



## FACT SHEET

**NPDES Permit Number:** MD0068292  
**MDE Permit Number:** 20-DP-3315  
**Public Comment Period Expiration Date:** January 21, 2021  
**Contact:** Raymond Bahr 410-537-3543

The Maryland Department of the Environment, Water and Science Administration (Department) proposes to issue a National Pollutant Discharge Elimination System (NPDES) permit for Municipal Separate Storm Sewer System (MS4) discharges to:

**BALTIMORE CITY, MARYLAND**  
**100 N. Holliday Street**  
**Baltimore, MD 21202**  
**410-396-4900**

### Introduction

The Department proposes to reissue the NPDES Municipal Separate Storm Sewer System permit for Baltimore City (permit number MD0068292, 20-DP-3315) authorizing the discharge of stormwater into, through, or from all MS4s owned or operated by Baltimore City. This fact sheet provides background information and explanations of the requirements in the City's permit. Contact information and procedures for submitting public comments can be found at the end of the fact sheet.

This permit represents the continued evolution of Baltimore City's NPDES municipal stormwater permit program. The City's initial permit in 1993 laid the foundation for a comprehensive approach for controlling stormwater runoff. Subsequent permits, along with those issued to other jurisdictions, helped Maryland to build one of the most progressive municipal stormwater programs in the country. Stormwater runoff from more than 35,000 impervious acres of roofs, roads, and parking lots have been treated with stormwater management practices, including green, innovative, and alternative practices, that reduce pollutants in local streams and rivers and help in restoring the Chesapeake Bay.

This permit requires Baltimore City to continue restoring impervious acres for the reduction of nutrients and sediments and implementing pollution reduction plans targeting specific pollutants that impair local waters (e.g., PCBs, trash, bacteria). This permit builds on new scientific knowledge as well as lessons learned under the previous permits. With these advancements, Baltimore City will continue to be a leader in reducing stormwater pollutants locally and nationally. Most significantly, the new permit:

- Incorporates Baltimore City’s implementation of stormwater best management practices (BMPs) for impervious acre restoration using the City’s MS4 Restoration and total maximum daily load (TMDL) Watershed Implementation Plan;
- Establishes annual impervious acre restoration benchmarks throughout the five-year permit;
- Provides incentives to implement green stormwater infrastructure to increase the use of natural filters and BMPs that provide a climate resiliency co-benefit;
- Strengthens the illicit discharge detection and elimination (IDDE) program by requiring the permittee to submit a process to prioritize the selection of outfalls for field screening and a plan and schedule for screening outfalls to the Department for review and approval;
- Requires IDDE coordination with other MS4s for conducting cross-jurisdictional investigations to track and respond to the source of an illicit discharge;
- Increases the use of good housekeeping and pollution prevention plans for additional City-owned properties to have a greater impact on stormwater prevention at key industrial areas;
- Improves winter management of deicing and anti-icing materials to further reduce chlorides, a pollutant of emerging concern;
- Leverages monitoring resources by providing the City the opportunity to participate in a pooled monitoring program; and
- Updates the *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits* (2020 Accounting Guidance), which incorporates the Phase 6 Chesapeake Bay Watershed Model, new and updated BMPs approved by the Chesapeake Bay Program (CBP) expert panels, and nutrient trading. The 2020 Accounting Guidance is accessible via the web link here:  
[mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/storm\\_gen\\_permit.aspx](https://mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/storm_gen_permit.aspx)

Successful implementation of the permit is in part dependent upon the City administration of well-established State stormwater programs. Maryland has a long history of developing statewide programs to reduce stormwater pollution that focus on protecting and restoring local water quality and the Chesapeake Bay. Maryland was one of the first in the nation to pass its Erosion and Sediment Control Law in 1970 for the control of stormwater runoff from construction sites. Numerous updates to the law and corresponding regulations over the years have added new and more stringent practices, better designs, more volume management, and flexibility in implementation of controls for greater protection of Maryland’s water resources.

The State’s Stormwater Management Law, passed in 1982, requires the implementation of BMPs in order to maintain after development, as nearly as possible, the pre-development runoff conditions. Over the years, this program has undergone significant revisions and enhancements, including the Stormwater Management Act of 2007 (Act), which introduced for the first time, environmental site design (ESD) to the maximum extent practicable (MEP) on all new development and redevelopment projects. The approach focuses on using natural drainage patterns and vegetation, and non-structural and small-scale practices (e.g., green infrastructure,

low impact development, runoff reduction) that more effectively manage stormwater runoff at its source rather than the use of larger practices like retention ponds.

### **Permit Authority**

According to 40 Code of Federal Regulations (CFR) §122.26, owners or operators of large and medium MS4s must obtain an NPDES MS4 permit. In Maryland, this permit is a State permit subject to federal and State regulations. The Clean Water Act (CWA) and federal regulations provide the federal permit requirements. The Annotated Code of Maryland, Environment Article, Code of Maryland Regulations (COMAR), and policies and guidelines of the Department provide the State permitting requirements.

### **Permit History**

Baltimore City is classified as a large MS4. The City's initial NPDES MS4 permit was issued in 1993, and reissued in 1999, 2005, and 2013. In 1993, the City's initial permit laid the foundation for a comprehensive approach to controlling stormwater runoff. This was done by inventorying and mapping storm drain system infrastructure; identifying sources of pollution; monitoring storm events to evaluate chemical, biological, and physical stream responses; and enhancing existing management programs as well as establishing new ones.

During the second permit, the City evaluated urban runoff and water quality; prioritized watersheds in order to perform more detailed analyses and guide management implementation; and began to restore existing impervious areas. During the City's third and fourth permit terms, extensive restoration efforts continued, and technologies were implemented for new and redevelopment projects that incorporated ESD to the MEP. Furthermore, the City began the development and implementation of plans to address stormwater wasteload allocations (WLAs) established under U.S. Environmental Protection Agency (EPA) approved or established total TMDL estimates.

This permit represents another step forward for Baltimore City's NPDES municipal stormwater program and continues a long history when it comes to stormwater management. The City implemented a stormwater management program in 1984 that enabled the City to enter into the MS4 permitting program with practices in place. Baltimore City proposed a robust portfolio of programmatic, upland, and in-stream BMPs for this permit term, continuing its leadership by providing its citizens with healthier streams and helping the State to meet its Chesapeake Bay nutrient reduction goals.

### **Regulated Permit Area**

EPA defines "municipal separate storm sewer system" as "...a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body...having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes...; (ii) Designed or used

for collecting or conveying storm water;” [40 CFR §122.26(b)(8)]. Under this definition, anywhere that a regulated jurisdiction “owns or operates” infrastructure that conveys runoff is covered under this NPDES MS4 permit.

The federal CWA amendments under 33 U.S.C. § 1342(p)(3)(B) adopt a flexible framework for permitting MS4 discharges in order to effectively control pollutants and improve water quality. Accordingly, the CWA specifies that permits for discharges from MS4s:

- May be issued on a system- or jurisdiction-wide basis;
- Shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
- Shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

In addition, 40 CFR §122.26(a)(1)(v), specifies that permit coverage may be granted on a system-wide or jurisdiction-wide basis to include areas where jurisdictions have control over land use decisions (see also 55 FR 48043 and 81 FR 89320). In accordance with this flexible permitting approach established under federal regulations and the CWA, the Department’s regulatory framework for issuing MS4 permits is based on jurisdiction-wide coverage. This approach is consistent with the fact that specific permit provisions, such as erosion and sediment control and stormwater management programs, are administered under State statute as citywide requirements (see the Environment Article, §4-103 and §4-202, Annotated Code of Maryland; and COMAR 26.17.02.01 and .02). As an example, private development requires the City’s approval for erosion and sediment control and stormwater management, and is subsequently inspected, maintained, and enforced under local authority. The City also owns or operates a road system that extends throughout the entire City and generates stormwater discharges. Therefore, the Department defines the regulated permit area as jurisdiction-wide in order to most effectively meet the goals and requirements under the CWA and thus, considers all provisions of this permit to apply to the geographic area of the City.

### **Stormwater System in Baltimore City**

Baltimore City’s population declined from 620,961 in 2010 to an estimated 602,495 in 2018, according to the United States Department of Commerce’s Census information. Baltimore City covers an area of 82 square miles and has approximately 1,359 “minor” outfalls and 350 “major” outfalls. Major outfalls are defined by 40 CFR §122.26 (b)(5) as:

- An outfall pipe with an internal diameter of 36 inches or greater; or
- A discharge from a single conveyance other than a circular pipe that drains fifty acres or more; or
- An outfall pipe with an internal diameter of 12 inches or greater that drains an area that includes land zoned for industrial use.

Stormwater from these outfalls is discharged into the Patapsco/Back River Watershed basin, one of Maryland's ten major Chesapeake Bay tributary basins. Stream segments in these basins are impaired by sediments, nutrients, chlordane, PCBs, trash, and bacteria. TMDLs have been approved and stormwater WLAs established for portions of Gwynns Falls, Jones Falls, Herring Run, Baltimore Harbor, Back River, and the Patapsco River. A WLA is that part of an impairing pollutant's total allowable discharge that is attributed to regulated point sources. The list of TMDLs and WLAs applicable to Baltimore City is included as Appendix A of the permit. More information regarding approved TMDLs for Baltimore City can be found at:

[mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/index.aspx](http://mde.maryland.gov/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/index.aspx)

### **Maryland's NPDES Municipal Stormwater Permit Requirements**

The management, restoration, and monitoring programs required by this permit are designed to control stormwater discharges to the MEP. Public education and outreach, property management, and storm drain system IDDE programs reduce the input of pollutants to the City's storm drain systems. Erosion and sediment control and stormwater management programs control stormwater discharges from new and redevelopment through the implementation of BMPs. These management programs, integrated with stormwater restoration and monitoring, described in more detail below, provide a comprehensive and adaptive approach toward improving and restoring local water resources and the Chesapeake Bay.

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 under 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 approved TMDLs incorporated as Appendix A of the permit).

### **Management Programs**

#### **Stormwater Management on New and Redevelopment**

This permit requires Baltimore City to continue the implementation of a stormwater management program in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland ([www.lexisnexis.com/hottopics/mdcode/](http://www.lexisnexis.com/hottopics/mdcode/)) and COMAR 26.17.02 ([www.dsd.state.md.us/COMAR/subtitle\\_chapters/26\\_Chapters.aspx](http://www.dsd.state.md.us/COMAR/subtitle_chapters/26_Chapters.aspx)). The law and regulations require that ESD be used to the MEP to manage runoff impacts associated with new and redevelopment. Maryland's stormwater regulations define ESD as "...using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources." Under this definition, ESD includes conserving natural features, minimizing impervious surfaces, slowing down runoff to promote infiltration and evapotranspiration, and using other approved nonstructural practices or innovative technologies.

The criteria for sizing ESD practices are based on capturing and retaining enough rainfall so that the runoff leaving a site is reduced to a level equivalent to a wooded site in good condition. The goal is to provide enough treatment using ESD practices to meet groundwater recharge requirements, provide water quality protection, and stream channel protection requirements by replicating woods in good condition for the 1-year, 24-hour rainfall event, or approximately 2.7 inches of rainfall over 24 hours. Managing the 1-year rainfall event on a site is equivalent to treating 98% of Maryland's average annual rainfall.

All jurisdictions in the State, including Baltimore City, are required to maintain and implement a stormwater management ordinance that is in compliance with the requirements of Maryland's stormwater management program. These requirements include ensuring the proper construction and maintenance of all stormwater management features through timely inspections of new ESD practices and structural stormwater management facilities. Long-term maintenance of BMPs is ensured through triennial inspections of completed ESD treatment systems and structural facilities. Maintenance procedures, including triennial inspection policies, are described in COMAR 26.17.02.11.

By following the conditions in its approved stormwater management ordinance, including mimicking natural hydrologic runoff characteristics, designing new projects to meet the woods in good condition criteria, and implementing ESD to the MEP, the City will be in compliance with this permit condition and with the requirements under 40 CFR 122.26(d)(2)(iv)(2). This includes post-construction stormwater management and also the accounting for growth strategy for new development described in "Maryland's Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025" (Phase III WIP) that supports the Chesapeake Bay nutrient and sediment TMDLs.

### **Erosion and Sediment Control**

This permit requires Baltimore City to implement an erosion and sediment control program in accordance with the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland ([www.lexisnexis.com/hotttopics/mdcode/](http://www.lexisnexis.com/hotttopics/mdcode/)) and COMAR 26.17.01 ([www.dsd.state.md.us/COMAR/subtitle\\_chapters/26\\_Chapters.aspx](http://www.dsd.state.md.us/COMAR/subtitle_chapters/26_Chapters.aspx)). By reference, this requires the City to ensure that all projects disturbing more than 5,000 square feet or 100 cubic yards have an approved erosion and sediment control plan; regularly inspect all active projects; maintain an effective enforcement program; have procedures to respond to complaints and violations regarding erosion and sediment control issues; and to adopt grading and building ordinances necessary to carry out the regulatory requirements. The Department reviews Baltimore City's program at least once every two years and has minimum standards for the design and content of erosion and sediment control plans. The incorporation of the State's program by reference in this permit is an administratively efficient way to ensure compliance with construction runoff control requirements under 40 CFR 122.26(d)(1)(v). In addition, this supports the accounting for growth strategy for new development and redevelopment described in the Maryland Phase III WIP that supports the Chesapeake Bay nutrient and sediment TMDL.

## **Illicit Discharge Detection and Elimination**

This permit requires Baltimore City to ensure that all non-stormwater discharges into, through, or from its storm sewer system, when found, are either issued a permit by the Department or eliminated. This is accomplished by maintaining a robust inspection and oversight program, including screening outfalls for dry weather discharges, conducting routine surveys of commercial and industrial areas, and maintaining the ability to take appropriate action when illicit discharges do occur (see PART IV.D.3). This permit creates four new requirements to advance Baltimore City's success at finding and eliminating illicit discharges. These additional requirements represent an increase in effort under the reissued permit. First, Baltimore City is required to review all outfalls in its jurisdiction to prioritize outfall screening locations based on the potential for polluted discharges. The process developed to prioritize outfall screenings must be submitted to the Department for review and approval. Second, the City must submit a plan and schedule for field screening prioritized outfalls for the Department's review and approval. The schedule must include screening a minimum of 150 storm drain outfalls each year to find and to eliminate any new polluted discharges. Each outfall having a dry weather discharge shall be sampled using a chemical test kit. Third, the City is required to maintain procedures for implementing the IDDE program, including investigating complaints and handling enforcement actions. Fourth, the permit includes an explicit requirement to maintain an ordinance under the IDDE program to ensure that the City has the authority to engage in enforcement actions to eliminate discovered illicit discharges. The goal of the enhanced requirements is to increase the number of illicit discharges discovered and eliminated each year. Finding and removing illicit discharges reduces pollutants from entering State waters and results in progress toward meeting State water quality standards and TMDLs. The City also has the option of submitting an alternative program for the Department's approval that methodically identifies, investigates, and eliminates illegal discharges. Baltimore City has successfully implemented an approved alternative program since the late 1990s that uses weekly ammonia screening as a primary field screening technique and a monthly Stream Impact Sampling monitoring program.

## **Property Management and Maintenance**

The City is required to ensure that a Notice of Intent be submitted and a pollution prevention plan developed for all City-owned facilities requiring coverage under the General Discharge Permit for Stormwater Associated with Industrial Activities. For other City-owned properties, this MS4 permit requires the City to develop and implement a good housekeeping plan where the following activities are performed: maintenance or storage of vehicles or equipment; storage of fertilizers, pesticides, landscaping materials, hazardous materials; or any other materials in a position likely to pollute stormwater runoff. These plans include an assessment of the property, focusing on activities that may contaminate stormwater runoff, and the implementation of pollution prevention measures and stormwater BMPs to eliminate or treat any non-stormwater discharges.

This permit expands the requirements of the winter weather management program to reduce the amount of chlorides (deicing salts) entering the stormwater system, a pollutant of emerging

concern. The permit requires the City to reduce the use of deicing and anti-icing materials by several methods, including: tracking and reporting of material used, tracking snow amounts; staff training; public education; and evaluation of new equipment technology and methods. Annual staff training shall include operation and proper calibration of snow removal equipment; knowledge and management of deicing and anti-icing materials; and how to improve winter weather management based on information collected during the winter season. The program shall be modeled on the winter weather management program of the Maryland Department of Transportation, State Highway Administration, as described in its annual document, *Maryland Statewide Salt Management Plan, 2019*, or subsequent versions thereof.

This permit further requires the City to continue its efforts to reduce pollutants associated with the maintenance of City properties. Inlet cleaning, street sweeping, and litter pickup programs are all activities currently undertaken by Baltimore City along its roadways. Inlet cleaning and street sweeping shall continue annually in the amounts outlined in Appendix B of the permit, as applicable. Appendix B will be updated annually as required in PART IV.E.8.a. Additionally, the City is required to reduce the use of pesticides, herbicides, and fertilizers along roadways and on City-owned properties (see PART IV.D.4 of the proposed permit).

In addition to permit requirements for implementing the Baltimore Harbor trash TMDL described below, this permit requires a citywide public education program (see below) to support and implement strategies to reduce trash (e.g., litter and floatables) including through recycling. This includes evaluating current trash and litter control efforts and providing public education to aid these efforts (see PART IV.D.5). The permit also requires the City to continue to remove from or prevent from entering its storm drain system 300 tons of trash in the first year of the permit (see PART IV.D.4.e). This amount, which is based on the City's efforts in the prior permit, may be updated annually in accordance with PART IV.E.8.a of the permit.

### **Public Education and Public Outreach**

Baltimore City implements a diverse public education and outreach program that focuses on pollution prevention and includes participation in numerous public and community events to disseminate information regarding pollution prevention. The permit requires the City to implement a program that includes information about, at a minimum, the specific topics (e.g., water conservation, residential SWM implementation and maintenance, litter reduction, pet waste management) related to stormwater management and water quality in the permit (see PART IV.D.5). The City shall provide this information through outreach efforts best suited to the target audiences and must also maintain and promote a website containing locally relevant stormwater management information (see PART IV.D.5.a). This permit also requires the City to conduct a minimum of 15 outreach efforts each year, which may include distributing printed or electronic materials, and conducting targeted workshops on stormwater management for the public. The minimum is based on the City's efforts in the prior permit. Events should be tailored to local efforts and the Department strongly encourages the development of outreach strategies directed at underserved and underrepresented parts of the City. The Department's review of these programs will consider access to materials produced, timing, language, and participation by the diverse communities in the City. The City is further required to maintain a complaint hotline for

residents to report suspected illicit discharges, illegal dumping, and spills (see PART IV.D.5.b). Public education is a necessary component of successful TMDL restoration.

### **Stormwater Restoration for TMDL WLAs**

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, BMPs and programs implemented pursuant to this permit must be consistent with applicable stormwater WLAs developed under EPA established or approved TMDLs.

Under the previous permit, Baltimore City conducted a systematic assessment of water quality for each watershed within its jurisdiction to identify sources of pollutants in stormwater runoff and link them to specific water quality impacts. These watershed assessments included detailed water quality analyses, identified opportunities for water quality improvement, and were used as the basis for developing and implementing restoration plans to control stormwater discharges. As a result of these assessments, the City developed implementation plans for each TMDL to be subsequently approved by the Department. The City provides annual updates to this plan that must be continued under this permit. Where additional information is still needed for the Department's approval of any of the City's TMDL implementation plans, there is a requirement to provide this information in year one of the permit.

When new TMDLs are established or approved, Baltimore City is required by this permit to include strategies to meet these TMDLs by proposing a TMDL implementation plan and submitting this plan to the Department for review within one year of EPA's establishment or approval of the TMDL. This permit also requires the City to document the annual progress for all Chesapeake Bay and local TMDL implementation plans, approved by the Department, through monitoring and modeling of estimated net change in pollutant loads. Over the permit term, Baltimore City must evaluate and update the benchmarks and specific stormwater BMPs that need to be implemented, in an iterative and ongoing process to ensure that water quality targets and WLAs are met.

This permit incorporates a list of BMPs the City is required to complete in Year 1 of the permit. The BMPs in the City's Year 1 BMP Portfolio (Appendix B of the permit) are linked to the Citywide Stormwater TMDL Implementation Plan. As part of each year's annual report, the City will propose a new list of BMPs to be implemented in the following year.

### **Impervious Acre Restoration**

The Department uses an impervious acre restoration metric as a surrogate for measuring progress toward all nutrient and sediment-related TMDLs. Impervious acre restoration represents direct or equivalent stormwater runoff treatment to the MEP. Upland stormwater BMPs, implemented according to the criteria described in Chapters 3 and 5 of the 2000 Maryland Stormwater Design Manual (Manual), provide direct impervious area treatment, removing pollutants in runoff associated with these impervious areas. An equivalent impervious acre (EIA) credit has been developed for alternative BMPs such as street sweeping, tree planting, stream restoration, and the

elimination of discovered nutrient discharges from grey infrastructure, among other approved practices. The EIA is based on reducing urban pollutant loads until they mimic the runoff from forest land cover. In addition, progress toward each specific TMDL WLA is reported by the City as part of the annual report.

#### Impervious Acre Accounting

In the 2020 Accounting Guidance, the Department provides updated information on how to calculate and report impervious area restoration and pollutant load reductions. The 2020 Accounting Guidance incorporates the Phase 6 Chesapeake Bay Watershed Model, new and updated BMPs approved by the CBP expert panels, an expansion of BMPs that also provide multiple benefits (e.g., increased climate resilience and green infrastructure credits), and nutrient trading options. The nutrient load reductions for these BMP options are consistent with those used in Maryland's Phase III WIP and the resulting 2025 nutrient load targets. The 2020 Accounting Guidance was developed with the contributions of environmental non-governmental organizations, MS4 jurisdictions, State agencies, and EPA, and supersedes the 2014 Accounting Guidance.

Baltimore City 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.5 of this permit. For acquiring Nutrient Credits in place of impervious acre restoration, an equivalent impervious acre is based on reducing 18.08 pounds of TN, 2.23 pounds of TP, and 8,046 pounds of TSS. These values reflect the difference in pollutant unit loads between aggregate impervious (i.e., impervious road and non-road surfaces) and the statewide average true forest land covers as estimated by the Phase 6 Chesapeake Bay Watershed Model.

The Department developed an MEP analysis methodology with a set of metrics to assist Baltimore City in determining what level of restoration activity is achievable. The Department developed the MEP analysis methodology with input from the University of Maryland's Environmental Finance Center, which provided important national background, research, and recommendations. The MEP analysis methodology took into consideration Baltimore City's financial and physical capacities and limitations for implementing a comprehensive suite of restoration BMPs and stormwater management programs toward meeting the Chesapeake Bay TMDLs. For example, included was a fiscal analysis incorporating median household income (MHI), willingness to pay, socioeconomic considerations, and the cost of operations and maintenance. Also included was a physical capacity analysis incorporating limitations and constraints on project scheduling, the procurement process and its impact on timing, the budget approval process, and the availability of qualified contractors. Considering the fiscal and physical capacity, the City generated a list of restoration BMPs and programs (i.e., BMP Portfolio) for implementation under this permit. The BMP Portfolio along with a justification narrative was submitted to inform the Department's determination as to the level of effort required for the City to meet the MEP standard. Based on discussions with the City regarding the justification narrative and BMP Portfolio, and comparison with the pace of past restoration trends, the Department determined that proposed restoration of 3,696 acres is achievable. Baltimore City has the option to trade nutrient credits to meet its restoration requirement.

However, the maximum allowable credits obtained from trades with wastewater treatment plants cannot exceed 10% of the City's restoration requirement, or 369 acres.

Baltimore City has continued to implement restoration projects since completing the requirements of the previous permit. The impervious acres restored through these efforts will receive credit toward meeting the requirements found in this permit. To ensure a steady rate of progress during the permit term, cumulative benchmarks are included in the permit in the Stormwater Restoration section in Table 1. The cumulative benchmarks were developed by using the information presented in the BMP Portfolio and adjusting the cumulative percentages so that implementation would progress to restore 3,696 impervious acres by the end of the permit term. Baltimore City's restoration requirement is greater than the two percent per year Phase III WIP restoration goal by 1,551 impervious acres, advancing the achievement of all Phase I large MS4 permittees to cumulatively exceed the two percent per year Phase III WIP restoration goal.

Baltimore City will provide continual outreach to the public regarding the development of new TMDL stormwater implementation plans. This permit requires the City to provide notice of its procedures for the public to obtain information and offer comment on the assessments and plans for new TMDLs. A minimum 30-day comment period is required prior to finalizing any assessments or plans, as well as a summary in annual reports of how the City addressed or will address any material comment received from the public.

### **Progress Toward Nutrient and Sediment TMDL WLAs**

The impervious acre restoration requirements and associated pollutant reductions described in Baltimore City's MS4 permit are consistent with the Phase III WIP, and with local TMDL implementation strategies. According to the Phase III WIP, "[r]ecent MS4 implementation and trend analysis indicates" that in aggregate Phase I MS4s "should be capable of annually restoring two percent of their impervious surface areas that currently have little or no stormwater treatment". This level of implementation was then used to estimate nutrient pollutant load reductions for Baltimore City and the State's other Phase I large MS4s. The Department's decision to require the restoration of 3,696 impervious acres in this permit incorporates the need to be consistent with the Phase III WIP and make significant and continued progress toward achieving the Chesapeake Bay's WLAs as well as local nutrient and sediment TMDLs.

### **Trash TMDL WLAs**

Baltimore City is required to annually reduce a cumulative 217,495 pounds of trash from three separate watersheds and report on the ongoing efforts to meet the requirements of the Baltimore Harbor Trash TMDL as part of the Citywide Stormwater TMDL Implementation Plan described above (see PART IV.F.3.d). The permit requires the City to report progress toward implementing practices and projects to achieve the Baltimore Harbor trash allocation. This includes reporting

on efforts to reduce trash and meet trash WLAs, effectiveness of public education and outreach efforts, and any modifications necessary to improve source reduction and proper disposal.

#### Bacteria TMDL WLAs

With respect to bacteria TMDLs, the implementation of WLAs is best addressed by eliminating bacteria at its source. Monitoring is necessary to identify the specific sources of bacteria in a watershed. To accomplish this, Baltimore City is required to perform bacteria trend monitoring for wildlife and domestic animal sources throughout its jurisdiction under this permit (PART IV.G.2.ii). Additionally, IDDE permit conditions require the screening of outfalls for dry weather flows (PART IV.D.3.b) to identify illicit discharges, including sanitary sewer contributions that may contain bacteria from human sources. The Department has determined that the combination of these two required monitoring and screening programs are adequate to ensure progress toward implementation of all relevant bacteria WLAs within the City for this permit term.

#### PCB TMDL WLAs

The City is required to develop a source tracking monitoring plan for all PCB TMDL WLAs where watershed reductions are required to meet water quality standards (PART IV.G.3). Baltimore City shall submit results and provide updates annually on its monitoring efforts. This is currently the most effective and efficient means of locating sources of PCBs in the landscape and reducing loads to a waterbody.

### **Assessment of Controls**

#### **BMP Effectiveness Monitoring**

The Chesapeake Bay Program partnership has determined that intensive monitoring on a small watershed scale where restoration efforts are being implemented is necessary to inform successful adaptive management. To support this initiative, Baltimore City's permit requires one of two monitoring options. If the City chooses, it may continue intensive monitoring and build upon past monitoring efforts at the Moore's Run watershed. Alternatively, the City may choose and submit for approval a new location to assess the effects of a BMP installed for restoration. This option requires chemical, biological, and physical monitoring be used to assess small watershed restoration efforts, document BMP effectiveness and PCB monitoring, and calibrate water quality models. The *2020 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments* (hereafter 2020 Monitoring Guidelines) provides technical information on the implementation of an acceptable monitoring program. The minimum criteria for chemical, biological, and physical monitoring are as follows:

Chemical Monitoring: Twelve storm events shall be monitored per year in the selected watershed. Discrete samples of stormwater flow representative of each storm event shall be collected at the monitoring stations for developing event mean concentrations (EMC) for the following pollutants:

Biochemical Oxygen Demand (BOD<sub>5</sub>) or Total Organic Carbon (TOC)  
Total Nitrogen (TN)  
Nitrate plus Nitrite  
Total Ammonia (sewer signal)  
Total Suspended Solids  
*E. coli* or *Enterococcus*  
Total Phosphorus  
Orthophosphate  
Chloride

Continuous measurements are also required for temperature, pH, discharge (flow), turbidity, and conductivity. Several parameters included in previous permits (e.g., copper, zinc) have been removed because their detection rates and concentrations are low, and there are no local TMDLs for these parameters.

Biological Monitoring: Benthic macroinvertebrate samples are required to be gathered each spring for gauging the biological response to stormwater discharges. A stream habitat assessment is also required using techniques defined by the EPA using Rapid Bioassessment Protocols (RBP), Maryland Biological Stream Survey (MBSS), or other similar method approved by the Department.

Physical Monitoring: A geomorphologic stream assessment is required and includes an annual comparison of permanently monumented stream channel cross-sections and the stream profile. A hydrologic and/or hydraulic model is required in the fourth year of the permit to analyze the effects of rainfall; discharge rates; stage; and, if necessary, continuous flow on channel geometry.

Continuous Flow Measurements: Flow measurements are required at the monitoring locations and will be used to estimate annual and seasonal pollutant loads and reductions, and for the calibration of watershed assessment models. Additionally, the City is required to provide a combined analysis of the chemical, biological, and physical monitoring results for the approved watershed.

The City alternatively may choose to collaborate with the Department in a Pooled Monitoring Advisory Committee (PMAC) administered by the Chesapeake Bay Trust. The committee will determine criteria for research proposals that address key questions pertaining to the cumulative impacts of watershed restoration and the effectiveness of specific restoration practices. All PMAC participants will determine monitoring needs, select appropriate studies, and contribute funding for specific projects that address permit requirements related to BMP effectiveness monitoring in a small watershed.

### **City Watershed Assessment Monitoring**

The City is also required to select one of two available strategies for city-wide watershed assessment and trend monitoring. The City may choose to submit a comprehensive plan to

monitor trends in biological, bacteria, and chloride impairments. This includes monitoring biota, habitat assessment, and bacteria (*E. coli*, *Enterococcus*, or fecal coliform), and an assessment of chloride by measuring conductivity as a surrogate. Alternatively, the City may choose to accomplish this requirement through participation in the PMAC with an annual monetary contribution.

The City is also required to develop a source tracking monitoring plan for all PCB TMDL WLAs where watershed reductions are required to meet water quality standards. Baltimore City shall submit results and provide updates annually on the monitoring efforts. This is currently the most effective and efficient means of locating sources of PCBs in the landscape and reducing loads to a waterbody.

### **Special Programmatic Conditions**

Baltimore City is required to offset any additional loads through Maryland's Accounting for Growth policies and procedures as articulated through Chesapeake Bay milestone achievement. Baltimore City shall reflect these policies, programs, and implementation as part of its net WLA accounting. The City will further continue to work toward the completion of the State's Water Resources Element as required by the Maryland Economic Growth, Resource Protection and Planning Act of 1992 (Article 66B, Annotated Code of Maryland). The projects and programs proposed under this permit, as well as those implemented during the City's previous stormwater permits and as part of the other State and local regulations all work toward meeting these conditions.

### **Enforcement and Penalties**

This permit regulates the discharge of stormwater into, through, or from Baltimore City's municipal separate storm sewer system. It also requires the City to take all reasonable steps to minimize or prevent discharges that are in violation of permit conditions. Failure to comply with a permit is a violation of the CWA and is grounds for enforcement action; penalty assessment; permit termination, revocation, or modification; or denial of a permit renewal application.

EPA affirmed in the preamble to its Municipal Separate Storm Sewer System Phase II Stormwater Rule (FR Vol. 64, No. 235, 68731) that water quality-based controls, which are implemented through the iterative process defined herein as the terms and conditions of the City's permit, are appropriate for the control of the discharge of pollutants into, through, or from the City's municipal separate storm sewer system and will result in reasonable progress toward attainment of water quality standards for this permit term. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of ensuring maintenance of water quality standards.

## **Public Review and Participation Opportunities**

Upon advertisement, the Tentative Determination will be available on the Department's website at:

[mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm\\_gen\\_permit.aspx](https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx)

Hard copies of the draft permit may also be procured at a cost of \$0.36 per page. Written requests for copies should be directed to Raymond P. Bahr, Maryland Department of the Environment, Water and Science Administration, Sediment, Stormwater, and Dam Safety Program, 1800 Washington Boulevard, Ste. 440, Baltimore, Maryland 21230-1708. Additional information on stormwater management in Maryland can also be found on the Department's website or by calling the Sediment, Stormwater, and Dam Safety Program at 410-537-3543 or 1-800-633-6101.

In accordance with COMAR 26.08.04, the Department will hold an informational meeting and public hearing regarding the tentative determination permit on November 20, 2020 from 10:00 AM to 12:00 PM, at 1800 Washington Boulevard, Baltimore, MD. Because of public health guidelines, space is limited, and in-person participants may register by calling 410-537-3543 or by emailing your registration information to [Stewart.Comstock@Maryland.gov](mailto:Stewart.Comstock@Maryland.gov). Alternatively, the Department is urging all who wish to provide testimony to do so by participating in the online webinar to be held from 4:00 PM to 6:00 PM on the same date. To participate online you must sign up via the registration link at <https://mde.maryland.gov/MS4>. The webinar hearing may also be accessed in listen-only mode via telephone at 1-866-901-6455 with Access Code 980-900-163.

Comments on this tentative determination permit will be accepted by Raymond Bahr, Maryland Department of the Environment, Water and Science Administration, 1800 Washington Boulevard, Baltimore, Maryland, 21230, or [Raymond.Bahr@Maryland.gov](mailto:Raymond.Bahr@Maryland.gov), if received within 90 days of publication of this notice. The 60-day extension of the comment period allowed for by section 1-606 (d) (1) (ii) of the Maryland Environmental Article is being invoked to extend the usual 30-day comment period to 90 days. The Department will respond to all pertinent comments during the Final Determination process. Once the Final Determination is issued, the public will have 30 days to request a judicial review of the permit.