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

Fiscal Year 2025 NPDES MS4 Annual Report
Anne Arundel County
Permit Number: 20-DP-3316 MD0068306

December 2025

Fiscal Year 2025 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 2025

Submitted by:

Anne Arundel County
Department of Public Works
Bureau of Watershed Protection and Restoration
2662 Riva Road
Annapolis, MD 21401

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 2025 (July 1, 2024 through June 30, 2025) 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 fourth MS4 Annual Report prepared under this permit.

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

II. MS4 Program

Components of the County's MS4 Program were established to address the requirements outlined in the County's NPDES MS4 Permit. The major components also address Stormwater Waste Load Allocations (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 stormwater management programs 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 2025 (FY25), 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 shows the County's organizational chart for FY25. Official correspondence regarding permit compliance and implementation should be sent to Erik Michelsen. All individuals involved in the MS4 permit compliance are listed below.

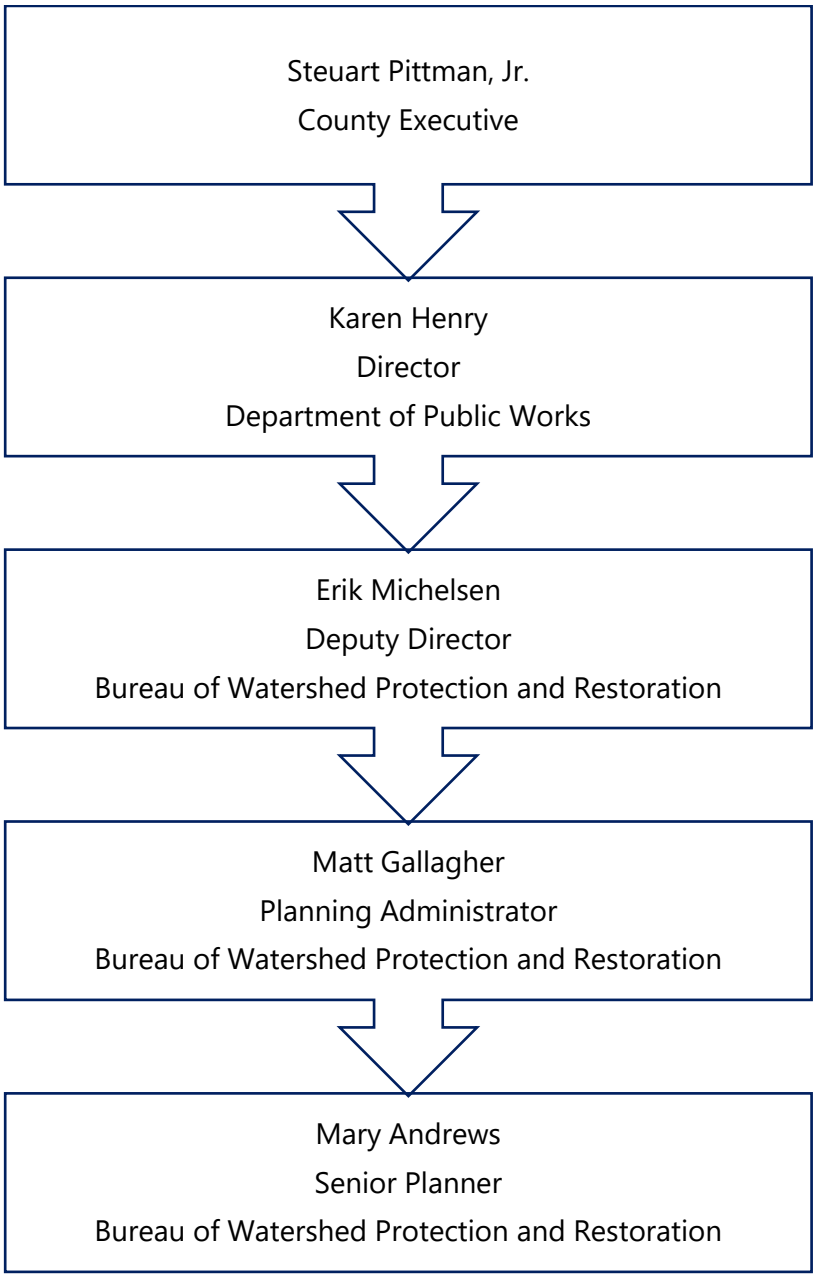

Figure 1: Organizational chart for NPDES MS4 Permit administration (FY25).

Mr. Erik Michelsen
Deputy Director, BWPR
Anne Arundel County DPW
2662 Riva Road, MS 7409
Annapolis, MD 21403
410.222.7520
pwmich20@aacounty.org

Mr. Matt Gallagher
Environmental Planning Administrator, BWPR
Anne Arundel County DPW
2662 Riva Road, MS 7409
Annapolis, MD 21403
410.222.0549
pwgall24@aacounty.org

Ms. Mary Andrews
Senior Planner, BWPR
Anne Arundel County DPW
2662 Riva Road, MS 7409
Annapolis, MD 21403
410.222.0551
pwandr25@aacounty.org

Table 1: Additional County staff responsible for components of the NPDES MS4 Permit requirements during FY25.

Permit Section	Permit Section Description	Department	Responsible Party	Title
Part IV.A	Organization Chart	DPW-BWPR	Mary Andrews	Senior Planner
Part IV.B	Legal Authority	DPW-BWPR	Mary Andrews	Senior Planner
Part IV.C	Source Identification	DPW-BWPR	Brenda Morgan	Engineer Manager, Modeling and Analysis
Part IV.C	Source Identification - Storm Drain System	DPW-BWPR	Richard Davis	Engineer Administrator, Stormwater Infrastructure Program (SIP)
Part IV.C	Source Identification - Monitoring Locations	DPW-BWPR	Dr. Emma Clarkson	Water Quality Compliance Specialist
Part IV. D.1	Stormwater Management - Stormwater Design Manual	DPW-I&P	Raghavenderrao Badami	Assistant Director, Erosion and Sediment Control Program and Stormwater Management Program
Part IV. D.1	Stormwater Management	DPW-BWPR	Richard Davis	Engineer Administrator, Stormwater Infrastructure Program (SIP)
Part IV. D.2	Erosion and Sediment Control	DPW-I&P	Raghavenderrao Badami	Assistant Director, Erosion and Sediment Control Program and Stormwater Management Program
Part IV. D.3	Illicit Discharge Detection and Elimination	DPW-BWPR	Doug Griffith	Planner II, Ecological Assessment and Evaluation
Part IV. D.4	Property Management and Maintenance	DPW-BOH	Carl Donnor	Assistant Chief of Road Operations

Permit Section	Permit Section Description	Department	Responsible Party	Title
Part IV. D.4	Property Management and Maintenance	DPW-BUO	Freddy Ordonez	Wastewater Support Services
Part IV. D.4	Property Management and Maintenance	DPW-WMS	Mark Morris	Environmental Monitoring Manager
Part IV. D.4	Property Management and Maintenance - Good Housekeeping Plans	DPW-BWPR	Doug Griffith	Planner II, Ecological Assessment and Evaluation
Part IV. D.4	Property Management and Maintenance - Salt Management Plan	DPW-BWPR	Mary Andrews	Senior Planner
Part IV. D.4	Property Management and Maintenance - Salt Management Plan	DPW-BOH	Carl Donnor	Assistant Chief of Road Operations
Part IV.D.5	Public Education	DPW-BWPR	Sally Albright	Public Education and Outreach Specialist
Part IV.E	Stormwater Restoration	DPW-BWPR	Jens Geratz	Engineer Manager, Capital Improvement Program (CIP) Restoration Implementation
Part IV.F	Countywide TMDL Stormwater Implementation Plan	DPW-BWPR	Matt Gallagher	Planning Administrator, Ecological Assessment and Evaluation
Part IV.G	Assessment of Controls	DPW-BWPR	Dr. Emma Clarkson	Water Quality Compliance Specialist
Part IV.H	Program Funding	DPW-BWPR	Mike Hrubiak	Financial Services Senior Management Assistant
Part IV.H	Program Funding	DPW-BWPR	Katie Mullen	Grants Administrator

DPW – Department of Public Works, BWPR – Bureau of Watershed Protection & Restoration, I&P – Department of Inspections & Permits, BOH – Bureau of Highways, WMS – Bureau of Waste Management Services, BUO – Bureau of Utility Operations

In addition to the above points of contact, MS4 permit compliance includes over 30 Bureau of Watershed Protection and Restoration, 15 Department of Inspections & Permitting, 2 Bureau of Waste Management Services, 5 Bureau of Engineering, 3 Bureau of Utility Operations, 5 Department of Health and 2 Anne Arundel Soil Conservation District employees.

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 FY25 there were no updates to the County Code that affected legal authority to meet Permit requirements.

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.

On September 6, 2024, the County submitted an application for continued delegation of erosion and sediment control (E&S) enforcement authority, with supporting materials for eight active construction sites totaling 116 acres of earth disturbance (**Appendix B**). On February 21, 2025, the County was approved for continued delegation of erosion and sediment control enforcement authority (**Appendix B**). This delegation of authority is effective through June 30, 2027. The County remains in compliance with NPDES MS4 permit requirements to implement and maintain an acceptable erosion and sediment control program.

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, the program will result in a Pipeline Assessment Certification Program (PACP) rating and condition assessment for over 1,000 miles of closed storm drain pipes. In FY25, the County performed 137,915 linear feet of CSDS inspection. The inspection data are queued for integration into the County's enterprise asset management system, VUEWorks, in late 2025.

As of the end of June 2025 there were 40,604 storm drain inlets, 1,048 miles of storm drain pipes, and 6,714 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 6,714 storm drain outfalls in the FY25 County inventory, 2,960 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 1,549 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 July 2025.

In FY25, the County is submitting 16,873 BMP points; as noted in the comments of the *BMP* feature class, 276 of these solely represent restoration BMPs. Of these 276, 30 represent cancelled or are inactive, 229 are complete, and 17 are in the planning stage. There are 16,769 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 FY25 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 2023 for the State of Maryland's High-Resolution Aerial Ortho-photography. This dataset was improved and refined after a thorough multi-year comparison with 2014, 2017 and 2020 data captures.

a) Controlled vs. Uncontrolled Impervious Surface Analysis

i. *Jurisdictional and Non-Jurisdictional Land within the County*

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

ii. *Controlled Impervious Areas*

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

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

Table 2 provides the results of the impervious area analysis using the revised 2023 impervious dataset, showing that 12,804 impervious acres (33.5%), out of a total of 38,112 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 29% vs. 71% and 35% vs. 65%, respectively.

Table 2: Controlled vs. uncontrolled impervious acreage for Anne Arundel County jurisdictional land based on the 2023 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	487	2,249	2,735	1,548	3,885	5,433	8,168
Bodkin Creek	02130902	73	124	197	171	424	595	792
Little Patuxent River	02131105	309	2,515	2,824	555	1,940	2,495	5,319
Lower North Branch Patapsco River	02130906	234	1,439	1,673	401	1,518	1,919	3,592
Lower Patuxent River	02131101	0	24	24	25	108	133	157
Magothy River	02131001	447	789	1,235	955	2,363	3,319	4,554
Middle Patuxent River	02131102	10	79	89	152	857	1,009	1,098
Severn River	02131002	617	1,749	2,366	1,019	3,429	4,448	6,814
South River	02131003	282	880	1,161	839	2,232	3,071	4,232
Upper Patuxent River	02131104	51	301	352	231	927	1,158	1,511
West Chesapeake Bay	02131005	17	58	75	161	644	805	880
West River	02131004	13	58	71	199	724	923	995
Total		**2,540**	**10,263**	**12,804**	**6,257**	**19,051**	**25,308**	**38,112**

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 FY25, 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 FY25 associated with the BMP Effectiveness monitoring requirements. 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 also no associated FY25 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 Stream Survey Round 4 (2023-2027). In FY25, sampling was conducted in the Upper Magothy, Upper North River, Lower North River, Stocketts Run, and Hall Creek sub-watersheds. The 2025 monitoring locations and required data are submitted in a stand-alone Excel workbook found in **Appendix I** 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 H**) detail the corresponding water quality improvements. The fifth generation MS4 permit that was issued on November 5, 2021 requires 2,998 impervious acres to be treated by November 4, 2026.

Table 3 provides a summary of the FY25 project inventory, including 173 new restoration projects completed and 87 projects currently under construction or design.

All new watershed restoration projects that have progressed to the schematic (30%) design phase as of the end of FY25 have been added to the appropriate feature classes in the MS4 Geodatabase. **Appendix K** contains design reports and/or plan drawings for stream restoration projects added to the County's restoration project inventory during FY25.

Table 3: FY25 Restoration BMP project inventory summary.

	Projects Completed in FY25	Projects Completed – Cumulative through FY25	Projects Under Design or Under Construction in FY25
Restoration BMPs			
- ESD	0	14	1
- Structural	4	40	16
Alternative Restoration BMPs			
- impervious surface reduction	2	4	3
- reforestation and riparian planting	4	8	1
- stream restoration	3 (4,717 ft.)	24 (35,231 ft.)	35 (93,013 ft.)
- outfall stabilization	3 (2,015 ft.)	13 (7,610 ft.)	14 (8,031 ft.)
- shoreline management	0 (0 ft.)	21 (16,477 ft.)	17 (11,775 ft.)
- septic denitrification [1]	145	851	0
- septic connections to WWTP [1]	12	128	0
- street sweeping *(annual practice)* [2]	256 lane miles	256 lane miles	-
- catch basin and storm drain cleaning *(annual practice)* [2]	312.7 tons/yr.	250.9 tons/yr.	-
- septic pumping *(annual practice)* [2]	22,452 units/yr.	20,809 units/yr.	-
Total number of projects (excl. annual practices)	173	1,103	87

[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-FY25.

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 FY25, 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.

The County Stormwater Management Practices and Procedures Manual was revised and made public on the County's website on October 1, 2017. There were no formal updates to the Practices & Procedures Manual in FY25. 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. These notices

are posted for a 30-day comment period and any comments received during the 30-day open comment period are considered by staff for inclusion, including meeting with stakeholders as needed to discuss and review the comments received. A final version of the Blue Notice will be posted online after the 30-day public comment period ends. As requested by MDE, the County began sending all Blue Notices related to stormwater management and ESC to MDE for their review/comments prior to publishing/implementing. This effort was implemented beginning with IP-24-03 (Bioswale guidance notice).

During FY25, the following Blue Notices were issued (also found in **Appendix B):**

- IP-24-02 -July 16 2024 - Guidance on Hydrologic and Topographic Site Design.
- IP-24-03 Dec 26, 2024 - Guidance on the design, construction, and maintenance of bioswales.
- IP-25-01- March 13, 2025 - Guidance on Private Roads for Development Projects.

Blue Notice IP-24-02 - Guidance on Hydrologic and Topographic Site Design is a memo providing guidance on site grading, existing and proposed elevations, and handling offsite runoff. It aims to address numerous homeowner complaints regarding flooding and drainage due to inadequate site designs, outlining requirements for detailed plans and proper execution to prevent negative impacts on properties.

Blue Notice IP-24-03 - Guidance on the design, construction, and maintenance of bioswales is guidance on the design, construction, and maintenance of bioswales for development projects. This memo details BMPs for bioswales, which are designed based on various factors including site conditions, terrain, and stormwater treatment suitability.

Blue Notice IP-25-01- March 13, 2025 - Guidance on Private Roads for Development Projects is guidance on private roads for development projects, clarifying their role in technical determinations for privately owned and maintained facilities. This guidance separates private road requirements from public road standards, which were updated by the Department of Public Works in August 2020.

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 FY25, County records indicate the following activities (Table 4).

Table 4: Concept, Site Development, Final Development, and Redevelopment Plans received in FY25.

Type	Number of Projects Received
Concept Plan(a)	99
Site Development Plan (a)	57
Final Development Plan (b)	68
Final Redevelopment Plan (c)	4
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:

- 2468 Stormwater Construction Inspections; 5718 individual practices inspected*
- 233 Stormwater Correction Notices

**Stormwater Construction inspections include a cumulative inspection of an entire site's stormwater practices. FY25 had 5718 individual practices inspected.*

County code requires that a developer shall notify Inspections and Permits (I&P) at least 48 hours before commencing work and on completion of any work in conjunction with the stormwater management plan. County Code also requires that during construction, developers provide I&P with documentation of regular inspections, at a minimum, at each stage of construction; the Department updated as-built checklists to provide guidance to the developer/applicant on these inspections and how to document them in a consistent manner for all projects. To help with the stormwater management facility inspections, two dedicated inspectors have been assigned to review these inspections and also to help facilitate the HOA BMP hand-off meetings, inspections during the 2-yr warranty period and final inspection prior to the release of the performance and completion security. The grading permit was closed for the first project that is subject to the warranty inspections at the end of FY25. The first BMP hand-off meeting occurred in July 2025 and warranty inspections started in early FY26.

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 FY25, I&P stormwater inspectors averaged around 650 inspections each month. In a parallel vein, DPW staff averaged 40 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:

- 8,345 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 FY25 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 FY25 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 FY25. Additional information relating to inspection and enforcement activities in FY25 is provided in the stormwater management 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 1,708 records for FY25. 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 FY25 *BMPInspections* table contains 19 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, 2027. Correspondence pertaining to this continued delegation of authority, and successful program compliance with the requirements of this MS4 Permit, is provided in **Appendix B**.

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 delegation of authority annual review, MDE found the department's program successfully identified issues, took effective action within an appropriate time frame and fully documented any corrective actions needed. The delegation of authority was reissued and is effective through June 30, 2027 (**Appendix B**). Inspection reports were commended for having well documented and timestamped photos as well as detailed reports of issues and corrective actions. However, MDE listed the need to (1) address inconsistencies between the inspection reports and (2) standardize the reporting of non-compliance and corrective actions.

The County is actively addressing the issues identified by MDE and has initiated diligent efforts to resolve them. Below is a summary of the County's actions taken in FY25 to tackle these identified issues:

- New Permitting Software: In late winter 2024/early spring 2025, staff collaborated with the County's Office of Information Technology (OIT) and permitting software developers to implement changes to the County's permitting software. The software developers were tasked with software enhancements, streamlining inspection logging, and improving access to prior inspection reports and overall reporting. These were all issues identified during MDE's audit and review.
- New Inspection Report: In FY25, the County implemented a new inspection report that mandates inspectors to include a reinspection date, if applicable. The new inspection report also standardized reports across all inspectors to ensure consistency and eliminate variations.

- Testing and Refinement of new permitting software and new inspections report: Multiple iterations of the new program and inspection reporting format underwent testing by supervisors and inspectors in FY25. Identified issues were addressed to the greatest extent possible before the roll-out and production phase. In June, the County successfully published an updated inspection report through the permitting software.
- Current Implementation: Staff are currently utilizing this new inspection report for all site inspections, a measure expected to effectively address the concerns raised during the county's program audit and review.
- Ongoing Documentation: As part of daily use, any newly identified issues with the permitting software and/or inspection reports are being documented for further discussion and resolution with the program developers on an ongoing basis.
- Inspection Photographs: Inspections are to include photographs after corrective actions have been completed. Due to current program limitations, this feature is not yet integrated into the system. Photos are shared separately with the permittee/responsible party by the inspector after the inspection.

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. 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 FY25 field effort was focused within a geographic area in the southern portion of the County constrained by MD RT 50 to the north. In total, field crews successfully inspected 163 major and minor outfalls draining commercial, industrial, and residential land uses, including outfalls located on 3 County-owned properties (police and fire facilities) within the target area. Details can be found in the Anne Arundel County Illicit Discharge Detection and Elimination Program Report: July 2024 – June 2025 (Fiscal Year 2025) (**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. There are no revisions to those SOPs for the FY25 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 2024 – June 2025 (Fiscal Year 2025) (**Appendix C** and **Appendix A**).

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 private (non-municipal) 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 2024 – June 2025 (Fiscal Year 2025) (**Appendix C**).

For the FY25 reporting period, field crews evaluated 267 commercial and industrial sites 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.**

Three County-owned and improved properties (two police facilities, and one fire facility) were visually screened for potential upland pollution source identification in FY25. Stormwater maintenance needs and/or possible upland pollution sources were identified at two of the properties. 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 FY25. The finalized SOP for the IDDE program can be found in the FY23 MS4 Annual Report (Appendix C).

e) County Code prohibition on illicit discharges

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

f) IDDE enforcement program

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

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

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

For the FY25 reporting period, I&P addressed twelve (12) 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, twenty (20) illicit discharge, dumping, or storm drainage complaints were reported to I&P during the FY25 reporting period; these cases are 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 a referral through 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 FY25 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 20-SW Permit 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 FY25 reporting period, it was not necessary to issue any civil citations for failure to eliminate illicit storm drain discharges.

For the FY25 reporting period, the Health Department addressed eight (8) 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 FY25, no civil citations were issued by the Department of Health for violations stemming from IDDE-related surveys.

As part of its general activities associated with food service facilities, the Health Department has protocols for abatement of leaking or overflowing dumpsters. Enforcement is conducted under State of Maryland Regulations dealing with Food Service Facilities (COMAR 10.15.03.19) which requires that each facility retain a sufficient number of durable refuse containers capable of holding the facility's garbage between periods of removal; the containers must be adequately covered and not leaking. Violation of this regulation would be marked on the food facility inspection report and would require correction typically within 30 days of the investigation. Failure to comply by the second re-inspection would result in $175 re-inspection fees until compliance is achieved.

g) FY25 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 2025 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 FY25 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 FY25 reporting period, two (2) yielded a result above the action-criteria limit for one or more of the tested contaminants:

- Outfall O22E8O00001 Dry weather flow exceeded chlorine action levels on both the initial and follow-up visits. The discharge was traced upstream to a manhole - the inlet connected to the manhole was dry, but running water could be heard. It was believed that the water was discharging from a point in the pipe connection between the manhole and inlet. All the other upstream structures were dry. The source of the discharge is believed to be a water line break leaking into the storm drain. County Utilities personnel identified and corrected a potable water main break.

- Outfall B11G7O00012 Dry weather flow exceeded ammonia action levels on both the initial and follow-up visits, and a grey sheen was seen on the surface of the pooling water around the outfall. The two accessible upstream inlets were both dry. The source of illicit discharge was unable to be identified. Based on past findings at the outfall, it is possible there is an illicit connection in the storm drain system that may be tied to two nearby businesses. I&P and Utilities personnel are working towards telescoping the storm drain lines to identify possible illicit connections.

Complete investigation details, including a site-specific report, agency responses, and detailed corrective actions, are found in the Illicit Discharge Detection and Elimination – FY 2025 Annual Report (**Appendix C**).

The County consultant's field teams identified six (6) locations where physical issues significantly affected stormwater infrastructure within the targeted areas of Anne Arundel County during the FY25 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 Stormwater Industrial General Permit 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.*

As of the end of FY24, all County-owned and 20-SW Permit 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
Anne Arundel County Utility Operations Center	20-SW-2345	MDR002345	November 15, 2023	Jan. 31, 2028

Compliance documentation, as required by the 20-SW Permit, 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

Related to the 20-SW Permit at the County's Road Operations Yards, each SWPPP was implemented which included performing routine facility inspections and visual assessments; quarterly benchmark sampling; and comprehensive annual inspections. Pollution prevention training was conducted with Road District personnel during the reporting period. Each facility completed an internal document review during the comprehensive annual inspections and continued maintenance improvements

were implemented to further prevent stormwater impacts (installing coir log wattles and wooden bulkheads. 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 (BWMS) Stormwater Pollution Prevention Plan Development and Implementation

The State's 20-SW Permit also applies to the three County-owned facilities managed by BWMS identified in Table 5. During the reporting period, annual comprehensive SWPPP compliance inspections were performed at these facilities in October 2024 and will be performed again in the fourth quarter of calendar year 2025, pollution prevention training occurs annually, visual inspections and 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. BWMS 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, Wastewater Operations contracted SCS Engineers to perform quarterly and annual inspections at all WRF facilities and the Utility Operations Center. Plant operators perform the quarterly rain event sampling at their respective plants. SCS Engineers perform the quarterly wet sample at Utility Operations Center. Pollution prevention training is conducted annually at the WRF's by the WRF's team manager; the Utility Operations Center training was re-scheduled for late September 2024. Two Wastewater Operations team members that report to Millersville received stormwater inspection certifications and training in September 2024. SWPPP records are maintained at each facility.

Arundel County's Water Reclamation Facilities (WRFs) NPDES wastewater discharge permits are current. NPDES wastewater discharge permit reapplications for the Annapolis, Broadneck, Broadwater, and Cox Creek WRFs (Table 6) were submitted to MDE as required in FY24. Wastewater Discharge Permits were re-issued for Annapolis, Broadneck, and Broadwater in FY25. Cox Creek WRF is still in the re-issuance process. Maryland City, Patuxent, and Piney Orchard WRFs discharge permits do not need renewed at this time. Additionally, these three WRFs discharge to the Patuxent River; their nutrient (TN and TP) waste load allocations 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 6: County Water Reclamation Facility discharge permits.

Facility	Permit	Permit Coverage Period
Annapolis WRF	20-DP-0838	Feb. 1, 2025 - Jan. 30, 2030
Broadneck WRF	21-DP-0677	May 1, 2025 – Apr. 30, 2030
Broadwater WRF	21-DP-0813	Jun. 1, 2025 – May 1, 2030
Cox Creek WRF	14-DP-0698	Jan. 1, 2020 – Dec. 31, 2024
Maryland City WRF	18-DP-2393	July 1, 2023 – June 30, 2028
Patuxent WRF	18-DP0-132	July 1, 2023 – June 30, 2028
Piney Orchard WRF	21-DP-1936	July 1, 2023 – June 30, 2028

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.*

In FY23 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. These Draft GHPs were provided with the FY 24 Annual Report for MDE review, comment, and/or approval. Concurrent with submission of these draft GHPs, site assessments continued for an additional 300-plus County-owned properties. As of June 30, 2025 all applicable County-owned properties were assessed, and draft GHPs were developed for 73 additional qualifying properties. These draft GHPs, as well as a countywide map indicating the location of all properties with GHPs, are provided for MDE review, comment, and/or approval with this FY25 MS4 Annual Report and can be found in **Appendix D** and the MS4 Geodatabase *NarrativeFiles*.

MDE approved pollution prevention training associated with GHPs in March 2024 and the County is currently developing a means to track and record GHP training attendance. GHP training will be implemented in calendar year 2026, and the number of County personnel trained in good housekeeping practices will be reported in the FY26 MS4 Annual Report.

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

The County's street sweeping program focuses primarily 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. During the reporting period, these prioritized roads were scheduled for twice-monthly street sweeping. This service was occasionally suspended for specific situations (weather events, emergencies, etc.) but generally covered the typical amount of road miles. 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.

During FY25, the County swept 6,675 lane miles, which equates to 556 lane miles per month – essentially the same as the last reporting period (6,685). 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.

The BOH conducts manual and mechanical storm drain inlet cleaning throughout the County. For FY25, the County manually cleaned and removed debris from catch basins, inlets, and outlets of pipes to maintain proper drainage for 4,907 structures. This is a 4% increase from the previous reporting period in which 4,716 structures were cleaned by hand.

In addition, the County inspects catch basins, manholes, and associated pipes to identify structures for cleaning with a sewer vacuum or power rodder. A total of 2,354 structures required cleaning with a sewer vacuum, an increase of 35% from the last reporting period in which 1,744 were cleaned with a sewer vacuum. A total of 39,585 linear feet of pipe were cleaned, an increase of 38% from the last reporting period in which 28,731 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 35,619 feet during the reporting period. This is an increase of 12% from the last reporting period in which the County cleaned 31,729 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 FY25 MS4 Geodatabase (**Appendix A**). The County does not maintain information regarding the quantity of materials used by State programs in which Anne Arundel County may make a financial contribution

to support. Examples of such programs include Maryland Department of Agriculture (MDA)'s programs for spongy moth and mosquito control.

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 19.4 gallons of glyphosate was used by BOH; an 86% decrease over the previous reporting period (140.8 gallons). However, the 140.8 gallons in FY24 included the chemical plus water sprayed and did not represent the actual amount of chemical applied. The County will ensure proper reporting for future years. 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 FY25 are listed in Table 7. The quantities of each are included in the FY25 MS4 Geodatabase *ChemicalApplication* table.

Table 7: Herbicides and fertilizers used by the FMD Horticulture Unit in FY25.

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

Landfills and recycling centers managed by BWMS 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. Fertilizer use on BWMS properties, such as the side slopes on landfills or closed cells, is generally not used unless nutrients are needed to encourage proper growth to prevent soil erosion and limit runoff. For FY25, BWMS did not use herbicides or fertilizers on side slopes or closed cells; however, the construction of Subcell 9.3 at the Millersville Landfill necessitated seeding and fertilizer for a large area of exposed soil, which is reflected in the increased fertilizer use in the FY25 MS4 Geodatabase *ChemicalApplication* table.

BWMS employs a contractor who holds a Pest Control Applicator Certificate. Pesticides are applied indoors at WMS facilities and outside around buildings. In FY25, outside pesticide use included the active ingredients Bifenthrin, Bromodiolone, Orthoboric Acid, Brodifacoum, and Deltamethrin. Quantities of each chemical used are found in the FY25 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 herbicide Amine 400 on certain AACRP athletic fields and park properties. The chemicals are applied only as and where needed. Fertilizer was applied to 25 athletic fields associated with County park facilities in FY25. Quantities of chemicals used by AACRP are included in the FY25 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 FY25, 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 (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 complying with all applicable laws and regulations.

During the reporting period, the AACRP continued implementation of an IPM program for County parks and athletic facilities (effective July 1, 2013 modified Article 14 of the County Code §14-1-105:

https://codelibrary.amlegal.com/codes/annearundel/latest/annearundelco_md/0-0-0-112982).
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

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.*

i. *Salt Management Plan*

In 2014, after the publication 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. In the third annual report (FY24), the County submitted the Department of Public Works Salt Management Plan (SMP) for review and comment by MDE. The SMP described appropriate best practices for winter weather management activities, tracking material use, staff training, and public education. The County was commended for being an early adopter of salt management practices, as the original plan was first drafted in 2014. However, the 2014 plan did not outline specific actions beyond 2024. The SMP is intended to be updated and adapted over time; therefore, the County was asked to resubmit an

updated plan by the fifth year Annual Report due December 31, 2026. The County continues to work diligently to update the plan for FY26 re-submission.

ii. *Technology, Training and Education*

During FY25, 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 will also be 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. In FY25, no County personnel and contractor staff participated in the training sessions (see the MS4 Geodatabase *MunicipalFacilities* feature class in **Appendix A**); however, training is planned for FY26. These training sessions will 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.

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. 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. Guidance on snow removal and deicing practices for residents and businesses can also be found via the County webpage at: 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.

iii. *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 FY25 are found in Table 8. Deicing and anti-icing chemical data for the four previous reporting periods are provided as a comparison. The quantity of materials used each year is variable because it is based on actual winter weather conditions including precipitation type, precipitation frequency, and factors such as road surface temperature.

Table 8: Deicing material applied by the Bureau of Highways, FY 2021–2025.

Material	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Road Salt (tons)	12,850	10,672	824	7,796	13,671
Liquid Salt Brine (gal.)	4,000[a]	193,000[a]	23,350[a]	115,050[a]	94,815[a]
Liquid Calcium Chloride (gal.)	0[b]	0[b]	0[b]	0[b]	4,300
NWS Snow Totals – BWI (in.)	8.9[c]	12.5[c]	0.2[c]	10.9[c]	12.7[c]
NWS Avg. Winter Temp (°F)	40.3	44.5	39.8	42.8	37.5

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

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 FY25 winter, 3.5 tons of bulk road salt and 2 tons of bagged deicer (mixture of sodium chloride, magnesium chloride, calcium chloride, and potassium chloride) were used at three BWMS facilities. The BUO utilized approximately 1.7 tons of bulk road salt at their facilities (Utility Ops Center and WRFs) to ensure access roads and walkways remained open and safe. During FY25, County Central Services Facilities Maintenance Division (FMD) reports using approximately 33.6 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 FY25 found in the *ChemicalApplication* table of the MS4 Geodatabase.

In the fourth year of the annual report, the County was required to track and record the amounts of materials used, and snowfall per event, if applicable; and report the deicing or anti-icing application by event or date, and pounds used per lane mile per inch of snow. This information can be found in Table 9. BOH tracked road salt use per pound per lane miles; however, BOH lacked the necessary technology and reporting mechanisms to track salt brine use per pound per lane mile this year. The brine data will be available in the final reporting year, accompanied by an updated SMP. Additional detailed information on deicing and anti-icing materials used by the County BOH during FY25 can also be found in **Appendix E**.

Table 9: Amount of deicing and anti-icing materials used per snowfall event.

Storm Event Start Date:	1/6/2025	1/10/2025	1/19/2025	2/11/2025
Storm Event End Date:	1/7/2025	1/12/2025	1/20/2025	2/12/2025
BWI Accumulation (inches) *	6.0	1.3	1.0	3.8
Road Salt Use (tons)	710	0	461	2,351
Road Salt Use (lbs)	1,420,000	0	922,000	4,702,000
Lane Miles (miles)	4,439.08	4,439.08	4,439.08	4,439.08
Pound per Lane Mile	319.89	0	207.70	1,059.23
Pounds per Mile per Inch	**53**	**0**	**207**	**279**
Storm Event Start Date:	1/6/2025	1/10/2025	1/19/2025	2/11/2025
Storm Event End Date:	1/7/2025	1/12/2025	1/20/2025	2/12/2025
BWI Accumulation (inches)	6.0	1.3	1.0	3.8
Brine Use (tons)	**48,100**	**11,500**	**14,250**	**20,915**

** Basing operational metrics like Pounds of Road Salt per Lane Mile per Inch of Snow (lb/LM/inch) on the BWI snowfall total does not always reflect a true application rate, as the denominator (inches of snow) could be substantially greater or lesser across the rest of the maintenance jurisdiction, leading to an inaccurate assessment of salt usage efficiency.*

Across the County, snowfall totals during storm events can vary notably by several inches between inland northern areas and southern or coastal regions, with the inland northern locations sometimes receiving up to four times the accumulation. This geographical disparity creates significant complications for winter road maintenance planning. The application of de-icing and anti-icing materials is highly complex and hinges on dynamic factors beyond snow depth, including crucial variables like road surface temperature (more critical than air temperature), the specific type of precipitation, and the chemical's eutectic temperature (lowest effective melting point). Incorrect timing or chemical selection can be ineffective, while factors like precipitation rate, traffic volume, and environmental impact (particularly chloride runoff into the Chesapeake Bay) further dictate the

type and minimum effective application rate, demanding constant monitoring and adjustment by crews.

The official snowfall total from the BWI NWS station, located in the county's northern sector, can underrepresent or, at times, fail to capture spatial variability in snowfall, making the BWI reading an incomplete measure for the entire jurisdiction. However, BWI still remains the best approximation of snowfall in the County with the highest quality control. Consequently, utilizing the BWI total to calculate operational metrics like Pounds of Chemical per Lane Mile per Inch of Snow can lead to an inaccurate assessment of chemical usage efficiency, as the actual snow depth (the denominator) often varies across the county. Public safety remains the foremost priority in all winter weather activities; thus, pre-treatment applications of salt or brine will inevitably occur based on forecasts that sometimes prove inaccurate, resulting in little or no snow and a necessary, but non-optimal, use of chemical resources.

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 FY25 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 FY25, and as noted earlier in Part IV.C.6, storm drain inlet and CBC activities prevented 312 tons of litter and debris from entering the County storm drain system. The current permit-term (FY22-FY25) yearly average of material removed via CBC is 271 tons, which exceeds the annual benchmark (174.5 tons).

Additionally, BOH conducts manual litter and trash removal from County roadsides throughout the year. In FY25, 69.6 tons (5,568 bags) of litter and 844 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.

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.

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., 2025).

During this reporting period, 526 building and 345 environmental complaints were documented via the compliance database (Table 10).

Table 10:FY25 Environmental Complaints from Code Compliance Database.

Environmental Compliance Category	# Complaints
Bog Area	1
Civil Citation Non-Compliant	1
Construction in Critical Area	2
Critical Area in Buffer Disturbance	10
Critical Area Clearing/Grading	63
Critical Area Tree Clearing/Buffer	15
Discolored Water complaint	2
Drainage Complaint	22
Exceeding Scope of Permit	6
Floodplain Complaint	0
Forest Conservation Easement Complaint	8
General	5
General Complaint/Information Needed	6
Grading w/o Permit	84
Illegal Discharge Complaint	20
Illegal Filling Complaint	0
Non-Tidal Wetlands Complaint	1
Sediment Controls Down/Missing	36
Slope (Damage/Construction)	3
Standard Grading Plan Issued	0

Environmental Compliance Category	# Complaints
Stock Pile (General)	0
Stormwater Management Issues	6
Tidal Wetland Complaint	0
Tracking Mud onto R-O-W Complaint	4
Tree Clearing (General) Complaint	37
Tree Clearing Over Critical Area	13
Working Over Stop Work Order	0
Total Environmental Complaints	**345**

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

Anne Arundel County actively educates residents on water quality and environmental stewardship through various outreach programs, exceeding the required 75 annual efforts through in-person events, virtual meetings, and extensive online resources. A core component of this initiative is the Bureau of Watershed Protection & Restoration (BWPR)'s website (www.aarivers.org) which provides information on stormwater pollution, restoration plans, and links to other County departments.

The BWPR's internet resources **(Appendix F**) include dedicated webpages for MS4 related subjects such as the annual "A Land of Rivers" report, Illicit Discharge Detection & Elimination (IDDE), the Watershed Protection and Restoration Fee (WPRF) fee, community stream cleanup efforts and pet waste pollution. Interactive maps are available for BWPR restoration projects, watershed mapping, and a watershed protection & restoration fee viewer. The BWPR also provides information on TMDL Restoration Plans and NPDES MS4 Permit details on its website. The website houses the draft and final TMDL plans and each NPDES annual report for public viewing.

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 some cases, feedback from the local community is taken into account from the design process through construction. The following (Table 11) is a list of informational presentations, events, and residential site visits in which the BWPR participated during the reporting period:

Table 11:BWPR outreach events in FY25.

#	Date	Organization/Event	Topic
1	7/8/24	Broadneck ES classroom presentation/activity	"Sum of the Parts" activity
2	7/9/24	Center for Watershed Protection	Stream Restoration Webinar Follow-Up
3	7/10/24	Glen Burnie Library Midsummer Bash	BWPR outreach, stormwater management resources, seed ball activity
4	7/17/24	ARF/EPA	Broad Creek restoration field tour
5	7/16/24	Public Meeting/Open House	Feasibility study for sea level rise mitigation strategies on the Deale-Shady Side peninsula
6	7/19/24	International Bog Day Celebration	Bog Day celebration with community events and hiking
7	7/20/24	River Days - Annapolis Maritime Museum	BWPR outreach, stormwater management resources, seed ball activity
8	8/11/24	River Days - West River United Methodist Church	BWPR outreach, stormwater management resources, seed ball activity
9	8/12/24	WSA Certification Course	Connecting with the County (Session 1 lunch & learn)
10	8/13/24	Public Meeting/Open House	Feasibility study for sea level rise mitigation strategies on the Deale-Shady Side peninsula

#	Date	Organization/Event	Topic
11	8/16/24	Maryland Association of Counties	Whole Watershed Act presentation
12	8/25/24	River Days - Quiet Waters Park	BWPR outreach, stormwater management resources, seed ball activity
13	9/5/24	Maine Stormwater Conference	Step Pool Storm Conveyance (SPSC): An Innovative Approach to Reducing Pollutants and Safely Moving Stormwater in Challenging Landscapes
14	9/7/24	Riviera Beach Library	Watershed story time and activity
15	9/9/24	Chesapeake Urban Stormwater Professionals Training	Watershed restoration grant program
16	9/14/24	River Days - Ft Smallwood Park	BWPR outreach, stormwater management resources, seed ball activity
17	9/16/24	Community Meeting	Crofton Golf Phase 2 stream restoration meeting
18	9/17/24	Summer Watershed Walk - Crofton Golf Stream Restoration	Public guided tour of restoration site
19	9/19/24	USNA Midshipman Tour	Tour of the Broad Creek restoration site
20	10/1/24	West Severna Park Shoreline highlight video	The story of the West Severna Park living shoreline with CBT
21	10/2/24	Job Shadowing	Young professionals accompany BWPR staff to restoration and BMP projects
22	10/22/24	BeaverCON Presentation	Human-beaver coexistence projects - East Coast case studies
23	10/26/24	Community Cleanup	Community cleanup @ Severn/Danza Park
24	10/29/24	Virtual Community Meeting	Clark Station Road drainage improvement meeting
25	10/30/24	Envirothon - Aquatics training	Aquatic environments & stormwater management presentation
26	11/7/24	WSA Stormwater Success (online)	Online stormwater management & BMP education
27	11/9/24	WSA Stormwater Success (in-person)	BMP inspection/maintenance education
28	11/14/24	Chesapeake Funders Network	Advancing environmental restoration through pay-for-success (PFS) contracting
29	11/21/24	AA Youth Advisory Council	Anne Arundel County's Environmental Work
30	12/5/24	Region 8 SAC	BWPR and County environmental efforts
31	12/6/24	Elementary School presentation	Waugh Chapel ES stormwater presentation/activity
32	12/10/24	Region 6 SAC	BWPR and County environmental efforts
33	12/11/24	Maryland Association of Counties - Winter Conference	Environmental "Sandboxing"
34	1/13/25	Grant information session	AACo/CBT Watershed Restoration Grant Program

#	Date	Organization/Event	Topic
35	1/28/25	Office Hours	AACo/CBT Watershed Restoration Grant Program
36	2/10/25	National Work Group on Beaver Management	Adaptive Management Strategies for Beaver
37	2/16/25	Bayside Bloomers February meeting	BWPR intro and resources for stormwater management outreach and grant funding
38	2/26/25	Citizen Environmental Commission	2024 MS4 Report Update
39	2/27/25	Middle School presentation	Meeting with OMMS students to discuss Changemaker projects relating to Larry's CIP
40	3/1/25	WSA Conference	Community-scale restoration efforts
41	3/1/25	WSA Conference	Outreach opportunities for stewards
42	3/1/25	WSA Conference	Shady Side Climate Adaptation Study
43	3/1/25	WSA Conference	Field tour of restoration projects near the Maritime Institute
44	3/6/25	Chesapeake Stormwater Network	Adaptive management strategies for beaver
45	3/7/25	Envirothon - Aquatics training	Spring training
46	3/8/25	Watershed Walk	Najoles stream restoration walking tour
47	3/13/25	Broadneck High School presentation	Stormwater runoff presentation & Sum of the Parts activity
48	3/15/25	Furnace Branch Stream Clean Up	Furnace Branch cleanup with WSA
49	3/26/25	Engage Arundel Stormwater Management webinar	Discussion on stormwater conveyance
50	4/5/25	Watershed Walk	Jabez Branch stream restoration walking tour
51	4/11/25	UMD Ecology class tour	Broad Creek restoration field tour
52	4/16/25	Oglethorpe University (GA) Env Sci Class	Adaptive management strategies for beaver
53	4/16/25	Job shadowing	Young professionals accompany BWPR staff to restoration and BMP projects
54	4/17/25	Stewards of the Severn Meeting	Discussion on Whole Watershed Act and Severn River projects
55	4/22/25	Lake Waterford Planting Event	Lake Waterford planting with MRA
56	4/26/25	Tree Birthday Party	tabling at Historic London Town in Edgewater
57	4/26/25	Heritage Hills Cleanup Event	Heritage Hills pond cleanup
58	4/27/25	Green Sunday	Tabling at Christ Our Anchor Presbyterian in Arnold
59	5/1/25	Chesapeake Bay Commission	Overview of AACo's MS4 program
60	5/3/25	DPW Open House	Tabling at AACo's DPW Event
61	5/3/25	Tanyard Springs Community Cleanup Event	Tanyard Springs Cove community cleanup

#	Date	Organization/Event	Topic
62	5/7/25	Choose Clean Water Network	Adaptive management strategies for beaver
63	5/7/25	Chesapeake Science Point school presentation	Presentation & sum of the parts (3 classes)
64	5/17/25	Public Works Experience	Enviroscape demonstrations
65	5/21/25	Procurement & Training Expo	Sharing open bid opportunities
66	5/31/25	Chesterfield Community Cleanup Event	Chesterfield community cleanup
67	6/2/25	Restoration project tour for DC DOEE	Tour of AACo's restoration projects
68	6/7/25	Watershed Walk	Forked Creek outfall retrofit watershed walk

The BWPR utilizes social media (Facebook, Instagram and LinkedIn) for updates on restoration projects, educational materials, and relevant articles. Outreach efforts made by the BWPR via social media in FY25 is summarized in Table 12 below. The BWPR also actively engages with local media, resulting in several published articles about their projects and programs during the reporting period, such as the Severna Park Voice's coverage of the Pines on the Severn micro-bioretention basin project (6/26/2024).

Table 12:BWPR social media outreach in FY25.

Social Media Channel	Total Number of Posts in FY25
Facebook	169
Instagram	43
LinkedIn	40
Aggregated Total:	**252**

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.

Watershed Restoration Grant Program

Successful conservation and preservation of the County's watersheds takes teamwork. In 2014, the 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 the 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 13) is a list of organizations that were awarded funding for water quality restoration projects in FY25. Implementation of these projects will result in the equivalent of approximately 60.9 acres of impervious surface restoration.

Table 13:Projects awarded BWPR grant funding in FY25.

Organization	Project Description	Watershed	Funding Amount	Match Amount
Arundel Rivers Federation	Long Point Shoreline Resilience and Oyster Habitat Project	South	$406,559.00	$251,000.00
Arundel Rivers Federation	Annapolis Waterworks Park Final Design	South	$116,871.00	$94,869.00
Arundel Rivers Federation	Sunny Shores Stream Restoration Design	South	$60,753.00	$123,000.00
Arundel Rivers Federation	Edgewater Beach (Shaded Section) Living Shorelines and Marsh Protection Project	South	$190,000.00	$60,000.00
Fishing Creek Farm HOA	South Breeze Beach Shoreline Restoration	South	$279,920.00	$275,620.00
Severn River Association	The Shoreline Also Rises: Restoring Fairwinds for People and Planet	Severn	$50,000.00	$68,500.00
TOTAL			**$1,104,103.00**	**$872,989.00**

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

Bureau of Utility Operations

The County BUO is responsible for providing safe drinking water and managing wastewater, with a focus on water conservation through outreach programs, website resources, and the distribution of leak detection kits. Conservation tips include using commercial car washes, limiting lawn watering, using low-flow showerheads, and collecting rainwater in rain barrels. The BUO also publishes an "Annual Water Quality Report" detailing the county's drinking water, available on their webpage and mailed to customers (aacounty.org/public-works/utilities/water-distribution-system/drinking-water-quality-reports). Information on Sanitary Sewer Overflows (SSOs), which can impact water quality, is also provided, and the BUO partners with the Department of Health to notify the community of waterway closures due to SSOs (https://www.aacounty.org/public-works/sanitary-sewer-overflow-information).

Bureau of Highways (BOH)

The BOH actively engages in public outreach to inform residents about its essential services and encourage community participation in maintaining safe and environmentally sound roadways. The BOH's mission includes maintaining roads, managing drainage, and conducting snow removal, all of which directly impact the County's stormwater management and environmental health. Annually, the BOH responds to over 10,000 service requests and mobilizes 24/7 for weather events. Detailed information on services like litter and debris removal, leaf collection, and drainage system maintenance is available on the County webpage (aacounty.org/public-works/highways). BOH communicates snow removal practices, salt management data, and street sweeping program data via social media and the BWPR Annual Report to keep the public informed.

Bureau of Waste Management Services (BWMS)

The County's BWMS is responsible for weekly curbside collection of recyclables, yard waste, and trash from over 172,000 households, and operates the Millersville Landfill and Resource Recovery Facility along with three residential drop-off Recycling Centers. The Recycling and Waste Reduction Division actively promotes recycling and source reduction, and encourages proper disposal of household hazardous waste (HHW). In FY25, outreach efforts included attending 19 fairs and festivals and 16 association/community group events, providing 4 landfill tours, and offering technical assistance and recycling collection for large-scale events and County facilities. BWMS staff also delivered educational programs to 19 elementary, 2 middle, and 5 high school programs, and conducted 2 landfill tours for student groups, while also providing support for Green School Certification and recycling implementation for small businesses, schools, and NGOs. Information on recycling, compost kits, yard waste disposal, and source reduction is disseminated through direct mail, newspaper ads, the County website (recyclemoreoften.com), and the Anne Arundel County Recycling Division Facebook page (facebook.com/annearundelrecycling/), contributing to a 40% Countywide recycling rate.

In FY25, six HHW events at the Heritage Office Complex facilitated the proper disposal of 172.16 tons of hazardous waste. The Community Cleanup program supported 117 events by providing dumpsters and hauling services for nearly 414.08 tons of trash. Additionally, BWMS partnered with BWPR to support a large-scale cleanup event, removing 3.65 tons of derelict fishing gear, including 3.28 tons of old crab pots recycled as scrap metal, from local waterways. Staff also provided technical assistance and collection of recyclables for larger-scale events, such as the Anne Arundel County Fair and the Annapolis Greek Festival, and provided recycling containers and collection services for County parks and County buildings.

Department of Health

The Department of Health provides vital public health services, including a seasonal water quality information line and an e-alert system to notify residents of recreational water advisories and closures (https://www.aahealth.org/environmental-health/recreational-water-quality), which are also shared on social media. They recommend avoiding water contact for 48 hours after significant rainfall and promote the Maryland Healthy Beaches campaign to raise awareness about waterway pollution, especially contamination due pet waste. The Department also issues closures for sewage spills and administers the Bay Restoration Fund Program, offering grants for nitrogen-reducing septic systems and public sewer connections to improve water quality and reduce nitrogen loads to the Chesapeake Bay. The FY25 BRF-funded projects for 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. Additionally, the Department publicizes information and guidelines on its website regarding the maintenance of onsite sewage disposal systems and private water wells (https://www.aahealth.org/environmental-health/wells-and-septic-systems/septic-systems/guidelines-maintaining-your-septic).

Department of Inspections & Permits (I&P)

I&P is dedicated to upholding high inspection standards while providing accessible information on topics such as erosion control, stormwater management, grading, and the Chesapeake Bay Critical Area. Resources are available to the public through the department's website (aacounty.org/inspections-and-permits/about-us), including technical guidance via "Blue Notices" for stormwater facility design and maintenance (aacounty.org/inspections-and-permits/blue-notices). The Emergent Marsh (Grasses) Program (https://www.aacounty.org/inspections-and-permits/forestry/marsh-grasses), a collaboration with the Department of Recreation and Parks, offering free emergent marsh grasses for eligible shoreline stabilization projects.

I&P also plays an active role in community outreach and environmental education. Inspectors and forestry staff provide on-site consultations to homeowners on issues like erosion control, invasive species, and native vegetation, particularly in environmentally sensitive areas. The department participates in public events such as the Community Association Summit, River Days, and the Watershed Stewards Academy, offering education on stormwater management and permitting. Staff also present to realtors and landscaping professionals and attend local expos to promote forested buffers and shoreline restoration programs. Forestry staff also participated in the 2025 Davidsonville

Area Community Association's (DACA) Annual Green Expo, and the Scenic River Land Trust Walk for the Woods events to speak to the water quality benefits of planted forested buffers.

Anne Arundel Soil Conservation District (AASCD)

AASCD is dedicated to public outreach and education, playing a vital role in helping both farmers and urban residents protect our waterways. For our agricultural community, AASCD professionals work directly with farmers to develop Soil Conservation and Water Quality Plans (SCWQPs). These plans educate farmers on best management practices (BMPs) to reduce nutrient and sediment runoff. In FY25, AASCD developed or updated 92 SCWQPs, covering 8,703 acres and contributing over 2,398 WIP credit acres. These plans often highlight practices like cover crops, streamside buffers, livestock fencing, and pasture improvements, all designed to educate and empower farmers to implement sustainable solutions.

In urban areas, the AASCD supports public education by reviewing erosion and sediment control plans for construction and road projects. These reviews ensure that environmental safeguards are in place to reduce soil erosion and runoff from development sites, thereby educating developers on responsible practices. In FY25, AASCD reviewed 986 plans, including 589 new submittals covering over 5,900 disturbed acres. Additionally, AASCD provides direct outreach and education to homeowners facing drainage and shoreline erosion issues, helping them understand and implement technical standards for on-the-ground solutions.

Arlington Echo Outdoor Education Center - Chesapeake Connections

Arlington Echo's outdoor education program, Chesapeake Connections, connects Anne Arundel County classroom instruction with relevant hands-on experiences that lead to environmental stewardship. These year-long 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 FY25, four planting projects were completed with Chesapeake Connections. Chesapeake Connections worked with the following schools for these projects:

- *Ruth Parker Eason Stream Restoration*
    - Old Mill Middle School North - 312 students
    - Old Mill Middle School South - 362 students
- *Crofton Golf (Beaver Creek) Stream Restoration*
    - Severna Park Middle School - 441 students
    - Crofton Middle School - 445 students
- *Marley Creek - Green Branch Stream Restoration*
    - Lindale Middle School - 270 students
    - Arundel Middle School - 360 students

- *Riverdale Road (Old Man Creek) Stream Restoration*
    - Northeast Middle School - 250 students
    - Marley Middle School - 291 students

Anne Arundel County Watershed Stewards Academy

The WSA was originally established through a partnership between Arlington Echo Outdoor Education Center and the Anne Arundel County Department of Public Works. Its founding mission was to build the capacity of County residents to reduce stormwater pollutants entering local waterways. Now operating as an established non-governmental organization, the WSA receives significant annual funding from the County to help meet MS4 permitting outreach related requirements. The organization's key activities involve training community "Stewards" and connecting them with watershed studies, planning, and hands-on restoration efforts. This commitment to linking community members with technical expertise is vital to the WSA's success in protecting local water resources.

Another core element of WSA's strategy under the MS4 permit involves providing public education and outreach to diverse communities across the County. Stewards are trained to affect positive, pollutant-reducing behavior changes, such as proper pet waste disposal, removing leaves from impervious surfaces, and reducing fertilizer use. This training includes conducting face-to-face surveys to establish a behavioral baseline and subsequently measure change. By providing Stewards with template tools and sample campaign materials, WSA ensures that effective, data-driven behavior change initiatives can be successfully implemented across diverse Anne Arundel County communities.

The Academy successfully reached over 47,000 Anne Arundel County residents with technical assistance or environmental education, including over 6,000 children. Furthermore, its efforts resulted in significant on-the-ground change: over 30,000 native plants (perennials, shrubs, and trees) were planted, and stewards led more than 728 new restoration projects alongside 342 maintenance events. The dedication of its participants is evidenced by the over 29,927 total volunteer hours donated by stewards and mobilized community members, solidifying WSA's role as a driving force for environmental improvement.

The commitment to comprehensive training remains a cornerstone of WSA's operation. In addition to general outreach, the WSA staff hosted 31 separate outreach/continuing education events, engaging 951 people. Crucially, the WSA graduated 31 Stewards from its 15th Certification Course, which involves over 70 hours of rigorous training. These new Stewards, along with the 32 recruited for the 16th course, represent a continuous expansion of the county's network of trained environmental leaders, ensuring the sustained effort required to meet the goals of the MS4 permit and improve the health of local waterways.

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 FY25 at the same level of implementation as the previous permit. The County performed 6,674 lane miles of street sweeping, which equates to 255 miles every two weeks – the same annual effort since FY19. The street sweeping program collected 257 tons of material from County-maintained streets in FY25.

Anne Arundel County BOH conducts manual and mechanical storm drain inlet cleaning throughout the County. For FY25, the County removed 313 tons of debris from catch basins, inlets, and outlets of pipes to maintain proper drainage.

The County also continued a high-level of septic pumping this year, well above the required implementation level. In FY25, 22.5 million gallons of septage, the untreated and partially treated sewage solids, liquids and sludge found in septic tanks, was pumped in Anne Arundel County. This is equivalent to 22,452 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 4 BMP Portfolio, the County exceeded its Year 4 restoration benchmark of 80%. A number of other "replacement" projects were completed during Year 4 of the Permit and these are noted in the normal fashion in the FY25 MS4 Geodatabase. Table 1 in **Appendix G** provides the project-by-project accounting of the Year 4 BMP Portfolio, including the replacement projects. Table 2 in **Appendix G** is the County's planned Year 5 BMP Portfolio.

Table 14 summarizes the County's progress in FY25, as well as the cumulative restoration acreage completed towards the current permit's goal. The County's Year 4 restoration benchmark was set at 80% of the 2,998 acre goal, or approximately 2,398 acres. By the end of FY25 the County completed

2,697.4 acres of restoration, 90% of the permit goal. 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:FY25 impervious surface restoration – credit accounting summary.

Restoration Project Type	Equivalent Impervious Credit Acres	
	Completed in FY25	**Completed – Cumulative through FY25**
Restoration BMPs		
- ESD	0	11.2
- structural	38.5	321.2
Alternative Restoration BMPs		
- impervious surface reduction	0.2	0.4
- reforestation and riparian planting	1.2	51.7
- stream restoration	262.3	1,045.9
- outfall stabilization	124.6	414.5
- shoreline management	0	546.4
- septic denitrification	23.2	136.3
- septic connections to WWTP	15.9	169.9
- street sweeping[1]	39.9	39.9
- catch basin and storm drain cleaning[1]	65.7	52.7
- septic pumping[1]	673.6	624.1
TOTAL ACRES[2]	465.9	2697.4

[1] For annual practices, cumulative attainment values are based on the average equivalent impervious treatment achieved during FY21-FY25.

[2] Completed total acreages for FY25 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 has not participated in any credit trading since FY20.

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 Polychlorinated Biphenyls in the Patuxent River Mesohaline, Oligohaline, and Tidal Fresh Chesapeake Bay Segments in January 2017. MDE issued the "Guidance for Developing Local PCB TMDL Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plans (WIPS) document in August 2022. The County submitted a Sampling and Analysis Plan and implementation plan draft that follows MDE's 2022 guidance with its FY24 MS4

annual report, which MDE approved with no comments. The plan was also advertised for a 30-day public comment period in December 2024, and no public comments were received. The final implementation plan is included in **Appendix H.**

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 FY25; however, the County is including two watershed implementation plan update drafts in **Appendix H**:

- Anne Arundel County Sediment TMDL Restoration Plan Update draft, which consolidates the restoration plans for all 9 local sediment TMDLs into one comprehensive plan.
- Baltimore Harbor and Curtis Creek/Bay Polychlorinated Biphenyls (PCB) TMDL Implementation Plan Update draft and Sampling and Analysis Plan, both of which follow MDE's 2022 guidance for developing local PCB TMDL watershed implementation plans.

The County requests MDE review and approval of these two draft restoration/implementation plan updates.

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.

The County submitted its Countywide TMDL Stormwater Implementation Plan as part of its FY24 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 in April 2025 from MDE's Water and Science Administration. The FY25 Countywide TMDL Stormwater Implementation Plan, which incorporates MDE's requested revisions from the FY24 plan, is submitted as **Appendix H**. Additionally, FY25 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 FY25.

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 FY25.

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.

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 FY25. Documentation of the County's PMP participation, including the signed BMP Effectiveness Monitoring MOU with CBT, was submitted with the FY22 MS4 Annual Report; there are no amendments to that MOU which remains in effect through June 30, 2026.

During FY25, the County contributed the required funding to the PMP via Purchase Order issued July 17, 2024. See **Appendix J** for FY 25 funding documentation. The County's FY25 contributed funding was subsequently allocated to support two restoration research grant project that will kick-off in FY26: "Environmental DNA as a tool for monitoring restoration success in Chesapeake streams" (VA Tech), and "Developing a novel e-DNA-based ecosystem health metric for monitoring ecological uplift in the Chesapeake watershed: A combined literature review and field study" (EA Engineering).

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 FY25.

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 with 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 Stream Survey. The County initiated the five-year Countywide Biological Stream Survey (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 with 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 Stream Survey'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 FY25 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 FY25.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. This should no longer be a concern for FY25, as all MBSS-required taxonomy laboratory procedures were employed for FY25. Please see **Appendix I** for documentation of that discussion and for the side-by-side sorting comparison study work plan that was undertaken during FY25. This side-by-side sorting comparison was conducted using the samples collected in 2025. This side-by-side sorting comparison was conducted using the samples collected in 2025. Results of the comparison study will be available in early/mid 2026 and will be submitted to MDE for review.

Finally, during FY25 the County contributed the required Watershed Assessment funding to the PMP via Purchase Order issued July 17, 2024 (**Appendix I**). 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 projects.

3. PCB Source Tracking

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

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

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 H** to this Report). During FY25 the County, in collaboration with UMBC, conducted Phase III monitoring in the Sawmill Creek watershed and also began Phase I monitoring in two additional sub-watersheds (Cabin Branch and Marley Creek) of the Baltimore Harbor and Curtis Creek/Bay TMDL watershed. As of the writing of this report, UMBC is still

processing and analyzing samples. Results of these monitoring efforts, as well as the monitoring report(s), will be shared with MDE upon receipt and review by the County.

In September 2025, the County completed updating the Baltimore Harbor and Curtis Creek/Bay PCB TMDL Restoration Plan. The updated plan, to be referred to as an Implementation Plan Update, is included as an appendix to this fiscal year's (FY25) Countywide TMDL Stormwater Implementation Plan.

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, were submitted to MDE for review and comment in December 2024. The draft Plan was posted for public comment for the period of December 1, 2024 through December 30, 2024 - no public comments were received. The County was notified by MDE, via email, on April 9, 2024 of acceptance of the Implementation Plan without further comment. The final Plan is appended to this year's (FY25) Countywide TMDL Stormwater Implementation Plan. Development of a QAPP and Phase I monitoring are next steps.

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 FY25 is found in the *FiscalAnalyses* table of the MS4 Geodatabase (**Appendix A**). Table 15 provides the FY25 breakdown of expenditures by permit condition.

Table 15:FY25 Fiscal Analysis (operating and capital appropriations).

Permit Condition	FY2025 Annual Costs
Legal Authority	$0
Source ID	$2,806,735
SW Management	$1,448,213
Erosion and Sediment Control	$71,656
Illicit Discharge Detection and Elimination	$77,885
Trash and Litter Control	$444,904
Property Management	$9,987,307
Inlet Cleaning	$398,702
Street Sweeping	$340,521
Other Road Maintenance	$0
Public Education	$978,941
Watershed Assessment	$213,490
Watershed Restoration	$31,003,496
Chemical Monitoring Assessment	$277,989
Biological Monitoring Assessment	$570,790
Physical Stream Assessment	$63,585
Stormwater Design Manual Monitoring	$0
TMDL Assessment	$508,406
Annual Report Preparation	$115,627
Total Annual Cost for NPDES MS4 Program	**$49,308,247**

The Watershed Protection and Restoration Fund (WPRF) 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 WPRF funding continue to be supported by the County's annual budget process (general revenue funds).

With the implementation of the WPRF, a dedicated revenue source was created. These revenues for FY25 totaled $28,929,725. A total of 224,785 properties in Anne Arundel County were assessed the fee in FY24. In addition to the stormwater fee revenues, the WPRF realized revenues from investment income as well as interfund recovery. Please refer to the FY25 WPRF Annual Report (**Appendix J**) for additional information. Estimated projections of revenue for FY26 are $29,003,300. 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 "Watershed Protection and Restoration" CIP project class. 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 Watershed Protection and Restoration CIP budgets for FY26 through FY31 total $185,613,963.

The County's operating budget for FY25 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 WPRF. Specific line items funded through the operating budget include chemical, biological, and physical stream assessments, public education, grants, and contracted street sweeping.

To further demonstrate sufficient funding to satisfy permit requirements, the complete FY25 and FY26 approved County budgets (operating and capital) are available for review and download at https://www.aacounty.org/budget.

Lastly, with the funding provided by the WPRF, increased staffing began in FY14. At the end of FY25 staffing levels were at 85% and additional hiring is underway for FY26. 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). 2000. Maryland Stormwater Design Manual, Volumes I & II. Revised May 2009. Prepared by the Center for Watershed Protection, Ellicott City, MD, for the Maryland Department of the Environment, Baltimore, MD.

Maryland Department of the Environment (MDE). 2017. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Geodatabase Design and User's Guide. Version 1.2. Revised May 2017. Prepared by MDE and Maryland Environmental Service (MES) for Environmental Protection Agency (EPA) Chesapeake Bay Regulatory and Accountability Program (CBRAP). Baltimore, MD.

Maryland Department of the Environment (MDE). 2021. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Draft Supplement to the Geodatabase Design and User's Guide. Version 1.2. Draft Updates. November 2021. Baltimore MD.

Maryland Department of the Environment (MDE). 2023. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4), Draft Supplement to the Geodatabase Design and User's Guide. Version 1.2. Draft Updates. September 2023 Edits. Baltimore MD.

Maryland Department of the Environment (MDE). 2021. Accounting for Stormwater Wasteload Allocation and Impervious Acres Treated; Guidance for National Pollutant Discharge Elimination System Stormwater Permits. November 2021. Baltimore, MD.

Maryland Department of the Environment (MDE). 2021. National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permits. 2021 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments. October 2021. Baltimore, Maryland.