

**Maryland Department of the Environment
Water and Science Administration
Basis for Final Determination to Issue National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System Permit for**

Prince George's County (MDE Permit No. 20-DP-3314, NPDES No. MD0068284)

December 2, 2022

Introduction

This document is the Maryland Department of the Environment's (the Department) Basis for Final Determination regarding the National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permit for Prince George's County (the Permittee). The Department published the Permittee's tentative determination MS4 permit (the Draft Permit) on November 5, 2021, to allow public comments for 90 days through February 4, 2022. The federal Clean Water Act (CWA), Code of Federal Regulations (CFR), Environment Article of the Annotated Code of Maryland (Environment Article), Code of Maryland Regulations (COMAR), and guidelines of the U.S. Environmental Protection Agency (EPA) and the Department establish the legal framework for MS4 permits.

Maryland is delegated the authority by EPA to administer the federal NPDES permit program through a Memorandum of Agreement (MOA) signed in 1974 and reaffirmed on May 18, 1989. *See also*, COMAR 26.08.04.07. Final stormwater regulations adopted by EPA in November 1990 and codified in 40 CFR § 122.26 require owners of storm sewer systems that serve populations greater than 100,000 to apply for Phase I NPDES MS4 permits. The Permittee is regulated as a large MS4 under Phase I because the Permittee owns or operates municipal separate storm sewer systems and had a population of 250,000 or more as of the 1990 U.S. Census in accordance with 40 CFR § 122.26(b)(4).

The final determination MS4 permit (Final Permit) is effective for a five-year term unless administratively continued by the Department. The Final Permit requires the Permittee to implement programs and best management practices (BMPs) that reduce the discharge of pollutants in stormwater that flows into, through, or from storm drain systems to the maximum extent practicable (MEP). Public education and outreach, property management, and illicit discharge detection and elimination (IDDE) programs reduce the input of pollutants to the Permittee's MS4. Erosion and sediment control and stormwater management programs control stormwater and pollutant discharges to the Permittee's MS4 from new development and redevelopment through the implementation of BMPs. Combined with restoration and monitoring, these management programs provide a comprehensive and adaptive approach to improve and

restore local water resources and the Chesapeake Bay. For a more detailed description of individual programs, a fact sheet for the permit is available on the Department's website at https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

The Department held numerous meetings with the MS4 community, non-governmental organizations (NGOs), the public, and EPA during the process to develop the Draft Permit. These meetings along with consideration toward comments received during the tentative determination process resulted in a Final Permit that advances Maryland's efforts to improve water quality and restore the Chesapeake Bay. The Final Permit establishes impervious acre restoration benchmarks, incentivizes green stormwater infrastructure and BMPs with climate resiliency co-benefits, prioritizes outfall screenings, requires salt management plans to address chlorides, provides an opportunity to participate in pooled monitoring, and establishes an updated Accounting Guidance that utilizes the latest science and the Phase 6 Chesapeake Bay Watershed Model.

The following sections review the legal framework that forms the foundation of MS4 permits and discuss information incorporated into the Final Permit's development process.

Legal Framework for MS4 Permit Requirements. The Department incorporates the legal framework in the CWA, CFR, Environment Article, COMAR, and EPA and Department guidance to develop MS4 permit requirements. The compliance framework for MS4 permitting is referred to as the MEP standard and is established under the CWA at 33 U.S.C. § 1342(p)(3)(B)(iii). This statute mandates that the Department "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." The CWA does not define the MEP standard; however, broad discretion is afforded to permitting authorities to set controls they deem necessary to protect water quality.

EPA offered greater clarity regarding the flexibility in determining the MEP standard in MS4 permits when publishing the Phase II NPDES stormwater regulations in the Federal Register on December 8, 1999. 64 Fed. Reg. 68722 (Dec. 8, 1999). Specifically, the EPA did not provide "a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis." 64 Fed. Reg. 68754. Therefore, the pollutant reductions that represent MEP may be different among regulated jurisdictions.

On December 9, 2016, the EPA published regulation changes in the Federal Register affecting NPDES small MS4 permits, known as the "Remand Rule." 81 Fed. Reg. 89,320 (Dec. 9, 2016). The Remand Rule was promulgated in response to a decision from the U.S. Court of Appeals for

the Ninth Circuit in *Environmental Defense Center, Inc. et al. v. EPA*, 344 F.3d 832 (9th Cir. 2003). While applicable to small MS4 regulations, the Remand Rule is instructive to permitting authorities for the purpose of determining the MEP standard. Specifically, the Ninth Circuit found that EPA’s Phase II MS4 regulations must be revised to preclude permittees from determining their own actions necessary to meet the MEP standard. The preamble to the Remand Rule, 81 Fed. Reg. 89320, 89333 – 89334, explains that these revisions were placed to “reinforce the fact that the permitting authority is the entity responsible for establishing the terms and conditions of the permit necessary to meet the MS4 permit standard.” 81 Fed. Reg. 89333. In addition, the Remand Rule clarifies that MS4 permit requirements must be expressed in clear, specific, and measurable terms.

In addition to establishing the MEP standard, the CWA provides that MS4 permits can include requirements that are more stringent than the MEP standard. These requirements often arise from total maximum daily loads (TMDLs) for impaired waters that are approved by EPA after the Department or EPA determines that additional controls are necessary to meet water quality standards. 40 C.F.R. § 122.44(d)(1)(vii) states: “when developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that ... [e]ffluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation....” Therefore, the Department must consider local water quality, and, specifically, wasteload allocations (WLAs) when promulgating MS4 permit requirements.

Maryland’s MS4 Permits and Judicial Review. The Court of Appeals of Maryland (COA), the highest court in this State, has reviewed and upheld three (3) previously issued MS4 permits in *Maryland Department of the Environment v. Anacostia Riverkeeper, et al.*, 447 Md. 88 (2016), *Maryland Department of the Environment v. County Commissioners of Carroll County*, 465 Md. 169 (2019), and *Maryland Small MS4 Coalition v. Maryland Department of the Environment*, 479 Md. 1 (2022).

The Final Permit is consistent with these decisions.

Background on Permit Requirements. The Department has carefully developed the Final Permit in consideration of the CWA’s legal mandate, applicable case law, and EPA guidance. Accordingly, the Final Permit reflects the MEP standard, as well as effluent limits consistent with applicable TMDLs and wasteload allocations. *See, e.g.*, 40 CFR § 122.44(d)(1)(vii). The Department’s decision is also informed by State water quality goals, the mix of available BMPs, public participation, past performance, and analyses submitted by the Permittee.

1. Chesapeake Bay and Local Total Maximum Daily Loads

The EPA established the Chesapeake Bay TMDL (Bay TMDL) in 2010 for the six (6) Chesapeake Bay States (Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia) and the District of Columbia. The Bay TMDL describes the level of effort necessary to reduce pollution, meet water quality standards, and restore the Chesapeake Bay. To implement the Bay TMDL, the Department has developed a Watershed Implementation Plan (WIP). The WIP assigns different pollutant reductions to different sectors of dischargers in the State of Maryland, including MS4s, as a strategy to implement the Bay TMDL. The WIP has gone through three (3) iterations, each of which has been reviewed by EPA. The Phase III WIP establishes a framework to ensure that NPDES Discharge Permits issued to MS4s are consistent with the Bay TMDL.

Maryland's Phase II WIP established a 20% impervious area restoration goal as an Interim Target Strategy for the stormwater sector to achieve the necessary nutrient and sediment load reductions to meet the Chesapeake Bay TMDL. This 20% impervious area restoration goal was incorporated into prior Phase I MS4 permits as a requirement to ensure continued progress toward reducing pollution from the MS4 sector consistent with the Bay TMDL. The Phase I MS4 permits were affirmed by the COA. In its decision, the COA referred to the WIP as a "well-developed and vetted strategy" for the purpose of helping to restore the Chesapeake Bay. *Anacostia Riverkeeper*, 447 Md. at 127. Consistent with this approach, the Department relied on the latest version of the WIP in determining the Final Permit's requirements. (See Maryland's Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025 and discussion in the TMDL Section of this document below.) Therefore, the Phase III WIP continues to inform the Department's process to determine restoration requirements for the Final Permit consistent with the Bay TMDL.

The Phase III WIP strategy will result in restoration requirements and BMP implementation that will make progress toward reducing urban stormwater pollution consistent with the Bay TMDL. The restoration programs developed under the Final Permit will establish stormwater controls that are proven to address other local TMDL impairments for nutrients, sediments, trash, polychlorinated biphenyls (PCB), bacteria, biochemical oxygen demand (BOD), and mercury. The restoration required in the Final Permit is also cumulative: it builds on prior restoration required under the Permittee's prior MS4 permits and requires the Permittee to maintain or replace BMPs implemented in prior permits. Accordingly, compliance with restoration criteria and management programs, outlined in the Final Permit, constitutes adequate progress toward compliance with Maryland's receiving water quality standards and EPA-approved stormwater WLAs for the Bay TMDL.

2. Chesapeake Bay Program Partnership

The Department is a partner with the Chesapeake Bay Program (CBP), which is dedicated to advancing restoration objectives in the Chesapeake Bay. The CBP Partnership provides technical support for TMDL development, local restoration implementation, and tracking progress toward pollutant reduction goals. The Department's participation includes membership on the Water Quality Goal Implementation Team (WQGIT) and the Urban Stormwater Workgroup (USWG). The CBP Partnership uses a science-based approach that identifies best practices to reduce pollutants from stormwater runoff. The CBP Partnership includes all jurisdictions within the Chesapeake Bay watershed, ensuring that technical standards are implemented consistently across the region.

The CBP Partnership convenes expert panels that undertake a scientifically rigorous review of proposals for new or updated BMPs. The expert panel reports provide recommended pollutant reductions achieved by specific BMPs and are subject to approval by the USWG and the WQGIT. These reports include BMP design criteria that must be met to achieve pollutant reductions. The Department relies on the CBP expert panel recommendations to develop criteria for acceptable BMP implementation and credits to meet restoration requirements.

3. Maryland and CBP BMP Design Criteria and Performance Standards

The Final Permit requires the Permittee to implement a stormwater management program in accordance with the Environment Article, Title 4, Subtitle 2, Annotated Code of Maryland and COMAR 26.17.02 to address discharges from new development and redevelopment projects. Therefore, implementation of the Final Permit is tied to the administration of well-established State stormwater programs. The State's Stormwater Management Law, passed in 1982, requires the management of stormwater runoff to maintain after development, as nearly as possible, the pre-development runoff conditions. Over the years, this program has undergone significant revisions and enhancements. The 2000 Maryland Stormwater Design Manual, Vol. I & II (the Design Manual) was developed to establish minimum performance standards for stormwater management for new development. The Stormwater Management Act of 2007 advanced Maryland's stormwater program by establishing requirements for environmental site design (ESD) to the MEP. These requirements incorporate improvements including the use of natural drainage patterns, vegetation, and non-structural and small-scale practices to manage stormwater runoff effectively at its source. Combined with other permit requirements, these controls address the discharge of pollutants from new development and redevelopment to the MEP. In addition, the Final Permit requires the Permittee to address the discharge of pollutants for existing impervious areas with little or no stormwater management.

The Final Permit requires the Permittee to retrofit existing impervious areas with little or no stormwater management. The criteria for acceptable new development and redevelopment restoration BMPs are based on the water quality treatment standards in the Design Manual. However, the Design Manual does not include the full suite of practices that MS4 permittees may use toward restoration. Therefore, the Department has developed the 2021 Accounting for Wasteload Allocations and Impervious Acres Treated (Accounting Guidance) to provide a comprehensive set of tools that MS4-permitted jurisdictions can use to achieve restoration requirements. The Accounting Guidance has been updated since the June 2020 version and is based on engineering principles and scientific research that document BMP efficiencies for nutrient and sediment reduction defined by the Design Manual and the CBP's recommendations. The Accounting Guidance includes alternative BMPs that have been assigned pollutant reductions by the CBP WQGIT-approved expert panels, such as stream restoration and tree planting. These approved pollutant load reductions provide the basis for determining equivalent impervious acre (EIA) credits that are used to achieve compliance with the Final Permit's impervious surface restoration (ISR) requirements. The EIA credits for the alternative practices are specified in the Accounting Guidance.

4. Jurisdiction-Specific Determination of Restoration Requirements

As noted above, the permitting authority is responsible for establishing the terms and conditions necessary to meet the MEP standard and to protect water quality. As part of this process, the Department provided guidance for the Permittee to develop local data that reflected its restoration capabilities. The guidance was developed with input from the University of Maryland's Environmental Finance Center (EFC). The Permittee's submissions to the Department included a Restoration Project Portfolio, Physical Capacity Analysis, and Financial Capacity Analysis.

The Permittee compiled the information noted above and submitted a Restoration Project Portfolio (BMP Portfolio) to the Department. The BMP Portfolio included a comprehensive list of restoration projects to be planned, designed, and constructed during the Final Permit's term. The BMP Portfolio included project-specific information on nutrient reductions and impervious acres treated. The Permittee also submitted a Physical Capacity Analysis (PCA) to the Department. The PCA considered various limitations such as constraints on procurement and permitting, budget approvals, availability of contractors, project scheduling, and project complexity. The Permittee further submitted a Financial Capacity Analysis (FCA) to the Department. The FCA provided data on community economic characteristics, including an estimate of costs and restoration expenditures per household, as well as information on the jurisdiction's ability (e.g., bond ratings) to pay for stormwater-related services. The Department reviewed this information carefully. The Department's analysis included:

verification that submitted BMPs were in conformance with design criteria and the Accounting Guidance; assessing the potential for additional credits; and gauging compliance with Chesapeake Bay restoration goals. The results of this analysis and the pollutant reduction goals in the Phase III WIP were used to inform the Department's determination of the Permittee's ISR requirement.

Administrative Process. The Department published a tentative determination to issue the Permittee's NPDES MS4 permit on November 5, 2021 (the Draft Permit). Public notice of the Department's tentative determination was published in the Washington Post for Prince George's County on November 5 and 19, 2021. Additionally, the Department maintains an interested party list for NPDES MS4 permits that includes federal, State, and local municipal officials, NGOs, and numerous citizens. Individuals on this list were notified by email of the tentative determination on November 5, 2021. These public notices included a public hearing date to allow any interested person to testify and/or submit written comments on the Department's tentative determination to issue the Draft Permit. The Department held the public hearing to accept testimony and comments regarding the Draft Permit on December 15, 2021. The only individuals who chose to attend the hearing were officials from Prince George's County. These individuals chose not to testify or comment. The transcript of the proceeding for the public hearing is available on the Department's website at https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

After the December 15, 2021, hearing, the public record for the Draft Permit remained open through February 4, 2022 to accept public comments. At the end of the comment period, the Department received written comments from Prince George's County and the Chesapeake Accountability Project (CAP) on the Draft Permit. No further comments were received. The comments raised certain issues including environmental justice, climate change, the ISR metric, the MEP standard, anti-backsliding, TMDLs, the BMPs outlined in the Accounting Guidance, nutrient trading, and enforcement. These comments were similar to comments that the Department received previously and addressed in its "Basis for Final Determinations to Issue National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permits for Anne Arundel County, Baltimore City, Baltimore County, and Montgomery County"¹ (2021 Basis for Final Determinations). Additional comments on this Draft Permit raised new concerns related to the Permittee's ISR metric, the availability of federal funds, and the Department's "Advancing Stormwater Resiliency in Maryland"² (AStoRM) action plan to

¹ "Basis for Final Determinations to Issue National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permits for Anne Arundel County, Baltimore City, Baltimore County, and Montgomery County" MDE, November 5, 2021

² "Advancing Stormwater Resiliency in Maryland (A-StoRM) Maryland's Stormwater Management Climate Change Action Plan", MDE, November 5, 2021

address climate change. The Department's response to comments is below.

Response to Comments

1. Global Issues

The Department received comments requesting that environmental justice and climate change be emphasized in various permit requirements (e.g., impervious surface restoration or "ISR", TMDLs, BMPs). A comment requested that the Department mandate environmental justice and climate change as determining factors in the design and location of local restoration efforts.

Environmental Justice. The Department is committed to promoting environmental justice, the concept that all people – regardless of race, color, national origin, or income – are able to enjoy equal environmental protection. The Department received comments expressing concerns that marginalized communities lack green spaces and green infrastructure. These comments allege that the Draft Permit does not include restoration requirements that will specifically seek to improve underserved communities.

One comment suggested that "the Department include provisions in this permit to ... equalize the distribution of environmental, public health, and economic benefits from restoration efforts." The commenter added that marginalized communities should be accounted for in BMP implementation "through robust and inclusive public outreach efforts" and urged the Department to incorporate the Report of the Senate President's Advisory Workgroup on Equity and Inclusion (available at <https://mgaleg.maryland.gov/pubs-current/SenatePresidentAdvisoryWorkgrouponEquityandInclusion.pdf>). This report recommended more trees in urban communities, "the use of environmental justice data [in the Department's] daily operations ... [and] further investigation into programs and policies that promote green infrastructure in underserved urban communities."

The Department's mission is to protect and restore the environment for the health and well-being of all Marylanders. The Department recognizes that historic and systemic racism has impacted communities throughout the State and is committed to responding to the local and nationwide call to address Environmental Justice throughout its authority. The MDE Environmental Justice Policy and Implementation Plan adopted in 2020 (available at https://mde.maryland.gov/Documents/MDE_EJ_Env%20Justice%20Policy_Final_Dec2020.pdf) states: "as MDE implements state laws and programs to protect and restore the environment, it is the Policy of MDE to implement environmental laws and programs wherever possible in a manner that reduces existing inequities and avoids the creation of additional inequities in environmental justice (EJ) communities." Further, as the lead agency staffing the Commission on Environmental Justice and Sustainable Communities (CEJSC), the Department is engaged in a

dialogue with communities to learn about environmental health concerns as well as locally identified solutions. Additionally, the Department is actively developing policies that prioritize equity during engagement, permitting, and compliance. More information on environmental justice implementation at the Department can be accessed on the Department's website at <https://mde.maryland.gov/programs/crossmedia/environmentaljustice/Pages/index.aspx>.

The Final Permit requires, incentivizes, and supports actions by the Permittee and community leaders that collaborate to prioritize restoration in marginalized communities. For example, the Final Permit requires continual outreach to solicit public input regarding restoration plans [PART IV.D.5 Public Education; PART IV.F.4 Stakeholder Outreach on Stormwater TMDL Implementation Plans] to foster the inclusion of diverse communities. The Final Permit allows the permittee the flexibility to implement green infrastructure in EJ communities, including BMPs such as urban soil restoration, urban tree canopy planting, street trees, impervious surface reduction, and street sweeping.

In addition to green infrastructure, the Department encourages planning and implementation that integrates the social and environmental co-benefits of restoration efforts along with local goals and infrastructure improvements. For example, the Final Permit requires the Permittee to use the Accounting Guidance which promotes flexibility to implement projects that meet multiple local planning goals (see Part 6. Best Management Practices), and therefore the Final Permit's requirements promote opportunities consistent with the Department's mission to emphasize environmental protection for all communities.).

The Department is also working with federal agencies and local governments to continue to improve the understanding of and response to equity in environmental permitting.

Climate Change. The Department recognizes the urgency needed to address climate change. The Final Permit empowers the Permittee to build infrastructure that meets both today's storm conditions and the future climate with more intense events. The Department is committed to adapting Maryland's stormwater program. The Department received comments on the Draft Permit alleging that it does not take climate change into consideration. As discussed in the CBP's memo, "Review of Current Stormwater Engineering Standards and Criteria for Rainfall and Runoff Modeling in the Chesapeake Bay Watershed" (*see* Wood, D. 2020), acquiring the most up-to-date precipitation data and science is an important first step to address the impacts of climate change.

The Department is working with the regulated community to develop changes to the State's stormwater management regulations that address climate change. The first phase of this effort includes adopting the most recent precipitation data and increasing the base for the environmental site design (ESD) requirement from 2.7 inches to 3.0 inches. Future phases will

include changes to the State’s quantity management requirements to address local pluvial and fluvial flooding. Because the stormwater management and erosion control programs are incorporated by reference into the permit, any updates, including regulatory changes and guidance to address climate change will also apply to this Final Permit. The Final Permit can also be modified to incorporate new regulations and standards as provided in Part VII.G.1.

1. *Climate Change and the Phase III WIP:*

Maryland is committed to restoring the Chesapeake Bay and has a robust strategy to achieve nutrient reduction goals. One comment asserted that nutrient and sediment loads are increasing because of climate change. The commenter further stated that the Draft Permit does not account for these increases, so Maryland is not on track to meet goals established in the Phase III WIP. The commenter asserts that the State must accelerate stormwater pollution reductions and revisit the restoration requirements established in the Draft Permit.

The Department addresses nutrient planning targets projected for climate change in the Phase III WIP. Specifically, the Phase III WIP “surpasses the statewide nitrogen and phosphorus targets by 1,000,000 pounds per year and 440,000 pounds per year, respectively. Reductions achieved beyond the targets will be used to meet future reduction requirements, including those due to climate change.” (See Chapter IV, pp. 31-32). The surplus reductions in the Phase III WIP were adopted to compensate for the inherent uncertainty of projecting future pollutant loading increases. These additional nutrient and sediment reductions were applied across all sectors, including each jurisdiction’s stormwater permit. The Department’s approach balances the uncertainty of future projections with current, available data consistent with the Department’s iterative process to ensure progress towards improving water quality.

2. *Flooding:*

The Department received comments on the Draft Permit suggesting that climate change will reduce BMP design efficiency and contribute to the failure of local stormwater infrastructure. The comments tie these arguments to alleged flooding that they contend contributes nutrient pollution to receiving waters. For this reason, the commenter recommends that the Department incorporate design changes into the Draft Permit to address climate change and flooding. The commenter also suggested that the Department should incorporate requirements to keep BMPs out of future flood zones or limit credit eligibility where these BMPs are exposed to flood risks.

Increased flooding associated with climate change is a public safety and health concern and a top priority for the Department. According to the EPA Climate Change Adaptation Resource Center (ARC-X), climate change leads to greater variability in rainfall patterns, air

temperature and corresponding water temperature increases, and higher rates of sedimentation and erosion (See EPA ARC-X website at www.epa.gov/arc-x). These changes threaten water quality by increasing stormwater runoff, washing sediment, nutrients, pollutants, trash, animal waste, and other materials into water. More frequent and intense downpours can overwhelm the design capacity of local stormwater management systems. This can cause localized flooding and/or greater runoff of contaminants such as trash, nutrients, sediment, or bacteria into local waterways.

To address localized flooding and its associated water quality impacts, a comprehensive watershed approach is needed that characterizes the existing stormwater conveyance systems, determines where upgrades are needed, identifies regional management solutions, and develops alternative management strategies including watershed specific stormwater management criteria for land development projects. This approach is complex and involves many local and State programs and agencies, including the MS4 permitting program. The Department has initiated an effort to address climate change on a watershed scale. This effort includes updating the statewide stormwater management program.

The Department is studying where flooding is occurring as part of the process outlined below. However, the scope and extent of the problem need to be identified before solutions may be evaluated. Once the Department MDE determines the appropriate solutions, those solutions will be implemented it via appropriate means (e.g., rulemaking, guidance). This effort is outlined below.

The Department published the Advancing Stormwater Resiliency in Maryland (A-StoRM) report in November 2021. The A-StoRM report was required by the General Assembly in Senate Bill 227, enacted during the 2021 legislative session, and is codified at Section 4-203(b)(4) of the Environment Article. Consistent with this statute, the A-StoRM report describes the Department's plans to examine recent precipitation data and evaluate potential updates to quantity control standards in certain watersheds along with other regulations adopted under Section 4-203 of the Environment Article. The Department is currently moving forward with the strategies outlined in the A-StoRM report and working in partnership with other jurisdictions to update rainfall data from the National Oceanic and Atmospheric Administration (NOAA). Once this data is updated, the Department will evaluate it in tandem with its ongoing strategies under the A-StoRM report.

However, some of the comments contend that the Department ignores its own recommendations found in the A-StoRM report by taking insufficient steps to mitigate the effects of climate change in the Draft Permit. The Department counters that it is inappropriate to include requirements in the MS4 permits before the issue(s) that will be addressed through these requirements are evaluated and the impact(s) and consequences of

these requirements are fully understood and articulated appropriately through guidance, rulemaking, and other processes. For example, one commenter argued that BMPs should be restricted from or receive limited credit when located in out of flood-prone areas. However, limiting BMP implementation before the extent and severity of flood prone areas are mapped, and the reasons for localized flooding are determined, may restrict efforts to improve local water quality and inhibit addressing flooding. Any requirements or actions for addressing climate change must understand the scope of the problem(s) and consider the benefits and unintended consequences of proposed actions. This process is discussed in the A-StoRM report and is ongoing.

Accordingly, the Department has not added specific climate change provisions in the Final Permit as suggested by the commenter. This does not mean that any actions or regulatory changes implemented as a result of the State's ongoing efforts will not be incorporated into the Final Permit. Any changes to the State's stormwater management program will be incorporated into the Final Permit under PART IV.D.1. This includes any final regulatory actions including updating stormwater management standards and other regulatory changes to address climate change impacts. The Department may modify the Final Permit to incorporate new regulations or standards under PART VII.G.1. of the Final Permit.

2. Impervious Surface Restoration

The Final Permit establishes an ISR requirement with associated pollutant reductions that are consistent with Maryland's Phase III WIP for the Chesapeake Bay TMDL and 2025 nutrient and sediment load targets. When developing the Phase III WIP, the Department used the impervious surface metric, which was established in previous MS4 permits, supported by EPA, and upheld by the Maryland Court of Appeals (see discussion below), to define an annual pace of restoration implementation. Comments expressed concern regarding the ISR metric, urging that it be replaced with numeric nutrient and sediment load reductions.

Impervious Surface Restoration Requirement is an Appropriate Water Quality Surrogate.

Certain commenters stated that the ISR metric should be replaced. Specifically, the commenter argued that the ISR metric is flawed and should be replaced with numeric pollution reduction requirements. In lieu of the ISR metric, the commenter suggest that the Department establish an alternative approach to meet wasteload allocations (WLAs) that does not rely on impervious surface restoration. The Department disagrees with these suggestions.

The ISR metric is an appropriate metric for the Final Permit. An EPA memorandum, "Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs" by Sawyers and Best-Wong, 2014 (available online at

https://www3.epa.gov/npdes/pubs/EPA_SW_TMDL_Memo.pdf), promotes Maryland's use of the ISR requirement in MS4 permits as a model example for establishing numeric effluent limitations to meet water quality and TMDLs. The Department's approach is supported by other EPA guidance for permitting authorities to address TMDLs and WLAs in stormwater discharges. These guidance documents recognize the impervious cover surrogate as an appropriate, clear, measurable, and enforceable metric to address water quality-based effluent limits (WQBELs). For example, in the EPA memorandum "Revisions to the November 22, 2002, Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs" (Hanlon and Keehner, 2010 and available online at https://www3.epa.gov/npdes/pubs/establishingtmdlwla_revision.pdf), EPA promotes impervious surface restoration as a "more straightforward way to regulate stormwater contributions to waterbody impairment." Additionally, EPA has approved Maryland's MS4 permits that incorporate the ISR requirement. Therefore, the ISR metric is an appropriate metric to establish effluent limits in MS4 permits.

The Maryland Court of Appeals upheld the Department's approach of using an ISR surrogate to reduce pollution discharges in *Maryland Department of the Environment v. Anacostia Riverkeeper, et al.* Specifically, the Court noted that "it is through restoring impervious surfaces with management practices that the Counties will reduce pollution." *Anacostia Riverkeeper*, 447 Md. at 123. The Court also noted that "MDE chose a standard that relates to the very problem the 20% restoration requirement serves to abate: the increase in stormwater runoff and the discharge of pollutants because of the increase in impervious surfaces." *Anacostia Riverkeeper*, 447 Md. at 125. The ISR strategy is a clear, specific, and measurable metric to address TMDL WLAs and improve water quality.

Impervious Surface Restoration Strategy and Nutrient and Sediment Load Reductions.

Comments related to the ISR requirement contend that this strategy allows the Permittee to implement practices that do not adequately contribute to water quality goals. For example, one comment suggested that the Draft Permit does not have specific nutrient pollutant load reductions and only has the ISR standard, which can be met in a variety of ways, some of which are unrelated to stormwater. The commenter also suggested that the ISR metric is insufficient to reduce stormwater pollution to ensure adequate water quality protection and should be replaced.

The ISR metric is supported by incorporation of the Design Manual, Accounting Guidance, and related documents into the Final Permit. These documents establish the effectiveness of BMPs and related practices recognized by the CBP and the Department and are supported by the best available science, thereby ensuring that the Permittee's ISR strategies will be effective and measurable. The Final Permit further requires the Permittee to monitor (PART IV.G) and

maintain or replace these practices (PART IV.D.1.d, PART IV.E.1, PART VII.E) to ensure their continued efficacy.

These requirements ensure that the Permittee's restoration is cumulative and additive—building on prior restoration efforts to increase the total amount of impervious area restored while maintaining prior restoration consistent with TMDL WLAs. In total, the Final Permit will require the Permittee to maintain 6,105 acres restored under the prior permit while adding another 2,137 acres of ISR, totaling 8,242 acres of impervious surface restoration.

The ISR requirement will result in BMP implementation and pollutant load reductions from stormwater discharges. Affirming the Department's approach of using the impervious surface restoration surrogate, the COA noted that, by incorporating the Design Manual into the Phase I MS4 permits, the ISR requirement ensures implementation of BMPs with specific design and performance standards that result in reduction of pollution discharges. *See Anacostia Riverkeeper*, 447 Md. at 122-23, 125-26. Additionally, the COA recognized that incorporating the Accounting Guidance allows permittees to “assess progress in achieving WLAs and also assess restoration of impervious surface areas through a credits-to-acres approach.” *Anacostia Riverkeeper*, 447 Md. at 109. This approach is consistent with the Department's iterative process for continual, ongoing progress to attain water quality standards. Further discussion related to specific BMP implementation for ISR requirements is provided in Section 6 of this Response to Comments document.

3. MEP Analysis and Permit Requirements

One comment questioned the Department's approach for using an MEP analysis when determining the ISR requirement. The Department developed a process to assess each jurisdiction's ability to implement restoration projects. This process was applied to the Draft Permit. The Department's analysis and subsequent determination of requirements in the Final Permit is consistent with guidance from EPA, the Department, the CWA, and case law.

Maryland Court of Appeals (COA) Ruling and MEP. One commenter expressed concern that the Department's MEP analysis is counter to existing law. This commenter stated: “[t]he MEP standard represents the minimum amount of pollution reduction that the Department must require. If additional reductions are needed to meet water quality standards, including through TMDL implementation, then the Department must impose additional pollution reduction requirements, which could take the form of an additional ISR requirement.” The commenter further stated that it is “counter to the Court's holding to now claim that the MEP standard controls and constrains the Department's water-quality based ISR condition in the Permit.” The commenter's argument is based on a false premise and is fundamentally incorrect.

The COA's ruling in *Department of the Environment v. County Commissioners of Carroll County*, 465 Md. 169, 222-25, 238 (2019), authorizes the Department to include water quality-

based effluent limits in MS4 permits in addition to limits established according to the MEP standard. However, imposing water-quality based effluent limits in addition to the MEP-based limits is not mandatory, but only necessary where needed to comply with water quality standards (derived from the assumptions and requirements of a TMDL).

Consistent with this case, the Department developed permit conditions according to the MEP standard that follow an iterative approach of working toward water quality standards. After reviewing the Permittee's BMP Portfolio, the Department concluded that additional pollution controls were required to meet WIP targets, thus increasing the Permittee's required amount of restoration. Therefore, the Department concluded that this increased amount complies with water quality standards derived from the assumptions and requirements of the Bay TMDL.

Stakeholder Process During Permit Development. The Department solicited information and input from regulated jurisdictions regarding ideas, concerns, and available data related to restoration implementation. These discussions were an open, ongoing dialogue with the regulated community relating to restoration practices and permit requirements over several years. This process was one of many venues through which the Department solicited information and provided feedback to interested parties throughout the development of the Draft Permit.

Information relied upon by the Department to issue the Final Permits is part of the administrative record. However, the Final Permit reflects the Department's regulatory decisions as applied to the Permittee and applicable law. As discussed above, the Final Permit is also one of five (5) Phase I MS4 permits issued by the Department in the past year, and the Department evaluated each of these MS4 permits individually and in tandem with the other MS4 permits to ensure consistency with the Phase III WIP and the Bay TMDL. While a stakeholder representing local governments suggested the Department should have deferred to the MEP determination voiced by permittees, this approach is not consistent with the Remand Rule. The Final Permit reflects the Department's analysis which balances suggestions from the regulated community and environmental NGOs, while ensuring consistency with applicable TMDL WLAs and the Phase III WIP.

Scope and Purpose of BMP Portfolio Reviews. The Department received comments alleging that the BMP Portfolio review process was inappropriate, and further alleging that the Department did not use proper authority under the CWA to issue a Draft Permit that was both protective of water quality and practicable to implement. These comments contended that the MEP analysis should not be limited to fiscal analysis and should be science-based with greater focus and attention to water quality impacts. These comments also suggested that the requirement to replace water quality trades—used to meet certain ISR requirements under previous MS4 permits—with BMPs should not be considered as part of the MEP analysis.

Contrary to these comments, the MEP analysis was not limited to a fiscal analysis. Furthermore, the Department's analysis is consistent with the authority granted under the CWA and EPA

guidance. Among the factors considered as part of the MEP analysis, the Permittee's, fiscal capacity, opportunities for BMP implementation, and commitments to maintain BMPs implemented in the previous MS4 permits were evaluated. The Department also reviewed the Permittee's BMP Portfolio for consistency with the Phase III WIP pollution reduction targets in tandem with the other Phase I Large MS4 permits. Each of these factors is appropriate when determining permit requirements and consistent with EPA's recommendations. *See, e.g.*, 64 Fed. Reg. 68,754.

As noted, the Permittee's Financial Capacity Analysis (FCA) is one component of the Department's MEP analysis for the Final Permit. The FCA is based on EPA's publications *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development* and *Small Drinking Water Systems Variances – Revision of Existing National-Level Affordability Methodology and Methodology to Identify Variance Technologies that are Protective of Public Health*, 1997 and 2006, respectively), which describe the use of financial capacity indicators (e.g., bond ratings), socioeconomic factors (e.g., unemployment), and costs as a percent of median household income (MHI). These guidelines validate the Department's approach to consider fiscal information as part of the Department's MEP analysis. However, as noted above, the Department's analysis also considered other factors as well as pollution reduction goals for meeting Chesapeake Bay Phase III WIP targets.

Specific elements of the Department's review of the Permittee's MEP submittal included the following:

- Confirmation that appropriate crediting methodologies from the Accounting Guidance were proposed and that practice-specific data supported the nutrient reductions reported;
- Local water quality objectives and TMDL goals addressed by the suite of proposed BMPs;
- The types of practices, pace of implementation, total cost, and cost per acre of proposed restoration versus previous Phase I MS4 permits;
- Project scheduling, budget process, and contracting limitations;
- The cost of maintaining existing BMPs implemented under previous MS4 permits; and
- The cost of program initiatives and BMP implementation necessary to meet other MS4 permit requirements.

In addition to the above criteria, the Department's determination of a permittee's restoration requirement also examined the State's pollution reduction goals noted in the Phase III WIP. The review process noted above is consistent with the Phase III WIP strategy which describes the MEP analysis as a component of the process to determine the ISR requirement. Therefore, the WIP strategy notes the following:

Recent MS4 implementation and trend analysis indicates that permittees (nine counties, Baltimore City and the State Highway Administration) should be capable of annually restoring two percent of their impervious surface areas that currently have little or no stormwater treatment. While this level of implementation will be used in the Phase III WIP analysis for estimating load reductions, the Department will continue to work with permittees on an MEP analysis that will indicate what is feasible. This MEP analysis will take into consideration the physical and financial capacity of a jurisdiction to perform restoration, and the need for making significant and continual progress toward Bay and local water quality improvements. The analysis will also consider the impact of updated BMP efficiencies approved by the CBP Partnership. Permittees will also have the flexibility to meet a portion of their restoration requirements through water quality trading. As progress must continue past 2025 for certain sectors to meet the WLAs assigned in the Bay TMDL, it is anticipated that significant restoration requirements will be maintained in the sixth- and seventh-generation permits. This will be done through subsequent MEP analysis that will be conducted at the outset of each permit term to update the pace based on the latest information available.

In summary, the level of impervious surface restoration in the Final Permit considers the Permittee's MEP submission and whether additional effluent limitations are necessary to meet the Bay TMDL Phase III WIP pollution reduction targets in tandem with other Phase I Large MS4 permits. Another comment indicated that the Department's MEP analysis should not consider whether a jurisdiction was able to trade. While the Permittee did not trade under their prior permit, the Department finds that it is appropriate to consider water quality credit trading as one of the many factors because trading is part of the planning strategy detailed in the Phase III WIP.

Permittee Specific Pollution Control Requirements. Some of the comments suggest that the Draft Permit's ISR requirement is not consistent with the Phase III WIP. The commenter suggested that the Draft Permit should require at least 20% of the Permittee's untreated impervious area to be restored due to projections that pollutant loads from the stormwater sector will continue to increase as development continues to occur in the State of Maryland. The Department disagrees with this argument.

The comment that the ISR requirement should be at minimum 20% on the basis of pollutant load projections for the stormwater sector does not consider the complete range of factors that the Department must consider based on CFR, EPA guidelines, and the strategy outlined in the Phase III WIP and described above. The EPA provides specific guidance that clarifies the flexibility afforded to permitting authorities when developing MS4 permit provisions. Specifically, EPA states that "MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis." 64 Fed. Reg. 68,754. EPA then describes the factors that permitting

authorities should consider when evaluating the MEP standard. These factors include but are not limited to specific local concerns, water quality conditions, ability to finance the program, and capacity to perform operation and maintenance. 64 Fed. Reg. 68754. The Department's decision-making included a wide range of factors, scientific documentation, and numerous stakeholder meetings over a three-year period. Therefore, the Department's review of the Permittee's MEP submittal is consistent with EPA guidance and considered Permittee specific data to tailor restoration requirements to meet Maryland's pollution reduction goals outlined in the Phase III WIP.

With respect to concerns related to pollutant load projections associated with increased development, the Phase III WIP is based on projected 2025 projected land use. Therefore, growth is already built into the strategies for meeting WIP pollution reduction goals. As noted below, the Department's determination of an appropriate ISR for each MS4 permittee is consistent with the assumptions and requirements of the Phase III WIP. An additional discussion on anti-backsliding and determination of ISR requirements is provided below.

Prince George's County Consent Decree

One commenter also noted that the Permittee has not met the requirement to restore twenty percent of its impervious surface area (6,105 acres) before the end of the Permittee's prior MS4 permit. The commenter observed that the Final Permit's ISR requirement of 2,137 acres (see PART IV.E.3 of the Final Permit) is "substantially less than even the county's remaining restoration requirement from its last permit term" and argues that the Permittee's failure to meet prior MS4 permit requirements "should not be rewarded with fewer required stormwater management BMPs in this permit."

The Permittee has entered a Consent Decree with the Department to address violations related to its previous MS4 permit. As part of the Consent Decree, the Permittee must complete the ISR requirement for that prior permit by the end of 2024, and a Supplemental Environmental Project (SEP) will also be implemented at a minimum cost of \$475,000. Additional corrective actions will also be addressed as part of the Consent Decree and the Permittee is required to submit to the Department an interim Consent Decree completion report each year until all violations are addressed. The Department has determined that the Permittee is on track to address violations under the schedule outlined in the Consent Decree. The Consent Decree may be found here: [https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Documents/Prince%20George%27s%20County%20MS4%20Consent%20Decree%20\(1-28-21\).pdf](https://mde.maryland.gov/programs/Water/StormwaterManagementProgram/Documents/Prince%20George%27s%20County%20MS4%20Consent%20Decree%20(1-28-21).pdf).

The obligations under the Final Permit are over and above the requirements of the previous permit, the County's noncompliance with which is addressed by the Consent Decree's conditions, including: 1) completing the unfinished restoration with related reporting

requirements, and 2) the SEP. Therefore, the Permittee will not only complete 6,105 acres of restoration as part of the prior permit, the additional 2,137 acres under the Final Permit will ensure consistency with pollution reduction targets outlined in the Phase III WIP. Further explanation on the Department's analysis and rationale for determination of the ISR requirement to be consistent with WIP targets is provided below.

Prince George's County MEP Submission

The Permittee submitted a BMP portfolio detailing the restoration projects to complete the Permittee's ISR obligations under the Draft Permit. The portfolio may be accessed here: https://mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/PR%20TD%20DOX/Restoration%20Project%20Portfolio%20Final_07062020.pdf. However, this proposal did not include any additional restoration to be implemented over and above the 6,105 acres required under the prior permit. Therefore, the Department compared the BMP Portfolio with the pollution load reduction targets for the Bay TMDL established in the Phase III WIP. The Department also identified additional opportunities for the Permittee to achieve impervious surface restoration and pollution reductions. In making this determination, the Department looked at several factors:

- BMPs that were used during the last MS4 permit term, such as street sweeping and catch basin clean outs, were not utilized in the Permittee's Portfolio.
- Redevelopment credits were not identified in the Permittee's BMP Portfolio.
- The Permittee expressed an interest in using additional green stormwater infrastructure (GSI) and watershed management (WM) credits in its BMP Portfolio. These additional credits will be available as the Permittee implements adaptive management strategies to maximize the use of these credits.
- The Permittee utilized the planning rate to estimate pollutant reductions for stream restoration projects in its BMP Portfolio. However, the planning rate may underestimate actual pollutant reductions that will be achieved once the project is complete and site-specific data are collected.
- New BMPs identified in the Accounting Guidance such as soil decompaction, illicit discharge detection and elimination, floating treatment wetlands, riparian buffers, and conservation of forests were not utilized in the Permittee's Portfolio.
- BMPs planned for restoration between 2025 and 2027 could be used to meet the restoration requirement under the reissued permit.
- The Consent Decree requires that restoration obligations under the prior permit will be met by the end of 2024. Therefore, the Permittee's pace of implementation should continue after these obligations are met.

- In order for Maryland to meet the collective pollution reduction targets identified in the Phase III WIP, the Permittee would need to implement more restoration than what was proposed in their BMP Portfolio.

Based on these findings, the Department determined that the Permittee's ISR requirement is 2,137 impervious acres. The Final Permit reflects this requirement in PART IV.E.3. This level of restoration is necessary to keep Maryland on track to meet the pollution reduction targets detailed by the Phase III WIP. The Department documented these understandings in a July 13, 2020, letter to the County.

Maryland's Iterative Process Toward Meeting Water Quality Goals. EPA states that MEP in reissued MS4 permits is iterative and "should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards." 64 Fed. Reg. 68,754. The Department's comprehensive review of the Permittee's MEP submittal recognizes that pollution controls will be installed that are additional to controls implemented in prior permits. Therefore, the Department's approach is to issue permits that build on pollution reductions previously achieved adapt to current conditions and reflect permittee specific considerations. This approach is consistent with federal guidelines and recognizes that pollutant reductions from ISR requirements will be different among the regulated jurisdictions.

The Department has determined that Maryland's two percent per year goal identified in the Phase III WIP to achieve pollution reduction targets will be met cumulatively by all Phase I Large MS4 permittees. This strategy, along with the local data that show restoration capacity for individual jurisdictions, was used to determine the collective load reductions achieved under the final MS4 permits for the Phase I MS4 jurisdictions, including the Final Permit. This ensures consistency with the State's goals established in the Phase III WIP.

Collectively, the level of restoration for the reissued Phase I Large MS4 permits—including the Final Permit—will exceed the Phase III WIP goal, resulting in a cumulative average level of restoration of 2.1% per year of all Phase I Large jurisdictions' untreated impervious area. The Department's process for establishing ISR requirements considered each jurisdiction's data and ensured consistency with the Phase III WIP goals. The Phase III WIP also specifies that significant restoration requirements will continue in future MS4 permits. Therefore, the Department's approach is consistent with the Phase III WIP goal to make continuous progress toward achieving water quality standards in each successive iteration of MS4 permits.

Additional Funding. One comment noted that, because of recent federal legislation, there may be additional funding available for restoration. This commenter noted that there has been an

increase in federal funding that local jurisdictions may use to invest in infrastructure improvements. The commenter also suggested that the Permittee's ISR requirement should be increased to reflect this new potential funding.

As discussed above, the Final Permit's ISR requirement considers the Permittee's MEP submission and the Phase III WIP strategy to implement the Bay TMDL. The MEP submission was informed by local priorities, water quality goals, and a proposed BMP Portfolio. Some of the factors that were evaluated as part of the MEP submittal included information on project scheduling, budget process, and contracting limitations.

Because of the time needed to meet local procurement requirements, planning and design, and permit processing, restoration projects may take several years to complete. For this reason, the Permittee's MEP submission included projects that are either currently in development or projected for implementation during the proposed five-year permit term (i.e., 2022 to 2027). The additional federal funding sources noted by the commenter became available only recently and after the development of the Permittee's MEP analysis. The Department does not believe that it is appropriate to delay the issuance of the Final Permit based on these recent developments. Furthermore, any additional restoration projects that could be implemented using these funds would likely be constructed after 2027. In addition, the Department notes that the possibility of funding based on future, yet-to-be-completed appropriations and grant/loan applications is not the same thing as secured funding for a specified purpose. Although the likely timeframe for construction of future restoration projects (post-2027) is beyond the scope of the Final Permit, the Department may consider the potential of these funding sources when developing future MS4 permits.

4. Anti-Backsliding

Maryland's prior Phase I MS4 permits required the restoration of 20% of untreated impervious area in each jurisdiction. The new MS4 permits for all Phase I Large jurisdictions (i.e., Anne Arundel, Baltimore, Montgomery, and Prince George's Counties, and Baltimore City) include an ISR requirement consistent with the Phase III WIP's collective target of 2% per year. These ISR requirements mandate additional BMP implementation and pollutant load reductions beyond those required under previous permits. Finally, each Phase I Large MS4 permit—including the Final Permit—requires each permittee to maintain or replace all restoration and practices required under each jurisdiction's prior MS4 permits. These requirements ensure that restoration is cumulative and additive.

Anti-Backsliding and the Impervious Surface Restoration Requirement. Certain comments suggest that the ISR requirement must be maintained at 20% or increased and argue that anything less than a 20% rate of restoration in each MS4 permit is backsliding. The Department

disagrees with the suggestion that effluent limits in the Final Permit are less stringent than prior permits. The CWA provision contains an anti-backsliding requirement at 33 U.S.C. § 1342(o). This statute provides that “a permit may not be renewed, reissued, or modified ... to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.” An effluent limitation is defined under 33 U.S.C. § 1362(11) as any restriction on quantities, rates, and concentrations of pollutants in stormwater discharges. Therefore, the anti-backsliding provision requires that pollutant restrictions in the Final Permit be no less stringent than prior Phase I MS4 permits. The Final Permit complies with these provisions by ensuring that restoration is cumulative, additive, and continuous.

The Final Permit requires that existing stormwater BMPs and restoration practices be maintained and continue to be implemented. *See, e.g.*, PART IV.E.1., PART VII.E. The Final Permit also requires that annual practices used to meet the prior MS4 permit’s ISR requirement be continued at the same level of implementation or be replaced with permanent practices as noted in PART IV.E.1. These provisions ensure that the effluent limits required under the prior Phase I MS4 permits are maintained as part of the Final Permit by ensuring that restoration is cumulative, additive, and permanent.

The Final Permit not only conforms with the anti-backsliding provisions under the CWA, but additional pollutant reductions will be achieved with the implementation of new practices. In addition to maintaining effluent limits from prior MS4 permits, PART IV.E.3 of the Final Permit requires the Permittee to increase impervious surface restoration by 2,137 acres. Therefore, the Final Permit represents a net *increase* in pollutant reductions beyond the prior Phase I MS4 permits.

Anti-Backsliding and Water Quality Credits. Some comments suggest that the water quality credit trading provisions in the Final Permit will not produce pollutant reductions commensurate with what would have been achieved in their absence. The commenter concludes that these provisions represent backsliding from the restoration requirements under the Permittee’s prior MS4 permit. However, the anti-backsliding provision in the CWA does not speak to the level of restoration accomplished by the various restoration options including trading; rather, the CWA requires that the level of pollutant reductions achieved in the prior permit must not decrease under the terms of the new permit. PART IV.E.9 of the Final Permit stipulates that trades from previous permits must be sustained during this permit until replaced with stormwater BMPs. Additional water quality credits may be acquired to meet the new ISR requirement. Accordingly, any trades executed under the Final Permit will not impact pollutant reductions achieved in prior Phase I MS4 permits, and, therefore, these provisions conform with the anti-backsliding regulations under the CWA.

Trading in the Final Permit is further addressed in the Water Quality Credit Trading section in this document.

5. TMDLs

The Department received comments on the Draft Permit regarding TMDLs, a requirement found in § 303(d) of the CWA. A TMDL establishes the maximum amount of an impairing substance that a waterbody can assimilate and still meet water quality standards. That amount, or a pollutant load, is then allocated among pollution contributors (e.g., factories, wastewater treatment plants, and nonpoint sources). The pollutant load that is allocated to point sources under a TMDL is the wasteload allocation (WLA). The pollutant load that is allocated to non-point sources under a TMDL is the Load Allocation (LA). As explained above, the Chesapeake Bay TMDL allocates each Bay jurisdiction—including Maryland—a pollutant load that the Bay jurisdiction must reduce. The State of Maryland has assigned its pollutant load under the Bay TMDL to specified categories of point sources (e.g., wastewater treatment plants, MS4s) as detailed in a Watershed Implementation Plan (WIP). The Department issues NPDES discharge permits within these categories of dischargers to achieve pollution reduction targets outlined in the WIP.

The Final Permit requires the Permittee to (1) implement specific programs (e.g., illicit discharge detection and elimination, property management, restoration) that are designed to control stormwater discharges, and (2) implement restoration for the Department-approved TMDL plans for the watersheds listed in Appendix A of the Final Permit, including the Bay TMDL. These plans include the construction of upland BMPs and stream restoration projects, and ongoing street sweeping and inlet cleaning programs to reduce the amount of pollutants entering these watersheds. In addition, the impervious acre restoration requirement is a surrogate metric used in both the Final Permit and the Phase III WIP to reflect stormwater WLAs and pollutant load reductions. The COA rulings in *Anacostia Riverkeeper*, 447 Md. 88 (2016) and *Carroll County*, 465 Md. 169 (2019), validated the Department's use of an impervious acre metric as a surrogate for Chesapeake Bay stormwater WLAs. By implementing these programs, the Permittee is working toward improving water quality and ecological health in its receiving waters.

Several comments reflected concerns with how the Draft Permit incorporated Maryland's Phase III WIP, local TMDL implementation plans, growth, and watershed assessments. The following discussion addresses these additional comments regarding the Draft Permit and TMDLs. The Department does not address comments on the Phase III WIP itself because that plan was finalized on August 23, 2019 and included its own public participation process.

Comments Regarding the Chesapeake Bay WIP.

1. Maryland's MS4 Permits are consistent with the Phase III WIP:

Comments expressed concern that the Draft Permit is not consistent with the stormwater WLAs enumerated in the Phase III WIP. Some comments claim that the Department requires some jurisdictions to over-perform and allows other jurisdictions to under-perform in relation to the WIP pollutant reduction targets.

The Department disagrees with these assertions. The Department's review of the Permittee's MEP portfolio is consistent with the assumptions and requirements in the Phase III WIP. As noted above, the WIP states that MS4s "should be capable" of restoring two percent of their impervious area per year. However, the WIP also notes that the Department "will work with Permittees on an MEP analysis to determine what is feasible." Jurisdictions differ in size, physical capacity, and financial capacity, so the level of restoration required for each permittee is necessarily unique and proportionate to each jurisdiction's capacity within its MS4 permit term. After evaluating this information in tandem with other submittals and comments from other interested parties, the Department determined the level of restoration that each jurisdiction must complete over the course of its five-year MS4 permit term to be consistent with Phase III WIP goals. Because the Phase III WIP is a statewide plan, the Department also ensured that the Phase I MS4 permits—including this Final Permit—will collectively meet the State's goal of achieving two percent per year of restoration that is necessary to reduce stormwater pollutant loads, consistent with the Phase III WIP's allocation of pollution to this sector in compliance with the Bay TMDL (See Table 1).

Therefore, the Final Permit and the Department's overall strategy are consistent with Maryland's Phase III WIP. The Phase III WIP further states: "[a]s progress must continue past 2025 for certain sectors to meet the WLAs assigned in the Bay TMDL ... it is anticipated that significant restoration requirements will be maintained in the sixth- and seventh-generation permits. This will be done through subsequent MEP analyses that will be conducted at the outset of each permit term to update the pace based on the latest information available."

Table 1. Impervious Surface Restoration (ISR) Requirements

MS4	ISR Requirement in Permit (Acres)	ISR Goal from State Phase III WIP (Acres)
Anne Arundel	2,998	2,498
Baltimore City	3,696	2,146
Baltimore	2,696	3,018
Montgomery	1,814	1,889
Prince George’s County	2,137	3,052
Total	13,341	12,554

The MEP submission from Phase I Large MS4s also required the jurisdictions to include information on their comprehensive stormwater management programs. This included infrastructure projects, traditional pollution control practices, smaller green infrastructure practices, and their associated co-benefits. For example, street sweeping reduces debris and pollutants that are washed into storm drains by runoff, while green infrastructure captures and filters polluted runoff. The benefits of these practices are verified by the CBP Expert Panels and/or the Department and incorporated into the Accounting Guidance and Design Manual with credits that reflect each practice’s pollution control and co-benefits. These types of practices, and other important stormwater management program elements (e.g., BMP inspections, maintenance, enforcement) are also invaluable in reducing flooding and pollution in older, heavily urbanized, and often disadvantaged neighborhoods.

2. *MS4 permits are reducing urban stormwater pollution:*

A commenter asserted that the MS4 permits are not resulting in reductions to urban stormwater pollution and noted that growth in development has offset progress. The commenter referenced the Environmental Integrity Project’s report that criticizes the targets found in the Maryland’s Phase III WIP as compared to 2009 baseline loads. The Department disagrees with these assertions. Evaluating the effectiveness of the MS4 permits requires a more robust analysis than can be completed solely from CAST data. Furthermore, using CAST to compare pollutant loads from different versions of the Chesapeake Bay Watershed Model is a flawed approach.

Recent studies have found that the MS4 programs are effective and that there have been observed decreases in pollutant concentrations and loads. These results have been documented in Pilot Analysis of Maryland Phase I MS4 Permit Water Quality Data (Jepsen, R. and Caraco, D. 2020) released by the Interstate Commission on the Potomac River Basin, which included recommendations on how to develop a testing program to evaluate program effectiveness.

While the Department believes that CAST is a powerful tool to track overall progress toward Maryland's Chesapeake Bay TN, TP, and TSS targets, problems arise when using it as the only tool to track progress in individual source sectors, particularly urban stormwater. As discussed in the Department's response to the Environmental Integrity Project (*See Appendix B, Stormwater Backup in the Chesapeake Region, Russ et. al, 2020*), load estimates from earlier versions of the Chesapeake Bay Watershed Model (e.g., 2009) are not comparable because of periodic updates to the Chesapeake Bay Watershed Model and improvements in data reporting.

CAST does not provide a comprehensive assessment of BMP implementation in the urban stormwater sector, particularly historic BMPs. Many of the restoration BMPs implemented under the prior Phase I MS4 permits are attributed to the natural sector, (e.g., stream restoration, trees). CAST also includes the effects of growth and the conversion of natural and agricultural lands to urban areas. Because of these issues with tracking sector-specific progress, Maryland has developed a Chesapeake Bay Restoration Progress Tracker, which provides a more accurate means of tracking progress towards Bay goals in specific sectors (*see Maryland's Chesapeake Bay Annual Progress available online at <https://storymaps.arcgis.com/stories/234759335b7249d88442a7bff53a8784>*).

The State was required by EPA to achieve aggregate targets for all sectors rather than sector specific targets. Maryland's projected 2025 Phase III WIP loads by source sector targets were based on a projected 2025 land-use scenario, thereby incorporating the effects of growth and a larger urban footprint. The Department anticipates that the agricultural and wastewater sectors will provide the bulk of the reductions to get to 2025 goals. BMP implementation in the urban stormwater sector will be key to offset projected growth in loads from the wastewater sector beyond the 2025 Chesapeake Bay TMDL deadline.

Comments Regarding Local TMDL Implementation. One comment suggested that the methods in the Accounting Guidance to address impervious surface requirements (i.e., the ISR) and progress toward meeting the Bay TMDL show reductions in nutrients and sediments, but do not show progress toward other local TMDLs.

The Department disagrees with this assessment. Reducing pollutants is achieved by requiring implementation of all local TMDL plans. Under PART IV.F.2 of the Final Permit, the implementation plans must contain a list of stormwater BMPs and other activities to be implemented to reduce pollutants for the TMDL; a description of the Permittee's analyses and methods; and final implementation dates and benchmarks to meet the TMDL's applicable stormwater WLA.

Approved TMDL implementation plans must be incorporated in a Countywide TMDL Stormwater Implementation Plan under PART IV.F. of the Final Permit. This plan must include an annual summary of all completed stormwater BMPs and other actions that provide reductions for each TMDL, and an analysis and table summary of the net pollutant reductions achieved annually and cumulatively for each TMDL with stormwater WLAs. The plan must also include an updated list of proposed actions to demonstrate adequate progress toward meeting the Department's approved benchmarks and final stormwater WLAs.

The Final Permit includes all approved local TMDLs, the WLA, and the percent pollution reduction required under each TMDL in Appendix A of the Final Permit. If pollutants identified in an existing TMDL are not specifically addressed by the impervious acre restoration requirement, the Department has added permit requirements. For example, PART IV.F. 3.c. of the Final Permit requires updated list of proposed practices toward meeting benchmarks and final WLA implementation dates. Furthermore, PART IV.F.3.d. requires specific reporting on efforts to meet the trash WLAs, the effectiveness of public education and outreach efforts, and any modifications necessary to improve source reduction and proper disposal.

Bacteria TMDLs are ubiquitous throughout most jurisdictions, so identifying specific sources of bacteria in a watershed is integral to any management plan. Accordingly, the Final Permit requires new bacteria trend monitoring programs to detect wildlife and domestic animal sources (PART IV.G.2.b.ii). Additionally, the Illicit Discharge Detection and Elimination (IDDE) permit conditions require outfall screening during dry weather (PART IV.D.3.b) that identify wastewater contributions that may contain human-sourced bacteria.

The Final Permit also includes a new PCB monitoring requirement. This requires the Permittee to develop a source tracking monitoring plan for all watersheds where PCB reductions are required to meet water quality standards (PART IV.G.3). The Permittee must submit results and provide updates annually on its efforts to locate PCB sources in the landscape and to reduce loads to affected waterbodies in accordance with approved TMDLs listed in Appendix A of the Final Permit.

6. Best Management Practices

The Department received numerous comments regarding the best management practices available to MS4 jurisdictions for achieving restoration requirements. The comments related to the Draft Permit and the impervious acre credits outlined in the Accounting Guidance. *See, e.g.*, Final Permit, PART IV.C.6 (incorporating the Accounting Guidance by reference). The following discussion addresses the major comments received on BMPs and the credits available to meet the impervious acre restoration requirements and the Chesapeake Bay and local TMDLs.

Green Stormwater Infrastructure Incentives. The Department received comments on the Draft Permit expressing concern that the Draft Permit did not go far enough to incentivize using green stormwater infrastructure (GSI) to reduce stormwater runoff in urban environments. The commenter suggests that the Final Permit should require minimum levels of GSI.

The Department agrees that, where reasonable to do so, implementing GSI practices provides important benefits for managing stormwater runoff. The Department encourages the use of GSI through the enhanced credits noted in the Accounting Guidance. This allows the Permittee to increase the credit for impervious surface restored for areas treated by green stormwater infrastructure by 35%. This increase correlates to the improved pollutant removal performance of runoff reduction or “RR” practices from conventional stormwater treatment or “ST” practices as shown in *“Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards”* (Schueler, T. and Lane, C. 2012a). Specifically, the CBP adjustor curves show that runoff reduction practices, including GSI, have greater pollutant removal efficiencies, and therefore, the Accounting Guidance specifies a greater credit for these practices. Because this incentive was not available in previous MS4 permits, the Department expects that the GSI practices will become more widely incorporated into local restoration plans as part of implementation efforts under the Final Permit.

There are ample opportunities to incorporate GSI into the design of new development and redevelopment projects because there is physical space available for their implementation. However, restoration in urban environments presents numerous challenges as existing features (e.g., buildings, streets, underground utilities) limit available space and increase construction costs. Therefore, the Department does not consider it reasonable to require minimum thresholds on the use of green stormwater infrastructure in the Final Permit. The Department further notes that the approved pollution control efficiencies in the Accounting Guidance are all beneficial, and the relative degree of benefit is reflected in the amount of credit that each practice generates. The Permittee may choose among these approved practices and implement them with appropriate verification and maintenance to achieve the Final Permit’s ISR requirements. This approach is consistent with the CWA’s MEP standard and ensures transparency and accountability. According to EPA and recent State legislation (*see* Section 9-1601(y)) of the Environment

Article), green infrastructure includes stream restoration and shoreline stabilization. The CBP states that green infrastructure includes restoration of existing natural areas (e.g., stream restoration and shoreline stabilization) that helps mitigate flood risks, provide habitat, and addresses stormwater.³ Based on all five (5) Phase I Large MS4 permit MEP Portfolios provided to the Department—including the Permittee’s—the Department estimates that 75% of the overall impervious acreage restored under the 5th generation MS4 permit will be from green infrastructure.

Alternative BMPs as a Tool to Achieve Restoration Requirements

1. Effectiveness of Alternative BMPs:

The Department received comments on the Draft Permit arguing that alternative practices do not lead to water quality improvements. For example, one commenter contended that the Draft Permit cannot make adequate progress toward meeting stormwater WLAs if pollution control practices do not directly manage stormwater quantity.

The Department disagrees with the commenter’s assertion that alternative practices are not effective unless they directly manage water quantity. The practices authorized in the Accounting Guidance are consistent with the recommendations from CBP expert panels for urban stormwater BMPs. The CBP expert panel recommendations are based on scientific review and research on the performance of these practices. The CBP’s experts have approved pollutant load reductions and established the methods to calculate reductions for alternative practices, such as street sweeping, stream restoration, and shoreline management. These alternative practices are incorporated into the Chesapeake Bay Watershed Model with the pollutant load reductions assigned by the CBP expert panels.

Accordingly, the Department finds that excluding an approved restoration practice solely on the basis that it does not address water quantity would be arbitrary. Restoration is a location-specific endeavor, and the Department believes it is appropriate and consistent with the MEP standard to allow permittees who must manage the runoff from an entire county to select from approved practices that are consistent with performance standards and design techniques documented in available science. This approach allows an accountable and transparent framework. Expert-approved restoration practices control pollution that would otherwise be discharged to waters of the United States, which is the fundamental purpose of the Final Permit under the CWA. As such, the Department disagrees with the commenter’s arguments and finds that the Final Permit incorporates reasonable assumptions that are

³ Johnstone, Caitlynn, “Seeing Green in Infrastructure”, U.S. EPA Chesapeake Bay Program January 2018 and found here: www.chesapeakebay.net/news/blog/seeing_green_in_infrastructure

supported by expert scientific assessment of available practices to address pollution that are consistent with the Chesapeake Bay Watershed Model.

2. *Alternative BMPs and Local Priorities:*

The Department received comments claiming that the Draft Permit allows the use of alternative BMPs that do not manage runoff or contribute to the control of more intense rainfall or flooding. These comments requested that the Department place guardrails on the amount of restoration credit that can be used to meet permit requirements by practices, such as stream restoration and street sweeping, that the commenter believes provides little reduction in stormwater runoff volume. For example, certain comments claimed that street sweeping does not achieve reductions in stormwater runoff volume and that a permittee could fulfill its entire restoration requirement by these alternative practices. The comments also suggested creating a hierarchy of stormwater management practices that prioritizes water quantity control and identifies GSI practices as the prime objective. The Department disagrees with these suggestions.

Alternative BMPs are often an effective and necessary tool to address stormwater infrastructure maintenance and mitigate local flooding as part of a comprehensive stormwater management plan. These practices offer important benefits related to ensuring adequate conveyance of stormwater runoff and controlling pollution. For example, inlet cleaning and street sweeping remove trash and debris that can block storm drain systems. Keeping storm drain systems free of debris improves the capture and conveyance of runoff and is an effective mitigation strategy to address local flooding. Stream restoration reconnects degraded channels to floodplains, providing floodplain storage and treatment, and increasing the ability of natural systems to convey stormwater runoff safely.

Furthermore, the Department asserts that the Permittee should have the flexibility to implement BMPs that are practicable and are optimized to address local impairments and benefit local constituents. It is not appropriate to place prescriptive limits on specific BMPs when all BMPs in the Accounting Guidance contribute to improved water quality at an efficiency set by scientific experts. While the Accounting Guidance does not include limits on certain practices, the Department created incentives to increase implementation of those practices preferred by the commenter. As previously noted, the Department developed an additional credit to incentivize green stormwater infrastructure. In addition, the Accounting Guidance's Watershed Management credit provides an incentive to implement practices that provide greater storage volume and are more resilient to changing weather patterns. These incentives, which are described in more detail in the 2021 Accounting Guidance, were based on the Department's analysis of data provided by independent experts (e.g., the RR and ST curves for green infrastructure and traditional structural stormwater management practices

that provide storage). When evaluating pollution reduction targets for the Chesapeake Bay and local TMDLs, the Department considers the full suite of practices that are available, including alternative practices (e.g., street sweeping, inlet cleaning, stream restoration). Alternative practices will result in pollutant reductions as defined by the CBP's expert panel recommendations and will also address local TMDL requirements, including the trash reduction goals established in Prince George's County's Anacostia River Trash TMDL.

To ensure that alternative practices provide the water quality and quantity benefits noted above, oversight is provided through the Department's MS4 permits and Accounting Guidance. Permittees must adhere to the technical specifications in the Accounting Guidance to receive credit toward ISR requirements. For example, the Accounting Guidance is consistent with the CBP expert panel reports (Burch, J et. al. 2019, Wood, D. & Schueler, T. 2020) and associated qualifying criteria for stream restoration implementation. Furthermore, the Department relies on numerous federal, State, and local regulatory programs that provide substantial oversight into the design, permitting, construction, and post construction process for all stream restoration projects (e.g., the Department's Wetlands and Waterways Program, the Army Corps of Engineers, EPA, the U.S. Fish and Wildlife Service, Maryland's Department of Natural Resources). The Accounting Guidance provides required inspection schedules for all BMPs, and credit is not given to failing practices reported in the Department's MS4 Geodatabase.

7. Water Quality Credit Trading

The Department allows the use of water quality credits (nitrogen, phosphorus, and sediment) as an option to meet the Final Permit's new ISR requirements in PART IV.E.5. The State's Water Quality Trading Program (Trading Program) was established in 2018 in COMAR 26.08.11 after in-depth, public discussions by the Maryland Water Quality Trading Advisory Committee made up of stakeholders across multiple sectors including local and regional government, private industry, and environmental NGOs. Throughout this process, the State worked closely with EPA to ensure the Trading Program is consistent with the CWA and the Bay TMDL. The regulations created a program for credit generation and exchange to ensure pollution reductions are achieved, established procedures for credit verification, and a marketplace that is transparent to the public. Maryland's Trading Program provides a restoration option with the potential to "achieve results faster and at a lower cost, accelerating efforts to restore and improve water quality." COMAR 26.08.11.01A. Trading may be done by partners from the agricultural, stormwater, wastewater, and on-site sewage disposal sectors. The Accounting Guidance outlines additional criteria for applying credits toward impervious surface restoration and TMDLs. The Department notes that Prince George's County did not acquire nutrient or sediment credits to meet its restoration goal in the prior permit term and did not propose trading to meet this Draft

Permit's ISR requirement. Trading is authorized in the Final Permit as one option toward meeting the ISR requirement if the County chooses to use it.

The Department received comments on the Draft Permit expressing concern about how credit trading will be accomplished. Specifically, these comments focused on the following topics: the legality of applying credits to MS4 restoration; alleged double-counting of pollution reductions in the Chesapeake Bay Watershed Model when applying credits from wastewater treatment plants (WWTPs); whether trading creates further pollution reductions (i.e., additionality); the administrative burden and uncertainty of trading; the timeline to replace credits; environmental justice; co-benefits; and the portion of restoration that may be accomplished through trades and specifically from WWTP credits.

The majority of these topics were discussed extensively as the trading rules and regulations were developed, and public comments were accepted at that time. Those regulations allow NPDES Phase I MS4 permittees to trade and created the principles that act as the framework for the State's Trading Program. The Department has responded below to all comments submitted for this Draft Permit's public comment period. However, it is noted that much of the public comments about trading do not directly pertain to language in the Draft Permit for which the Department is accepting public comments. Instead, this information is provided as background for the public to fully understand the Department's decisions regarding additional rules for NPDES Phase I MS4 permittees to trade.

The Legality of Trading to Meet the Restoration Requirement. Certain comments on the Draft Permit suggest that the Permittee cannot trade to meet the new ISR requirement. The commenter noted that COMAR 26.08.11.09(D) prohibits credits from being used to comply with technology-based effluent limitations. The commenter then reasoned that because the Department calculated the ISR based on MEP, which they claimed "is a form of technology-based effluent limitation" then trading to meet this provision should not be allowed.

The prohibition in COMAR 26.08.11.09(D) does not apply. Stormwater point sources, including NPDES MS4 permittees (*see* COMAR 26.08.11.01 and 26.08.11.03B(47)), are named in the regulation as eligible to trade and COMAR does not prohibit the application of credits toward the ISR. As discussed in the MEP Analysis and Permit Requirements sections, the ISR is a water quality-based effluent limit, not a technology-based effluent limitation. TMDLs were established to achieve water quality standards where technology-based controls are inadequate. The ISR was confirmed to be an acceptable surrogate to address TMDL WLAs while also maintaining consistency with each jurisdiction's determination of MEP.

Accounting for Pollution Reduction in the Chesapeake Bay Watershed Model when Applying Credits from Wastewater Treatment Plants (WWTPs) to Stormwater

Restoration. One commenter suggested that credits generated by WWTPs and applied to other sectors are double-counted in the Chesapeake Bay Watershed Model, and therefore do not create additional pollution reduction.

Trades are not currently incorporated into the accounting system of the Chesapeake Bay Watershed Model for demonstrating Maryland's progress toward meeting the targets established in the Chesapeake Bay TMDL. After the WWTP achieves and complies with all applicable WLAs in its discharge permit to be consistent with the Chesapeake Bay TMDL and/or State TMDLs (*see* COMAR 26.08.11.05), its discharge permit can be modified to generate credits based on the additional pollution reduction achieved. The credits may be acquired by a NPDES MS4 permittee to count toward its ISR. However, when the Department reports to EPA for the Chesapeake Bay Watershed Model, the credits are not counted with other stormwater BMPs implemented for restoration. There is no mechanism at this time to incorporate water quality trading into that reporting. Therefore, there is no double counting: the WWTP's over-performance is counted but the credits are not.

One commenter claimed the trading rules fail to meet EPA policy requiring ratios to account for uncertainty. As noted previously, the EPA has reviewed the trading framework to ensure its consistency with the CWA and the Chesapeake Bay TMDL. Further restrictions have been incorporated to ensure additionalities are created. The *Maryland Trading and Offset Policy and Guidance Manual, Chesapeake Bay Watershed* (2017) specifies that the WWTP must evaluate the impact of any trade on projected sewer allocations and local growth plans (available at mde.maryland.gov/programs/water/Documents/WQTAC/TradingManualUpdate4.17.17.pdf). Furthermore, COMAR 26.08.11.06 specifies that WWTPs trading with MS4s are restricted to trading performance-based credits that are generated by actual pollution reductions determined using concentration-based benchmarks and are not generated by an estimate of treatment capacity. As credits are generated, the WWTP permit is modified to memorialize the pollution reduction. Every trade must also set aside a portion of credits (i.e., a reserve ratio) that the Department may use in cases such as when the BMP that generated the credits is damaged or underperforming through circumstances beyond the owner's control (*see* COMAR 26.08.11.08).

One commenter made a similar claim that trading will cause backsliding because it is not as "straightforward" as directly restoring impervious surface area by installing stormwater BMPs or taking a numeric load reduction approach. They claimed that an "acre's worth of paper credits is not equal in value to an acre of restored impervious surface."

The Department disagrees with this assertion. The Trading Program requires that credits are generated on an annual basis so that reductions made in past years are not eligible. Only a

WWTP's pollution reduction below the benchmark in the most recent calendar year is used to generate credits (*see* COMAR 26.08.11.06). Credits are generated by implementing pollution controls that demonstrate load reductions below established baselines. Instead of being a paper exercise, these procedures ensure the principle of "additionality", which was defined by a reference that the commenter submitted: "meaning that each credit must be backed by a real and additional reduction beyond what the credit generator is already obligated to produce".

Under PART IV.E.9, water quality credits acquired to meet prior permit conditions must be continued until they are replaced by new BMPs—which must occur before the end of the Final Permit's term—while those acquired under the Final Permit may only be applied to new restoration under PART IV.E.5. This ensures that only the additional pollution reductions (i.e., credits acquired under the Final Permit) are applied to permit targets. Trading may not be used to replace BMPs constructed under a previous permit term. Therefore, consistent with the anti-backsliding provision of the CWA, pollution reductions accomplished in the prior permit do not decrease in the Final Permit and must be maintained. *See, e.g.*, PART IV.E.9.

The Administrative Burden of Trading and Public Transparency. One commenter claimed that trading creates an administrative burden and reduces transparency. The commenter further asserted that trading creates an overly complicated process that ultimately delays the installation of urban stormwater BMPs for restoration. The commenter stated that the annual verification and acquisition of credits "creates an ongoing, annual administrative burden for the permittees and for the Department".

The Department disagrees with these assertions. In contrast, the Department finds that the Trading Program is transparent and administratively efficient. Water quality trading enables the Permittee to create efficiencies in labor and cost. Through trading, the pace of pollution reduction may be accelerated across sectors. With respect to the administrative requirements under the Final Permit, the Department already requires the Permittee to maintain a current database of installed BMPs with information such as maintenance and inspection dates. The Permittee must also report planned restoration projects. These data are submitted to the Department in annual progress reports (*see* PART V.A. Annual Reporting for full reporting requirements). Similarly, any acquired water quality trading credits must be submitted with these reports to provide a full picture of their restoration efforts to date. Furthermore, all credits generated and exchanged are posted on the trading program's Register and Market Board (available at www.mdnutrienttrading.org). Credits are verified by an independent agent to confirm the installation of pollution control measures. Reporting and verification in the public marketplace and through annual reporting under the Final Permit ensure that trading activities are real and transparent to both the public and the Department.

The Timeline to Replace Credits. Commenters asked about the timeline for replacing credits in future permits.

To limit the total credits that the Permittee applies toward the restoration requirement, PART IV.E.9 of the Final Permit requires that any credits acquired through the Trading Program under the prior MS4 permit be maintained until they are replaced with stormwater management BMPs, programmatic practices, or alternative control practices that are approved in the Accounting Guidance. As stated above, credits may also not replace BMPs constructed in previous permits, and credits acquired during the prior permit term must be replaced before the expiration of the Final Permit. Similarly, the requirements to replace credits acquired during the Final Permit term will be outlined in future NPDES MS4 permits. Credits acquired through trading must be verified per the regulations (*see* COMAR 26.08.11.11), and if credits are generated through annual practices, the effort must continue until replaced with a permanent stormwater BMP (*see* PART IV.E.6).

Environmental Justice and Trading. One commenter expressed concern that water quality trading hinders environmental justice and furthers inequity through the outsourcing of pollution reduction benefits away from local communities.

The Department disagrees with this claim. The Final Permit provides flexibility to select projects that align with local priorities and policies. Implementation plans are required to be developed for TMDLs in impaired watersheds, which will drive the Permittee to implement restoration in those locations. The commenter noted that vulnerable and marginalized communities are often located within areas that lack green spaces and are disproportionately impacted by inadequate stormwater pollution controls. As the Permittee replaces credits (established above as records that represent real pollution reductions certified through the Trading Program) with its own on the ground stormwater BMPs, the Final Permit and the Accounting Guidance incentivize green infrastructure and watershed management and promote a restoration strategy that installs projects in watersheds with the greatest impairments.

The Department further notes that the aggregate benefits of trading include reducing costs and improving efficiency. This will alleviate the burden for all stakeholders and ratepayers including local residents. Reducing the overall costs while improving water quality in the Chesapeake Bay will make resources available to implement future projects.

Co-Benefits and Trading. It was also suggested that acquiring water quality credits through trading does not provide co-benefits such as reduction of other pollutants, unlike directly implementing stormwater BMPs, and that credits are not equivalent to BMPs.

Credits represent pollution reductions that were confirmed by the State's Trading Program. As with stormwater BMPs, the projects implemented to generate credits may contribute to other TMDLs beyond nitrogen, phosphorus, and sediment, depending on the specific project installed. However, the commenter ignores this possibility because they view credit trading as a

meaningless paper exercise and not as it actually is: a record of a real project or activity whose pollution reduction has been independently verified and certified through the Trading Program.

The Trading Program's marketplace encompasses a variety of sectors from which credits may be acquired, but the Permittee may apply credits only within limited watershed boundaries as described in the Trading Program rules (*see* COMAR 26.08.11.04). This ensures that the water quality benefits of pollution reduction practices are geographically restricted. Again, the State's Trading Program was approved by EPA and has incorporated the EPA's framework to ensure real pollution reductions. Although additional co-benefits are possible, the program only authorizes credits for the three pollutants limited by the Chesapeake Bay TMDL (nitrogen, phosphorus, and sediment). However, as noted above, the Department's Accounting Guidance incentivizes the installation of projects that provide co-benefits.

A related concern was expressed that allowing trading could cause the Permittee to make less effort to reduce stormwater and reduce other pollutants to the MEP. A guiding principle of the Trading Program is to reduce workloads by creating efficiencies. This will help to achieve results beyond what would have been accomplished within individual sectors. In addition, credits in the Trading Program represent tangible reductions in Bay TMDL pollutants and are limited by trading regions. The Trading Program restricts trades into three watershed basins, and local water quality is further protected by rules that prohibit trading that causes or contributes to local water quality impairments or prevents the attainment of local water quality standards. Furthermore, credits used within any impaired waters must be generated within those waters or upstream of the credit user's discharge (*see* COMAR 26.08.11.08). The Permittee must replace all prior credits with on-the-ground practices by the end of the permit term and continuously purchase credits in the interim. This approach maximizes efficiency to reduce costs while rewarding localized pollution reduction practices. The Department further caps trading in PART IV.E.5 to ensure that the Permittee does not rely too heavily on credits to meet its ISR requirement. Collectively, this approach maximizes local water quality benefits at the lowest cost while providing transparency and accountability for all parties.

Limits to Trading Within the Permit. The Final Permit limits the number of water quality credits obtained from trades with WWTPs (*see* PART IV.E.5). One commenter supported the limiting of impervious surface restoration through water quality credit trading and argued that trading should be prohibited altogether because "the trading provisions ignore the substantial benefits to local communities that accompany real, on-the-ground pollution reduction practices and can exacerbate disproportionate impacts of pollution..." During the Draft Permit's development, NGOs representing local governments requested that water quality credit trading should not be limited at all in the reissued MS4 permits.

The Final Permit balances the priorities of multiple stakeholders, including the State’s commitment to cross-sector water quality credit trading as an option for accomplishing regulatory and environmental goals within limited watershed trading regions. The Trading Program restricts trading into regions and prohibits trades that contribute to local water quality impairments to ensure that water quality continues to improve to prevent any disproportionate impact from the temporary use of trading. The Department notes that trading is an option—not a requirement—and that pollution reductions are mandatory regardless of whether the Permittee chooses to utilize trading. If the Permittee relies on a WWTP credit that becomes unavailable in a subsequent calendar year due to under-performance at the WWTP, then the Permittee must replace that credit with another credit or implement additional restoration to address the difference. The Department further notes that cross-sector trades are not intended to be permanent solutions to stormwater management and must be replaced over time with local stormwater BMPs. In fact, although Prince George’s County did not acquire credits in the prior permit term, PART IV.E.9.b of the Final Permit requires the Permittee to replace all prior credits with approved on-the-ground restoration practices. The Department received a comment asking to verify that this obligation is in addition to the ISR requirement. The Department confirms this is required to ensure the permit conditions are cumulative and additive, and to limit the total credits that may be acquired by the Permittee. The Department has received no information to substantiate the allegation that trading has any disproportionate negative impact, and the Department supports the Permittee’s ability to utilize the marketplace to acquire credits and apply them within the parameters of the State’s Trading Program to reduce pollution as quickly and efficiently as possible. Trading provides a limited option that encourages cross-sector collaboration and innovation while keeping the State’s Phase III WIP goals on track. Public transparency and accountability are ensured through posting on the public marketplace and reporting alongside other restoration efforts in annual reports.

8. Enforcement

The Department received comments regarding enforcement of the Draft Permit. These comments included several general concerns, such as defining adequate progress and benchmarks. There were also several comments about the technical details of resolving the Illicit Discharge Detection and Elimination (IDDE) investigations and performance goals and deadlines (see PART IV.(D)(5)).

Comments on Adequate Progress, Benchmarks, and ISR. One comment argues that the Permittee should be held accountable for missing any benchmark—*see, e.g.*, Table 1 in PART IV(E)(4) and (7)—and recommended that failure to meet a benchmark should trigger corrective actions with specific consequences for failure.

The Final Permit defines a benchmark as “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.” PART IV(E)(4). In this context, benchmarks are an adaptive management aid and should not be considered as enforceable requirements. The Final Permit’s benchmark provisions use language recommended by EPA in comments on a June 2020 draft permit for Phase I large permittees (i.e. Anne Arundel County, Baltimore City, Baltimore County, and Montgomery County) that mirrors language from the recently reissued MS4 permit for Washington, D.C. (see Appendix A, pp. 43 - 44, U.S.EPA, NPDES Permit No. DC0000221).

The Department uses benchmarks in the Final Permit as a tool to track progress, to provide guidance to adjust interim goals when necessary (i.e., adaptive management), and to ensure compliance with the Final Permit’s requirements. This process takes place through annual report reviews that provide continuous oversight of program progress and targets. For example, in the review of the 2015 Annual Report, the Department required Prince George’s County to submit revised TMDL restoration plans by a specified date, in this case, June 16, 2016.

The Department’s use of the term “benchmark” in the Final Permit is also in accordance with EPA recommendations. The EPA comments on the June 2020 draft permit recommended specific language to allow for benchmarks “to be changed during the permit term as part of the MS4 iterative process.” The EPA’s 2017 NPDES Compliance Inspection Manual provides additional guidance to permitting authorities regarding the use of benchmarks as a compliance tool. Specifically, the 2017 Manual states that “not meeting the benchmark is not generally a permit violation ... [but] would typically require the permittee to take additional action, such as evaluating the effectiveness of the stormwater control measures, implementing and/or modifying stormwater control measures, or providing additional measures to protect water quality.”

The commenter also asserts that Part V.A.3 will not effectively result in program improvements to achieve permit compliance and progress toward meeting stormwater WLA’s. The commenter also asserts that the Final Permit relies on self-regulation. The commenter suggests revised language that requires modifications to the program if the County does not demonstrate compliance and show progress toward meeting WLAs.

The Department disagrees that the permit provision allows for “self regulation” and with the suggested revisions. PART V.A (Annual Reporting) establishes the reporting requirements, which include the County’s efforts to implement program improvements reflecting an iterative approach (PART V.A.3). The review of information submitted to meet reporting requirements is the mechanism by which the Department evaluates progress toward meeting permit requirements and assesses compliance with the Final Permit. The Department’s role in this process is noted in PART V.B (Program Review). This provision states that the permittee will cooperate with the

Department during review of annual reports, field inspections, and periodic inspections, and periodic requests for additional data to determine permit compliance. This provision further states that the Department will assess the effectiveness of the Permittee's program for reducing the discharge of pollutants to the MEP and working toward meeting water quality standards. Therefore, the permit clarifies the Department's role will involve requests for additional measures or any appropriate action necessary to achieve permit compliance.

Other provisions that enforce compliance with the Final Permit are included in PART VII.D (Duty to Comply). This provision notes the requirement for the permittee to demonstrate adequate progress toward meeting WLAs and states that "Prince George's County shall be responsible for complying with all conditions of this permit ... 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". Furthermore, PART VII.F of the Final Permit establishes civil and criminal penalties.

The Department has determined it is not necessary to modify language as suggested by the commenter. As noted above, the Department retains the authority to impose any necessary action to ensure the Permittee achieves compliance with the Final Permit. In addition, as already noted, the Department has recently pursued action in form of a Consent Decree to address permit violations in the Permittee's prior permit. As such, the permit does not rely on self-regulation as alleged by the commenter.

Comments on Enforcement and the IDDE Program. One commenter argues that the language concerning IDDE enforcement (see PART IV.D.3) lacks the precision to ensure proper compliance with the CWA. The commenter states that when a suspected illicit discharge is either originating from or discharging to an adjacent MS4, the requirement is only to resolve the investigation rather than eliminate the illicit discharge. The commenter contends that there is no standard for a sufficient investigation, which allows the Permittee and the adjacent MS4(s) to determine when the suspected illicit discharge is resolved. The commenter recommends that the Permittee and any adjacent MS4s should be required to resolve the violation and eliminate the illicit discharge, if any, discovered.

The Final Permit requires the Permittee to ensure that all discharges into, through, or from its MS4—that are not composed entirely of stormwater—are permitted or eliminated (see PART IV.D.3). To enforce these requirements, the Final Permit requires the Permittee to have an ordinance or regulation that prohibits illicit discharges into the storm sewer system (see PART IV.D.3.e). The enforcement mechanism(s) to require the elimination of illicit discharges by violators must be described within the local ordinance. In addition, PART IV.D.3.g requires the Permittee to use "appropriate enforcement procedures for investigating and eliminating illicit

discharges, illegal dumping, and spills.” The Final Permit uses the term “suspected illicit discharge” deliberately in PART IV.D.3.g.; not all discharges to MS4s will ultimately be determined to be illicit (e.g., groundwater discharges). As such, the Department believes that the language “resolve the investigation” is appropriate because it encompasses both scenarios: a discharge that turns out to be lawful (e.g., an uncontaminated groundwater discharge), and a discharge that turns out to be unlawful (e.g., a private sewer pipe that is connected to an MS4).

When the County determines a discharge either originating from or discharging to another MS4 to be illicit, then it must be permitted (e.g., an industrial general stormwater permit) or eliminated to “resolve the investigation.” As noted above, PART IV.D.3.g requires the Permittee to use “appropriate enforcement procedures for investigating and eliminating illicit discharges” *and* to coordinate appropriately with the adjacent MS4. If the neighboring jurisdiction fails to cooperate with the Permittee's investigation, undertake its own investigation, or to take appropriate action against a confirmed illicit discharge, then the discharge should be reported to the Department for enforcement. The Department oversees the Permittee’s IDDE program through annual report reviews. The Permittee must annually document the illicit discharge investigations and submit detailed findings to the Department for review. Through this process, the Department determines whether the Permittee’s actions to investigate and eliminate illicit discharges are consistent with State and federal regulations.

A commenter recommended that the Draft Permit should include a definition of “significant discharges” (e.g., numeric or detailed narrative standard) to avoid inconsistent application of this requirement. The Department provides the following clarification on significant discharge reporting. Significant discharges include those that threaten human health or the environment, are believed by the County to require a discharge permit from the Department, or are required to be reported to the Department by State or federal regulations. If the Permittee determines that a stormwater discharge from an individual facility may require a NPDES permit (e.g., the industrial general stormwater permit), the Permittee must notify the respective program in the Department (e.g., WSA, Compliance Program). Information on individual programs can be accessed on the Maryland Water Permits website at <https://mde.maryland.gov/programs/Permits/WaterManagementPermits/Pages/index.aspx>.

If the Permittee needs assistance to find an appropriate contact in the Department, the Permittee should contact its MS4 permit administrator in the Department’s Stormwater, Dam Safety, and Flood Management Program. More specific reporting requirements for discharges that threaten human health or the environment are found under the Emergency Reporting Requirements section of the Final Permit (PART VII.C).

9. Prince George's County Comments.

The Prince George's County Department of the Environment (DoE) submitted several technical comments on the permit. These comments are addressed below.

- **Comment:** The Permittee expressed concern that the 7% ISR requirement (2,137 acres) in PART IV.E.3 inaccurately reflects the 2015 impervious surface baseline. The Permittee contends that the ISR requirement should reflect the 2015 impervious area baseline (30,524 acres) minus the restoration required under the prior MS4 permit (6,105 acres). As such, the Permittee reasons that its ISR requirement should be 7% of 24,419 acres (the 2015 baseline—30,524 acres—minus the prior MS4 permit requirement—6,105 acres), or 1,709 acres.
- **Response:** The Department determined the Final Permit's ISR requirement using information submitted in the Permittee's MEP analyses and the Phase III WIP. The WIP goals for meet pollution reduction targets was derived from the untreated impervious acre baselines that were reported and established in NPDES MS4 fourth-generation permits. Therefore, the 7% ISR requirement is based on the 2015 baseline which is incorporated in the Phase III WIP targets. Furthermore, as discussed in the Fact Sheet, the Department determined through its MEP analysis that an impervious area restoration target of 2,137 impervious acres is achievable. In tandem with the other Phase I Large MS4 permits issued by the Department in November 2021, the Final Permit's ISR requirement will ensure that the State meets its water quality goals in the Phase III WIP. The Final Permit is consistent with these water quality-based requirements. For additional context, please see Table I in this Final Determination.
- **Comment:** The Permittee asked for further clarification of the requirement to maintain and inspect stable stormwater conveyance and capacity to receiving waters on a triennial basis [see PART IV.D.1.c. and d.].
- **Response:** The Final Permit covers all stormwater discharges into, through, or from the Permittee's MS4 (see PART I.B). The MS4 consists of all the conveyances such as storm drains, streets, curbs, gutters, ditches, and other constructed channels designed or used for collecting and conveying stormwater within the Permittee's geographical area except the City of Bowie. The Department considers it appropriate that the Permittee inspect and maintain these systems to ensure that they function as designed consistent with the Final Permit and achieve pollutant load reductions established for these BMPs in the Accounting Guidance.
- **Comment:** The Permittee requested clarification on whether good housekeeping plans (GHPs) are required for County-owned properties listed in Part IV.D.4.b that are not

covered by the Department's Stormwater Industrial General Permit and have similar uses (i.e., "recreation and park properties, school properties").

- **Response:** The Final Permit lists recreation and park properties and school properties as examples of categories for which a standard GHP may be developed because they have a similar use. However, a GHP is required only at properties "where the activities listed in PART IV.D.4.a are performed", i.e., "maintenance or storage of vehicles or equipment; storage of fertilizers, pesticides, landscaping materials, hazardous materials, or other materials that could pollute stormwater runoff."

- **Comment:** The Permittee asked for clarification on what the Department deems to be a stormwater conveyance system inspection (see PART IV.D.4.b.vi) and how these inspections relate to the GHP objectives.

- **Response:** PART IV.D.4.b of the Final Permit requires the County to develop, implement, and maintain a GHP that includes "written procedures for performing storm water conveyance system inspections for removing debris that may cause clogging, backups, and flooding..." This plan must be submitted in the third year annual report. As part of this plan, the County must visually observe and maintain storm drains and other stormwater conveyance systems located on County-owned properties (e.g., parks, schools) on a regular basis to ensure they are kept free from debris that may hinder flow and contribute to local water quality impairments. This is in addition to the Permittee's responsibility to inspect and maintain the entire MS4 system as required in PARTS IV.D.1.d, IV.D.3, and IV.D.4.c.2 of the Final Permit. The GHP requirement minimizes the materials entering the MS4 from specific activities with a higher concern for causing stormwater pollution. The procedures should be practical and useful for maintaining the MS4, incorporate existing procedures and processes, and be updated as procedures change.

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Appendix B. Acronyms and Substitutions

APA - Administrative Procedures Act
AWQMS - Ambient Water Quality Monitoring System
BMP - best management practice
BMP Portfolio - Restoration Project Portfolio
CAST - Chesapeake Assessment and Scenario Tool
CBP - Chesapeake Bay Program
CEJSC - Commission on Environmental Justice and Sustainable Communities
CFR - Code of Federal Regulations
COA - Maryland Court of Appeals
COMAR - Code of Maryland Regulations
CWA - Clean Water Act
Design Manual - 2000 Maryland Stormwater Design Manual, Vol. I & II
Department - Maryland Department of the Environment
EFC - Environmental Finance Center
EJ - environmental justice
ESD - environmental site design
ESC - erosion and sediment control
FCA - Financial Capacity Analysis
FR - Federal Register
FY - Fiscal Year
GSI - Green Stormwater Infrastructure
IDDE - Illicit Discharge Detection and Elimination
MEP - maximum extent practicable
MHI - median household income
MS4 - municipal separate storm sewer system
NGO – non-governmental organization
NRC - National Research Council
NPDES - National Pollutant Discharge Elimination System
PCA - Physical Capacity Analysis
PCB - polychlorinated biphenyls
RPC – Responsible Personnel Certification
SWM - stormwater management
TMDL - total maximum daily load
TN - total nitrogen
TP - total phosphorus
TSS - total suspended solids
U.S. EPA or EPA - United States Environmental Protection Agency
USWG - Urban Stormwater Workgroup

WIP - Watershed Implementation Plan
WLA - wasteload allocation
WM - Watershed Management
WQBEL - water quality based effluent limit
WQGIT - Water Quality Goal Implementation Team

Appendix C. List of Comments Received During Public Notice

Commenter	Description
Chesapeake Accountability Project (CAP) – Prince George’s County Permit	Letter (44 pages) Attachments (295 pages)
Prince George’s County Department of the Environment	Letter (3 pages)