Chesapeake Bay
Fiscal 2020 Budget Overview

Department of Legislative Services
Office of Policy Analysis
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Executive Summary

Past efforts to restore the Chesapeake Bay watershed, which includes parts of Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia, have resulted in insufficient progress and continued poor water quality. However, a regional restoration initiative, required by the federal government and characterized by accountability measures and shorter term program evaluation, is underway.

In December 2010, the U.S. Environmental Protection Agency established a Chesapeake Bay Total Maximum Daily Load (TMDL), as required under the federal Clean Water Act and in response to consent decrees in the District of Columbia and Virginia. This TMDL sets the maximum amount of nutrient and sediment pollution that the bay can receive and still attain water quality standards. It also identifies specific pollution reduction requirements; all reduction measures must be in place by calendar 2025, with measures in place to achieve at least 60% of pollution reductions by calendar 2017.

Key Observations

- ***2017 Midpoint Assessment:*** The 2017 midpoint assessment found that the bay jurisdictions exceeded the 2017 pollution reduction goals for phosphorus and sediment but did not achieve the reduction goal for nitrogen. In order to achieve the necessary nitrogen reductions by calendar 2025, the bay jurisdictions must reduce an additional 48.4 million pounds of nitrogen, resulting in the need to reduce more than twice as much nitrogen in the next eight years in comparison to the nitrogen reductions achieved during the previous eight years.

- ***Maryland's Progress:*** The State achieved its 2017 pollution reduction goals for phosphorus and sediment but did not achieve the pollution reduction goal for nitrogen; the State achieved its 2017 reduction goals for all pollutants in all major basins except for nitrogen in the Eastern Shore and the Western Shore and for phosphorus in the Western Shore. In order to meet the statewide pollution reduction goal for nitrogen, the State must further reduce nitrogen loading to the bay by an additional 8.4 million pounds.

- ***Chesapeake Bay in "Moderate Ecosystem Health":*** The health of the bay, as measured by the University of Maryland Center for Environmental Science's Chesapeake Bay Report Card, has generally remained the same since 2003. The overall health of the bay remained unchanged in 2017, receiving an overall score of C, indicating that the bay is in moderate ecosystem health.

- ***Overall Chesapeake Bay Restoration Funding:*** Major changes in Chesapeake Bay restoration funding (between fiscal 2019 and 2020) include a decrease of $179.0 million for the Water Quality Revolving Loan Fund, primarily because of a $150.0 reduction in revenue bond authorization. This reduction is offset partially by funding increases of $24.2 million for State Highway Administration TMDL activities and $22.6 million for the Maryland Transit Administration's Purple Line transit project.

- ***Historical and Projected Chesapeake Bay Restoration Spending Report Submitted Late:*** Section 36 in the Fiscal 2019 Budget Bill requested the submission of a report on historical and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all best management practices (BMP) in place to meet water quality standards for restoring the Chesapeake Bay. The report was requested to be submitted by December 1, 2018, but was received January 21, 2019.

- ***Capacity to Handle Phosphorus Management Tool Remains Unclear:*** At its November 20, 2018 meeting, the Phosphorus Management Tool Advisory Committee voted to conduct an evaluation of manure handling capacity as required in regulations. The Delmarva Land and Litter Challenge pursued a similar goal when it failed to complete a mass balance methodology for looking at the surplus/deficit status at the county level for nitrogen and phosphorus from inorganic fertilizer, poultry manure, and biosolids.

- ***Conowingo Dam Relicensing and Request for Proposals (RFP):*** The Maryland Department of the Environment (MDE) issued the water quality certification for the Conowingo Dam with special conditions on April 27, 2018, which requires Exelon to annually reduce 6.0 million pounds of nitrogen and 260,000 pounds of phosphorus. The reductions can be accomplished by Exelon in one of three ways: installing BMPs and/or ecosystem restoration actions; paying MDE $17 per pound of nitrogen and $270 per pound of phosphorus, which would total $172 million per year; or dredging the reservoir behind the Conowingo Dam. Exelon is appealing the decision. In the meantime, the Maryland Environmental Service has issued another RFP related to the Conowingo Dam's sediment: a 25,000-cubic-yard sediment beneficial reuse and sediment characterization study.

- ***Stormwater Challenges:*** The three jurisdictions proposing to use nutrient trading to meet their stormwater permits – Anne Arundel, Baltimore, and Prince George's counties – all indicate that the capital and operational funds are available to meet the 20% impervious surface restoration requirement but that the physical capacity for implementing structural BMPs within the permit timeframe is a limiting factor. The physical capacity limitations include the following: hiring and training additional staff and new equipment procurement; obtaining contracts from and competition for consulting, engineering, and construction firms; lengthy individual project permit reviews and approvals; and delayed Chesapeake Bay Program approval of innovative BMPs for restoration. A scalable statewide solution may be what is required for meeting stormwater management remediation challenges.

- ***Encouraging Agricultural BMP Implementation:*** BMP maintenance and agricultural land leasing are two challenges to reducing agricultural nutrient and sediment loading. A stewardship proposal modeled after recent septic system legislation would incentivize the timely review and maintenance of BMPs by local governments. A budgeted tax credit could be considered as an incentive for landowners leasing their land to farmers to implement soil conservation and water quality plans and potentially sign up for the baseline level of BMPs needed for nutrient trading using the Nutrient Trading Tool.

Operating Budget Recommended Actions

1. Add language on historical and projected Chesapeake Bay restoration spending.

2. Add language on Chesapeake Bay spending for programs with over 50% of their activities directly related to Chesapeake Bay restoration.

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Overview

Past efforts to restore the Chesapeake Bay watershed, which includes parts of Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia, have resulted in insufficient progress and continued poor water quality. However, a regional restoration initiative, required by the federal government and characterized by accountability measures and shorter term program evaluation, is underway. The current bay restoration policy framework is described below.

The Overarching Goal: Chesapeake Bay Total Maximum Daily Load

In December 2010, the U.S. Environmental Protection Agency (EPA) established a Chesapeake Bay Total Maximum Daily Load (TMDL), as required under the federal Clean Water Act (CWA) and in response to consent decrees in the District of Columbia and Virginia. This TMDL sets the maximum amount of nutrient and sediment pollution that the bay can receive and still attain water quality standards. It also identifies specific pollution reduction requirements; all reduction measures must be in place by calendar 2025, with measures in place to achieve at least 60% of pollution reductions by calendar 2017.

To ensure nutrient and sediment reductions are met, EPA developed an accountability framework that includes watershed implementation plans (WIP); two-year milestones, federal review to track and assess progress; and, as necessary, specific federal actions if bay jurisdictions do not meet their commitments.

Achieving the Goal: An Accountability Framework for Jurisdictions in the Bay Watershed

WIPs

As part of the Chesapeake Bay TMDL, bay jurisdictions must develop WIPs that identify the measures installed to reduce pollution and restore the bay. WIPs are submitted to EPA for review and evaluation and (1) identify pollution load reductions to be achieved by various source sectors and in different geographic areas and (2) help to provide reasonable assurance that sources of pollution will be cleaned up, which is a basic requirement of all TMDLs. In calendar 2010, each bay jurisdiction submitted a Phase I WIP that details how the jurisdiction plans to achieve its pollution reduction goals under the TMDL. In calendar 2012, the bay jurisdictions submitted Phase II WIPs that establish more detailed strategies to achieve the bay TMDL on a geographically smaller scale. A Phase III WIP, which must be submitted to EPA in draft form by April 2019 and in final form by August 2019, ensures that all measures are in place by calendar 2025 so that restoration goals can be met.

In June 2018, EPA released its expectations for Phase III WIPs, which includes several new expectations reflecting decisions made by the Principals' Staff Committee (the policy advisors to the Chesapeake Executive Council) in December 2017, including expectations regarding the development of local area planning goals and accounting for the impact of growth and climate change on loading targets; a separate WIP is planned for the Conowingo Dam. In July 2018, the Principals' Staff Committee approved the final Phase III planning targets for nitrogen and phosphorus to inform Phase III WIP development and implementation. The new targets were developed using the updated Phase 6 Chesapeake Bay suite of modeling tools that contains significantly more data and information than the previous version. Sediment reductions are not included in the new planning targets primarily because (1) conservation measures to reduce pollution from agricultural sources also decrease sediment pollution to the bay; and (2) dissolved oxygen levels in the bay are more dependent on nitrogen and phosphorus reductions. The final target pollution loads for the five major basins in Maryland are shown in **Exhibit 1**.

Exhibit 1
Final Target Pollution Loads for Maryland's Major Basins
(Million Pounds Per Year)

Major Basin	Nitrogen Pollution	Phosphorus Pollution
Susquehanna	1.18	0.05
Eastern Shore	15.21	1.29
Western Shore	10.89	0.95
Patuxent	3.21	0.30
Potomac	15.30	1.09
Total	**45.78**	**3.68**

Note: Columns may not sum due to rounding.

Source: Chesapeake Bay Program

Two-year Milestones

President Barack H. Obama issued an executive order in May 2009 that directed the federal government to lead a renewed effort to restore and protect the bay and its watershed. At the same time, the bay jurisdictions committed to achieving specific, short-term bay restoration milestones in order to assess progress toward achieving nitrogen, phosphorus, and sediment reduction goals. Generally, milestones are goals to be reached in two-year increments; they include implementation actions,

best management practices (BMP), and program enhancement actions. As a part of this effort, bay jurisdictions must submit pollution reduction progress and program action information to EPA. Although the bay jurisdictions developed the milestones prior to the establishment of the TMDL, the milestones have been incorporated into the TMDL process as a series of checkpoints for assessing progress toward achieving the pollution reduction goals in the TMDL.

Federal Review and Contingency Actions

EPA reviews each jurisdiction's progress toward its two-year milestones. If a jurisdiction's plans are inadequate or its progress is insufficient, EPA may take action to ensure pollution reductions, including increasing oversight of State-issued pollution permits, requiring additional pollution reductions, prohibiting new or expanded pollution discharges, redirecting federal grants, and revising water quality standards to better protect local and downstream waters.

President Donald J. Trump's federal fiscal 2019 budget request reduced funding for the Chesapeake Bay Program by 90% to $7.3 million, which is a significant reduction in funding available for bay water quality monitoring and coordination activities between the bay jurisdictions. On July 19, 2018, the U. S. House of Representatives passed an appropriations bill to fully fund the Chesapeake Bay Program and also adopted an amendment prohibiting EPA from using any funds to take enforcement actions against any bay jurisdictions in the event that a state does not meet the goals mandated by the TMDL. On August 1, 2018, the U.S. Senate adopted a spending package that fully funds the Chesapeake Bay Program without restriction. Although these two spending bills were never reconciled, on September 28, 2018, Congress passed the federal fiscal 2019 budget continuing resolution that maintained funding for the Chesapeake Bay Program at the federal fiscal 2018 level through December 7, 2018, which was extended until the government shutdown in December 2018 through January 2019.

Reaching the Goal: Progress to Date

The 2017 Midpoint Assessment

On July 27, 2018, EPA released its midpoint assessment of the progress made by the bay jurisdictions toward meeting the 2017 goal of having measures in place to achieve 60% of the necessary pollution reductions. This 2017 midpoint assessment found that the bay jurisdictions exceeded the 2017 pollution reduction goals for phosphorus and sediment but did not achieve the reduction goal for nitrogen. In order to achieve the necessary nitrogen reductions by calendar 2025, the bay jurisdictions must reduce an additional 48.4 million pounds of nitrogen, resulting in the need to reduce more than twice as much nitrogen in the next eight years in comparison to the nitrogen reductions achieved during the previous eight years.

Exhibits 2 and **3** reflect (1) the nitrogen and phosphorus predominant loading source for each land river segment – the smallest available geographic area for which data is available; (2) the total loading for each land river segment; and (3) the progress toward the TMDL by State basin – portions of the major watersheds within the Chesapeake Bay watershed. The progress toward the TMDL shown

in the maps is based on the Phase III WIP planning targets that were approved in July 2018. Some of the large scale patterns shown in the exhibits are as follows:

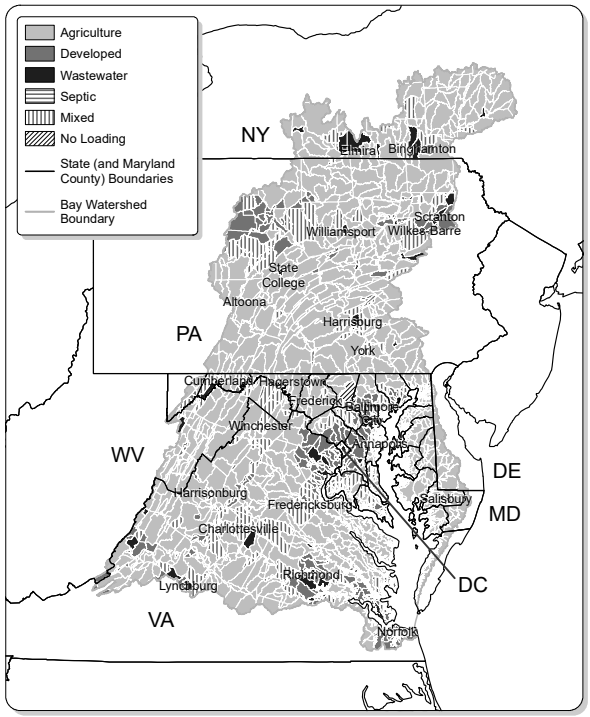
- ***Predominance:*** agriculture is the predominant loading source by land river segment in the Chesapeake Bay watershed with wastewater and stormwater concentrated in urban areas and septic systems in exurban areas;

- ***Loading:*** loading of nitrogen, and to a lesser extent phosphorus, is highest in the Lancaster region of Pennsylvania, the Eastern Shore of Maryland, and the Shenandoah River valley of Virginia; and

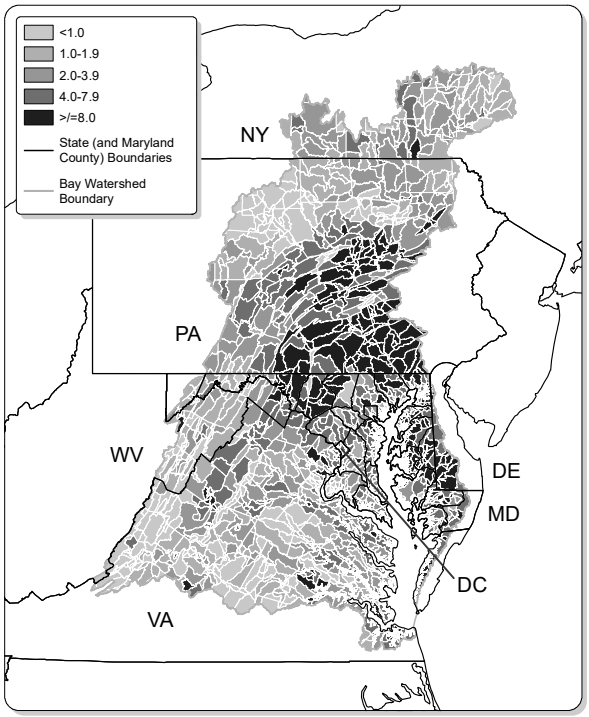
- ***Progress:*** more progress has been made in reducing phosphorus than in reducing nitrogen and, while there are basins in which reductions have been achieved or no reductions are required, Maryland's Eastern Shore has gotten worse in its nitrogen levels.

Exhibit 2
Bay Restoration Maps – Nitrogen Pollution (Loading)
Calendar 2009-2017

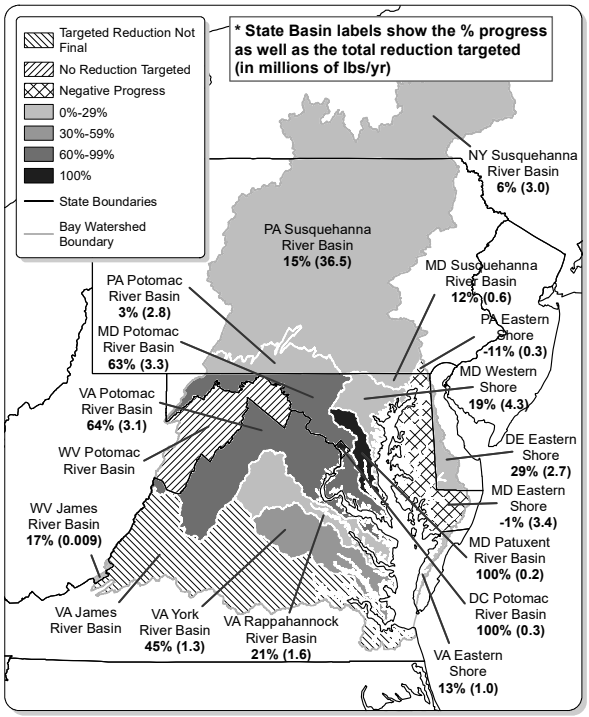
2017 Predominant Nitrogen Loading Sector in Each Land River Segment (Excluding Natural Loading Sources)



2017 Total Nitrogen Loading in Each Land River Segment (In lbs/acre, and Excluding Natural Loading Sources)



2009-2017 % Progress Toward 2025 TMDL Nitrogen Loading Reduction Goals in Each State Basin



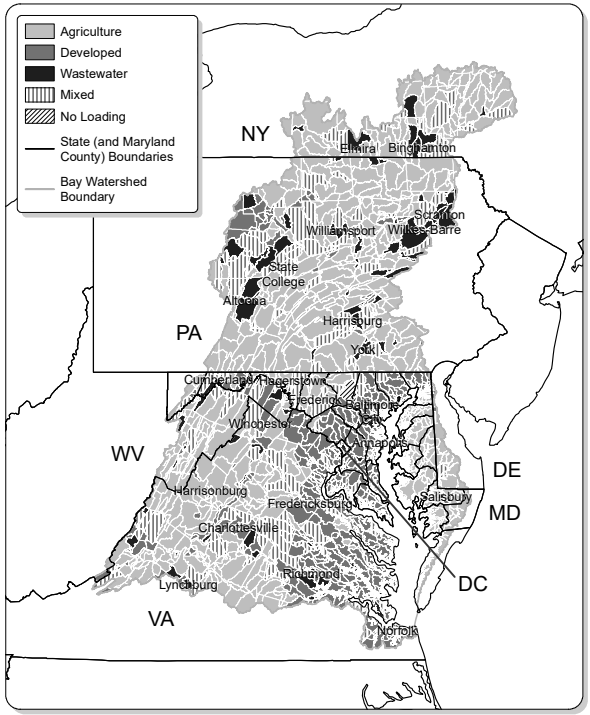
TMDL: Total Maximum Daily Load

Note: Land River Segment: Land river segments are the smallest geographic areas for which nitrogen, phosphorus, and sediment loading are estimated by the Chesapeake Bay Program's Phase VI Model. Natural Loading Sources: Natural loading sources include forest and other natural areas. State Basins: State basins consist of the individual states' portion of each of the major watersheds within the Chesapeake Bay watershed. Predominant Loading Sector: Responsible for at least 50% of the loading in the land river segment, and the next highest loading sector is not closer than 10 percentage points. ("Mixed" means no sector meets that definition.). The predominant loading sector shown for each land river segment does not necessarily indicate the predominant land use in that land river segment, especially because natural loading sources are excluded.

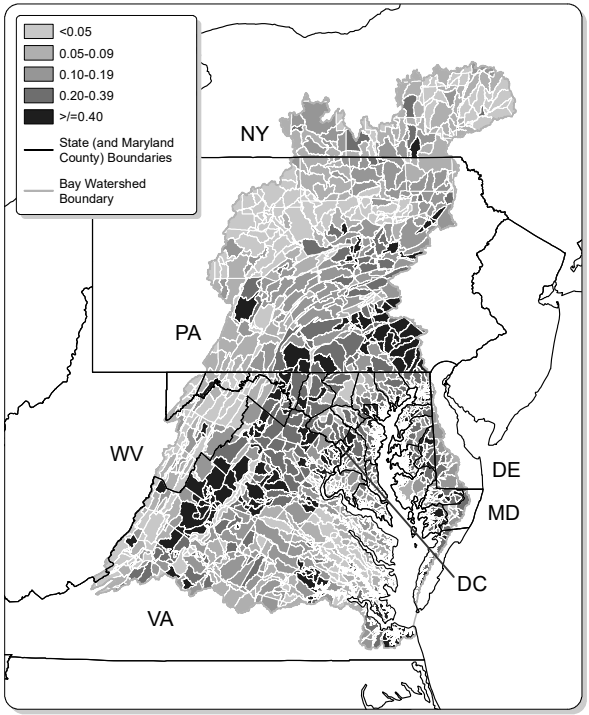
Source: Chesapeake Bay Program (loading and geographic data); U.S. Census Bureau (geographic data); Department of Legislative Services

Exhibit 3
Bay Restoration Maps – Phosphorus Pollution (Loading)
Calendar 2009-2017

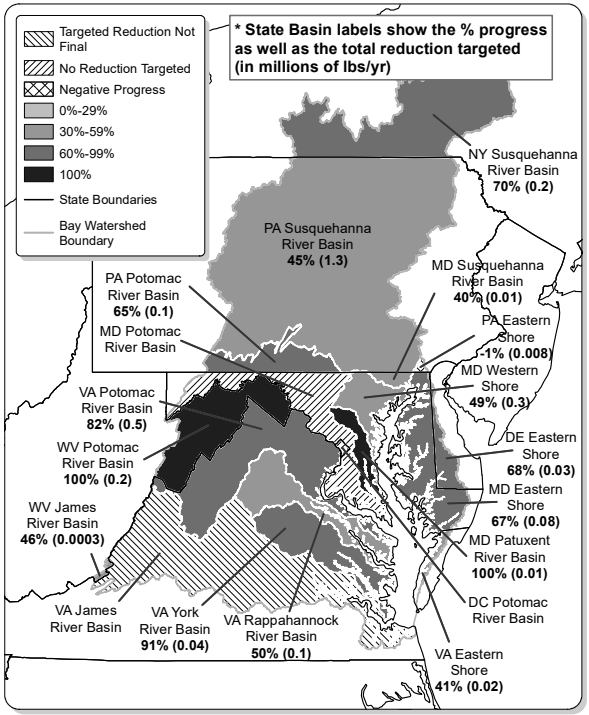
2017 Predominant Phosphorus Loading Sector in Each Land River Segment (Excluding Natural Loading Sources)



2017 Total Phosphorus Loading in Each Land River Segment (In lbs/acre, and Excluding Natural Loading Sources)



2009-2017 % Progress Toward 2025 TMDL Phosphorus Loading Reduction Goals in Each State Basin



TMDL: Total Maximum Daily Load

Note: Land River Segment: Land river segments are the smallest geographic areas for which nitrogen, phosphorus, and sediment loading are estimated by the Chesapeake Bay Program's Phase VI Model. Natural Loading Sources: Natural loading sources include forest and other natural areas. State Basins: State basins consist of the individual states' portion of each of the major watersheds within the Chesapeake Bay watershed. Predominant Loading Sector: Responsible for at least 50% of the loading in the land river segment, and the next highest loading sector is not closer than 10 percentage points. ("Mixed" means no sector meets that definition.) The predominant loading sector shown for each land river segment does not necessarily indicate the predominant land use in that land river segment, especially because natural loading sources are excluded.

Source: Chesapeake Bay Program (loading and geographic data); U.S. Census Bureau (geographic data); Department of Legislative Services

2018 Oversight Status

EPA primarily evaluates progress toward meeting the TMDL by reviewing a jurisdiction's combined pollution reductions among four pollution sectors – agriculture, urban/suburban, wastewater, and trading/offsets. EPA uses a ranking system, as shown in **Exhibit 4**, to identify sector-specific milestone achievements and shortfalls. EPA downgraded Maryland's urban/suburban stormwater sector to an enhanced level of EPA oversight due to the lack of progress on the following: tentative determinations for Phase II stormwater permits, approval of any Phase I stormwater restoration plans, and nutrient and sediment reductions.

Exhibit 4
2018 EPA Oversight Status for Bay Jurisdictions

Jurisdiction	Agriculture	Urban/Suburban	Wastewater	Trading/Offsets
Delaware	*Enhanced Oversight*	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*
District of Columbia	*Not Applicable*	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*
Maryland	***Ongoing Oversight***	***Enhanced Oversight***	***Ongoing Oversight***	***Ongoing Oversight***
New York	*Ongoing Oversight*	*Ongoing Oversight*	*Enhanced Oversight*	*Ongoing Oversight*
Pennsylvania	*Backstop Action Levels*	*Backstop Action Levels*	*Ongoing Oversight*	*Enhanced Oversight*
Virginia	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*
West Virginia	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*	*Ongoing Oversight*

EPA: Environmental Protection Agency

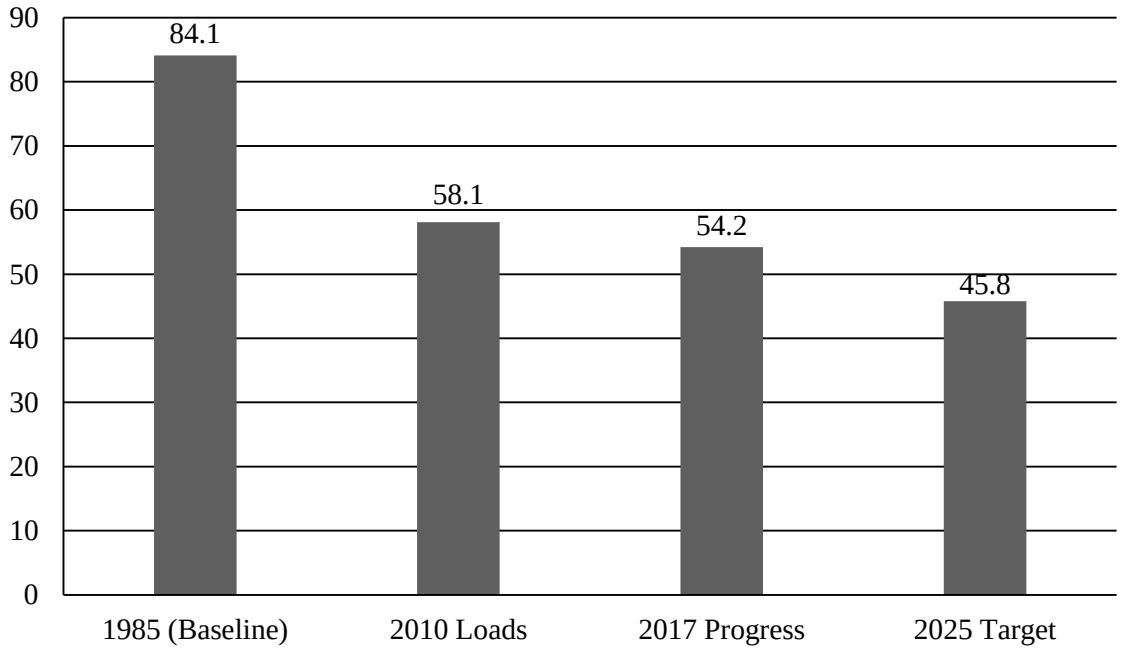
Note: "Ongoing Oversight" means that EPA will continue to monitor progress; "Enhanced Oversight" means that EPA may, after identifying specific concerns with a jurisdiction's implementation of strategies to meet Total Maximum Daily Load (TMDL) goals, take additional federal actions to ensure the jurisdiction stays on track; and "Backstop Actions Level" means that EPA has, after identifying substantial concerns with a jurisdiction's actions to meet TMDL goals, taken federal actions to help the jurisdiction get back on track.

Source: Environmental Protection Agency

Maryland's Progress

In evaluating Maryland's 2016 to 2017 milestone data submission, EPA found that the State achieved its 2017 pollution reduction goals for phosphorus and sediment but did not achieve the pollution reduction goal for nitrogen; the State achieved its 2017 reduction goals for all pollutants in all major basins except for nitrogen in the Eastern Shore and the Western Shore and for phosphorus in the Western Shore. In order to meet the statewide pollution reduction goal for nitrogen, the State must further reduce nitrogen loading to the bay by an additional 8.4 million pounds. **Exhibit 5** shows Maryland's nitrogen pollution loads for calendar 1985, 2010, 2017, and the target load for 2025 using the Phase 6 model.

Exhibit 5
Maryland Nitrogen Pollution Loads
Trends and Targets
(Million Pounds Per Year)



Source: Maryland Department of the Environment

The EPA assessment of Maryland's 2016 to 2017 milestone pollution reduction goals identified milestone achievements and shortfalls for each of the four sectors, as follows:

- ***Agriculture:*** EPA reported that Maryland (1) actively promotes the Agricultural Certainty Program and certified six verifiers under the program; (2) is implementing the Phosphorus Management Tool (PMT) in compliance with State regulations; (3) registered 483 farms under the State's Concentrated Animal Feeding Operation program; and (4) achieved its 2025 BMP implementation targets for cover crops, conservation high-residue tillage, and manure transport. EPA further reported that Maryland did not achieve its implementation targets for horse pasture management, alternative crops, and prescribed grazing. (*Ongoing Oversight*)

- ***Urban/Suburban Stormwater:*** EPA reported that (1) Maryland's Phase I stormwater jurisdictions successfully converted to the Geographic Information System BMP database (use of this system will be a requirement in all future Phase I stormwater permits); (2) Maryland submitted its draft Phase I stormwater permit template to EPA; and (3) Maryland conducted Phase II stormwater permit outreach with all eligible municipalities and counties and most of the State and federal permittees. EPA further reported that Maryland lacked sufficient progress for the following: tentative determinations for Phase II stormwater permits, approval of any Phase I stormwater restoration plans, and nutrient and sediment reductions. (*Enhanced Oversight*)

- ***Wastewater Treatment Plants and Onsite Systems:*** EPA reported that Maryland achieved all of its milestones under this sector including (1) upgrading 54 of the 67 major wastewater treatment plants (WWTP) and 6 minor WWTPs as of December 2017; (2) completing 2,067 Best Available Technology (BAT) installations for septic systems; and (3) developing criteria for the evaluation and selection of new BAT systems utilizing national peer-reviewed BMPs. (*Ongoing Oversight*)

- ***Offsets and Trading:*** EPA reported that Maryland (1) finalized its draft trading and offset guidance manual; (2) adopted regulations that establish requirements and standards for the generation and certification of nutrient and sediment credits on agricultural land; and (3) is actively documenting current and future growth in the poultry industry to account for and offset nutrients associated with poultry litter. EPA further reported that Maryland has not made any progress in developing a policy on accounting for growth but noted ongoing activity for developing a policy at the staff level. (*Ongoing Oversight*)

EPA also highlighted key areas for Maryland to address during the 2018 to 2019 milestone period and in the Phase III WIP including (1) addressing the nitrogen gap under the agricultural sector through the increased implementation of agricultural BMPs; (2) providing the final Phase I stormwater permit template to EPA by the end of calendar 2018; (3) making final determinations for Phase I stormwater permits within six months of a permit's expiration date; (4) providing a status update to EPA on the septic implementation strategy for systems in the Chesapeake and Atlantic Coastal Bays Critical Area; (5) calculating any loss in pollution reductions due to the November 2016 change to the State's septic system regulations; and (6) accounting for growth.

Health

The results of implementing BMPs are reflected in the University of Maryland Center for Environmental Science's Chesapeake Bay Report Card. The report card compares seven indicators – dissolved oxygen, nitrogen, phosphorus, chlorophyll a, water clarity, aquatic grasses, and benthic community – to scientific goals. The health of the bay, as measured by the report card, has generally remained the same since 2003. The overall health of the bay remained unchanged in 2017, receiving an overall score of C, indicating that the bay is in moderate ecosystem health.

Recent Regulatory Highlight

Maryland's Nutrient Trading Program is a public marketplace for the buying and selling of nutrient (nitrogen and phosphorus) credits. The purpose of the program ranges from being able to offset new or increased discharges to establishing economic incentives for reductions from all sources within a watershed and achieving greater environmental benefits than through existing regulatory programs. The Maryland Water Quality Trading Advisory Committee has been meeting regularly since January 2016 on the State's nutrient trading policy that informs what is now called Aligning for Growth. In terms of meeting the TMDL, the State is still working on its Aligning for Growth policy. One of the major challenges has been addressing stormwater and septic loads from new development. The January 2016 *Draft Maryland Trading and Offset Policy and Guidance Manual – Chesapeake Bay Watershed* has been updated with a draft April 17, 2017 document that reflects a greater focus on trading to meet stormwater permits. Nutrient trading regulations went into effect on July 16, 2018. The success of nutrient trading will be determined by the transparency and accountability of the trades and both the supply and demand for the trades.

Transportation Stormwater Management

Funding for stormwater management sector improvements associated with State transportation infrastructure – across the Maryland Department of Transportation (MDOT) and including operational expenditures related to BMPs – represents $1.5 billion, or approximately 10%, of the total estimated WIP implementation cost. The State Highway Administration (SHA) owns more than 2,500 stormwater management facilities and nearly 17,000 lane miles of roadway located throughout the State. After many years of discussion regarding the lack of transportation funding for new infrastructure, Chapter 429 of 2013 (the Transportation Infrastructure Investment Act) was enacted. Chapter 429 increased transportation funding by increasing motor fuel taxes and transit fares. Chapter 429 also required that the Governor include specified annual appropriations in the budget bill (between fiscal 2015 and 2019) totaling $395 million for SHA to use to comply with the WIP. Chapter 489 of 2015 (Budget Reconciliation and Financing Act) authorized the Transportation Trust Fund (TTF) to be used to fund the WIP in fiscal 2016 only, which reflects $65 million in funding. Subsequently, the Administration adopted, and the General Assembly approved, a policy of authorizing the TTF as the fund source for the $395 million mandated cost of complying with the WIP.

Exhibit 6 reflects the most recent SHA WIP funding estimate, which in the fiscal 2019 to 2024 *Consolidated Transportation Program* is $711.1 million, including $291.5 million expended prior to fiscal 2019 and $49.6 million added in fiscal 2024. SHA notes that the $13.7 million increase in total estimated cost from last year's estimate of $697.4 million is due to the addition of fiscal 2024 funding that is partially offset by efficiencies expected from the use of a new smart pond technology being piloted that will allow for wet ponds to be drained slowly after rains in order to let sediment settle, resulting in possible savings for many projects. As shown in **Exhibit 7**, special funds comprise the largest share of the projected fund sources, accounting for 74% of the planned funding, followed by federal funds (20%) and general obligation (GO) bonds (6%); no general funds are reflected because of the decision to use the TTF to comply with the WIP. SHA notes that the increase in federal funds reflected since the fiscal 2019 analysis is based on formula funding that could be used for a variety of projects and that federal funds are difficult to use because stormwater work related to the TMDL is not related to mobility and is thus less likely to be approved for this purpose.

Exhibit 6
SHA Watershed Implementation Plan Funding
Fiscal 2019-2024
($ in Thousands)

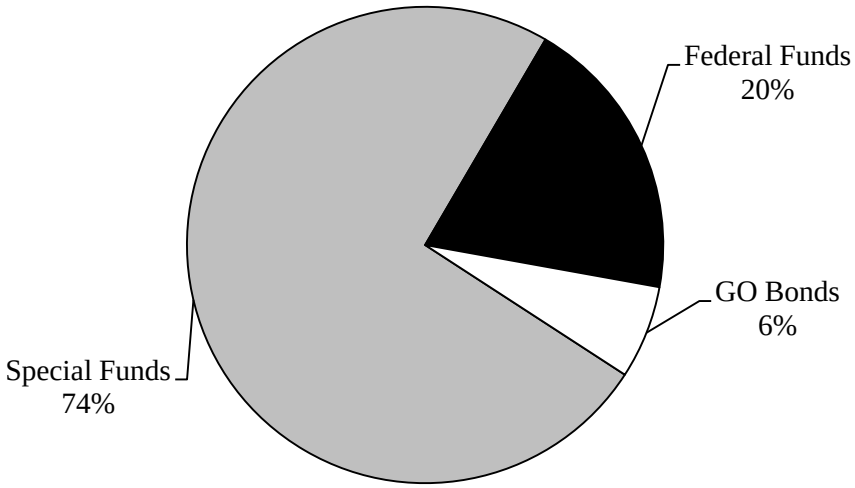
Source	Prior Auth.	2019	2020	2021	2022	2023	2024	Total
Special Funds	$207,024	$60,700	$82,900	$45,500	$40,700	$47,700	$43,600	$528,124
Federal Funds	39,500	39,300	29,100	12,300	5,900	5,900	6,000	138,000
GO Bonds	45,000	0	0	0	0	0	0	45,000
Total	**$291,524**	**$100,000**	**$112,000**	**$57,800**	**$46,600**	**$53,600**	**$49,600**	**$711,124**

GO: general obligation
SHA: State Highway Administration

Note: The special funds budgeted in fiscal 2019 include $96.0 million in the SHA capital program and $4.0 million in the Secretary's Office capital program.

Source: Maryland Department of Transportation; Fiscal 2019 to 2024 *Consolidated Transportation Program*

Exhibit 7
SHA Watershed Implementation Plan
Total Program Funding Sources



GO: general obligation
SHA: State Highway Administration

Source: Maryland Department of Transportation; Fiscal 2019 to 2024 *Consolidated Transportation Program*

Issues

1. Overall Chesapeake Bay Restoration Funding

The current state of Chesapeake Bay restoration funding may be reviewed at three levels (two of which are discussed below):

- ***Overall Chesapeake Bay Restoration:*** actions that include environmental education, land preservation, transit projects, and nutrient and sediment reduction among others;

- ***Two-year Milestones:*** actions for nutrient and sediment reduction only; and

- ***Chesapeake and Atlantic Coastal Bays 2010 Trust Fund:*** actions for nutrient and sediment reduction from nonpoint sources only using certain revenues.

Overall Chesapeake Bay Restoration

Section 37 of the Fiscal 2019 Budget Bill expressed the General Assembly's intent that the Department of Natural Resources (DNR), the Department of Budget and Management, and the Maryland Department of the Environment (MDE) submit a report on overall Chesapeake Bay restoration expenditures. The report was requested to include operating and capital expenditures by agency, fund type, and particular fund source based on programs that have over 50% of their activities directly related to Chesapeake Bay restoration for the fiscal 2018 actual, the fiscal 2019 working appropriation, and the fiscal 2020 allowance.

The overall Chesapeake Bay restoration expenditures exhibit was first included in the *Governor's Budget Books* for fiscal 2009. The purpose of the exhibit is to understand the overall scope of Chesapeake Bay restoration funding. The current version of overall Chesapeake Bay restoration funding is in Appendix S of the *Maryland Budget Highlights* book and is shown in **Exhibit 8**.

Exhibit 8
Overview of Maryland's Funding for Chesapeake Bay Restoration
Fiscal 2016-2020

	2016 Actual	2017 Actual	2018 Actual	2019 Approp.	2020 Allowance	2019-2020 $ Change	2019-2020 % Change
Agency/Program Total Funds							
Department of Natural Resources	$84,660,768	$94,204,417	$95,829,042	$95,533,819	$99,777,077	$4,243,258	4.4%
Program Open Space	24,210,428	16,515,928	34,476,663	57,032,004	61,573,155	4,541,151	8.0%
Rural Legacy	10,082,149	17,663,385	22,913,725	25,017,704	25,745,057	727,353	2.9%
Department of Planning	5,439,791	4,747,494	4,726,121	4,888,384	6,325,648	1,437,264	29.4%
Department of Agriculture	44,036,219	47,263,229	47,523,761	54,205,873	58,182,461	3,976,588	7.3%
Maryland Agricultural Land Preservation Foundation	24,726,722	20,692,064	34,465,938	50,809,683	53,534,163	2,724,480	5.4%
Maryland Department of the Environment[1]	546,309,366	270,248,755	441,171,644	437,314,957	253,119,980	-184,194,977	-42.1%
Maryland State Department of Education	416,945	416,945	416,945	416,945	437,341	20,396	4.9%
Maryland Higher Education	19,916,834	25,507,054	24,738,971	26,512,291	27,979,363	1,467,072	5.5%
Maryland Department of Transportation	230,430,909	298,948,863	391,147,731	352,498,558	392,674,020	40,175,461	11.4%
Total	**$990,230,131**	**$796,208,134**	**$1,097,410,539**	**$1,104,230,219**	**$979,348,265**	**-$124,881,954**	**-11.3%**
Fund Type							
General Fund	$48,673,415	$36,660,395	$33,597,584	$37,755,317	$40,328,618	$2,573,301	6.8%
Special Fund	338,028,907	328,687,023	344,736,093	426,921,437	402,123,829	-24,797,608	-5.8%

	2016 Actual	2017 Actual	2018 Actual	2019 Approp.	2020 Allowance	2019-2020 $ Change	2019-2020 % Change
Federal Fund	54,285,340	55,597,477	53,624,001	54,340,339	60,304,716	5,964,377	11.0%
Reimbursable Funds	25,562,453	28,507,322	28,374,161	29,232,276	28,603,718	-628,558	-2.2%
Current Unrestricted	11,729,446	21,997,774	21,317,762	24,021,473	25,461,353	1,439,879	6.0%
Current Restricted	8,187,388	3,509,280	3,421,208	2,490,818	2,518,011	27,193	1.1%
General Obligation and Revenue Bonds [1]	273,332,273	22,300,000	221,192,000	176,970,000	27,334,000	-149,636,000	-84.6%
Maryland Department of Transportation Funds	230,430,909	298,948,863	391,147,731	352,498,558	392,674,020	40,175,461	11.4%
Total	**$990,230,131**	**$796,208,134**	**$1,097,410,539**	**$1,104,230,219**	**$979,348,265**	**-$124,881,954**	**-11.3%**
Spending Category							
Land Preservation	$59,863,593	$56,571,415	$92,848,482	$133,786,800	$142,191,385	$8,404,585	6.3%
Septic Systems	25,890,960	20,172,494	21,151,121	21,388,384	22,825,648	1,437,264	6.7%
Wastewater Treatment	512,339,242	236,675,142	409,340,422	399,018,175	223,565,042	-175,453,133	-44.0%
Urban Stormwater	9,582,588	12,723,956	127,601,758	164,396,524	194,301,903	29,905,379	18.2%
Agricultural BMPs	62,126,219	65,535,383	65,488,794	72,405,873	75,206,749	2,800,876	3.9%
Oyster Restoration	11,084,013	6,413,023	10,406,431	6,555,590	8,407,618	1,852,028	28.3%
Transit and Sustainable Transportation	230,430,909	298,948,863	263,775,495	192,662,152	201,890,314	9,228,161	4.8%
Living Resources	41,311,657	55,437,059	58,072,450	60,290,004	59,459,877	-830,127	-1.4%
Education and Research	23,583,779	29,186,279	25,185,664	26,949,236	28,466,704	1,517,468	5.6%
Other	14,017,171	14,544,520	23,539,924	26,777,480	23,033,025	-3,744,455	-14.0%
Total	**$990,230,131**	**$796,208,134**	**$1,097,410,539**	**$1,104,230,219**	**$979,348,265**	**-$124,881,954**	**-11.3%**

BMP: best management practice

[1] Reflects $180.0 million of Maryland Department of the Environment revenue bonds in fiscal 2016, $260.1 million in fiscal 2018 ($200.0 million for the Water Quality Revolving Loan Fund and $60.1 million for the Bay Restoration Fund in order to fund the Biological Nutrient Removal program), and $150.0 million in fiscal 2019 for the Water Quality Revolving Loan Fund.

Note: This presentation only includes State agency programs that have over 50% of their activities directly related to Chesapeake Bay restoration. In addition, funding related to salaries and fringe benefits does not reflect health insurance or increment adjustments. The exhibit reflects an additional $5,500,000 in special funds in fiscal 2019 for Program Open Space that was inadvertently left out of Appendix S of the Governor's budget highlights.

Source: Department of Budget and Management; Department of Legislative Services

The major changes between the fiscal 2019 working appropriation and the fiscal 2020 allowance reflected in the overall Chesapeake Bay restoration spending are as follows.

- ***MDE:*** decreases by $184.2 million primarily due to reductions for the Water Quality Revolving Loan Fund including a $150.0 million reduction in revenue bond authorization, a $30.3 million reduction in special fund appropriation, and a $4.4 million reduction in GO bond appropriation that are offset partially by an increase of $5.8 million in federal fund appropriation. In other parts of the budget, there is an increase of $4.0 million in Bay Restoration Fund special funds for implementation of the Clean Water Commerce Act in MDE's operating budget and an increase of $1.5 million in general funds for compliance in the Water and Science Administration.

- ***MDOT:*** increases by $40.2 million, primarily due to $24.2 million for TMDL activities in SHA and the Maryland Transit Administration (MTA), $22.6 million for MTA's Purple Line transit project, $5.0 million for statewide stormwater facilities remediation, $2.8 million for Masonville Dredged Material Containment Facility construction management, and $2.6 million for an innovative stormwater management pond pilot program. These increases are offset partially by decreases of $6.9 million for the Baltimore-Washington Superconducting Maglev Project, and $4.2 million for the MTA Maryland Area Regional Commuter Camden Station Leadership in Energy and Environment Design project.

- ***Program Open Space, Rural Legacy, Maryland Agricultural Land Preservation Foundation:*** increases by $8.0 million due to repayment of prior year transfer tax funding diverted to the General Fund (currently budgeted in the State Reserve Fund), fiscal 2018 overattainment funding, and the end of the transfer of transfer tax special funds to the General Fund after fiscal 2018. Program Open Space's share of the increase is $4.5 million in additional transfer tax revenue. The Maryland Agricultural Land Preservation Foundation increase of $2.7 million primarily reflects an increase in transfer tax revenue. The Rural Legacy Program increase of $0.7 million reflects increased transfer tax revenue as well.

- ***DNR:*** increases by $4.2 million primarily due to $3.0 million in special funds spread across a number of agency programs and $2.3 million in additional GO bond funding for oyster restoration.

Chesapeake and Atlantic Coastal Bays 2010 Trust Fund

Chapter 6 of the 2007 special session established a Chesapeake and Atlantic Coastal Bays 2010 Trust Fund to be used to implement the State's tributary strategy. The fund is financed with a portion of existing revenues from the motor fuel tax and the sales and use tax on short-term vehicle rentals. Subsequently, Chapters 120 and 121 of 2008 established a framework for how the trust fund money must be spent by specifying that it be used for nonpoint source pollution control projects and by expanding it to apply to the Atlantic Coastal Bays. The Chesapeake and Atlantic Coastal Bays 2010 Trust Fund will be discussed further in DNR's operating budget analysis.

The Department of Legislative Services (DLS) recommends the addition of budget bill language to request that the Administration continue to publish the overall Chesapeake Bay restoration data in the *Governor's Budget Books* and provide the electronic data separately. In addition, DLS recommends that budget bill language be added to DNR's budget to request that the Administration provide the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund annual report and a revenues and expenditures spreadsheet at the time of the fiscal 2020 budget submission.

2. Historical and Projected Chesapeake Bay Restoration Spending Report Submitted Late

Section 36 of the Fiscal 2019 Budget Bill requested the submission of a report on historical and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all BMPs in place to meet water quality standards for restoring the Chesapeake Bay. The report was requested to be submitted by December 1, 2018, but was received January 21, 2019. **DLS recommends that funding be restricted until the agencies submit a report on updated historical spending and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all BMPs in place to meet water quality standards for restoring the Chesapeake Bay. It is requested that the report include information on the Phase III WIP and how the loads associated with Conowingo Dam infill, growth of people and animals, and climate change will be addressed.**

3. Capacity to Handle PMT Requirements Unclear

The PMT was developed by scientists at the University of Maryland and is used to identify agricultural lands where the soil is saturated with phosphorus and has a high risk of runoff. The PMT is a component of the State's WIP and is being used to reduce phosphorus loads. Regulations incorporated the PMT into the State's existing nutrient management planning process in 2015. The regulations also added recordkeeping and reporting requirements and established a PMT Transition Advisory Committee within the Maryland Department of Agriculture (MDA).

Data Collection

Collecting the PMT data has been a challenge for MDA; first, because of the reluctance of some nutrient management planners to release the data for their client farmers and second, because of the need to do field-level evaluations to collect data to fill information gaps. In general, fields with a phosphorus Fertility Index Value (FIV) of less than 150 are not subject to additional phosphorus management restrictions while fields with FIVs greater than 150 are subject to increasing restrictions on the management of phosphorus. PMT data available as of November 2018 indicates that 87.6% of acres have reported their FIV data. The acres fall into the following phosphorus FIV categories:

- FIV less than 150 – 891,176 acres (79.6%);

- FIV of 150 to 499 – 211,061 acres (18.8%); and

- FIV greater than 500 – 17,773 acres (1.6%).

Fields with a FIV greater than 500 are not allowed to apply phosphorus. The PMT also divides farms into tier groups for management purposes. The exact phosphorus management practices needed will depend on whether the particular fields fall into low, medium, or high PMT risk categories, but, in general, there will be a significant number of acres transitioning to the revised management regimen in the next few years.

PMT Advisory Committee Meeting

At its November 20, 2018 meeting, the PMT Advisory Committee voted to conduct an evaluation of manure handling capacity as required in regulations. This vote was taken in the context of a motion to delay the implementation of the PMT by a year. The regulations specify that before January 1, 2020, MDA, in consultation with the PMT Advisory Committee, shall conduct an evaluation of the existing markets for animal manures, participation in and additional capacity of the Manure Transport Program, the capacity of existing infrastructure for manure transportation, handling and land application, the availability of public and private-sector resources, and the status and capacity of alternative uses to utilize animal manures. The study, which is expected to be completed by May 2019, will inform the PMT Advisory Committee's vote on whether to delay implementation of the PMT. It is not clear whether the information informing this study is available, though, given the outcome of the Delmarva Land and Litter Challenge's (DLLC) work on a nutrient mass balance for the Delmarva Peninsula.

DLLC

DLLC is one of the entities looking at how phosphorus – and nitrogen – will be handled on the fields transitioning into the new phosphorus management regime. DLLC is comprised of farmers, conservationists, and academics interested in abating poultry-related nutrient pollution on the Delmarva Peninsula; the goal is for the Delmarva Peninsula to be nutrient neutral by 2025. DLLC has three subcommittees addressing poultry manure concerns: transport, technology, and mass balance. The mass balance subcommittee was tasked with completing a mass balance methodology for looking at the surplus/deficit status at the county level for nitrogen and phosphorus from inorganic fertilizer, poultry manure, and biosolids.

The final mass balance report was expected in 2018 and would have been supplemented by decisions about how to handle the surplus nutrients such as by transportation to fields that can use it, alternative uses such as mushroom growers in Pennsylvania, or various proposed digester and composting technologies. However, on August 22, 2018, the mass balance workgroup reported that it was unable to achieve consensus on three main areas: crop yield goal assumptions; phosphorus application rates for each crop type and how to handle double cropped land; and phosphorus application rates for soils with FIV less than 150. This last area lacking consensus appears to be due to the fact that there are no publicly accessible records on the exact FIV levels for soils less than 150 and so it is not

clear where and to what extent excess poultry manure may be applied. As a result of this lack of consensus, the mass work balance workgroup has voted to temporarily put the process on hold until the 2017 Census of Agriculture data is released starting in February 2019. **DLS recommends that MDA comment on whether it has the information necessary to complete the evaluation of the State's manure handling capacity given the lack of information on the exact FIV levels for soils less than 150 and thus the uncertainty about where and to what extent excess poultry manure may be applied.**

4. Conowingo Dam Relicensing and Request for Proposals

The Conowingo Dam – a peaking hydroelectric facility that uses reservoir storage to generate electricity during peak electricity demand periods – has been described as the biggest BMP on the Susquehanna River because it collects sediment and phosphorus that would otherwise flow into the bay. However, the Conowingo Dam, owned by Exelon, has reached an end state in terms of sediment storage capacity. The Conowingo Dam officially has its own target of 6.0 million pounds of nitrogen and 260,000 pounds of phosphorus under a separate WIP to be managed by a third party contracted for this purpose. Decisions are still being made about how the nitrogen, phosphorus, and sediment loads from the Conowingo Dam will be distributed between bay jurisdictions and when the reductions need to occur. Agreement has been reached on the concept of pooling resources in areas determined to have the most impact on the Chesapeake Bay as determined by a financial strategy to be developed by the third-party awardee. The financial strategy will be crucial because bay jurisdictions, particularly Pennsylvania, are already struggling to meet nitrogen reduction goals, and the reductions credited to the Conowingo Dam WIP will not be available to Pennsylvania for meeting its own WIP. The final Conowingo Dam WIP is planned to be posted on the Chesapeake Bay Program's website in June 2019.

Relicensing

In addition, the Conowingo Dam is in the midst of relicensing by the Federal Energy Regulatory Commission (FERC); its license expired on September 1, 2014, and it will receive automatic one-year renewals until it is relicensed. FERC cannot act on an application for licensing unless a CWA – Section 401 water quality certification – is issued by MDE. MDE issued the water quality certification with special conditions on April 27, 2018, which requires Exelon to annually reduce 6.0 million pounds of nitrogen and 260,000 pounds of phosphorus. The reductions can be accomplished by Exelon in one of three ways: installing BMP and/or ecosystem restoration actions; paying MDE $17 per pound of nitrogen and $270 per pound of phosphorus, which would total $172 million per year; or dredging the reservoir behind the Conowingo Dam.

Exelon has filed an administrative appeal with MDE and lawsuits in State and federal court alleging that the water quality certification imposes on it the sole responsibility to remove from the Susquehanna River pollutants that Exelon did not introduce into the river but that flow through the Conowingo Dam. On October 11, 2018, a Baltimore circuit court judge rejected one of Exelon's lawsuits on the basis that Exelon had not yet exhausted its options under the State administrative appeals process. On October 19, 2018, an administrative hearing was held at MDE involving Exelon

and the environmental organization Earth Justice, in partnership with the Lower Susquehanna Riverkeeper Association and the Waterkeepers Chesapeake.

Sediment Removal

The Maryland Environmental Service (MES) issued a Request for Proposals (RFP) in September 2017 for a pilot dredging and innovative reuse and beneficial use project – Conowingo Capacity Recovery and Innovative Reuse and Beneficial Use Pilot Project – on approximately 25,000 cubic yards of sediment in the Maryland portion of the Susquehanna River upstream of the Conowingo Dam. The due date for the bids was November 7, 2017. This followed a request for information released on August 1, 2016, to identify cost-effective dredging solutions, including beneficial and/or innovative uses. MES received 13 responses to the August 1, 2016 request for information: all 13 responses included dredging proposals, and 2 responses included beneficial reuse proposals for the dredged material – a lightweight aggregate for road material or an additive to be put on farmland and road fill. While dredging the Conowingo Dam is an expensive proposition, the plan is to defray some of the cost by finding a financially viable beneficial reuse of the dredge material.

MES received two bids for the September 2017 RFP. On December 28, 2017, MES announced a notice of intent to award the contract to Northgate-Dutra Joint Venture and expected contract negotiations and discussion about beneficial reuse of the dredged material to move forward as soon as the required permits were received and a lease for the proposed staging area was finalized. The contract award process was expected to be completed no later than Friday, March 16, 2018, but MES never entered into a contract with the selected contractor for the 2017 RFP because of the high cost realized after the cost proposals were evaluated, subsequent to the technical evaluation.

MES issued a new contract with similar goals and a November 13, 2018 bid due date and is currently reviewing the proposals. The new solicitation has two components: a 25,000-cubic-yard sediment beneficial reuse and sediment characterization study. The overall funding for the study has been capped at $3.0 million, but it is unclear whether the MDE or some other State agency will pay for the eventual contract. **DLS recommends that the agencies comment on the status of deliberations on the Conowingo Dam water quality certification, the possibility for a compromise given that Exelon might cease operations at the Conowingo Dam rather than comply with the State's requirements, and how the sediment beneficial reuse and sediment characterization study will be funded.**

5. Stormwater Challenges

The federal CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The National Pollutant Discharge Elimination System (NPDES), a component of the CWA, regulates stormwater discharges from municipal separate storm sewer systems (MS4). There are 10 local jurisdictions and SHA in Maryland that hold NPDES Phase I MS4 permits (Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's counties and Baltimore City).

Financial Assurance Plans

In Chapter 151 of 2012, the General Assembly required these 10 jurisdictions to establish a local stormwater remediation fee to assist in financing the implementation of the local MS4 permits, including the requirement of each permit to meet the stormwater-related targets under the Chesapeake Bay TMDL. Subsequently, Chapter 124 of 2015 repealed the requirement to enact a fee. Instead, Chapter 124 required the jurisdictions to file a financial assurance plan by July 1, 2016, and every two years thereafter on the anniversary of the date that the permit was issued, and required MDE to file an annual report to the Governor and certain committees that evaluates the compliance of local jurisdictions with the requirements of both Chapter 124 and Chapter 151.

The first financial assurance plans were submitted on July 1, 2016, and now are due in a staggered timeframe governed by the permit issuance dates. MDE submitted its first annual summary report on the financial assurance plans in October 2016 but then did not submit its second report until June 2018, despite the report being prepared in September 2017. MDE was required to submit its third report on September 1, 2018, but the report has not been forthcoming.

While MDE determined that the financial assurance plans submitted on July 1, 2016, listed sufficient revenue to support stormwater remediation activities, a number of the plans relied on nutrient trading. For instance, Anne Arundel, Baltimore, Charles, Frederick, and Harford counties proposed, in their July 2016 stormwater financial assurance plans, to trade with WWTP for up to half of the needed reductions in their five-year stormwater permits, as required by Chapter 124. The next Financial Assurance Plan submittals are due between December 2018 and February 2019 within fiscal 2019.

Nutrient Trading

Data provided in recent stormwater permit modification requests reflect the status of counties requesting to be allowed to trade in order to meet their 20% impervious surface restoration goals as follows.

- ***Anne Arundel County:*** expects to restore 2,000 impervious acres by its February 11, 2019 permit end date, which is 34% of its total 5,862 impervious acre requirement;

- ***Baltimore County:*** expected to restore 2,104 impervious acres by its December 23, 2018 permit end date, which is 35% of its total 6,036 impervious acre requirement, but the actual acres restored will not be certified until June 2019; and

- ***Prince George's County:*** expected to restore 2,200 impervious acres by its January 1, 2019 permit end date, which is 36% of its 6,105 impervious acre requirement, but the actual acres restored will not be certified until June 2019.

Limiting Factors

All three jurisdictions indicate that the capital and operational funds are available to meet the 20% impervious surface restoration requirement but that the physical capacity for implementing structural BMPs within the permit timeframe is a limiting factor. The physical capacity limitations include the following: hiring and training additional staff and new equipment procurement; obtaining contracts from and competition for consulting, engineering, and construction firms; lengthy individual project permit reviews and approvals; and delayed Chesapeake Bay Program approval of innovative BMPs for restoration.

Public-private Partnership or Other Scalable Statewide Model

Given the challenges noted, the State and counties should consider a scalable stormwater management remediation model. For instance, the EPA Chesapeake Bay Program Principals' Staff Committee selected the recommendation to advance public-private partnerships (P3), where appropriate, as one of three environmental financing themes to focus on after the Chesapeake Bay Environmental Finance Symposium on April 25 through 26, 2016. The idea was to encourage the development of P3s that allow for large-scale work, such as the shift from government-led stormwater reductions that are done on a project-by-project basis and may take up to six months to procure to a model in which a large number of projects can be procured at one time, such as what is being implemented by Corvias Solutions in Prince George's County.

Prince George's County has entered into a P3 – Clean Water Partnership – with Corvias Solutions to achieve its stormwater remediation requirements. Between January 15, 2018, and January 15, 2019, the Clean Water Partnership has increased the number of acres completed from 1,215.0 acres to 2,129.3 acres out of the 6,105.0 acres to be restored by the end of its current permit period of January 1, 2019. In addition, 40.0 acres in planning have increased to 664 acres; 758.0 acres in design have increased to 1,257.1 acres; and 641.0 acres in construction have decreased somewhat to 314.2 acres, for a total of 2,654.0 acres in production or completed increasing to 4,364.9 acres. This means that Prince George's County has completed 34.9% of its required restoration and has acres in production or completed representing 71.5% of its requirement.

Another option would be to leverage the capacity of MES. MES was established as an instrumentality of the State and has worked in the stormwater remediation sector. For instance, MES provides engineering support, compliance certification, and third-party construction inspection to the Prince George's County Clean Water Partnership. **DLS recommends that MDE comment on why it has not been able to submit the annual report evaluating the compliance of local jurisdictions with the requirements of both Chapter 124 and Chapter 151 in a timely manner. In addition, DLS recommends that the agencies comment on whether a P3 or other partnership model with a statewide focus on stormwater management remediation would be feasible and in the best interests of the State and counties.**

6. Encouraging Agricultural BMP Implementation

One of the major challenges to meeting the Chesapeake Bay TMDL by 2025 is the split between point source and nonpoint source nutrient and sediment loading. Point source pollution loading is typified by regulated entities – WWTPs regulated by discharge permits and MS4 jurisdictions regulated by stormwater permits. On the other hand, nonpoint source pollution loading is typified by the agricultural sector, with the exception of concentrated animal feeding operations that are treated as permitted point sources. This means that the TMDL is enforced at the State level but the State does not have regulatory authority over a substantial portion of the pollution loading because agriculture is primarily considered a nonpoint source of pollution. The question is whether the voluntary role of the agriculture sector will be sufficient to meet the TMDL.

The lack of regulatory authority is exacerbated by maintenance and management regimes in the agricultural sector as follows.

- ***BMP Maintenance:*** The Chesapeake Bay Program required enhanced verification of historical BMPs as part of the 2017 midpoint assessment and the recalibration of the Chesapeake Bay model. This requires that 100% of BMPs have to be verified to receive credit, and approximately 10% have to be reverified annually to continue receiving credit. For Maryland, this meant the temporary loss of approximately 30,000 agricultural sector BMPs and the consequent increase in nutrient and sediment loading as reported by the Chesapeake Bay model. Since October 2016, MDA has reviewed more than 10,000 BMPs and found that 73% meet standards, 23% no longer exist or are superseded, and 4% do not meet standards. Going forward, it may be helpful to adopt legislation along the lines of Chapter 585 of 2018 (On-Site Sewage Disposal Systems – Watershed Implementation Plan and Bay Restoration Fund Disbursements and Financial Assistance). Chapter 585 authorizes jurisdictions to count septic system nitrogen load reductions in their WIPs only if the operation and maintenance contract is current. If implemented in the agricultural sector, this stewardship proposal would incentivize the timely review of BMPs by local governments and soil conservation districts.

- ***Agricultural Leasing:*** Agricultural leasing is another challenge. According to the 2012 Census of Agriculture, 850,512 acres, or 42%, of Maryland agricultural land is leased. For absentee landlords and farmers leasing land, there is reduced incentive to put BMPs in place. One possibility is to expand outreach about soil conservation and water quality plans, which when combined with required nutrient management plans, are a good predictor of compliance with baseline agricultural operations to meet the TMDL. An easy way to track this baseline would be to encourage farmers to sign up for the Nutrient Trading Tool, which has a built-in baseline measure for nutrient trading authorization purposes; thus, the State would get increased implementation of BMPs, and there would be an expansion in the number of farm operations eligible for nutrient trading. A budgeted tax credit for farmers paid from a portion of cover crop funding could be considered as an encouragement to sign up for the Nutrient Trading Tool, aside from the benefits of being able to trade.

Other Funding

Federal funding enhancements are another way to encourage BMP implementation. The Chesapeake Bay watershed is one of eight geographic areas eligible for $300.0 million per year (up from $100.0 million per year) as authorized in the 2018 Farm Bill under the Regional Conservation Partnership Program. The Regional Conservation Partnership Program is led by the U.S. Department of Agriculture's Natural Resources Conservation Service. The Natural Resources Conservation Service works collaboratively with conservation partners and agricultural producers to promote voluntary private lands conservation. Federal fiscal 2018 projects benefiting Maryland are shown in **Exhibit 9**.

Exhibit 9
Regional Conservation Partnership Program Funding Benefiting Maryland
Federal Fiscal 2018

Project Name	Funding	Lead Partner	Participating States	Description
Chesapeake Bay Farm Stewardship and Preservation	$6,080,000 (from the Critical Conservation Area – Chesapeake Bay Watershed allocation)	Sustainable Chesapeake	Delaware, Maryland, and Virginia (Lead State)	Supports a diverse three-state partnership to accelerate the adoption of precision nutrient management and soil health practices.
Taking Soil Health to the Next Level	$1,000,000 (from the State allocation)	Maryland Department of Agriculture	Maryland (Lead State)	Supports conservation practices that enhance soil health and improve air quality through increased carbon sequestration and water quality through increased efficiency of nutrient use and water management.

Source: U.S. Department of Agriculture – Natural Resources Conservation Service

DLS recommends that MDA comment on the feasibility of developing a BMP stewardship model for the agricultural sector, the benefits of encouraging a soil conservation and water quality plan on farms with agricultural leases, and whether it intends to apply for the increased funding available through the Regional Conservation Partnership Program.

Operating Budget Recommended Actions

1. Add the following section:

SECTION XX. AND BE IT FURTHER ENACTED, That $200,000 of the general fund appropriation in the Maryland Department of Planning, $200,000 of the general fund appropriation in the Department of Natural Resources, $200,000 of the general fund appropriation in the Maryland Department of Agriculture, $200,000 of the general fund appropriation in the Maryland Department of the Environment, and $200,000 of the general fund appropriation in the Department of Budget and Management made for the purpose of general operating expenses may not be expended unless the agencies provide a report to the budget committees by December 1, 2019, on Chesapeake Bay restoration spending. The report shall be drafted subject to the concurrence of the Department of Legislative Services (DLS) in terms of both electronic format to be used and data to be included. The report shall include:

(1) fiscal 2019 annual spending by fund, fund source, program, and State government agency; associated nutrient and sediment reductions; and the impact on living resources and ambient water quality criteria for dissolved oxygen, water clarity, and "chlorophyll a" for the Chesapeake Bay and its tidal tributaries to be submitted electronically in disaggregated form to DLS;

(2) projected fiscal 2020 to 2025 annual spending by fund, fund source, program, and State government agency; associated nutrient and sediment reductions; and the impact on living resources and ambient water quality criteria for dissolved oxygen, water clarity, and "chlorophyll a" for the Chesapeake Bay and its tidal tributaries to be submitted electronically in disaggregated form to DLS;

(3) an overall framework discussing the needed regulations, revenues, laws, and administrative actions and their impacts on individuals, organizations, governments, and businesses by year from fiscal 2019 to 2025 in order to reach the calendar 2025 requirement of having all best management practices in place to meet water quality standards for restoring the Chesapeake Bay, to be both written in narrative form and tabulated in spreadsheet form that is submitted electronically in disaggregated form to DLS;

(4) an analysis of the various options for financing Chesapeake Bay restoration including public-private partnerships, a regional financing authority, nutrient trading, technological developments, and any other policy innovations that would improve the effectiveness of Maryland and other states' efforts toward Chesapeake Bay restoration; and

(5) an analysis on how cost effective the existing State funding sources – such as the Bay Restoration Fund, Chesapeake and Atlantic Coastal Bays 2010 Trust Fund, and Water Quality Revolving Loan Fund among others – are for Chesapeake Bay restoration purposes.

Funds restricted may not be transferred by budget amendment or otherwise to any other purpose and shall revert to the General Fund if the report is not submitted to the budget committees.

Explanation: This language restricts funding in the Maryland Department of Planning (MDP), the Department of Natural Resources (DNR), the Maryland Department of Agriculture (MDA), the Maryland Department of the Environment (MDE), and the Department of Budget and Management (DBM) unless the agencies provide a report by December 1, 2019, on recent and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all best management practices in place to meet water quality standards for restoring the Chesapeake Bay. In addition, the language expresses the interest that the report include information on policy innovations that improve the effectiveness of Maryland and other states' efforts toward Chesapeake Bay restoration and an analysis of how cost effective the State funding sources are that are being used.

Information Request	**Authors**	**Due Date**
Historical and projected Chesapeake Bay restoration spending	MDP DNR MDA MDE DBM	December 1, 2019

2. Add the following section:

SECTION XX. AND BE IT FURTHER ENACTED, That it is the intent of the General Assembly that the Department of Budget and Management, the Department of Natural Resources, and the Maryland Department of the Environment provide a report on Chesapeake Bay restoration spending. The report shall be drafted subject to the concurrence of the Department of Legislative Services (DLS) in terms of both electronic format to be used and data to be included. The scope of the report is as follows: Chesapeake Bay restoration operating and capital expenditures by agency, fund type, and particular fund source based on programs that have over 50% of their activities directly related to Chesapeake Bay restoration for the fiscal 2019 actual, fiscal 2020 working appropriation, and fiscal 2021 allowance to be included as an appendix in the fiscal 2021 budget volumes and submitted electronically in disaggregated form to DLS.

Explanation: This language expresses the intent that the Department of Budget and Management (DBM), the Department of Natural Resources (DNR), and the Maryland Department of the Environment (MDE) provide, at the time of the fiscal 2021 budget submission, information on Chesapeake Bay restoration spending for programs that have over 50% of their activities directly related to Chesapeake Bay restoration.

Information Request	Authors	Due Date
Summary of Chesapeake Bay restoration spending for programs that have over 50% of their activities directly related to Chesapeake Bay restoration	DBM DNR MDE	Fiscal 2021 State budget submission