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

Carroll County (MDE Permit No. 22-DP-3319, NPDES Permit No. MD0068331)
Charles County (MDE Permit No. 22-DP-3322, NPDES Permit No. MD0068365)
Frederick County (MDE Permit No. 22-DP-3321, NPDES Permit No. MD0068357)
Harford County (MDE Permit No. 22-DP-3310, NPDES Permit No. MD0068268)
Howard County (MDE Permit No. 22-DP-3318, NPDES Permit No. MD0068322)

December 30, 2022

Introduction

This document is the Maryland Department of the Environment's (the Department) Basis for Final Determinations regarding the National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) permits for Carroll County, Charles County, Frederick County, Harford County, and Howard County (Permittees). The Department published the Permittees' tentative determination MS4 permits (the Draft Permits) on March 11, 2022 to allow public comments for 90 days through June 9, 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 required owners of storm sewer systems serving populations greater than 100,000 to apply for Phase I NPDES MS4 permits. Carroll County, Frederick County, Charles County, Harford County, and Howard County (the Permittees) are medium MS4s under Phase I because the Permittees own or operate municipal separate storm sewer systems and had a population of less than 250,000 as of the 1990 U.S. Census data in accordance with 40 CFR § 122.26(b)(4).

The final determination MS4 permits (Final Permits) are effective for a five-year term unless administratively continued by the Department. The Final Permits require the Permittees 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

Permittees' MS4s. Erosion and sediment control and stormwater management programs control stormwater and pollutant discharges to the Permittees' MS4s 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, fact sheets for each permit are available on the Department's website at 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 Permits. These meetings along with consideration toward comments received during the tentative determination process resulted in Final Permits that advance Maryland's efforts to improve water quality and restore the Chesapeake Bay. The Final Permits establish impervious acre restoration benchmarks, incentivize green stormwater infrastructure and BMPs with climate resiliency co-benefits, prioritize outfall screenings, require salt management plans to address chlorides, provide an opportunity to participate in pooled monitoring, and establish 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 establishes the foundation of MS4 permits and discuss relevant information incorporated into the Final Permits' 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 guidelines 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 USC § 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 were approved by EPA after the Department or EPA determines that additional controls are necessary to meet water quality standards. 40 CFR § 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 Maryland Court of Appeals (COA), the highest court in the 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 Permits are consistent with these decisions.

Background on Permit Requirements. The Department has carefully developed the Final Permits in consideration of the CWA's legal mandate, applicable case law, and EPA guidance. Accordingly, the Final Permits reflect 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 Permittees.

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 Chesapeake 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 Permits' 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 Permits 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 Permits will establish stormwater controls that are proven to address other local TMDL impairments, such as nutrients, sediments, trash, polychlorinated biphenyls (PCB), bacteria, biochemical oxygen demand (BOD), and mercury. The restoration required in the Final Permits is also cumulative: it builds on prior restoration required under the Permittees' prior MS4 permits and requires the Permittees to maintain or replace BMPs implemented in prior permits. Accordingly, compliance with restoration criteria and management programs, outlined in the

Final Permits, 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 Permits require the Permittees 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 Permits 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 Permits require the Permittees to address the discharge of pollutants for existing impervious areas with little or no stormwater management.

The Final Permits require the Permittees 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 Permits' 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 Permittees to develop local data that reflected each jurisdiction's restoration capabilities. The guidance was developed with input from the University of Maryland's Environmental Finance Center (EFC). The Permittees' submissions included a Restoration Project Portfolio, Physical Capacity Analysis, and Financial Capacity Analysis.

The Permittees each compiled the information noted above and submitted a Restoration Project Portfolio (BMP Portfolio) to the Department. Each 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 Permittees also each 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 Permittees 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 Permittees' respective ISR requirement.

Administrative Process. The Department published tentative determinations to issue the Permittees' NPDES MS4 permits on March 11, 2022 (the Draft Permits). Public notice of the Department's tentative determination appeared in the Frederick News-Post for Frederick County on March 11 and 25, 2022. Public notice of the Department's tentative determination was published in the Washington Post for Howard County on March 11 and 25, 2022. Public notice of the Department's tentative determination was published in the Baltimore Sun and The Aegis for Harford County on March 11 and 25, 2022. Public notice of the Department's tentative determination was published in the Baltimore Sun and The Carroll County Times for Carroll County on March 11 and 25, 2022. Public notice of the Department's tentative determination was published in the Maryland Independent for Charles County on March 11 and 25, 2022. 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 determinations on March 11, 2022.

These public notices each 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 Permits. The Department held the public hearing to accept testimony and comments regarding Howard County's Draft Permit on April 26, 2022. At the hearing, testimony was given by Howard County and one member of the public. Frederick County's public hearing was held on April 21, 2022. At the hearing, testimony was given by Frederick County. Charles County's public hearing was held on April 27, 2022. At the hearing, testimony was given by Charles County. Carroll County's public hearing was held on April 12, 2022. At the hearing, testimony was given by Carroll County. Harford County's public hearing was held on April 27, 2022. At the hearing, testimony was given by Harford County. The transcript and video recording of the proceedings for each public hearing is available on the Department's website at mde.maryland.gov/programs/water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

After the hearings, the public record for the five Draft Permits remained open through June 9, 2022 to accept public comments. At the end of the comment period, the Department received comments on all five tentative determination permits from the Maryland Native Plant Society,

and two local residents. Comments specific to Frederick County's permit were received from the Frederick County Office of Sustainability and Environmental Resources and the Maryland Sierra Club. Comments specific to Charles County's permit were received from the Charles County Department of Planning and Growth Management and the Maryland Sierra Club. Comments specific to Howard County's permit were received from the Howard County Department of Public Works. Comments specific to Carroll County's permit were received from the Carroll County Department of Land and Resource Management, the Maryland Sierra Club, and the Carroll County Water Resource Coordination Council. Comments specific to Harford County's permit were received from the Harford County Department of Public Works, the Maryland Sierra Club, the Chesapeake Accountability Project, and the Gunpowder Riverkeeper.

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, monitoring requirements, 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) and in its "Basis for Final Determination to Issue National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit for Prince George's County. Additional comments on these Draft Permits raised new concerns related to the Permittees' ISR metrics, the availability of federal funds, and the Department's "Advancing Stormwater Resiliency in Maryland"[2] (A-StoRM) action plan to 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.

[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

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 Permits do 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 benefits from restoration efforts." The commenter added that marginalized communities should be accounted for in permit 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 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 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 mde.maryland.gov/programs/crossmedia/environmentaljustice/Pages/index.aspx.

The Final Permits require, incentivize, and support actions by the Permittees and community leaders that collaborate to prioritize restoration in marginalized communities. For example, the Final Permits require 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 Permits allow

the Permittees 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 Permits require the Permittees to use the Accounting Guidance which promotes flexibility to implement projects that meet multiple local planning goals (see Part 6. Best Management Practices). Therefore, the Final Permits' 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 Permits empower the Permittees 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 Permits 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 proposing an increase in environmental site design (ESD) requirements. 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 permits, any updates, including regulatory changes and guidance to address climate change will also apply to this Final Permit. The Final Permits 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. This commenter further stated that the Draft Permits

do 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 Permits.

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 Permits 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 Permits 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 local 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 must be identified before solutions can be evaluated. Once the Department determines the appropriate solutions, those solutions will be implemented 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 Permits. 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/or other processes. For example, one commenter argued that BMPs should be restricted from or receive limited credit when located in 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 address 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 Permits 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 Permits. 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 Permits to incorporate new regulations or standards under PART VII.G.1. of the Final Permits.

2. Impervious Surface Restoration

The Final Permits establish ISR requirements 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 concerns 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 comments stated that the ISR metric should be replaced. Specifically, one 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 suggested 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 Permits. 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 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 also 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 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 for reducing 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.

Impervious Surface Restoration Strategy and Nutrient and Sediment Load Reductions. Comments related to the ISR requirement contend that this strategy allows the Permittees to implement practices that do not adequately contribute to water quality goals. For example, one comment stated that the Draft Permits do not actually have specific nutrient pollutant load reductions, and only have 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 Permits. 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 the Permittees' ISR strategies will be effective and measurable. The Final Permits further require the Permittees 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 Permittees' 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 Permits will require the Permittees to maintain 9,561 acres restored under the prior permits while adding another 5,765 acres of ISR, totaling 15,326 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

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

Maryland Court of Appeals (COA) Ruling and MEP. One comment 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 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 Permittees' BMP Portfolios, the Department concluded that additional pollution controls were required to meet WIP targets for two Permittees (Frederick and Harford Counties), thus increasing those Permittees' required amount of restoration, and proposed restoration projects were sufficient for three Permittees (Carroll, Charles, and Howard Counties). Therefore, the Department concluded that this increased total 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 Permits.

Information relied upon by the Department to issue the Final Permits is part of the administrative record. However, the Final Permits reflect the Department's regulatory decisions as applied to each Permittee and applicable law. As discussed above, the Final Permits are among ten (10) 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 stakeholders representing local governments suggested the Department should defer to the MEP determination voiced by Permittees, this approach is not consistent with the Remand Rule. The Final Permits reflect the Department's analyses, which balance 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 Draft Permits that are 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 analyses were not limited to a fiscal analysis. Furthermore, the Department's analyses are consistent with the authority granted under the CWA and EPA guidance. Among the factors considered as part of the MEP analyses, the Permittees' fiscal capacity, opportunities for BMP implementation, and commitments to maintain BMPs implemented in the previous MS4 permits were evaluated. The Department also reviewed the Permittees' BMP Portfolios 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, each Permittee's Financial Capacity Analysis (FCA) is one component of the Department's MEP analyses for the Final Permits. 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 analyses. However, as noted above, the Department's analyses 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 Permittees' MEP submittals 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 Permits considers the Permittees' respective MEP submissions and whether additional effluent limitations are necessary to meet the Bay TMDL Phase III WIP pollution reduction targets in tandem with other Phase I MS4 permits. Another comment indicated that the Department's MEP analyses should not consider whether a jurisdiction was able to trade. 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 Permits' respective ISR requirements are not consistent with the Phase III WIP. The commenter suggested that the Draft Permits should require at least 20% of the Permittees' 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 Permittees' MEP submittals 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 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.

1. *Carroll County MEP Analysis*

   Carroll County submitted a robust, locally-driven BMP Portfolio detailing the restoration projects to restore 1,217 acres through upland and alternative practices. The portfolio may be accessed here: mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/2022%20P1M%20TD/Carroll_MEP_Report_Final.pdf. 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 reviewed the Portfolio for additional opportunities for pollution reductions. The ISR proposal submitted by the County is significantly more than the restoration goal established in the Phase III WIP. The process by which the County's ISR requirement was determined included multiple conversations with the County, the County's BMP Portfolio submittals, and the Department's recommendations and review of all submitted documentation.

   In addition to programmatic practices, the County's BMP Portfolio included a variety of restoration BMPs, such as forest planting, forest conservation, septic denitrification, impervious surface removal, and stream restoration. As a result of this holistic and locally-driven approach, the County's suite of restoration strategies detailed in their BMP Portfolio will achieve pollutant load reductions associated with restoration of 1,217 acres of impervious area. This level of implementation will keep the State on track to meet the restoration goal detailed in the Phase III WIP. Therefore, the Department incorporated Carroll County's proposed level of restoration into its MS4 permit. The Department documented these understandings in a February 25, 2022 letter to the County.

2. *Charles County MEP Analysis*

   Charles County submitted a robust, locally driven BMP Portfolio detailing the restoration projects to restore 1,083 acres through upland and alternative practices. The portfolio may be accessed here: mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/2022%20P1M%20TD/CharlesCo%202021%20MEP%20Analysis.pdf. 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 reviewed the Portfolio for additional opportunities for pollution reductions. Several factors led to the decision that the County's proposed amount of restoration was sufficient for the State to meet the annual restoration goal detailed by the Phase III WIP. In making this determination, the Department examined the following:

- The County's BMP Portfolio included a variety of restoration BMPs, such as forest planting, shoreline stabilization, impervious surface removal, stream restoration, and septic denitrification BMPs and septic connections.
- The County proposed the use of green infrastructure and watershed management credits in its BMP Portfolio.
- The County utilized protocol rates as well as planning rates to estimate pollutant reductions for stream restoration projects in its BMP Portfolio.

The Department met with the County to discuss the Department's review of the MEP submission on August 19, 2021. The County subsequently submitted an updated BMP portfolio on October 5, 2021 with clarifying information to answer questions from that meeting. Based on the Department's analysis and discussions with the County, the Department determined that Charles County's ISR requirement is 1,083 impervious acres, which is equal to the County's MEP submission. This level of restoration will keep the State on track to meet the annual restoration goal detailed by the Phase III WIP. The Department documented these understandings in a February 25, 2022 letter to the County.

3. *Frederick County MEP Analysis*

Frederick County submitted a BMP Portfolio detailing restoration projects to restore 934 acres through upland and alternative practices. The portfolio may be accessed here: mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/2022%20P1M%20TD/FR%20MEP%20Submission%2007.07.21.pdf. 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 reviewed the Portfolio for additional opportunities for pollution reductions. Several factors led to the decision that more restoration was achievable. In making this determination, the Department examined the following:

- The County may use additional green infrastructure and watershed management credits above what was reported in its BMP Portfolio. These additional credits will become available as the County implements adaptive management strategies to maximize the use of these practices.
- The County may utilize new BMPs from the updated Accounting Guidance (e.g., urban soil restoration, floating treatment wetlands, riparian buffers, and forest conservation) in addition to the BMPs submitted in the BMP Portfolio.

- The County has utilized septic denitrification BMPs and septic connections in their Financial Assurance Plans submitted to the Department. However, these BMPs were underestimated in the County's BMP Portfolio, and the Department has determined that additional restoration credit is available when implementing these programs.

Based on these findings, the Department determined that Frederick County's ISR requirement is 1,027 impervious acres, which is 93 acres greater than the County's MEP analysis. The Department established the ISR requirement in the permit accordingly. This level of restoration will keep the State on track to meet the annual restoration goal detailed by the Phase III WIP. The Department documented these understandings in a February 25, 2022 letter to the County.

4. *Harford County MEP Analysis*

Harford County submitted a BMP Portfolio detailing the restoration projects to restore 334 acres through upland and alternative practices. The portfolio may be accessed here: mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/2022%20P1M%20TD/Harford%20County%20MEP%2007062021.pdf. 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 reviewed the Portfolio for additional opportunities for pollution reductions. Several factors led to the decision that more restoration was achievable. In making this determination, the Department examined the following:

- The County may use additional green infrastructure and watershed management credits above what was reported in its BMP Portfolio. These additional credits will become available as the County implements adaptive management strategies to maximize the use of these practices.
- The County can utilize new BMPs from the updated Accounting Guidance (e.g., urban soil restoration, floating treatment wetlands, riparian buffers, forest conservation) in addition to the BMPs submitted in the BMP Portfolio.
- Redevelopment credits were not identified in Harford County's BMP Portfolio. The Department has determined that additional credits may be available for future redevelopment projects that comply with Maryland's stormwater regulations.
- The County 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. The County will have achieved more restoration than proposed if site-specific data result in a greater number of impervious acres restored.

- Additional pollutant reductions are available through participation in the Water Quality Trading Program and the County has three local wastewater treatment facilities that may be used for this purpose.

The Department met with the County to discuss the Department's review of the MEP submission on January 28, 2022. The County subsequently submitted a letter on February 7, 2022 amending the County's proposed level of nutrient trading to achieve restoration of 10% of the baseline, i.e., 1,093 acres. Based on the Department's analysis and discussions with the County, the Department determined that Harford County's ISR requirement is 1,093 impervious acres, which is 759 acres greater than the restoration proposed using upland and alternative BMPs in the County's MEP submission. This level of restoration will keep the State on track to meet the annual restoration goal detailed by the Phase III WIP. The Department documented these understandings in a February 25, 2022 letter to the County.

5. *Howard County MEP Analysis*

Howard County submitted a BMP Portfolio detailing restoration projects to restore 1,345 acres through upland and alternative practices. The portfolio may be accessed here: mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/2022%20P1M%20TD/Howard%20County%20MEP%20Analysis%202021.07.07.pdf. 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 reviewed the Portfolio for additional opportunities for pollution reductions. Several factors led to the decision that the County's proposed amount of restoration was sufficient for the State to meet the annual restoration goal detailed by the Phase III WIP. In making this determination, the Department examined the following:

- The County's BMP Portfolio included a variety of restoration BMPs, such as forest planting, outfall stabilization, urban tree canopy, stream restoration, and septic BMPs.
- The County proposed the use of green infrastructure credits in its BMP Portfolio.
- The County utilized protocol rates as well as planning rates to estimate pollutant reductions for stream restoration projects in its BMP Portfolio.

The Department met with the County to discuss the Department's review of the MEP submission on August 23, 2021. The County subsequently submitted an updated BMP portfolio on September 28, 2021 with clarifying information to answer questions from that meeting. Based on the Department's analysis and discussions with the County, the Department determined that Howard County's ISR requirement is 1,345 impervious acres, which is equal to the County's MEP submission. This level of restoration will keep the State

on track to meet the annual restoration goal detailed by the Phase III WIP. The Department documented these understandings in a February 25, 2022 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 each 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 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 Permits for the Phase I jurisdictions. This ensures consistency with the State's goals established in the Phase III WIP.

Collectively, the level of restoration for the reissued Phase I Medium MS4 permits will exceed the Phase III WIP goal, resulting in cumulative restoration of 2.4% per year of all Phase I Medium 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 each Permittee's respective ISR should be increased to reflect this new potential funding.

As discussed above, the Final Permits' respective ISR requirements considers each Permittee's MEP submission and the Phase III WIP strategy to implement the Bay TMDL. The MEP submissions were informed by local priorities, water quality goals, and a proposed BMP

Portfolio. Some of the factors that were evaluated as part of the MEP submittals 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, each 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 Permittees' MEP analyses. The Department does not believe that it is appropriate to delay the issuance of the Final Permits 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 Permits, the Department may consider the potential of these funding sources when developing future MS4 permits.

4. Anti-Backsliding

Maryland's prior MS4 Phase I permits required the restoration of 20% of untreated impervious area in each jurisdiction. The new MS4 permits for all Phase I Medium jurisdictions (i.e., Carroll, Charles, Frederick, Harford, and Howard Counties) include an impervious surface area restoration consistent with the Phase III WIP 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 Medium MS4 permit requires the Permittee to maintain or replace all restoration and practices required under each jurisdiction's prior MS4 permit. These requirements ensure that restoration is cumulative and additive.

Anti-Backsliding and the Impervious Surface Restoration Requirement. Certain comments suggested that the ISR requirement must be maintained at 20% or increased and argued 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 Permits 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 Permits

be no less stringent than prior Phase I MS4 permits. The Final Permits comply with these provisions by ensuring that restoration is cumulative, additive, and continuous.

The Final Permits require 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 Permits also require that annual practices used to meet the prior MS4 permits' ISR requirements be continued at the same level of implementation or be replaced with permanent practices as noted in PART IV.E.1. These permit provisions ensure that the effluent limits required under the prior Phase I MS4 permits are maintained as part of the Final Permits by ensuring that restoration is cumulative, additive, and permanent.

The Final Permits not only conform 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 Permits requires the Permittees to increase impervious surface restoration. Therefore, the Final Permits represent a net *increase* in pollutant reductions beyond the prior Phase I MS4 permits.

Anti-Backsliding and Water Quality Credits. One commenter suggested that the water quality credit trading provisions in the Final Permits will not produce pollutant reductions commensurate with what would have been achieved in their absence. The commenter concluded that these provisions represent backsliding from the restoration requirements under the Permittees' prior MS4 permits. 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 Permits stipulates that trades from previous permits must be sustained during this permit term until replaced with stormwater BMPs. Additional water quality credits may be acquired for meeting the new ISR requirement. Accordingly, any trades executed under the Final Permits 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 Permits is further addressed in the Water Quality Credit Trading section in this document.

5. TMDLs

The Department received numerous comments on the Draft Permits 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 Permits require the Permittees to (1) implement specific programs (e.g., illicit discharge detection and elimination, property management, restoration) that are designed to control pollution in stormwater discharges, and (2) implement restoration for the Department-approved TMDL plans for the watersheds listed in Appendix A of the Final Permits, including the Bay TMDL to control pollution in stormwater discharges further. 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 Permits 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 Permittees are working toward improving water quality and ecological health in their receiving waters.

Several comments reflected concerns with how the Draft Permits incorporated Maryland's Phase III WIP, local TMDL implementation plans, growth, and watershed assessments. The following discussion addresses these additional comments regarding the Draft Permits 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 Permits are 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 Permittees' MEP portfolios 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 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 MS4s 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 Permits 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)
Carroll	1,217	807
Charles	1,083	789
Frederick	1,027	991
Harford	1,093	1,093
Howard	1,345	1,102
Total	5,765	4,782

The MEP submissions from Phase I Medium 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. Growth masks much of the progress achieved in the

urban stormwater sector. 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 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 Permittees' 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 Department included all approved local TMDLs, the WLA, and the percent pollution reduction required under each TMDL in Appendix A of the Final Permits. 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 Permits require an 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 Permits require 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 Permits also include a new PCB monitoring requirement. This requires Permittees with PCB TMDL WLAs identified in Appendix A of the Final Permits 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 Permittees must submit results and provide updates annually on their 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 Permits and the impervious acre credits outlined in the Accounting Guidance. *See, e.g.*, Final Permits, 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 expressing concern that the Draft Permits 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 Permits 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 Permittees 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 Permits.

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 Permits. 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 Permittees may choose among these approved practices and implement them with appropriate verification and maintenance to achieve the Final Permits' 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]

Alternative BMPs as a Tool to Achieve Restoration Requirements.

1. Effectiveness of Alternative BMPs

The Department received comments on the Draft Permits arguing that alternative practices do not lead to water quality improvements. For example, one commenter contended that the Draft Permits 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

[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

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 local waterways, which is the fundamental purpose of the Final Permits. As such, the Department disagrees with the commenter's arguments and finds that the Final Permits incorporate reasonable assumptions that are supported by expert scientific assessment of available practices to address pollution that are consistent with the Chesapeake Bay Watershed Model.

One commenter made recommendations regarding specific alternative BMPs, including implementation of outfall retrofits, cleaning inlets, allowing only street vacuums instead of street sweepers, and crediting reduced salt use. Another commenter suggested increasing the credits of upland stormwater control practices to incentivize their use, particularly for land cover conversion practices, urban soil restoration, and runoff reduction practices.

The Department advises that an outfall retrofit is an approved BMP, i.e., "Outfall Stabilization". In addition, "Advanced Street Sweeping" in the Accounting Guidance refers to vacuum assisted sweepers and regenerative air sweepers, which receive a significantly greater credit than the negligible credit provided by mechanical sweeping. Furthermore, reducing salt use is now a permit requirement and includes a mandatory Salt Management Plan, a plan for evaluating new equipment and methods for continual program improvement, training and outreach, and tracking and reporting. The Department also provided in the 2021 Accounting Guidance a new opportunity for implementing infiltration by adding the urban soil restoration BMP, increased the credits for forestation to incentivize its use, added new land cover conversion opportunities (e.g., street trees, urban tree planning), added a forest conservation credit to incentivize the protection of existing resources, incentivized runoff reduction practices by increasing their credit through the Green Stormwater Infrastructure credit, and incentivized upland stormwater runoff management through the Watershed Management credit.

2. *Alternative BMPs and Local Priorities*

The Department received comments claiming that the Draft Permits allow 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 provide little reduction in stormwater runoff volume. For example, certain comments claimed that street sweeping does not achieve reductions in stormwater runoff volume and that permittees could fulfill their 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 Permittees 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**.**

Stream Restoration.

1. Stream Restoration Implementation

Multiple commenters expressed concern about the successful implementation of stream restoration. Concerns included insufficient ecological uplift and negative impacts to wildlife, the loss of existing trees and forest, the need to control stormwater at its source to prevent the degradation of streams and project failure, detrimental impacts of construction, and insufficient monitoring of outcomes. Suggestions included ensuring that projects are not exempt from forest conservation laws, requiring upland practices, and conducting costs-benefit analyses of ecological impacts. Comments were also submitted related to specific projects, planning and public participation processes of projects, contractors, HOA concerns, and mitigation banking, which are outside of the scope of the MS4 permit and Accounting Guidance.

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. The Department's Wetlands and Waterways Program reviews all stream restoration projects and requires documentation demonstrating that restoration is proposed due to functional impairment of biology and geomorphology of current stream conditions. The review process includes close coordination with the Army Corps of Engineers, EPA, the U.S. Fish and Wildlife Service, and Maryland's Department of Natural Resources (DNR). In addition, these projects are subject to local erosion and sediment control plan review and approval requirements that are enforced through construction inspections by the local jurisdiction as well as the Department.

Additional oversight is provided through the Department's MS4 permits and Accounting Guidance. Permittees are required to adhere to the technical specifications in the Accounting Guidance to receive credit toward ISR requirements. 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 BMP implementation. These include a requirement to maintain or expand riparian vegetation, compensate for any riparian losses, and consider unintended consequences.

The Department also reviews Permittees' annual reports, which are required in the Final Permits (PART V.A). This review includes an evaluation of these projects to ensure that

the restored streams meet the required criteria. Stream restoration that fails as documented through MS4 Geodatabase annual reporting will not receive credit in accordance with CBP recommendations. CBP's guidance for making those determinations is found in Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed (Burch, J. et al. 2019).

2. Stream Restoration Crediting

Multiple commenters requested that credits be reduced or eliminated for stream restorations.

The Department follows the CBP expert panel reports and associated qualifying criteria requiring that load reductions must be calculated based on site-specific conditions and does not allow the planning rate to be used to calculate final reductions achieved. The final load reductions are calculated by the pre-construction data collection and post-construction verification required by the expert panel's recommended protocols; therefore, reducing the credit is unnecessary and contrary to the expert panel's scientific consensus. As noted above, the Department further asserts that Permittees should have the flexibility to implement BMPs that are practicable, are optimized to address local impairments, benefit local constituents, and improve water quality as determined by data reviewed by scientific experts. Accordingly, the Department will not eliminate credits achieved through stream restorations, which are consistent with recommendations by the CBP expert panels.

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 Permits' new ISR requirements in PART IV.E.5. The State's Water Quality Trading Program (Trading Program) was established in 2018 by 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 was 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.

Trading is authorized in the Final Permits as one option toward meeting the ISR requirement if the Permittees choose to use it.

The Department received comments on the Draft Permits 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 and addressed at that time. The 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 these Draft Permits' public comment periods. However, it is noted that much of the public comments about trading do not directly pertain to language in the Draft Permits 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 Permits suggested that the Permittees 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.

Two Permittees traded to complete their restoration requirements. Frederick County obtained credits to restore 708 impervious acres. Harford County obtained credits to restore 1,215 impervious acres. Their Final Permits require these credits to be replaced prior to the expiration date with an equivalent amount of restoration through stormwater BMPs, programmatic initiatives, or alternative control practices. Harford County proposed further trading in its Final Permit to address Phase III WIP goals with the understanding that these will also be replaced in future permits.

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 during trades. 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 credits below the benchmark in the most recent calendar year are 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 of the Frederick and Harford Counties' Final Permits, 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 Permits' terms—while those acquired under the Final Permits 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 Permits) 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 Permits and must be maintained. *See, e.g.*, PART IV.E.9 of the Frederick County and Harford County Final Permits.

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 Permittees to create efficiencies in labor and cost. Through trading, the pace of pollution reduction may be accelerated across all sectors. With respect to the administrative requirements under the Final Permits, the Department already requires the Permittees to maintain a current database of installed BMPs with information such as maintenance and inspection dates. The

Permittees 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 Permits 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 Permits requires that any credits acquired through the Trading Program under the prior MS4 permits 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 Permits provide 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 Permittees 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 Permittees replace credits (established above as records that represent real pollution reductions certified through the Trading Program) with their own on-the-ground stormwater BMPs, the Final Permits 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 alleviates 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 Permittees to make less effort to reduce other pollutants to the MEP. However, a guiding principle of the Trading Program is to reduce workloads by creating efficiencies. This helps 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). Frederick and Harford Counties must replace all credits acquired in the prior permit term with on-the-ground practices by the end of this permit term and continuously purchase credits in the interim (see PART IV.E.9.b). 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 Permittees do 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 Permits. The Final Permits limit 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…." Conversely, during the Draft Permits' development, NGOs representing local governments requested that water quality credit trading should not be limited at all in the reissued MS4 permits.

The Final Permits balance 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 pollution reductions are mandatory regardless of whether the Permittees choose to utilize trading. Similar to stormwater BMPs, credits must be maintained and reported annually and are assessed at the end of the permit term with the full restoration requirement. If a 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, PART IV.E.9.b of the Frederick and Harford Counties' Final Permits requires these two Permittees to replace all prior credits with approved on-the-ground restoration practices during this permit term. 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 Permittees' 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. Stormwater Monitoring

The Department received comments regarding the Assessment of Controls (Part IV.G) section of the tentative determination permit. Commenters expressed concern that monitoring requirements were insufficient, and that the State's monitoring data should be incorporated into the Department's adaptive management approach. Commenters requested that monitoring should be expanded to identify flood risks.

Monitoring Requirements in the Permit. The Final Permits establish statewide monitoring requirements that align with CWA goals to "restore and maintain the chemical, physical, and biological integrity of the nation's waters…." The objective of the BMP Effectiveness monitoring in the permit is to evaluate the cumulative effects of stormwater retrofits and alternative urban BMPs on a sub watershed scale. In addition, the objective of the Watershed Assessment monitoring requirement is to evaluate the condition of local TMDLs, and stream health and integrity by assessing the biology of aquatic systems and their relationships with habitat and water quality. Results of both monitoring requirements will be used to evaluate BMP implementation efforts while also understanding overall stream health and biological response to restoration in these watersheds.

Individual permittees have two options to meet the intent of the BMP Effectiveness and Watershed Assessment requirements outlined in the permit. They may perform focused monitoring as outlined in the permit to assess the performance of individual restoration practices and evaluate local water quality conditions for local adaptive management, and to calibrate models. This focused monitoring strategy is supported by the NRC's *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation* (NRC, 2011). Specifically, NRC recommends that "[t]argeted monitoring programs in representative urban and agricultural watersheds and subwatersheds would provide valuable data to refine BMP efficiency estimates, particularly at the watershed scale, and thereby improve Watershed Model predictions." Alternatively, permittees may contribute to a pooled funding program that performs targeted research on local water quality and restoration efforts implemented statewide that can assess stream health and inform adaptive management strategies to meet the goals of the CWA.

Offering MS4 jurisdictions the option of the pooled approach for meeting permit monitoring requirements provides the optimal management outcome for the State. This is consistent with the intent of the EPA *Interpretive Policy Memorandum for Reapplication Requirements on Municipal Separate Sewer Systems*. 61 Fed. Reg. 41698-01 (August 9, 1996). In this memo, EPA recommends that permitting authorities (e.g., the Department) work with permittees to determine if stormwater monitoring efforts are "appropriate and useful." EPA further recommends that

changes be proposed to make these monitoring programs more useful. The Department's targeted monitoring approach and decision-making, which is in accordance with the EPA memo, was affirmed in *Maryland Department of the Environment v. Anacostia Riverkeeper, et al.*, 447 Md. 88 (2016). The court affirmed that monitoring requirements in NPDES permits are "sufficient to yield data which are representative of the monitored activity." *Id*. at 149.

The 1996 Policy memo (see above) also notes that habitat assessments, bioassessments, or other methods other than end-of-pipe chemical monitoring can be acceptable monitoring approaches to meet CWA goals. Thus, the pooled monitoring program provides an alternative option to meet NPDES monitoring requirements to yield data representative of stream health and various management strategies implemented in the State. This approach is consistent with the COA decision noted above, whereby representative data becomes informational and useful when examined in aggregate along with a continuum of monitoring efforts within the State.

The pooled monitoring approach, administered by the Chesapeake Bay Trust (CBT), is appropriate and useful because it provides a vehicle to combine financial resources from a group of funding partners with similar research interests. Scientists and other stormwater professionals whose projects are funded by the program can combine resources and tools to evaluate BMP performance and water quality outcomes on a scope that may not be feasible for an individual jurisdiction. Information on past research projects provide data representative of a variety of BMPs along with broader recommendations to assist permittees in program implementation (See: cbtrust.org/grants/restoration-research/).

The pooled approach offers flexibility to permittees so that they can choose the most cost-effective option for meeting permit requirements. As an example, MS4 permittees already have local monitoring programs to evaluate BMP effectiveness. They may choose to continue these programs or use the money dedicated to these efforts to contribute to the pool to provide additional information that local monitoring may not address. Furthermore, the Watershed Assessment monitoring in the permit is a new requirement. The pooled option offers flexibility for permittees to determine whether it would be more advantageous to develop this program from scratch. Alternatively, participating in the pooled option provides an existing research framework that can be structured to provide county-specific watershed information, in accordance with the MS4 Monitoring Guidance and criteria, on local stream health and TMDL impairments

Research deliverables funded under the program have enhanced the stormwater community's knowledge on a variety of BMPs such as stream restoration, urban tree planting, shoreline erosion, or environmental site design practices and water quality conditions. The data can be used to link observed or measured outcomes such as biological integrity, resource trade-offs, or pollutant load reductions with improved practice design and other tools to inform local

restoration programs. As a result, the research funded through this program can assist the State and local governments in refining restoration strategies, modifying design approaches, and understanding site specific factors that improve stream health. This is a valuable and necessary tool for cost effective planning and projections for meeting water quality goals. This will not only expand the results of jurisdiction specific monitoring efforts but help enhance overall adaptive management strategies to restore the waters of the State and meet the goals of the CWA.

Adaptive Management Approach and Sharing of Monitoring Data. The Department has recently made monitoring data publicly available via StormwaterPrint on its website. Additionally, the Department maintains a repository database, called the Ambient Water Quality Monitoring System (AWQMS), which is a web-based data management system for ambient water quality data. This system has been designed for compatibility with EPA's Water Quality Exchange Network (WQX), which is used as the method to share water quality data between the EPA and its partners throughout the United States. More information can be found on the AWQMS and EPA's WQX at the following links:
mde.maryland.gov/programs/water/TMDL/MD-AWQMS/Pages/awqms.aspx
www.epa.gov/waterdata/water-quality-data

PART V.A of the MS4 permit requires the permittee to submit annual reports on or before December 31st of each year. Each Permittee is also required to post these reports on their website. The Department will post links to all the individual Permittees' websites via a single portal to facilitate this process.

9. Enforcement

The Department received comments regarding enforcement of the Draft Permits. 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 argued that the permittees 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 action with specific consequences for failure. Conversely, local governments requested that the Department clarify within the permits that benchmarks represent goals and are not enforceable, and that they will be updated annually.

The Final Permits define 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 Permits' 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 Permits 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 Permits' requirements. This process takes place through annual report reviews that provide continuous oversight of program progress and targets.

The Department's use of the term "benchmark" in the Final Permits 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 WLAs. The commenter also asserts that the Final Permits rely 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 Permits. 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 Permits 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 the Permittee "shall be responsible for complying with all conditions of this permit" and "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 Permits 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 Permittees achieve compliance with the Final Permits. As an example, within the past permit term, the Department has instructed permittees within annual report reviews to make programmatic corrections to maintain compliance with the permits. As such, the permits do not rely on self-regulation as alleged by the commenter.

Enforceability of Future Comments and Changing Permit Requirements. The Department wishes to provide further information on language contained within PART IV.F.1 requiring permittees to address all comments required by the Department for approval of any outstanding TMDL implementation plans within one year of the permit's effective date, as comments about this subject were submitted during the public comment period for the recently renewed Phase I Large MS4 permits.

TMDL implementation plans need to be iterative and adaptive. This permit condition allows the Department to ensure that the normal process of review and comment is continued for these TMDL plans. The condition also establishes a time frame to resolve any outstanding issues that are delaying approval of these plans.

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 stated that when a suspected illicit discharge is either originating from or discharging to an adjacent MS4, the requirement is only to resolve the investigation. 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 Permits require the Permittees to ensure that all discharges into, through, or from their MS4s—that are not composed entirely of stormwater—are issued a permit or eliminated (see PART IV.D.3). To enforce these requirements, the Final Permits require each 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 Permittees to use "appropriate enforcement procedures for investigating and eliminating illicit discharges, illegal dumping, and spills." The Final Permits use 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 sewer pipe that is connected to an MS4). When a Permittee determines a discharge either originating from or discharging to another MS4 to be illicit, then it must be permitted (e.g., authorized by 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 Permittees' IDDE programs through annual report reviews. Permittees must annually document the illicit discharge investigations and submit detailed findings to the Department for review. Through this process, the Department determines whether a Permittee's actions to investigate and eliminate illicit discharges are consistent with State and federal regulations.

A commenter recommended that the Draft Permits 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 a Permittee to require a discharge permit from the Department, or are required to be reported to the Department by State or federal regulations. If a 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 mde.maryland.gov/programs/Permits/WaterManagementPermits/Pages/index.aspx.

If a Permittee needs assistance in determining the appropriate program, 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 permit (PART VII.C).

Appendix A. Specific County Comments

Topic: Annual Practices

- **Comment:** Carroll County stated "The impervious acre replacement for the annual alternative practices is defined as 21 acres treated by permanent practices. Per the information provided in the Carroll County 2021 annual report as well as the County MEP analysis, this figure should be set at 17 acres."
- **Response:** The Final Permit has been updated to reflect the correct values.

- **Comment:** Frederick County stated that "MDE states 378.6 acres of Annual Practices. Frederick County believes this is an incorrect number and contradicts the language on Page 10 within the Draft Permit which states 61.9 acres of Annual Practices. Frederick County is requesting the numbers stated be reconciled to match in each document with the correct 61.9 acres of credit."
- **Response:** The Final Permit has been updated to reflect the correct values.

Topic: Appendix A

- **Comment:** Carroll County stated "Appendix A lists the Northern Chesapeake Bay Tidal Fresh Segmentshed. Within Carroll County, this consists of the 8-digit watershed of Conewago Creek. This entire watershed was part of the County's rural disconnect analysis, which determined that 95% of the impervious acreage within this watershed is considered disconnected and effectively treated. Programmatically, MDE has never indicated that a local TMDL Stormwater Wasteload Allocation (SW-WLA) Watershed Implementation Plan (WIP or "TMDL stormwater implementation plan") is required for this small watershed. Carroll County asserts that inclusion of this watershed in Appendix A is not indicative of a programmatic change and a requirement to create a WIP. Carroll County has not budgeted the funding or resources to develop a WIP and will not be doing so as part of this permit. If MDE has an alternative understanding, this must be clarified prior to permit issuance."
- **Response:** Some Permittees have provided implementation plans and progress reporting at the segment-shed scale. While this is ideal, countywide implementation plans are also acceptable. The Department has included each segment-shed in Appendix A for informational purposes.

- **Comment:** Howard County stated "The Chesapeake Bay TMDL is presented by segmentsheds in Appendix A. In lieu of accounting at the segmentshed scale, the County will continue to provide Bay TMDL loads at the Countywide scale following the load reduction requirements MDE allocated at the Countywide scale (TN = 11.98% EOS reduction/12.0% EOT reduction, TP = 20.72% EOS reduction/19.74% EOT reduction)."

- **Comment:** Howard County stated "Regarding the Chesapeake Bay TMDL WLAs, the County will report on Bay TMDL progress modeling in the Countywide TMDL Stormwater Implementation Plan. However, because the Bay TMDL is achieved through impervious restoration and a separate accounting system, the County is not planning to develop a separate implementation plan specifically for the Bay TMDL."
- **Response:** The Countywide scale is acceptable for this permit term. However, the Department reserves the right to require segment-shed scale implementation plans and progress reporting in future permits.

Topic: Benchmarks

- **Comment:** Frederick County stated "Consider a similar benchmarking language as written before in red below. The concern is the benchmark in Section E.8.b. states the annual benchmark can be adjusted, whereas, the language below holds to the Department's approved benchmark but contradicts the process where the benchmark may be adjusted based on actual or anticipated BMP implementation rates as long as the Permittee completes its restoration requirement.
  Requested language change: c. An updated list of proposed BMPs, programmatic initiatives, and alternative control practices, as necessary, to demonstrate adequate annual benchmark progress toward meeting the final impervious acre restoration requirement by permit term ~~Department's approved benchmarks~~ and final stormwater WLA implementation dates."
- **Response:** The Department will work with the jurisdictions on approving adjustments to the benchmarks as needed as part of the adaptive management process. The current language appropriately reflects this approach. No change was made.

Topic: Bacteria and PCBs

- **Comment:** Howard County stated "The County's modeled WLAs (i.e., Target Load) will be different than the WLAs presented in Appendix A because they are modeled using MDE's TIPP spreadsheet (as reported in the County's FY21 annual report). We suggest that MDE adds a comment to Appendix A clarifying that WLAs in the table will not match modeled results because they were originally developed using an older version of the Chesapeake Bay Program Watershed Model."
- **Comment:** Howard County stated "The Fact Sheet addresses the different requirements between nutrient and sediment local TMDLs vs. bacteria and PCB local TMDLs by including the following statements - "with respect to bacteria TMDLs, the implementation of WLAs is best addressed by eliminating the bacteria at its source" and "[t]he Department has determined that the combination of these two required monitoring and screening programs are adequate to ensure progress toward implementation of all relevant bacteria WLAs within the County for this permit term" and "[t]he County is

required to develop a source tracking monitoring plan for all PCB TMDL WLAs where watershed reductions are required to meet water quality standards." The County requests that these statements be included in the permit itself, not just the Fact Sheet, as there are specific differences in the approach to bacteria and PCB TMDLs when compared to nutrient and sediment TMDLs."

- **Comment:** Harford County stated "Harford County requests updating the timeframe for submitting the monitoring plan to one year from the date the Monitoring Guidance has been finalized."
- **Response:** The Department has kept the referenced language as written in all Final Permits. New guidance was created that discusses the use of TIPP for modeling historic and planned progress towards TMDLs, available at mde.maryland.gov/programs/water/TMDL/DataCenter/Pages/TMDLStormwaterImplementation.aspx. That Department guidance has been developed based on the assumptions that Howard County requested to add to its Final Permit. That guidance also indicates that where applicable, Permittees must develop PCB monitoring plans within two years of the publication of the guidance. Therefore, no language changes are needed.

- **Comment:** Carroll County stated "Both the permit and the fact sheet (page 12) refer to PCB TMDLs. The first paragraph in this section states, "Carroll County shall conduct BMP effectiveness and watershed assessment monitoring and polychlorinated biphenyls (PCB) source tracking for assessing progress toward improving local water quality and restoring the Chesapeake Bay." Carroll County does not have a PCB TMDL and has not programmatically budgeted funding or resources to address PCBs. All references to PCB's should be removed from the Carroll County permit and fact sheet. Carroll County asserts that the inclusion of PCBs in our permit is in error and will not programmatically be addressing this requirement. If MDE has an alternative understanding, this must be clarified prior to permit issuance."
- **Comment:** Frederick County stated "Request a footnote or some designation stating the Patuxent River PCBs is too low and Frederick County is not required to perform any monitoring or reductions for PCBs. Page A.1: Frederick County requests that the Patuxent River PCBs TMDL be stricken from the proposed Permit language as the County is not required to perform PCB monitoring."
- **Comment:** Charles County stated "Part IV.G.3 states Charles County is required to develop PCB source tracking monitoring plans for all applicable TMDLs, however since it's been confirmed with MDE that Charles County has no applicable PCB TMDLs, please remove this item from the Tentative Determination permit because it's extraneous and misleading to the public."
- **Comment:** Frederick County stated "Frederick County requests the language be modified regarding PCBs as there are no PCB TMDLs in Frederick County. This initial comment was discussed with Stew Comstock during the County's MS4 Permit Tentative Determination public meeting on April 21, 2022. Based on no PCB TMDLs and no

reduction requirements, the Fact Sheet should not use an example of PCBs when the County is not required to monitor them as detailed in Appendix A of the Permit. We are requesting any reference to a PCB TMDL or PCB monitoring be stricken from the Fact Sheet."

- **Comment:** Frederick County stated "Page 13, Section G: Frederick County requests the language be stricken when discussing "polychlorinated biphenyls (PCB) source tracking" or state the County is not required to perform PCB monitoring."
- **Response:** The Department has kept the referenced language to PCBs in all of the Final Permits and Fact Sheets as written. The Final Permits instruct PCB monitoring to be done "for all applicable TMDL WLAs". Permittees without a PCB TMDL are not required to perform this activity.

- **Comment:** Howard County stated "It is our understanding, per the new bacteria guidance document (page 16, noted in basic element #1) and in communication with MDE, that the focus of implementation is source identification and mitigation and no final implementation end dates need to be provided for bacteria and PCB local TMDLs. The County suggests adding the following language to the permit 'For bacteria and PCB local TMDLs, where the focus of implementation is source identification and mitigation, in lieu of end dates, detailed schedules of planned efforts and actions will be provided.'"
- **Response:** The Department has kept the language in the Final Permits as written. Department guidance [see link above] has been developed based on the assumptions that detailed schedules of planned efforts and actions are acceptable. No change is needed.

- **Comment:** Howard County stated "The bacteria monitoring required during the development of the County's bacteria TMDL implementation plan will be used to fulfill the bacteria monitoring requirement in this permit."
- **Response:** This approach is acceptable. The comment is noted.

- **Comment:** Howard County stated "The work started with the inter-jurisdictional Patuxent River PCB monitoring group and the forthcoming plan (source tracking and monitoring) will fulfill this permit requirement for Howard County."
- **Response:** The comment is noted.

Topic: BMP Monitoring

- **Comment:** Howard County stated "The language describing the County's pooled monitoring decision for BMP Effectiveness Monitoring is contradictory. Under section 1. it reads: "...4 months after permit issuance, date to be determined, or by July 1 of each year..." whereas section 1.a. reads "The County shall remain in the program for the duration of this permit term: ..." As the statement in section 1 precedes the statement in

section 1.a., the County will reassess the pooled monitoring decision each year. We suggest MDE remove the following phrase from G.1.a to provide clarification: "The County shall remain in the program for the duration of this permit term."

- **Comment:** Howard County stated "The 2021 MS4 Monitoring Guidelines document presents costs for the countywide random biological monitoring, chloride monitoring, and bacteria monitoring portions separately. Can the County pay 'a la carte' for pooled monitoring, e.g., can the County continue to collect its own data on countywide biological condition but buy into pooled monitoring for the required chloride monitoring, or some other combination of the three elements required under this permit condition? If so, can this be expressly included in the permit language as "To implement the required monitoring, the County shall pay $126,000 for countywide biological and habitat monitoring, and/or $8,692 for bacterial monitoring, and/or $8,100 for chloride monitoring annually into a pooled monitoring CBT fund.'"
- **Response:** The language "by July 1 of each year" in PART IV.G.1 is intended to offer flexibility to permittees when finalizing local budgets for the upcoming fiscal year. The Department recognizes that the memorandum of understanding (MOU) with the Chesapeake Bay Trust (CBT) may not be executed until as late as September 1 in order to contribute to the next request for proposals (RFP). Therefore, a new agreement must be forwarded to the Department annually once the permittee joins the pooled monitoring program.

  However, the permit also specifies that the permittee shall remain in the pooled monitoring program for the duration of the permit once committing to the program. The data gathered from individual monitoring needs to be collected consistently over a sufficient length of time in order to detect trends and therefore yield meaningful results. Opting into or out of the pool during the permit term will make it difficult to draw conclusions from the data.

  As indicated in the 2021 MS4 Monitoring Guidelines, permittees may participate in pooled Watershed Assessment monitoring for either the biological/habitat monitoring, or the bacteria monitoring, or the chloride monitoring, or all 3 requirements. The permittee must submit a monitoring plan with details to be approved by the Department. The 2021 MS4 Monitoring Guidelines are incorporated by reference into the permit.

  Regardless of whether the permittee elects to continue individual monitoring at current sites or select new site(s), permittees must submit a new sampling plan for Department approval to show how they are meeting the updated parameters of the new permit. The permittee shall submit a revised sampling plan for Department approval with the first annual report and shall continue sampling per all plan(s) approved under a prior MS4 permit until the Department approves the new sampling plan.

Topic: Conveyance

- **Comment:** Carroll County stated "These sections both mention ' ... and stable structural stormwater conveyance and capacity to receiving waters.' This is an addition from the draft permit that was previously submitted for review. Carroll County interprets this to refer to the conveyances discharging from structural BMPs. The County requests MDE clarify this addition to the permit and validate our interpretation.
  We also request that MDE define the term 'receiving waters' to determine the County's responsibility more easily with regard to stormwater conveyance downstream of a structural BMP. If this language is not clarified, it could be interpreted to require Carroll County to maintain and inspect all modes of stormwater conveyance downstream of a structural BMP, through private systems or those owned and controlled by other MS4 permittees, beyond the scope of the County's permit and beyond the County's legal authority."
- **Comment:** Charles County stated "In Part IV.D.1.c and d new language has been added since the previous draft, which requires triennial inspection of 'stable stormwater conveyance and capacity to receiving water.' This language is confusing, and we ask that it be removed, since inspection of stormwater facility outfalls are included as part of the overall stormwater facility inspections."
- **Comment:** Harford County stated "Harford County requests these sections be rewritten for clarity. The following text has been added to these section in comparison to the County's most recent MS4 permit – '... , and stable stormwater conveyance and capacity to receiving waters...'. As written, 'stable stormwater conveyance' could be interpreted as part of the list of BMPs and interpreted to mean a stormwater step pool conveyance or simply the outlet from a facility. It is likewise unclear where and how the capacity to receiving waters should or could be inspected. Harford County therefore assumes inspections will continue to be limited to on-site conditions of the stormwater management facilities in accordance with approved plans."
- **Response:** The Final Permits cover all stormwater discharges into, through, or from the municipal separate storm sewer system (MS4) owned or operated jurisdiction-wide by the permitted jurisdictions as described in PART I.B. Each Permitee's 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 jurisdiction. The Department considers it appropriate that each Permittee inspect and maintain these systems to ensure that they function as designed to comply with receiving water quality standards.

- **Comment:** Howard County stated "The County intends to meet the requirements of these sections by continuing its comprehensive stormwater management construction and

preventative maintenance inspection programs, which inspect outlets to all stormwater best management practices."

- **Response:** The comment is noted.

Topic: Editorial

- **Comment:** Frederick County requested corrections as follows: "Page 18, add a space between paragraph b and c.; Page 20, Part VI, Special Programmatic Conditions: There seems to be extra space in the first language of the text causing it to appear as separate paragraphs.; Page 24, Paragraph 2, Duty to Provide Information, there are extra spaces in the sentence."
- **Response:** The Final Permit has been updated.

Topic: Funding

- **Comment:** Carroll County stated "The County spends a significant amount of time documenting that the MS4 program is adequately funded, including the annual Watershed Protection and Restoration Program (WPRP), the biennial Financial Assurance Plan (FAP), the recently required MEP analysis, and the annual geodatabase. The County respectfully requests that MDE consider the duplicative nature of this reporting and consolidate to a single reporting mechanism."
- **Comment:** Harford County stated "Harford County requests streamlining funding reporting and minimizing the categories of information provided."
- **Response:** The WPRP and FAP are reporting requirements per State law. However, where the reporting is unnecessarily duplicative, the Department can work with each jurisdiction during annual reporting to increase efficiencies where possible.

Topic: Geodatabase

- **Comment:** Carroll County stated "The Carroll County permit states that data shall be submitted as per Version 1.2, May 2017 geodatabase. However, MDE is actively working on database modifications due to issues with the 2017 geodatabase design and changing database best practices. The permit language should be revised to indicate delivery per the most current adopted version of the geodatabase design. Carroll County recommends revising the requirement to state ' ... and User's Guide (Version 1.2, May 2017) or most recent version thereof published by MDE, (hereafter MS4 Geodatabase) ...'"
- **Comment:** Harford County stated "Harford County requests that the reference be updated to the User Guide issued in November 2021 and remain fixed for the permit term. This updated geodatabase structure includes significant changes to documenting BMPs with the removal of the Point of Interest. Updating the existing data will already require a significant amount of time and cost."

- **Response:** Because the way that data are submitted does not affect permit conditions and constitute administrative procedures, the suggested language is not necessary. However, the Department continues to actively work with permittees to ensure that the Geodatabase functions as needed and that any future updates meet the community's needs.

Topic: Illicit Discharge Detection and Elimination

- **Comment:** Howard County stated "The County will submit a plan for field screening prioritized outfalls in the first year's annual report; however, the specific 100 prioritized outfalls selected for screening each year will be submitted annually.
- **Response:** The comment is noted.

Topic: Litter and Debris

- **Comment:** Carroll County stated "Carroll County does not have a trash TMDL and thus, historically, has not been required to quantify the amount of litter and debris collected. The current requirement to collect 11 tons of litter and debris will be a significant increase in level of effort for the County in not only material removal, but also in administrative documentation. The County appreciates that MDE will allow for revisiting the applicability of this number annually.
- **Response:** The previous permit also required the permittees to collect litter and debris. In their comments concerning the draft permits, EPA requested that the permits include numeric values related to these requirements. The Department has allowed each jurisdiction to recommend the initial values and has revised each permit to reflect these recommendations.

- **Comment:** Harford County stated "Harford County requests that the second sentence in this section be stricken in its entirety. It appears to have been incorrectly added to the County's permit as there are no litter or debris removal BMPs identified in Part IV.E.8. Since the County does not claim restoration credit for these activities is inappropriate to require the County to collect a specific quantity of litter and debris on an annual basis. The amount of litter and debris collected will fluctuate based on how much littering is occurring or debris is accumulating. Harford County implements a Litter Control Program and an Adopt-a-Road Program. The County annually quantifies the amount of litter collected and road miles cleaned. For fiscal year 2021 these programs combined removed 337 tons of litter from 706 miles of roadway, far less than the 1,676 tons of litter listed in the draft permit. Since there are only 1085 miles of County roads, the County's efforts already cover nearly three-quarters of its roads, so it is not reasonably feasible to collect the permit goal."
- **Response:** Harford County has annually reported on street sweeping and inlet cleaning efforts under PART IV.D.5.b of the previous permit, the average of which was used to set

this permit requirement. The material collected by street sweeping may include more than just litter and debris; therefore, the Department has revised the requirement to 300 tons, which reflects the tons of trash collected through the Litter Control and Adopt-a-Road Programs averaged over 2015 - 2019. This amount is consistent with the level of effort included in other medium Phase I jurisdictions. The County can propose a new amount each year of the permit.

Topic: Management Programs

- **Comment:** Frederick County stated "Frederick County suggests changing the language from 'shall be implemented jurisdiction-wide by Frederick County' to 'shall be implemented in areas served by Frederick County's MS4'."
- **Response:** The Final Permits "cover all stormwater discharges into, through, or from the municipal separate storm sewer system (MS4) owned or operated jurisdiction-wide…" This applies to the management programs listed under Part IV.D as well.

Topic: Maximum Extent Practicable

- **Comment:** Carroll County stated "Carroll County appreciates the cooperative discussion with MDE regarding the MEP analysis performed to determine restoration efforts for this permit. The MEP analysis provides sufficiently aggressive efforts to meet TMDL water quality requirements without exceeding the County's resource capacity."
- **Response:** The comment is noted.

- **Comment:** Harford County stated "Harford County appreciates MDE's efforts in pursuing an MEP analysis, although they set two percent per year in the Phase 3 WIP well before the MEP exercise with the jurisdictions. This draft permit will continue to be a major undertaking, with a short period of time, considering some stream restoration projects take full permit terms to design and construct. And most importantly, as more projects are completed, more dollars are needed to pay interest on bonds, more dollars are needed to pay for maintenance, and more staff are needed to manage this continuously growing program."
- **Response:** The comment is noted.

Topic: Monitored Watersheds

- **Comment:** Howard County stated "Because the Dorsey Hall monitoring was submitted as a voluntary item, the County does not believe it is appropriate to include it as a mandatory permit condition. The County requests that "and Dorsey Hall watersheds" be removed from the permit language."

- **Response:** This requirement has been removed from the Howard County Final Permit because it is a voluntary monitoring project beyond the permit requirements.

Topic: Monitoring Plans

- **Comment:** Howard County stated "The three elements included in this permit condition are separate items: countywide biological monitoring, bacteria sampling in a TMDL watershed which will be linked with the bacteria TMDL implementation plan, and chloride monitoring related to salt management. As such, the County reserves the right to develop three separate plans as needed. Please include this option in the permit language as 'In lieu of developing one plan covering these disparate monitoring components, the County can submit three individual monitoring plans; one plan covering stream biology and habitat, one plan covering bacteria, and one plan covering chloride.'"
- **Response:** There is nothing in the Final Permit or 2021 Accounting Guidance that prohibits the County from developing three separate plans; therefore, no change to the permit language is needed.

Topic: Outreach

- **Comment:** Carroll County stated "The number of public outreach efforts is set as 25 per year. While administratively tracking these efforts is an additional level of effort, we believe that this number of outreach efforts is reasonable."
- **Response:** The comment is noted.

- **Comment:** Frederick County stated "'The County shall conduct…electronic materials such as website pages;…' Frederick County is requesting the addition of the words 'and social media' to capture our extensive successful outreach efforts on that platform."
- **Response:** The requirement includes the option to use "…electronic materials such as website pages…" As written, this includes the use of social media.

Topic: Property Management and Maintenance

- **Comment:** Charles County stated "Part IV.D.4.b requires the development of a good housekeeping plan for the County-owned properties and includes school properties as an example. The Charles County Government does not own or have authority over school properties, which fall under the State Department of Education. Allowing this language in the permit gives the wrong impression to the public that good housekeeping plans will be provided for schools and is not consistent with other Maryland Medium Phase I Tentative Determination permits, which do not list school properties. Please remove "school properties" from the Charles County Tentative Determination permit."

- **Response:** School properties are one of the examples of "properties of similar use" listed in the permit where a single Good Housekeeping Plan may be developed. A GHP is only required if the key activities in PART IV.D.4.a are performed there, and if the County does not own this type of property, then it is not applicable to the requirement.

- **Comment:** Frederick County stated "The Appendix B attached to the Draft Permit is missing street sweeping BMP Type and Frederick County did not request Restoration Credit for inlet cleaning. Please delete this language from the Draft Permit."
- **Response:** The Department understands that a Permittee may not wish to claim credit for these activities in the first year of its Final Permit. The values listed in Appendix B reflect those decisions.

- **Comment:** Howard County stated "Regarding training and outreach, in lieu of creating a local 'Salt Academy,' the County intends to have its personnel and contractors participate in a 'Salt Academy' administered by another MS4 or State agency… The County will track litter and debris removal and report on the tons of litter removed annually based on its street sweeping program, its inlet cleaning program, and other litter and debris removal programs."
- **Response:** The comment is noted.

Topic: Public Notification of TMDL Plans

- **Comment:** Carroll County stated "Carroll County continually strives to educate our citizens and stakeholders regarding efforts to improve water quality through implementation plans. As updates to approaches in the TMDL stormwater implementation plans are evaluated, public outreach will continue. However, it is not our policy to have formal 30-day comment periods for programmatic changes to implementation of individual BMP restoration projects. Carroll County asserts that this permit language does not apply to these minor programmatic changes. If MDE has an alternative understanding, this must be clarified prior to permit issuance."
- **Comment:** Frederick County stated "Request to add the word "new" when explain when the County would need to provide comment period. This action is not required for updates of existing TMDL. Requested language change: "Allow a minimum 30-Day comment period before finalizing new TMDL stormwater implementation plans; and"
- **Response:** The approved TMDL plans incorporated into the Final Permit have already satisfied public notification requirements. Permittees are not required to provide additional public notice when making minor programmatic changes to the implementation of individual BMPs to meet these plans.

Topic: Sampling

- **Comment:** Howard County stated "Baseflow sampling requires a minimum of 72-hours of dry time prior to sample collection. The County will collect baseflow samples as close to the mid-point of each season while being flexible in the prescribed dates to allow for moving sampling to meet the 72-hour dry time requirement. The County suggests replacing this language with 'Baseflow sampling shall occur quarterly as near as the mid-point of each season (e.g. February for the first quarter, May for the second quarter, August for the third quarter, and November for the fourth quarter) as is practicable to allow for 72 hours of preceding dry time following baseflow sampling best practices.'"
- **Response:** The proposed language edit was made in the Final Permits.

Topic: TMDLs

- **Comment:** Charles County stated "Part IV.F.1 and 2 require addressing any outstanding comments from previously submitted stormwater TMDL implementation plans within one year, and development of stormwater TMDL implementation plans within one year of approved TMDL stormwater WLAs. However, the one-year timeframe does not account for the alternative possibility of needing to meet MDE's new biological delisting criteria, which typically takes longer than a year. Please revise the language to account for this alternative possibility."
- **Response:** No change to the permit language is needed. This requirement applies to issues that are outstanding from the previous permit or to newly developed TMDLs. The delisting process applies to a previously approved TMDL and is not subject to this requirement.

- **Comment:** Charles County stated "Part IV.F. requires documenting TMDL progress for individual Chesapeake Bay segments instead of a countywide whole as has been the practice to date. It's our understanding that MDE's TMDL Program is satisfied with using the current countywide scale and that there is not a need to switch to multiple individual segments. Additionally, the State's Chesapeake Bay Phase III Watershed Implementation Plan incorporates the County's impervious restoration to achieve the Chesapeake Bay TMDLs, and therefore fulfills the requirement and does not need to be duplicated at the local level."
- **Response:** The County's understanding is correct. No change to the permit language is needed.

- **Comment:** Harford County stated "Final TMDL Implementation Dates (Part IV.F.2.c) - Harford County requests updating this section to include "estimated final implementation dates". These dates will occur outside of this permit term and will rely on future funding availability."

- **Response:** The language was not changed in the Final Permits. If the County requests the Department to consider an updated final implementation date, the Department will work with the County as part of an adaptive management approach.

Topic: Trading

- **Comment:** Frederick County stated "Language states, 'the maximum allowable credits obtained from trades with wastewater treatment plants cannot exceed 10% of the County's Portfolio (i.e., 934 acres) plus any additional acres added by the Department (i.e., 93 acres) for a total of 187 acres'. Given that the portfolio referenced includes projects slated for implementation in the final year of the permit and with the potential for delays in implementation rates due to factors outside of the County's control (i.e., Global Pandemics or other causes that would fall under a Force Majeure); Frederick County proposes additional language to be included in the Fact Sheet and Draft Permit stating something similar to '…cannot exceed the limit of 187 acres unless agreed upon by MDE and the County based on implementation status and projections as a result of unexpected circumstances…'. Given the additional acres added by MDE above Frederick County's MEP analysis based on Frederick County's access to trading, we believe this flexibility is justified."
- **Response:** The Department has kept the language in the Final Permits and Fact Sheets as written. The County may request a permit modification for the Department's consideration if additional flexibility is warranted.

Topic: Turbidity

- **Comment:** Carroll County stated "The continuous measurement parameters include 'turbidity' as a parameter. In several discussions with the MDE Deputy Manager, Watershed Protection, Restoration, and Planning Program, MDE has conveyed to the County that the inclusion of turbidity in the permit is in error. The County requests that, if its inclusion was in error, it be removed from the final approved permit. In addition, current guidance from MDE in the 2021 MS4 Monitoring Guidelines: BMP Effectiveness and Watershed Assessments, October 2021, states 'Turbidity monitoring is optional...' This conflict with the permit stating 'Continuous measurements shall be recorded for parameters listed...' must be clarified prior to permit issuance. Either a clarifier in the permit stating that measurement of turbidity is optional, or removing the requirement entirely are both acceptable. The County has not budgeted the capital costs or allocated the resources to measure turbidity and will not be measuring this parameter."
- **Comment:** Charles County stated "Part IV.G.1.b requires continuous turbidity monitoring, which we understand is very expensive and requires substantial maintenance to keep the equipment functional, and even then, the data is considered potentially

flawed. Please remove the continuous turbidity monitoring requirement from this section of the Tentative Determination permit."

- **Comment:** Harford County stated "Harford County requests the removal of turbidity for the continuous measurement parameters. This parameter is extremely difficult and expensive to monitor."
- **Comment:** Howard County stated "Per communication with MDE, the County was informed that this would be removed from the final permit, please confirm. In addition, we understand based on the 2021 MS4 Monitoring Guidelines document (page 6, last paragraph), continuous turbidity measurements are optional and not a required parameter under the permit. The County requests that turbidity is removed as a required continuous measurement parameter in the permit."
- **Response:** The language was updated in the Final Permits to include "Turbidity (Optional per 2021 MS4 Monitoring Guidelines)".

Appendix B. References

Burch, J et al. 2019. Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed, Chesapeake Bay Program. Approved by Urban Stormwater Work Group June 18, 2019. Available at chesapeakestormwater.net/wp-content/uploads/2022/07/9621-1.pdf.

Chesapeake Bay Program Expert Panel Reports. Information available at chesapeakestormwater.net/bmp-resources/.

Chesapeake Conservation Landscaping Council. 2013. Landscaping Guidelines: The Eight Essential Elements of Conservation Landscaping. Available at chesapeakelandscape.org/wp-content/uploads/2014/04/8_elements_2013.pdf.

Code of Federal Regulations (CFR), Title 40 – Protection of Environment, Chapter 1 – U.S. Environmental Protection Agency, Part 122.26 Stormwater Discharges.

Code of Maryland Regulations (COMAR), Title 26 Department of the Environment, Subtitle 08, Water Pollution, Chapter 11, Maryland Water Quality Trading Program.

Code of Maryland Regulations (COMAR), Title 26 Department of the Environment, Subtitle 17, Water Management Administration, Chapter 02, Stormwater Management.

Devereux, O. 2019. Memorandum: Calculating the Stream Bed and Bank Load. Provided to Maryland Department of the Environment by O. Devereux, KCI Technologies Inc. on behalf of the Chesapeake Bay Program, on July 30, 2019.

Drescher, S. and Stack, B. 2019. Recommendations of the Expert Panel to Define Removal Rates for Shoreline Management Projects. Center for Watershed Protection, Inc. Approved by the Water Quality Goal Implementation Team (WQGIT) July 13, 2015, amended by the Watershed Technical Workgroup (WTWG) and WQGIT June 2017, further amended November 2019. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2018/05/SHORT_Final_Shoreline-Management-Protocol_11-24-19_FINAL.pdf.

Hanlon, J. and Keehner, D. 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”. U.S. EPA November 2010.

Hanson, J., Wood, D., and Schueler, T. 2019. Recommendations for Crediting Outfall and Gully Stabilization Projects in the Chesapeake Bay Watershed. Center for Watershed Protection and

Virginia Tech. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2019/10/FINAL-APPROVED-OUTFALL-RESTORATION-MEMO-101519.pdf.

Jepsen, R. and Caraco, D. 2020. Pilot Analysis of Maryland Phase I MS4 Permit Water Quality Data. ICPRB Report 20-2. Interstate Commission on the Potomac River Basin, Rockville, MD. Available at potomacriver.org/wp-content/uploads/2020/10/Pilot-Analysis-of-Maryland-Phase-I-MS4-Permit-Water-Quality-Data.pdf.

Johnstone, C. 2018. "Seeing Green in Infrastructure", U.S. EPA Chesapeake Bay Program January 2018. Available at www.chesapeakebay.net/news/blog/seeing_green_in_infrastructure.

Law, N.L. 2014. Recommendations of the Expert Panel to Define Removal Rates for Urban Filter Strips and Stream Buffer Upgrade Practices. Center for Watershed Protection, Inc. Approved by WQGIT June 9, 2014. Available at chesapeakebay.net/channel_files/21214/recommendations_ufs_sbu_expert_panel_wqgit_06042014_2.pdf.

Law, N. and Hanson, J. 2016. Recommendations of the Expert Panel to Define BMP Effectiveness for Urban Tree Canopy Expansion. Center for Watershed Protection and Virginia Tech. Approved by WQGIT September 12, 2016. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2016/11/Urban-Tree-Canopy-EP-Report_WQGIT-approved_final.pdf.

Maryland Department of the Environment. 2000 and 2008. 2000 Maryland Stormwater Design Manual, Volume I and II (including Supplement 1).

Maryland Department of the Environment. 2020. Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits. June 2020 Draft.

Maryland Department of the Environment. 2020. Maryland Department of the Environment Environmental Justice Policy and Implementation Plan. Available at mde.maryland.gov/Documents/MDE_EJ_Env%20Justice%20Policy_Final_Dec2020.pdf.

Maryland Department of the Environment. 2021. NPDES Permit to Anne Arundel County, Discharge Permit No. 20-DP-3316 (MD0068306) and Fact Sheet, reissued on November 5, 2021. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2021. NPDES Permit to Baltimore City, Discharge Permit No. 20-DP-3315 (MD0068292) and Fact Sheet, reissued on November 5, 2021. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2021. NPDES Permit to Baltimore County, Discharge Permit No. 20-DP-3317 (MD0068314) and Fact Sheet, reissued on November 5, 2021. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2021. NPDES Permit to Montgomery County, Discharge Permit No. 20-DP-3320 (MD0068349) and Fact Sheet, reissued on November 5, 2021. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2021. Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated, Guidance for National Pollutant Discharge Elimination System Stormwater Permits. Available at mde.maryland.gov/programs/water/StormwaterManagementProgram/Documents/Final%20Determination%20Dox%20N5%202021/MS4%20Accounting%20Guidance%20FINAL%2011%2005%202021.pdf.

Maryland Department of the Environment. 2021. Advancing Stormwater Resiliency in Maryland. Available at mde.maryland.gov/Documents/A-StorRMreport.pdf.

Maryland Department of the Environment. 2021. 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. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2022. Basis for Final Determination to Issue National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Permit for Prince George's County. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment. 2022. NPDES Permit to Prince George's County, Discharge Permit No. 20-DP-3314 (MD0068284) and Fact Sheet, reissued on December 2, 2022. Available at mde.maryland.gov/programs/Water/StormwaterManagementProgram/Pages/storm_gen_permit.aspx.

Maryland Department of the Environment et al. v. Anacostia Riverkeeper et al., No. 42, September Term, 2015, Blue Water Baltimore et al. v. Maryland Department of the Environment, No. 43, September Term, 2015, Blue Water Baltimore et al. v. Maryland Department of the Environment et al., No. 44, September Term, 2015, Opinion by Adkins, J.

Maryland Department of Legislative Services. 2021. Report of the Senate President's Advisory Workgroup on Equity and Inclusion. Available at mgaleg.maryland.gov/Pubs/LegisLegal/SenatePresidentAdvisoryWorkgrouponEquityandInclusion.pdf.

National Research Council. 2009. Urban Stormwater Management in the United States. Washington, DC: The National Academies Press. Available at nap.edu/catalog/12465/urban-stormwater-management-in-the-united-states.

National Research Council. 2011. Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay, An Evaluation of Program Strategies and Implementation. Washington, DC: The National Academies Press. Available at nap.edu/catalog/13131/achieving-nutrient-and-sediment-reduction-goals-in-the-chesapeake-bay.

Russ, A. et al. 2020. Stormwater Backup in the Chesapeake Region. Environmental Integrity Project August 2020. Available at environmentalintegrity.org/wp-content/uploads/2020/08/EIP-Bay-Stormwater-and-Climate-Change-Report-8.17.2020.pdf.

Sawyers, A. and Best-Wong, B. 2014. 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". U.S. EPA November 2014.

Schueler, T. et al. 2016. Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices. Chesapeake Stormwater Network, Chesapeake Research Consortium, and Virginia Tech. Approved by the Chesapeake Bay Program Management Board May 19, 2016. Available at chesapeakestormwater.net/wp-content/uploads/2022/07/FINAL-APPROVED-Street-and-Storm-Drain-Cleaning-Expert-Panel-Report-Complete2.pdf.

Schueler, T. and Lane, C. 2012a. Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards. Chesapeake Stormwater Network. Approved by WQGIT October 9, 2012 and revised January 20, 2015. Available at chesapeakebay.net/documents/Final-CBP-Approved-Expert-Panel-Report-on-Stormwater-Performance-Standards-LONG_012015.pdf.

Schueler, T. and Lane, C. 2012b. Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects. Chesapeake Stormwater Network. Approved by WQGIT October 9, 2012. chesapeakebay.net/documents/Final_CBP_Approved_Expert_Panel_Report_on_Stormwater_Retrofits--_short.pdf.

Schueler, T. and Lane, C. 2013. Recommendations of the Expert Panel to Define Removal Rates for Urban Nutrient Management. Chesapeake Bay Network. Approved by WQGIT March 11, 2013. Available at chesapeakestormwater.net/wp-content/uploads/downloads/2014/03/CBP-APPROVED-FINAL-UNM-EXPERT-PANEL-REPORT-032514.pdf.

Schueler, T., Lane, C., and Stack, B. 2014. Recommendations of the Expert Panel to Define Removal Rates for the Elimination of Discovered Nutrient Discharges from Grey Infrastructure. Chesapeake Stormwater Network and Center for Watershed Protection. Approved by WQGIT November 10, 2014. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2014/11/GREY-INFRASTRUCTURE-Expert-Panel-Report_FINAL_LONG.pdf.

Schueler, T. and Wood, D. 2018. Nutrient Reduction Credit for Conservation Landscaping. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2018/08/FINAL-Credit-for-Conservation-Landscaping-081018.pdf.

Urban Stormwater Work Group Information available at chesapeakestormwater.net/bay-stormwater/urban-stormwater-workgroup.

U.S. Code, Title 33 – Navigation and Navigable Waters, Chapter 26 – Water Pollution Prevention and Control, Subchapter IV – Permits and Licenses §1342 – National Pollutant Discharge Elimination System.

U.S. EPA. 1997. Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development, Publication Number: 832-B-97-004. Available at www3.epa.gov/npdes/pubs/csofc.pdf.

U.S. EPA. 2006. Small Drinking Water Systems Variances – Revision of Existing National Level Affordability Methodology and Methodology to Identify Variance Technologies that are

Protective of Public Health. EPA-HQ-OW-2005-0005; FRL-8035-7. Federal Register 71(41). March 2. Washington, DC. Available at federalregister.gov/documents/2006/03/02/06-1917/small-drinking-water-systems-variances-revision-of-existing-national-level-affordability-methodology.

U.S. EPA. NPDES Permit No. DC000022 and Fact Sheet, reissued on June 22, 2018. Information available at epa.gov/npdes-permits/dc-municipal-separate-storm-sewer-system-ms4.

U.S. EPA. NPDES Compliance Inspection Manual, Publication Number: 305-K-17-001. Interim Revised Version, January 2017. Available at epa.gov/compliance/compliance-inspection-manual-national-pollutant-discharge-elimination-system.

Wood, D. 2020. Consensus Recommendations for Improving the Application of the Prevented Sediment Protocol for Urban Stream Restoration Projects Built for Pollutant Removal Credit. Chesapeake Stormwater Network. Revised February 27, 2020. Available at chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2020/03/PROTOCOL-1-MEMO_WQGIT-Approved_revised-2.27.20_clean_w-appendices.pdf.

Wood, D., 2020. Review of Current Stormwater Engineering Standards and Criteria for Rainfall and Runoff Modeling in the Chesapeake Bay Watershed. Chesapeake Stormwater Network. Available at chesapeakestormwater.net/wp-content/uploads/2022/07/10023-3.pdf.

Wood, D. and Schueler, T. 2020. Consensus Recommendations to Improve Protocols 2 and 3 for Defining Stream Restoration Pollutant Removal Credits. Chesapeake Stormwater Network. Approved by WQGIT October 26, 2020. Available at chesapeakebay.net/documents/FINAL_Approved_Group_4_Memo_10.27.20.pdf.

Appendix C. 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
Department - Maryland Department of the Environment
Design Manual - 2000 Maryland Stormwater Design Manual, Vol. I & II
EFC - Environmental Finance Center
EJ - environmental justice
ESC - erosion and sediment control
ESD - environmental site design
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
NPDES - National Pollutant Discharge Elimination System
NRC - National Research Council
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 D. List of Comments Received During Public Notice

Commenter	Description
Chesapeake Accountability Project (CAP) and Gunpowder Riverkeeper– Harford County Permit	Letter (44 pages) Appendices (295 pages) Attachment (1,235 pages)
Ms. Sharon Boies: Carroll County Charles County Frederick County Harford County Howard County	 Email (6 pages) Email (6 pages) Email (6 pages) Email (6 pages) & Email (2 pages) Letter (8 pages) w/attachments (13 pages)
Maryland Sierra Club: Carroll County Charles County Frederick County Harford County	 Letter (4 pages) Letter (4 pages) Letter (4 pages) Email (5 pages)
Maryland Native Plant Society Carroll County Frederick County Harford County Howard County	Letter (2 pages) Letter (2 pages) Letter (2 pages) Letter (2 pages) Letter (2 pages)
Mr. Kenneth Bawer Carroll County Charles County Frederick County Harford County Howard County	 Letter (3 pages) Letter (3 pages) Letter (3 pages) Letter (3 pages) Letter (3 pages)
Carroll County Dept. of Land and Resource Management	Letter (4 pages)
Carroll County Water Resource Coordination Council – Carroll County	Letter (4 pages)
Charles County Planning & Growth Management	Email (1 page) Letter (2 pages)
Frederick County Office of Sustainability and Environmental Resources	Letter (3 pages)

Commenter	Description
Harford County Department of Public Works	Letter (1 page) Attachment (1 page)
Howard County Department of Public Works	Letter (6 pages)