Chesapeake Bay
Fiscal 2024 Budget Overview

Department of Legislative Services
Office of Policy Analysis
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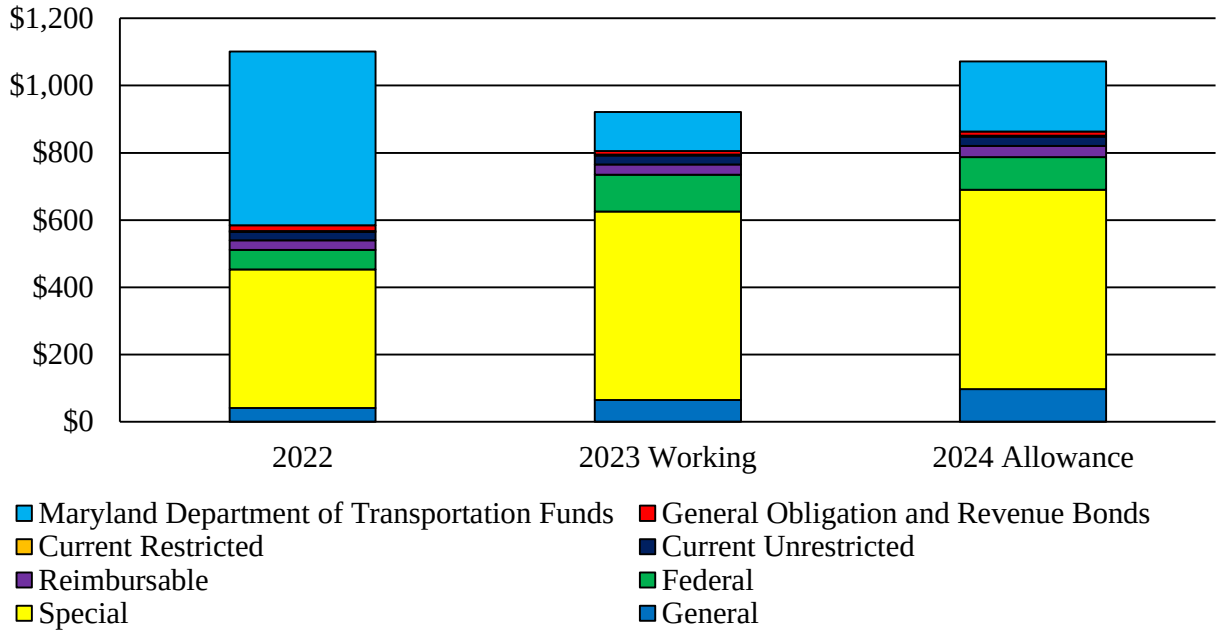
Executive Summary

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 (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.

Fiscal 2024 Budget Increases $150.4 Million, or 16.3%, to $1.1 Billion
($ in Millions)



Note: The exhibit reflects funding inadvertently left out of Appendix L of the Governor's Budget Highlights as follows: additional general obligation (GO) bond funding in fiscal 2022 and 2023 for the Resiliency through Restoration Initiative Program (formerly the Coastal Resiliency Program); special funds in fiscal 2023 for the Oyster Restoration Program; and special funds in fiscal 2023 for the Conowingo Dam Capacity Recovery and Dredge Material Reuse Project. The exhibit also corrects the Maryland Agricultural Cost-Share funding in fiscal 2024. The exhibit does not reflect fiscal 2023 funding of $25.0 million in GO bonds for the Conowingo Dam Dredging and Watershed Implementation Plan project that remains in the Dedicated Purpose Account.

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

Key Observations

- ***Maryland's Progress:*** In order to meet the statewide pollution reduction goal for nitrogen as part of the Phase III Watershed Implementation Plan (WIP), the State must further reduce nitrogen loading to the bay by an additional 4.9 million pounds per year relative to the calendar 2021 level to meet the calendar 2025 target of 45.8 million pounds of nitrogen per year. Maryland intends to reduce nitrogen to 44.7 million pounds per year to account for unforeseen circumstances, but recent analysis indicates that Maryland's WIP may only reduce nitrogen loads to 45.5 million pounds per year, which provides less of a margin.

- ***Chesapeake Bay in "Moderate Ecosystem Health":*** The health of the bay, as measured by the University of Maryland Center for Environmental Science's (UMCES) Chesapeake Bay and Watershed Report Card, has generally remained the same since 2003. The overall health of the bay improved slightly in 2021, receiving an overall score of C (50%), indicating that the bay is in moderate ecosystem health. In addition, the Chesapeake Bay watershed's health scored 56% (C+) in 2021, which is not comparable to 2020 due to the addition of four new economic indicators.

- ***Comprehensive Evaluation of System Response Planned:*** The Chesapeake Bay restoration effort is due for an evaluation. The Chesapeake Bay Program's Science and Technical Advisory Committee is working on a report called a *Comprehensive Evaluation of System Response*. The report is intended to be an assessment of how Chesapeake Bay Program policy actions have reduced pollutants, improved water quality, and enhanced living resources. The big question is whether TMDL implementation programs are producing the expected pollutant reductions, water quality, and living resources responses in the Chesapeake Bay. Preliminary findings indicate that achieving outcomes has been more challenging than expected, there are gaps in modeled reductions versus monitoring results, nonpoint source pollution controls are insufficient, and substantial load reductions in some locales are resulting in living resources recovery.

- ***Overall Chesapeake Bay Restoration Funding:*** Chesapeake Bay restoration funding increases by a net $150.4 million between fiscal 2023 and 2024. The major change is a $93.0 million increase in the Maryland Transit Administration's (MTA) Purple Line transit project. In addition, there is a combined $42.9 million increase for Program Open Space (POS) State Side, the Rural Legacy Program, and the Maryland Agricultural Land Preservation Foundation (MALPF) due to a combination of additional transfer special funds as a result of a fiscal 2022 revenue overattainment that is budgeted in fiscal 2024 and general funds mandated by Chapter 39 of 2022 (Great Maryland Outdoors Act).

- ***Historical and Projected Chesapeake Bay Restoration Spending:*** The submitted report and subsequent public testimony highlight the importance of three sectors for Maryland's Chesapeake Bay restoration success: wastewater; agriculture; and developed (stormwater). This ordering is important because it reflects the importance of timing as well given that

the majority of load reduction is currently coming from wastewater treatment plants, which will need to shift to agriculture in the next few years, followed by stormwater in the developed sector into the future.

- ***Conowingo Dam WIP (CWIP), Relicensing, and Sediment Study:*** Maryland has committed $25.0 million to the CWIP with the January 4, 2023 Board of Public Works (BPW) approval of the Susquehanna River Basin Commission as the fiscal agent for the pay for performance project. On December 20, 2022, the U.S. Court of Appeals for the District of Columbia Circuit ordered the Conowingo Dam license to be vacated. The settlement agreement between the Maryland Department of the Environment (MDE) and Exelon requiring Exelon to invest more than $200 million in environmental projects and operational enhancements to improve water quality over the 50-year license term is unclear. Next steps are likely to be interim, annual licenses until a new license is approved by the Federal Energy Regulatory Commission (FERC). The Lawrence J Hogan, Jr. Administration has released $3.3 million of a $6.0 million fiscal 2023 appropriation for the Maryland Environmental Service's (MES) Conowingo Dam Capacity Recovery and Dredge Material Reuse Project despite concerns of the budget committees.

- ***Lawsuits Filed Against EPA:*** On September 10, 2020, the Attorneys General from Delaware, the District of Columbia, Maryland, and Virginia filed a lawsuit in the U.S. District Court for the District of Columbia. The lawsuit seeks to compel EPA to comply with its nondiscretionary duty under the CWA to ensure that each signatory state to the Chesapeake Bay Agreement develops and implements management plans (the Phase III WIPs) that achieve and maintain the nutrient reduction goals in the agreement. In particular, Pennsylvania and New York are singled out for having inadequate Phase III WIPs tacitly approved by EPA that will achieve only 75% and 66% of the required nitrogen reductions, respectively; New York has since submitted an addendum to its WIP that meets its obligations but with a funding gap remaining. A similar lawsuit was filed on September 10, 2020, by the Chesapeake Bay Foundation, Inc.; Maryland Watermen's Association, Inc.; Anne Arundel County; and two Virginia farmers. Pennsylvania submitted an amendment to its Phase III WIP to EPA on December 31, 2021, with a final amended Phase III WIP submitted in July 2022. EPA evaluated Pennsylvania's final amended Phase III WIP and found that it only meets 72% of the nitrogen target, 99% of the phosphorus target, and 93% of the sediment target. This means that Pennsylvania is still 9.3 million pounds shy of its nitrogen target. In addition, some of the methods identified to achieve reductions in the final amended Phase III WIP are not currently approved by the Chesapeake Bay Program partnership.

Operating Budget Recommended Actions

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

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 TMDL

In December 2010, EPA established a Chesapeake Bay TMDL as required under the federal 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 that nutrient and sediment reductions are met, EPA developed an accountability framework that includes WIPs; two-year milestones; federal review to track and assess progress; and, as necessary, specific federal actions if the 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, the 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 to (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 was submitted in final form to EPA on August 23, 2019, and is intended to ensure that all measures are in place by calendar 2025 so that restoration goals can be met. Most recently, Maryland submitted a climate change addendum to its Phase III WIP in January 2022 in order to address additional load reductions associated with climate change.

In June 2018, EPA provided several new expectations for Phase III WIPs 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 in place 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 contain significantly more data and information than the previous version. Initially, sediment reductions were 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. In late 2019, the Chesapeake Bay Program partnership approved the final Phase III planning targets for sediment.

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	Sediment Pollution
Susquehanna	1.6	0.1	113.8
Eastern Shore	15.6	1.3	2,903.4
Western Shore	9.6	0.9	2,959.9
Patuxent	3.2	0.3	437.7
Potomac	15.8	1.1	1,928.0
Total	**45.8**	**3.7**	**8,342.9**

Note: Numbers may not sum due to rounding.

Source: Chesapeake Bay Program – Chesapeake Assessment and Scenario Tool

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 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.

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 ensuring 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.

Chesapeake Bay Program Funding

The Chesapeake Bay Program directs bay restoration and operates as a partnership between federal and state agencies, local governments, nonprofit organizations, and academic institutions. In October 2020, the U.S. Congress passed America's Conservation Enhancement Act, which reauthorizes the program for another five years and provides up to $92.0 million annually by federal fiscal 2025 to fully fund bay water quality monitoring and coordination activities between the bay jurisdictions. In accordance with the Act, President Joseph R. Biden, Jr.'s federal fiscal 2023 budget request called for increasing program funding to $90.6 million, a $2.6 million increase from the prior fiscal year. Congress passed and the President approved three continuing resolutions that provided continued funding through December 30, 2022. Most programs and activities were funded at the federal fiscal 2022 levels under the continuing resolutions, meaning that the Chesapeake Bay Program funding remained at $88 million. On December 29, 2022, the President signed the fiscal 2023 Consolidated Appropriations Act, which provided the Chesapeake Bay Program with $92.0 million.

The U.S. Congress passed the Infrastructure Investment and Jobs Act on November 5, 2021. In addition to providing funding for an array of infrastructure investments, the bill increases funding for the program by $238 million over the next five years (an additional $47.6 million a year).

On August 16, 2022, the federal Inflation Reduction Act was signed into law. Among other things, the Act allocates almost $20 billion to the U.S. Department of Agriculture (USDA) for agricultural conservation practices that have co-benefits for climate resiliency, water quality, greenhouse gas emissions, and nutrient and sediment pollution. On September 14, 2022, USDA announced that it is investing up to $2.8 billion in 70 selected projects intended to create market opportunities for commodities produced using agricultural practices that reduce greenhouse gas emissions or sequester carbon. Of the selected projects, 18 are expected to be implemented partially or fully in Maryland.

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.

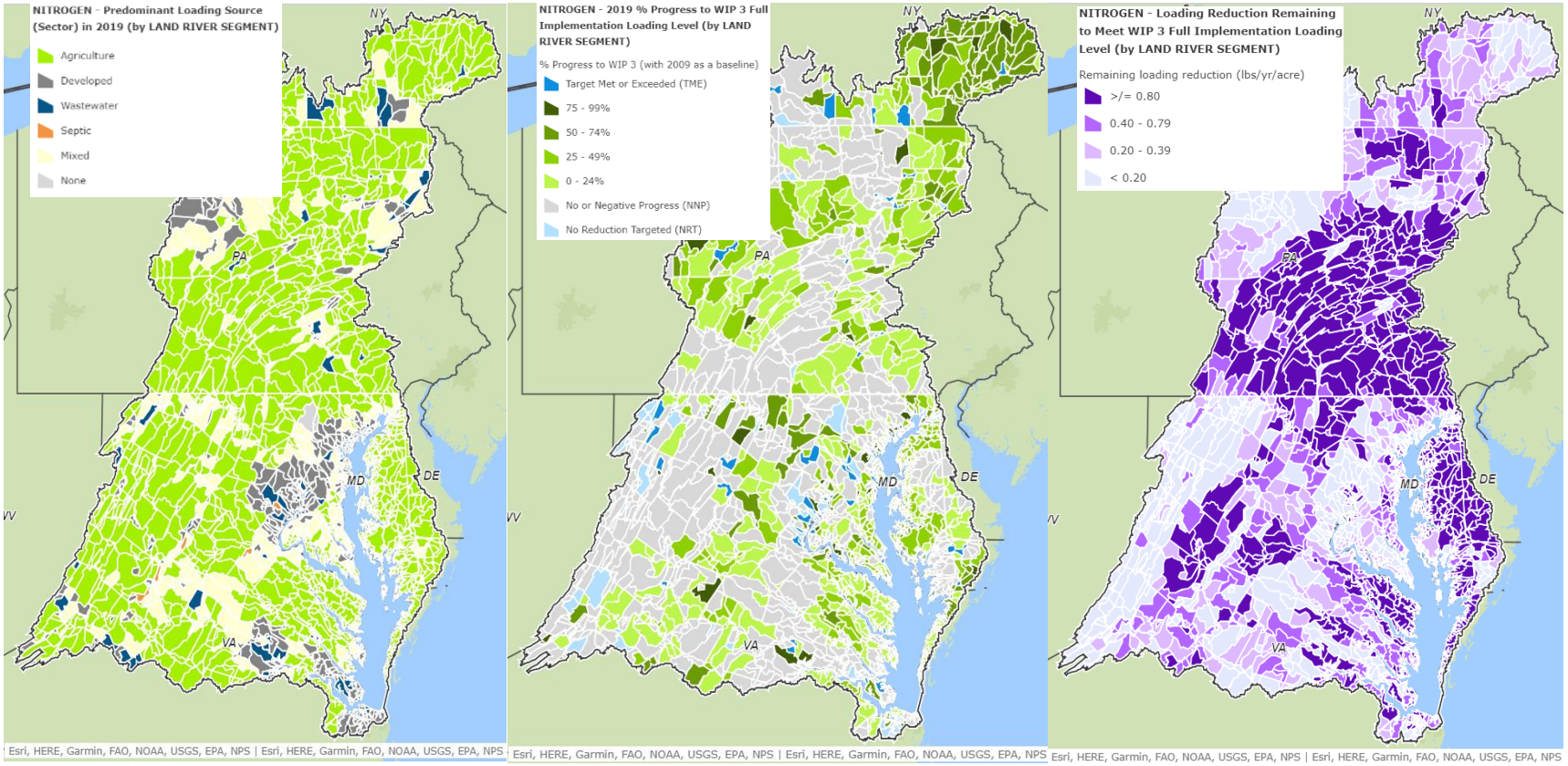
For illustrative purposes, **Exhibit 2** reflects (1) the predominant nitrogen loading source in calendar 2019 for each land river segment – the smallest available geographic area for which data is available; (2) the calendar 2019 percent progress toward the Phase III WIP implementation loading level for each land river segment; and (3) the loading reduction remaining to meet Phase III WIP full implementation. 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 exhibit 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;

- ***Progress:*** progress toward reducing nitrogen loading is piecemeal throughout the watershed, with few land river segments meeting or exceeding their targets and a substantial number of land river segments reflecting no or negative progress; and

- ***Remaining:*** nitrogen loading remaining is concentrated in the predominantly agricultural Lancaster region of Pennsylvania, the Delmarva Peninsula of Maryland and Delaware, and the Shenandoah River valley of Virginia as well as in urban areas serviced by wastewater treatment plants.

Exhibit 2
Bay Restoration Maps – Nitrogen Pollution (Loading)
Calendar 2009-2019



TMDL: Total Maximum Daily Load

Note: Land river segments are the smallest geographic areas for which nitrogen, phosphorus, and sediment loading are estimated by the Chesapeake Bay Program's Phase 6 Model. Natural loading sources include forest and other natural areas. State basins consist of the individual states' portion of each of the major watersheds within the Chesapeake Bay watershed. Predominant loading sectors are 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. As of 2018, EPA used a ranking system, as shown in **Exhibit 3**, to identify sector-specific milestone achievements and shortfalls. At the time, 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. EPA does not appear to have updated its oversight status information since 2018.

Exhibit 3
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	n/a	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: U.S. 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 that 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 its July 2018 midpoint assessment, EPA concluded that the bay jurisdictions exceeded the 60% goal for reducing phosphorus and sediment but did not achieve the goal for reducing nitrogen. In order to achieve the necessary reductions by calendar 2025, the bay jurisdictions must reduce an additional 48.4 million pounds of nitrogen, which is more than twice the reductions achieved by the bay jurisdictions between calendar 2009 and 2017. Pennsylvania and Maryland are responsible for the majority of the remaining nitrogen reductions (70.6% and 17.4%, respectively). Pennsylvania is responsible for reducing an additional 34.1 million pounds of nitrogen, or 6.3 times its reductions between calendar 2009 and 2017, and Maryland is responsible for reducing an additional 8.4 million pounds of nitrogen, or 2.5 times its reductions between calendar 2009 and 2017.

Maryland's Phase III WIP originally anticipated that the State would achieve (and possibly exceed) statewide nutrient and sediment pollution reduction goals by calendar 2025, although more recent modeling suggests these goals may be more difficult to meet than first anticipated. Maryland's strategy relies on continued reductions from the wastewater sector (42% of Maryland's reductions) and on accelerated pollution load reductions from the agricultural sector (52% of Maryland's reductions) to achieve a majority of the necessary reductions. Although the State anticipates meeting its 2025 pollution reduction goals, concerns have been raised regarding whether Maryland is fully on track to meet its goals. Among those concerns raised by EPA are (1) whether Maryland's Phase III WIP includes sufficient detail regarding the actions that must be taken in order to achieve pollution reduction goals; (2) the feasibility of continued reliance on the wastewater sector to meet pollution reduction goals when other sectors fall short; and (3) whether adequate resources are available to implement necessary agricultural practices. In addition, Maryland's Phase III WIP acknowledges that pollution loading resulting from climate change, population growth, and the Conowingo Dam may impact the achievement and sustainability of restoration beyond calendar 2025.

Most recently, in its October 2022 evaluation of Maryland's 2020-2021 completed and 2022-2023 projected milestones, EPA noted that Maryland did not achieve its 2021 targets for nitrogen and phosphorus but did achieve its target for sediment. The evaluation specifically flagged the State's handling of expired municipal storm sewer system permits and implementation of agricultural BMPs as areas for improvement. Delaware, New York, Pennsylvania, and Virginia also fell short on their projected milestones, prompting the EPA Administrator to acknowledge that the plan and timeline for meeting remaining pollution reductions will likely need to be revised.

In order to meet the statewide pollution reduction goal for nitrogen as part of the Phase III WIP, the State must further reduce nitrogen loading to the bay by an additional 4.9 million pounds per year relative to the calendar 2021 level in order to meet the 2025 target of 45.8 million pounds of nitrogen per year. **Exhibit 4** shows Maryland's nitrogen pollution loads by sector for calendar 2009, 2019, 2020, and 2021; the target load for 2025 using the Phase 6 model; the official Maryland Phase III WIP using the 2019 version of the Chesapeake Assessment and Scenario Tool; and the Maryland Phase III WIP using the 2019 version of the Chesapeake Assessment and Scenario Tool. A couple of observations are as follows:

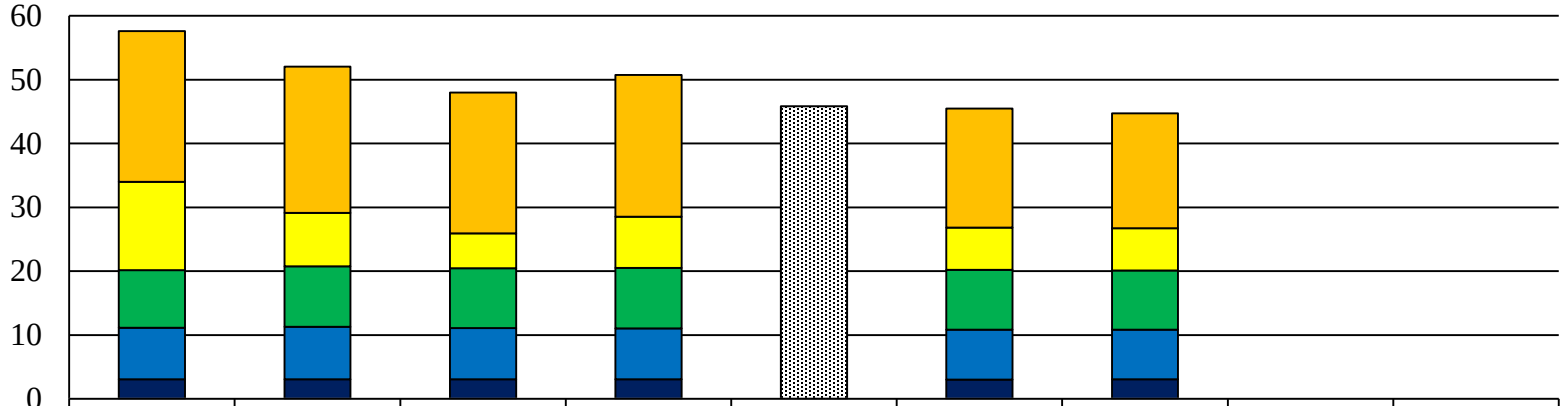
- ***Progress:*** Maryland increased loading by 2.8 million pounds of nitrogen between calendar 2020 and 2021, which reflects both failures at the Back River and Patapsco wastewater treatment plants and less credit for reductions in the agriculture sector as a result of new Chesapeake Bay model assumptions, which will make it more difficult to reach the 45.8 million pounds of nitrogen if this recent backslide is not reversed;

- ***Target Exceeded:*** Maryland intends to reduce nitrogen loads to 44.7 million in calendar 2025 – the 2025 WIP Goal (Official) noted in the exhibit – and thus exceed the 45.8 million pounds per year target in order to account for increased pollution reductions needed to address climate change;

- ***Data Updated:*** the 2019 version of the Chesapeake Assessment and Scenario Tool indicates that the loading under Maryland's 2025 WIP Goal will actually be closer to 45.5 million pounds per year, which is less of a margin than was previously anticipated; and

- ***Percent Changes:*** Maryland needs to maintain the pace of progress relative to the overall 2009-2021 period as long as the challenges in the wastewater sector are addressed in order to meet the 2025 target, but there will need to be an increase in the pace of progress in the agriculture sector, which will have to reduce 19.2% of its load compared to the 5.8% reduced in the 2009-2021 period.

Exhibit 4
Maryland Nitrogen Pollution Loads by Sector
Trends and Targets
(Million Pounds Per Year)



	2009 Actual	2019 Actual	2020 Actual	2021 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2021 Percent Change	2021-2025 Official Percent Change
Total	57.6	52.0	48.0	50.7	45.8	45.5	44.7	-11.9%	-11.9%
Agriculture	23.6	22.9	22.1	22.2		18.6	18.0	-5.8%	-19.2%
Wastewater	13.8	8.4	5.5	8.0		6.6	6.6	-42.3%	-16.8%
Developed	9.0	9.5	9.3	9.5		9.4	9.3	5.4%	-2.5%
Natural	8.1	8.2	8.0	8.0		7.8	7.8	-2.1%	-2.0%
Septic	3.0	3.1	3.1	3.1		3.0	3.1	1.2%	-0.9%

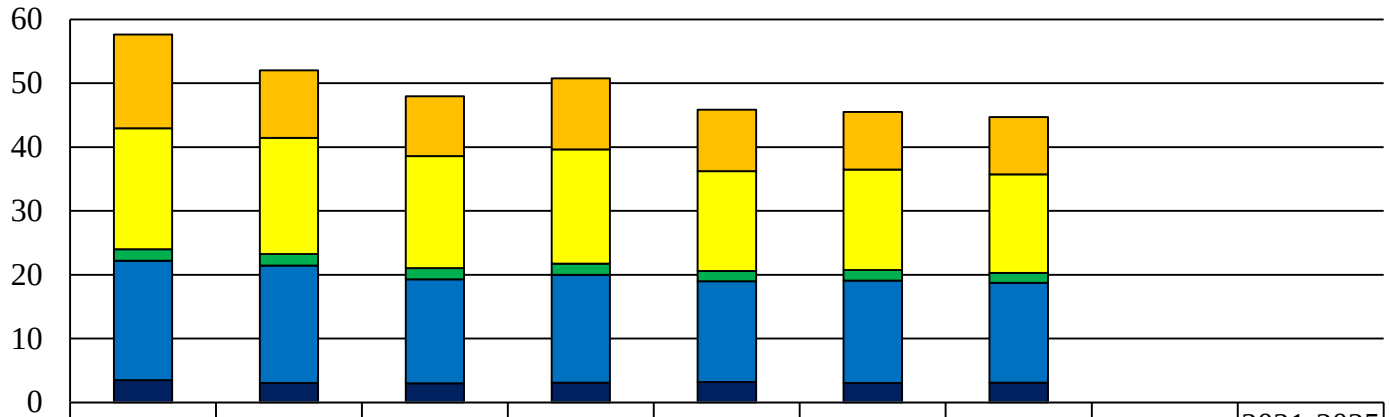
WIP: Watershed Implementation Plan

Note: The 2025 Target is not broken down by sector in order to give the states flexibility in how they meet their load reductions.

Source: Chesapeake Bay Program – Chesapeake Assessment and Scenario Tool

Another way to evaluate Maryland's progress is to look at nitrogen loads by major basin. **Exhibit 5** reflects that Maryland's Western Shore basin – predominated by the wastewater and developed sectors – will have to reduce 19.0% of its load compared to the 24.5% reduced in the 2009-2021 period, once again mostly due to failures at the Back River and Patapsco wastewater treatment plants. This is in contrast to the progress realized in last year's analysis, when the Western Shore saw substantial reductions due to the upgrade of wastewater treatment plants and thus only had to reduce 4.2% of its load compared to the 36.2% reduced in the 2009-2020 period. The Eastern Shore basin – predominated by the agricultural sector – will have to reduce 13.8% of its load compared to the 5.5% reduced in the 2009-2021 period.

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



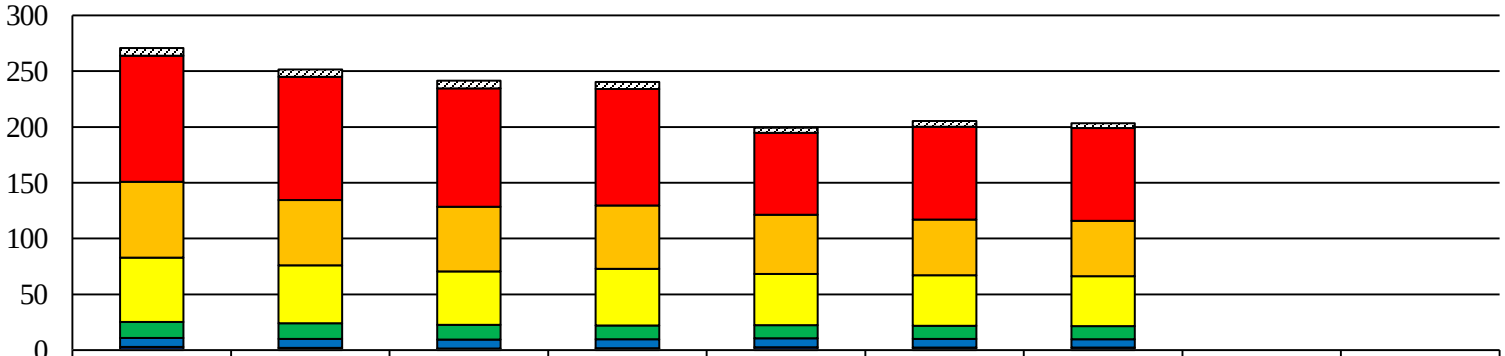
	2009 Actual	2019 Actual	2020 Actual	2021 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2021 Percent Change	2021-2025 Official Percent Change
Total	57.6	52.0	48.0	50.7	45.8	45.5	44.7	-11.9%	-11.9%
Western Shore	14.7	10.6	9.4	11.1	9.6	9.0	9.0	-24.5%	-19.0%
Eastern Shore	19.0	18.2	17.6	17.9	15.6	15.7	15.4	-5.5%	-13.8%
Susquehanna River Basin	1.8	1.8	1.8	1.8	1.6	1.6	1.6	-2.5%	-10.5%
Potomac River Basin	18.7	18.4	16.3	16.9	15.8	16.1	15.6	-9.5%	-7.4%
Patuxent River Basin	3.5	3.1	3.0	3.1	3.2	3.0	3.1	-12.0%	-0.1%

WIP: Watershed Implementation Plan

Source: Chesapeake Bay Program – Chesapeake Assessment and Scenario Tool

Lastly, there is the Chesapeake Bay watershed nitrogen pollution loading as a whole, which is reflected in **Exhibit 6**. As shown, although Delaware has the greatest percentage reduction needed between calendar 2021 and 2025, Pennsylvania, which contributes the largest amount of nitrogen pollution loading, has the largest magnitude of reductions and has to substantially increase its load reductions by 2025 from the 7.7% between 2009 and 2021 to 20.4% between 2021 and 2025. Overall, the Chesapeake Bay watershed states will need to increase reductions from the 11.2% between calendar 2009 and 2021 to 15.4% between calendar 2021 and 2025. This is likely one of the reasons for the pessimism surrounding the meeting of the 2025 TMDL.

Exhibit 6
Chesapeake Bay Watershed Nitrogen Pollution Loads by State
Trends and Targets
(Millions Pounds Per Year)



	2009 Actual	2019 Actual	2020 Actual	2021 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2021 Percent Change	2021-2025 Official Percent Change
Total	270.8	251.5	241.5	240.5	199.3	205.2	203.4	-11.2%	-15.4%
Delaware	6.9	6.7	6.9	6.4	4.6	4.9	4.5	-6.7%	-30.2%
Pennsylvania	113.2	110.4	106.0	104.5	73.5	83.2	83.2	-7.7%	-20.4%
Virginia	67.9	58.3	58.0	56.6	53.0	49.9	49.6	-16.6%	-12.5%
Maryland	57.6	52.0	48.0	50.7	45.8	45.5	44.7	-11.9%	-11.9%
New York	14.4	13.9	13.2	12.6	11.8	11.6	11.6	-12.6%	-7.7%
West Virginia	8.0	8.1	8.0	7.9	8.2	7.8	7.5	-1.4%	-5.4%
District of Columbia	2.8	2.1	1.4	1.7	2.4	2.3	2.3	-40.2%	

WIP: Watershed Implementation Plan

Note: The District of Columbia has exceeded its 2025 goal.

Source: Chesapeake Bay Program – Chesapeake Assessment and Scenario Tool

Health

The results of implementing BMPs are reflected in UMCES' Chesapeake Bay and Watershed Report Card, which is comprised of separate scores for the Chesapeake Bay itself and the surrounding watershed – the third year of reporting for the watershed, although the inclusion of new economic indicators means that the 2021 score is not directly comparable to prior years.

- ***Chesapeake Bay Health Score:*** The Chesapeake Bay health score compares seven indicators – dissolved oxygen, nitrogen, phosphorus, chlorophyll a, water clarity, aquatic grasses, and benthic community – to scientific goals. Striped bass, bay anchovy, and blue crab are part of a separate fisheries index, which is not included in the bay health score. The health of the Chesapeake Bay itself, as measured by the report card, has generally remained the same since 2003. The overall health of the bay improved slightly in 2021, receiving an overall score of C (50%), indicating that the bay is in moderate ecosystem health. The highest-scoring region was the Lower Bay again (increased from C+ or 57% to B or 65%), which is the part of the bay closest to the Atlantic Ocean. The lowest-scoring region was the Patapsco and Back Rivers and the Patuxent River (remained at D- or 23%).

- ***Chesapeake Bay Watershed Health Score:*** The Chesapeake Bay watershed health score has seen some changes, including consolidation of independent indicators into indexes. The current version of the watershed health score includes three categories comprised of 11 indicators as follows: ecological – water quality (previously separate indicators for nitrogen, phosphorus, and turbidity), stream benthic community, and protected lands; societal – stewardship, walkability, heat vulnerability index, and social index; and economic – housing affordability, income inequality, jobs growth, and median income. These indicators are compared to scientific and administrative goals. The health of the Chesapeake Bay watershed has only been scored for three years, and in any event 4 new economic indicators were added in the 2021 report, so there is no long-term trend. The Chesapeake Bay watershed scored 56% (C+) in 2021. The highest-scoring region was the Upper James (B- or 64%). The lowest-scoring region was the Choptank River in Maryland (C- or 43%). The Choptank River region's score was largely due to the following: ecological indicators – overall (C) with a high score for protected lands (A-) and low score for benthic community (F); societal indicators – overall (C-) with a high score for heat vulnerability index (B-) and a low score for stewardship index (F); and economic indicators – overall (D+) with high scores for median income and net job growth (C) and a low score for income inequality (D).

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 and the anticipation of future requirements,

represents approximately $1.0 billion. 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. In 2013, after many years of discussion regarding the lack of transportation funding for new infrastructure, Chapter 429 of 2013 was enacted. Chapter 429 increased transportation funding by raising 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 7 reflects the most recent SHA WIP funding estimate, which in the fiscal 2023 to 2028 *Consolidated Transportation Program* is $658.5 million, including $502.7 million expended prior to fiscal 2023 and $30.5 million added in fiscal 2028. The $34.8 million increase in total estimated costs from last year's estimate of $623.7 million is primarily due to the addition of fiscal 2028 funding.

Exhibit 7
SHA Watershed Implementation Plan Funding
Fiscal 2023-2028
($ in Thousands)

Source	Prior Auth.	2023	2024	2025	2026	2027	2028	Total
Special Funds	$328,476	$7,782	$3,576	$6,101	$19,202	$19,357	$22,649	$407,143
Federal Funds	129,219	4,377	10,841	14,541	15,734	15,786	15,883	206,381
GO Bonds	45,000	0	0	0	0	0	0	45,000
Total	**$502,695**	**$12,159**	**$14,417**	**$20,642**	**$34,936**	**$35,143**	**$38,532**	**$658,524**

GO: general obligation
SHA: State Highway Administration

Note: The GO bond funding was set up through the Secretary's Office; SHA spent its own funds and then was reimbursed by the Secretary's Office. However, the GO bond funding is reflected here in order to account for the funding for the Maryland Department of Transportation as a whole. For the prior authorization, $6.5 million in special funds are budgeted in the Secretary's Office capital program for an innovative stormwater pond management pilot program, and the remaining funds are budgeted in the SHA capital program.

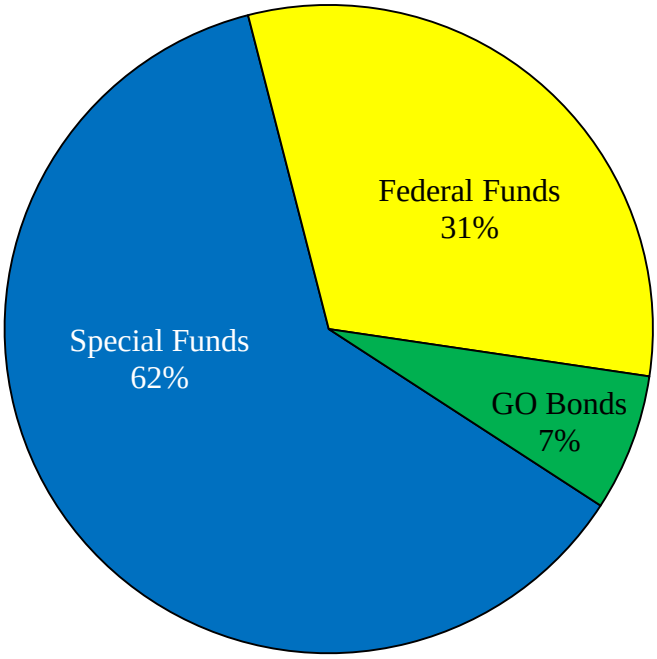
Source: Maryland Department of Transportation; Fiscal 2023-2028 *Consolidated Transportation Program*

SHA has received a final determination from MDE on the pollutant reduction credits and particularly the pollutant reduction credits from stream restoration that are two to three times the

expected credit, depending on the watershed where the work is completed. In addition, SHA is expecting efficiencies from the use of a new smart pond technology being piloted that improves stormwater pond operations with the use of sensors and software that monitor real-time conditions such as water level and storage volume. The system uses Internet-based forecasts to remotely operate valves to control timing and volume of water discharge. Longer retention time in the pond increases water quality by capturing more sediment and nutrients. This is reflected as $6.5 million in the prior authorization. Overall, as noted above, SHA estimates that it will be able to comply with the Phase I municipal separate storm sewer system (MS4) permit for less than $1.0 billion.

As shown in **Exhibit 8**, special funds comprise the largest share of the projected fund sources, accounting for 62% of the planned funding, followed by federal funds (31%) and general obligation (GO) bonds (7%). SHA notes that federal funds are difficult to use because stormwater work related to the TMDL program does not have a dedicated funding source under the U.S. Department of Transportation and would be drawing from the same funding sources needed to support the safe and efficient movement of people and goods in Maryland.

Exhibit 8
SHA Watershed Implementation Plan
Total Program Funding Sources



GO: general obligation
SHA: State Highway Administration

Source: Maryland Department of Transportation; Fiscal 2023 to 2028 *Consolidated Transportation Program*

Issues

1. Comprehensive Evaluation of System Response Planned

The Chesapeake Bay restoration effort is due for an evaluation. The Chesapeake Bay Program's Science and Technical Advisory Committee is working on a report called a *Comprehensive Evaluation of System Response*. The report is intended to be an assessment of how Chesapeake Bay Program policy actions have reduced pollutants, improved water quality, and enhanced living resources. The primary question is whether TMDL implementation programs are producing the expected pollutant reductions, water quality, and living resources responses in the Chesapeake Bay.

While the final report has not been published, discussion of the findings of the Science and Technical Advisory Committee's work at the Chesapeake Bay Commission's November 2022 meeting suggest the following:

- ***Achieving Outcomes More Challenging Than Expected:*** there are opportunities to improve the effectiveness of Chesapeake Bay restoration work, but it will require significant changes in thinking and programs;

- ***Gaps in Modeled Reductions versus Monitoring Results:*** there are unexplained processes affecting the relationship between nutrient and sediment reductions and actual monitoring of outcomes;

- ***Nonpoint Source Pollution Controls Are Insufficient:*** the reasons for this include lag time/legacy pollutants, BMP effectiveness, behavior, and data/monitoring limitations, which could be ameliorated by spatial targeting, outcomes based incentive programs, and prioritizing achievement of TMDL goals in particular locations to increase living resource response; and

- ***Substantial Load Reductions in Some Locales Are Resulting in Living Resources Recovery:*** the main factors addressed by the Chesapeake Bay Agreement are nutrient and sediment loads while there are other factors not addressed such as temperature, pH, and salinity, which are also impacted by climate change.

The Department of Legislative Services (DLS) recommends that the Administration comment on the implications of the tentative *Comprehensive Evaluation of System Response* findings noted above, in particular how spatial targeting could improve nonpoint source pollution controls.

2. 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

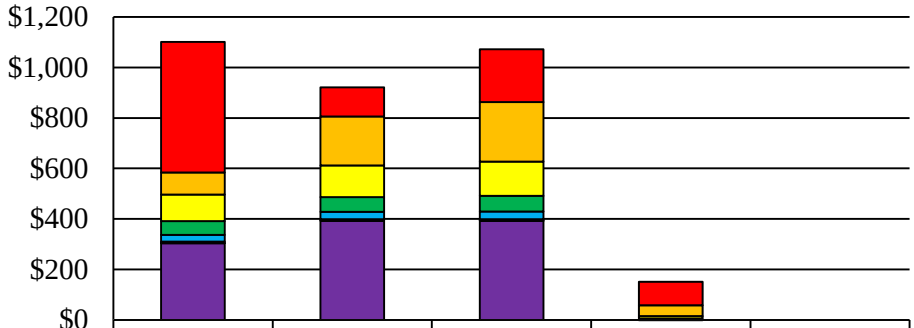
- ***Chesapeake and Atlantic Coastal Bays 2010 Trust Fund:*** actions for nutrient and sediment reduction from nonpoint sources only using certain revenues.

Overall Chesapeake Bay Restoration

The 2022 *Joint Chairmen's Report* (JCR) expressed the General Assembly's intent that the Department of Natural Resources (DNR), the Department of Budget and Management, and 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 2022 actual, the fiscal 2023 working appropriation, and the fiscal 2024 allowance.

The overall Chesapeake Bay restoration expenditures exhibit was first included in the Governor's Fiscal 2009 Budget Books. The purpose of the exhibit is to understand the overall scope of Chesapeake Bay restoration funding. **Exhibit 9** illustrates the change in funding by State agency. The full funding detail by agency, fund source, and spending category is provided in **Appendix 1**.

Exhibit 9
Overview of Maryland's Funding for Chesapeake Bay Restoration
Fiscal 2022-2024 Allowance



	Actual 2022	Approp. 2023	Allowance 2024	$ Change 2023-2024	% Change 2023-2024
Total	$1,101.2	$921.7	$1072.0	$150.4	16.3%
MDOT	$517.0	$116.0	$209.0	$93.0	80.2%
POS, Rural Legacy, MALPF	$87.4	$193.3	$236.2	$42.9	22.2%
DNR*	$105.2	$125.9	$135.7	$9.8	7.8%
MDA**	$54.2	$57.8	$61.7	$3.9	6.8%
Higher Education	$27.5	$29.3	$30.2	$0.9	3.0%
MDP	$5.7	$6.1	$6.4	$0.3	4.9%
MSDE	$0.0	$0.5	$0.5	$0.1	12.3%
MDE***	$304.2	$392.8	$392.2	-$0.6	-0.1%

DNR: Department of Natural Resources
MALPF: Maryland Agricultural Land Preservation Foundation
MDA: Maryland Department of Agriculture
MDE: Maryland Department of the Environment
MDOT: Maryland Department of Transportation
MDP: Maryland Department of Planning
MSDE: Maryland State Department of Education
POS: Program Open Space

* The exhibit reflects an additional $2.8 million in general obligation (GO) bonds in fiscal 2022 and $2.0 million in GO bonds in fiscal 2023 for the Resiliency through Restoration Initiative Program (formerly the Coastal Resiliency Program); and $13.3 million in special funds in fiscal 2023 for the Oyster Restoration Program that were inadvertently left out of the Appendix L of the Governor's Budget Highlights.

** The exhibit reflects an adjustment to correct the Maryland Agricultural Cost-Share program funding from $7,000,000 to the $4,000,000 budgeted in fiscal 2024.

*** The exhibit reflects an additional $3.3 million in special funds in fiscal 2023 for the Conowingo Dam Capacity Recovery and Dredge Material Reuse Project that was inadvertently left out of the Appendix L of the Governor's Budget Highlights.

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 presentation does not reflect fiscal 2023 funding of $25.0 million in GO bonds for the Conowingo Dam Dredging and Watershed Implementation Plan project that remains in the Dedicated Purpose Account.

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

The overall Chesapeake Bay restoration spending increases by $150.4 million, or 16.3%, between the fiscal 2023 working appropriation and the fiscal 2024 allowance. The major changes reflected in the overall Chesapeake Bay restoration spending are as follows.

- ***MDOT:*** Increases by $93.0 million, primarily due to an increase of $61.3 million for the MTA's Purple Line transit project. Other increases include $12.5 million for the Northwest Bus Electrification project, $3.9 million for the Casselman River Bridge Rehabilitation project, $3.7 million for the Maryland 355 Clarksburg Shared-Use Path Construction project, and $3.5 million for the Three Notch Trail phase seven project.

- ***POS, Rural Legacy, and MALPF:*** Increases by $42.9 million due to an increase of $9.6 million in additional transfer tax special funds for POS State Side, $9.2 million for MALPF, and $1.6 million for the Rural Legacy Program, due to an overattainment of revenue from fiscal 2022 that is applied to fiscal 2024. There are also increases of $16.6 million in general funds for MALPF and $5.4 million in general funds for the Rural Legacy Program as mandated by Chapter 39. Finally, MALPF's funding increases by $0.5 million in special funds from county participation as well.

- ***DNR:*** Increases by $9.8 million, primarily due to an increase of approximately $13.9 million for the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund comprised of $11.5 million in special funds. This is primarily from available balance provided by general fund deficiencies in fiscal 2022, when the short-term rental vehicle tax did not support the spending plan, and $2.5 million in general funds mandated by Chapter 645 of 2021 (Tree Solutions Now Act). There is also a net increase of $4.6 million for an assortment of individual programs and projects, $2.5 million for the research vessel Kerhin, and $1.9 million for mussel hatchery design and construction projects funded by the Exelon Conowingo Settlement via MDE. In terms of decreases, there is a reduction of $11.3 million for the Oyster Restoration Program, $2.0 million for the Resiliency through Restoration Initiative Program, and $1.0 million for the State Lakes Protection and Restoration Fund.

- ***Maryland Department of Agriculture:*** Increases by $3.9 million, primarily due to an increase of $2.0 million in GO bond funding for the Maryland Agricultural Cost-Share program.

While not reflected in the exhibit, $25.0 million in GO bonds for the Conowingo Dam Dredging and Watershed Implementation Plan project remains in the Dedicated Purpose Account (DPA). The January 4, 2023 BPW agenda included an item approving the Susquehanna River Basin Commission as the recipient of funding from the Conowingo Watershed Implementation Plan nutrient reduction project.

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 COVID-19 pandemic reduced revenues for the fund, particularly from the sales and use tax on short-term vehicle rentals. As a result of the revenue shortfalls, the fiscal 2023 budget included fiscal 2022 deficiency funding totaling $10.7 million, which supported a number of projects that otherwise would have needed to be canceled or delayed until fiscal 2023 and that has not been completely expended.

The fund allocations for the fiscal 2023 working appropriation and the fiscal 2024 allowance are shown in **Exhibit 10**, although final decisions on allocations typically are made by the BayStat agencies after the final funding levels have been determined. Exhibit 10 reflects the following:

- ***Funding:*** There is an approximately $13.9 million increase in the funding between the two years. As noted above, this reflects the availability of the remainder of the fiscal 2022 general fund deficiency appropriation and the $2.5 million in general funds mandated by Chapter 645 as well as a return to an approximately $50.0 million estimated revenue base for the sales and use tax on short-term vehicle rentals.

- ***Allocation:*** The highlighted increases in the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund allocation for fiscal 2024 include the following: $8.0 million for the competitive grant program for targeted nutrient and sediment pollution reductions; $2.5 million in general funds for the Tree Solutions Now Act funding to plant and maintain 5 million native trees by calendar 2031; $1.2 million for the new 2% allocation for adaptive management, maintenance, and outcome procurement per Chapters 237 and 238 of 2022 (Conservation Finance Act); $1.0 million for Natural Filters on Public Lands such as forest buffers, reforestation, wetland restoration, stream and floodplain restoration, stormwater retrofits and other bioremediation projects; and $0.9 million for agricultural technical assistance to support 53 State and 25 local soil conservation district agricultural technical assistance positions.

Exhibit 10
Chesapeake and Atlantic Coastal Bays 2010 Trust Fund Planned Expenditures
Fiscal 2023-2024
($ in Millions)

Category/Activity	2023	2024	Difference 2023-2024
Accountability, Verification, and Management			
Strategic Monitoring and Assessment	$0.4	$0.4	$0.0
Implementation Tracking	0.2	0.2	0.0
Administration and Management (1.5%)	0.7	0.9	0.2
Subtotal	***$1.3***	***$1.5***	***$0.2***
Accelerating Restoration through Research and Development			
Innovative Technology Fund	$1.0	$1.0	$0.0
Restoration Research Grant Program	0.3	0.3	0.0
Subtotal	***$1.3***	***$1.3***	***$0.0***
Implementation Technical Assistance			
Agricultural Technical Assistance	$4.9	$5.8	$0.9
Water Management Permit Expediters	0.8	0.9	0.1
Field Restoration Specialists	0.8	0.9	0.1
Tree Solutions Now Coordinator and Regional Foresters	1.3	1.3	0.0
Subtotal	***$7.6***	***$8.7***	***$1.1***
Nonpoint Source Pollution Control Projects			
Cover Crop Program	$11.3	$11.3	$0.0
Conservation Reserve Enhancement Program Bonus Payments	0.5	0.5	0.0
Grants to Farmers	3.0	3.0	0.0
Manure Transport Program	1.8	1.8	0.0
Competitive Grant Program	14.9	22.9	8.0
Natural Filters on Public Lands	5.0	6.0	1.0
Tree Solutions Now Act	0.0	2.5	2.5
Adaptive Management and Maintenance	0.0	1.2	1.2
Subtotal	***$36.4***	***$49.1***	***$12.7***
Total	**$46.7**	**$60.6**	**$13.9**

Source: Department of Natural Resources

DLS recommends the adoption of committee narrative requesting that the Administration continue to publish the overall Chesapeake Bay restoration data in the Governor's budget books and provide the electronic data separately. For administrative purposes, this recommendation will appear in the DNR operating budget analysis. 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 at the time of the fiscal 2025 budget submission.

3. Historical and Projected Chesapeake Bay Restoration Spending

Section 35 of the fiscal 2023 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 submitted report and subsequent public testimony highlight the importance of three sectors for Maryland's Chesapeake Bay restoration success: wastewater; agriculture; and developed (stormwater). This ordering is important because it reflects the importance of timing as well given that the majority of load reduction is currently coming from wastewater treatment plants, which will need to shift to agriculture in the next few years, followed by stormwater in the developed sector into the future.

The major factors affecting each of the sectors are as follows:

- ***Wastewater:*** The dedicated Bay Restoration Fund revenue source and the now almost completed plan to upgrade the 67 major wastewater treatment plants has been a hallmark achievement. In fact, Maryland's plan to address to nutrient and sediment loads from climate change relies on even greater efficiencies in wastewater treatment plant operations. However, well-documented failures at the Back River and Patapsco wastewater treatment plants highlight the downside of Maryland's Phase III WIP focus on the wastewater sector. Staffing and preventive maintenance challenges may be largely limited to the two major wastewater treatment plants, but this has not stopped MDE from proactively seeking to stem any further mishaps. This involves staff meetings between MDE and MES on ways to improve operation wastewater treatment plant operations, the inclusion of an engineering report in new discharge permits to ensure that facilities are being run effectively, and an early warning monitoring system based on continuous flow data received from wastewater treatment plants.

- ***Agriculture:*** The agriculture sector is a challenge due to its largely nonpoint source nature; only concentrated animal feeding operations are considered point sources. Therefore, agriculture is largely a voluntary compliance sector when it comes to nutrient and sediment reduction. This is reflected in the challenges that states have had in reducing their nonpoint source pollution from agriculture. Maryland's agriculture sector challenges are even greater due to the proximity to the Chesapeake Bay and the complications of

legacy/pollutants. However, the 24 soil conservation districts show that there is already an administrative infrastructure in place to address the challenge of nonpoint source pollution. The 53 field positions added with Chesapeake and Atlantic Coastal Bays 2010 Trust Fund funding have not been filled yet. Once filled, the plan is for these positions to generate a form of production function whereby the development of soil and water quality conservation plans on farms lead to BMP implementation and thus nutrient and sediment reductions. The question is how quickly can these efforts be ramped up and will they scale to the nutrient and sediment load reduction needs of the agriculture sector. In addition, will the agriculture sector adopt a targeting model for nonpoint source pollution reduction.

- ***Stormwater:*** The stormwater sector is in some ways the most challenging sector of all. In combination, the prohibitive cost of BMPs, the limited amount of public land on which to implement the practices, the dispersed nature of development, and the growth model adopted by our economy means that there will be incremental change in the loads from this sector for the time being. That said, the stormwater sector will become more important as population growth and technological limitations mean that the wastewater sector can no longer offset increases in stormwater loads. The impervious surface fee – often called the rain tax – was one proposal for making the tradeoff of unregulated development clear. The stormwater public-private partnership between Prince George's County and Corvias Solutions may yet offer solutions to the stormwater challenge, but the results are not there yet.

DLS recommends that the Administration comment on its plans for requiring wastewater treatment plant engineering reports with permit renewals and its early warning system, whether the agriculture sector will adopt targeting to reduce nonpoint source pollution, and what the next step is for stormwater load reductions.

DLS also recommends that language be included requesting a similar report from the agencies for the fiscal 2025 budget submission 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. The report should include updated information how the loads associated with the Conowingo Dam infill, growth of people and animals, and climate change will be addressed as well as the status of staffing and preventive maintenance at the 67 major wastewater treatment plants, the status of the 53 Soil Conservation District field positions in terms of Soil and Water Quality Conservation Plan development and BMP implementation, and the long-term plans for reducing loading from the stormwater sector.

4. CWIP, Relicensing, and Sediment Study

The Conowingo Dam, a peaking hydroelectric facility that uses reservoir storage to generate electricity during peak electricity demand periods, has been described as the largest BMP on the Susquehanna River because it collects sediment and associated nutrients that would otherwise flow into the bay. However, the dam, owned by Exelon Corporation, has reached an end state in terms of sediment storage capacity. As a result of the dam reaching capacity, the jurisdictions have a reduction target of 6.0 million pounds of nitrogen and 260,000 pounds of phosphorus under a separate WIP managed by a trio of third parties contracted for this purpose: the Center for Watershed Protection; the Chesapeake Bay Trust, which has subcontracted work to the University of Maryland Center for Global Sustainability; and the Chesapeake Conservancy. The ultimate implementation of the WIP is the responsibility of the jurisdictions.

CWIP

In its May 8, 2021 evaluation of the draft CWIP, EPA expressed concerns about distinguishing restoration activities under the draft CWIP from activities that are already pledged under the bay jurisdiction's Phase III WIPs. In addition, EPA noted the need for dedicated funding mechanisms and public-sector financial commitments to fully implement the draft CWIP. The final CWIP was completed on July 31, 2021, and submitted to EPA in September 2021 for review. The final CWIP reflects an over-the-target reduction of 6.75 million pounds of nitrogen per year. The total annualized cost of nitrogen reduction is still to be determined but ranges from $53.3 million to $253.0 million per year. In its January 2022 evaluation of the final CWIP, EPA raised concerns over the need to distinguish restoration activities under the CWIP from activities that are already pledged under the bay jurisdictions' Phase III WIPs, as well as the need to identify dedicated funding mechanisms. On July 19, 2022, based on EPA guidance, the Principals' Staff Committee (the policy advisors to the Chesapeake Executive Council) reached consensus that Maryland, New York, and Pennsylvania can use a phased approach that extends beyond calendar 2025 to address nutrient loads from the Conowingo, indicating that this approach will allow time to build the organizational infrastructure necessary to implement the final CWIP.

Maryland's fiscal 2023 budget included $25.0 million for a CWIP project in MDE to implement nutrient control actions under the CWIP. The 2022 JCR included committee narrative requesting two reports about the CWIP project. The first report on a non-State funding match is due 30 days after the non-State match has been secured, and a second report on how funds will be spent is due 30 days before the spending of the fiscal 2023 funding. The reports were requested in light of the lack of an agreed upon a funding strategy for the CWIP and the uncertainty about how the funding was to be used. To date, the triggering events have not occurred, and the reports have not been submitted.

The CWIP is the first of three activities to be addressed by the third-party contractors and reflects the recommended BMP implementation strategy. The two remaining activities to be addressed by the third-party contractors include the development and implementation of (1) a financing strategy (Phase I of the financing strategy was completed on July 1, 2021, by the University of Maryland Center for Global Sustainability and will cover the 2022 to 2025 time

period) and (2) a system for tracking, verifying, and reporting BMP implementation to be completed by the Chesapeake Conservancy. A letter of agreement template was completed in September 2021 and has been approved by the Chesapeake Bay partnership. The letter of agreement template provides jurisdictions a legal/contractual mechanism to contribute funding toward CWIP implementation, but it does not commit any jurisdiction to provide funding. Instead, it appears that the financing strategy relies on the $25.0 million provided in MDE's fiscal 2023 budget. It is not clear whether further actions have been taken on the system for tracking, verifying, and reporting BMP implementation.

A January 4, 2023 BPW agenda item for MDE approved the use of the $25.0 million in pay-as-you-go general funds for the CWIP – Nutrient Reduction project. The funding will be used according to the pay for performance financing model, but there remain a number of questions related to the exact implementation of the funding as follows.

- ***Memorandum of Understanding***: The BPW agenda item appears to indicate that a memorandum of understanding has not been signed. However, a December 19, 2022 Susquehanna River Basin Commission press release reflects that a memorandum of understanding has been signed.

- ***State Clearinghouse Review:*** The State Clearinghouse Review process was not completed before the BPW agenda item was approved. The review process closed on January 27, 2023, and it is likely that the only comment generated in the State Clearinghouse Review process will be for Maryland Historical Trust review of projects.

- ***Request for Proposals (RFP):*** The plan appears to be to issue a RFP based on the pay for performance model, but the details of this RFP have not been released. The details of the RFP are important because there is some inconsistency in the specificity about where projects are to be funded. The State Clearinghouse's supporting information reflected both specific potential project locations in the Conowingo Creek watershed in Pennsylvania and a more general project area for the Susquehanna River riparian area in Cecil and Harford counties.

- ***Credit for Projects:*** No information has been provided yet about how Maryland will be credited for the work done by the $25.0 million given that the CWIP only contemplated annual costs of $1.28 million for Maryland in order to reduce 0.18 million pounds of nitrogen.

Conowingo Dam Relicensing

FERC recently approved the relicensing of the dam. Exelon initiated the relicensing proceedings in 2009 before the 2014 expiration of the prior license. The dam received automatic one-year renewals until relicensing was approved; FERC could not act on the relicensing application until MDE issued a CWA Section 401 water quality certification. On April 27, 2018, MDE issued the water quality certification with special conditions, which led Exelon to file an administrative appeal with MDE and lawsuits in federal and State court. Ultimately, on October 29, 2019, the State announced a settlement agreement between MDE and Exelon that requires Exelon to invest more than $200 million in environmental projects and operational enhancements to improve water quality over the 50-year license term. FERC approved the settlement and issued a new license to Exelon for the Conowingo Dam on March 18, 2021. Although the settlement and FERC's issuance of the new license resolved the litigation against MDE, there were ongoing challenges regarding the water quality certification and relicensing of the dam. On June 17, 2021, environmental advocacy groups filed a petition for review in federal court to challenge FERC's issuance of the new license and, on July 19, 2021, the Maryland Attorney General filed a motion to intervene on the petition for review.

On December 20, 2022, the U.S. Court of Appeals for the District of Columbia Circuit ordered the Conowingo Dam license to be vacated. The ruling was based on the idea that FERC has the power to issue a license in two circumstances: (1) where a state has granted a water quality certification; or (2) where the state has waived its authority to certify by failing or refusing to act. FERC erred by taking a third route and issuing a license based on a private settlement arrangement entered into by Maryland despite Maryland issuing the April 27, 2018 certification. In terms of next steps, it appears that FERC can either invalidate Maryland's 2018 certification, which would require Exelon to request a new certification, or validate the 2018 certification, which would require FERC to issue a license incorporating the conditions in that certification and presumably generating more legal action from Exelon. Annual interim licenses could address the vacating of the license, but the status of the settlement agreement between MDE and Exelon that requires Exelon to invest more than $200 million in environmental projects and operational enhancements to improve water quality over the 50-year license term is unclear.

Sediment Study

Finally, Maryland is implementing a proposal to study the reuse of sediment stored behind the dam known as the Conowingo Dredging and Innovative and Beneficial Reuse Pilot Project. The idea is to characterize the sediment to determine whether it can be used and thus generate revenue to either offset or pay for sediment dredging behind the dam. Exelon filed an application with FERC requesting approval to authorize MES to implement a dredging project approximately five miles upstream from the Conowingo Dam. The notice was published in the Federal Register on July 14, 2020. The project calls for mechanically dredging 1,000 cubic yards of sediment. On November 12, 2020, MES announced that it had been authorized for right of entry to begin the sediment characterization portion of the pilot project, which began in December 2020. Subsequently, the pilot dredging project was completed in October 2021 and included additional sediment characterization and reuse evaluation of dredge area sediments. It was anticipated that a

report reflecting the findings of the demonstration projects – dredging and innovative reuse – would be published by summer 2022.

The fiscal 2023 budget includes $6.0 million for MES's Conowingo Dam Capacity Recovery and Dredge Material Reuse Project. The 2022 JCR included committee narrative requesting information to be submitted by July 1, 2022 on the following:

- the results of the Conowingo Sediment Characterization and Innovative and Beneficial Reuse Pilot;
- the status of whether the removal of sediment and associated pollutants from the Conowingo Pool by dredging is approved as a BMP by EPA and the Chesapeake Bay partnership; and
- documentation on whether the dredging of sediment behind the Conowingo Dam provides a more cost-effective means of removing nitrogen, phosphorus, and sediment entering the mainstem of the Chesapeake Bay than implementation of other approved BMPs in the Susquehanna River watershed.

The submitted report and other background information raised additional questions about the readiness of the dredging project. For instance, the project was underdeveloped in that there was no clear program plan, timeline, cost estimate, or confirmed buy-in from neighboring states to support the project. While a draft of the Sediment Characterization and Innovative and Beneficial Reuse Pilot report was provided, the report was incomplete, as MES has not been unable to engage in a demonstration project using any Conowingo dredged material. This, combined with the lack of an approved Part I program plan for the project, mean that the full scope and cost of the project remains indeterminable. While it is plausible, as the draft report discusses, that scenarios exist to utilize dredging as a cost-effective measure in combination with other best practices, certain variables, such as transportation method and required blending of the sediment, could lessen the desirability of this solution. Furthermore, the report submitted by MES noted that approval of dredging as a BMP is likely to require more than a year to achieve, as the necessary expert panel group has yet to be convened. Despite the budget committee's concerns, the Hogan Administration chose to transfer $3.3 million from the DPA for the Conowingo Dam Capacity Recovery and Dredge Material Reuse Project.

DLS recommends that the Administration comment on the likelihood that the Chesapeake Bay partners will contribute funding to the CWIP and the details of the memorandum of understanding with the Susquehanna River Basin Commission, the request for proposals, and the crediting of nutrient reduction by projects; the status of Conowingo Dam relicensing and the settlement agreement with Exelon given the recent court order; and the plan for Conowingo Dam reservoir dredging and beneficial reuse of sediment.

5. Lawsuits Filed Against EPA

On September 10, 2020, the Attorneys General from Delaware; Maryland; Virginia; and Washington, DC filed a lawsuit against EPA in the U.S. District Court for the District of Columbia. The lawsuit seeks to compel EPA to comply with its nondiscretionary duty under the CWA to ensure that each signatory state to the Chesapeake Bay Agreement develops and implements management plans (the Phase III WIPs) that achieve and maintain the nutrient reduction goals in the agreement. Pennsylvania and New York were singled out for having inadequate Phase III WIPs, tacitly approved by EPA, that will achieve only 75.0% and 66.0% of the required nitrogen reductions, respectively (although New York has since submitted to EPA an amended WIP that, if fully implemented, meets its obligations). The lawsuit further stated that EPA's failure to ensure the development of adequate plans jeopardizes the success of overall Chesapeake Bay restoration, since the Phase III WIP process is the final period in which a statutory or regulatory mechanism is available to ensure that the bay states will achieve and maintain those reductions. A similar lawsuit was filed on September 10, 2020, by the Chesapeake Bay Foundation, Inc.; the Maryland Watermen's Association, Inc.; Anne Arundel County; and two Virginia farmers. These cases have been consolidated and remain in litigation. The last action appears to be a November 14, 2022 order. The order requires the plaintiffs to file a response to the EPA's motion to dismiss the lawsuit on or before February 9, 2023, and requires the EPA to reply on or before February 23, 2023.

Pennsylvania submitted an amendment to its Phase III WIP to EPA on December 31, 2021, and a final amended Phase III WIP in July 2022. EPA expressed a lack of confidence in Pennsylvania's plan in a November 21, 2022 letter to the Pennsylvania Department of Environmental Protection. The letter notes that Pennsylvania's plan only meets 72% of the nitrogen target, 99% of the phosphorus target, and 93% of the sediment target. This means that Pennsylvania is still 9.3 million pounds shy of the nitrogen target. In addition, some of the methods identified to achieve reductions in the final amended Phase III WIP are not currently approved by the Chesapeake Bay Program partnership. **DLS recommends that the Administration comment on the Biden Administration's plans for regulatory oversight of the Chesapeake Bay TMDL and the implications of Pennsylvania's failure to submit a final Phase III WIP that meets its nitrogen, phosphorus, and sediment targets.**

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 until the agencies provide a report to the budget committees 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 2023 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 2024 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 2023 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;

   (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,

Water Quality Revolving Loan Fund, and Clean Water Commerce Account among others, are for Chesapeake Bay restoration purposes; and

(6) updated information on the Phase III Watershed Implementation Plan implementation and how the loads associated with the Conowingo Dam infill, growth of people and animals, and climate change will be addressed.

The report shall be submitted by December 1, 2023, and the budget committees shall have 45 days from the date of the receipt of the report to review and comment. Funds restricted pending the receipt of a report 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) until the agencies provide a report by December 1, 2023, 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 intent that the report include information on policy innovations that improve the effectiveness of Maryland and other states' efforts toward Chesapeake Bay restoration; an analysis of how cost effective the State funding sources are that are being used; updated information on the Phase III Watershed Implementation Plan implementation; and how Conowingo Dam infill, people and animal growth, and climate change will be addressed.

Information Request	**Author**	**Due Date**
Historical and projected Chesapeake Bay restoration spending	MDP DNR MDA MDE DBM	December 1, 2023

Appendix 1
Overview of Maryland's Funding for Chesapeake Bay Restoration
Fiscal 2020-2024

	Actual 2020	Actual 2021	Actual 2022	Approp. 2023	Allowance 2024	$ Change 2023-2024	% Change 2023-2024
Agency/Program Total Funds							
Department of Natural Resources[1,2]	$100,229,050	$106,211,467	$105,208,586	$125,917,239	$135,697,819	$9,780,580	7.8%
Program Open Space	41,127,317	41,939,587	11,218,797	95,574,186	105,197,976	9,623,790	10.1%
Rural Legacy	18,852,009	17,999,092	20,037,061	26,387,542	33,424,164	7,036,622	26.7%
Department of Planning	11,381,759	6,240,498	5,711,299	6,112,212	6,409,109	296,897	4.9%
Department of Agriculture[3]	66,166,531	53,768,935	54,244,914	57,752,490	61,692,130	3,939,640	6.8%
Maryland Agricultural Land Preservation Foundation	46,815,967	42,105,177	56,126,642	71,339,821	97,614,897	26,275,076	36.8%
Maryland Department of the Environment[4]	300,943,995	300,974,292	304,218,715	392,794,543	392,237,621	-556,922	-0.1%
Maryland State Department of Education	458,375	18,931	33,238	478,504	537,149	58,645	12.3%
Maryland Higher Education	20,798,820	26,939,804	27,465,208	29,320,829	30,206,251	885,423	3.0%
Maryland Department of Transportation	485,686,817	522,337,519	516,975,627	115,992,515	209,017,589	93,025,073	80.2%
Total	**$1,092,460,640**	**$1,118,535,303**	**$1,101,240,087**	**$921,669,881**	**$1,072,034,705**	**$150,364,824**	**16.3%**
Fund Type							
General Fund	$41,962,395	$38,399,356	$41,128,697	$65,197,564	$97,049,721	$31,852,158	48.9%
Special Fund[2,4]	393,864,109	411,161,629	411,679,464	560,523,514	592,681,784	32,158,271	5.7%
Federal Fund	90,863,039	56,383,313	58,222,249	109,156,156	97,312,022	-11,844,134	-10.9%
Reimbursable Funds	31,326,460	28,757,882	28,913,264	30,217,304	33,617,337	3,400,033	11.3%
Current Unrestricted	20,092,124	24,578,415	24,692,495	26,677,414	27,909,759	1,232,345	4.6%
Current Restricted	706,696	2,361,389	2,772,713	2,643,415	2,296,492	-346,922	-13.1%
General Obligation and Revenue Bonds[1,3]	27,959,000	34,555,800	16,855,578	11,262,000	12,150,000	888,000	7.9%
Maryland Department of Transportation Funds	485,686,817	522,337,519	516,975,627	115,992,515	209,017,589	93,025,073	80.2%
Total	**$1,092,460,640**	**$1,118,535,303**	**$1,101,240,087**	**$921,669,881**	**$1,072,034,705**	**$150,364,824**	**16.3%**

	Actual 2020	Actual 2021	Actual 2022	Approp. 2023	Allowance 2024	$ Change 2023-2024	% Change 2023-2024
Spending Category							
Land Preservation	$109,692,236	$105,023,122	$88,397,392	$194,448,203	$237,636,817	$43,188,614	22.2%
Septic Systems	27,836,759	22,695,498	22,168,299	22,612,212	22,909,109	296,897	1.3%
Wastewater Treatment	259,333,475	255,819,798	274,420,270	312,738,802	329,323,182	16,584,380	5.3%
Urban Stormwater	131,936,584	119,826,093	42,623,168	53,313,577	61,155,435	7,841,858	14.7%
Agricultural BMPs[3]	82,349,091	73,151,525	75,704,072	79,177,490	84,092,130	4,914,640	6.2%
Oyster Restoration	9,006,661	13,075,617	6,496,715	11,204,396	11,954,465	750,069	6.7%
Transit and Sustainable Transportation Alternatives	355,059,457	409,356,274	481,814,325	70,499,437	158,445,305	87,945,867	124.7%
Living Resources[1,2]	59,939,388	57,082,389	58,819,104	79,450,425	82,007,614	2,557,189	3.2%
Education and Research	21,331,990	27,088,790	27,782,600	30,319,633	31,273,400	953,768	3.1%
Other[4]	35,974,999	35,416,196	23,014,141	67,905,706	53,237,248	-14,668,458	-21.6%
Total	**$1,092,460,640**	**$1,118,535,303**	**$1,101,240,087**	**$921,669,881**	**$1,072,034,705**	**$150,364,824**	**16.3%**

BMP: best management practice

[1] Reflects an additional $3,085,000 in general obligation bonds in fiscal 2020, $4,160,000 in general obligation (GO) bonds in fiscal 2021, $2,770,000 in GO bonds in fiscal 2022, and $1,970,000 in GO bonds in fiscal 2023 for the Resiliency through Restoration Initiative Program (formerly the Coastal Resiliency Program) that were inadvertently left out of the Appendix L of the Governor's Budget Highlights.
[2] Reflects $13,260,000 in special funds in fiscal 2023 for the Oyster Restoration Program that were inadvertently left out of the Appendix L of the Governor's Budget Highlights.
[3] Reflects an adjustment to correct the Maryland Agricultural Cost-Share program funding from $7,000,000 to the $4,000,000 budgeted in fiscal 2024.
[4] Reflects $3,300,000 of the $6,000,000 in special funds in fiscal 2023 for the Conowingo Dam Capacity Recovery and Dredge Material Reuse Project that were inadvertently left out of the Appendix L of the Governor's Budget Highlights. There is $25,000,000 for the Conowingo Dam Dredging and Watershed Implementation Plan project that remains in the Dedicated Purpose Account and thus is not reflected in the exhibit.

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.

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