observed in the area			
<input type="checkbox"/> Not a Hotspot (0 circle checked and/or 0-4 squares checked)				Structure ID			
<input type="checkbox"/> Potential Hotspot Provide BMP information (0 circles checked and/or 5-10 squares checked)				Description (location, condition, etc.)			
<input type="checkbox"/> Confirmed Hotspot Provide compliance assistance (1 circle checked and/or 11-15 squares checked)				<input type="text"/>			
<input type="checkbox"/> Severe Hotspot Provide compliance assistance (More than 1 circle checked and/or 16+ squares checked)							
Total Checked <input type="checkbox"/> : <input type="text"/> Total Checked <input type="radio"/> : <input type="text"/>							
Site Summary <input type="text"/>							
ADDITIONAL NOTES/PICTURES							

STORM DRAIN OUTFALL SCREENING and MONITORING FIELD SHEET

MCDEP (spring 2016)

Outfall ID: _____ Temporary ID?: _____

Date: _____ Time Start: _____ Finish: _____ Total Min: _____

Visit #: _____ Complaint Driven: Yes No Picutres/Map Emailed/Saved? Yes No

Last Rain Date: _____ Crew: _____

GPS Location: Latitude: _____ Longitude: _____

Location Comments: _____

Outfall Dimensions-circular outfalls (inches): <12 12 18 24 30 36 >36 Other: _____

Rectangular/elliptical outfalls (inches): _____ H _____ W

Outfall Type: ACC aluminum coated corrugated pipe DIP ductile iron pipe
ACP aluminum corrugated pipe CMP corrugated metal pipe
BMP bituminous ("tar") coated corrugated pipe HDP high density poly
RCP reinforced concrete pipe

Dry Weather Flow? Yes No Piped Stream or spring? Yes No

Flow intensity: Gushing Steady Trickle Intermittent None

Sample Collection Location: ☐ Flow ☐ Pool ☐ Other: _____ Chem Test Performed? Yes No

Flow Comment: _____

PARAMETER	INSTRUMENT (Circle type used or write in correct type)	DL SIGN	Method Detection Limit	RESULT (numbers only)	COMMENTS on Water chemistry
Phenol (mg/l)	Chemetrics		0.1	__ __. __	
Chlorine Total (mg/l)	Chemetrics		0.1	__ __. __	
Detergent (mg/l)	Chemetrics		0.25	__ __. __ __	
Copper (mg/l)	Chemetrics		0.1	__ __. __	
Air Temperature (°C)	Weather.com			__ __	
Water Temperature (°C)	Hydrolab or Oakton			__ __. __ __	
pH	Hydrolab or Oakton			__ __. __ __	
Conductivity (µs/cm)	Hydrolab or Oakton			__ __ __ __	
Ammonia (mg/L)	LaMotte 1200			__ __. __ __	
Fluoride (mg/L)	Hanna HI 96729C			__ __. __ __	
Flow (CFS)	Fill method (#1) or iPad app (#2)			__ . __ __ __ __	

FIELD DATA FOR FLOWING OUTFALLS (OR USE IPAD APP)				
PARAMETER		RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle/Volume Sample
	Time to fill		Sec	Stopwatch
<input type="checkbox"/> Flow #2	Flow width	_____”	In	Tape measure
	Flow depth	_____”	In	Tape measure
	Time of travel (avg)	1. _____ 2. _____ 3. _____ 4. _____	Sec	Stop watch
	Measured length	_____”	In	Tape measure

Odor: None Gas Oil Sewage Sulfur Rancid-Sour Other: _____

Water Color: NA Clear Brown Gray Green Red Yellow Other: _____

Water Clarity: NA Clear Cloudy Opaque Other: _____

Floatables: None Oil Sheen Sewage Trash Other: _____

Deposits: None Oils Sediments Other: _____

Vegetation: Normal Excessive Growth Inhibited Growth Other: _____

Structure Condition: Normal Concrete Cracking Concrete Spalling Other: _____

Erosion: None Moderate Severe Comment: _____

Algae Growth? Yes No Color: _____

Storm Drain Repair Evaluation Completed? Yes No

Suspicious Discharge / Followup Necessary? Yes No **Suspicious Discharge Eliminated?** Yes No

Comments (e.g., possible sources of pollution to storm drain, nearby land uses, elaborate on reasons for targeting for toxicity testing):

Case Entry (date/initials): _____

Case Database Number:: _____

Data Entry (date/initials): _____

Data QA/QC'd (date/initials): _____

STORM DRAIN OUTFALL SCREENING FOLLOWUP FIELD SHEET

MCDEP (2019)

Outfall ID: _____ CaseBase Case # _____

Date: _____ Time Start: _____ Finish: _____ Total Min: _____

Visit #: _____ Complaint Driven: Yes No

Last Rain Date: _____ Crew: _____

GPS Location: Latitude: _____ Longitude: _____

Location Comments: _____

Outfall Dimensions-circular outfalls (inches): <12 12 18 24 30 36 >36 Other: _____

Rectangular/elliptical outfalls (inches): _____ H _____ W

Outfall Type: ACC aluminum coated corrugated pipe DIP ductile iron pipe
ACP aluminum corrugated pipe CMP corrugated metal pipe
BMP bituminous ("tar") coated corrugated pipe HDP high density poly
RCP reinforced concrete pipe

Dry Weather Flow? Yes No

Flow intensity: Gushing Steady Trickle Intermittent None

Sample Collection Location: ☐ Flow ☐ Pool ☐ Other: _____ Chem Test Performed? Yes No

Flow Comment: _____

PARAMETER	INSTRUMENT (Circle type used or write in correct type)	DL SIGN	Method Detection Limit	RESULT (numbers only)	COMMENTS on Water chemistry
Phenol (mg/l)	Chemetrics		0.1	__ __. __	
Chlorine Total (mg/l)	Chemetrics		0.1	__ __. __	
Detergent (mg/l)	Chemetrics		0.25	__ __. __ __	
Copper (mg/l)	Chemetrics		0.1	__ __. __	
Air Temperature (°C)	Weather.com			__ __	
Water Temperature (°C)	Hydrolab or Oakton			__ __. __ __	
pH	Hydrolab or Oakton			__ __. __ __	
Conductivity (µs/cm)	Hydrolab or Oakton			__ __ __ __	
Flow (CFS)	Fill method (#1) or iPad app (#2)			__ . __ __ __ __	
Other Parameters tested:	Type(s): _____				

FIELD DATA FOR FLOWING OUTFALLS (OR USE IPAD APP)				
PARAMETER		RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle/Volume Sample
	Time to fill		Sec	Stopwatch
<input type="checkbox"/> Flow #2	Flow width	_____”	In	Tape measure
	Flow depth	_____”	In	Tape measure
	Time of travel (avg)	1._____ 2._____ 3._____ 4._____	Sec	Stop watch
	Measured length	_____”	In	Tape measure

Odor: None Gas Oil Sewage Sulfur Rancid-Sour Other:_____

Water Color: NA Clear Brown Gray Green Red Yellow Other: _____

Water Clarity: NA Clear Cloudy Opaque Other: _____

Floatables: None Oil Sheen Sewage Trash Other: _____

Deposits: None Oils Sediments Other: _____

Vegetation: Normal Excessive Growth Inhibited Growth Other: _____

Structure Condition: Normal Concrete Cracking Concrete Spalling Other: _____

Erosion: None Moderate Severe Comment: _____

Algae Growth? Yes No Color: _____

Suspicious Discharge / Followup Necessary? Yes No **Illicit Discharge Eliminated?** Yes No

Illicit Discharge Source? _____

Comments (e.g., possible sources of pollution to storm drain, nearby land uses, elaborate on reasons for targeting for toxicity testing):

Appendix A2

Investigated Water Quality Issues

Appendix A2
Investigated Water Quality Issues in FY23

Case Number	Location Description	Issue	Enforcement Action	Resolved
20231270	Clarksburg Sunoco	Water Quality	NOV	Yes
20231271	Clarksburg Outlets	Grease	Verbal warning	Yes
20231277	Neelsville Village Center	Water Quality and Grease	Verbal warning	Yes
20231284	Milestone Shopping Center	Grease	Verbal warning	Yes
20231292	Germantown Walmart	Water Quality and Grease	NOV	Yes
20231298	All Flavors Restaurant	Grease	NOV	Yes
20231299	Poolesville Veterinary Clinic	None	None - Not a hotspot	Not applicable
20231300	Cuguini Restaurant	Grease	NOV	Yes
20231301	Potomac Valley Shops	None	None - Not a hotspot	Not applicable
20231302	Poolesville Liberty Gas Station	None	None - Not a hotspot	Not applicable
20231303	Tony's BBQ	None	None - Not a hotspot	Not applicable
20231304	House of Poolesville Restaurant	Grease	NOV	Yes
20231305	Poolesville Professional Quality Dry Cleaners	None	None - Not a hotspot	Not applicable
20231306	Glad I Yoga	None	None - Not a hotspot	Not applicable
20231307	Morningstar Welding	None	None - Not a hotspot	Not applicable
20231308	Germantown McDonalds	Water Quality	Verbal Warning	Yes
20231309	20320 Seneca Meadows Pkwy	Solid Waste	Verbal warning	Yes
20231348	Germantown Wegmans	Grease	Verbal warning	Yes
20231349	Germantown Medical Building	None	None - Not a hotspot	Not applicable
20231357	Congratulations Construction	Water Quality	NOV	Yes
20231366	Exxon and Milestone Auto Service	Solid Waste	Verbal warning	Yes
20231367	Free State Gas Station	Water Quality	Verbal warning	Yes
20231430	Mr. M Auto Service	Water Quality	Verbal warning	Yes
20231431	Germantown 7-11	None	None - Not a hotspot	Not applicable
20231432	Cedar Grove Store	None	None - Not a hotspot	Not applicable
20231433	Moyers Moving Company	Water Quality and Solid Waste	Verbal warning	Yes
20231434	Don Hoffacker HVAC	None	None - Not a hotspot	Not applicable
20231709	Damascus Shopping Center	Grease and Solid Waste	NOV	Yes
20231710	9840 Main St, Damascus	None	None - Not a hotspot	Not applicable
20231783	Damascus Liberty Gas Station	None	None - Not a hotspot	Not applicable
20231784	Damascus Automotive Services	None	None - Not a hotspot	Not applicable
20231837	Erdle Automotive	None	None - Not a hotspot	Not applicable
20231838	All stage and Sound Inc.	None	None - Not a hotspot	Not applicable
20231839	Sunshine General Store	None	None - Not a hotspot	Not applicable
20231840	Germantown Applebees	None	None - Not a hotspot	Not applicable
20231841	Germantown Shell Station	None	None - Not a hotspot	Not applicable
20231842	Senior Tequilas	None	None - Not a hotspot	Not applicable
20231843	Longhorn Steakhouse	None	None - Not a hotspot	Not applicable
20231855	10041 Lewis Drive, Damascus	None	None - Not a hotspot	Not applicable
20231856	Carroll Motor Fuels	Solid Waste	Verbal warning	Yes
20231857	Check Us First - Trading Card Store	None	None - Not a hotspot	Not applicable
20231861	Sushi Legend	None	None - Not a hotspot	Not applicable
20231862	Germantown Chik-Fil-A	None	None - Not a hotspot	Not applicable
20231863	Germantown BP Gas Station	None	None - Not a hotspot	Not applicable
20231864	Century Auto Service	None	None - Not a hotspot	Not applicable
20231865	19873 Century Blvd , Germantown	None	None - Not a hotspot	Not applicable