MARYLAND DEPARTMENT OF THE ENVIRONMENT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT

PART I. IDENTIFICATION

A. Permit Number: 20-DP-3316 MD0068306

B. Permit Area

This permit covers all stormwater discharges into, through, or from the municipal separate storm sewer system (MS4) owned or operated jurisdiction-wide by Anne Arundel County, Maryland.

C. Effective Date: To be determined (TBD)

D. Expiration Date: TBD

PART II. DEFINITIONS

Terms used in this permit are defined in relevant chapters of Title 40 of the Code of Federal Regulations (CFR) Parts 122-124 and the Code of Maryland Regulations (COMAR) 26.08.01, 26.17.01, and 26.17.02. Terms not defined in CFR or COMAR shall have the meanings attributed by common use.

PART III. WATER QUALITY

Anne Arundel County must manage, implement, and enforce stormwater management programs in accordance with the Clean Water Act (CWA) and corresponding stormwater National Pollutant Discharge Elimination System (NPDES) regulations, 40 CFR Parts 122-124, to meet the following requirements:

1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into, through, or from the MS4 as necessary to comply with Maryland's receiving water quality standards;

2. Attain applicable stormwater wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with Title 33 of the U.S. Code (USC) §1342(p)(3)(B)(iii); 40 CFR §122.44(k)(2) and (3); and

3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with all the conditions contained in PARTs IV through VII of this permit shall constitute compliance with §402(p)(3)(B)(iii) of the CWA and adequate progress toward compliance with Maryland's receiving water quality standards and U.S. Environmental Protection Agency (EPA) established or approved stormwater WLAs for this permit term.

PART 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 (Department) for the implementation of this permit. The County shall provide the coordinator's name, title, address, phone number, and email address. Additionally, the County shall submit in its annual reports to the Department an organizational chart detailing personnel and groups responsible for major NPDES program tasks in this permit. The Department shall be notified in annual reports of any changes in personnel or organization relative to NPDES program tasks.

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 the Department in writing within 30 days and make the necessary changes to maintain adequate legal authority within one year of notification. All changes shall be included in the County's annual report.

C. Source Identification

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

1. Storm drain system: all infrastructure, major outfalls, inlets, and associated drainage areas delineated;

2. Industrial and commercial sources: industrial and commercial land uses and sites that the County has determined have the potential to contribute significant pollutants;

3. Urban best management practices (BMPs): stormwater management facility data for new and redevelopment, including outfall locations and delineated drainage areas;

4. Impervious surfaces: public and private land cover delineated, controlled and uncontrolled impervious areas based on, at a minimum, Maryland's hierarchical eight-digit sub-basins;

5. Monitoring locations: locations established by Anne Arundel County for chemical, biological, and physical monitoring of watershed restoration efforts and the *2000 Maryland Stormwater Design Manual,* or as part of a pooled monitoring approach as described in PART IV.F; and

6. Water quality improvement projects: Restoration projects implemented in accordance with PART IV.E.3 including stormwater BMPs, programmatic initiatives, and alternative control practices in accordance with the *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated Guidance for National Pollutant Discharge Elimination System Stormwater Permits (2020*), (hereafter 2020 Accounting Guidance), including projects proposed, under construction, and completed with associated drainage areas delineated.

D. Management Programs

The following management programs shall be implemented jurisdiction-wide by Anne Arundel 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 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 by the County in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland. Activities to be undertaken by the County shall include, but not be limited to:

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

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.

b. 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 that are re-submitted as a result of a revision or in response to comments should not be considered as a separate project;
ii. Number of redevelopment projects received and number of those approved;
iii. Number of stormwater exemptions issued; 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.

c. Maintaining construction inspection information according to COMAR 26.17.02 for all ESD treatment practices and structural stormwater management facilities including the number of inspections conducted and violation notices issued by the County.

d. Conducting preventative maintenance inspections, according to COMAR 26.17.02, of all ESD treatment systems and structural stormwater management facilities 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.

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 1, Annotated Code of Maryland. Activities to be undertaken by the County shall include, but not be limited to:

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

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

c. Reporting quarterly, information regarding earth disturbances exceeding one acre or more. Quarters shall be based on calendar year and submittals shall be made within 30 days following each quarter. The information submitted shall cover permitting activity for the preceding three months.

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

a. Reviewing all County outfalls to prioritize field screening efforts in areas with the greatest potential for polluted discharges. The County must submit the process developed to prioritize outfall screenings to the Department for approval with the first year annual report;

b. Submitting a plan and schedule for field screening the prioritized outfalls for the Department's approval with the first year annual report. The plan and schedule shall include the annual screening of at least 150 outfalls. Each outfall having a dry weather discharge shall be sampled at the time of screening using a chemical test kit. An alternative program may be submitted by the County for the Department's approval that methodically identifies, investigates, and eliminates illegal discharges into, through, or from the County's MS4;

c. Conducting annual visual surveys of commercial and industrial areas as identified in PART IV.C.2 above for discovering, documenting, and eliminating pollutant sources. Areas surveyed and the results of the surveys shall be reported annually;

d. Maintaining written standard operating procedures for outfall screenings, illicit discharge investigations, annual visual surveys of commercial and industrial areas, responding to illicit discharge complaints, and enforcement implementation;

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

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

g. Using appropriate enforcement procedures for investigating and eliminating illicit discharges, illegal dumping, and spills. When a suspected illicit discharge discovered within the County's jurisdiction is either originating from or discharging to an adjacent MS4, the County must coordinate with that MS4 to resolve the investigation. Significant discharges shall be reported to the Department for enforcement and/or permitting.

4. Property Management and Maintenance

a. Coverage under Maryland's NPDES General Permit for Discharges of Stormwater Associated with Industrial Activity (SW Industrial GP) is typically required at facilities where the following activities are performed: maintenance or storage of vehicles or equipment; storage of fertilizers, pesticides, landscaping materials, hazardous materials, or other materials that could pollute stormwater runoff. The County shall:

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

b. The County shall develop, implement, and maintain a good housekeeping plan (GHP) for County-owned properties not required to be covered under Maryland's SW Industrial GP where the activities listed in PART IV.D.4.a are performed. The GHP shall be submitted to the Department by the County in its third year annual report and implemented thereafter. A standard GHP may be developed for all County-owned property or separate GHPs may be developed for properties with similar use, (e.g., recreation and parks properties), and school properties. The GHP shall include, but not be limited to:

i. A description of property management activities;
ii. A map of the locations of properties covered by the GHP;
iii. A list of potential pollutants and their sources that result from facility activities;
iv. Written procedures designed to reduce the potential for stormwater pollution from property activities, including illicit discharges, dumping, and spills;
v. Written procedures for annually assessing County properties in order to prevent the discharge of pollutants, spills, and leaks into its municipal separate storm sewer system; and

vi. Annual training for all appropriate County staff and contractors regarding best practices for preventing, reducing, and eliminating the discharge of pollutants during property activities.

c. The County shall continue to implement a program to reduce pollutants associated with the maintenance of County-owned properties including, but not limited to, local roads and parks. The maintenance program shall include the following activities where applicable:

i. Street sweeping in the amount identified in Appendix B and annually updated thereafter in accordance with PART IV.E.7.a;
ii. Inlet inspection and cleaning in the amount identified in Appendix B and annually updated thereafter in accordance with PART IV.E.7.a; and
iii. Reducing the use of pesticides, herbicides, fertilizers, and other pollutants associated with vegetation management. This can include, but is not be limited to:
- Developing and implementing an Integrated Pest Management Plan according to EPA guidelines;
- Custom fertilizer property management plans based on soil testing;
- Targeted application or "spot application" of pesticides;
- Alternative and organic fertilizers;
- Manual weed removal, mowing, and trimming;
- Annual training and applicator certification and licensing as required by Maryland Department of Agriculture to ensure accurate application of chemicals according to manufacturer's recommendations;
- Subcontracting to certified pest control applicator licensed business for some or all of properties;
- Piloting biological pest control programs; and
- Establishing "no mow" areas.

d. The County shall reduce the use of winter weather deicing and anti-icing materials, without compromising public safety, by developing a County Salt Management Plan (SMP) to be submitted to the Department in its third year annual report and implemented thereafter. The SMP shall be based on the guidance provided on best road salt management practices described in the *Maryland Department of Transportation, State Highway Administration's Maryland Statewide Salt Management Plan,* developed and updated annually as required by the Maryland Code, Transportation §8-602.1. The County's SMP shall include, but not be limited to:

i. A plan for evaluation of new equipment and methods, and other strategies for continual program improvement;
ii. Training and outreach:

- Creating a local "Salt Academy" that annually provides County winter weather operator personnel and contractors with the latest training in deicer and anti-icer management, or the participation of County personnel and contractors in a "Salt Academy" administered by another MS4 permittee or State agency; and
- Developing and distributing best salt management practices outreach for educating residents within the County.

iii. Tracking and reporting:

- Starting with the fourth annual report, during storm events where deicing or anti-icing materials are applied to County roads, track and record the amount of materials used, and snowfall in inches per event, if applicable; and
- Report the deicing or anti-icing application by event or date, and the monthly and annual pounds used per lane mile per inch of snow.

e. The County shall evaluate current litter control problems associated with discharges into, through, or from portions of its MS4. 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 in accordance with PART IV.E.7.a.

f. The County shall report annually on the changes in its Property Management and Maintenance programs and the overall pollutant reductions resulting from implementation of the components of the programs listed in this section.

5. Public Education

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

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

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

c. Providing information to inform the general public about the benefits of:

i. Increasing water conservation;
ii. Proper residential and community stormwater management implementation and facility maintenance;
iii. Proper erosion and sediment control practices;
iv. Increasing proper disposal of household hazardous waste;
v. Improving lawn care and landscape management (e.g., the proper use of herbicides, pesticides, and fertilizers, ice control and snow removal);
vi. Residential car care and washing;
vii. Litter reduction;
viii. Reducing, reusing, and recycling solid waste; and
ix. Proper 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 (radio or television); and conducting targeted workshops on stormwater management for the public.

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 the Department determines appropriate for the control of such pollutants. Additionally, by regulation at 40 CFR §122.44, BMPs and programs implemented pursuant to this permit must be consistent with applicable stormwater WLAs developed under EPA established or approved TMDLs (see list of EPA established or approved TMDLs attached and incorporated as Appendix A). The impervious acre restoration requirements and associated pollutant reductions described below for Anne Arundel County are consistent with Maryland's Phase III Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL and 2025 nutrient load targets, and for local TMDL implementation targets described by the County in its TMDL Watershed Restoration Plans.

1. Annual alternative control practices used by Anne Arundel County to meet its 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 2020 Accounting Guidance; or

c. A combination of a and b above.

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

3. By [Permit expiration date, to be determined], Anne Arundel County shall commence and complete the 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 2020 Accounting Guidance.

4. By [end of first year of permit term, date to be determined], Anne Arundel County shall complete the stormwater BMPs, programmatic initiatives, or alternative control practices listed in the Year 1 BMP Portfolio provided in Appendix B. Anne Arundel County may replace individual practices listed in Appendix B with others that meet the requirements of the 2020 Accounting Guidance as long as the total restoration at the end of year one meets the implementation benchmark schedule in Table 1.

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

5. Anne Arundel County may acquire Nutrient Credits for Total Nitrogen (TN), Total Phosphorus (TP), and Total Suspended Solids (TSS) in accordance with COMAR 26.08.11 to meet its impervious acre restoration requirement in PART IV.E.3 of this permit. For acquiring Nutrient Credits in place of impervious acre restoration, an equivalent impervious acre shall be based on reducing 18.08 pounds of TN, 2.23 pounds of TP, and 8,046 pounds of TSS. The maximum allowable credits obtained from trades with wastewater treatment plants shall not exceed 1,521 equivalent impervious acres restored.

6. Any Nutrient Credits acquired by Anne Arundel County for meeting the restoration requirements of this permit shall be maintained and verified annually in accordance with COMAR 26.08.11 unless they are replaced at a one to one acre ratio by local stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with the 2020 Accounting Guidance.

7. Anne Arundel County shall use the annual restoration benchmark schedule provided in Table 1 below to achieve its impervious acre implementation requirement by the end of the permit term.

Annual Restoration Benchmark Schedule, Table 1

Metric	Year 1	Year 2	Year 3	Year 4	Year 5
Cumulative Percent Impervious Acre Restoration Completed	20%	40%	60%	80%	100%

8. In each year's annual report, Anne Arundel County shall:

   a. Submit to the Department a list of BMPs, programmatic initiatives, and alternative control practices to be completed in the following year to work toward meeting its impervious acre restoration benchmark:

      i. The list of BMPs, programmatic initiatives, or alternative control practices shall be submitted in the Year 1 BMP Portfolio format provided in Appendix B; and
      ii. Anne Arundel County may replace individual practices listed in its annual BMP Portfolio as long as the total implementation rate at the end of each year meets the annual restoration benchmark schedule in Table 1.

   b. Evaluate progress toward meeting its annual restoration benchmark according to the schedule in Table 1and adjust the benchmark appropriately based upon:

      i. Actual BMP implementation rates; and
      ii. Anticipated implementation rates and annual restoration benchmark schedule needed in the remaining years of this permit for meeting the final impervious acre restoration requirement by [permit expiration date].

9. Anne Arundel County acquired trading credits, or "Nutrient Credits" (i.e., 47,183 lbs TN; 7,620 lbs TP; 1,185,145 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 [Date of Permit Issuance, TBD] shall:

   a. Be continued and verified annually under this permit in accordance with the Maryland Water Quality Trading and Offset Program (COMAR 26.08.11) until they are replaced; and

   b. Be replaced with stormwater management BMPs, programmatic initiatives, or alternative control practices in accordance with the 2020

Accounting Guidance prior to expiration of this permit.

F. Countywide TMDL Stormwater Implementation Plan

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

2. Within one year of EPA's approval or establishment of a new TMDL, Anne Arundel County shall submit an implementation plan to the Department for approval. The TMDL implementation plan shall be based on the Department's TMDL analyses, or equivalent and comparable 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 the Department's TMDL analyses; and

    c. Final implementation dates and benchmarks for meeting the TMDL's applicable stormwater WLA. Once approved by the Department, any new TMDL implementation plan shall be incorporated in the Countywide TMDL Stormwater Implementation Plan and subject to the annual progress report requirements under PART IV.F.3 of this permit.

3. For all TMDLs and WLAs listed in Appendix A, the County shall annually document, in one Countywide Stormwater TMDL Implementation Plan, updated progress toward meeting these TMDL WLAs. This Countywide Stormwater TMDL Implementation Plan shall include:

    a. A summary of all completed BMPs, programmatic initiatives, alternative control practices, or other actions implemented for each TMDL stormwater WLA;

    b. An analysis and table summary of the net pollutant reductions achieved annually and cumulatively for each TMDL stormwater WLA;

    c. An updated list of proposed BMPs, programmatic initiatives, and alternative control practices, as necessary, to demonstrate adequate progress toward meeting the Department's approved benchmarks and final stormwater WLA implementation dates.

4. Anne Arundel 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. Anne Arundel 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, Anne Arundel County shall:

a. Maintain a list of interested parties for notification of TMDL development actions;

b. Provide notice on the County's webpage outlining how the public may obtain information on the development of TMDL stormwater implementation plans and opportunities for comment;

c. Provide copies of TMDL stormwater implementation plans to interested parties upon request;

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

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

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 *2020 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments,* (hereafter 2020 Monitoring Guidelines) shall be referenced for addressing the technical guidelines and requirements outlined below.

1. BMP Effectiveness Monitoring

By [4 months after permit issuance, date to be determined, or by July 1 of each year], the County shall notify the Department which option it chooses for BMP effectiveness monitoring. The two options are:

a. The County shall collaborate with the Department in a Pooled Monitoring Advisory Committee administered by the Chesapeake Bay Trust (CBT) for determining monitoring needs and selecting appropriate monitoring studies. To implement the required monitoring, the County shall pay $100,000, or an amount to be proposed by the jurisdiction based on demonstrated past permit monitoring expenditures, 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 [date to be determined]. The terms of the BMP effectiveness MOU are described in the 2020 MS4 Monitoring Guidelines. 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 and submit for the Department's approval a new BMP effectiveness study for monitoring by [4 months after permit issuance, date to be determined]. Monitoring activities shall occur where the cumulative effects of watershed restoration activities, performed in compliance with this permit, can be assessed. The minimum criteria for chemical, biological, and physical monitoring are as follows:

i. Chemical Monitoring:

- Twelve (12) storm events shall be monitored per year at each monitoring location with at least two occurring per quarter. Quarters shall be based on the calendar year. If exceptional weather patterns (e.g., dry weather periods) or other circumstances (e.g., equipment failures) occur during the reporting year, the County shall provide documentation of such circumstance(s);
- Discrete samples of stormwater flow shall be collected at the monitoring stations using automated or manual sampling methods;
- At least three (3) samples determined to be representative of each storm event shall be submitted to a laboratory for analysis according to methods listed under 40 CFR Part 136, and event mean concentrations (EMCs) shall be calculated;
- Baseflow sampling shall occur quarterly at the mid-point of each season (e.g., February 15 for the first quarter, May 15 for the second quarter);
- Stormwater flow and baseflow measurements shall be recorded at the outfall and in-stream stations for the following parameters:

Stormwater and Baseflow Representative Samples (Parameters)
Total Suspended Solids (TSS)
Bacteria (*E.coli* or *Enterococcus* spp.)
Chloride
Discharge (flow)
Biological Oxygen Demand (BOD_5) or Total Organic Carbon (TOC)
Orthophosphate
Total Nitrogen (TN)
Nitrate + Nitrite
Total Ammonia (sewer signal)
Total Phosphorus (TP)

- Continuous measurements shall be recorded for the parameters listed below at the in-stream monitoring station or other practical location based on the approved study design:

Continuous Measurements (Parameters)
Temperature
pH
Discharge (flow)
Turbidity
Conductivity

- Data collected from stormwater, baseflow, and continuous monitoring shall be used to estimate annual and seasonal pollutant loads and reductions, and for the calibration of watershed assessment models;
- If the permittee elects to continue monitoring Church Creek or selects a new BMP effectiveness study for monitoring, the County shall submit a revised sampling plan for approval to address the new monitoring parameters provided above with the first annual report. An approved sampling plan under a prior MS4 permit for the County shall continue until the Department approves a new sampling plan proposed under this permit.

ii. Biological Monitoring:

- Benthic macroinvertebrate samples shall be gathered each spring between the outfall and in-stream stations or other practical locations based on a Department approved study design; and
- The County shall use the Maryland Biological Stream Survey (MBSS) sampling protocols for biological and stream habitat assessment.

iii. Physical Monitoring:

- A geomorphologic stream assessment shall be conducted between the outfall and in-stream monitoring locations or in a reasonable area based on the approved monitoring design. This assessment shall include annual comparison of permanently monumented stream channel cross-sections and the stream profile; and
- A hydrologic and/or hydraulic model shall be used (e.g., TR-20, HEC-2, HEC-RAS, HSPF, SWMM) in the fourth year of the permit to analyze the effects of rainfall; discharge rates;

stage; and, if necessary, continuous flow on channel geometry.

iv. Annual Data Submittal: The County shall describe in detail its monitoring activities for the previous year and include the following:

- EMCs submitted on the Department's long-term monitoring MS4 Geodatabase as specified in PART V below;
- Chemical, biological, and physical monitoring results and a combined analysis for the approved monitoring locations;
- Any available analysis of surrogate relationships with the above monitoring parameters; and
- Any requests and accompanying justifications for proposed modifications to the monitoring program.

2. Watershed Assessment Monitoring

By [4 months after permit issuance, date to be determined, or by July 1 of each year], the County shall notify the Department which option it chooses for watershed assessment monitoring. The County must implement one of the two options as follows:

a. The County shall collaborate with the Department in a Pooled Monitoring Advisory Committee administered by CBT for determining appropriate watershed assessment monitoring. To implement the required monitoring, the County shall pay [amount to be determined, expected to be between $150,000 and $200,000 based on the number of local TMDL assessments required] annually into a pooled monitoring CBT fund. Enrollment in the program shall be demonstrated through an MOU between the County and CBT to be signed by [date to be determined]. The terms of the Watershed Assessment Monitoring MOU are described in the 2020 Monitoring Guidelines. The County shall remain in the program for the duration of this permit term; or

b. The County shall submit a comprehensive plan for watershed assessment and trend monitoring by [one year and 4 months after permit issuance, date to be determined] related to stream biology and habitat, bacteria, and chlorides and commence monitoring upon the Department's approval. The plan shall follow the 2020 Monitoring Guidelines and include:

i. Biological and habitat assessment monitoring at randomly selected stream sites using MBSS protocols;
ii. Bacteria (i.e., *E.coli*, *Enterococcus* spp., or fecal coliform monitoring); and

iii. Chloride assessments at two locations.

3. PCB Source Tracking

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

H. Program Funding

1. Annually, a fiscal analysis of the capital, staffing, operation, and maintenance expenditures necessary to comply with all conditions of this permit shall be submitted by Anne Arundel County as required in PART V below.

2. Adequate program funding to comply with all conditions of this permit shall be maintained. Lack of funding does not constitute a justification for noncompliance with the terms of this permit.

PART V. PROGRAM REVIEW AND ANNUAL PROGRESS REPORTING

A. Annual Reporting

1. Annual progress reports, required under 40 CFR §122.42(c), will facilitate the long-term assessment of Anne Arundel County's NPDES stormwater program. The County shall submit annual reports on or before the anniversary date of this permit and post these reports on the County's website. All information, data, and analyses shall be based on the State's fiscal year and include:

a. An executive summary on the status of implementing the County's MS4 programs that are established as permit conditions including:

i. Permit Administration;
ii. Legal Authority;
iii. Source Identification;
iv. Stormwater Management;
v. Erosion and Sediment Control;
vi. Illicit Discharge Detection and Elimination;
vii. Property Management and Maintenance;
viii. Public Education;
ix. Stormwater Restoration;
x. Countywide Stormwater TMDL Implementation Plan;
xi. Assessment of Controls; and
xii. Program Funding.

b. A narrative summary describing the results and analyses of data, including monitoring data that is accumulated throughout the reporting year;

c. Expenditures for the reporting period and the proposed budget for the upcoming year;

d. A summary describing the number and nature of enforcement actions, inspections, and public education programs;

e. The identification of water quality improvements and documentation of attainment and/or progress toward attainment of schedules, benchmarks, deadlines, and applicable stormwater WLAs developed under EPA established or approved TMDLs; and

f. The identification of any proposed changes to the County's program when stormwater WLAs are not being met.

2. All annual reporting specified in PARTs IV.C, D, E, F, and G, or required anywhere within this permit shall be made using the MS4 Geodatabase. A corresponding User's Guide provides guidance for data requirements and entry into the MS4 Geodatabase.

3. Because this permit uses an iterative approach to implementation, the County must continuously evaluate the effectiveness of its programs and report any modifications in each annual report. Where programs are determined by the County to be ineffective, modifications shall be made within 12 months that effectively show progress toward meeting stormwater WLAs developed under EPA approved TMDLs.

B. Program Review

In order to assess the effectiveness of Anne Arundel County's NPDES stormwater program for reducing the discharge of pollutants to the MEP and working toward meeting water quality standards, the permittee will cooperate with the Department during the review of annual reports, field inspections, and periodic requests for additional data to determine permit compliance. Procedures for the review of local erosion and sediment control and stormwater management programs exist in Maryland State law and regulations. The Department may require additional evaluations and field inspections to be conducted for IDDE, property management and maintenance, assessment of controls, and impervious surface area and Chesapeake Bay restoration to determine compliance with permit conditions.

C. Reapplication for NPDES Stormwater Discharge Permit

This permit is effective for no more than five years from the effective date unless administratively continued by the Department. In order to qualify for an administrative continuation of this permit beyond five years, Anne Arundel County must reapply for NPDES stormwater discharge permit coverage in its fourth year annual report. Failure to reapply for coverage constitutes a violation of this permit and can lead to a lapse of

permit coverage and subject any discharges that occur without permit coverage to enforcement action and penalties. All requirements of this permit must be completed within the five-year permit term. An administrative continuance does not extend or modify any of the completion dates as set forth in the permit; the administrative continuance only provides permit coverage to allow County discharges until a new NPDES permit is issued and effective. Once a new NPDES permit is effective the administrative continuance automatically expires.

As part of this application process, the County shall submit to the Department an executive summary of its NPDES stormwater management program that specifically describes how each County watershed has been thoroughly evaluated, and the status of implementing water quality improvement projects and all schedules, benchmarks, and deadlines toward meeting stormwater WLAs. This application shall be used to gauge the effectiveness of the County's NPDES stormwater program and will provide guidance for developing future permit conditions. The application summary shall include:

1. The County's NPDES stormwater program goals;

2. Program summaries for the permit term regarding:

    a. Illicit discharge detection and elimination results;

    b. Impervious Surface and Chesapeake Bay Restoration status including County totals for impervious acres, impervious acres controlled by stormwater management, the current status of water quality improvement projects and acres managed, and documentation of progress toward meeting stormwater WLAs developed under EPA approved TMDLs;

    c. Pollutant load reductions as a result of this permit and an evaluation of whether TMDLs are being achieved; and

    d. Other relevant data and information for describing County programs;

3. Program operation and capital improvement costs for the permit term; and

4. Descriptions of any proposed permit condition changes based on analyses of the successes and failures of the County's efforts to comply with the conditions of this permit.

PART VI. SPECIAL PROGRAMMATIC CONDITIONS

Maryland's baseline programs, including the 1991 Forest Conservation Act, 1997 Priority Funding Areas Act, 2007 Stormwater Management Act, 2009 Smart, Green & Growing Planning Legislation, 2010 Sustainable Communities Act, 2011 Best Available Technology Regulation, and the 2012 Sustainable Growth & Agricultural Preservation

Act effectively mitigate the majority of the impacts from new development. Any additional loads will be offset through Maryland's Aligning for Growth policies and procedures as articulated through Chesapeake Bay milestone achievement. Anne Arundel County shall reflect these policies, programs, and implementation as part of its net WLA accounting as stipulated in PART IV.F.3.b of this permit.

PART VII. ENFORCEMENT AND PENALTIES

A. Discharge Prohibitions and Receiving Water Limitations

Anne Arundel County shall prohibit non-stormwater discharges into, through, or from its MS4. NPDES permitted non-stormwater discharges are exempt from this prohibition. Discharges from the following will not be considered a source of pollutants when properly managed: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated ground water infiltration to separate storm sewers; uncontaminated pumped ground water; discharges from potable water sources; foundation drains; air conditioning condensation; irrigation waters; springs; footing drains; lawn watering; individual residential car washing; flows from riparian habitats and wetlands; de-chlorinated swimming pool discharges (not including filter backwash); street wash water; and firefighting activities.

Consistent with §402(p)(3)(B)(iii) of the CWA, the County shall take all reasonable steps in compliance with the terms of this permit to minimize or prevent the contamination or other alteration of the physical, chemical, or biological properties of any waters of the State, including a change in temperature, taste, color, turbidity, or odor of the waters or the discharge or deposit of any organic matter, harmful organism, or liquid, gaseous, solid, radioactive, or other substance into any waters of the State, that will render the waters harmful to:

1. Public health, safety, or welfare;

2. Domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial use;

3. Livestock, wild animals, domestic animals, or birds; and

4. Fish or other aquatic life.

B. Duty to Mitigate

Anne Arundel County shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

C. Emergency Reporting Requirements

Anne Arundel County shall report any non-compliance that may endanger human health or the environment to the Department's Compliance Program within 24 hours from the time when the County becomes aware of the circumstances. The 24-hour reporting can be accomplished by telephone at 410-537-3510 or by email to mde.wsacompliance@maryland.gov with the subject line "24-hour non-compliance report notification, Anne Arundel County MS4."

Within five days of the of the initial 24-hour report due, the County shall provide a written submission containing a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times; if the non-compliance has not been corrected, the anticipated time that it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the non-compliance. A written summary of the incident and steps taken to prevent the recurrence of the emergency shall also be included in the subsequent annual report.

D. Duty to Comply

Anne Arundel County shall be responsible for complying with all conditions of this permit. Other entities may be used to meet various permit obligations provided that both the County and the other entity agree contractually, and that no stormwater restoration work for Chesapeake Bay or local TMDL stormwater implementation plans are double-counted. Regardless of any arrangement entered into however, the County remains responsible for permit compliance. In no case may this responsibility or permit compliance liability be transferred to another entity.

Failure to comply with a permit provision constitutes a violation of the CWA and State law and is grounds for enforcement action; permit termination, revocation, or modification; or denial of a permit renewal application. The County shall comply at all times with the provisions of the Environment Article, Title 4, Subtitles 1, 2, and 4; Title 7, Subtitle 2; and Title 9, Subtitle 3 of the Annotated Code of Maryland.

E. Proper Operation and Maintenance

The County shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the County to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the County only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Sanctions

1. Penalties Under the CWA - Civil and Criminal

Section 309(g)(2) of the CWA, 33 USC §1319(g)(2) provides that any person who violates any permit condition is subject to a civil penalty not to exceed $10,000 per day for each violation, not to exceed $125,000. Pursuant to the Civil Monetary Penalty Inflation Adjustment Rule, 40 CFR Part 19, any person who violates any NPDES permit condition or limitation is liable for an administrative penalty not to exceed $16,000 per day for each such violation, up to a total penalty of $177,500. Pursuant to Section 309(c) of the CWA, 33 USC §1319(c), any person who negligently violates any permit condition is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than 1 year, or both. Any person who knowingly violates any permit condition is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than 3 years, or both.

2. Penalties Under the State's Environment Article – Civil and Criminal

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the County from civil or criminal responsibilities and/or penalties for a violation of Title 4, Title 7, and Title 9 of the Environment Article, Annotated Code of Maryland, or any federal, local, or other State law or regulation. Section 9-342 of the Environment Article provides that a person who violates any condition of this permit is liable to a civil penalty of up to $10,000 per violation, to be collected in a civil action brought by the Department, and with each day a violation continues being a separate violation. Section 9-342 further authorizes the Department to impose upon any person who violates a permit condition, administrative civil penalties of up to $5,000 per violation, up to $50,000.

Section 9-343 of the Environment Article provides that any person who violates a permit condition is subject to a criminal penalty not exceeding $25,000 or imprisonment not exceeding 1 year, or both for a first offense. For a second offense, Section 9-343 provides for a fine not exceeding $50,000 and up to 2 years imprisonment.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $50,000 per violation, or by imprisonment for not more than 2 years per violation, or both.

The Environment Article, §9-343, Annotated Code of Maryland, provides that any person who knowingly makes any false statement, representation, or certification in any records or other document submitted or required to be maintained under

this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $50,000 per violation, or by imprisonment for not more than 2 years per violation, or both.

G. Permit Revocation and Modification

1. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by Anne Arundel County for a permit modification or a notification of planned changes or anticipated noncompliance does not stay any permit condition. A permit may be modified by the Department upon written request by the County and after notice and opportunity for a public hearing in accordance with and for the reasons set forth in COMAR 26.08.04.10 and 40 CFR §§122.62, 122.63, 122.64, and 124.5.

After notice and opportunity for a hearing and in accordance with COMAR 26.08.04.10, the Department may modify, suspend, or revoke and reissue this permit in whole or in part during its term for causes including, but not limited to the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary reduction or elimination of the authorized discharge;

d. A determination that the permitted discharge poses a threat to human health or welfare or to the environment and can only be regulated to acceptable levels by permit modification or termination;

e. To incorporate additional controls that are necessary to ensure that the permit effluent limit requirements are consistent with any applicable TMDL WLA allocated to the discharge of pollutants from the MS4; or

f. As specified in 40 CFR §§122.62, 122.63, 122.64, and 124.5.

2. Duty to Provide Information

The County shall furnish to the Department, within a reasonable time, any information that the Department may request to determine whether cause exists

for modifying, revoking and reissuing, or terminating this permit; or to determine compliance with this permit. The County shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

H. Inspection and Entry

Anne Arundel County shall allow an authorized representative of the State or EPA, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter the permittee's premises where a regulatory activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and obtain copies at reasonable times of any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times, without prior notice, any construction site, facility, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

I. Monitoring and Recordkeeping

Unless otherwise specified by this permit, all monitoring and records of monitoring shall be in accordance with 40 CFR §122.41(j).

J. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State or local law or regulations.

K. Severability

The provisions of this permit are severable. If any provision of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

L. Signature of Authorized Administrator and Jurisdiction

Each application, report, or other information required under this permit to be submitted to the Department shall be signed as required by COMAR 26.08.04.01-1. Signatories shall be a principal executive officer, ranking elected official, or other duly authorized employee.

_____ _____

D. Lee Currey, **Date**
Director
Water and Science Administration

Appendix A
EPA Approved Total Maximum Daily Loads (TMDLs)
Anne Arundel County

This NPDES permit requires Anne Arundel County to submit an annual TMDL assessment report evaluating effectiveness of County's restoration plans and progress made in achieving compliance with EPA approved TMDLs. Similarly, by regulation at 40 CFR §122.44, EPA further requires that stormwater controls and programs implemented pursuant to this NPDES permit be consistent with applicable stormwater wasteload allocations (WLAs) developed under any approved TMDLs. The following is a list of TMDLs and WLAs applicable to Anne Arundel County:

TMDL Report	Location	TMDLs				Year
		Impairment	WLA	Units	Reduction	
Baltimore Harbor PCBs	Subsegment of 8 Digit WS 02130903 /Curtis Creek	PCBs	23.13	grams/day	94%	2012
Baltimore Harbor PCBs	Subsegment of 8 Digit WS 02130903 /Baltimore Harbor (incl. loads from Bear Creek and Curtis Creek)	PCBs	66.97	grams/year	92%	2012
Baltimore Harbor Tidal Nutrients	Multiple 8 Digit WS /Baltimore Harbor	Nitrogen	159,318	lbs/year	15%	2007
Baltimore Harbor Tidal Nutrients	Multiple 8 Digit WS /Baltimore Harbor	Phosphorus	17,245	lbs/year	15%	2007
Little Patuxent River Sediment	8 Digit WS 02131105 /Little Patuxent River	TSS	2,632	tons/year	21%	2011
Magothy River Bacteria	Subsegment of 8 Digit WS 02131001 /Forked Creek	Fecal Coliform	106	billion counts/day	26%	2006
Magothy River Bacteria	Subsegment of 8 Digit WS 02131001 /Magothy River	Fecal Coliform	2,960	billion counts/day	13%	2006
Marley and Furnace Creek Bacteria	Subsegment of 8 Digit WS 02130903 /Furnace Creek	Enterococci	615	billion counts/day	78%	2011
Marley and Furnace Creek Bacteria	Subsegment of 8 Digit WS 02130903 /Marley Creek	Enterococci	908	billion counts/day	76%	2011

TMDL Report	Location	TMDLs				Year
		Impairment	WLA	Units	Reduction	
Patapsco River Lower North Branch Bacteria	8 Digit WS 02130906 /Patapsco River Lower North Branch	E.coli	47,814	billion MPN/year	21%	2009
Patapsco River Lower North Branch Sediment	8 Digit WS 02130906 /Patapsco River Lower North Branch	TSS	1,490	tons/year	22%	2011
Patuxent River Middle Sediment	8-Digit WS 02131102 /Patuxent River Middle	TSS	71	tons/year	56%	2018
Patuxent River PCBs	Segmentshed PAXTF /Patuxent River Tidal Fresh	PCBs	0.10	grams/year	100%	2017
Patuxent River Upper Bacteria	Subsegment of 8 Digit WS 02131104 /Patuxent River Upper	E.coli	39,283	billion MPN/year	22%	2011
Patuxent River Upper Sediment	8 Digit WS 02131104 /Patuxent River Upper	TSS	912	tons/year	11%	2011
Severn River Bacteria	Subsegment of 8 Digit WS 02131002 /Mill Creek	Fecal Coliform	126	billion counts/day	86%	2008
Severn River Bacteria	Subsegment of 8 Digit WS 02131002 /Severn River Mainstem	Fecal Coliform	2,330	billion counts/day	19%	2008
Severn River Bacteria	Subsegment of 8 Digit WS 02131002 /Whitehall & Meredith Creeks	Fecal Coliform	14	billion counts/day	90%	2008
South River Bacteria	Subsegment of 8 Digit WS 02131003 /Duvall Creek	Fecal Coliform	68	billion counts/day	17%	2005
South River Bacteria	Subsegment of 8 Digit WS 02131003 /Ramsey Lake	Fecal Coliform	124	billion counts/day	65%	2005
South River Bacteria	Subsegment of 8 Digit WS 02131003 /Selby Bay	Fecal Coliform	21	billion counts/day	45%	2005
South River Bacteria	Subsegment of 8 Digit WS 02131003 /South River	Fecal Coliform	2,980	billion counts/day	68%	2005
South River Sediment	8-Digit WS 02131003 /South River	TSS	698	tons/year	28%	2017
Chesapeake Bay TMDL	Segmentshed CB3MH /Upper Chesapeake Bay Mesohaline	Nitrogen	1,003	delivered lbs/year	37%	2010

TMDL Report	Location	TMDLs				Year
		Impairment	WLA	Units	Reduction	
Chesapeake Bay TMDL	Segmentshed CB4MH /Middle Chesapeake Bay Mesohaline	Nitrogen	31,594	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed MAGMH /Magothy River Mesohaline	Nitrogen	71,725	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed PATMH /Patapsco River Mesohaline	Nitrogen	114,652	delivered lbs/year	35%	2010
Chesapeake Bay TMDL	Segmentshed PAXOH /Middle Patuxent River Oligohaline	Nitrogen	2,843	delivered lbs/year	27%	2010
Chesapeake Bay TMDL	Segmentshed PAXTF /Upper Patuxent River Tidal Fresh	Nitrogen	116,661	delivered lbs/year	15%	2010
Chesapeake Bay TMDL	Segmentshed RHDMH /Rhode River Mesohaline	Nitrogen	7,559	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed SEVMH /Severn River Mesohaline	Nitrogen	72,485	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed SOUMH /South River Mesohaline	Nitrogen	57,140	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed WSTMH /West River Mesohaline	Nitrogen	8,692	delivered lbs/year	36%	2010
Chesapeake Bay TMDL	Segmentshed CB3MH /Upper Chesapeake Bay Mesohaline	Phosphorus	66	delivered lbs/year	52%	2010
Chesapeake Bay TMDL	Segmentshed CB4MH /Middle Chesapeake Bay Mesohaline	Phosphorus	2,119	delivered lbs/year	51%	2010
Chesapeake Bay TMDL	Segmentshed MAGMH /Magothy River Mesohaline	Phosphorus	4,954	delivered lbs/year	51%	2010
Chesapeake Bay TMDL	Segmentshed PATMH /Patapsco River Mesohaline	Phosphorus	8,080	delivered lbs/year	49%	2010
Chesapeake Bay TMDL	Segmentshed PAXOH /Middle Patuxent River Oligohaline	Phosphorus	173	delivered lbs/year	45%	2010
Chesapeake Bay TMDL	Segmentshed PAXTF /Upper Patuxent River Tidal Fresh	Phosphorus	6,498	delivered lbs/year	29%	2010
Chesapeake Bay TMDL	Segmentshed RHDMH /Rhode River Mesohaline	Phosphorus	490	delivered lbs/year	52%	2010

TMDL Report	Location	TMDLs				Year
		Impairment	WLA	Units	Reduction	
Chesapeake Bay TMDL	Segmentshed SEVMH /Severn River Mesohaline	Phosphorus	5,038	delivered lbs/year	51%	2010
Chesapeake Bay TMDL	Segmentshed SOUMH /South River Mesohaline	Phosphorus	3,986	delivered lbs/year	50%	2010
Chesapeake Bay TMDL	Segmentshed WSTMH /West River Mesohaline	Phosphorus	572	delivered lbs/year	52%	2010
Chesapeake Bay TMDL	Segmentshed CB3MH /Upper Chesapeake Bay Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed CB4MH /Middle Chesapeake Bay Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed MAGMH /Magothy River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed PATMH /Patapsco River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed PAXOH /Middle Patuxent River Oligohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed PAXTF /Upper Patuxent River Tidal Fresh	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed RHDMH /Rhode River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed SEVMH /Severn River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed SOUMH /South River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
Chesapeake Bay TMDL	Segmentshed WSTMH /West River Mesohaline	TSS	See Phase II WIP	delivered lbs/year	See Phase II WIP	2010
West Chesapeake Bay Drainage Bacteria	Subsegment of 8 Digit WS 02131005 /Tracy and Rockhold Creeks	Fecal Coliform	38	billion counts/day	82%	2006
West Chesapeake Sediment	8-Digit WS 02131005 /West Chesapeake	TSS	196	tons/year	32%	2018

TMDL Report	Location	TMDLs				Year
		Impairment	WLA	Units	Reduction	
West River Bacteria	Subsegment of 8 Digit WS 02131004 /Bear Neck Creek	Fecal Coliform	121	billion counts/day	43%	2006
West River Bacteria	Subsegment of 8 Digit WS 02131004 /Cadle Creek	Fecal Coliform	72	billion counts/day	72%	2006
West River Bacteria	Subsegment of 8 Digit WS 02131004 /Parish Creek	Fecal Coliform	73	billion counts/day	53%	2006
West River Bacteria	Subsegment of 8 Digit WS 02131004 /West River	Fecal Coliform	207	billion counts/day	35%	2006

Appendix B
Year 1 BMP Portfolio – New and Replacement BMPs

BMP NAME	BMP TYPE[1]	NUMBER of BMPs	IMPERVIOUS ACRES TREATED[2]	LENGTH RESTORED (feet)/ LANE MILES (miles)/ MASS LOADING (lbs)[3]
Proposed Restoration for Year 1 of the Reissued Permit				
Capital Projects – BMPs Replacing Trades				
AA18RST000028	FBIO	1	5.1	N/A
AA18RST000029	FBIO	1	2.3	N/A
AA16RST000047	IBAS	1	3.2	N/A
AA18RST000003	IBAS	1	5.2	N/A
AA19RST000006	ITRN	1	0.7	N/A
AA17RST000007	MIBR	1	4.9	N/A
AA19RST000025	PWED	1	7.9	N/A
AA19RST000026	PWED	1	109.0	N/A
AA18RST000019	PWET	1	3.0	N/A
AA16RST000065	SPSC	1	4.8	N/A
AA17RST000005	SPSC	1	3.4	N/A
AA17RST000011	SPSC	1	33.2	N/A
AA18RST000008	SPSC	1	2.4	N/A
AA19RST000002	SPSC	1	6.9	N/A
AA19RST000005	SPSC	1	31.0	N/A
AA16RST000061	WEDW	1	26.6	N/A
AA17RST000010	WPWS	1	25.2	N/A
AA16RST000060	WSHW	1	12.1	N/A
AA16RST000062	WSHW	1	4.5	N/A
AA19RST000018	MSGW	1	0.4	N/A
AA19RST000019	MSGW	1	1.0	N/A
AA20APY000002	FPU	1	2.7	N/A
AA20APY000003	IMPF	1	0.4	N/A
AA18ALN000011	SHST	1	12.1	740
AA19ALN000028	SHST	1	5.4	270
AA17ALN000009	STRE	1	61.2	3642
AA18ALN000007	STRE	1	9.5	475
AA16RST000063	FSND	1	6.4	N/A
AA19RST000023	IBAS	1	6.4	N/A

BMP NAME	BMP TYPE[1]	NUMBER of BMPs	IMPERVIOUS ACRES TREATED[2]	LENGTH RESTORED (feet)/ LANE MILES (miles)/ MASS LOADING (lbs)[3]
AA17RST000002	ITRN	1	2.6	N/A
AA17RST000003	ITRN	1	2.7	N/A
AA19RST000010	PWED	1	45.9	N/A
AA19RST000013	PWED	1	27.0	N/A
AA19RST000014	PWED	1	51.7	N/A
AA16RST000069	SPSC	1	3.5	N/A
AA17RST000001	SPSC	1	3.6	N/A
AA18RST000014	SPSC	1	599.7	N/A
AA18RST000023	SPSC	1	63.3	N/A
AA19RST000003	SPSC	1	1.3	N/A
AA19RST000004	SPSC	1	8.4	N/A
AA18RST000002	WEDW	1	3.2	N/A
AA20APY000001	IMPP	1	0.0	N/A
AA17ALN000018	SHST	1	10.0	1640
AA18ALN000003	SHST	1	55.0	1600
AA18ALN000012	SHST	1	14.5	911
AA19ALN000027	SHST	1	8.2	410
AA19ALN000043	SHST	1	50.0	2500
AA17ALN000011	STRE	1	22.2	1462
AA18ALN000005	STRE	1	3.7	380
AA18ALN000026	STRE	1	30.0	1500
AA19ALN000006	STRE	1	153.4	3590
AA19RST000024	IBAS	1	13.0	N/A
AA17ALN000008	SHST	1	10.1	1375
AA17ALN000017	SHST	1	10.6	1630
AA18ALN000006	STRE	1	4.7	236
AA19ALN000008	STRE	1	19.4	879
AA19ALN000020	STRE	1	40.6	1300
AA19ALN000022	STRE	1	14.2	6255
AA19RST000007	SPSC	1	2.1	N/A
AA19RST000008	SPSC	1	88.2	N/A
AA19RST000009	WEDW	1	1.8	N/A
AA19ALN000005	SHST	1	6.0	300
AA17RST000022	SPSC	1	6.7	N/A

BMP NAME	BMP TYPE[1]	NUMBER of BMPs	IMPERVIOUS ACRES TREATED[2]	LENGTH RESTORED (feet)/ LANE MILES (miles)/ MASS LOADING (lbs)[3]
AA16RST000064	FSND	1	4.7	NA
AA19RST000011	FSND	1	21.2	NA
AA16ALN000008	STRE	1	9.0	450
	SHST	1	19.4	972
Annual BMPs				
Street Sweeping	VSS	NA	37.6	256
Catch Basin Cleaning	CBC	NA	37.5	174.5
Septic System Pumping	SEPP	NA	124.28	NA
Capital Projects – New Restoration				
AA19RST000012	WEDW	1	9.2	N/A
AA18RST000018	WPWS	1	14.0	N/A
AA17ALN000010	STRE	1	26.6	1690
AA18ALN000015	STRE	1	37.9	1893
AA19ALN000021	STRE	1	33.6	2118
AA19ALN000023	STRE	1	303.1	1300
AA19ALN000029	STRE	1	93.1	1433

Notes:
1. BMP types are from the MS4 Geodatabase.
2. Street sweeping is an annual practice that is averaged over the 5 year permit term. This level of effort will need to continue to maintain the restoration reported in Year 1.
3. N/A = not applicable (BMPs with no associated length, lane miles, or mass loading metric).

Column Descriptions

- BMP NAME: Unique ID or name of project.
- BMP TYPE: Type of restoration BMP. BMP types and classes from the MS4 Geodatabase (see table below). Additional BMP types (e.g., IDDE) from the 2020 Accounting Guidance may also be used.
- NUMBER OF BMPS: The number of restoration BMPs present. If a project has multiple types of a single BMP, the amount is identified in the Number of BMPs column. If using septic pumping or denitrification, the number of affected septic systems is reported in this column.
- IMPERVIOUS ACRES: Impervious acres reported using the 2020 Accounting Guidance.
- LENGTH RESTORED (feet)/ LANE MILES (miles)/ MASS LOADING (lbs): Length of stream restoration, outfall stabilized, or shoreline stabilized/ lane miles swept/ pounds of material removed as a part of inlet cleaning.

Appendix C
BMP TYPE Definitions

BMP TYPE CODE	BMP TYPE
Alternative Surfaces (A)	
AGRE	Green Roof – Extensive
AGRI	Green Roof – Intensive
APRP	Permeable Pavements
ARTF	Reinforced Turf
Nonstructural Techniques (N)	
NDRR	Disconnection of Rooftop Runoff
NDNR	Disconnection of Non-Rooftop Runoff
NSCA	Sheetflow to Conservation Areas
Micro-Scale Practices (M)	
MRWH	Rainwater Harvesting
MSGW	Submerged Gravel Wetlands
MILS	Landscape Infiltration
MIBR	Infiltration Berms
MIDW	Dry Wells
MMBR	Micro-Bioretention
MRNG	Rain Gardens
MSWG	Grass Swale
MSWW	Wet Swale
MSWB	Bio-Swale
MENF	Enhanced Filters
Ponds (P)	
PWED	Extended Detention Structure, Wet
PWET	Retention Pond (Wet Pond)
PMPS	Multiple Pond System
PPKT	Pocket Pond
PMED	Micropool Extended Detention Pond
Wetlands (W)	
WSHW	Shallow Marsh
WEDW	ED – Wetland
WPWS	Wet Pond – Wetland
WPKT	Pocket Wetland
Infiltration (I)	
IBAS	Infiltration Basin
ITRN	Infiltration Trench

Filtering Systems (F)	
FBIO	Bioretention
FSND	Sand Filter
FUND	Underground Filter
FPER	Perimeter (Sand) Filter
FORG	Organic Filter (Peat Filter)
FBIO	Bioretention
Open Channels (O)	
ODSW	Dry Swale
OWSW	Wet Swale
Other Practices (X)	
XDPD	Detention Structure (Dry Pond)
XDED	Extended Detention Structure, Dry
XFLD	Flood Management Area
XOGS	Oil Grit Separator
XOTH	Other
Alternative BMPs	
MSS	Mechanical Street Sweeping
VSS	Regenerative/Vacuum Street Sweeping (i.e., Advanced Street Sweeping)
IMPP	Impervious Surface Reduction (i.e., impervious to pervious)
IMPF	Impervious Surface to Forest (i.e., IMPP + FPU)
FPU	Forestation on Pervious Urban (i.e., Forest Planting)
CBC	Catch Basin Cleaning
SDV	Storm Drain Vacuuming
STRE	Stream Restoration
OUT	Outfall Stabilization
SHST	Shoreline Management
SPSC	Step Pool Stormwater Conveyance System
SPSD	Dry Channel Regenerative Step Pool Stormwater Conveyance System
SEPP	Septic Pumping
SEPD	Septic Denitrification
SEPC	Septic Connections to WWTP
XFTW	Floating Treatment Wetland
FCO	Forest Conservation
CLTM	Conservation Landscaping
RCL	Riparian Conservation Landscaping
RFP	Riparian Forest Planting
STCI	Street Tree

USRP	Urban Soil Restoration (Compacted Pervious Surfaces)
USRI	Urban Soil Restoration (Removed Impervious Surfaces)
UTC	Urban Tree Canopy (i.e., Pervious Turf to Tree Canopy over Turf)
IDDE	Elimination of Discovered Nutrient Discharges from Grey Infrastructure
OTH	Other