

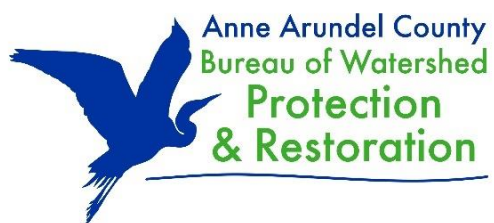
**Anne Arundel County
Department of Public Works
Bureau of Watershed Protection and Restoration**

Fiscal Year 2023 NPDES MS4 Annual Report

Anne Arundel County

Permit Number: 20-DP-3316 MD0068306

December 2023



Fiscal Year 2023 Annual Report for
Anne Arundel County
National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System Discharge Permit
Permit Number: 20-DP-3316 MD0068306

Submitted to:

Water Sciences Administration
Maryland Department of the Environment
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December 2023

Submitted by:

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I. Introduction

This Annual Report describes compliance activities for the County and State Fiscal Year 2023 (July 1, 2022 through June 30, 2023) in association with the Anne Arundel County National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (Permit number 20-DP-3316, MD0068306). The current permit was issued on November 5, 2021. This is the second MS4 Annual Report prepared under this permit.

The MS4 Annual Report describes the components of the stormwater management program and associated implementation status, and summarizes monitoring programs implemented by Anne Arundel County (County) including data collection and analysis. Digital data and specific reports for the major programs conducted during the reporting term can be found within the report's **Appendices**. Digital data found in **Appendix A** is submitted in the format consistent with the MS4 Geodatabase structure (MDE 2017, MDE 2021) and most recently described in the September 2023 document entitled *National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Draft Supplement to the Geodatabase Design and User's Guide, Version 1.2 Draft Updates September 2023 Edits (MDE 2023)*.

II. MS4 Program

Components of the County's MS4 Program were established to address the requirements outlined in the County's NPDES MS4 Permit. The major components also address Stormwater Waste Load Allocation (SW-WLA) associated with the issued Total Maximum Daily Loads (TMDLs), and overall water quality improvements within the County's waterways. Program components include the following:

- Countywide Storm Drain Inventory
- Countywide Impervious Area Inventory
- Urban Stormwater Best Management Practices Inventory
- Water Quality Improvement Projects Inventory
- Countywide Stormwater Management Program
- Countywide Erosion and Sediment Control Program
- Illicit Discharge Detection and Elimination Program
- Management and Maintenance of County-owned facilities (e.g., roads)
- Public Education and Outreach
- Stormwater Restoration Activities and Practices
- Countywide TMDL Implementation
- Assessment of Controls Monitoring (i.e., BMP Effectiveness, Watershed Assessment, PCB source tracking)
- Program Funding

The County believes the above programs and practices address the major water quality interests within County watersheds. Monitoring efforts have shown that implementation of these programs results in the improvement of water quality. County efforts in these program areas during the reporting period are described under the appropriate permit condition sections in **Part IV** of this report.

III. Water Quality

The NPDES MS4 Permit issued to Anne Arundel County in November 2021 requires implementation of a stormwater management program to effectively prohibit pollutants in stormwater discharges, to attain applicable WLAs as set forth in approved TMDLs, and to comply with all provisions of the permit. Compliance with permit conditions shall constitute compliance with the Clean Water Act (§402(p)(3)(B)(iii)) and adequate progress toward compliance with Maryland’s water quality standards and any U.S. Environmental Protection Agency (EPA) approved stormwater WLAs.

Anne Arundel County endeavors to manage, implement, and enforce a stormwater management program in accordance with the Clean Water Act and corresponding NPDES regulations. The activities undertaken in support of permit compliance, and documented herein, show progress toward reducing pollutants in stormwater discharges, prohibiting unauthorized discharges to the County’s storm drain system, and attaining stormwater WLAs for established TMDLs.

IV. Standard Permit Conditions

A. Permit Administration

Anne Arundel County shall designate an individual to act as a liaison with the Maryland Department of the Environment (MDE) 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 MDE an organizational chart detailing personnel and groups responsible for major NPDES program tasks in this permit. MDE shall be notified in annual reports of any changes in personnel or organization relative to NPDES program tasks.

For Fiscal Year 2023 (FY23), Anne Arundel County’s NPDES MS4 Permit coordination was performed by the Department of Public Works (DPW) Bureau of Watershed Protection and Restoration (BWPR). **Figure 1** (below) shows the County’s organizational chart for FY23. The program coordinators, with contact information, are listed below.

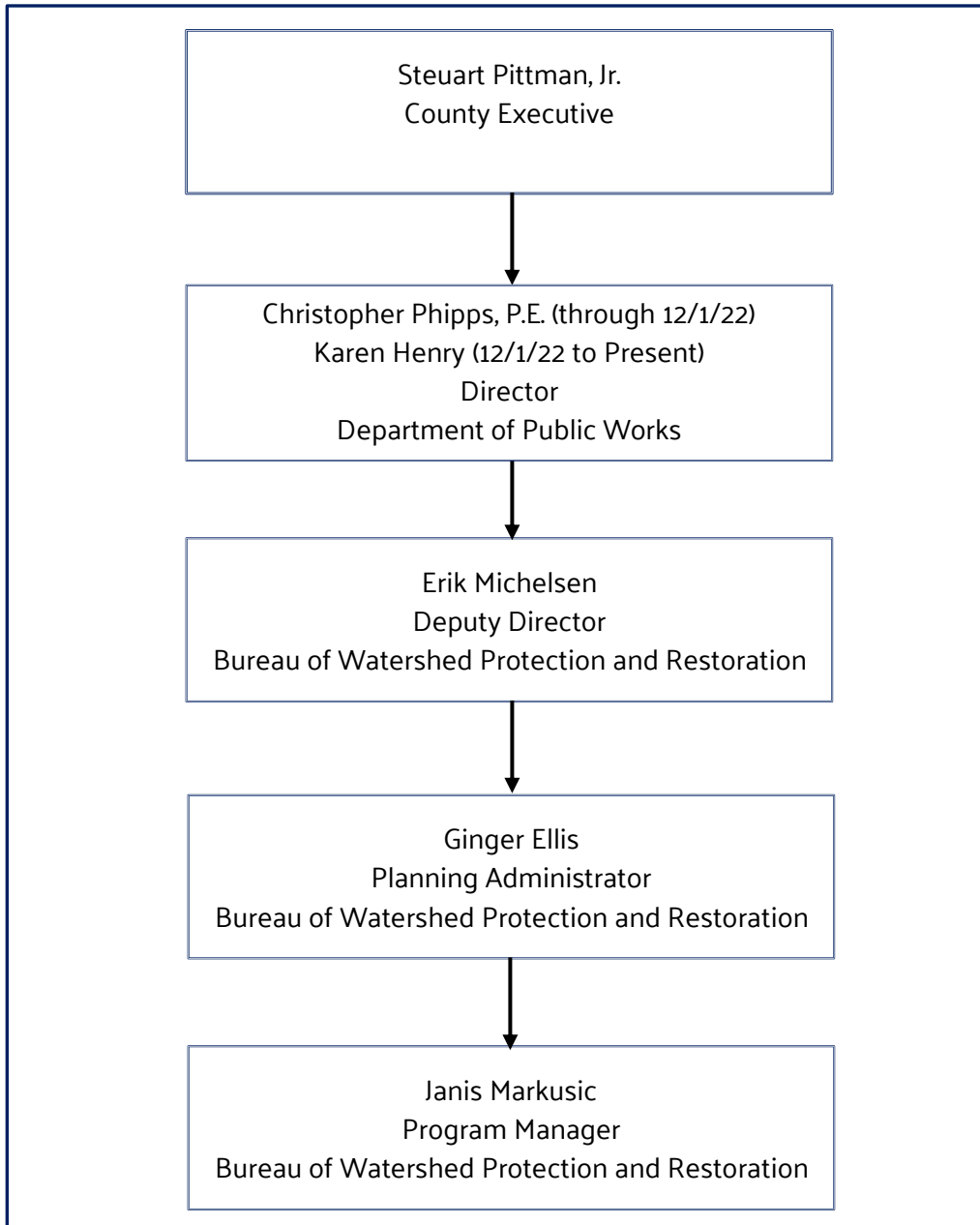


Figure 1. Organizational chart for NPDES MS4 Permit administration (FY23).

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Additional County staff responsible for components of the NPDES MS4 Permit requirements during FY23 include those listed below.

Department of Public Works (DPW)

Bureau of Watershed Protection and Restoration

- Jens Geratz, Engineer Manager, Restoration Implementation
Administers the CIP Restoration Project Implementation unit responsible for design and construction of BWPR stream restoration projects.
- Karen Jennings, Senior Engineer, Restoration Implementation
Manages design and construction of watershed restoration projects.
- Nasrin Dahlgren, Senior Engineer, Restoration Implementation
Manages design and construction of watershed restoration projects.
- Jeff Ratteree, Senior Engineer, Restoration Implementation
Manages design and construction of watershed restoration projects.
- Joe Ports, Project Manager, Restoration Implementation
Manages design and construction of watershed restoration projects.
- Larry Mathena, Project Manager, Restoration Implementation
Manages design and construction of watershed restoration projects.

- Vacant, Project Manager, Restoration Implementation (11/2021 – 7/2023)
- Gerry Inglesby (7/2023-present)

Manages design and construction of watershed restoration projects.

- Vacant, Project Manager, Restoration Implementation (6/2022 – present)
- Manages design and construction of watershed restoration projects.

- Gregory LeBlanc, Project Manager, Restoration Implementation (through 12/2022)
- Vacant (1/2023 – present)

Manages design and construction of watershed restoration projects.

- Brenda Morgan, Engineer Manager, Modeling and Analysis

Administers the Modeling and Analysis Unit responsible for providing water quality, pollutant loading, and impervious area data management, analysis, tracking and reporting for NPDES MS4 permit, TMDL and the County's Phase II Watershed Implementation Plan (WIP); and Stormwater Remediation Fee oversight and support.

- Joshua Thompson, Ph.D. Senior Engineer, TMDL Support

Administers the TMDL Support Program; manages watershed assessment contracts; manages the technical engineering and water quality models in support of NPDES MS4 Permit activities, individual TMDL compliance, and the Phase II WIP; coordinates data, tracking, and reporting of impervious surface reduction and pollutant load credit; manages the County's impervious surface and land cover GIS layers; and documents the locations and descriptions of watershed restoration projects.

- Brennan Smith, Engineer III, TMDL Support

Maintains, updates, and provides quality control of GIS data layers (e.g., impervious surfaces, land cover) that support the engineering and water quality models utilized for supporting NPDES MS4 and TMDL Restoration Plan activities.

- Jennifer Tam, GIS Specialist, TMDL Support

Provides GIS analysis to support the engineering and water quality models utilized for supporting NPDES MS4 and TMDL compliance activities. Maintains, updates and provides quality control of GIS data.

- Sally Szydlowski, Program Manager, Stormwater Fee

Administers the SW Remediation Fee Support Unit, oversees fee assessment, appeals and credit processing and tracking. Assists with Historic BMP record database update and input into MS4 Geodatabase.

- Melissa Bragg, Program Specialist II, Stormwater Fee
Provides program management support to the Modeling and Analysis Stormwater Remediation Fee Unit carrying out assignments related to fee assessment, appeals and credit processing and tracking, and stormwater Best Management Practice (BMP) performance review.

- Bertha Berrios, GIS Specialist, Stormwater Fee
Assists the Stormwater Remediation Fee Unit with researching and tracking fee assessment, appeals and credits.

- Chris Victoria, Water Quality Compliance Specialist, Ecological Assessment and Evaluation
Assists in documenting ecological condition of County watersheds and waterways and conducts applied research to ensure the credibility of BWPR monitoring and assessment. Assists with NPDES MS4 Permit compliance and TMDL and watershed support.

- Douglas Griffith, Planner II, Ecological Assessment and Evaluation
Provides consultant oversight for stormwater monitoring, biological monitoring, and geomorphic assessment of County stream reaches including those identified in Part IV. F of this permit. Assists Program Manager with implementation of the Illicit Discharge Detection and Elimination (IDDE) Program as identified in Part IV.D.3 of this permit, and assists in the development of TMDL Restoration Plans and plan implementation.

- Bryan Perry, Program Specialist II, Ecological Assessment and Evaluation
Provides program support for surface water and biological monitoring projects and coordinates projects with ecological restoration permit requirements.

- Vacant, Program Specialist I, Ecological Assessment and Evaluation (4/2022 – 1/2023)
- Alex Dyson (1/2023 – present)
Provides technical and GIS support for surface water, stormwater, and ecological monitoring projects

- Sally Albright, Public Education and Outreach Specialist
Fulfills the public education and outreach requirements of the County's NPDES MS4 permit ensuring that continual outreach regarding the development of watershed assessments and restoration plans, and TMDL compliance, is achieved and public input is solicited and incorporated. Administers the public outreach and support to all BWPR units.

- Vacant, Grants Administrator (2/2022 – 1/2023)
- Katie Mullen (1/2023 – present)

Identifies and secures grant funding for watershed restoration projects and projects that further the mission of the Bureau of Watershed Protection and Restoration. Acting Public Education and Outreach Specialist between August 2021 and February 2022.

- Mike Hrubiak, Financial Services Senior Management Assistant

Provides management, oversight and accountability for all revenue and expenditures associated with the Watershed Protection and Restoration Fund (WPRF). Ensures that the integrity of the dedicated revenue fund and structure is maintained to support compliance with the MS4 permit.

- Vacant, Financial Services Management Assistant I (7/2022 – 11/2022)
- Maria Ramallosa, (11/2022 – present)

Supports the Financial Senior Management Assistant in tracking revenues and expenditures associated with the WPRF. Processes procurements for environmental restoration work, tracks invoices, and maintains established reports to ensure Fund integrity.

- Maria Ramallosa, Financial Services Management Aide (through 11/2022)
- Vacant (11/2022 – present)

Supports the Financial Management Assistant in tracking revenues and expenditures associated with the WPRF, processing procurements, and tracking invoicing.

- Richard Davis, Engineer Administrator, Stormwater Infrastructure Program (SIP)

Administers the Stormwater Infrastructure Program that is responsible for the inspection, repair and maintenance of closed storm drain and culvert systems and maintains (public) stormwater management practices.

- Vacant, Senior Engineer, SIP (7/2022 – 1/2023)
- Greg LeBlanc (1/2023 – present)

Administers the Stormwater Management Maintenance Program that is responsible for the inspection, repair and maintenance of DPW maintained (public) stormwater management practices.

- Bob Murphy, Senior Engineer, SIP

Administers the Culvert & Storm Drain Section that is responsible for the inspection, repair and maintenance of publicly owned storm drain/culvert systems.

- Robert Savidge, Engineer III, SIP

Central/Southern District storm drainage and culverts project manager

- Abiy Geleta, Engineer III, SIP (8/2022 – 5/2023)
- Vacant (5/2023 – present)

Northern District storm drainage and culverts project manager.

- Zach Bradley, Program Specialist II, SIP

Manages, inspects and maintains a subset of urban stormwater best management practices that are the responsibility of DPW. Investigates BMP and SWM pond complaints and provides construction inspection services for resulting projects.

- Ryan Rich, Construction Inspection Supervisor, SIP

Manages, inspects and maintains a subset of urban stormwater BMPs that are the responsibility of DPW. Investigates stormwater management practices complaints and provides construction inspection services for resulting projects.

- Rick Larrimore, Construction Inspection Supervisor - Northern District, SIP

Investigates storm drainage complaints and provides construction inspection services for drainage projects in the northern district

- Daniel Verrette, Construction Inspection Supervisor - Central & Southern Districts, SIP

Investigates storm drainage complaints and provides construction inspection services for drainage projects in the central and southern districts.

Department of Public Works (DPW)

Bureau of Engineering

- Jeff Cox, Engineer (GIS) Manager, Technical Engineering

Provides managerial support and oversight for geographic information systems (GIS) data collection and geodatabase development activities associated with closed storm drain system records.

- Nick Newell, Program Manager, Technical Engineering

Provides direct oversight of the Closed Storm Drain System GIS layers maintenance and publishing processes.

- Steve Britschge, Program Manager, Technical Engineering

Provides guidance and support as needed for the Closed Storm Drain System GIS layers maintenance.

- Ty Manning, GIS Specialist II, Watershed Support, Technical Engineering

Maintains and updates the Closed Storm Drain System piping and structures GIS layers. Performs QAQC on the layers and publishes the layers.

- Richard Beier, GIS Specialist II, Watershed Support, Technical Engineering
Maintains and updates the Closed Storm Drain System piping and structures GIS layers. Performs QAQC on the layers and publishes the layers.

Department of Public Works (DPW)

Bureau of Highways (BOH)

- Alex Baquie, Deputy Director, Bureau of Highways
Oversees the Bureau responsible for all maintenance activities associated with the County's roads including Road Operations, Infrastructure Management, and Traffic Engineering.

- James Small, Chief Road Operations Division, Bureau of Highways
Administers the County's Road Operation Division; maintains the Bureau's permit coverage under the MDE General Permit No. 12-SW (General Discharge Permit for Stormwater Associated with Industrial Activity); develops and implements Stormwater Pollution Prevention Plans (SWPPPs) associated with seven Road Operations district yard facilities; documents the use of pesticides, herbicides, fertilizers, and deicing materials associated with road maintenance activities; implements the County's street sweeping and inlet cleaning programs; directs the County's winter weather deicing program, conducts roadside litter clean-up activities; and provides support for volunteer watershed and stream clean-up activities.

Department of Public Works (DPW)

Bureau of Utility Operations (BUO)

- Larry Parsons, Utility Administrator, Infrastructure
Responsible for water and sewer line repairs, fire hydrant repair, and water system maintenance. Also responsible for SWPPP implementation and ensuring compliance with the MDE General Permit No 12-SW (General Discharge Permit for Stormwater Associated with Industrial Activity) for the BUO Central Utility Operations Center.

- Christian Tait, Regulatory Compliance Manager, Wastewater Operations
Responsible for SWPPP development/implementation and ensuring compliance with the MDE General Permit No. 12-SW (General Discharge Permit for Stormwater Associated with Industrial Activity) for BUO Water Reclamation Facilities. Oversees Utility Operations compliance with individual NPDES point source permits for County Water Reclamation Facilities as well as pre-treatment requirements.

Department of Public Works (DPW)

Bureau of Waste Management Services (WMS)

- Rhody Holthaus, Deputy Director
Responsible for ensuring implementation of the WMS facilities' permit coverage under the MDE General Permit No. 12-SW (General Discharge Permit for Stormwater Associated with Industrial Activity) for the County's three landfill facilities.

- Mark Morris, Environmental Monitoring Manager

Responsible for maintaining the Waste Management Services facilities' permit coverage under the MDE General Permit No. 12-SW (General Discharge Permit for Stormwater Associated with Industrial Activity), and for the development and implementation of SWPPPs associated with the County's three landfill facilities.

Department of Inspections & Permits (I&P)

- Raghavenderrao Badami, P.E., Assistant Director

Oversees implementation of the County's Erosion and Sediment Control Program and Stormwater Management Program that are the responsibility of the Department of Inspections and Permits

- Hala Flores, P.E., Engineer Manager, Engineering Division

Oversees the review of stormwater management on development projects and ensures that the requirement for all proposed new stormwater management plans comply with the Environmental Site Design (ESD) standards in accordance with the County Code, State Code, and the current edition of Maryland Stormwater Management Design Manual.

- John Igbinovia, P.E., Code Enforcement Administrator

Administers the County's Stormwater Management Program and the County's Erosion and Sediment Control Program to ensure compliance with State regulations. Tracks, inspects, and enforces all permits for private and public stormwater management BMPs related to new development and redevelopment projects. Oversees triennial inspection of stormwater BMPs. Tracks development projects disturbing more than one acre and reports this information to MDE as required by the Program and the NPDES MS4 Permit. Oversees staff who respond to County Environmental Compliance Hotline and provides follow-up enforcement for IDDE Program.

- Jim Johnson, Code Enforcement Administrator – Critical Area Program

Supervise the County's Code Compliance Division, including investigation of non-permitted and environmental complaints, forestry program management, and building site review processes to ensure compliance with County construction code, and federal, State and local laws. Tracks standard grading plans required when disturbance is less than 5,000 sq.ft.

- Bradlee Burnham, Stormwater Inspection Supervisor

Manages stormwater inspection staff responsible for inspecting private stormwater BMPs, construction inspection of water quality restoration projects (County and private), and supervises illicit discharge enforcement.

- Stormwater Inspection Staff

Seven (7) inspector positions are dedicated to the stormwater management program and there is one vacancy as of the end of FY23. The FY23 stormwater inspection staff is listed below.

Andrew Fertig	Mary Ford	Andrew Hein
Michael McNeill	Joseph Wells	Kyle Frederickson (01/2023 – present)
Jillian Seagraves (01/2023 – 05/2023), Vacant (05/2023 – present)		

- Stormwater Strike Team

Two (2) inspectors and one (1) senior engineer (currently vacant) comprise the stormwater strike team. Work primarily is to review, research, and investigate drainage complaints (new development and legacy/historical) and associated issues, and to identify sources of pollution. This team will work closely with the inspection staff, the I&P Engineer Manager, and the I&P Engineering Division staff for field inspection, review of downstream analysis, addressing stability and capacity issues of conveyances downstream of development projects (as a part of plan review, approval, permitting), review of outfalls including channels, streams, and pipes. The team will be a part of preconstruction meetings and inspections of offsite downstream conveyances, restoration, and rehabilitation.

Natalie Norberg (Inspector)	Jean Janvier (Inspector)	Vacant (Sr. Engineer)
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Anne Arundel Soil Conservation District (AASCD)

- John Czajkowski, District Manager

Oversees development plan review for erosion and sediment control compliance.

Anne Arundel Department of Health

Bureau of Environmental Health

- Don Curtian, Deputy Director

Oversees the Housing and Food Protection Services and Sanitary Engineering divisions of the Environmental Health Bureau, including Environmental Sanitarian response to hotspots associated with food service facilities that are identified through the IDDE program. Oversees programs associated with administering the Bay Restoration Fund within the County, and recreational water quality monitoring at designated bathing beaches.

- Sharon Pawlowski, R.S., Food Protection Services Program Manager

Provides support and response for IDDE program compliance with respect to food service facilities within the County, ensuring good housekeeping for disposal of waste cooking oil/grease and trash dumpsters.

- Dennis Lamont, LEHS, Program Supervisor
- Stephen Hammond, LEHS, Program Supervisor

- Erica Mantooth, Housing Protection Services Supervisor

Provides support and response for IDDE program compliance with respect to violations of the Property Maintenance Code including reports of rubbish, garbage, or other sanitation issues associated with residential areas within the County.

- Kellen Hamill, LEHS, Community Housing Supervisor

B. Legal Authority

Anne Arundel 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 MDE 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.

Anne Arundel County maintains the authority to comply with the terms of this permit. As documented in prior MS4 Annual Reports, this includes implementation of the 2000 Maryland Stormwater Design Manual (MDE 2009) as well as the 2007 Stormwater Management Act. Over the past decade, and as reported in previous MS4 Annual Reports, the County Code was revised to incorporate these stormwater management requirements and subsequently renumbered. The entire County Code can be found online through the County website at aacounty.org/our-county/county-code/, under the link for the County Code.

During FY23 there were no updates to the County Code that affected legal authority to meet Permit requirements. Updates to County Code during FY23 resulted from implementation of County Bill 10-23 (effective May 7, 2023) that amended Article 16 (Title 1 and 2) and Article 17 (Title 6). This legislation exempts certain water quality improvements that typically occur entirely in one or more natural feature areas (e.g., floodplain, nontidal wetlands, streams, steep slopes) from the requirement for a modification. Additional FY23 County Code updates resulted from Bill 19-23 pertaining to the prohibition of retail distribution of plastic bags. Bill 19-23 amends Article 12 (Public Safety), was approved on June 5, 2023 and becomes effective on January 1, 2024. A copy of both legislative bills is found in **Appendix B**.

The County Stormwater Management Practices and Procedures Manual (Manual) was revised May 1, 2017. The revised Manual became effective October 30, 2017, and a copy of MDE's approval letter was submitted with the FY18 MS4 Annual Report. There were no updates to the Manual in FY23.

The Department of Inspections & Permits (I&P) issues Blue Notices to provide guidance to the development community and the public regarding various aspects of site development, plan review, design, construction, maintenance, site inspection and enforcement. Blue Notices are posted to the County I&P web page here: aacounty.org/inspections-and-permits/blue-notices. Blue Notice Number IP-23-01 was issued on January 5, 2023. The purpose of this Blue Notice was to clarify the type and format

of data submittal required for compliance with Section 7.8.2 (Delineation of Floodplain) of the Manual. This Blue Notice is a revision of Blue Notice IP-21-06. A copy of Blue Notice IP-23-01 is found in **Appendix B**.

As documented in the FY20 MS4 Annual Report, MDE conducted the triennial stormwater management program review as a Statewide review of jurisdictions' programs. This review was completed via surveys and interactive trainings. County participation in these activities occurred in both FY20 and FY21. The next triennial stormwater management program review has not been scheduled.

On April 6, 2023, the County received approval from MDE for continued delegation of erosion and sediment control enforcement authority. This delegation of authority is effective through June 30, 2025. A copy of that delegation letter, dated April 6, 2023, is found in **Appendix B**.

As reported in previous MS4 Annual Reports, Anne Arundel County established a Watershed Protection and Restoration Program (Program) in 2013, as mandated by Maryland Environmental Code Ann §4-202.1. Concurrent with the beginning of FY21, the Program became the stand-alone Bureau of Watershed Protection and Restoration (BWPR) within the Department of Public Works. The BWPR continues to maintain and administer the Watershed Protection and Restoration Special Revenue Fund established under Article 13 Title 7 of the Anne Arundel County Code.

C. Source Identification

Sources of pollutants in stormwater runoff jurisdiction-wide shall be identified by the 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 Users Guide (i.e., 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 (submitted as a supplemental geodatabase):

In 2008, Anne Arundel County completed a Countywide inventory of storm drain inlets, manholes, outfalls, culverts, and pipes for all County watersheds. This inventory is continuously updated and the information is incorporated into County storm drain maps and the County GIS.

The County also uses CCTV video inspection for problem identification based on complaints received from the public or other County agencies. Additionally, the County closed storm drains that are associated with the County's road pavement program are video inspected each year and any needed repairs are made prior to repaving. This prevents a new pavement cut following the resurfacing project.

Finally, the County is now assessing potential to implement a long-range proactive inspection plan using CCTV video inspection. This comprehensive program, when fully developed and implemented, would result in a Pipeline Assessment Certification Program (PACP) rating and condition assessment for over 1,000 miles of closed storm drain pipes. Given this length of storm pipe, it would likely take the County 20 years to complete a full County-wide assessment at the current annual budget of \$1 million.

As of the end of June 2023 there were 40,257 storm drain inlets, 1,039 miles of storm drain pipes, and 6,702 storm drain outfalls in the County’s infrastructure inventory.

The major storm drain outfalls, a subset of all storm drain outfalls (see definition below), were then identified in the GIS by querying for storm drain structures with no hydraulic connection to any other downstream storm drain structure and based on outfall diameter. Next, the upstream contributing areas of these major storm drain outfalls were delineated using GIS. According to 40 CFR 122.26, a major municipal separate storm drain outfall is defined as a single outfall pipe with an internal diameter of 36 inches or greater or its equivalent (discharge from other than circular pipe which is associated with a 50-acre or greater drainage area); or a single outfall pipe with an internal diameter of 12 inches or greater or its equivalent (discharge from other than a circular pipe associated with a 2-acre or greater drainage area) that discharges stormwater from industrially zoned lands. Of the 6,702 storm drain outfalls in the FY23 County inventory, 2,607 are categorized as major outfalls.

Updates to the MS4 Geodatabase *Outfall* feature class in FY23 include the removal of 15 previously submitted major outfall records (**Table 1**) and the addition of 116 new major outfalls. For reporting purposes, an additional 6 minor outfalls are included with the major outfalls in the MS4 Geodatabase *Outfall* feature class because these minor outfalls were screened as part of the Illicit Discharge Detection and Elimination (IDDE) Program (Part IV.D.3).

The major storm drain outfalls and corresponding drainage areas are included in the accompanying MS4 Geodatabase (feature classes *Outfall* and *OutfallDrainageArea*, **Appendix A**). An additional geodatabase, also included in **Appendix A** of this report, contains the County’s storm drain system, including major and minor outfalls, inlets, pipes, and other storm drain infrastructure.

Table 1. Changes to existing outfall database records in FY23.

MDE_OUTFALL_ID	LOCAL_OUTFALL_ID	COMMENT
AA16OUT002063	J18G7O00026	Outfall removed in the County database and therefore deleted.
AA16OUT002096	E08B3O00025	Outfall removed in the County database and therefore deleted.
AA16OUT000908	I15O018	Outfall removed in the County database and therefore deleted.
AA16OUT001633	R08G6O00003	Outfall removed in the County database and therefore deleted.
AA16OUT001791	U15C5O00008	Outfall removed in the County database and therefore deleted.
AA16OUT000728	B12D2O00004	Outfall misclassified as an inlet and therefore deleted.
AA16OUT000729	B12D2O00001	Outfall misclassified as an inlet and therefore deleted.

MDE_OUTFALL_ID	LOCAL_OUTFALL_ID	COMMENT
AA16OUT000730	B12A1O00015	Outfall misclassified as an inlet and therefore deleted.
AA16OUT000747	H07E4O00001	Outfall removed in the County database and therefore deleted.
AA16OUT000605	J03O023	Outfall removed in the County database and therefore deleted.
AA16OUT000652	N08D1O00001	Outfall removed in the County database and therefore deleted.
AA21OUT000001	Q24B1O00070	Outfall removed in the County database and therefore deleted.
AA21OUT110235	Not Available	Outfall removed in the County database and therefore deleted.
AA22OUT000011	O15334	Outfall removed in the County database and therefore deleted.
AA16OUT001249	L15A7O00001	Outfall converted to a culvert and therefore deleted.

The County will continue to update the storm drain inventory and incorporate the information in the County storm drain maps and the County GIS.

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).

The NPDES MS4 Permit requires that sources of pollutants in stormwater runoff be identified and linked to specific water quality impacts on a watershed basis. Compliance with this permit requirement includes the annual submittal, in GIS format with associated tables, of the “...industrial and commercial land uses and sites that the County has determined have the potential to contribute significant pollutants.” A methodology for determining these land uses and the associated outfalls is described below. These outfalls and land use data are included in the Industrial & Commercial Sources Geodatabase in **Appendix A**. The outfalls are a subset of the major outfalls found in the Outfall feature class of the MS4 Geodatabase of this report.

Major storm drain outfalls are defined by the Clean Water Act (40 CFR 122.26) as follows:

A municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive stormwater from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (discharge from other than a circular pipe associated with a drainage area of two acres or more).

To meet the Part IV.C.2 requirement of identifying commercial and industrial land uses and sites having the potential to contribute pollutants to the storm drain system, and to correlate this requirement with that found in Part IV.D.3.c, the County developed a GIS coverage and geodatabase predicated on intersecting the following GIS layers and data:

- Industrial and commercial polygons from Anne Arundel County 2020 Land Cover; and
- County closed storm drain system major outfall drainage areas.

Specifically, if a drainage area to an outfall contained commercial and/or industrial land uses, that outfall and its drainage area were included in the Industrial & Commercial Sources Geodatabase in **Appendix A**.

Ninety (90) of the 116 new outfalls added to the County's MS4 Geodatabase Outfalls feature class in FY23 were identified for inclusion in the Industrial & Commercial Sources Geodatabase. Seven outfalls were removed from the Industrial & Commercial Sources Geodatabase in FY23. The final updated data set, with a total of 1,437 commercial and industrial outfalls, is included in the Industrial & Commercial Sources Geodatabase in **Appendix A**.

3. Urban best management practices

Stormwater management facility data for new and redevelopment, including outfall locations and delineated drainage areas.

Information on the County's stormwater management facilities (e.g., urban BMPs, alternative BMPs, restoration BMPs) is incorporated into the MS4 Geodatabase (**Appendix A**). With the advent of the November 2021 MS4 Geodatabase schema, the data associated with the *BMPPOI* feature class, *BMP* table, and *RestBMP* feature class are condensed into a single *BMP* feature class. This year the County transitioned its BMP data to fully align with the new version of the MS4 Geodatabase, provided by MDE in September 2023.

In FY23, the County is submitting 15,335 BMP points; as noted in the comments of the *BMP* feature class, 264 of these solely represent restoration BMPs. Of these 264, 26 represent cancelled or are inactive, 211 are complete, 3 are under construction, and 24 are in the planning stage. There are 16,815 drainage areas delineated for these BMPs (*BMPDrainageArea* feature class), with multiple BMPs represented by a duplicate drainage area due to the transition from POIs to unique points in the updated geodatabase schema. The County anticipates providing unique drainage areas for all BMPs in future years.

The County continued to collect BMP data in FY23 from newly completed grading permits. These data are entered from as-built plans into a database structure and geospatial framework developed to manage the County's BMP inventory. Quality assurance and quality control procedures (QA/QC) are performed, providing review and verification of BMP information, including but not limited to: BMP type, location, drainage area, water quality treatment, built date, and any modifications to a BMP resulting from subsequent land development or other changes in site condition.

For older BMPs, there are mandatory data fields that will never be populated because either the data are missing from the plan drawings or the design of the BMP pre-dated the type of information required. For example, sometimes, certain practices are identified on a set of as-built drawings as contributing to

the stormwater management required for a site, but these practices no longer fit into a current suite of BMP practices; or BMP practices are only vaguely indicated on the plans and lack clear drainage areas. The County understands that certain data are mandatory for crediting purposes, but the County is also required to perform triennial inspections and report on all BMPs regardless of their contribution to TMDL or managed impervious surface crediting.

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

The impervious surface dataset currently in use by the County was derived from imagery captured in early 2020 for the State of Maryland's High-Resolution Aerial Ortho-photography. This dataset was improved and refined after a thorough multi-year comparison between 2014, 2017 and 2020 data captures. For a full accounting of the multi-year analysis, please see the County's FY21 MS4 Annual Report.

The County began drafting a scope of work in FY22 for a change detection update to its impervious surface dataset based on the State's scheduled imagery capture in 2023. The County will revise and update its controlled and uncontrolled impervious areas when this new dataset becomes available in FY24. In addition, the County plans to expand its multi-year comparison to include the 2023 impervious dataset to improve its accounting for growth over time and better inform the planning required to maintain progress towards achieving the County's MS4 and TMDL goals and improve water quality.

a. Controlled vs. Uncontrolled Impervious Surface Analysis

i. Jurisdictional and Non-Jurisdictional Land within the County

For NPDES MS4 reporting, the County is responsible for accounting for all impervious surface and BMP information pertaining to County-owned land and private lands directly under the jurisdiction of the Anne Arundel County government. Land areas that are outside the stormwater authority of Anne Arundel County include the City of Annapolis, Baltimore Washington International Thurgood Marshall Airport (BWI), Fort George G. Meade, the Patuxent Research Refuge, State Highway and Federal Highway roads, and State and Federal facilities. As the County does not maintain data regarding the stormwater management associated with federal, State, or municipal land not under its jurisdiction, these lands were excluded from the analysis of controlled versus uncontrolled impervious areas.

ii. Controlled Impervious Areas

For the purposes of this analysis, the County considered a controlled impervious area to be any impervious surface within the drainage area of an existing structural or ESD BMP. This includes BMPs that were constructed for the purposes of stormwater management related to new development or re-development, or for restoration. Alternative BMPs, such as those that provide equivalent impervious management credit (e.g., inlet cleaning, stream restoration, shoreline stabilization, etc.), were not included.

The County did not exclude structural or ESD BMPs from this analysis based on practice type or the level of stormwater management provided by a BMP when designating an impervious area as controlled. Guidance from MDE does not allow MS4 impervious surface baseline or restoration credit for practices such as dry ponds and does not consider less than 1-inch of water quality treatment as full management of an impervious surface. However, in other contexts, such as in the Phase 6 Chesapeake Bay Model, dry ponds are considered to provide some water quality treatment. The County has already made a full accounting according to MDE guidance of the baseline water quality management provided for all impervious surfaces (see Appendix H of the FY18 MS4 Annual Report) and provides updates in its annual reports regarding impervious restoration credit (see Part IV.E.1), so the County opted not to duplicate, in this report section, analyses already presented elsewhere.

Table 2 provides the results of the impervious area analysis using the revised 2020 impervious dataset, showing that 10,634 impervious acres (30%), out of a total of 35,259 acres under County jurisdiction, are subject to some degree of stormwater control by a BMP. The percentage of controlled versus uncontrolled impervious surface is approximately the same for both County and private lands, with 27% vs. 73% and 31% vs. 69%, respectively.

Table 2. Controlled vs. uncontrolled impervious acreage for Anne Arundel County jurisdictional land based on the 2020 impervious surface dataset.

MDE 8-Digit Watershed Name	MDE 8-Digit Watershed Code	Controlled Impervious Acres			Uncontrolled Impervious Acres			All Impervious Acres
		County	Private	County & Private	County	Private	County & Private	County & Private
Baltimore Harbor	02130903	446	1,925	2,371	1,654	3,802	5,456	7,827
Bodkin Creek	02130902	70	121	191	180	415	595	786
Little Patuxent River	02131105	325	1,186	1,511	530	1,502	2,032	3,543
Lower North Branch Patapsco River	02130906	228	1,253	1,481	421	1,462	1,883	3,364
Lower Patuxent River	02131101	0	3	3	24	105	129	132
Magothy River	02131001	450	797	1,247	983	2,332	3,315	4,562
Middle Patuxent River	02131102	14	55	69	183	820	1,003	1,072
Severn River	02131002	583	1,679	2,262	1,131	3,171	4,302	6,564
South River	02131003	288	837	1,125	829	2,228	3,057	4,182
Upper Patuxent River	02131104	52	181	233	237	885	1,122	1,355
West Chesapeake Bay	02131005	19	44	63	192	623	815	878
West River	02131004	13	65	78	197	719	916	994
Total		2,488	8,146	10,634	6,561	18,064	24,625	35,259

5. Monitoring locations

Locations established by the 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.

For the duration of FY23, Anne Arundel County participated in the Pooled Monitoring Program for the BMP Effectiveness monitoring requirements of Part IV.G.1. As such, there are no monitoring locations reported for FY23 associated with that compliance requirement. The County also participated in the Pooled Monitoring Program in lieu of the required Watershed Assessment sampling for Bacteria and Chloride (Part IV.G.2.b.ii and iii); there are no associated FY23 monitoring locations.

The Watershed Assessment requirements of Part IV.G.2 include biological and habitat monitoring at randomly selected stream sites. Beginning in FY23, the County initiated this required monitoring in conjunction with the previously established Anne Arundel Countywide Biological Monitoring Program Round 4 (2023-2027). Monitoring locations and required data are submitted in a stand-alone Excel workbook found in **Appendix A** (MS4_Biological_Data_Entry_Workbook_FY23_AACounty.xlsx) that conforms to the template and data guide provided by MDE in October 2023. Additional information pertaining to both the Pooled Monitoring Program participation and the required biological and habitat assessments is found in PART IV.G.

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 NPDES MS4 Permit requires the reporting of watershed restoration projects that are under design, under construction, and completed during the reporting year. The County updates the inventory of watershed restoration projects as new projects progress through each design phase or are completed. These projects are documented in the MS4 Geodatabase (**Appendix A**) across four feature classes: *BMP*, *AltBMPLine*, *AltBMPPoint*, and *AltBMPPoly*.

This report section summarizes the inventory of the watershed restoration projects, while Part IV.E. (Stormwater Restoration) and the Countywide TMDL Stormwater Implementation Plan (**Appendix E**) detail the corresponding water quality improvements. The fifth generation MS4 permit that was issued on November 5, 2021 requires 2,998 impervious acres to be treated by November 4, 2026. **Table 3** provides a summary of the FY23 project inventory, including 189 new restoration projects completed and 87 projects currently under construction or design.

All new watershed restoration projects that have progressed to the schematic (30%) design phase as of the end of FY23 have been added to the appropriate feature classes in the MS4 Geodatabase. In FY23, the County identified two previously unreported septic connections to wastewater treatment plants which were completed under the fifth generation MS4 permit.

Table 3. FY23 Restoration BMP project inventory summary.

	Projects Completed in FY23	Projects Completed – Cumulative through FY23	Projects Under Design or Under Construction in FY23
Restoration BMPs			
- ESD	0	9	3
- Structural	6	27	24
Alternative Restoration BMPs			
- street sweeping (<i>annual practice</i>) ¹	256 lane miles	256 lane miles	-
- impervious surface reduction	1	2	0
- forestation on pervious urban	0	0	1
- riparian conservation landscaping	1	1	0
- catch basin and storm drain cleaning (<i>annual practice</i>) ¹	334 tons/yr.	193.5 tons/yr.	-
- stream restoration	3 (3,644 ft.)	18 (23,636 ft.)	38 (109,613 ft.)
- outfall stabilization	1 (760 ft.)	8 (5,095 ft.)	10 (5,218 ft.)
- shoreline management	3 (670 ft.)	18 (14,542 ft.)	11 (6,205 ft.)
- septic pumping (<i>annual practice</i>) ¹	19,760 units/yr.	18,860 units/yr.	-
- septic denitrification ²	159	572	0
- septic connections to WWTP ²	15	49	0
Total number of projects (excl. annual practices)	189	704	87
¹ For annual practices, “Projects Completed – Cumulative through FY23” is the average annual activity measure completed during the period since the 4 th Generation permit expired (i.e., FY20-FY23).			
² Septic denitrification systems and septic connections to WWTP are not included in the County’s BMP inventory while under design and construction due to the unique funding mechanisms and planning processes these BMPs require. While the County expects additional BMPs of these two types to be completed in FY24, neither are included in the BMP inventory until project completion, when exact locations and other information required for the MS4 Annual Geodatabase become available.			

D. Management Programs

The following management programs shall be implemented jurisdiction-wide by the County. These management programs are designed to control stormwater discharges and reduce associated pollutant loadings to the maximum extent practicable (MEP) and shall be maintained for the term of this permit. Additionally, these programs shall be integrated with other permit requirements to promote a comprehensive adaptive approach toward solving stormwater discharge water quality problems. Annual

reports for the County's management programs shall be in accordance with PART V. A of this permit and the MS4 Geodatabase.

1. Stormwater Management

An acceptable stormwater management program shall be maintained 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:

a. Implement the 2000 Maryland Stormwater Design Manual

Implementing the stormwater management design policies, principles, methods, and practices found in the latest version of the 2000 Maryland Stormwater Design Manual. This includes:

- i. Complying with the Stormwater Management Act of 2007 (Act) by implementing Environmental Site Design (ESD) to the MEP for all new and redevelopment projects.*
- ii. Tracking the progress toward satisfying the requirements of the Act and identifying and reporting annually the problems and modifications necessary to implement ESD to the MEP; and*
- 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.*

The County continues to maintain an acceptable stormwater management program in accordance with the NPDES MS4 Permit and Annotated Code of Maryland. As noted in prior Annual Reports, the 2000 Maryland Stormwater Design Manual was fully implemented by the County. This condition was then superseded by the Maryland Stormwater Management Act of 2007. During FY23, the Department of Inspections & Permits (I&P) continued the requirement that all proposed new stormwater management plans comply with the Environmental Site Design (ESD) standards in accordance with the County Code, State Code, and the current edition of Maryland Stormwater Management Design Manual.

A comprehensive review and update to the County's Stormwater Management Practices & Procedures Manual was completed in FY18 and approval was received from MDE on October 30, 2017. The approval letter was submitted with the FY18 MS4 Annual Report. There were no formal updates to the Practices & Procedures Manual in FY23. Stormwater facility design and maintenance guidance was provided to the development community, citizens, and other stakeholders in the form of "Blue Notices" posted to the I&P webpage here: www.aacounty.org/inspections-and-permits/blue-notices. During FY23, the following Blue Notices were issued:

- Sep 15 2022- Guidance on updated practices regarding the design, review of Erosion and Sediment plans, site construction, inspection and enforcement;
- Dec 30 2022 - Updated unit pricing for calculating project cost estimates, determining security amounts and inspection fees for grading permits and public work agreements;
- Jan 05 2023 - Non-Tidal Floodplain Delineation-Development Projects;

- Feb 17 2023 - Implementation of a new digital filing and signing process to improve record keeping of public plans and easement exhibits approved by the Engineering Division.

In fall 2020 (FY21), MDE implemented a Statewide stormwater program triennial review by gathering information via survey and conducting interactive online training sessions. The online sessions were designed to refresh the local jurisdictions' understanding of stormwater program legal and regulatory authorities and ensure that program requirements continue to be interpreted correctly and consistently when reviewing stormwater management design plans and when interpreting stormwater management policy. The County successfully participated in each of the online interactive workshops held in the fall of 2020 (FY21). Information or updates pertaining to the next stormwater program triennial review have not yet been provided to the County.

As previously reported, from 2018 through August 2021 the County's Stormwater Workgroup (Workgroup), a group comprised of developers, engineers, homeowners' association (HOA) and Non-governmental Organization (NGO) representatives, realtors, County agencies, and representatives of the building trades, routinely communicated with program approval authorities to discuss issues of concern, identify recommendations, and develop an action plan for each of those recommendations. The Workgroup's cooperative efforts resulted in actions related to stormwater management associated with development and with long-term maintenance of BMPs. These actions included creation of a one-stop BMP public portal and the addition of stormwater BMPs (private and publicly owned/maintained) to the public facing County mapping applications. Additionally, legislation (Bill 67-20) addressing responsibility requirements for stormwater practices to be owned/maintained by HOAs was approved by County Council and became effective on January 1, 2021 (FY21). This legislation amended Article 16 Title 4 to require the grading permit applicant to post warranty and security to correct any BMP deficiencies that occur within a 2-year warranty period. This bill was previously presented in Appendix B of the FY21 MS4 Annual Report.

During FY23 and after implementation of Bill 67-20, the County continued work to address BMP hand-off between the developer and the HOA. Effective December 1, 2021, the County requires "hand-off" meetings between the developer, the HOA, and County staff. These meetings occur only after the stormwater BMP as-built drawings are received and approved by the County. The purpose of these Hand-Off meetings is to ensure HOAs have the necessary information about the stormwater management practices they own and are responsible for maintaining. The Blue Notice (IP-21-17) for stormwater BMP Hand-Off meetings, the Hand-Off memo and the bulletin for HOAs was found in Appendix B of the FY22 MS4 Report.

b. Maintain stormwater management program information

Maintaining programmatic and implementation information related to the stormwater management program including, but not limited to:

- i. *Number of Concept, Site Development, and Final plans received and number of those approved. Plans re-submitted as a result of 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; and*
- 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.*

The County continues collection of programmatic and implementation information related to stormwater management associated with development activities. During FY23, County records indicate the following activities (**Table 4**).

Table 4. Concept, Site Development, Final Development, and Redevelopment Plans received in FY23.

Type	Number of Projects Received
Concept Plan(a)	102
Site Development Plan(a)	125
Final Development Plan(b)	16
Final Redevelopment Plan(c)	11
Stormwater Exemptions	0
Waiver Requests Received	0
Waiver Requests Approved	0
Notes: (a) Concept Plan and Site Development Plan based on submittal date for each unique project number (b) Final Plan based on unique grading permit number (c) Redevelopment data only available for final plans	

c. Maintain construction inspection information

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.

Stormwater construction inspections are conducted by the County’s erosion control inspectors in conjunction with the required erosion and sediment control plan inspections. All stormwater construction violations must be resolved and abated prior to the completion of the associated grading permit. For the reporting period, the following inspections were performed:

- 1358 Stormwater Construction Inspections
- 206 Stormwater Correction Notices

d. Preventative maintenance inspections

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 shall be submitted in the County's annual reports.

In response to MDEs FY21 Annual Report review comments, that the County consider planning an annual stormwater management facility inspections rate, the County continues to work toward that goal. Preventative maintenance inspection responsibility is split between DPW and I&P staff, with I&P staff responsible for the vast majority (approximately 95%) of facility inspections. Within DPW, achieving the required triennial inspections involves identifying those facilities due for inspections and implementing a minimum inspection rate per month to ensure all required inspections are achieved. In FY23, this protocol allocated a minimum of 30 inspections per month to DPW staff. I&P staff utilize a similar protocol for identifying facilities to be inspected in any given year with a focus on those facilities on cycle for their triennial inspection.

During FY23, I&P staff continue to work toward an annual inspection rate (e.g., 500 facilities per month) to ensure all BMPs remain in compliance with State regulations. In FY24, the County will continue implementing and refining these inspection rate protocols while enhancing staff abilities to more efficiently inspect stormwater management facilities through the continued development and improvement of an inspection application for field tablets. In December 2022, DPW and I&P inspectors began using custom-built ESRI applications that integrate electronic field maps and inspection forms. These ESRI applications log data and inspections directly into a County geodatabase. These applications are expected to increase overall inspector efficiency; however, these gains were not entirely realized in FY23. This year's inspection numbers reflect time spent learning to use the new inspection applications and training time required for two new I&P inspectors. I&P averaged 458 inspections per month in FY23 and are currently averaging 481 inspections per month over the first half of FY24.

The State and County Stormwater Management Codes require preventive maintenance inspections once during the first year of operation and every three years thereafter for all stormwater management facilities. For the reporting period, the following maintenance inspections were performed:

- 6,061 Three-Year Maintenance Inspections;
- 757 Three-Year Maintenance Correction Notices; and
- 16 Three-Year Maintenance Violation Notices.

There were 6,061 three-year inspections of stormwater BMPs conducted in FY23 and included in the *BMP Inspections* table of the MS4 Geodatabase (**Appendix A**). In addition to these inspections, the County's stormwater management inspection staff performed numerous site visits in response to

property owners requesting guidance, to obtain permission for site access in some situations, and to follow up on required maintenance activities.

The inspection staff also review previously issued and current correction notices to confirm and ensure compliance. When additional action was required to bring a facility into compliance, additional Phase I enforcement notices were issued as appropriate. In prior reports the County documented the inspection process, including issuance of correction notices and Phase 1, 2, and 3 violation notices. During the FY23 reporting period, correction notices were successfully enforced at the Phase 1 (Correction Notice) and Phase 2 (Non-Compliance Violation) levels. There were no new Phase 3 (Legal Injunction) actions required in FY23. Additional information relating to inspection and enforcement activities in FY23 is provided in the *SWM* table of the MS4 Geodatabase (**Appendix A**).

Alternative BMP inspections are now compiled into a single table in the MS4 Geodatabase (*AltBMPInspections*). This table includes 1,949 records for FY23. Among these are records for programmatic inspections associated with annual BMP practices (vacuum street sweeping, inlet and catch basin cleaning, and septic pumpouts), imagery reviews for shoreline stabilizations, site inspections for stream restorations, and septic system upgrade (SEPD) inspections which are conducted via a service provider visit from MDE's Best Available Technology Management Network (BATMN). SEPD inspection results are housed in MDEs BATMN database.

Lastly, restoration stormwater BMPs are also subject to maintenance inspection to ensure their efficacy within the landscape. The FY23 *BMPInspections* table contains 25 restoration BMP inspection records.

2. Erosion and Sediment Control

An acceptable erosion and sediment control program shall be maintained by the County and implemented 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:

a. Delegation of Authority

Implementing program improvements identified in any MDE evaluation of the County's erosion and sediment control enforcement authority;

The County continues to maintain MDE delegation of erosion and sediment control enforcement authority through June 30, 2025. Correspondence pertaining to this continued delegation of authority, and successful program compliance with the requirements of this MS4 Permit, is found in **Appendix B**.

During the FY23 delegation of authority annual review, MDE found the majority of reviewed sites to be in good condition and routine enforcement by County staff generally effective in gaining compliance. Areas identified for improvement include ensuring sites are stabilized per Standards and Specifications for Erosion and Sediment Control (e.g., construction entrances, disturbed earth), and filtering practices are maintained. Additional areas for improvement include standardizing how compliance is

communicated via inspection reports. The County has taken steps to address these issues per the items below.

- Issued directive to inspection staff to ensure sites are stabilized by the Standards and Specification cited above and filtering practices are maintained.
- Published guidance to development community and County staff (via [Blue Notices](#)) regarding design, review of Erosion and Sediment plans, site construction, inspection and enforcement, construction site stabilization prior to wet weather events, monitoring of site outfalls before and after every rain event.
- Initiated updates to the inspection program component of County Permitting Software to ensure consistent direction/information provided to permittee regarding site compliance and correction notices.
- While the permitting software update is being initiated, the inspection report spreadsheet has been updated to ensure compliance reporting consistency.

b. Responsible Personnel Certification

Ensuring that construction site operators have received training regarding erosion and sediment control compliance and hold a valid Responsible Personnel Certification as required by MDE; and

Anne Arundel County continues to require a valid Responsible Personnel Certification be held by construction site operators and includes a place on the approved construction plans for the cardholders' name and certification number. Moreover, the County checks for a designated cardholder at the project pre-construction meeting.

c. Quarterly grading information

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.

Based on previous guidance from MDE, submission of quarterly reports is not required provided that the Construction General Permit Activity Database continues to be submitted with the annual report. Information regarding grading permits from the County's Construction General Permit Activity Database is provided in the *QuarterlyGradingPermit* feature class of the MS4 Geodatabase submittal (**Appendix A**).

3. Illicit Discharge Detection and Elimination

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 MDE or eliminated. Activities shall include, but not be limited to:

a. Outfall screening prioritization

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 MDE for approval with the first year annual report.

b. Outfall screening plan and schedule

Submitting a plan and schedule for field screening the prioritized outfalls for MDE'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 MDE's approval that methodically identifies, investigates, and eliminates illegal discharges into, through, or from the County's MS4;

Anne Arundel County has developed, and continues to maintain, an extensive program designed to detect and eliminate illicit discharges into the municipal storm drain system and upland pollutant sources resulting from dumping, poor housekeeping, and other non-permitted activities. The program includes the dry-weather inspection of a minimum of 150 storm drain outfalls annually. This outfall inspection records the presence of dry-weather flow, the structural integrity of the outfall, and relevant maintenance issues.

In compliance with permit requirements, the County submitted the IDDE Outfall Screening Prioritization Process as an appendix to the FY22 MS4 Annual Report (Appendix C). This document includes both the prioritization process description as well as the field screening schedule for FY23 through FY26. MDE reviewed this prioritization documentation and found it acceptable for the permit term.

Each year, the Anne Arundel County NPDES MS4 Program Manager, or a delegated staff member, coordinates with the support consultant to review priority assessment areas in the County that should be investigated for possible illicit discharges to the stormwater system. GIS desktop analysis is used to identify target outfalls primarily draining commercial, industrial, and residential land uses. As deemed appropriate, the County also revisits outfalls that had exhibited illicit discharge during previous assessments to confirm illicit discharge elimination. By assessing a different area of the County each year and incorporating the option of returning to sites that exhibited possible illicit discharge conditions in previous survey periods, the County achieves an area-wide review of likely sources of dry-weather discharge throughout the permit period.

The area targeted for the FY23 field effort was focused within a geographic area defined by the County boundary on the west, Route 100 to the north, I-97 to the east, and Route 50 to the south. In total, field crews successfully inspected 163 major and minor outfalls draining commercial, industrial, and residential land uses, including outfalls located on six County-owned properties (police and fire facilities) within the target area. Also included were 4 outfalls outside of the target area in the vicinity of the Anne Arundel County/City of Annapolis border; these outfalls were screened at the request of the City of

Annapolis to assist in locating suspected potable water leaks from City infrastructure. Details regarding the results of this special investigation can be found in the Anne Arundel County Illicit Discharge Detection and Elimination Program Report: July 2022 – June 2023 (Fiscal Year 2023) (**Appendix C**).

Anne Arundel County's GIS coverage of storm drains and closed storm drain utility grids provided the base data for maps to guide field activities. These maps assisted field crews in identifying the extent of the storm drain systems, locations of outfalls, and any contributing businesses or facilities. The maps included parcels for commercial and industrial facilities and their storm drain systems for screening efforts, as per the guidance provided by MDE (MDE 1997).

The complete Standard Operating Procedures (SOPs) for the IDDE program, updated to address MDE comments, can be found in **Appendix C** and in the MS4 Geodatabase *NarrativeFiles*. Additionally, methods for field screening dry weather discharge, source tracking, and enforcement are also described in the complete Anne Arundel County Illicit Discharge Detection and Elimination Program Report: July 2022 – June 2023 (Fiscal Year 2023) (**Appendix C** and MS4 Geodatabase *NarrativeFiles*).

c. Commercial and industrial visual survey

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 survey shall be reported annually;

During the permitting period, field personnel perform a visual inspection of accessible commercial and industrial sites within the target screening areas that have the potential to contribute significant pollutants (a.k.a. potential upland pollutant sources). The inspections are designed to identify poor housekeeping, dumping, and other non-permitted discharges (e.g., vehicle wash water) that may be intercepted by the County's storm drain system. Methods for visual inspections for upland pollution, as well as reporting and enforcement of upland pollution sources, are also described in the complete Anne Arundel County Illicit Discharge Detection and Elimination Program Report: July 2022 – June 2023 (Fiscal Year 2023) (**Appendix C**).

For the FY23 reporting period, field crews evaluated 355 commercial and industrial polygons for evidence of upland pollutant sources. As a result, field crews identified 47 upland pollutant sources within the target areas while conducting these routine visual inspections; these sources demonstrated the potential to discharge pollutants into County storm drains or Waters of the United States. Staff reported upland pollutant sources to the County MS4 Program Manager; the Program Manager or designee sent copies of the reports to I&P or the Health Department, as appropriate, to initiate corrective action. Complete investigation details, including site-specific reports, agency responses, and corrective actions are found in **Appendix C**.

Six (6) County-owned and improved properties (five (5) fire stations and one (1) police facility) were visually screened for potential upland pollution source identification in FY23. Stormwater maintenance

needs and/or possible upland pollution source were identified at three of the properties. Site-specific reports are included in the IDDE Annual Report found in **Appendix C**. Observations from screenings conducted at County-owned improved properties will be used to inform the development and implementation of Good Housekeeping Plans, as applicable, under the current MS4 permit. No potential violations or activities of concern were observed during the screening of County-owned properties in FY23. Inspection reports from these screenings were also shared with the County's Facilities Construction and Planner Coordinator.

d. IDDE Standard Operating Procedures (SOP)

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;

The County maintains an IDDE SOP document for consultants and County staff. The SOP is revisited every year prior to outfall screening and revised as needed. For FY23, the SOP was revised to address MDE comments regarding examples of potential upland pollutant sources. The SOP can be found in **Appendix C**.

e. County Code prohibition on illicit discharges

Maintaining an ordinance, or other regulatory means, that prohibits illicit discharges into the storm sewer system;

f. IDDE enforcement program

Maintaining a program to address and respond to illegal discharges, dumping, and spills; and

To “spill, dump or dispose of any material or substance other than natural stormwater runoff to a storm drain or watercourse unless authorized by a valid NPDES permit issued by the State of Maryland” is defined as a violation under § 16-5-101(6) of the Anne Arundel County Code.

There are two departments within the County government that address reports of illegal dumping and spills. I&P is the County agency primarily responsible for enforcing regulations regarding spills and illegal dumping into both publicly and privately owned storm drain systems. The Health Department addresses complaints specifically relating to food service facilities (e.g., overflowing dumpsters or waste grease containers) and documents violations during regular facility inspections.

Twenty-seven (27) illicit discharge, dumping, or storm drainage complaints were reported to I&P during the FY23 reporting period; these cases were supplemental to the IDDE survey results for outfalls and the commercial and industrial facilities as described above. The complaints included referrals from the Department of Public Works as part of the department's IDDE Program and referrals from other sources. Illicit discharge complaints and referrals are logged into the I&P Compliance Case Database; this is used to track cases from the receipt of a complaint or referral to closure. Case numbers facilitate tracking the

progress of any individual Illicit Discharge complaint or referral received by I&P. Compliance case data pertinent to the complaints received during the FY23 reporting year are documented in **Appendix C**. All complaints and referrals were investigated and enforced as appropriate.

I&P applies a progressive approach to enforcement regarding illicit discharges. In general, Phase I enforcement begins with coordination with MDE, as applicable, for joint investigation. If the violator has an active Maryland NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (SW Industrial GP a.k.a. 12-SW Permit), MDE takes over full enforcement authority. If no SW Industrial GP is active, I&P will issue a Correction Notice to the violator to address the violation within a timeframe specific to the nature of the incident. If the violation still exists upon follow-up inspection, I&P will issue a second Correction Notice. If the violation still exists after three Correction Notices have been issued, I&P will proceed with Phase II enforcement which entails the issuance of a Violation Letter and Non-Compliance Notice, both sent via certified mail. If there is no compliance with Phase II enforcement, I&P will proceed with Phase II enforcement, which entails filing a legal junction through the County's Office of Law; I&P may also issue a civil citation with Class C fines based on the County's Civil Fines schedule. Significant violations are screened with the County Office of Law for possible criminal enforcement as authorized in the County Code, or for referral to MDE for enforcement under the State Code. During the FY23 reporting period, it was not necessary to issue any civil citations for failure to eliminate illicit storm drain discharges.

For the FY23 reporting period, the Health Department addressed sixteen (16) issues reported to the Department by the County's IDDE consultants during the reporting period. Details regarding the reported conditions, agency responses, and corrective actions are in **Appendix C**.

The Anne Arundel County Department of Health may choose to issue civil citations for violations of the Anne Arundel County Property Maintenance Code regarding rubbish, garbage, or sanitation. Before the issuance of a citation, property owners are issued a written warning in the form of a Notice of Violation, giving the property owner 30 days to correct the violations before legal action is taken. If violations are not corrected following the issuance of a Notice of Violations, a citation may be issued. After a citation is issued, it is attempted to be served by a third-party server. Upon service, the property owner has 20 days to pay the fine and correct the violation, or 15 days to elect - via written response - to stand trial. After 20 days have passed since the initial inspection, the property is re-inspected for compliance. If the citation was unable to be served, the property is re-inspected immediately after receiving notice it was unable to be served. If violations remain at that point, the Department of Health may file for injunction. Once a citation or injunction is referred to the Office of Law, the property is re-inspected every 30 days until the trial date or until the violation is corrected. No civil citations were issued by the Department of Health in FY23 for violations stemming from IDDE-related surveys.

As part of its general activities associated with food service facilities, the Health Department has protocols for abatement of leaking or overflowing dumpsters. Enforcement is conducted under State of

Maryland Regulations dealing with Food Service Facilities (COMAR 10.15.03.19) which requires that each facility retain a sufficient number of durable refuse containers capable of holding the facility's garbage between periods of removal; the containers must be adequately covered and not leaking. Violation of this regulation would be marked on the food facility inspection report and would require correction typically within 30 days of the investigation. Failure to comply by the second re-inspection would result in \$175 re-inspection fees until compliance is achieved.

g. FY23 IDDE findings and enforcement

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 MDE for enforcement and/or permitting.

A full report of the procedures and data collected from the illicit detection and elimination field investigations is found in the Illicit Discharge Detection and Elimination – FY 2023 Annual Report (**Appendix C**); relevant digital data are included in the *IDDEScreening* table of the MS4 Geodatabase provided in **Appendix A**. The complete report (**Appendix C**) contains details of the findings from the FY23 reporting period, and the corrective actions associated with these sites. The full report also includes details regarding the resolution of previously unresolved cases described in prior reporting years. Closed investigations where the discharge source was not able to be identified (e.g., inconclusive) will be prioritized for future re-screening, and open cases will continue to be investigated with results reported in FY24.

Of the screened outfalls containing dry-weather flow during the initial screenings in the FY23 reporting period, three yielded a result above the action-criteria limit for one or more of the tested contaminants:

- Outfall F07O003 - Dry weather flow exceeded the action criteria for fluoride and detergents on the first visit and fluoride again on the second visit. Investigators did not observe flow at the outfall during subsequent visits, but suspected air conditioning condensate to be the source.
- Outfall C10O001- Dry weather flow exceeded the action criteria for chlorine and fluoride on the initial visit and fluoride on the second visit. Investigators suspected a potable water line leak, which was confirmed by County Bureau of Utility Operations personnel. Utilities repaired the leaking water line as well as two valves.
- Outfall K02O001 – Dry weather flow exceeded the action criteria for detergents on the initial visit and on the second visit. Investigators found vehicle washing at a residential/commercial property to be the source of discharge. The property owner was counselled on proper vehicle washing procedures.

Complete investigation details, including a site-specific report, agency responses, and detailed corrective actions, are found in the Illicit Discharge Detection and Elimination – FY 2023 Annual Report (**Appendix C**).

The County consultant’s field teams identified six (6) locations where physical issues significantly affected stormwater infrastructure within the targeted areas of Anne Arundel County during the FY23 reporting period. The site-specific reports were then forwarded to SIP for appropriate corrective action. Complete investigation details, including site-specific reports, agency responses, and corrective actions, are found in **Appendix C**.

4. Property Management and Maintenance

a. Anne Arundel County Government SW Industrial GP Facilities

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:

- *Ensure that a Notice of Intent (NOI) has been submitted to MDE for each County-owned industrial facility requiring coverage under the SW Industrial GP; and*
- *Submit with the annual report a list of County properties currently covered under the industrial stormwater permit.*

Anne Arundel County’s Water Reclamation Facilities (WRFs) NPDES wastewater discharge permits are current or continue in force pending MDE issuance of a revised permit. NPDES wastewater discharge permit reapplications for the Annapolis, Broadneck, and Broadwater WRFs (**Table 5**) were submitted to MDE as required and are pending issuance. Maryland City, Patuxent, and Piney Orchard WRFs recently received new discharge permits. Additionally, these three WRFs discharge to the Patuxent River; their nutrient (TN and TP) waste load allocation will be regulated through the requirements specified in the newly issued Patuxent River Watershed Nutrient Permit 20-DP-3585 (effective July 1, 2023 through June 30, 2028). This permit (20-DP-3585) is in conformance with the Chesapeake Bay TMDL for Nitrogen and Phosphorus (December 29, 2010).

Table 5. County Water Reclamation Facility discharge permits.

Facility	Permit	Permit Coverage Period
Annapolis WRF	12DP0838A	Oct. 1, 2015 – Sept. 30, 2020
Broadneck WRF	14DP0677A	Nov. 1, 2017 – Oct. 31, 2022
Broadwater WRF	14DP0813A	Nov. 1, 2017 – Oct. 31, 2022
Cox Creek WRF	14DP0698	Jan. 1, 2020 – Dec. 31, 2024
Maryland City WRF	18DP2393A	July 1, 2023 – June 30, 2028
Patuxent WRF	18DP0132A	July 1, 2023 – June 30, 2028
Piney Orchard WRF	21DP1936A	July 1, 2023 – June 30, 2028

The Maryland SW Industrial GP 12SW or 12SR expired at the end of 2018 and MDE administratively extended the permit term until a new permit (20SW/20SR) became effective on February 1, 2023. All

County-owned facilities covered under the 12SW or 12SR permit must submit a new NOI and updated SWPPPs no later than July 31, 2023 to prevent a lapse in coverage. The final permit and associated documents can be found here:

mde.maryland.gov/programs/Permits/WaterManagementPermits/Pages/stormwater.aspx. E.

County facilities, their General Permit Number, the NOIs and Stormwater Pollution Prevention Plans (SWPPPs) status per MDE, and the permit coverage end date are listed in **Table 6**. At the end of FY23, all County facilities had submitted NOIs and SWPPPs but not all had received MDE approval. Those not receiving approval are listed as “Received, not yet issued.”

Table 6. County facilities with 20SW Industrial GP coverage.

Facility	Permit	NOI Number	NOI & SWPPP Status/Issue Date	Permit Coverage Period
Bureau of Highways (BOH)				
Dover Road Yard	20-SW-1176	MDR001176	March 1, 2023	Jan. 31, 2028
Mountain Rd Road Yard	20-SW-1181	MDR001181	March 1, 2023	Jan. 31, 2028
Odenton Road Yard	20-SW-1177	MDR001177	March 1, 2023	Jan. 31, 2028
Crownsville Road Yard	20-SW-1179	MDR001179	March 3, 2023	Jan. 31, 2028
St. Margaret’s Road Yard	20-SW-1182	MDR001182	March 2, 2023	Jan. 31, 2028
Davidsonville Road Yard	20-SW-2298	MDR002298	March 3, 2023	Jan. 31, 2028
Friendship Road Yard	20-SW-1180	MDR001180	March 7, 2023	Jan. 31, 2028
Bureau of Waste Management Services (WMS)				
Millersville Landfill & Resource Recovery Facility (MLFRRF)	20-SW-1304	MDR001304	August 21, 2023	Jan. 31, 2028
Northern Recycling Center (NRC)	20-SW-0298	MDR000298	August 21, 2023	Jan. 31, 2028
Southern Recycling Center (SRC)	20-SW-0297	MDR000297	August 21, 2023	Jan. 31, 2028
Bureau of Utility Operations (BUO)				
Annapolis WRF	20-SW-0756	MDR000756	Rcvd; not yet issued	
Broadneck WRF	20-SW-0758	MDR000758	Rcvd; not yet issued	
Broadwater WRF	20-SW-0757	MDR000757	Rcvd; not yet issued	
Cox Creek WRF	20-SW-0760	MDR000760	Rcvd; not yet issued	
Patuxent WRF	20-SW-0761	MDR000761	Rcvd; not yet issued	
Maryland City WRF	20-SW-2459	MDR002459	Rcvd; not yet issued	
Piney Orchard WRF	20-SR-0727	MDR000727	Rcvd; not yet issued	
Anne Arundel County Utility Operations Center	20-SW-2345	MDR002345	November 15, 2023	Jan. 31, 2028

Compliance documentation, as required by the SW Industrial GP, is maintained at each facility and is available for inspection upon request. Information specific to these facilities and their permit compliance activities is presented in the *MunicipalFacilities* feature class of the MS4 Geodatabase (**Appendix A**). Annual SWPPP implementation activity is found below.

Bureau of Highways (BOH) Stormwater Pollution Prevention Plan Development and Implementation

During the FY23 reporting period the following items related to the SW Industrial GP at the County's Road Operations Yards were completed:

- Implemented each SWPPP, including
 - Performed routine facility inspections of each facility, at least quarterly;
 - Completed quarterly outfall visual assessments of each facility;
 - Completed comprehensive annual inspections of each facility;
 - Provided training to Road District personnel during the reporting period to support SWPPP implementation;
 - Completed an internal document review during comprehensive annual inspections of each facility;
 - Continued maintenance improvements to further prevent stormwater impacts, including
 - Use of coir log wattles and/or straw bales to protect inlets,
 - Use of asphalt curbing to contain bulk road maintenance materials, and
 - Added wooden bulkheads to entryway of salt barns, in addition to straw bales;
- Completed removal of all waste-oil tanks at BOH facilities.
- The MDE Water and Science Administration Compliance Program conducted an inspection of the Eastern District Road Operations Yard (Mountain Road Yard – SW Industrial GP 12-SW-1181) in April and again in November 2021. This compliance inspection revealed that the facility should be conducting quarterly benchmark monitoring for the inlet cleaning and street sweeping dewatering facilities, and the County should submit a modified NOI. During FY22, the County addressed the inspection findings. In August 2022 (FY23), MDE conducted a follow-up compliance inspection. As part of this inspection, discussion between the County and MDE subsequently determined that an updated NOI was not required but the quarterly benchmark monitoring should be conducted at facilities with storm drain inlet debris dewatering activities. This quarterly monitoring continued throughout FY23.
- Pursuant to the MDE inspection of the Eastern District Road Operations Yard, the County contracted with an outside firm for continued quarterly benchmark monitoring at all Road Operations Yards.

Bureau of Waste Management Services (WMS) Stormwater Pollution Prevention Plan Development and Implementation

The State's SW Industrial GP also applies to the three County-owned facilities managed by WMS identified in **Table 6**. During the reporting period, annual comprehensive SWPPP compliance inspections were performed at these facilities in October 2022 and will be performed again in the fourth quarter of 2023; visual inspections occur on a quarterly basis. In addition, the stormwater management facilities at these sites are routinely inspected and all identified repairs are immediately reported and scheduled for maintenance. WMS employs two environmental technicians who inspect and manage the stormwater facilities to ensure proper function.

Bureau of Utility Operations Stormwater Pollution Prevention Plan Development and Implementation

During this reporting period, Anne Arundel County's Bureau of Utility Operations (BUO) continued SWPPP implementation specific to the seven WRF facilities and the Utilities Operations Center site listed in **Table 6**. In support of the NOI and in compliance with the SWPPP, staff perform monthly facility inspections, quarterly dry weather inspections, quarterly wet weather inspections, annual comprehensive site inspections, and annual record review. Pollution prevention training is conducted annually with training at the Utility Operations Center scheduled for late September – early October 2023. Records are maintained at each facility.

b. Good Housekeeping Plan

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 activities listed in Part IV.D.4.a (above) are performed. The GHP shall be submitted to MDE 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), and school properties. The GHP shall include but not be limited to:

- i. Description of property management activities;*
- ii. Map of locations of properties covered by the GHP;*
- iii. List of potential pollutants and their sources resulting 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 to prevent the discharge of pollutants, spills, and leaks into its MS4;*
- 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 management practices for preventing, reducing, and eliminating the discharge of pollutants during property activities.*

During FY23, the County joined with six other MS4 Phase I jurisdictions to jointly develop a Good Housekeeping Plan (GHP) template that will, ultimately, be tailored specifically to the County. During FY23 the Washington Metropolitan Council of Governments (WashCOG), on behalf of the seven MS4 Phase I jurisdictions, procured a contract with KCI Technologies, Inc. to begin development of this template. Staff from MDE have agreed to join the Phase I jurisdictions in project discussions, offering guidance as needed to ensure the final GHP template development will achieve permit compliance requirements.

The first GHP project meeting with the consultant team was held in July 2023 (FY24). The GHP template document is projected to be finalized in February 2024. The County will begin tailoring that document to the appropriate County facilities/activities in mid-FY2024 with the intention of submitting the GHP to MDE for review with the FY2024 Annual Report (third annual report under this permit).

Although the GHPs are not yet developed and implemented, pollution prevention training associated with County facilities registered for coverage under the SW Industrial GP continued throughout FY23. The number of County personnel trained in SWPPP implementation and good housekeeping practices, associated with the SW Industrial GP and related SWPPPs, is found in the *MunicipalFacilities* feature class of the MS4 Geodatabase (**Appendix A**).

c. Maintenance of County-owned Properties

The County shall continue to implement a program to reduce pollutants associated with 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

Street sweeping in the amount identified in Appendix B of the Permit and annually updated thereafter. Anne Arundel County's street sweeping program is intended to provide a continuous level of street cleanliness while keeping debris (including litter and floatables) and pollutants out of storm drains, creeks, rivers, and ultimately the Chesapeake Bay.

The County's neighborhood streets are relatively clean because of the work of conscientious residents who assist us by keeping the areas in front of their homes free of litter and debris. Residential streets were not included in the County's program for routine street sweeping during the reporting period. Roads with higher traffic volumes are prioritized to maximize collection. The primary focus of the County's street sweeping program is on main thoroughfares (arterial roads, local and collector streets, roads with high traffic volume), business parks and industrial areas, County park-and-ride lots, NPDES priority areas, and facility parking lots subject to SWPPP implementation. These areas were scheduled for twice-monthly street sweeping.

During FY23, the County swept 6,658.3 lane miles, which equates to 554.9 lane miles per month – the same as the last reporting period. Accomplishments may vary 5% annually depending on disposal costs and other factors. The current funding level supports sustainable accomplishment of approximately 6,800 curb miles annually, a 40% increase over the initial FY16 levels.

ii. Storm Drain Inlet and Conveyance System

Cleaning storm drain inlets and conveyance system in the amounts identified in Appendix B of the Permit and annual updated thereafter.

Anne Arundel County BOH conducts manual and mechanical storm drain inlet cleaning throughout the County. For FY23, the County manually cleaned and removed debris from catch basins, inlets, and outlets of pipes to maintain proper drainage for 4,325 structures. This is a 25% increase from the previous reporting period in which 3,465 structures were cleaned by hand.

In addition, the County inspects catch basins, manholes, and associated pipes to identify structures for cleaning with a sewer vacuum or power rodder. A total of 2,168 structures required cleaning with a sewer vacuum, an increase of 31% from the last reporting period in which 1,660 were cleaned with a sewer vacuum. A total of 48,342 linear feet of pipe were cleaned, an increase of 9% from the last reporting period in which 44,180 linear feet were cleaned.

During the reporting period, the County cleaned and removed debris from roadside inlet and outlet ditches and concrete swales, removed leaves from ditch lines and curbs using a leaf vacuum, and cleaned and reshaped roadside ditches by machine or by hand for a total of 39,013 feet during the reporting period. This is a decrease of 33% from the last reporting period in which the County cleaned 57,904 linear feet.

iii. Pesticide/Herbicide/Fertilizer Use

Reducing the use of pesticides, herbicides, fertilizers, and other vegetation management chemicals. 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 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 the Maryland Department of Agriculture to ensure accurate application of chemicals according to manufacturer’s recommendations;*
- *Subcontracting to certified pest control applicator licensed business for some or all of properties;*
- *Piloting biological pest control programs; and*
- *Establishing “no mow” areas.*

The quantities of pesticides, herbicides and fertilizers used on County-owned properties for vegetation management and pest control are listed in the *ChemicalApplication* table of the FY23 MS4 Geodatabase (**Appendix A**). Anne Arundel County makes a financial contribution annually to support Maryland Department of Agriculture (MDA) programs for spongy moth (previously known as gypsy moth) control (mda.maryland.gov/plants-pests/Pages/spongy_moth_program.aspx) and for mosquito control (mda.maryland.gov/plants-pests/Pages/mosquito_control.aspx). The County does not maintain information regarding the quantity of materials used by these State programs.

Herbicide use associated with road maintenance performed by the BOH is limited to the application of glyphosate (e.g., Roundup™) on County rights-of-way to control vegetative growth around guardrails, concrete structures, and prior to crack sealing operations in the traveled portion of the roadway. A total of 101 gallons of glyphosate was used by BOH during the reporting period. This is a 246% increase over the previous reporting period in which 41 gallons was applied by BOH. The change can be largely

attributed to the total number of application cycles scheduled during the reporting period. The BOH recorded no other herbicide, pesticide, or fertilizer application.

The BOH continues to employ a contractor who holds a Pest Control Applicator Certificate. The applicator categories are 3A - Ornamental, 3C - Turf, and 6 - Right-of-Way. The contractor is required to attend re-certification training per MDA guidelines to include Integrated Pest Management and pesticide safety. Each time there is chemical use, a pesticide report is completed and filed, which is available to be reviewed during MDA's biennial inspection.

Anne Arundel County Facilities Maintenance Division (FMD), Horticulture Unit, maintains landscaping on County properties including all Administrative Buildings, Libraries, Police and Fire Stations, Senior Centers, and Health Centers throughout the County. The fertilizer and the herbicides applied to these properties in FY23 are listed in **Table 7**. The quantities of each are included in the FY23 MS4 Geodatabase *ChemicalApplication* table.

Table 7. Herbicides and fertilizers used by the FMD Horticulture Unit in FY23.

Trade Name	Active Compound
Monsanto RoundUp Quick Pro	Glyphosate
Monsanto RoundUp Pro Liquid	Glyphosate
Gordons Brushmaster	2,4-D,2-ethylhexyl ester 18.85% 2,4-DP,2-ethylhexyl ester 9.24% Dicamba 3.01%
Bayer Specticle Flo	Indaziflam
Lesco 20-20-20 fertilizer	Nitrogen, Phosphorus, Potassium

Landfills and recycling centers managed by WMS do not use herbicides to control unwanted woody and herbaceous vegetation. Weeds and other problematic vegetation at these facilities are removed almost entirely by physical and mechanical means. Occasionally, however, limited application of herbicide (RoundUp, active ingredient glyphosate) is used around the WMS Administrative Building and parking lot. In addition fertilizer use on WMS properties, such as the side slopes to Cell 9 or on closed Cell 567, are limited to only when grass needs nutrients to encourage proper growth that helps with the prevention of soil erosion and limits runoff. During FY23 the WMS did not use any herbicides or fertilizers.

WMS employs a contractor who holds a Pest Control Applicator Certificate. Pesticides are applied indoors at WMS facilities and outside around buildings. In FY23, outside pesticide use included the active ingredients Bifenthrin, Bromodiolone, Orthoboric Acid, and Zinc Phosphide. Quantities of each chemical used are found in the FY23 MS4 Geodatabase *ChemicalApplication* table. Each time there is a chemical application, a pesticide report is completed and filed.

Anne Arundel County Recreation and Parks (AACRP) is committed to providing parks with pest-free environments through the implementation of preventive methods, integrated pest management (IPM),

and chemical strategies when necessary. Because AACRP properties, facilities, and programs are often contiguous physically, programmatically, geographically, and operationally to Anne Arundel County Public School properties, it was deemed imperative that there be a high degree of standardization, commonality, and uniformity in pest management philosophy. The AACRP Turf Division staff are MDA licensed applicators (fertilizer and pesticide) and, during the reporting period, applied the herbicides Weed Destroy AM40, ProSedge, and Target 6 Plus on certain AACRP athletic fields. These chemicals are applied only as and where needed. Nitrogen fertilizer (Nutrien Conditioned Urea 46-0-0) was applied to the athletic fields at 12 County park facilities in summer 2023. Quantities of chemicals used by AACRP are included in the FY23 MS4 Geodatabase *ChemicalApplication* table and are also reported to MDA as required by the licensed applicator program.

The County-owned Compass Pointe and The Preserve at Eisenhower Golf Courses are operated by AACRP via contract with Indigo Sports. These golf course properties are subject to a course-specific intensive pesticide, herbicide, and fertilizer turf management program. The grass types on each of the golf courses' fairways and tees are not the same so there are differences in the turf maintenance programs between the courses. The turf management programs are carried out by MDA licensed applicators (certified pesticide and certified fertilizer applicators) and all turf management applications are reported to MDA in a timely manner, as required. For FY23, the quantities of pesticides, herbicides, and fertilizers applied to these managed turf areas are also reported in the MS4 Geodatabase *ChemicalApplication* table.

Integrated Pest Management (IPM)

The maintenance plan for all FMD properties and rights-of-way includes IPM. Key elements include the following:

- Use of herbicides only when pulling or cutting weeds have not proven effective;
- Use of insecticides only when natural methods have not proven effective;
- Elimination of fertilizer use, proper use of hand weeding and mulching, and sparing use of herbicides on roadway medians;
- Limiting fertilizer use on FMD properties, and using only when grass needs nutrients to encourage proper growth that helps with the prevention of soil erosion and limits runoff;
- Selecting disease- and insect-resistant plants for new plantings; and
- Selecting the least toxic product available, using appropriate storage facilities and techniques, and compliance with all applicable laws and regulations.

During the reporting period, the AACRP continued implementation of an IPM program for County parks and athletic facilities. The IPM plan is required pursuant to County legislation that became effective July 1, 2013, and that modified Article 14 of the County Code by adding §14-1-105 (Integrated Pest Management Plan). Article 14 of the County Code can be found online at codelibrary.amlegal.com/codes/annearundel/latest/overview. Pursuant to this legislative requirement,

the public is provided prior notification of pesticide application at Recreation and Parks public facilities. Key elements of the IPM program at AACRP facilities include the following actions:

- Minimize the amount and toxicity of pesticides used in the park facilities;
- Eliminate unnecessary pesticide applications;
- Provide IPM education to the public, park users and park staff;
- Improve landscape and grounds cleanliness;
- Utilize only Licensed, Certified and Registered Technician pesticide applicators;
- Reduce or eliminate exposure of children, vulnerable adults, nursing mothers with infants and pets to pesticide applications; and
- Provide universal public and staff notification.

d. Winter weather deicing and anti-icing program

i. Salt Management Plan

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 Maryland Code. The County's SMP shall include, but not be limited to:

- *A plan for evaluation of new equipment and methods, and other strategies for continual program improvement;*
- *Training and outreach:*
 - *Creating a "Salt Academy" that annual 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.*

In 2014, after the promulgation of a Statewide Salt Management Plan, the County's BOH developed the Department of Public Works Salt Management Plan to outline the practices intended to effectively manage road salt for winter maintenance activities within the County. The Salt Management Plan is organized into the following areas:

- Winter maintenance policies;
- Trends and data analysis;
- Materials ordering, delivery, storage, handling and record keeping;
- Equipment upgrading, calibration and washing;
- Snow and ice control training;
- Weather forecasting, storm response, environmentally sensitive areas;

- Technology review; and
- Public outreach and education.

Near-Term Goals incorporated in the Salt Management Plan include:

- Winter Maintenance Policies: The Department has established level of service and maintenance standards which have been generally accepted by the community at large. These policies form the foundation for program delivery and can have a significant effect on the environment. The goal is to review the various departmental standards relating to the winter maintenance program and seek endorsement for the level of service and maintenance policies.
- Record Keeping: One of the keys to an effective winter maintenance program is to place the right amount of material in the right place at the right time. At the present time, the record of material usage is tracked manually and reconciled with the residual inventory but should be enhanced to document salt usage by route, by vehicle, and by storm.
- Winter Maintenance Training: A thorough understanding of good housekeeping practices, the measures of snow and ice control and the expectations of program delivery will result in a greater probability of success with the salt management plan. For this reason, it is essential that all staff involved with winter operations be provided with Winter Maintenance and Operations Training.
- Communications: The goal in this area is to communicate the Department's winter maintenance program and salt management initiatives to staff and to the public. The prime focus in this area will be to increase public awareness in the role of deicing materials in snow and ice control through the development of appropriate information on the Department's webpage.
- GPS Upgrade: It is recommended that the Snow Operations fleet be upgraded by installing an Automated Vehicle Location system (AVL). Strategic and tactical decision making during a storm response, informed by an AVL system, improves effectiveness, resource allocation, and potentially reduces storm response duration. The GPS data provided by an AVL can assist with the analysis of complaints, trouble spots, and claims against the County. This is possible because the location of a truck can be pinpointed in time throughout the storm with a high level of accuracy.

Longer Term Goals identified in the Salt Management Plan include:

- Equipment Upgrading: It is intended that the winter maintenance fleet be capable of delivering appropriate levels of deicing materials within a full range of climatic conditions. The most cost-effective way of fleet upgrading is to consider changes as vehicles within the fleet come up for replacement. In this regard, as the salt spreader fleet comes up for replacement within the County's heavy equipment replacement program, the vehicles are to be equipped with electronic controllers, infrared thermometers, and pre-wet capabilities. The equipment upgrades will improve the capability of placing the right amount of deicing material in the right place, at the right time and allow for an increased level of data collection which, in turn leads to more effective use of salt.
- Environmentally Sensitive Areas: Concentrations of chloride in the environment can have negative environmental impacts and the Statewide Salt Management Plan suggests a program to assess the levels of impact due to winter maintenance. Initially, the environmentally sensitive areas can be

identified and ranked starting with the most vulnerable areas (highest ranked); a monitoring program can be developed, where appropriate, to explore the level of impact resulting from the County's winter maintenance practices. Over time, where appropriate, action plans are to be developed to reduce the chloride impacts on the environment.

In 2022-2023, the BOH continued its efforts to reduce the use of winter weather deicing materials through application of best practices and improvement of materials, equipment calibration, employee training, and effective decision making. The County issued contracts to continue a Countywide anti-icing program during the 2022-2023 season, procured additional heavy-duty dump trucks equipped with the latest spreader controller technology and on-board liquid application capability, and continued to equip its plow fleet with AVL tracking hardware to monitor and optimize snow removal operations.

The BOH continued its use of a maintenance decision support system (MDSS), which uses real-time data from its Road Weather Information System (RWIS). The RWIS system is a series of pavement and bridge deck sensors and other instruments installed along certain County-owned bridges and roadways. The integration of RWIS data into an MDSS allows the management team to select the most appropriate winter treatment for actual weather conditions in each area of the County during a winter storm event. Studies have shown use of an MDSS can help reduce the use of deicing chemicals.

Annual training on proper snow plowing techniques and safety is also offered to both County and County contractor personnel responsible for maintaining the County's roadways during inclement winter weather. The training includes information on the application of deicing products and proper application rates. Training sessions are held in October and November each year. Approximately 134 County personnel and 93 contractor staff attended the training sessions in FY23 (see the MS4 Geodatabase *MunicipalFacilities* feature class in **Appendix A**). Of the County staff participating in this training, 68 staff were from BOH and 66 additional County staff were from departments not reflected in the *MunicipalFacilities* feature class

These training sessions present the concept of "Sensible Salting" to all winter operations personnel (County and contractors). "Sensible Salting" training creates an awareness of the need to protect the environment and is another way of saying "Enough and no more." Sufficient salt is required to produce the desired safety and mobility to achieve the level-of-service goal. "Excess" applications add cost but no further benefit, and harm the environment.

The Sensible Salting Practices include:

- Limited Salting during the Late Evening/Early Morning Hours (11:00 p.m. – 4:00 a.m.): During these hours, salting is not as effective due to low traffic volumes. In the late evening/early morning hours, the goal is to ensure passable roads which means only intersections, hills, curves, and bridges will be salted. Beginning at 4:00 a.m., the BOH prepares the roads for rush hour.
- Limited Salting on Secondary Roads: Secondary Roads (local streets) will be plowed as often as possible, but will only be salted at intersections, hills, curves, bridges, and school zones. “Spot Salting” will also be used when necessary.
- Proper Calibration of Equipment: All equipment will be calibrated to ensure that desired application rates are applied correctly and over-salting is avoided.

In addition to proper training for County staff and contractors, the County also provides outreach information to the general public regarding County roadway snow operations. This information is provided through the County’s webpage at aacounty.org/public-works/highways/snow-removal. Included on this page is a link to the YouTube video describing snow removal from roadways in the County as well as information on the level of plowing and deicing measures residents can expect during winter weather conditions. Informational documents found on this page include Frequently Asked Questions pertaining to snow removal, a Winter Travel Guide, a Snow Information Booklet, and an Environmental Stewardship statement pertaining to the County’s winter highway maintenance activities. The County also maintains and publicizes a snow removal status map indicating when area roads were last serviced; and a link for residents to learn what Level of Service to expect for their street.

In addition to outreach on snow removal and deicing activities for County roads, guidance on snow removal and deicing practices for residents and businesses can also be found via the County webpage aacounty.org/public-works/bwpr/education-outreach/take-action/winter-road-salt-reduction. This guidance describes how much salt to apply and when, the effects of road salt on human and pet health, infrastructure, and the general environment. Best salt application practices are described for individual property owners as well as snow removal professionals. Lastly, the guidance includes links to additional winter weather deicing resources and programs.

ii. Tracking and Reporting

- *Starting with the fourth 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.*

The amounts of deicing and anti-icing materials used by the County BOH during FY23 are found in **Table 8**. Deicing and anti-icing chemical data for the four previous reporting periods are provided as a comparison. The quantity of materials used each year is variable because it is based on actual winter

weather conditions including precipitation type, precipitation frequency, and factors such as road surface temperature.

Table 8. Deicing material applied by the Bureau of Highways, FY 2019–2023.

Material	2018–2019	2019–2020	2020–2021	2021–2022	2022–2023
Road Salt (tons)	12,760	982	7,786	11,061	1,008
Liquid Salt Brine (gal.)	133,500 ^(a)	40,400 ^(a)	21,900 ^(a)	19,300 ^(a)	9,541 ^(a)
Total Salt (tons)	12,894	1,022	7,807	11,080	1018
Liquid Calcium Chloride (gal.)	432 ^(b)	0 ^(b)	0 ^(b)	0 ^(b)	0 ^(b)
NWS Snow Totals – BWI (in.)	18.3 ^(c)	1.8 ^(c)	8.9 ^(c)	13.3 ^(c)	0.20 ^(c)
NWS Avg. Winter Temp (°F)	37.5	43.0	40.3	44.5	39.8

^(a) One ton of salt produces 1000 gallons.
^(b) Average winter temperature at BWI Thurgood Marshall Airport is 35.1 degrees per the National Weather Service (NWS). Calcium Chloride depresses the freezing point and is used more extensively during colder periods to prevent ice formation and to deice road surfaces. Increased use is likely when average temperature is near or below freezing, or in cases of ice and heavy snowfall.
^(c) Average long-term annual snowfall total at BWI Thurgood Marshall Airport is 20.1 inches per the National Weather Service (NWS). Winter 2021-2022 snowfall total at BWI was 13.3 inches. The 2021-2022 winter season saw an increase of salt use due to an increased amount of snow fall when compared to the previous two winter seasons.

Activities at WMS facilities also require the use of deicing materials such as bulk salt and bagged deicer mixtures. In both FY20, FY21, and FY23 no bulk salt was used. In FY23 the amount of bagged deicer (mixture of sodium chloride, magnesium chloride, calcium chloride, and potassium chloride) used at each facility was as follows:

- Millersville Landfill and Resource Recovery Facility & Central Recycling Center – 500 pounds of bagged deicer;
- Northern Recycling Center – 500 pounds of bagged deicer; and
- Southern Recycling Center – No bagged deicer was used.

Additionally, during the reporting period the BUO utilized no bulk salt and approximately 300 pounds of bagged deicer at their facilities (Utility Ops Center and WRFs) to ensure access roads and walkways remained open and safe.

The quantities of deicing and anti-icing materials used by the County in FY23 are found in the *ChemicalApplication* table of the MS4 Geodatabase.

e. Storm drain system litter and debris removal

The County shall evaluate current litter control problems associated with discharges into, through, or from portions of its MS4. Additionally, the County shall continue to remove from or prevent from entering its storm drain system 174.5 tons of litter and debris as identified in the first year of permit issuance or as updated annually thereafter.

Anne Arundel County continues to implement a comprehensive litter prevention and cleanup program. A description of the FY23 activities is found in Part IV.D.5 (Public Education). As part of this program, the BOH conducts storm drain system maintenance activities associated with storm drain inlet and catch basin cleaning (CBC). BOH both responds to customer requests for inlet and CBC, and implements a routine maintenance regime based upon a grid map of all closed storm drain infrastructure and outfalls maintained by the County. Each grid is serviced in sequence or as customer requests identify an area needing service. The County also maintains an inventory of problem areas that require cleaning prior to any significant precipitation event.

During FY23, and as noted earlier in Part IV.C.6, storm drain inlet and CBC activities prevented 334.32 tons of litter and debris from entering the County storm drain system. The permit-term CBC average (FY20-FY23) of material removed is 193.5 tons which exceeds the benchmark listed above and also found in Appendix B of the Permit (174.5 tons).

Additionally, BOH conducts manual litter and trash removal from County roadsides throughout the year. In FY23, 126 tons (10,101 bags) of litter and 1,081 tons of roadside debris (e.g., tires, appliances, furniture, large woody debris) were collected. It should be noted that BOH uses 40-gallon bags and standardizes the full bag weight at 25 lbs. for reporting purposes.

On June 5, 2023 the Anne Arundel County Council passed Bill 19-23 (Bring Your Own Bag Plastic Reduction Act) to reduce the volume of plastic bag litter. This legislation prohibits the distribution of plastic bags by certain businesses and allows businesses to distribute paper and reusable bags at no cost for a limited time. A copy of this legislation is found in **Appendix B** and the legislation becomes effective on January 1, 2024.

f. Annual property management program updates and pollution reductions

The County shall report annually on changes to property management and maintenance programs and the overall pollutant reductions resulting from implementation of the components of the program listed in this section.

The above compliance documentation, pertaining to Part IV.D.4 of the Permit, describes the property management and maintenance programs and activities that occurred during the reporting period. Quantities of materials applied (i.e., deicers, fertilizers, pesticides, herbicides) are found in the MS4 Geodatabase *ChemicalApplication* table (**Appendix A**). The percent change in quantity used, as compared to the prior reporting period, is also included in this table.

Pollutant reductions specific to the alternative BMPs described in this section (e.g., street sweeping) are more fully described in Part IV.E (Stormwater Restorations).

5. Public Education

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. Compliance Hotline

Maintaining a compliance hotline or similar mechanism for public reporting of water quality complaints, including suspected illicit discharges, illegal dumping spills, and flooding problems;

The Department of Inspections & Permits maintains a 24-Hour Environmental Hotline for citizens to report environmentally related complaints including critical area violations, spills, and illegal dumping into the County storm drain system. The Hotline has been in existence since 1988 and has been advertised in numerous ways including the County Inspections and Permits webpage: aacounty.org/inspections-and-permits. The Environmental Hotline number is 410-222-7171.

In addition to the 24-hour environmental hotline, the County webpage provides a link for citizens to submit on-line requests for investigation of environmental concerns or any other observation or issue of concern: aacounty.org/services-and-programs/report-a-concern. This on-line reporting interface is in addition to the options for reporting concerns and issues through the mobile app SeeClickFix.com© (SeeClickFix, Inc., 2008-2017) or by dialing 311 (Mon-Fri from 8:00 to 4:30) to reach a County customer service representative. The County is committed to customer service and promptly responds to reported concerns.

The County continues use of the complaint management system (Code Compliance Review), instituted in 2018; however, in FY23 zoning code complaints were redirected to the County's Land Use Navigator (LUN) system for review and enforcement assignments and tracking. Building and environmental complaints, received via the above reporting mechanisms, continue to be entered into the Code Compliance Review database based on one of two major categories (Building or Environment) and assigned to one of numerous subcategories within each major category (e.g., Illegal Discharges, Sediment Control, Tree Clearing are Environmental subcategories). Each complaint is then assigned to an inspector for follow-up and enforcement action, all of which is documented within the database. Information on complaints received and the subsequent actions taken can be viewed via the County's Inspections and Permits webpage by clicking on the hot link "Code Compliance Database" found on the right side of the webpage. This link (aacounty.org/inspections-and-permits/code-compliance/compliance-review-system) takes you to where case information can be searched by address, Tax ID, or Case ID number. Of note, the Case ID for all environmental complaints begins with "E" followed by the calendar year opened (e.g., 2023).

During this reporting period, 631 building and 577 environmental complaints were documented via the compliance database. Please see **Table 9** below for further breakdown of the FY23 environmental complaints.

Table 9. FY23 environmental complaints from Code Compliance Database.

Environmental Compliance Category	# Complaints
Bog Area	0
Civil Citation Non-Compliant	2
Construction in Critical Area	3
Critical Area in Buffer Disturbance	19
Critical Area Clearing/Grading	39
Critical Area Tree Clearing/Buffer	14
Discolored Water complaint	2
Drainage Complaint	61
Exceeding Scope of Permit	9
Floodplain Complaint	1
Forest Conservation Easement Complaint	16
General Complaint/Information Needed	38
Grading w/o Permit	152
Illegal Discharge Complaint	53
Sediment Controls Down/Missing	45
Standard Grading Plan Issued	1
Stock Pile (General)	1
Stormwater Management Issues	9
Tracking Mud onto R-O-W Complaint	11
Tree Clearing (General) Complaint	53
Tree Clearing Over Critical Area	42
Total Environmental Complaints	577

b. Website and social media outreach

Maintaining a website with locally relevant stormwater management information and promoting its existence and use;

c. Additional outreach topics

Providing information to inform the general public about

- i. 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. *Proper disposal of household hazardous waste*
- vi. *Lawn care and landscape management (e.g., proper use of fertilizers, herbicides, pesticides, ice control and snow removal)*
- vii. *Residential care car and washing*
- viii. *Litter reduction*
- ix. *Reducing, reusing, and recycling solid waste; and*
- x. *Pet waste management*

The County shall conduct a minimum of 75 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; and conducted targeted workshops on stormwater management for the public.

The County continues to provide residents with relevant information to make informed decisions regarding water quality issues and environmental stewardship. Several County departments have public education and outreach programs tailored to their specific discipline. In some cases, education and outreach occurs through organizations in partnership with the County. The sum of the annual outreach efforts via in-person efforts, virtual group meetings, webpage views, and other avenues far exceeds the required 75 outreach efforts per year. Examples of some of the outreach activities are described in this section of the report.

Bureau of Watershed Protection & Restoration

To increase stormwater pollution awareness throughout Anne Arundel County, the Bureau of Watershed Protection & Restoration (BWPR) developed a comprehensive education and outreach program.

BWPR Internet Resources

A major component of this initiative was the development of the BWPR's webpage (www.aarivers.org) to provide residents with an overview of the BWPR program and stormwater fee, environmental restoration plans, watershed assessments and information about stormwater pollution in general. The webpage also provides links to other County departments such as BUO for water conservation tips and I&P for stormwater management and Chesapeake Bay Critical Area information. Below is a listing of BWPR's public facing resources:

- **NEW in FY23: Online WPRF Appeal & Credit Application Forms:** Online application forms were developed to improve accessibility and modernize how residents apply for WPRF credits and appeals.
 - aacounty.org/public-works/bwpr/watershed-protection-restoration-fee/appeal-and-credit-application-form

- **NEW in FY23: Organize a Volunteer Floodplain Clean-Up:** BWPR recently published a webpage detailing how the County can help with executing volunteer-led stream/floodplain clean-up projects, including a “Propose a Floodplain Clean-Up Site” Google Form.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/floodplain-clean-ups
- **BMP Credit Calculator** – BWPR’s credit calculator was developed to assist NGOs and others to estimate potential impervious restoration credit and TMDL reductions from their project.
 - aacounty.org/public-works/bwpr/watershed-restoration/grant-program/bmp-credit-calculator
- **Restoration Estimator Tool** – BWPR’s restoration estimator tool was developed to assist NGOs and others to explore restoration opportunities, and estimate potential impervious restoration credit and TMDL reductions resulting from project implementation.
 - aacounty.org/public-works/bwpr/watershed-restoration/grant-program/restoration-estimator-tool
- **Fish Atlas Report & ArcGIS Story Map** – In 2004, Anne Arundel County began the Countywide Biological Monitoring Program (Program) to better understand the health of the County’s non-tidal streams and rivers and the biological communities they support. In the beginning, only stream insect community health was assessed; however, in 2017, the Program expanded to include the fish community. The sampling work underpinning this Story Map, and the related “[An Atlas of the Freshwater Fishes of Anne Arundel County, Maryland](#)” document, occurred between 2017 and 2021.
 - <https://storymaps.arcgis.com/stories/7be7afff1f9146e79397b0f1d8110387>
- **Award Winning Projects** – Projects and programs that have received recognition for outstanding merit are all highlighted on this webpage. Awards are sorted by the organization that sponsored the award.
 - aacounty.org/public-works/bwpr/watershed-restoration/award-winning-projects
- **Pet Waste Reduction Campaign** – The County BWPR partnered with the Watershed Stewards Academy to implement an outreach campaign encouraging County residents to pick up after their pets. This page details the relationship between pet waste and water quality, as well as tips and resources for proper pet waste management.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/pet-waste-pollution-reduction
- **Living with Beavers** – As an ecosystem engineer and a keystone species of the Chesapeake Bay watershed, beavers play a major role in protecting our waterways. This page summarizes a brief history of beavers in the U.S., as well as resources for cohabitation with a neighborhood beaver.
 - aacounty.org/public-works/bwpr/education-outreach/understanding-stormwater/living-beavers

- **BWPR Annual Reports: “A Land of Rivers”** – BWPR’s FY annual report summarizes the watershed protection and restoration actions initiated by the BWPR and our partners and the fiscal resources used to implement those actions.
 - aacounty.org/public-works/bwpr/annual-reports-land-rivers
- **Financial Assurance Plan** – This report constitutes Anne Arundel County’s financial assurance plan, required by MDE per State regulations, identifying actions that will be required of the County to meet the requirements of its NPDES MS4 permit along with projected annual and 5-year revenues or other funds that will be used to meet the impervious surface restoration plan requirements of its NPDES MS4 permit.
 - aacounty.org/public-works/bwpr/npdes-ms-4-permit/financial-assurance-plan
- **WPRF Credit Program** – Explains how eligible property owners in Anne Arundel County may reduce their WPRF assessments by up to 50% for proactive and sustainable uses of stormwater runoff controls.
 - aacounty.org/public-works/bwpr/watershed-protection-restoration-fee/wprf-credit-program
- **Stormwater Management Property Tax Credit Program** – Residential and commercial property owners can receive a credit on their property taxes by installing and maintaining stormwater treatment practices. It provides for a reduction in County property taxes for qualified stormwater improvements.
 - aacounty.org/public-works/bwpr/watershed-protection-restoration-fee/stormwater-management-property-tax-credit
- **WPRF Appeal Program** – The WPRF Appeal Program is intended for property owners who feel that they have been billed in error.
 - aacounty.org/public-works/bwpr/watershed-protection-restoration-fee/wprf-appeal-program
- **BWPR Restoration Project Interactive Map** – Shows the location and status of all BWPR programmed restoration projects. The link is embedded in the BWPR webpage (aarivers.org) under Watershed Restoration Projects. The map also includes status of non-County projects which includes NGO, private, and Maryland State Highway Administration restoration projects.
 - annearundelmd.maps.arcgis.com/apps/webappviewer/index.html?id=e7e7fb6733e448a8809938140bed9e18
- **WPRF Mapping Application** – Interactive map shows the specific WPRF for each parcel in the County. Residents can also identify impervious surfaces on their property.
 - gis.aacounty.org/gcx/WebViewer/?app=c82c5cff02544a56af888e4ff5c166a2&isEmbedded=true&view=embed&embedMode=stormWater&embedIntro=on

- **BWPR Watershed Application** – Interactive map identifying environmental information regarding watershed studies, stream assessment survey, as well as subwatershed and stream priorities for restoration and preservation.
 - gis.aacounty.org/portal/apps/webappviewer/index.html?id=dac2fecf1fc14077bf0faee596f8cf43
- **BWPR Goals Dashboard** – Shows the number of completed and anticipated projects by type. Also shows progress of impervious surface attainment goal.
 - aacounty.org/public-works/bwpr
- **Long-Term Targeted Biomonitoring** – The Anne Arundel County Bureau of Watershed Protection and Restoration’s Ecological Assessment & Evaluation Program routinely collects biological, habitat, and geomorphological data from local streams as part of a long term targeted biological monitoring program. The sample sites are located on reaches of interest where certain stream restoration activities have occurred or are planned.
 - aacounty.org/public-works/bwpr/ecological-assessment-evaluation/long-term-targeted-biomonitoring
- **Biological Monitoring** - In 2004, Anne Arundel County initiated a Countywide Aquatic Biological Monitoring Program. The County program is based upon the Maryland DNR MBSS program, scaled down to a County level. The program is structured such that all major watersheds of the County are sampled in a 5-year period.
 - aacounty.org/public-works/bwpr/ecological-assessment-evaluation/biological-monitoring
- **Non-Tidal Surface Water Monitoring** - The Non-Tidal Surface Water Monitoring Program is responsible for evaluating the in-stream water quality of the County’s non-tidal waterways.
 - aacounty.org/public-works/bwpr/ecological-assessment-evaluation/non-tidal-surface-water-monitoring
- **Illicit Discharge Detection & Elimination** – Examines the County’s Illicit Discharge Detection & Elimination Program and provides resources for residents to identify and report potential illicit discharges.
 - aacounty.org/public-works/bwpr/ecological-assessment-evaluation/illicit-discharge-detection-and-elimination-idde
- **TMDL Restoration Plans** - BWPR has developed several restoration plans to address certain local water quality impairments for watersheds with an approved Total Maximum Daily Load (TMDL) issued by the Maryland Department of the Environment (MDE) and approved by the U.S. Environmental Protection Agency (EPA). This also includes progress reports as required by the MDE.
 - aacounty.org/public-works/bwpr/watershed-assessment-planning/chesapeake-bay-tmdl

- **NPDES MS-4 Permit** – Includes a link to the current Anne Arundel County NPDES-MS4 permit and all annual reports as required by MDE.
 - aacounty.org/public-works/bwpr/npdes-ms-4-permit
- **Watershed Studies** – Beginning in 2002, the County conducted systematic and comprehensive assessments of the County’s watersheds. These assessments were conducted to assess current water quality conditions and prioritize the County’s streams and subwatersheds for restoration and preservation to improve the conditions of the County’s watersheds.
 - aacounty.org/public-works/bwpr/watershed-assessment-planning/watershed-studies
- **Education and Outreach** – This section is for educating and motivating students, homeowners, and other stakeholders to take positive personal actions and work together for greater impact. Topics range from watershed identification, understanding impacts of stormwater, responsible boating, winter weather snow and de-icing best practices, and actions residents can take to help minimize stormwater pollution.
 - aacounty.org/public-works/bwpr/education-outreach
- **Waterfront Homeowners Guide** - Anne Arundel County is lucky to have over 533 miles of shoreline. This resource outlines opportunities for waterfront homeowners to protect and enhance their waterfront properties and outlines their responsibilities in regard to the Critical Area Law.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/waterfront-homeowners-guide
- **Stormwater BMP Maintenance Guidance** – Highlights a selection of typical stormwater BMPs found in the region and suggested maintenance actions to keep BMPs functional to ensure water quality is protected.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/bmp-maintenance
- **Storm Drain Marking Program** – The storm drain marking program allows the community to work together to protect our waterways. Volunteers apply educational messages on storm drains to remind residents that whatever goes into storm drains travels untreated to our creeks, streams, and rivers.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/storm-drain-marking-program

- **Explore Your Watershed** - Anne Arundel County consists of 12 primary watersheds and hundreds of sub-watersheds and all of them discharge directly into the Chesapeake Bay. Residents can learn about the specific watershed they live in.
 - aacounty.org/public-works/bwpr/education-outreach/understanding-stormwater/explore-your-watershed
- **Science of Stormwater Quizlet** - Many people believe that stormwater is "clean" and that it does not harm water quality. This perception is understandable since the amount of pollution from any one spot is not usually significant by itself. This resource explains how stormwater pollution occurs, where it goes, and how to minimize sources of pollution.
 - <https://quizlet.com/718563451/stormwater-quiz-anne-arundel-county-bureau-of-watershed-protection-restoration-flash-cards/?x=1qqt>
- **Responsible Boating** - While most boaters appreciate the natural resources that abound in the watersheds in which they recreate, many are unaware of the impacts boating can have upon those resources.
 - aacounty.org/public-works/bwpr/education-outreach/take-action/responsible-boating

In addition to the BWPR webpage, several social media outlets including Facebook (facebook.com/aawatershedbureau), Threads (threads.net/aawatershedbureau) and Twitter aka "X" (twitter.com/AAWPRP) are used to help educate residents about water quality issues and to provide an avenue for timely updates of restoration projects, educational materials, links to local watershed groups, and relevant articles. These social media sites are updated daily and provide residents with an outlet to discuss local stormwater issues and allow the BWPR to continually educate residents about the program.

BWPR in the Community

The BWPR strives to keep residents apprised of current accomplishments of the program. One of the most effective ways to communicate those milestones is through the local media. Below are some select articles about the BWPR that were published during the reporting period:

- Anne Arundel County, City of Annapolis Awards \$1.5 Million to Support Watershed Protection and Restoration (July 25, 2023) - aacounty.org/county-executive/news/anne-arundel-county-city-annapolis-awards-15-million-support-watershed

The BWPR also increases exposure by nominating notable projects/programs for recognition in local, regional, and national awards. Below are the awards, highlighting the BWPR projects and programs, received during the reporting period.

- **National Association of Counties 2023 Achievement Awards** – The Millrace Dry Pond Retrofit Project, managed by BWPR Project Manager Gerry Inglesby and constructed in 2020, was

recognized in the “Parks & Recreation” category of the 2023 National Association of Counties (NACo) Achievement Awards. This project transformed an outdated and overwhelmed dry detention stormwater facility into a thriving wetland ecosystem and proper recreational area. Through the application of innovative and cost-effective techniques, this project accomplished the complementary goals of stormwater management, water quality enhancement, habitat creation, and public engagement.

- **2023 Best Urban BMP in the Bay Awards (BUBBAs)** – The Lower Mill Stream Restoration Project, managed by BWPR Project Manager Nasrin Dahlgren and constructed in 2020, was awarded “Best Stream Restoration” in the Chesapeake Stormwater Network’s 2023 Best Urban BMP of the Bay Awards (BUBBAs). Through the stabilization of 2,369 linear feet of stream and the planting of 4,000 trees, the Lower Mill Project created wetlands and aquatic habitat, recharging groundwater, providing flood attenuation, enhancing riparian buffers, and maximizing sediment and nutrient reductions
- **Water Environment Federation 2022 Phase I Program Management & Best in Innovation Award** – For BWPR, Fiscal Year 2021-22 carried an unofficial theme of optimizing online maps, apps, and tools aimed to support a range of local stakeholders, now enabling us to lead the way in local Bay restoration both on-the-ground and online. The County’s web-based stormwater resources – including our regularly updated website (aarivers.org), Watershed Application, Fish Atlas ArcGIS Story Map, BMP Credit Calculator, Restoration Estimator Tool, Land Use Navigator in partnership with the Department of Inspections & Permits, and more collaborative tools coming down the pipeline – have communicated a strong message to our constituents that we’re here to support them and are actively working to break down the barriers that inhibit restoration progress.
- **Stormwater Solutions Top Project Award** - The George Cromwell Elementary School Stormwater Improvements Project, managed by Jeff Ratteree of BWPR, was selected to be recognized in the 2022 Stormwater Solutions Top Project Awards. The project, which involved the design and installation of a bioretention basin and natural drainage system for stormwater treatment, while also protecting and creating new outdoor education opportunities for the adjacent Elementary School.
- **County Engineers Association of Maryland** - The Forked Creek Outfall Retrofit, managed by Joe Ports of BWPR, was selected to receive the 2nd Place CEAM Award of Merit for 2022. The Forked Creek Outfall Retrofit was designed by BayLand Consultants & Designers, Inc. and constructed by PayDirt, LLC. in the Fall of 2021. This project provides NPDES MS-4 permit credit, stabilizes 1,600 linear feet of a severely eroded ephemeral gully and low-quality stream channel, and protects a 16” diameter force sanitary sewer main that had been repeatedly exposed over the years due to stream incision, with the last large emergency stabilization project occurring in 2015. This project ultimately resulted in a successful and cost-effective stormwater management best management practice, stream restoration, utility protection, and outdoor education project as well as a community amenity.

BWPR’s Education & Outreach Coordinator participates in public outreach events and fields public inquiries for technical assistance, either directly from residents or forwarded from the DPW Customer Relations Office. BWPR Project Managers also provide continuous updates to members in the communities where our restoration projects occur. In many cases, feedback from the local community is taken into account from the design process through construction. The following **(Table 10)** is a list of informational presentations, events, and residential site visits in which the BWPR participated during the reporting period:

Table 10. BWPR outreach events in FY23.

Date	Organization/Event	Topic
7/7/22	Virtual Community Meeting	Presenting Stop POllution Campaign to Avalon Shores residents
7/20/22	Integrated Planning Workshop (NJ)	Our WAATER
7/25/22	Virtual Community Group Meeting	Presenting Stop POllution Campaign to Anne Arundel Patapsco River Alliance
7/27/22	Virtual Public Meeting	Irving Branch Stream Restoration
8/10/22	Pumphrey Community In-Person Meeting	Sharing public stormwater support resources
8/10/22	Storm Drain Marking Demonstration @ Crofton High School	storm drain marking demo with Crofton High Green Team
8/17/22	National Assoc of Wetland Managers	Nature-Based Restoration Design & Implementation
8/18/22	Residential Site Visit	Discussing eroding outfall and connecting with SIP
8/24/22	Virtual Community Meeting	Presenting Stop POllution Campaign to Manhattan Beach residents
8/26/22	Residential Site Visit	Discussing potential restoration of an eroding outfall on private property
9/15/22	Residential Site Visit	Discussing maintenance for private stormwater BMPs
9/17/22	Avalon Shores Community Yard Sale	Pet Waste Campaign
9/20/22	USNA	Cowhide Branch Discussion
9/24/22	Linthicum Community Fair	Pet Waste Campaign
9/25/22	SPCA Walk for the Animals	Pet Waste Campaign
9/30/22	SRA Annual Meeting	Progress on the Severn River
9/30/22	MSRA Golf Tournament & Restoration Tour	Eisenhower Golf Course & Stream Restoration
10/13/22	SER Mid-Atlantic	Keynote talk: "Advancing Restoration Responsibly in an Era of Unprecedented Resources for Our Natural Resources"
10/15/22	Deale VFD Open House	Pet Waste Campaign
11/1/22	Residential Site Visit	Discussing maintenance for private stormwater BMPs
11/3/22	AACPS Envirothon	Fall training for Aquatics
11/16/22	Residential Site Visit	Discussing potential volunteer clean-up and providing clean-up materials
11/17/22	Storm Drain Marking Demonstration @ Cromwell Elementary	Green School storm drain marking project
11/10/22	Greater Baltimore Wilderness Coalition	Green Infrastructure
11/10/22	CWP Coastal & Island Symposium	Anne Arundel County's MS4 Program
11/18/22	Maryland Governor's Grants Conference	State/Federal Grants
11/22/22	In-Person Public Meeting	Lower Mill West Tributary Stream Restoration

Date	Organization/Event	Topic
11/29/22	Virtual Watershed Restoration Grant Info Session	AACo/CBT Watershed Restoration Grant
12/6/22	Residential Site Visit	Discussing permitting for ivy removal/replacement on private property
12/7/22	Sunny Shores Public Meeting	Restoration grant program
12/8/22	WSA Graduation	WSA discussion
12/12/22	Residential Site Visit	Discussing maintenance for private stormwater BMPs
12/15/22	MWMC Annual Conference	Doug presented on PCBs, Bryan presented on Sawmill BIBIs
1/4/23	Green and Blue Commission (MDE)	Anne Arundel County's MS4 Program
2/8/23	Residential Site Visit	Discussing maintenance for private stormwater BMPs
2/9/23	W.O.W. Girl Scouts Event @ Public Works Experience	EnviroScape demonstrations
2/13/23	Fairfax County	Valley restoration/BDA field tour
2/15/23	Residential Site Visit	Discussing maintenance for private shoreline
2/23/23	Citizens Environmental Commission	Anne Arundel County's MS4 Program
2/24/23	Beaver Dam Analogs Field Day	Beaver dam analog field day with local, state, & federal agency representatives
2/25/23	Volunteer Livestaking Event	Najoles Rd / Millersville Post Office Stream Restoration
2/27/23	Maritime Trades Association	Anne Arundel County's approach to sea level rise
3/2/23	Girl Scout Meeting in Shady Side	Storm drain marking demonstration
3/2/23	Ponder Cove	Addressing stormwater in communities with high water tables
3/14/23	WSA	County Stormwater Policies
3/17/23	Envirothon Spring Training Day	Spring training for Aquatics
3/20/23	Piney Orchard Board Meeting	Discussing potential restoration opportunities for private ponds
3/21/23	Riviera Beach CIA Meeting	Discussing tax incentives and grant programs available for voluntary restoration
3/23/23	STAC Stream Conference	Closing Plenary: A new paradigm for environmental recovery
3/25/23	WSA "Spring into Action" Conference - Govt Panel	Anne Arundel County's Stormwater Program, County clean water goals/progress
3/25/23	WSA "Spring into Action" Conference - Funders Office Hours	Watershed Restoration Grant support
3/25/23	WSA "Spring into Action" Conference - Lessons Learned Presentation	Presentation with ARF about lessons learned in voluntary grant-funded restoration projects
3/25/23	WSA "Spring into Action" Conference - Stop POollution Booth	Outreach table focused on pet waste reduction campaign
3/27/23	Residential Site Visit	Meeting with DPW and residents to inspect infrastructure
3/30/23	Residential Site Visit	Met on-site with resident and DPW + MDE staff to inspect infrastructure on private property
3/31/23	2023 State of the Magothy	Discussing recent and upcoming restoration projects in Magothy watershed
4/8/23	AACo Library Trash Cleanup Service Project	Roundtable discussion about why it's important to keep litter out of our waterways
4/12/23	Baywide Partners Retreat	
4/13/23	Girl Scout Meeting in West Severna Park	EnviroScape demonstration
4/14/23	Monarch Academy Action Fair	Hosted table with WSA with stormwater management resources
4/18/23	AACo Envirothon Competition	Wrote and managed the Aquatics test
4/22/23	Glen Burnie Town Center Clean-Up Event	Hosted by Councilwoman Pickard

Date	Organization/Event	Topic
4/28/23	Upstream Alliance Paddle	Outreach with environmental education focused organization
5/4/23	CBT Treasure the Chesapeake Gala	CBT Annual Treasure the Chesapeake event
5/6/23	DPW Open House Event	Hosted BWPR table and organized virtual tour of stormwater BMP at Utilities Complex
5/8/23	Storm Drain Marking Demo in Riviera Beach	Storm drain marking & pet waste outreach
5/10/23	CBLP/MD Re-Entry Resource Center Career Panel	Highlighting career opportunities in stormwater management & environmental restoration
5/13/23	EnviroScape Demonstration at PWE in Baltimore	DPW tabling and EnviroScape demo
5/19/23	EnviroScape Demonstration at High Road School	Demo with K-5 aged students from High Road School
5/19/23	Native Tree Planting at Najoles Stream Restoration	High school-aged students from High Road School planted trees
5/20/23	Ferndale Day Celebration	Tabling and outreach for Ferndale Branch CIP
5/24/23	In-Person Public Meeting	LPAX Crofton Golf Stream Restoration
5/25/23	CBLP/MD Re-Entry Resource Center Workforce Celebration	Highlighting career opportunities in stormwater management & environmental restoration
5/31/23	Natural Filters Fund Presentation	Presentation for the Environmental Policy Innovation Center (EPIC)
6/6/23	Residential Site Visit	Potential restoration opportunities for community park and residential BMPs
6/7/23	Residential Site Visit	Discussing trees falling in stream behind home
6/12/23	Residential Site Visit	Discussing private erosion concerns
6/12/23	Residential Site Visit	Discussing private erosion concerns and nearby beaver activity
6/14/23	In-Person Public Meeting	Foxmoor Stream Restoration
6/14/23	Virtual Public Meeting	Bear Branch Stream Restoration
6/14/23	State Envirothon Competition	Assisting County Forester with Forestry assessment
6/21/23	"Catch-up with Karen" presentation to AACo DPW staff	Human-beaver Coexistence
6/24/23	Creekstone Village "Wag, Play, & Learn" Event	Pet waste campaign outreach
6/28/23	Residential Site Visit	Discussing trees falling in stream behind townhouse complex

In addition to the in-person outreach work, the BWPR regularly shares updates and communicates with residents/partners through our Facebook, Instagram, and LinkedIn Accounts. Outreach efforts made by the BWPR via social media in FY23 is summarized in **Table 11** below.

Table 11. BWPR social media outreach in FY23.

Social Media Channel	Total Number of Posts in FY23
Facebook	221
Instagram	44
LinkedIn	12
AGGREGATED TOTAL	277

Watershed Restoration Grant Program

Successful conservation and preservation of the County’s watersheds takes teamwork. To that end, in 2014 the Anne Arundel County Department of Public Works, in partnership with the Chesapeake Bay Trust, created the Anne Arundel County Watershed Restoration Grant Program, a community grant program to support watershed restoration activities throughout the County to improve water quality in local streams and rivers.

The grant program engages local nonprofit organizations, landowners, and communities in efforts to restore the County’s waterways; provides resources to these groups to enable them to implement greening and water quality projects; and assists Anne Arundel County’s efforts to meet the requirements of its State and federal stormwater permit and local waterway cleanup plans. This program encourages on-the-ground restoration activities that reduce stormwater flow and pollutants and engage Anne Arundel County residents in these activities.

Below (**Table 12**) is a list of organizations that were awarded funding from Anne Arundel County for water quality restoration projects in 2022 (FY23). Implementation of these projects will result in approximately 88 acres of treated impervious area.

Table 12. Projects awarded BWPR grant funding in FY23.

Organization	Project Description	Watershed	Funding Amount	Match Amount
Girl Scouts of Central Maryland	Camp Whippoorwill Shoreline Restoration	Magothy River	\$300,000	\$1,722,858
Arundel Rivers Federation	Long Point Shoreline Stabilization	South River	\$385,185	\$465,300
Arundel Rivers Federation	Preserve at Broad Creek Restoration	South River	\$168,742	\$54,500
Chesapeake Rivers Association (Severn Riverkeeper)	Broad Creek (Belvoir Plantation) Gully and Stream Restoration	South River	\$299,732	\$638,187
TOTAL			\$1,126,659	\$2,880,845

More information about the grant program can be found at cbtrust.org/grants/anne-arundel-county-watershed-restoration/.

Bureau of Utility Operations

The County BUO is tasked with providing safe, clean drinking water and to manage the collection and processing of wastewater in public service areas throughout the County. As such, a major aspect of the BUO outreach program focuses on water conservation. Resources have been developed to promote water saving actions, including the distribution of toilet tank leak detection kits. In addition to leak detection, other water conservation tips include the use of commercial car washes, limiting or eliminating lawn watering, use of low-flow showerheads, and the use of rain barrels to harvest rainwater

for use in gardens. The following (**Table 13**) is a list of informational presentations and events in which the BUO participated during the reporting period:

Table 13. BUO outreach events in FY23.

Date	Event
2/25/2022	CSAWWEA/CWEA Student Career Fair in Bowie
3/23/2022	Scout Outreach at BUO Complex
3/30/2022	AAWDC & AACPS Career Fair at North County H.S.
4/21/2022	Earth Day BUO Complex Cleanup
4/23/2022	Trade School Fair at Glen Burnie Library
4/26/2022	AACPS & AAWDC Graduating H.S. Seniors Hiring Event
5/3/2022	AACPS & AAWDC Career Fair at Old Mill Senior H.S.
5/21/2022	DPW Public Works Experience in Baltimore
6/28/2022	YH2O Tour at Cox Creek WRF
8/2/2022	Crofton H.S. National Night Out
9/14/2022	Career Fair at Fort Meade Club
9/16/2022	Kids Day at the County Fair
9/17/2022	Emergency Preparedness Expo
9/20/2022	AAWDC Hiring Event at Career Center
9/22/2022	Signature Program Meeting for Glen Burnie H.S. Students
9/30/2022	Touring BUO with Glen Burnie H.S. Signature Program Coordinator
9/30/2022	CAT-N Co-Op Meeting
10/13/2022	CAT-N Co-Op DPW Open House at BUO Complex
10/15/2022	Deale VFD Open House
11/30/2022	PAC Industrial Maintenance with CAT-N Co-Op Students
2/16/2023	Signature Program Meeting for Glen Burnie H.S. Students
2/17/2023	ICST Systemwide Meeting at Northeast H.S.
3/7/2023	PAC Plumbing at CAT-N
4/12/2023	Student Mock Interviews Plumbing at CAT-N
4/18/2023	Career Expo at Southern H.S.
4/24/2023	Careers in Public Service at CAT-N
4/25/2023	CCTV truck demonstration at CAT-N
5/4/2023	Student Mock Interviews Industrial Maintenance at CAT-N
5/17/2023	Glen Mean Tutorial Cooperative at Crofton Meadows
5/31/2023	Glen Mean Tutorial Cooperative at Patuxent WRF
2/11/2023	Girl Scouts Brownie Wonder of Water Journey Day at PW Experience
3/8/2023	Water Program for Nature Explorers at the Busch Library
5/6/2023	Cape St. Claire Firehouse Community Event
5/13/2023	Public Works Celebration in Baltimore
5/11/2023	Annapolis Men's Group Tour at Annapolis WRF

The BUO produces an “Annual Water Quality Report” as required by the Safe Drinking Water Act which summarizes the state of the County’s drinking water sources and production methods. The reports are found on the BUO webpage and are mailed to all direct bill customers. More details can be found here: aacounty.org/public-works/utilities/water-distribution-system/drinking-water-quality-reports.

Sanitary Sewer Overflows caused by sewer system obstructions, damage, or flows in excess of sewer capacity can have a significant impact on local water quality. Sanitary Sewer Overflows that have occurred in the County during FY2023 can be found here: gis.aacounty.org/portal/apps/webappviewer/index.html?id=5df56f6b83cf4314b32edd13c62ba6fd. The BUO works in partnership with the Anne Arundel County Department of Health to notify the community when a Sanitary Sewer Overflow causes a closure to a local waterway.

With nearly 1,800 miles of sewer lines throughout its service area, BUO appreciates notification from the public if a sewer backup is suspected. Citizens are directed to call the 24-hour Emergency Services at 410-222-8400 at any time to report water or sewer emergencies in Anne Arundel County.

Bureau of Highways (BOH)

The County BOH performs maintenance activities to keep the County’s roads safe and in good condition. The BOH is also responsible for roadside maintenance, drainage maintenance, and snow removal. Each year, the BOH responds to more than 10,000 service requests and mobilizes 24/7 in response to certain weather events (snow, hurricane, etc.). Services performed by the County BOH are described on the County webpage aacounty.org/public-works/highways where there is also a link (aacounty.org/public-works/highways/education-outreach) for education and outreach materials as well as the option for citizens, schools, or community groups to request a presentation or a site visit (e.g., “Touch A Truck” event) . Education and outreach materials include information to residents for leaf removal, storm debris cleanup, winter road salt reduction, and stormwater management.

A deeper dive into the BOH maintenance activities, what they are and how they are performed, is found at this webpage link: aacounty.org/public-works/highways/road-maintenance-services. Examples of County roadside maintenance activities found on this website include the following:

- **Litter/Debris Removal** - Litter and debris are picked up along all County-maintained roadways. Residents may request litter/debris removal within the County-maintained road right-of-way by contacting their local Roads District.
- **Leaf Removal/Recycling** - Residents may request removal of leaves that have accumulated on County-owned roadways or ditches and are causing a hazard or blocking the flow of water by contacting their local Roads District. The following link explains relevant County services, and suggests opportunities for homeowners to manage leaves responsibly.

Road drainage maintenance is performed by various divisions within BOH including Road Operations and Infrastructure Management. Some examples of the services performed in County-maintained roadways include:

- **Ditch/Curb and Gutter Cleaning** - BOH completes necessary ditch or curb and gutter cleaning work on County-maintained property, reducing sediment and debris traveling to the bay during periods of inclement weather. Keeping ditches and curb lines free of debris also protects the citizen's investment in County infrastructure by ensuring that these structures do not overflow and cause stormwater to pond on roadways causing safety issues and pavement damage. Residents may request Ditch/Curb and Gutter Cleaning by contacting their local Roads District.
- **Drainage Construction** - BOH constructs new drainage systems including inlets, pipes, headwalls, and/or placement of outfall protection on County-maintained property. By completing necessary drainage construction work on County-maintained property, we help control the flow of water and sediment into the bay. Residents may request Drainage Construction by contacting their local Roads District.
- **Drain Pipe Cleaning** - Drainage pipes are critical to carry the flow of water under the road so that it may continue its natural drainage course. Pipe obstructions may result in flooding and/or damage to the roadway surface. Work under this activity includes cleaning and removing debris from pipes and flushing pipes using a power rodder to remove any obstructions. Residents may request Drain Pipe Cleaning by contacting their local Roads District.
- **Drain Pipe Repair/Replacement** - Work in this activity includes the repair or replacement of pipes, depending on the degree of deterioration. This activity is scheduled throughout the year, however, in the presence of a safety hazard, work is scheduled when detected. Residents may request Drain Pipe Repair/Replacement by contacting their local Roads District.
- **Emergency Storm Drain Program** - The BOH is responsible for resolving flooding or water ponding problems that are caused by storm runoff from County-maintained roadways. Residents may request flooding and/or ponding assistance by contacting their local Roads District.
- **Erosion Control** - The County repairs eroded areas caused by water coming from a County-owned or County-maintained road. To reduce water pollution and prevent erosion, material such as topsoil, jute mats, grass seed, rip rap, etc. is placed on County-maintained property. Residents may request Erosion Control by contacting their local Roads District.
- **Storm Drain Cleaning** - Cleaning of storm drain inlets on County-owned property reduces sediment traveling to the Bay. Work is completed on a rotating basis using a vactor (vacuum) truck on approximately 25,850 inlets. Inlets are cleaned every 3 years with special attention given during and after rainfall events to insure proper drainage. Residents may request Storm Drain Cleaning by contacting their local Roads District.
- **Storm Drain Repair** - Repair to storm drain inlets and manholes on County-maintained property reduces sediment and protects investment in our infrastructure by preventing deterioration of the road network due to consistent ponding on streets. In addition, road shoulders and side slopes are protected from erosion caused by the flow of uncontrolled water. Residents may request Storm Drain Repair by contacting their local Roads District.

- **Street Sweeping** - Anne Arundel County's street sweeping program is designed to keep debris out of storm drains, our creeks, rivers and ultimately the Chesapeake Bay. The list of roads included in the street sweeping program is available for viewing. Street sweeping data is shared on social media and in the BWPR Annual Report.

Snow removal on County-maintained roads is performed by the BOH. The BOH is dedicated to ensuring the safety of the traveling public while providing timely service to our citizen and business communities during inclement weather by planning and executing its winter operation activities on more than 6,700 County-maintained roads and streets, and doing it in an environmentally friendly way.

De-icing materials are an effective tool for maintaining safe winter road conditions. The BOH strives to only apply as much salt as necessary to achieve safe driving conditions. Use of salt management data is shared on social media and in the BWPR Annual Report.

The County's winter de-icing strategy and resources are discussed in **Part IV.D.4.d** of this MS4 Annual Report, and are explained on the County webpage at aacounty.org/public-works/highways/snow-removal. This webpage succinctly explains the County's efforts toward winter preparations, what citizens and business should expect during snow storms, what County citizens can do to help during inclement weather events, and general winter weather tips.

Bureau of Waste Management Services (WMS)

The County's WMS is responsible for collecting recycling, yard waste and trash from over 170,000 curbside customers. This Bureau also is responsible for the operation of the Millersville Landfill and Resource Recovery Center and the County's three Recycling Centers. The Recycling and Waste Reduction Division of WMS administers the outreach program geared toward residential and commercial recycling and other source reduction strategies and promotes the proper disposal of household hazardous waste (HHW) materials. Efforts continued in FY23 to promote the exclusion of plastic bags, wrap, and film from the recycling stream.

Outreach during FY23 included attendance at 12 fairs and festivals, providing attendees with information on the County's recycling program. Staff also provide technical assistance and collection of recyclables for larger-scale events, such as the Anne Arundel County Fair and the Annapolis Greek Festival, and provide recycling containers and collection services for County parks and County buildings.

Additionally, WMS staff offer education programs to students, faculty, and parents through the County's public and private schools as well as day care and home schooling groups. Assistance with obtaining Green School Certification through the Maryland Association for Environmental and Outdoor Education (MAEOE) is offered, as is technical assistance to implement recycling for small businesses, schools, and NGOs. In FY23, WMS staff provided 9 elementary school programs, 5 middle school programs, and 3 high school programs as well as 7 tours of the County landfill.

WMS also provides information on what can be recycled; how to get recycling and composting bins; proper yard waste and grass clippings disposal, and source reduction strategies (e.g., reduce/reuse). This County program provides information for local events that promote recycling and participates in question-and-answer forums at outreach events. Outreach avenues include person-to-person discussion, through the County website (recyclemoreoften.com), and on the Anne Arundel County Recycling Division Facebook page (facebook.com/annearundelrecycling/). The current Countywide recycling rate is 34%.

With recycling being heavily promoted within the County, it is fitting that County employees lead by example. To that end, the County Office Recycling Program (CORP) was developed over a decade ago. In FY23, this program recycled approximately 935 tons of single stream recycling from 118 County sites (offices, parks, pools, etc.). Finally, since 2017 a textile recycling drop-off bin has been available to residents and staff in the parking lot of the County's Heritage Office Complex in Riva, MD.

The County's three recycling centers collect un-bagged plastic, paper, metal and glass items. Since 2019, food scraps and food-soiled paper recycling is available at the Central Recycling Center in Millersville, MD. This service was recently expanded to both the Northern and Southern Recycling Centers and provides an option to decrease the waste stream through composting. A full list of acceptable materials at County recycling centers is available here: aacounty.org/public-works/waste-management/curbside-collection/what-goes-where.

Outreach pertinent to HHW disposal has been reported in previous MS4 Annual Reports. Additional information on HHW disposal is available on the County's website at: aacounty.org/services-and-programs/household-hazardous-waste-drop-off-days. The County's WMS typically holds six (6) resident-only HHW collection events each year. In FY23, seven (7) events were held at the County's Heritage Office Complex. These events accounted for the proper disposal of 154 tons of HHW, successfully keeping these materials out of our landfills, roadside ditches, storm drains, and waterways. These collection events are vital to keeping harmful toxins out of our landfill, and discourage the improper disposal of hazardous materials. All HHW materials collected at the events are packaged, transported, and disposed of by a licensed hazardous waste contractor. The County does not accept hazardous waste for disposal at its landfill.

Community Cleanups Activities

Throughout the year, the County provides 45-cubic-yard roll-off containers to requesting citizen groups and communities for community cleanup activities. WMS assists in hauling the trash and recyclable material collected from these activities. In FY23, WMS assisted with 127 community cleanup events by providing dumpsters and/or hauling services for nearly 418 tons of trash.

Department of Health

Previously, the Anne Arundel County Department of Health published a fact sheet series entitled “Health Matters” (see examples in 2014 Annual Report) and distributes the fact sheets at events run by the Department of Health. Environmental health information can also be found on their website (aahealth.org/environmental-health). Some of the topics addressed include

- Recreational Water Quality: Water quality and swimming or fishing in Anne Arundel County rivers and creeks;
- Bay Restoration Fund (BRF) Program: for nitrogen-reducing pretreatment units for septic systems to be installed within the Chesapeake Bay Critical Area; and
- Onsite Sewage Disposal Systems and Private Water Wells Program; collapsed septic tanks, overflowing septic systems and failing septic systems interim health and safety requirements.

Recreational Water Quality

The Anne Arundel County Department of Health continues to publicize a seasonal water quality information line (410-222-7999) on the Department of Health’s website (aahealth.org/recreational-water-quality). The water quality information line alerts the public to current advisories and closures of recreational water as the result of sewage spills and bacterial exceedances from over 80 bathing beaches that the Department monitors from Memorial Day through Labor Day. The Department also promotes an e-alert system so an individual can be notified by e-mail when the Department has an advisory or closure of recreational waters. Individuals can sign up for the e-alert system on the Department of Health’s website. In addition, water quality advisories are communicated via the Department’s Facebook and Twitter pages. The Department recommends no direct water contact for 48 hours after a significant rain event (½-inch or more of rain) due to predicted elevated bacteria levels.

The Department of Health, in conjunction with MDE and the Maryland Department of Health and Mental Hygiene, promotes the Maryland Healthy Beaches campaign (marylandhealthybeaches.com). The campaign makes people aware of everyone’s impact to the waterways in the State of Maryland. One of the campaign’s major focus areas is the importance of picking up pet waste.

The Anne Arundel County Department of Health also issues a closure when a sewage spill, leak, or other problem indicates human waste has impacted the water. Subscribers to the Department’s Recreational Water Quality E-mail Alerts receive an e-mail notifying them when County waterways are closed and reopened. Alerts can also be received via text messages by following the Department of Health on Twitter or Facebook.

Bay Restoration Fund (BRF)

The Department of Health promotes the BRF Program. This program provides grant funding to qualified applications for assistance to install nitrogen reducing pretreatment units in conjunction with an onsite sewage disposal system. The grant funds up to 100% of the cost of the treatment unit and a two-year service and maintenance program with priority given for repairs of failing systems in the Critical Area.

Additionally, the grant funds can be used to help qualified applicants connect to existing public sewer. These connections may be funded if the existing dwelling, currently served by a septic system, is located where public sewer is available and immediately abuts the property. The Department of Health administers this grant program, which is awarded by the Maryland Department of the Environment.

The FY23 BRF-funded projects for the upgrade or repair of existing septic systems are included in the County's *AltBMPP* point feature class of the MS4 Geodatabase (**Appendix A**). Implementation of these projects provide a direct reduction to the nitrogen load that is reaching the Chesapeake Bay.

Onsite Sewage Disposal Systems and Well Program

The Department of Health publicizes information about onsite sewage disposal systems and private water wells on their website, aahealth.org. Guidelines and videos about maintaining septic systems are available at:

aahealth.org/environmental-health/wells-and-septic-systems/septic-systems/guidelines-maintaining-your-septic.

Department of Inspections & Permits (I&P)

The Department of Inspections and Permits (I&P) strives to provide the citizens of Anne Arundel County with the highest inspection standards consistent with the adopted codes and regulations. This is accomplished through the consistent and equitable application of regulations in the built and natural environment through plan reviews, inspections, enforcement, and the issuance of permits and licenses.

The I&P website contains general information available to the public regarding erosion and sediment control, stormwater management, buffer management, grading and permits, the Chesapeake Bay Critical Area, invasive species, and sensitive areas. This information can be found at aacounty.org/inspections-and-permits/about-us . Examples of the available information are found below.

- Blue Notices: Stormwater facility design and maintenance guidance is provided to the development community, citizens, and other stakeholders in the form of “Blue Notices” posted to the I&P webpage: aacounty.org/inspections-and-permits/blue-notice
- Hazard Tree Factsheet: The purpose of this fact sheet is to educate homeowners, homeowner associations, and residents regarding hazard trees and how they can monitor for these trees, what to look for and what to do if a hazard tree is on their property. aacounty.org/sites/default/files/2023-05/hazard-tree-fact-sheet.pdf

Additional environmental information found within the Forestry Division component of the I&P webpage includes the Emergent (Marsh) Grasses Program (aacounty.org/inspections-and-permits/forestry/marsh-grasses). This program is a County supported effort between I&P and the Department of Recreation and Parks to facilitate shoreline stabilization. Through this program, County residents with qualifying living shoreline or other tidal projects can apply for emergent marsh grasses

for planting on appropriate sites at no cost. These plantings help with the preservation, rehabilitation, and reconstruction of shorelines.

I&P in the Community

County inspectors and forestry staff regularly consult with homeowners on site visits with regard to erosion control, steep slopes, as well as native vegetation and invasive control in the Critical Area. Forestry staff work with property owners and communities when there is large scale decline and death of vegetation such as resulted from the Emerald Ash Borer and Oak Decline, regarding both vegetation loss and ways to mitigate the loss.

In partnership with Watershed Stewards Academy, local non-profits and other watershed groups, County staff participate in various presentations and information sharing to address stormwater BMP maintenance and construction. This outreach can occur both in the office and in the field, and conveys important educational information to homeowners, HOAs and maintenance/construction contractors. County staff also work with property owners on proactive measures such as the benefits of protecting natural areas and restoring areas with native plantings, assistance with the design and installation native plantings throughout the county, as well as invasive species control projects.

Anne Arundel County River Days is the County Executive's initiative to provide water access opportunities for residents through recreational and educational events on Anne Arundel County Rivers. I&P participates in these scheduled River Days providing both educational and outreach activities on the Department's mission and specifically on Critical Area Regulations as well as The Forestry's Division program on identifying invasive plant species and their eradication. The Department's emergent shoreline grass propagation and distribution to the public is also brought to light during these sessions.

Anne Arundel Soil Conservation District

For more than 75 years, farmers have turned to the Anne Arundel Soil Conservation District (AASCD, the District) as a trusted source of knowledge and technical expertise in managing and protecting soil and water resources on their farms. Today, farmers, developers, businesses, environmental groups, and government agencies rely on the District to help them meet nutrient and sediment reduction goals outlined in the County's Watershed Implementation Plan to protect and restore the Chesapeake Bay by 2025.

Agricultural Programs

The Maryland Phase III Watershed Implementation Plan was published on August 23, 2019, and agriculture is well on its way to reducing the nutrients and sediment reaching the Bay, reducing nitrogen levels by 20%, phosphorus by 26% and sediment by 28% since 2017. This success is largely due to the on-the-ground efforts of AASCDs soil conservation professionals, who work with farmers to develop Soil Conservation and Water Quality Plans (SCWQPs) that address natural resource and environmental concerns for their farms. These plans usually include a menu of best management practices (BMPs) that

can be installed to protect soil and water resources. Cover crops and streamside buffers are often recommended to prevent nutrients from crop fields and nurseries from entering waterways. Livestock fencing, watering facilities, and improved pasture management practices help farmers protect streams from livestock impacts.

In FY23, the AASCD developed/updated 38 SCWQPs encompassing 1,548 acres for County farms. These plans included more than 258 (57 WIP) BMPs. The design, installation and construction supervision of these practices are the responsibility of the District’s technical staff. See **Table 14** for FY23 accomplishments.

Table 14. Anne Arundel Soil Conservation District agricultural BMPs FY23.

Best Management Practice	Achieved (acres)	Percent of WIP Goal Achieved (%)	2025 WIP III Goal (acres)
Conservation Tillage	8,444	101	8,326
Cover Crops – Traditional	4,533	97	4,667
Nutrient Management Core N and P	78%	110	70%
Soil Conservation & Water Quality Plans (cumulative acres)	13,148	94	14,000
Tree Planting	235	118	200
Wetland Restoration	12	109	11
Forest Buffers	29	39	75
Grass Buffers	32	59	54
Horse Pasture Management	690	173	400
Exclusion Fencing with Grass Buffer	17	142	12
Exclusion Fencing with Forest Buffer	11	26	42

Urban Programs

Construction and road building projects can have a significant impact on water quality. The District is authorized to review and approve erosion and sediment control plans for projects in the County. This ensures that environmental safeguards are in place to minimize soil erosion, nutrient runoff and sediment buildup in local waterways. In FY23, the District reviewed 1,196 erosion and sediment control plans for construction projects. Approximately 485 of these plans were new submittals totaling 1,086 disturbed acres and 422 were revised plans totaling 1,221 disturbed acres. To further protect the County’s valuable natural resources, the District also provides recommendations to homeowners with drainage, erosion, and shoreline erosion concerns.

Conservation Partners

The AASCD works with local, State, and federal agencies to carry out its mission, including the Maryland Department of Agriculture, Natural Resources Conservation Service, Farm Service Agency, University of Maryland Extension, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Southern Maryland Resource Conservation and Development, and U.S Navy.

Anne Arundel County Watershed Stewards Academy

The Anne Arundel County Watershed Stewards Academy (WSA) was created in 2009 as a partnership between Arlington Echo Outdoor Education Center and the Anne Arundel County Department of Public Works to build capacity within communities to reduce pollutants entering our waterways via stormwater runoff. The BWPR continues to provide critical support in connecting Stewards and communities with watershed studies, planning, and restoration efforts.

As noted in previous MS4 Annual Reports, the WSA developed and refined training and resources for Stewards to employ community-based social marketing to affect pollutant reducing behavior changes such as pet waste disposal, removal of leaves from impervious surfaces, and reduction in fertilizer use. Using face-to-face surveys, Stewards are taught to measure a baseline of behavior and measure a behavior change. They are also supported with template tools and sample behavior change campaigns for use in their own community. Further details can be found on the WSA website at aawsa.org.

2023 WSA Successes:

- Reached 67,298 Anne Arundel County residents, providing technical assistance or environmental education.
- Planted 27,354 native perennials and shrubs and 4,471 trees for a total of 31,575 plants in the ground. In all, WSA led more than 689 new restoration projects and 259 maintenance events at existing projects.
- Stewards donated 8,730 volunteer hours towards restoration, education, and outreach in their communities.
- Removed 740,000+ square feet of invasive species.
- The WSA Staff hosted an additional 21 outreach and continuing education events, 2 short courses and the 15 session Watershed Steward Certification Course (over 120 hours of training and outreach to over 1,100 attendees).

WSA 15th Certification Course

- WSA recruited 35 Stewards as part of the 15th Certification Course.

Outreach Events

During this reporting period, WSA hosted several events to keep Stewards and Consortium Members engaged including those listed below.

- WSA Annual Conference (March 2023): WSA held its first in person Annual Conference since 2020, drawing a record 248 attendees. Stewards, Consortium Members, and other county residents and partners came together to learn and connect. We hosted 12 engaging and informative sessions covering topics such as: new research on native plants and tree diseases, the importance of understanding equity in Anne Arundel County, local governments' role in stormwater, managing and maintaining projects, and more.

- Continuing Education and Networking: WSA constantly reviews and adapts continuing education opportunities to meet the needs of the Stewards. These opportunities include social events to build Steward networks, educational sessions on native plants selection and seed collection, and trainings on their reporting database. In total, WSA offered 21 Continuing Education and Networking opportunities drawing over 672 attendees.
- Mentoring: For the second year, we paired existing Stewards with new Steward Candidates as a form of networking and support while candidates plan and execute their projects.

Restoration Project Monitoring

WSA staff and Steward volunteers monitored 18 previously completed projects due for the triennial inspection. Inspections are summarized on a project data sheet. Previously, 2 projects were found to have failed due to lack of maintenance from project leads and have been removed from the inventory. The complete project inventory list is maintained in Google Docs for the WSA staff and Steward Volunteers. The inspection information is shared with County staff as requested. These project inspections are not included in the County's MS4 Geodatabase as some of the required data are not available. As this information is refined, and the mandatory data are collected, the County will review and consider incorporating the projects into the MS4 Geodatabase.

Congregational Engagement

WSA's continued participation in the One Water Partnership, a NFWF-funded program led by Interfaith Partners for the Chesapeake, has allowed us to provide resources to faith communities and engage new congregations in environmental action. Over the past year, WSA has

- Trained Steward Candidates representing 5 congregations, including 2 newly-engaged churches in Glen Burnie and Edgewater.
- Oversaw a capstone project at Mayo United Methodist Church.
- Supported two congregations on major stormwater grant applications.
- Led Community Engagement for the project at St. Mark UMC in Hanover.
- Continued to build strong relationships with Stewards from more than 15 additional Congregations, including a temple and a mosque, through funding, educational resources, and guidance on maintenance.

Maintenance of Congregational BMPs in Partnership with Maryland Reentry Resource Center (MDRRC)

Since 2017, WSA Staff and Stewards have assisted congregations struggling with maintenance of BMPS, and several now maintain their projects independently. Through a new connection with MDRRC, WSA has connected 4 congregations to the group's new CBLP training program for formerly incarcerated individuals. Congregations opened their sites for the program's hands-on maintenance training, and in turn received maintenance support.

Clean Water Communities

WSA continued to work with the communities of Glen Isle, Columbia Beach, Millstone Village, and Pines on the Severn to achieve their Clean Water Communities benchmarks. To learn more about Pines on the Severn progress or the Glen Isle community success story, please visit the webpage aawsa.org/cwc-about

Stormwater Success Program

The following Stormwater Success activities were conducted during this reporting period.

- The Stormwater Success Short Course for HOAs and Property Managers offers virtual and in-person learning options and an in-person stormwater tour. The short course connects HOA leaders, property managers and real estate agents with resources and people from the County and City of Annapolis. The in-person tour, held in two communities in Severn, MD, introduces participants to different kinds of stormwater management projects that are in varying states of maintenance as well as a community built with ESD principles. County inspectors join the tour to answer questions from participants. Planning is underway for the next Stormwater Success course which is scheduled for November 2023. A program description and more information may be found on aawsa.org/stormwater-success.

Replant Anne Arundel

A summary of Replant Anne Arundel can be found here: aawsa.org/replant-2. WSA continued the Replant model to implement new tree planting projects across the county in Fall 2022 and Spring 2023. Thus far, 4,295 new trees were planted during this project period as follows:

- Tree Troopers: WSA continues to partner with the Alliance for the Chesapeake Bay to offer a short course, Tree Trooper Training, for community leaders who want to lead tree projects. Since the Fall of 2022, there have been 1,922 trees planted through the Tree Troopers program. WSA had one Tree Trooper training in the Spring of 2023, in which 30 new Tree Troopers were trained. Their projects will be installed in the Fall 2023.
- Backyard Buffers: In Spring 2023, WSA distributed 1,850 bare root seedlings, provided by the Maryland Department of Natural Resources, to over 90 County Residents.
- Groves of Gratitude: Groves of Gratitude distributed a total of 485 trees to over 80 County Residents in Fall 2022.
- Tree Ambassadors: In 2022, WSA implemented a new program focused on engaging underrepresented communities in the County. Tree Ambassadors is being funded through the CBT Urban Trees Grant program. In WSA's work with Abel Olivo of Defensores de la Cuenca we identified limitations to Replant's accessibility within the County. In response to these limitations, we have incorporated stipend awards to participants that go through the Tree Ambassador program. Through this program (planned during FY 2021-2022 and executed during FY 2023-2024), Tree Ambassadors are trained through a bilingual version of the Tree Trooper training and then tasked with recruiting "Tree Hosts" who will receive trees in their communities. Tree Ambassadors work closely with the Tree Hosts to complete a planting project and facilitate

the ongoing project maintenance. In order to fit the criteria of the Urban grant, Tree Ambassadors focus on areas of high priority, identified through this mapping tool. In 2022, we trained 5 Tree Ambassadors; 3 from the Brooklyn Park area, and 2 representing communities in Annapolis. Two of these trained Tree Ambassadors completed projects that totaled 38 trees.

- Maintenance and Monitoring: Replant Anne Arundel includes provisions for maintenance through training and sample maintenance plans. We provide additional educational material regarding tree maintenance through WSA's website: <https://aawsa.org/tree-homeowner-resources>
- WSA's projects are monitored by their respective Tree Troopers, who fill out a Google Form featuring a drop-down list with all the trees in their project. They list any tree species die-off and can also communicate project issues such as disease, deer rub, or vandalism.
- Education and Outreach: While planting new trees is important, protecting existing tree canopy is essential. Through the Tree Troopers, Replant Anne Arundel educates and engages hundreds of community members on the value of and ways to protect canopy trees in their communities. Since July of 2022, Replant Anne Arundel has engaged over 850 County residents.

Save Our Trees

What started as an enthusiastic group of Stewards, neighbors, and friends working together to save trees from invasive vines is now officially a part of WSA! The mission of SOT is to have immediate and long-term impacts on the removal of English ivy and other invasive vines that are killing off mature canopy trees in Anne Arundel County and the City of Annapolis. Together, with community volunteers, SOT has removed vines over 1500 trees in the last year! WSA looks forward to working with this Steward-led initiative to engage communities and complement our organizational mission.

RePollinate Anne Arundel

Inspired by the RePlant Anne Arundel Program, Watershed Stewards, in collaboration with Anne Arundel County Master Gardeners and the USGS Bee Lab, the RePollinate Anne Arundel program grew over 2,600 native plants and distributed them to over 50 different communities in the County in its first year (Summer/Fall 2022). As of June 2023, volunteers have grown over 4,200 plants for the second year of the program. More information about the RePollinate Program may be found at aawsa.org/repollinate.

From My Backyard to Our Bay

This booklet, originally created in partnership with Anne Arundel Soil Conservation District, and the Bureau of Watershed Protection and Restoration explains water quality issues and outlines steps residents can take to reduce pollution and improve water quality. An update was completed in 2021 to add new and more relevant information. The final proof of From My Backyard to Our Bay can be found here: <https://drive.google.com/file/d/1qFM3QPRetInQdPaJ4LvSP8sas4kOqC84/view>

Stop POollution in its Tracks

WSA continued its partnership with AACO BWPR on a social marketing and outreach campaign aimed at reducing bacterial pollution by encouraging residents to pick up and dispose of pet waste to: Stop POollution. The campaign is currently in its pilot phase, and there is an upcoming continuing education opportunity for Stewards who wish to learn more and use the campaign in their communities. The campaign tools and materials have been shared with Stewards and are available at aawsa.org/pick-up-pet-waste/.

Countywide Stewardship Indicator Survey

WSA has also been instrumental, in partnership with the Chesapeake Bay Program and OpinionWorks, in revising the Baywide Stewardship Indicator Survey and customizing it for Anne Arundel County. This survey measures the future likelihood of residents across the Bay Watershed to engage in 19 Stewardship behaviors, along with volunteerism, civic engagement, attitudinal measurements and demographic/psychographic data. The Stewardship Indicator Survey is currently being fielded in Anne Arundel County, and data will be available in Fall 2023.

Arlington Echo Outdoor Education Center - Chesapeake Connections

Chesapeake Connections is the Outdoor Education outreach program of Arlington Echo which connects Anne Arundel County classroom instruction with a series of relevant hands-on experiences that lead to environmental stewardship. The staff at Arlington Echo Outdoor Education Center provide support and expertise to complete yearlong environmental service-learning projects. The service-learning projects are incorporated into each school's curricula and involve using community areas or school grounds for environmental restoration activities. The program works to restore and/or create bogs, raingardens, and manage runoff areas on school grounds or in the community to treat stormwater pollution.

The County partners with the Chesapeake Connections program to provide hands-on experiences for Anne Arundel County students through the planting of native trees and other vegetation at BWPR restoration projects. In FY23, one (1) planting project was completed with Chesapeake Connections at the Millersville Post Office Outfall and Stream Restoration on the Severn Run. Chesapeake Connections staff worked with the 6th grade students from the following schools:

- Old Mill Middle North – 310 students
- Old Mill Middle South – 336 students
- Severna Park Middle School – 451 students

E. Stormwater Restoration

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 MDE 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 Appendix A to the Permit). The impervious acre restoration requirements and associated pollutant reductions described below for the County are consistent with Maryland's Phase III 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 Restoration Plans.

1. Annual Alternative Control Practices

Annual alternative control practices used by the County to meet the prior MS4 permit's impervious acre restoration requirement shall be (a) continued annually at the same level of implementation (e.g., street lane miles swept, septic systems pumped) under this permit, (b) replaced with 199 impervious acres using stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance, or (c) a combination of (a) and (b).

Anne Arundel County continued annual alternative control practices in FY23 at the same level of implementation as the previous permit. The County performed 6,658.3 lane miles of street sweeping, which equates to 256 miles every two weeks – the same annual effort since FY19. The street sweeping program collected 443.4 tons of material from County-maintained streets in FY23.

Anne Arundel County BOH conducts manual and mechanical storm drain inlet cleaning throughout the County. For FY23, the County removed 334.3 tons of debris from catch basins, inlets, and outlets of pipes to maintain proper drainage.

The County also recognized a continued high-level of septic pumping this year, well above the required implementation level. In FY23, 19.8 million gallons of septage was pumped in Anne Arundel County. This is equivalent to 19,760 units, compared to the previous permit average of 9,566 units per year. The County is confident in its ability to maintain its annual programmatic credits and remain in compliance with its permit goals into the foreseeable future.

2. Impervious Acre Restoration Requirements

The impervious acre restoration requirements described below are in addition to the requirements listed in Part IV.E.1 of this permit.

a. Impervious Acre Restoration Progress

- *By November 4, 2026, complete restoration of 2,998 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.*
- *By November 4, 2022, complete the stormwater BMPs, programmatic initiatives, or alternative control practices listed in the Year 1 BMP Portfolio provided in Appendix B of the Permit. The 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 annual restoration benchmark schedule in Table 1 of the Permit. The County shall use the annual restoration benchmark schedule (Table 1 of the Permit) to achieve its impervious acre implementation requirement by the end of the permit term.*
- *In each year's annual report, the County shall*
 - *Submit to MDE a list of BMPs, programmatic initiatives, and alternative control practices to be completed in the following year to work toward meeting the impervious acre restoration benchmark. The list shall be submitted in the same format as the Year 1 BMP Portfolio provided in Appendix B of the Permit. The County may replace individual practices listed in its annual BMP portfolio as long as the total implementation rate at the end of the year meets the annual restoration benchmark schedule in Table 1 of the Permit.*
 - *Evaluate progress toward meeting the annual restoration benchmark according to the schedule in Table 1 of the Permit and adjust the benchmark appropriately based upon (1) actual BMP implementation rates; and (2) anticipated implementation rates and annual restoration benchmark schedule needed in the remaining years of the Permit for meeting the final impervious acre restoration requirement by November 4, 2026.*

Since attaining its fourth generation MS4 permit restoration goal, the County has made significant progress towards the current permit's goal of 2,998 acres of impervious surface restoration. Although Anne Arundel County did not complete all of the projects listed in the Year 2 BMP Portfolio, the County exceeded its Year 2 restoration benchmark of 40%. A number of other "replacement" projects were completed during Year 2 of the Permit and these are noted in the normal fashion in the FY23 MS4 Geodatabase. Table 1 in **Appendix D** provides the project-by-project accounting of the Year 2 BMP Portfolio, including the replacement projects. Table 2 in **Appendix D** is the County's planned Year 3 BMP Portfolio.

Table 15 summarizes the County's progress in FY23, as well as the cumulative restoration acreage completed towards the current permit's goal. The County's Year 2 restoration benchmark was set at 40% of the 2,998 acre goal, or approximately 1,200 acres. By the end of FY23 the County completed 1,796 acres of restoration, 60% of the permit goal, far exceeding its Year 2 benchmark of 40% and meeting its Year 3 benchmark of 60%. The County is confident that even if some projects experience delays, it is well positioned to attain its permit goal by November 2026, as required.

Table 15. FY23 impervious surface restoration – credit accounting summary.

Restoration Project Type	Equivalent Impervious Credit Acres	
	Completed in FY23	Completed – Cumulative through FY23
Restoration BMPs		
- ESD	0.0	2.6
- structural	87.2	240.8
Alternative Restoration BMPs		
- street sweeping ¹	37.6	37.6
- impervious surface reduction	0.02	0.1
- reforestation	0.0	0.0
- riparian conservation landscaping	0.2	0.2
- catch basin and storm drain cleaning ¹	70.2	47.0
- stream restoration	69.7	603.3
- outfall stabilization	4.1	286.4
- shoreline management	28.4	493.0
- septic pumping ¹	592.8	565.8
- septic denitrification	25.4	91.7
- septic connections to WWTP	45.1	77.5
TOTAL ACRES²	260.1	1,795.6
¹ For annual practices, cumulative attainment values are based on the average equivalent impervious treatment achieved during the period since the 4 th Generation permit expired (i.e., FY20-FY23). ² Completed total acreages for FY23 do not include acreage tallied for annual practices, which serves as maintenance of the annual practice credits claimed towards the County’s fourth generation MS4 permit restoration goal.		

b. Nutrient Credits

- *The 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 the restoration requirement of 2,998 equivalent impervious acres. 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 maximums allowable credits obtained from trades with wastewater treatment plants shall not exceed 1,521 equivalent impervious acres restored.*
- *Any Nutrient Credits acquired by the County for meeting the equivalent impervious acre restoration requirements shall be maintained and verified in accordance with COMAR 26.08.11 and reported to MDE in annual reports unless they are replaced at a 1:1 acre ratio by local stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with 2021 Accounting Guidance.*
- *The County acquired trading credits, or “Nutrient Credits” (i.e., 47,183 lbs TN, 7,620 lbs TP), 1,185,245 lbs TSS) to restore 2,607 equivalent impervious acres to meet its prior MS4 permit’s impervious acre restoration requirement. The balance of these credits not replaced with stormwater management BMPs, programmatic initiatives, or alternative control practices prior*

to November 5, 2021 shall (a) be continued and verified annually under this permit in accordance with the Maryland Water Quality Trading and Offset program (COMAR 28.08.11) until they are replaced; and (b) be replaced with stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with the 2021 Accounting Guidance prior to expiration of this Permit.

As reported in the County's FY19 MS4 Annual Report, the County acquired Nutrient Credits, then converted to equivalent impervious credit, through trades with its wastewater treatment plants in order to meet the 20% impervious surface restoration goal in its fourth generation MS4 permit. The credit acquired through trading was replaced by credit achieved by BMP implementation in FY20; the complete summary and details of the credit replacement may be found in the FY20 MS4 Annual Report. The County met its fourth generation MS4 permit's 20% impervious surface restoration goal as of June 18, 2020. As a result, the County did not participate in any credit trading in FY21.

The County's fifth generation MS4 permit included a new goal of 2,998 acres of impervious surface restoration and a schedule for annual restoration benchmarks. This schedule requires the County to complete 40% of that goal, or 1200 acres of equivalent impervious surface restoration, by the end of Year 2 of the permit. The cumulative restoration completed by the end of FY23 (60%) exceeded the 40% implementation benchmark and so the County did not participate in any credit trading in FY23.

F. Countywide TMDL Stormwater Implementation Plan

1. Completed TMDL Implementation Plans

Where Anne Arundel County has submitted an implementation plan for a TMDL identified in Appendix A of the Permit, the County shall, within one year of the effective date of this permit, address all outstanding comments as requested by MDE.

EPA approved the Total Maximum Daily Load of Sediment in the Baltimore Harbor Watershed on January 27, 2022. The County submitted a draft implementation plan to address this TMDL as an appendix to the County's FY22 Countywide TMDL Stormwater Plan. The implementation plan was advertised for a 30-day public comment period from January 18 – February 18, 2023. No public comments were received. Review comments from MDE are pending.

In August 2023, MDE approved the DRAFT West River Sediment TMDL Implementation Plan with recommendations. MDE's recommendations will be considered when the West River Implementation Plan is updated prior to the expiration date of the County's current MS4 Permit, November 4, 2026.

2. New TMDL Implementation Plans

Within one year of EPA's approval or establishment of a new TMDL, Anne Arundel County shall submit an implementation plan to MDE for approval. The TMDL implementation plan shall be based on MDE's

TMDL analyses, or equivalent and comparable Anne Arundel 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 MDE's TMDL analyses; and (c) final implementation dates and benchmarks for meeting the TMDL's applicable stormwater WLA. Once approved by MDE, 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.

No new TMDLs, applicable to the County, were approved by EPA in FY2023; therefore, no new TMDL implementation plans are submitted with the FY23 Ms4 Annual Report.

3. Annual Progress – Countywide TMDL Stormwater Implementation Plan

For all TMDLs and WLAs listed in Appendix A of the Permit, 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; and (c) an updated list of proposed BMPs, programmatic initiatives, and alternative control practices, as necessary, to demonstrate adequate progress toward meeting MDE's approved benchmarks and final stormwater WLA implementation dates.

Anne Arundel County submitted the Countywide TMDL Stormwater Implementation Plan as part of the in FY22 NPDES MS4 Annual Report, documenting progress toward meeting SW-WLAs for all EPA approved TMDLs as per Appendix A of the County's permit. Review comments were received on July 5, 2023 from MDE's Water and Science Administration. The County's FY23 Countywide TMDL Stormwater Implementation Plan is submitted as **Appendix E**. Additionally, FY23 progress is reported in the *LocalTMDLProgress* and the *ChesapeakeBayProgress* tables of the MS4 Geodatabase (**Appendix A**). It should be noted that PCB and Bacteria modeling results are not included in this table as modeling was not required for FY23.

4. TMDL Stormwater Implementation Plan Outreach

The 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. The 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, the County shall

- a. maintain a list of interested parties for notification of TMDL development actions;*

The County maintains a list by watershed of interested parties for notification of TMDL development actions. The list is available upon request.

- b. provide notice on its' webpage outlining how the public may obtain information on TMDL stormwater implementation plan development and opportunities for comment;*

The County provides notice on the County's webpage outlining how the public may obtain information on the development of TMDL stormwater implementation plans and opportunities to provide public comment. This information can be accessed at this link aacounty.org/public-works/bwpr/watershed-assessment-planning.

- c. provide copies of TMDL stormwater implementation plans to interested parties upon request;*

The County provides copies of TMDL stormwater implementation plans to interested parties upon request. No requests were received during FY23.

- d. allow a minimum 30-day comment period before finalizing TMDL stormwater implementation plans; and*

The County recognizes the importance of public input into both watershed assessments and restoration plans and provides a minimum of 30 days for public comment on draft plans and reports. Draft documents are made available for review and/or download through the County webpage. A minimum number of hard copy reports may also be made available on request. Prior to final acceptance, a summary of the comments received and County responses are incorporated into each document.

During FY23 the County advertised the Baltimore Harbor Sediment TMDL Implementation Plan for public comment. The public comment period was open from January 18, 2023 through February 18, 2023. No written public comments were received.

- e. document, in the final TMDL stormwater implementation plans, how the County provided public outreach and adequately addressed all relevant comments.*

In concert with advertising the Baltimore Harbor Sediment TMDL Implementation Plan for public comment the County contacted, via email, watershed and community associations identified on the County's list of interested parties for notification of TMDL activities. No public comments were received as a result of these outreach mechanisms. Public outreach opportunities, and mechanisms for addressing all relevant comments received (e.g., Comment/Response document), will continue to be documented in all future TMDL stormwater implementation plans.

G. Assessment of Controls

Anne Arundel County shall conduct BMP effectiveness, watershed assessment monitoring, and polychlorinated biphenyl (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 MS4 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 MDE which option it chooses for BMP effectiveness monitoring. The two options are:

- a. Collaborate with MDE in a Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust (CBT) for determining monitoring needs and selecting appropriate monitoring studies. For this option, the County shall annually pay \$100,000 into a pooled monitoring CBT fund. Enrollment in the program shall be demonstrated through a memorandum of understanding (MOU) between the County and CBT by September 1 of each year (see 2021 MS4 Monitoring Guidelines for MOU terms). The County shall remain in the program for the duration of this permit term; or*
- b. The County shall continue monitoring Church Creek, or select/submit to MDE a new BMP effectiveness monitoring study by March 5, 2022 or by July 1 of each year. Monitoring activities shall occur where cumulative effects of watershed restoration, performed in compliance with this permit, can be assessed. Minimum monitoring criteria include chemical water quality (baseflow and storm event; continuous physicochemical parameters), biological, and physical monitoring.*

Effective January 1, 2021, the County formally began participation in the Pooled Monitoring Program (PMP) coordinated through CBT to meet the BMP Effectiveness Monitoring requirement of this permit. The County continued PMP participation throughout FY22. On March 1, 2022 the County formally notified MDE of the intent to participate in the PMP for the duration of the permit term. Documentation of the County's PMP participation, including the signed BMP Effectiveness Monitoring MOU with CBT, was submitted in **Appendix F** of the FY22 MS4 Annual Report.

During FY23, the County contributed the required funding to the PMP via Purchase Order issued August 16, 2022. Contributed funding was subsequently allocated to support two restoration research grant projects: "Assessing the feasibility of assisted macroinvertebrate colonization in achieving ecological uplift in restored streams" (Pennsylvania State University), and "Assessing the effect of green stormwater infrastructure for addressing stormwater management goals at the watershed scale: application of the BACI design" (Univ. of Maryland Center for Environmental Science).

2. Watershed Assessment Monitoring

By March 5, 2022 or by July 1 of each year, the County shall notify MDE which option it chooses for watershed assessment monitoring. The two options are:

- a. Collaborate with MDE in a Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust (CBT) for determining appropriate watershed assessment monitoring. To implement the required monitoring, the County shall annually pay up to \$172,968 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 (see 2021 MS4 Monitoring Guidelines for MOU terms). 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 MDE's approval. The comprehensive plan shall follow the 2021 MS4 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 assessment at two locations.**

Effective January 1, 2021, the County formally began participation in the Pooled Monitoring Program (PMP) coordinated through CBT to meet the Watershed Assessment Monitoring requirement of this permit. The County continued full PMP participation in lieu of the required monitoring throughout FY22.

On March 1, 2022 the County notified MDE of its intent to modify PMP participation, from FY23 through the end of the permit term; participating in the PMP for only the Bacteria and Chloride Watershed Assessment Monitoring requirements. The Watershed Assessment Monitoring MOU Amendment for FY23 through FY26 and a copy of the March 1, 2022 correspondence is found in **Appendix F**.

Beginning in FY23 and continuing through the full permit term, the County will undertake the required Biological and Habitat Assessment Monitoring via the previously-established Countywide Biological Monitoring Program. As required in Part IV.G.2.b. of the Permit (see above), the County's Comprehensive Plan for Watershed Assessment Monitoring: Biological and Habitat Monitoring (November 2022) was submitted for MDE review and concurrence with the FY22 MS4 Annual Report. MDE review comments were received on September 18, 2023 and the Comprehensive Plan was updated and resubmitted to MDE on October 6, 2023. Included in **Appendix F** is a copy of the October 2023 updated Comprehensive Plan, associated transmittal correspondence, and Comprehensive Plan approval correspondence from MDE.

The County initiated the five-year Countywide Biological Monitoring Program (Round 4) during FY23 with field data collection starting in March 2023. The Round 4 Program will continue through 2027. This biological monitoring program adheres to the required sampling design elements and incorporates certain recommended elements found in the 2021 MS4 Monitoring Guidelines. Additionally, the program's Quality Assurance Project Plan (QAPP), as well as Method Quality Objectives, and other Program documentation are found on the BWPR Biological Monitoring webpage under Reports & Documents -> Protocols & Quality Assurance Documents (aacounty.org/public-works/bwpr/ecological-assessment-evaluation/biological-monitoring). The QAPP (aacounty.org/sites/default/files/2023-09/AA%20County_BioMonitoring_Round%204_QAPP.pdf), updated for the County's Round 4 program and to comply with the required MS4 protocols, was previously shared with MDE concurrent with the October 6, 2023 version of the Comprehensive Plan.

The FY23 biological and habitat data collected from County non-tidal stream reaches is submitted as a stand-alone Excel Workbook file (MS4_Biological_Data_Entry_Workbook_FY23_AACounty.xlsx) in **Appendix A**. The Excel file structure follows the template and data guide provided by MDE in October 2023. Additionally, a ReadMe/Comments document pertaining to this Excel Workbook (MS4_BiologicalDataWorkbookCommentsFY23_AACounty.pdf) is also included in **Appendix A**.

Finally, during FY23 the County contributed the required Watershed Assessment funding to the PMP via Purchase Order issued August 16, 2022. Watershed Assessment and BMP Effectiveness monitoring funds were combined via the same Purchase Order and contributed funding to support the two previously identified restoration research grant projects.

3. PCB Source Tracking

Within one year of permit issuance, the County shall develop a PCB source tracking monitoring plan for all applicable TMDL WLAs where watershed reductions are required to meet water quality standards. The County shall submit results and provide updates annually on the monitoring efforts.

Anne Arundel County currently has two PCB TMDLs with stormwater WLAs, the Baltimore Harbor and Curtis Creek/Bay PCB TMDL and the Patuxent Mesohaline, Oligohaline & Tidal Fresh PCB TMDL.

The County submitted its Baltimore Harbor and Curtis Creek/Bay PCB TMDL Restoration Plan as part of the County's 2016 MS4 Annual Report and in 2019 completed the development of a targeted PCB Action Strategy. Following completion of the action strategy the County engaged in collaboration with MDE's Integrated Water Planning Program staff, and University of Maryland, Baltimore County (UMBC) staff, to develop a traceback-style monitoring strategy utilizing passive samplers to measure time-integrated freely dissolved PCB water column concentration to further investigate watershed sources of PCB. An agreement was reached in which MDE would provide funding for field personnel, while UMBC would provide training, materials and analysis towards the monitoring effort.

Phase I of the monitoring effort began in September 2020 with the deployment of passive surface water PCB sampling devices at 17 locations within the Sawmill Creek watershed (a sub-watershed of the Baltimore Harbor PCB TMDL watershed), as well as two reference locations outside of the TMDL watershed. In November 2020, sediment grab samples were also collected at each of the 19 sites, and in early December 2020 the passive samplers were retrieved. During FY22 PCB concentration analysis of both surface water and sediment was conducted by UMBC staff. Phase I monitoring was successful in identifying two tributaries contributing significant PCB loads. The full results of the Phase I monitoring are presented in the *PCB Source Tracking in Anne Arundel County, January 12, 2022* report, appended to the FY23 Countywide TMDL Stormwater Implementation Plan (**Appendix E** to this Report).

Based on the results of the 2020 monitoring, and to further determine geographic sources of PCBs, a Phase II sampling plan was finalized in May 2022. Phase II sampling was conducted between July and November 2022, and entailed combinations of water column passive sampling, stream bed sediment sampling, pore water sampling, short time passive sampling, and suspended sediment sampling at 12 sites in the two tributaries of concern identified in Phase I. Phase II monitoring was again a collaborative effort between the County, UMBC, and MDE with sample analysis conducted by UMBC. Details of the Phase II monitoring plan are presented in the *DRAFT PCB Source Tracking in Anne Arundel County – Phase II, September 2023*, appended to the FY23 Countywide TMDL Stormwater Implementation Plan (**Appendix E** to this Report).

Progress on development of a PCB TMDL Implementation Plan for the Patuxent River was held while MDE finalized the PCB TMDL Implementation Plan Guidance (finalized in September 2022). In FY23, following MDE guidance document issuance, the County drafted a scope of work and hired a consultant to develop a watershed implementation plan to address PCBs in the Patuxent watershed. This Implementation Plan will build upon the County’s 2020 Patuxent River Restoration Plan, meet MDEs requirement to update previously approved TMDL plans by the end of the current MS4 permit term, and will include the development of a PCB monitoring plan in collaboration with Howard County, Montgomery County, and Prince Georges County, and Maryland State Highway Administration, all of whom are subject to the Total Maximum Daily Load of PCBs in the Patuxent River Mesohaline, Oligohaline, and Tidal Fresh Chesapeake Bay Segments.

H. Program Funding

Annually, a fiscal analysis of capital, staffing, operation, and maintenance expenditures necessary to comply with all conditions of the permit shall be submitted to MDE. Adequate program funding to comply with all permit conditions shall be maintained. Lack of funding does not constitute a justification for noncompliance with the permit terms.

This Annual Report covers the reporting period of July 2022 through June 2023, and corresponds to the County’s 2023 Fiscal Year (FY23). The summary of funding and expenditures for FY23 is found in the *FiscalAnalyses* table of the MS4 Geodatabase (**Appendix A**). **Table 16** provides the FY23 break down of expenditures by permit condition.

Table 16. FY23 Fiscal Analysis (operating and capital appropriations).

Permit Condition	Fiscal Year 2023
Legal Authority	\$0
Source ID	\$2,954,333
SW Management	\$1,212,099
Erosion and Sediment Control	\$67,600
Illicit Discharge Detection and Elimination	\$94,291

Permit Condition	Fiscal Year 2023
Trash and Litter Control	\$414,483
Property Management	\$9,154,003
Inlet Cleaning	\$258,039
Street Sweeping	\$346,189
Other Road Maintenance	\$0
Public Education	\$839,153
Watershed Assessment	\$238,760
Watershed Restoration	\$21,799,402
Chemical Monitoring Assessment	\$252,636
Biological Monitoring Assessment	\$310,123
Physical Stream Assessment	\$115,799
Stormwater Design Manual Monitoring	\$0
TMDL Assessment	\$572,404
Annual Report Preparation	\$119,724
Total Annual Cost for NPDES MS4 Program	\$38,749,038

The WPRP Fund was implemented July 1, 2013 in response to State legislated requirements found in Maryland Environmental Code Ann §4-202.1 (2013). This Fund provides the primary fiscal support for all eligible components of the NPDES MS4 Permit program. Those MS4 permit-requirements not eligible for WPRP funding continue to be supported by the County’s annual budget process (general revenue funds).

With the implementation of the WPRP Fund, a dedicated revenue source was created. These revenues for FY23 totaled \$24,234,726. A total of 223,153 properties in Anne Arundel County were assessed the fee in FY23. In addition to the stormwater fee revenues, the WPRP Fund realized revenues from investment income as well as interfund recovery. Please refer to the FY23 WPRP Annual Report (**Appendix G**) for additional information. Estimated projections of revenue for FY24 are \$25,607,622. These revenues fund the operating budget directly, and the CIP budget indirectly through debt repayment.

During the reporting period, funding for NPDES MS4 Permit compliance was addressed through the County CIP and operating budgets. CIP funding for the current County fiscal year and the next five fiscal years is allocated to the “Stormwater Runoff Controls,” “Water Quality Improvements” and “Watershed Protection and Restoration” CIP project classes. Specific line items funded through the CIP include storm drain rehabilitation, closed storm drain repairs and replacement, stormwater infrastructure inspection and maintenance, stormwater facility retrofits, outfall repairs, and stream and ecological restoration projects. The budgets for the “Stormwater Runoff Controls” and “Water Quality Improvements” project classes have been, for the most part, incorporated into the Watershed Protection and Restoration CIP and operating budget items as appropriate. The Watershed Protection and Restoration CIP budgets for FY24 through FY29 total \$171,930,500.

The Anne Arundel County operating budget for FY23 also provides permit compliance support through funding of personnel associated with permit compliance actions. Such support is derived primarily from the County's I&P, SCD, and DPW. Each of these agencies has responsibility or provides support for certain permit requirements and all must work collaboratively to achieve County compliance with permit terms. Additional funding for permit compliance has been included in the operating budgets for the WPRP Fund. Specific line items funded through the operating budget include chemical, biological, and physical stream assessments, public education, grants, and contracted street sweeping.

To further demonstrate sufficient funding to satisfy permit requirements, the complete FY23 and FY24 approved County budgets (operating and capital) are available for review and download at aacounty.org/budget.

Lastly, with the funding provided by the WPRP Fund, increased staffing began in FY14. At the end of FY23 staffing levels were at 87% and additional hiring is underway in FY24. The increase in staffing continues to assist the County to achieve MS4 permit compliance.

V. References

- Maryland Department of the Environment (MDE). 1997. Dry Weather Flow and Illicit Discharges in Maryland Storm Drain Systems.
- Maryland Department of the Environment (MDE). 2009. 2000 Maryland Stormwater Design Manual, Volumes I & II. Revised May 2009. Prepared by the Center for Watershed Protection, Ellicott City, MD, for the Maryland Department of the Environment, Baltimore, MD.
- Maryland Department of the Environment (MDE). 2017. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Geodatabase Design and User's Guide. Version 1.2. Revised May 2017. Prepared by MDE and Maryland Environmental Service (MES) for Environmental Protection Agency (EPA) Chesapeake Bay Regulatory and Accountability Program (CBRAP). Baltimore, MD.
- Maryland Department of the Environment (MDE). 2021. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Draft Supplement to the Geodatabase Design and User's Guide. Version 1.2. Draft Updates. November 2021. Baltimore MD.
- Maryland Department of the Environment (MDE). 2023. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Draft Supplement to the Geodatabase Design and User's Guide. Version 1.2. Draft Updates. September 2023. Baltimore MD.
- Maryland Department of the Environment (MDE). 2021. Accounting for Stormwater Wasteload Allocation and Impervious Acres Treated; Guidance for National Pollutant Discharge Elimination System Stormwater Permits. November 2021. Baltimore, MD.
- Maryland Department of the Environment (MDE). 2021. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permits. 2021 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments. October 2021. Baltimore, Maryland.