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

Fiscal Year 2024 NPDES MS4 Annual Report
Anne Arundel County
Permit Number: 20-DP-3316 MD0068306

December 2024

Anne Arundel County
Bureau of Watershed
Protection
& Restoration
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Fiscal Year 2024 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
1800 Washington Boulevard
Baltimore, MD 21230

December 2024

Submitted by:

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Department of Public Works
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Table of Contents

List of Figures

List of Tables

List of Appendices

I. Introduction

This Annual Report describes compliance activities for the County and State Fiscal Year 2024 (July 1, 2023 through June 30, 2024) 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 third MS4 Annual Report prepared under this permit.

The MS4 Annual Report describes the components of the stormwater management (SWM) 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 (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 2024 (FY24), 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 FY24. The program coordinators, with contact information, are listed below.

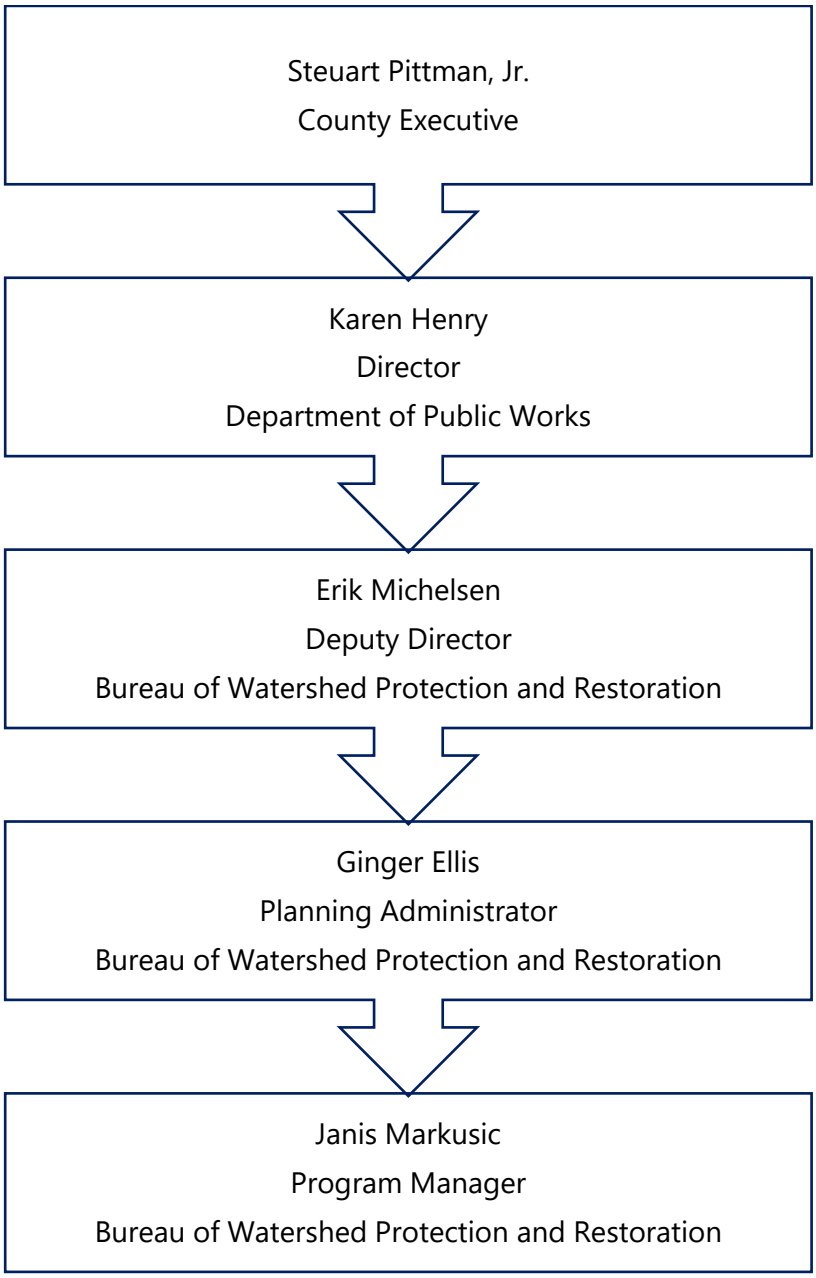

Figure 1. Organizational chart for NPDES MS4 Permit administration (FY24).

Mr. Erik Michelsen
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Additional County staff responsible for components of the NPDES MS4 Permit requirements during FY24 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.

- Gerry Inglesby, Project Manager, Restoration Implementation

Manages design and construction of watershed restoration projects.

- Karly Feight, Project Manager, Restoration Implementation

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.

- Vacant (2/2024 – present)
- Joshua Thompson, Ph.D. Senior Engineer, TMDL Support (through 2/2024)

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 stormwater Best Management Practice (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 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.

- Alex Dyson, Program Specialist II, Ecological Assessment and Evaluation

Provides program support and GIS support for surface water, stormwater, and biological 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.

- Katie Mullen, Grants Administrator

Identifies and secures grant funding for watershed restoration projects and projects that further the mission of the Bureau of Watershed Protection and Restoration.

- 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.

- Maria Ramallosa, Financial Services Management Assistant I

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.

- 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.

- Greg LeBlanc, Senior Engineer, SIP

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

- Vacant, Senior Engineer, SIP (05/2024 – present)
- Bob Murphy, Senior Engineer, SIP (through 04/2024)

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

Western/Southern District storm drainage and culverts project manager

- Krishna Dhakal, Engineer III, SIP (5/2024 - present)
- Vacant (5/2023 – 5/2024)

Eastern 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 - Eastern District, SIP

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

- Daniel Verrette, Construction Inspection Supervisor – Western & 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, including stormwater drainage easements.

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

Maintains and updates the Closed Storm Drain System piping and structures GIS layers, captures as-built stormwater BMP data for GIS purposes. 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, captures as-built stormwater BMP data for GIS purposes. 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)

- Noelle Anuszkiewicz, Deputy Director, Bureau of Utility Operations

Oversees the Bureau responsible for potable water and wastewater service, including infrastructure development and maintenance.

- David Kramer, Utility Administrator, Wastewater Operations

Administers the Wastewater Operations section of the BUO, including oversight of County Water Reclamation Facilities operation and compliance with associated point and nonpoint source NPDES permits.

- Freddy Ordonez, Program Manager, Wastewater Operations

Responsible for coordinating compliance with the MDE General Permit No. 20-SW (General Discharge Permit for Stormwater Associated with Industrial Activity) for BUO Water Reclamation Facilities and BUO Central Utility Operations Center.

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

- Robert Murphy, P.E., P.G., Engineering Manager, Engineering Division (05/2024 – present)
- Raghavenderrao Badami, P.E. Acting Engineer Manager (01/2024 – 05/2024)
- Hala Flores, P.E., (through 12/2023)

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.

- Samantha McAllister, Code Enforcement Administrator (02/2024 – present)
- Raghavenderrao Badami, P.E., Acting Code Enforcement Administrator (09/2023 – 02/2024)
- John Igbinovia, P.E., Code Enforcement Administrator (through 09/2023)

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 undertake actions including, but not limited to, the stormwater BMP triennial inspections, stormwater and drainage complaint investigations, and the IDDE follow-up and enforcement. The FY24 stormwater inspection staff is listed below.

Andrew Fertig	Mary Ford	Andrew Hein
Michael McNeill	Joseph Wells	Kyle Frederickson
Gary Evans (8/2023 to 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.

- Jeff Bugno, Senior Engineer (08/2023 – present)
- Jean Janvier, Engineering Specialist I
- Natalie Norberg, Engineering Specialist I

Anne Arundel Soil Conservation District (AASCD)

- Dave Scheler, District Manager (01/2024 – present)
- John Czajkowski, District Manager (through 12/2023)

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 FY24 there were no updates to the County Code that affected legal authority to meet Permit requirements. Updates to County Code during FY24 resulted from implementation of County Bill 73-23 (effective November 14, 2023) that amended Article 17 Title 4. This legislation amended the site development plan process related to cumulative floor area and impervious surface resulting from improvements to existing structures outside the critical area or bog protection area. More specific to this Permit, the legislation requires that a certain increase in impervious surface be managed, with management options prioritized, and reviewed as part of an administrative decision request. A copy this legislative bill 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.

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. During FY24, four Blue Notices related to Permit conditions and the above referenced Manual were issued. The four Blue Notices, copies of which are found in **Appendix B**, address Guidance on Downstream Analysis (IP-23-03), Guidance on Temporary Stormwater Management (IP-23-04), Updated As-built Checklist for Completed Construction (IP-24-01), and Guidance on Hydrologic and Topographic Site Design (IP-24-02). Following receipt of MDE review comments on the FY23 MS4 Annual Report, I&P began sending all Blue Notices related to SWM and ESC to MDE before they are published/implemented.

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. MDE also developed stormwater seminars, available on their website, for local jurisdiction participation (e.g., "What's in your Pond"). 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**. The County applied for continued delegation of authority in September 2024. Per MDE, prior to issuance of continued delegated authority, a review of the County's program will be completed via desktop analysis in FY25. The County provided MDE with the requested documentation for 8 active construction sites to facilitate this review.

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 conducts CCTV video inspection, utilizing the NASCO pipeline inspection process and standards, for problem identification based on complaints received from the public or other County agencies. Additionally, the County closed storm drains system (CSDS) segments that are associated with the County road pavement program are video inspected each year and any needed repairs are made prior to repaving. This coordinated effort prevents new pavement cuts following the resurfacing project. Finally, the County continues to roll-out a comprehensive and proactive inspection plan using CCTV video. When fully developed and implemented, program will result in Pipeline Assessment Certification Program (PACP) rating and condition assessment for over 1,000 miles of closed storm drain pipes. In FY24, the County performed 225,000 linear feet of CSDS

inspection. The inspection data are queued for integration into the County's enterprise asset management system, VUEWorks, in 2025.

As of the end of June 2024 there were 40,541 storm drain inlets, 1,045 miles of storm drain pipes, and 6,667 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 6,667 storm drain outfalls in the FY24 County inventory, 2,805 are categorized as major outfalls.

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.

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 2023 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**. The final updated data set, with a total of 1,525 commercial and industrial outfalls, is included in the Industrial & Commercial Sources Geodatabase in **Appendix A**, along with the County's updated 2023 Commercial and Industrial Land Cover dataset.

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 FY24, the County is submitting 15,820 BMP points; as noted in the comments of the *BMP* feature class, 276 of these solely represent restoration BMPs. Of these 276, 26 represent cancelled or are inactive, 227 are complete, and 23 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 FY24 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 is in the process of QA/QC and finalization of its updated impervious surface coverage dataset based on the 2023 data capture. This will include expanding 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 1 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 1. 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

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
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 FY24, 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 FY24 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 FY24 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). The 2024 monitoring locations and required data are submitted in a stand-alone Excel workbook found in **Appendix A** (MS4_Biological_Data_Entry_Workbook_FY24 _AACounty.xlsx) that conforms to the updated template and data guide provided by MDE in June 2024. 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 G**) 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 2** provides a summary of the FY24 project inventory, including 184 new restoration projects completed and 99 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 FY24 have been added to the appropriate feature classes in the MS4 Geodatabase. **Appendix J** contains design reports and/or plan drawings for stream restoration projects added to the County's restoration project inventory during FY24. In FY24, County staff uncovered one erroneous septic denitrification project, and 43 previously unreported septic connection projects, for this fifth generation MS4 permit.

Table 2. FY24 Restoration BMP project inventory summary.

	Projects Completed in FY24	Projects Completed – Cumulative through FY24	Projects Under Design or Under Construction in FY24
Restoration BMPs			
- ESD	5	14	1
- Structural	9	36	22
Alternative Restoration BMPs			
- impervious surface reduction	0	2	4
- reforestation and riparian planting	3	4	0
- stream restoration	3 (9,653 ft.)	21 (32,334 ft.)	39 (92,787 ft.)
- outfall stabilization	2 (460 ft.)	10 (5,555 ft.)	14 (8,443 ft.)
- shoreline management	3 (1,965 ft.)	21 (16,507 ft.)	19 (13,042 ft.)
- septic denitrification [1]	135	706	0
- septic connections to WWTP [1]	24	116	0

	Projects Completed in FY24	Projects Completed – Cumulative through FY24	Projects Under Design or Under Construction in FY24
- street sweeping *(annual practice)* [2]	256 lane miles	256 lane miles	-
- catch basin and storm drain cleaning *(annual practice)* [2]	300 tons/yr.	237.9 tons/yr.	-
- septic pumping *(annual practice)* [2]	21,736 units/yr.	20,392 units/yr.	-
Total number of projects (excl. annual practices)	184	930	99

[1] 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 FY25, neither are included in the BMP inventory until project completion, when exact locations and other information required for the MS4 Annual Geodatabase become available.

[2] For annual practices, cumulative attainment is the average annual activity measure completed during FY21-FY24.

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 FY24, 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 FY24. 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 FY24, the following Blue Notices were issued:

- July 21 2023 – Guidance on Downstream Analyses (IP-23-03);
- November 16 2023 – Guidance on Temporary Stormwater Management (IP-23-04);
- June 10 2024 – Updated As-Built Checklist (IP-24-01).

In early FY25 (July 16, 2024), a Blue Notice providing guidance on hydrologic and topographic site design (IP-24-02) was also issued. These four Blue Notices are also found in **Appendix B**.

Pursuant to MDEs FY23 Annual Report Review Comments, received June 20, 2024, the County began sending all Blue Notices related to SWM and ESC to MDE prior to publishing/implementing. This effort will be fully implemented in FY25.

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 FY24, County records indicate the following activities (**Table 3**).

Table 3. Concept, Site Development, Final Development, and Redevelopment Plans received in FY24.

Type	Number of Projects Received
Concept Plan(a)	91
Site Development Plan (a)	107
Final Development Plan (b)	24
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:

- 2,885 Stormwater Construction Inspections
- 169 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. Since FY22, this protocol allocated a minimum of 30 inspections per month to DPW. 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.

To ensure all BMPs remain in compliance with State regulations, I&P staff continue to work toward an annual inspection rate (e.g., 600 facilities per month), refining inspection rate protocols while enhancing staff abilities to more efficiently inspect stormwater management facilities through improvements to the inspection application for all field tablets. In FY24, I&P stormwater inspectors realized an average inspection rate between 600 and 605 facilities each month. In a parallel vein, DPW staff averaged 38 facility inspections each month. 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 tools that increase overall inspector efficiency.

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:

- 7,774 Three-Year Maintenance Inspections;
- 845 Three-Year Maintenance Correction Notices; and
- 16 Three-Year Maintenance Violation Notices.

There were 7,719 three-year inspections of stormwater BMPs conducted in FY24 and included in the *BMPInspections* 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 FY24 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 FY24. Additional information relating to inspection and enforcement activities in FY24 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 1,955 records for FY24. 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 FY24 *BMPInspections* table contains 32 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 provided in **Appendix B** of the FY24 MS4 Annual Report. In September 2024 (FY25), the County submitted their application for continued delegation of authority and began compiling requested documentation for the program review/audit by MDE.

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 the 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 provide streamlined inspection report preparation and reporting, and to help ensure consistent direction/information is provided to permittee regarding site compliance and correction notices.
- While the permitting software update is being initiated the inspectors use the inspection report spreadsheet, which 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 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 annual dry-weather inspection of a minimum of 150 storm drain outfalls. 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 FY24 field effort was focused within a geographic area in the north of the County as defined by the County boundary to the north; I-97/I-695 to the west; and Benfield Blvd, Magothy Bridge Rd, and Mountain Rd to the south. In total, field crews successfully inspected 173 major and minor outfalls draining commercial, industrial, and residential land uses, including outfalls located on 11 County-owned properties (police, fire, and animal control facilities) within the target area. Four (4) special investigations were also carried out in FY24, three (3) of which were located

outside of the target screening area. Details regarding the results of these special investigations can be found in the Anne Arundel County Illicit Discharge Detection and Elimination Program Report: July 2023 – June 2024 (Fiscal Year 2024) (**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 updated Standard Operating Procedure (SOP) for the IDDE program was provided in the FY23 MS4 Annual Report (Appendix C and the associated MS4 Geodatabase *NarrativeFiles*). There are no revisions to those SOPs for the FY24 reporting period. 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 2023 – June 2024 (Fiscal Year 2024) (**Appendix C** and FY24 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 2023 – June 2024 (Fiscal Year 2024) (**Appendix C**).

For the FY24 reporting period, field crews evaluated 332 commercial and industrial polygons for evidence of upland pollutant sources. As a result, field crews identified 19 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.**

Eleven (11) County-owned and improved properties (eight (8) fire stations, two (2) police facilities, and one (1) animal control facility) were visually screened for potential upland pollution source

identification in FY24. Stormwater maintenance needs and/or possible upland pollution source were identified at three (3) of the properties. 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. County site managers, as well as on-site staff, accompanied KCI inspectors for each inspection; therefore, conditions were documented and discussed but no reports filed for any potential violations discovered. Inspection reports from these screenings were also shared with the County's Facilities Construction and Planning 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. There were no revisions to the SOP in FY24.

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.

For the FY24 reporting period, I&P addressed eight (8) issues reported to the Department by the County's IDDE consultants. Details regarding the reported conditions, agency responses, and corrective actions are found in **Appendix C**. Additionally, thirty (30) illicit discharge, dumping, or storm drainage complaints were reported to I&P during the FY24 reporting period; these cases were in addition to the IDDE survey results for outfalls and the commercial and industrial facilities as described above. 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 FY24 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. 20-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 III enforcement, which entails filing a legal injunction 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 FY24 reporting period, it was not necessary to issue any civil citations for failure to eliminate illicit storm drain discharges.

For the FY24 reporting period, the Health Department addressed twelve (12) issues reported by the County's IDDE consultants. Details regarding the reported conditions, agency responses, and corrective actions are found 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. In FY24, two (2) civil citations were issued by the Department of Health for violations stemming from IDDE-related surveys; both citations were *nol prossed* after violations were corrected.

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) FY24 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 IDDE field investigations is found in the Illicit Discharge Detection and Elimination – FY 2024 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 FY24 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 the next MS4 Annual Report.

Of the screened outfalls containing dry-weather flow during the initial screenings in the FY24 reporting period, four (4) yielded a result above the action-criteria limit for one or more of the tested contaminants:

- Outfall M08C8O00003 - Dry weather flow exceeded the action criteria for fluoride and chlorine on the first visit and on subsequent visits. Investigators found the source to be air conditioning cooling tower drainage from a nearby medical center. Medical center maintenance staff adjusted cooling tower discharge mechanisms. Maintenance staff were counseled to dechlorinate future discharge and to contact MDE regarding possible need for discharge permit.
- Outfall B11G7O00012 - Dry weather flow exceeded the action criteria for ammonia on the initial and second visit. No specific source for the discharge could be found, but investigators suspect dumping of gray water at a nearby motel.
- Outfall N05G3O00001 – Dry weather flow exceeded the action criteria for ammonia on the initial and second visit. Investigators suspect elevated ammonia concentrations were linked to leachate from organic materials at nearby recycling center. Recycling center staff will work to ensure organic waste is processed and transported off site in a timely manner to minimize impacts to stormwater.

- Outfall O04A8O00001 - Dry weather flow exceeded the action criteria for ammonia on the initial and second visit. Investigators suspect that high ammonia concentrations were result of iron flocculate interfering with the ammonia field test kit.

Complete investigation details, including a site-specific report, agency responses, and detailed corrective actions, are found in the Illicit Discharge Detection and Elimination – FY 2024 Annual Report (**Appendix C**).

The County consultant's field teams identified seven (7) locations where physical issues significantly affected stormwater infrastructure within the targeted areas of Anne Arundel County during the FY24 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, Broadwater, and Cox Creek WRFs (**Table 4**) were submitted to MDE as required and are pending issuance. Maryland City, Patuxent, and Piney Orchard WRFs discharge permits are not ripe for renewal. 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 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 4. 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

Facility	Permit	Permit Coverage Period
Cox Creek WRF	14DP0698	Jan. 1, 2020 – Dec. 31, 2024
Maryland City WRF	18DP2393	July 1, 2023 – June 30, 2028
Patuxent WRF	18DP0132	July 1, 2023 – June 30, 2028
Piney Orchard WRF	21DP1936	July 1, 2023 – June 30, 2028

The Maryland SW Industrial GP 20SW/20SR became effective on February 1, 2023. The final permit and associated documents can be found here: mde.maryland.gov/programs/Permits/WaterManagementPermits/Pages/stormwater.aspx.
As of the end of FY24, all County-owned and SW Industrial GP-covered facilities provided MDE with a new NOI and updated Stormwater Pollution Prevention Plans (SWPPP) as required. Relevant information on the Facility, General Permit Number, issue date, and the permit coverage end date is found in **Table 5.**

Table 5. 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	Feb 21, 2024	Jan. 31, 2028
Broadneck WRF	20-SW-0758	MDR000758	Feb 23, 2024	Jan. 31, 2028
Broadwater WRF	20-SW-0757	MDR000757	Feb 23, 2024	Jan. 31, 2028
Cox Creek WRF	20-SW-0760	MDR000760	Feb 23, 2024	Jan. 31, 2028
Maryland City WRF	20-SW-0761	MDR000761	Feb 23, 2024	Jan. 31, 2028
Patuxent WRF	20-SW-2459	MDR002459	Feb 23, 2024	Jan. 31, 2028
Piney Orchard WRF	20-SW-0727	MDR000727	Feb 23, 2024	Jan. 31, 2028

Facility	Permit	NOI Number	NOI & SWPPP Status/Issue Date	Permit Coverage Period
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 FY24 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;
    - Completed visual assessments at each facility;
    - Completed comprehensive annual inspections of each facility;
    - Provided pollution prevention 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;
- Pursuant to a previous 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 5.** During the reporting period, annual comprehensive SWPPP compliance inspections were performed at these facilities in November 2023 and will be performed again in the fourth quarter of calendar year 2024, pollution prevention training occurs annually, visual inspections and benchmark monitoring on selected stormwater ponds 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 5**. In support of the NOI and in compliance with the SWPPP, staff perform required facility inspections (e.g., quarterly dry weather inspections, quarterly wet weather inspections, annual comprehensive site inspections, and annual record review). Pollution prevention training is conducted annually at the WRFs; the Utility Operations Center training was re-scheduled for late September 2024. SWPPP 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.*

Beginning in FY23 and continuing through FY24, the County joined with six other MS4 Phase I jurisdictions to jointly develop a Good Housekeeping Plan (GHP) template. The Washington Metropolitan Council of Governments (WashCOG), on behalf of the seven MS4 Phase I jurisdictions, procured and managed the contract with KCI Technologies, Inc. for development of a GHP template. Staff from MDE joined the Phase I jurisdiction work group, providing clarification and guidance as requested, to ensure the final GHP template development will achieve permit compliance requirements. The GHP template documents were finalized at the end of March 2024. In April 2024, MDE provided the seven jurisdictions with written correspondence indicating the acceptability of these documents for the associated Permit-requirements.

The County, with consultant support, began tailoring the GHP templates to County-owned properties meeting the above criteria. As of November 15, 2024, 149 properties were assessed and draft GHPs developed for 10 of them. The Draft GHPs are provided with this Annual Report for MDE review, comment, and/or approval. Concurrent with submission of these draft GHPs, site assessments

continue for up to an additional 300 County-owned properties. GHPs will be developed for any qualifying properties and provided for MDE review, comment, and/or approval with the FY25 MS4 Annual Report, or can be provided at an earlier date should MDE desire a separate submission.

Pollution prevention training associated with GHP development will be fully addressed in spring 2025. The County anticipates either procuring or developing a suitable training video that can be deployed for training purposes. A means to track and record GHP training attendance will be a component of the pollution prevention training development.

Although the GHPs are not yet developed and implemented, pollution prevention training associated with County facilities registered for coverage under the Maryland SW Industrial GP 20SW continued throughout FY24. The number of County personnel trained in pollution prevention, including 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**).

The GHP template documents, 10 draft GHPs specific to Anne Arundel County, and a copy of the April 2024 MDE correspondence are found in **Appendix D** and the MS4 Geodatabase *NarrativeFiles*.

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 FY24, the County swept 6,685 lane miles, which equates to 557.1 lane miles per month – essentially the same as the last reporting period (554.9). 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 FY24, the County manually cleaned and removed debris from catch basins, inlets, and outlets of pipes to maintain proper drainage for 4,716 structures. This is a 9% increase from the previous reporting period in which 4,325 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 1,744 structures required cleaning with a sewer vacuum, a decrease of 20% from the last reporting period in which 2,168 were cleaned with a sewer vacuum. A total of 28,731 linear feet of pipe were cleaned, a decrease of 41% from the last reporting period in which 48,342 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 31,729 feet during the reporting period. This is a decrease of 19% from the last reporting period in which the County cleaned 39,013 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 FY24 MS4 Geodatabase (**Appendix A**). Anne Arundel County makes a financial contribution annually to support Maryland Department of Agriculture (MDA) programs for spongy 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. During the reporting period 140.8 gallons of glyphosate was used by BOH; a 39% increase over the previous reporting period (101 gallons). 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 FY24 are listed in **Table 6**. The quantities of each are included in the FY24 MS4 Geodatabase *ChemicalApplication* table.

Table 6. Herbicides and fertilizers used by the FMD Horticulture Unit in FY24.

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
Woodace 14-14-14 fertilizer	Nitrogen, Phosphorus, Potassium
Lesco Blended 18-24-12	Nitrogen, Phosphorus, Potassium
Lesco Lockup Extra 2 18-0-4	Nitrogen, Potassium
Lesco 20-20-20 Sprayable 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. Fertilizer use on WMS properties, such as the side slopes to Landfill Cell 9 or on

closed Cell 567, is limited to only when grass needs nutrients to encourage proper growth that helps with the prevention of soil erosion and limits runoff. During FY24 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 FY24, outside pesticide use included the active ingredients Bifenthrin, Bromodiolone, Orthoboric Acid, Brodifacoum, Hydroprene, Deltamethrin, and Prallethrin. Quantities of each chemical used are found in the FY24 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. The AACRP Turf Division staff are MDA licensed applicators (fertilizer and pesticide) and, during the reporting period, applied the herbicides Amine 400, Drexel MSMA 6 Plus and Target 6 Plus on certain AACRP athletic fields and park properties. These chemicals are applied only as and where needed. Fertilizer (Country Club MD 18-0-18) was applied to 32 athletic fields associated with County park facilities in early summer 2024. Quantities of chemicals used by AACRP are included in the FY24 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 FY24, 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 County highway 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 annually provides County winter weather operator personnel and contractors with the latest training in deicer and anti-icer management, or the participation of County personnel and contractors in a "Salt Academy" administered by another MS4 permittee or State agency; and*
    - *Developing and distributing best salt management practices outreach for educating residents within the County.*

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.

With this third year annual report the County submits the complete County Department of Public Works Salt Management Plan for review and comment by MDE. The document can be found in **Appendix E** and the *NarrativeFiles* of the MS4 Geodatabase. The near-term and long-term goals of this plan are outlined below.

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.

During FY24, 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, procured equipment 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. In FY24, 174 County personnel and contractor staff participated in the training sessions (see the MS4 Geodatabase *MunicipalFacilities* feature class in **Appendix A**). A copy of the FY24 training power point (*Winter Salt Management: Past, Present and the Future…*) is also found in **Appendix E** and the *NarrativeFiles* of the MS4 Geodatabase.

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. Information found on this page includes how the County prepares for snow operations, including environmentally responsible de-icing practices. Winter weather tips for travel and home, and resources such as a Winter Travel Guide, a Snow Information Booklet, and an Environmental Stewardship statement pertaining to the County's winter highway maintenance activities are also found on this webpage. The County 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 FY24 are found in **Table 7.** 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 7. Deicing material applied by the Bureau of Highways, FY 2020–2024.

Material	2019–2020	2020-2021	2021-2022	2022-2023	2023-2024
Road Salt (tons)	982	7,786	11,061	1,008	4,287
Liquid Salt Brine (gal.)	40,400[a]	21,900[a]	19,300[a]	9,541[a]	126,150[a]
Total Salt (tons)	1,022	7,807	11,080	1,018	4,413
Liquid Calcium Chloride (gal.)	0[b]	0[b]	0[b]	0[b]	0[b]
NWS Snow Totals – BWI (in.)	1.8[c]	8.9[c]	13.3[c]	0.20[c]	11.3[c]
NWS Avg. Winter Temp (°F)	43.0	40.3	44.5	39.8	42.8

[a] One ton of salt produces 1000 gallons brine.

[b]Average winter temperature at BWI Thurgood Marshall Airport (1991-2024) is 38.45 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 19.2 inches per the National Weather Service (NWS). Winter 2023-2024 snowfall total at BWI was 11.3 inches. The 2023-2024 winter season saw an increase of salt use due to an increased amount of snow fall when compared to the previous winter seasons.

In addition to winter weather treatment of County roadways, deicing materials (bulk road salt and bagged deicing mixtures) are also applied to access roads and sidewalks at County properties such as the landfills and recycling centers, WRFs, and office buildings. During the FY24 winter, 4.5 tons of bulk road salt and 3.5 tons of bagged deicer (mixture of sodium chloride, magnesium chloride, calcium chloride, and potassium chloride) were used at the three WMS facilities. The BUO utilized approximately 6.5 tons of bulk road salt and approximately 0.65 tons of bagged deicer at their facilities (Utility Ops Center and WRFs) to ensure access roads and walkways remained open and safe. During FY23 and FY24, County Central Services Facilities Maintenance Division (FMD) reports using approximately 71 tons of bagged deicer at multiple County-owned properties (e.g., Heritage Office Complex, Arundel Center, police stations, County warehouse, parking garage sidewalks).

The quantities of deicing and anti-icing materials used by the County in FY24 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 FY24 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 FY24, and as noted earlier in Part IV.C.6, storm drain inlet and CBC activities prevented 300 tons of litter and debris from entering the County storm drain system. The permit-term CBC average (FY20-FY24) of material removed is 238 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 FY24, 91.3 tons (7,302 bags) of litter and 1,110 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 January 1, 2024 the Anne Arundel County Bring Your Own Bag Plastic Reduction Act (Bill 19-23) went into effect. 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 was provided in Appendix B of the FY23 MS4 Annual Report.

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/inspections/site-inspections. 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 observations or issues 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., 2024).

During this reporting period, 448 building and 518 environmental complaints were documented via the compliance database. Please see **Table 8** below for further breakdown of the FY24 environmental complaints.

Table 8. FY24 environmental complaints from Code Compliance Database.

Environmental Compliance Category	# Complaints
Bog Area	0
Civil Citation Non-Compliant	1
Construction in Critical Area	1
Critical Area in Buffer Disturbance	12
Critical Area Clearing/Grading	39
Critical Area Tree Clearing/Buffer	11
Discolored Water complaint	3
Drainage Complaint	55
Exceeding Scope of Permit	11
Floodplain Complaint	0
Forest Conservation Easement Complaint	12
General Complaint/Information Needed	33
Grading w/o Permit	128
Illegal Discharge Complaint	34
Illegal Filling Complaint	7
Non Tidal Wetlands Complaint	0
Sediment Controls Down/Missing	56
Slope (Damage/Construction)	0
Standard Grading Plan Issued	0
Stock Pile (General)	1
Stormwater Management Issues	12
Tidal Wetland Complaint	0
Tracking Mud onto R-O-W Complaint	6
Tree Clearing (General) Complaint	45
Tree Clearing Over Critical Area	48
Working Over Stop Work Order	3
Total Environmental Complaints	518

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 FY24**: **Sea Level Rise on the Deale-Shady Side Peninsula** - BWPR recently initiated a feasibility study to assess mitigation strategies that enhance resilience of the Deale-Shady Side Peninsula in the face of increasing flood inundation levels and storm event frequencies/intensities

associated with a changing climate. This webpage allows residents to stay informed and contribute public input toward the study.
    - aacounty.org/public-works/bwpr/watershed-assessment-planning/watershed-studies/sea-level-rise-deale-shady-side
- **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

- **Organize a Volunteer Floodplain Clean-Up:** BWPR 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) and Instagram (Instagram.com/aawatershedbureau) 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 informed 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:

- Chesapeake Bay Magazine (June 20, 2023) - Kevin Bacon & Bandmates Help With Annapolis Stream Restoration
  - https://www.chesapeakebaymagazine.com/video-kevin-bacon-bandmates-help-with-annapolis-stream-restoration/
- Anne Arundel County News (September 15, 2023) - Resilience Authority Secures Nearly $20M for Climate Resilience Projects in Anne Arundel County, City of Annapolis
  - https://www.aacounty.org/county-executive/news/resilience-authority-secures-nearly-20m-climate-resilience-projects-anne
- Anne Arundel County News (September 28, 2023) - Department of Natural Resources, Anne Arundel County, Severn Riverkeeper Partner to Restore Damaged Jabez Branch Waterway
  - https://www.aacounty.org/county-executive/news/department-natural-resources-anne-arundel-county-severn-riverkeeper-partner#:~:text=Annapolis%2C%20MD%20(September%2028%2C,clean%20up%20the%20Jabez%20Branch.
- Severna Park Voice (December 8, 2023) - Chesapeake Connections Helps Students Restore Area Near Mill Creek
  - https://www.severnaparkvoice.com/stories/chesapeake-connections-helps-students-restore-area-near-mill-creek,65524
- The Bay Net (January 6, 2024) - Anne Arundel County Reforestation Project Plants 1,800 Native Trees
  - https://thebaynet.com/anne-arundel-county-reforestation-project-plants-1800-native-trees/?fbclid=IwAR0l-2A9dx0lHf7dTsriYkThDSKIEgfr-Cm5MJhExlO8a44f-KCPZs5E1HY
- Anne Arundel County News (February 12, 2024) - Anne Arundel County, City of Annapolis Announce Partnership to Accelerate Regional Climate Resilience
  - https://www.aacounty.org/news-events/news/anne-arundel-county-city-annapolis-announce-partnership-accelerate-regional
- Chesapeake Bay Program (March 4, 2024) - Faith-based recreation center off the Chesapeake Bay gets nearly 900 feet of healthy shoreline
  - https://chesapeakebay.net/news/blog/faith-based-recreation-center-in-annapolis-gets-nearly-900-feet-of-healthy-shoreline
- Anne Arundel County News (April 22, 2024) - County Executive Pittman Announces First Interagency Environmental Subcabinet
  - https://www.aacounty.org/county-executive/news/county-executive-pittman-announces-first-interagency-environmental-subcabinet
- Anne Arundel County News (April 26, 2024) - Anne Arundel County Launches State of the Forest Dashboard for Transparent Environmental Monitoring

    - https://www.aacounty.org/county-executive/news/anne-arundel-county-launches-state-forest-dashboard-transparent-environmental
- Severna Park Voice (June 27, 2023) - Pines on the Severn Celebrates Completion of Micro-Bioretention Basin Project
    - https://severnaparkvoice.com/stories/pines-on-the-severn-celebrates-completion-of-micro-bioretention-basin-project,66473

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 2024 Achievement Awards - BEST IN CATEGORY - COUNTY RESILIENCY**. The Anne Arundel County Bureau of Watershed Protection & Restoration received an award of $1.7 million in 2018 for the restoration of Furnace Creek in Glen Burnie (Patapsco Tidal Watershed), a Trust Fund High Priority waterway. Construction began in 2019 and was finished in April of 2020. The restoration of Furnace Creek removed/buried ~2,000 LF of V-shaped concrete channel in the stream's headwaters, halted erosion of the severely degraded downstream reach, and reconnected 4,500 LF of stream to its floodplain to improve habitat and pollutant removal.
- **Water Environment Federation 2024 MS4 Awards - Best Overall MS4 Phase I:** Anne Arundel County Department of Public Works- Bureau of Watershed Protection and Restoration is the 2024 recipient of the "MS4 Phase I Overall Award" from the Water Environment Federation's National Municipal Stormwater and Green Infrastructure Program for Municipal Separate Stormwater Sewer Programs (MS4s). This program aims to recognize high-performing communities that meet and exceed regulatory requirements in a manner that is both technically effective and financially efficient. After undergoing a thorough evaluation by an expert panel of judges, who score each application in two pivotal categories: program management and innovation, it was determined our program excelled in both.
- **American Shore and Beach Preservation Association 2023 "Best Restored Shore" Award:** The Kyle Point Living Shoreline project, managed by Underwood & Associates and funded through the County's Full Delivery of Water Quality Improvements "Turnkey" program, was recognized by the American Shore and Beach Preservation Association (ASBPA) for enhancing shoreline resiliency in the Severn River watershed.
- **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.

  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 9**) is a list of informational presentations, events, and residential site visits in which the BWPR participated during the reporting period:

Table 9. BWPR outreach events in FY24.

Date	Organization/Event	Topic
7/10/23	Community Presentation @ Odenton Library	Litter, recycling, composting, floodplain clean-up
7/16/23	River Days @ Quiet Waters Park	AACo BWPR Residential outreach
7/20/23	MD Green Building Council	Anne Arundel County Sustainability Programs
7/21/23	International Bog Day @ Hidden Pond Restoration	Restoration priorities and activities in AACo
7/24/23	Job Shadowing site visit	Touring Catherine Ave and Cypress Creek with young professional
7/28/23	Job Shadowing site visit	Touring Lower Cowhide Branch with young professional
8/13/23	MDE Restoration Permitting Work Group	Using WIPS to inform restoration targeting
8/16/23	C-Stream Roundtable	Using natural history to inform restoration
8/22/23	National Stream Restoration Conf.	Utilizing full Delivery to accelerate implementation
8/24/23	WSA Continuing Education Workshop	"Stop POOllution in its Tracks" Campaign Kit for Stewards/Candidates
8/27/23	River Days @ Quiet Waters Park	Resident resources, pet waste, stream macroinvertebrates
8/30/23	Community Meeting	South Glebe Branch Stream Restoration -- meeting with South River Colony Board/Community
9/30/23	Linthicum Community Fair	Resident resources, pet waste, stream macroinvertebrates
10/3/23	USNA Restoration Tour	Broad Creek restoration project site visit
10/7/23	DPW Open House	Resident resources, pet waste, web tools
10/8/23	LPAX Community Cleanup	BWPR co-sponsoring floodplain cleanup

Date	Organization/Event	Topic
10/12/23	DNR Living Shoreline Panel	Navigating regulatory hurdles to project implementation
10/26/23	Restoration Tour with DPW Staff	Touring Broad Creek Park with DPW staff from other Bureaus
10/27/23	Legislator restoration tour	Site visits and presentation to State legislators
11/1/23	Envirothon Fall Training	Watersheds and Chesapeake Bay TMDL training
11/3/23	Chesapeake Watershed Forum	Lessons learned in voluntary restoration
11/6/23	MDE Restoration Tour	Restoration project tour for MDE MS4 staff
11/6/23	Community Meeting	Bear Branch Stream Restoration, meeting with HOA
11/7/23	Neighbors of Mayo Peninsula Annual Meeting	Residential stormwater management resources
11/7/23	SAC Meeting - Region 3	Overview of County environmental protection and restoration work
11/9/23	SAC Meeting - Region 9	Overview of County environmental protection and restoration work
11/15/23	SAC Meeting - Region 1	Overview of County environmental protection and restoration work
11/17/23	MWMC Conference	"Re-visiting the Natural Resource Response on Anne Arundel County Streams and Wetlands Post-Restoration"
11/27/23	MWMC Conference	"An Evaluation of the Impact of Season in the Execution of Multimetric Habitat Assessment Approaches in Anne Arundel County, Maryland"
11/17/23	MWMC Conference	"Sawmill Creek: Effects of Urbanization on Fish Biological Integrity and Community Structure over 30 Years"
11/21/23	Watershed Restoration Grant Info Session	Introducing FY24 Grant RFP
12/7/23	MACo Winter Conference	Engineering for the Environment: Collaborating with the Nonprofit Sector
1/9/24	Shipley's Choice HOA	Bear Branch stream and wetland restoration
1/17/24	Annapolis Neck Communities	Shoreline resiliency options
1/18/24	CBT Legislative Session	Networking with local funders and legislators
1/24/24	Public Meeting	Upper Mill Stream Restoration
2/1/24	PaxCon	Beaver BMP
2/3/24	Public guided tour	Winter Watershed Walk at Broad Creek Park
2/7/24	Public Meeting	Middle Mill Creek Stream Restoration
2/7/24	Watershed Restoration Grant Info Session	County watershed restoration grant Q/A and office hours
2/21/24	Chesapeake Research Consortium	"Stream restoration: Are current practices giving us what we want?"
2/21/24	Hillsmere ES classroom presentation	5th grade class (20 students), hosted "Sum of the

Date	Organization/Event	Topic
		Parts" activity
2/22/24	Anne Arundel County Envirothon	Watersheds and stormwater runoff presentation
2/22/24	Public Meeting	RP Eason School Stream Restoration & BMP Retrofit
2/22/24	Guided tour of MAR pilot with SRA and WSA	MAR pilot system tour with NGO watershed partners
2/25/24	Outreach presentation	Prince of Peace Presbyterian (Crofton) with WSA and IPC
2/28/24	Public Meeting	Lake Waterford Park Stormwater BMP
2/28/24	Community Meeting	Hidden Point wetland update
2/28/24	HOA Meeting	SIP outreach with Arundel on the Bay
3/4/24	Community Meeting	Green Branch Stream Restoration (downstream neighbors)
3/7/24	Community Meeting	Green Branch Stream Restoration (Village Square Apartments)
3/9/24	WSA Annual Conference	Funders Office Hours
3/9/24	WSA Annual Conference	Outreach tabling
3/9/24	WSA Annual Conference	Government Panel
3/19/24	Belvedere ES classroom presentation	Stormwater runoff and environmental restoration discussion at the school's Green Day of Service
3/21/24	Sunset ES student interviews	Students prepared questions about stormwater runoff/management and interviewed during class
3/21/24	Pet Waste Walk n' Talk	Discussed pet waste pollution reduction outreach strategies with Watershed Stewards
3/22/24	Waugh Chapel ES classroom presentation 1	4th grade class 1 (25 students), hosted "Sum of the Parts" activity
3/22/24	Waugh Chapel ES classroom presentation 2	4th grade class 2 (25 students), hosted "Sum of the Parts" activity
3/22/24	Waugh Chapel ES classroom presentation 3	4th grade class 3 (25 students), hosted "Sum of the Parts" activity
3/22/24	Waugh Chapel ES classroom presentation 4	4th grade class 4 (25 students), hosted "Sum of the Parts" activity
3/25/24	NOAA Tour	Jabez Branch Stream and Wetland restoration
4/5/24	State of the Magothy	Networking and sharing residential/community stormwater management resources
4/9/24	Career Panel	CBLP & MD Re-Entry Resource Center training program
4/12/24	UMGC Field Tour	Broad Creek restoration site
4/17/24	Public Meeting	Old Mill Branch stream restoration
4/20/24	Glen Burnie Town Center Cleanup	Outreach tabling; provided high-vis vests and contractor bags
4/24/24	Chesapeake Bay MS Career Week	Careers in environmental conservation and restoration

Date	Organization/Event	Topic
4/26/24	Jones ES student rainwater harvesting projects	4th grade class project building rainwater harvesting projects, serving as panelist for judging
5/2/24	CBT Treasure the Chesapeake Gala	Discussed reforestation and restoration opportunities with CBT partners
5/4/24	DPW Open House	Resident resources, pet waste, web tools
5/8/24	Presentation to ARF Board	Environmental restoration opportunities
5/9/24	Arundel MS Garden Club	The Importance of Native Plants for Stormwater Management and Biological Uplift
5/16/24	MSRA	BWPR education and outreach efforts
5/18/24	Public guided tour	Spring Watershed Walk at Eisenhower Golf Course
5/22/24	Storm Drain Marker demonstration	Germantown Elementary School storm drain marking project
5/24/24	Japanese Government Delegation	BWPR in coordination with Non-Profits; environmental restoration opportunities and achievements
6/1/24	Community Association Summit	Stormwater regulations, programming, and resources
6/2/24	AA Sierra Club	Environmental policy priorities
6/11/24	VAMSA	Stream restoration legislation in Maryland
6/11/24	Center for Watershed Protection	Stream restoration webinar
6/14/24	Ribbon Cutting & BWPR Outreach	Outreach & remarks at ribbon cutting for Preserve at Broad Creek Stream Restoration, hosted by ARF
6/24/24	National Stream Restoration Conference	Stream restoration in the Mid-Atlantic
6/29/24	River Days @ SERC	BWPR residential outreach

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 FY24 is summarized in **Table 10** below.

Table 10.BWPR social media outreach in FY24.

Social Media Channel	Total Number of Posts in FY23
Facebook	243
Instagram	71
LinkedIn	21
Total	335

Watershed Restoration Grant Program

Successful conservation and preservation of the County's watersheds takes teamwork. 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 11**) is a list of organizations that were awarded funding from Anne Arundel County for water quality restoration projects in 2023 (FY24). Implementation of these projects will result in approximately 78 acres of treated impervious area.

Table 11.Projects awarded BWPR grant funding in FY24.

Organization	Project Description	Watershed	Funding Amount	Match Amount
Magothy River Association	Stewarts Landing Living Shoreline	Magothy	$62,000	$10,000
Arundel Rivers Federation	Hillsmere Shores Marina Resilience Project	South	$56,005	$478,881
Arundel Rivers Federation	Southern District Police Station Rain Garden Makeover and Impervious Removal	South	$63,676	$824
Arundel Rivers Federation	Quiet Waters Shoreline Restoration and Oyster Reef Creation	South	$289,262	$40,000
Arundel Rivers Federation	Southdown Shores Pipe Daylighting and Habitat Creation Project	South	$312,081	$280,792
GreenTrust Alliance Inc.	Enhancing Community Resilience Using a Living Shoreline in Elizabeth's Landing	Patapsco River	$125,238	$126,900
Arundel Rivers Federation	Village of Middle Cove Impervious Removal	South	$30,614	$19,538
TOTAL			$938,876	$956,935

More information about the grant program can be found at [cbtrust.org/grants/anne-arundel-county-watershed-restoration/.](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 12**) is a list of informational presentations and events in which the BUO participated during the reporting period:

Table 12.BUO outreach events in FY24.

Date	Event
7/16/2023	River Days
8/1/2023	National Night Out
9/16/2023	Emergency Preparedness Expo
9/16/2023	Ft. Meade Career Fair
9/21/2023	Glen Burnie High School Signature Program
1/18/2024	GBHS ICST monthly meeting
2/10/2024	Anne Arundel Youth Environmental Action Summit
2/15/2024	GBHS ICST monthly meeting
2/16/2024	CSAWWA/CWEA student hiring event
3/13/2024	Southern High School career fair expo
3/20/2024	Expert day at Marley Elementary School
4/22/2024	CAT North Career Fair
4/26/2024	Jones Elementary 4th Grade "How we treat our water"
5/11/2024	Public Works Experience in Baltimore City
5/18/2024	Ferndale Day
7/13/2024	Crofton Kidz Festival
8/6/2024	National Night Out
8/25/2024	River Days

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 FY2024 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 ensure 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 171,000 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 FY24 to promote the exclusion of plastic bags, wrap, and film from the recycling stream.

Outreach during FY24 included attendance at 18 fairs and festivals and presentations to 11 communities, 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 FY24, WMS staff provided presentations at 24 elementary school and 4 middle school programs, and conducted 8 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 33%.

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 FY24, this program recycled approximately 922 tons of single stream recycling from 114 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.

WMS also offers a Small Business Recycling Program for offices looking to recycle. This program is an extension of the residential recycling program with weekly pick-up of recycling containers by contractors. In FY24, 158 small businesses were signed up for this program and more than 1,128 tons of single-stream recycling was collected.

The County's three recycling centers collect un-bagged plastic, paper, metal and glass items. Clean and dry plastic bags – not accepted with curbside recycling – can be recycled at the County recycling centers or at participating local grocery and retail stores. Since 2019, food scraps and food-soiled paper recycling is available at the Central Recycling Center in Millersville, MD. This service was 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 FY24, six (6) events were held at the County's Heritage Office Complex. These events accounted for the proper disposal of 162 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 FY24, WMS assisted with 118 community cleanup events by providing dumpsters and/or hauling services for nearly 380 tons of trash.

Stream and Watershed Clean-up Support

During FY24, WMS partnered with BWPR to support three (3) large-scale stream and floodplain cleanup events by providing dumpsters and hauling services. These efforts removed 8.76 tons of material from the following streams and floodplains:

- Cross Street Park Cleanup (Brooklyn, MD): 2.53 tons removed
- Forest Drive Floodplain Cleanup behind Outback Steakhouse (Annapolis, MD): 3.95 tons removed

- Patuxent River Clean-up near Piney Orchard WRF (Odenton, MD): 2.28 tons removed

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 FY24 BRF-funded projects for the upgrade or repair of existing septic systems are included in the County's *AltBMPPoint* 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. 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-notices
- Forestry and 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. To provide more information regarding reforestation efforts, land preservation, and funding opportunities, Forestry staff are updating the webpage and providing outreach through local partner events.

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 Division's 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 AASCD 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 FY24, the AASCD developed and/or updated 58 SCWQPs applicable to 4,257.50 acres of farmland. These plans included best management practices equivalent to 2,398.20 WIP credit acres. The design, installation and construction supervision of these practices are the responsibility of the AASCD's planning and technical staff. See **Table 13** for FY24 AASCD agricultural accomplishments.

Table 13.Anne Arundel Soil Conservation District agricultural BMPs FY24.

Best Management Practice	Number of Cooperators	Number of Tracts	Number of BMPs	Extent Installed	Unit
Waste Storage Facility	1	1	1	1.00	NO
Herbaceous Weed Control	1	1	1	4.33	AC
Conservation Cover	1	1	1	36.60	AC
Conservation Crop Rotation	22	32	43	1,436.40	AC
Residue and Tillage Management, No Till/Strip Till	21	31	42	1,413.80	AC
Cover Crop	22	32	43	1,436.40	AC
Critical Area Planting	1	1	1	2.30	AC
Residue and Tillage Management, Mulch Till	1	1	1	22.60	AC
Lined Waterway or Outlet	1	1	1	598.00	FT
Mulching	1	1	1	2.30	AC
Forage Harvest Management	1	1	1	10.70	AC
Pasture & Hay Planting	3	3	4	131.63	AC
Nutrient Management	22	32	43	1,436.40	AC
Dry Waste Storage	5	5	5	5.00	NO
Watercourse Access Control	1	1	1	700.00	FT
Grass Nutrient Exclusion Area on Watercourse (10-34' wide)	2	2	3	3398.00	FT
Barnyard Clean Water Diversion	5	5	5	5.00	NO

Urban Programs

Construction and road building projects can have a significant impact on water quality. The AASCD 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 FY24, the District reviewed 1,030 erosion and sediment

control plans for construction projects. Approximately 578 of these plans were new submittals totaling 10,485 disturbed acres and 452 were revised plans totaling 4,712 disturbed acres. To further protect the County's valuable natural resources, the AASCD 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.

2024 WSA Successes:

- Reached 57,369 Anne Arundel County residents, providing technical assistance or environmental education, including over 6,000 children.
- Planted 19,313 native perennials and shrubs and 4, 538 trees for a total of 23,851 plants in the ground.
- Led more than 728 new restoration projects and 342 maintenance events, monitoring visits and site assessments.
- Stewards donated 10,135 volunteer hours, and mobilized community members to donate an additional 19,792 hours of service towards restoration, education, and outreach, for a combined total of 29,927 hours volunteered for WSA.
- Removed 722,785 + square feet of invasive species
- The WSA Staff hosted an additional 30 outreach/continuing education events and short courses, engaging 951 people through 84 hours of training, and the 11-session Watershed Steward Certification Course (over 70 hours of training and outreach to 30 attendees) for a total of over 80,000 person hours of training.

WSA 15th and 16th Certification Courses

- WSA graduated 31 Stewards as part of the 15th Certification Course.
- WSA recruited 32 Stewards as part of the 16th 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 2024): WSA's conference grows each year, and was held at Maryland Live! Event Center. The 13th Annual Conference drew a record 253 attendees. Stewards, Consortium Members, local government leaders, and other county residents and partners came together to learn and connect. WSA hosted engaging and informative sessions covering topics such as: climate resilience, authentic and impactful community engagement, planning and maintaining BMPs, and integrated vegetation management.
- Continuing Education and Networking: WSA continually adapts continuing education to meet the needs of Stewards. Education and networking include social events to build Steward networks, educational sessions on residential site assessments and advising others on native plants, and additional training on the WSA reporting database. In total, WSA offered 30 Continuing Education/Networking events, drawing over 950 attendees.
- Mentoring: For the third year, WSA 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 52 previously completed projects due for the triennial inspection. Inspections are summarized on a project data sheet. Five (5) 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.

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

- WSA partnered with HOA leaders, development professionals, property managers, environmental experts, and Anne Arundel County staff to lead the Stormwater Success short course in November 2023. The course offered both virtual and in-person learning options, along with an in-person field session in Severn, MD. The course is designed to introduce county residents and HOA leaders to different kinds of stormwater management projects that are in different states of maintenance and help residents navigate the BMP inspection process. The course also connected participants with resources and people from the County and City of Annapolis. County inspectors join the tour to answer questions from participants, which included 35 constituents from different backgrounds, including HOA leaders, property developers, property managers, and stormwater engineers. Planning is underway for the next Stormwater Success course which is scheduled to be held in fall of 2024 on November 7th and 9th. 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 2023 and spring 2024. Thus far, 4,541 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 2023, there have been 2,089 trees planted through the Tree Troopers program.
- Backyard Buffers: In Spring 2024, WSA distributed 1,093 bare root seedlings, provided by the Maryland Department of Natural Resources, to over 59 County Residents.
- Groves of Gratitude: Groves of Gratitude distributed 580 trees to over 60 County Residents in fall 2023.
- Tree Ambassadors: In 2024, WSA trained 14 new Tree Ambassadors, most of whom are located in Annapolis, Brooklyn Park, and Glen Burnie. Planting projects are in process for

Brooklyn Park, Glen Burnie, and the City of Annapolis with 30 trees slated for planting in fall 2024.

- Maintenance and Monitoring: Replant Anne Arundel includes provisions for maintenance through training and sample maintenance plans. Projects are monitored by the respective Tree Trooper who provides information on any die-off as well as observations such as disease, deer rub, or vandalism. Should die-off occur, the Tree Trooper and property owner are encouraged to coordinate for replacement tree plantings.
- Education and Outreach: While planting new trees is important, protecting existing tree canopy is essential. Through the network of 150 Tree Troopers and 16 Tree Ambassadors, 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 2023, Replant Anne Arundel has engaged over 380 County residents in planting on their properties, as well as over 650 volunteers who helped to plant the trees.

Save Our Trees (SOT)

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, in June 2024 SOT surpassed their goal of 5,000 trees saved by cutting and removing invasive vines. 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, established the RePollinate Anne Arundel program. This program has grown over 11,800 native plants and distributed them to over 70 different communities in the County in since 2022. In the fall of 2023, over 4,700 plants were distributed to over 20 project sites, including residential communities, County parks, and Steward projects. In spring of 2024, volunteers grew over 4, 500 native plants from seed to be distributed to County communities in fall 2024. 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/1It1J4HyHCnnrgQS8lO0yDQN4fw0qocE_/view .

Stop POOllution in its Tracks

WSA continued to promote social marketing and outreach campaign materials, developed in partnership with the County's BWPR, aimed at reducing bacterial pollution by encouraging residents to pick up and dispose of pet waste to *Stop Poollution*. WSA held a virtual continuing education session for Stewards, making the campaign tools and materials 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 penetration and future likelihood of residents across the Bay Watershed, with a concentrated oversample of Anne Arundel County residents, 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 in fall 2023 and included County-specific questions.

The survey and top line results compared with both the 2017 County and Baywide samples may be found at:
https://docs.google.com/document/d/1AwMvp_x08wHSXq1guzjoyFygL3dO0fSA/edit?usp=sharing&ouid=101726212625391888556&rtpof=true&sd=true.

Notable data, informing WSA's future work is summarized at:
https://docs.google.com/presentation/d/1jvfOEghVuyYckZFI_K8NhcHYD4plZevf/edit?usp=sharing&ouid=101726212625391888556&rtpof=true&sd=true.

In addition to adoption and future likelihood data for individual behaviors, WSA will be working to increase the number of people who understand that their individual behaviors affect pollution (currently just 33% in AA CO - which is only 3% better than the Baywide score) and build on the tremendous interest (63%) from residents who want to do more to make the environment healthier.

Anne Arundel County government scores 3% lower than the Baywide sample in confidence from residents that environmental problems will be fixed by local government. WSA believes this is not an accurate reflection of what the County IS doing and is working to promote channels for residents to log and receive information about issues in their communities. There is currently a Watershed Steward employed by the County to field some of these complaints and WSA continues to work with BWPR's Outreach Coordinator and this Steward to increase visibility of these systems to our communities.

Additionally, WSA and our contractor OpinionWorks worked with the Chesapeake Bay Program web team to integrate and display the Anne Arundel County data on chesapeakebehaviorchange.org/

and provided a session at WSA's annual conference to introduce this resource and the 2023 data to our constituents.

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, rain gardens, 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 FY24, one (1) planting project was completed with Chesapeake Connections at Mill Creek (step pool system) located behind Magothy River and Severn River Middle Schools. Chesapeake Connections worked with the following schools for this project:

- Magothy River Middle School – 229 students
- Severn River Middle School – 229 students
- Severna Park Middle School – 477 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 FY24 at the same level of implementation as the previous permit. The County performed 6,658 lane miles of street sweeping, which equates to 256 miles every two weeks – the same annual effort since FY19. The street sweeping program collected 233 tons of material from County-maintained streets in FY24.

Anne Arundel County BOH conducts manual and mechanical storm drain inlet cleaning throughout the County. For FY24, the County removed 300 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 FY24, 21.7 million gallons of septage was pumped in Anne Arundel County. This is equivalent to 21,736 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 3 BMP Portfolio, the County exceeded its Year 3 restoration benchmark of 60%. A number of other "replacement" projects were completed during Year 3 of the Permit and these are noted in the normal fashion in the FY24 MS4 Geodatabase. Table 1 in **Appendix F** provides the project-by-project accounting of the Year 3 BMP Portfolio, including the replacement projects. Table 2 in **Appendix F** is the County's planned Year 4 BMP Portfolio.

Table 14 summarizes the County's progress in FY24, as well as the cumulative restoration acreage completed towards the current permit's goal. The County's Year 2 restoration benchmark was set at 60% of the 2,998 acre goal, or approximately 1,800 acres. By the end of FY24 the County completed 2,232 acres of restoration, 74% of the permit goal, far exceeding 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 14.FY24 impervious surface restoration – credit accounting summary.

Restoration Project Type	Equivalent Impervious Credit Acres	
	Completed in FY24	Completed – Cumulative through FY24
Restoration BMPs		
- ESD	8.6	11.2
- structural	54.6	282.6
Alternative Restoration BMPs		
- impervious surface reduction	0.0	0.1
- reforestation and riparian planting	50.3	50.5
- stream restoration	180.3	783.7
- outfall stabilization	3.5	289.9
- shoreline management	53.4	546.4
- septic denitrification	21.6	113.1
- septic connections to WWTP	45.4	154.0
- street sweeping[1]	39.9	39.9
- catch basin and storm drain cleaning[1]	63.1	49.4
- septic pumping[1]	652.1	611.8
TOTAL ACRES[2]	417.6	2,231.5

[1] For annual practices, cumulative attainment values are based on the average equivalent impervious treatment achieved during the FY21-FY24.
[2] Completed total acreages for FY24 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 were received from MDE on January 26, 2024 and are being addressed in the update to the plan that is currently under contract.

In August 2023, MDE approved the DRAFT West River Sediment TMDL Implementation Plan with recommendations. MDE's recommendations are being considered in the update to West River Implementation Plan that is currently under contract.

2. New TMDL Implementation Plans

Within one year of EPAs 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 FY2024; however, following MDEs August 2022 guidance for developing local PCB TMDL watershed implementation plans, Anne Arundel County developed an implementation plan to address the PCB TMDL for the Patuxent Watershed along with a Sampling and Analysis Plan. Both of these documents are submitted as appendices to the Countywide Stormwater TMDL Implementation Plan annual update (**Appendix G**) that is submitted with the FY24 MS4 Annual Report. The County requests MDE review and approval of the draft implementation plan.

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 its Countywide TMDL Stormwater Implementation Plan as part of the in FY23 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 August 19, 2024 from MDE's Water and Science Administration. The County's FY24 Countywide TMDL Stormwater Implementation Plan is submitted as **Appendix G**. Additionally, FY24 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 FY24.

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;*
b. *provide notice on its' webpage outlining how the public may obtain information on TMDL stormwater implementation plan development and opportunities for comment;*
c. *provide copies of TMDL stormwater implementation plans to interested parties upon request;*
d. *allow a minimum 30-day comment period before finalizing TMDL stormwater implementation plans; and*
e. *document, in the final TMDL stormwater implementation plans, how the County provided public outreach and adequately addressed all relevant comments.*

The County maintains a list by watershed of interested parties for notification of TMDL development actions. The list is available upon request. Additionally, 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. Should the public request copies of TMDL stormwater implementation plans, the County will, upon request, provide such copies. No requests were received during FY24.

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.

No new TMDLs, applicable to the County, were approved by EPA in FY2024; therefore, no new TMDL implementation plans were developed. However, the draft Patuxent River PCB TMDL Implementation Plan was completed in early FY25 (Sept. 2024) and will be advertised for a 30-day public comment period in December 2024. As noted earlier, that draft implementation plan is submitted with this annual report for MDE review and approval. Public outreach opportunities, and mechanisms for addressing relevant comments, will 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 began participation in the Pooled Monitoring Program (PMP) coordinated through CBT to meet the BMP Effectiveness Monitoring requirement of the Permit. The County continued PMP participation throughout FY22. On March 1, 2022, following the November 2021 issuance of the current NPDES MS4 Permit, 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; there are no amendments to that MOU which remains in effect through June 30, 2026.

During FY24, the County contributed the required funding to the PMP via Purchase Order issued August 10, 2023. See **Appendix H** for FY 24 funding documentation. The County's FY24 contributed funding was subsequently allocated to support one restoration research grant project that will kick-off in FY25: "Combining Incubations, Sensors, and Molecular Approaches to Understand *E.coli* Sources and Wastewater Contamination across the Anacostia River Watershed (Smithsonian Environmental Research Center).

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 began participation in the Pooled Monitoring Program (PMP) coordinated through CBT to meet the full Watershed Assessment Monitoring requirement of the 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 beginning in FY23 (July 1, 2022); the County would participate in the Watershed Assessment Monitoring PMP for only the Bacteria and Chloride requirements. The Watershed Assessment Monitoring MOU Amendment for FY23 through FY26 and a copy of the March 1, 2022 correspondence was provided in Appendix F of the FY23 MS4 Annual Report**.** There are no further amendments to this MOU and the MOU remains in effect through June 30, 2026.

Beginning in FY23 and continuing through the full permit term, the County is addressing the required Biological and Habitat Assessment Monitoring via the previously-established Countywide Biological Monitoring Program. 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.

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, the Comprehensive Plan was updated and resubmitted to MDE on October 6, 2023 and also included in Appendix F of the FY23 MS4 Annual Report. The County received no further MDE comments on the Comprehensive Plan and no further updates were made to that plan or program SOPs.

The Countywide Biological Monitoring 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), which was 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 above referenced Comprehensive Plan.

The required FY24 biological and habitat data collected from County non-tidal stream reaches is submitted as a stand-alone Excel Workbook file in **Appendix A** (MS4_Biological_Data_Entry_ Workbook_FY24_AACounty.xlsx). The Excel file structure follows the template and data guide provided by MDE in June 2024.

In August 2024, the County learned of a concern regarding adherence to required MBSS lab methods for benthic macroinvertebrate sample sorting. The County brought that concern to the attention of MDE and, after discussion, MDE determined that the resulting taxonomy data may not be usable for state-wide analysis or incorporation with other jurisdictions' data sets. The FY24 data, however, were still of utility to the County and MDE determined that given the steps taken to rectify the issue, they do not consider this to be a permit compliance issue. Please see **Appendix H** for documentation of that discussion and for the side-by-side sorting comparison study work plan that will be undertaken during FY25. Additionally, the County has been assured that all MBSS-required taxonomy laboratory procedures will be employed for FY25 and beyond.

Finally, during FY24 the County contributed the required Watershed Assessment funding to the PMP via Purchase Order issued August 10, 2023 (**Appendix H**). Watershed Assessment and BMP Effectiveness monitoring funds were combined via the same Purchase Order and were allocated to support the previously identified restoration research grant project.

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.

Baltimore Harbor and Curtis Creek/Bay 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 Watershed Protection, Restoration, and Planning Program staff, and University of Maryland, Baltimore County (UMBC) staff, to develop a trackback-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 were presented in the *PCB Source Tracking in Anne Arundel County, January 12, 2022* report, appended to the FY23 Countywide TMDL Stormwater Implementation Plan.

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. The Phase II monitoring results are presented in *PCB Source Tracking in Anne Arundel County – Phase II Final Report, February 2024,* appended to the FY24 Countywide TMDL Stormwater Implementation Plan (**Appendix G** to this Report). During FY25 the County, in collaboration with UMBC, will move forward with Phase III monitoring in the Sawmill Creek watershed and will begin Phase I monitoring in two additional sub-watersheds (Cabin Branch and Marley Creek) of the Baltimore Harbor and Curtis Creek/Bay TMDL shed.

In August 2024, the County contracted with a consultant to update the Baltimore Harbor and Curtis Creek/Bay PCB TMDL Restoration Plan. The updated plan, to be referred to as an Implementation Plan Update, will be completed in FY25.

Patuxent River PCB TMDL

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 contracted for development of the required 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, Prince George's 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. The final drafts of the *Patuxent River PCB TMDL Implementation Plan* and the *Patuxent River PCB TMDL Phase I Subwatershed PCB Screening Sampling and Analysis Plan* documents, as well as the PCB desktop source assessment spatial data package, are appended to the FY24 Countywide TMDL Stormwater Implementation Plan (**Appendix G** to this Report) for MDE review and comment.

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.

The summary of funding and expenditures for FY24 is found in the *FiscalAnalyses* table of the MS4 Geodatabase (**Appendix A**). **Table 15** provides the FY24 break down of expenditures by permit condition.

Table 15.FY24 Fiscal Analysis (operating and capital appropriations).

Permit Condition	Fiscal Year 2024
Legal Authority	$0
Source ID	$3,462,590
SW Management	$1,388,919
Erosion and Sediment Control	$69,628
Illicit Discharge Detection and Elimination	$179,473
Trash and Litter Control	$310,825
Property Management	$1,806,851

Permit Condition	Fiscal Year 2024
Inlet Cleaning	$299,884
Street Sweeping	$331,726
Other Road Maintenance	$0
Public Education	$865,153
Watershed Assessment	$219,901
Watershed Restoration	$38,193,250
Chemical Monitoring Assessment	$141,188
Biological Monitoring Assessment	$549,604
Physical Stream Assessment	$126,393
Stormwater Design Manual Monitoring	$0
TMDL Assessment	$588,023
Annual Report Preparation	$122,840
Total Annual Cost for NPDES MS4 Program	**$57,173,247**

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 FY24 totaled $25,607,622. A total of 223,955 properties in Anne Arundel County were assessed the fee in FY24. In addition to the stormwater fee revenues, the WPRP Fund realized revenues from investment income as well as interfund recovery. Please refer to the FY24 WPRP Annual Report (**Appendix I**) for additional information. Estimated projections of revenue for FY25 are $29,184,500. 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 FY25 through FY30 total $149,540,997.

The Anne Arundel County operating budget for FY24 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.

The Final FY24 BWPR Financial Assurance Plan (FAP) with Executive Summary and the Final County Council Resolution 39-24 approving the FAP are submitted with this Annual Report (**Appendix I**). The County's FAP demonstrates sufficient funding to satisfy the projected two-year ISRP costs. To further demonstrate sufficient funding to satisfy permit requirements, the complete FY24 and FY25 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 FY24 staffing levels were at 88% and additional hiring is underway in FY25. 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.

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