Chesapeake Bay
Fiscal 2023 Budget Overview

Department of Legislative Services
Office of Policy Analysis
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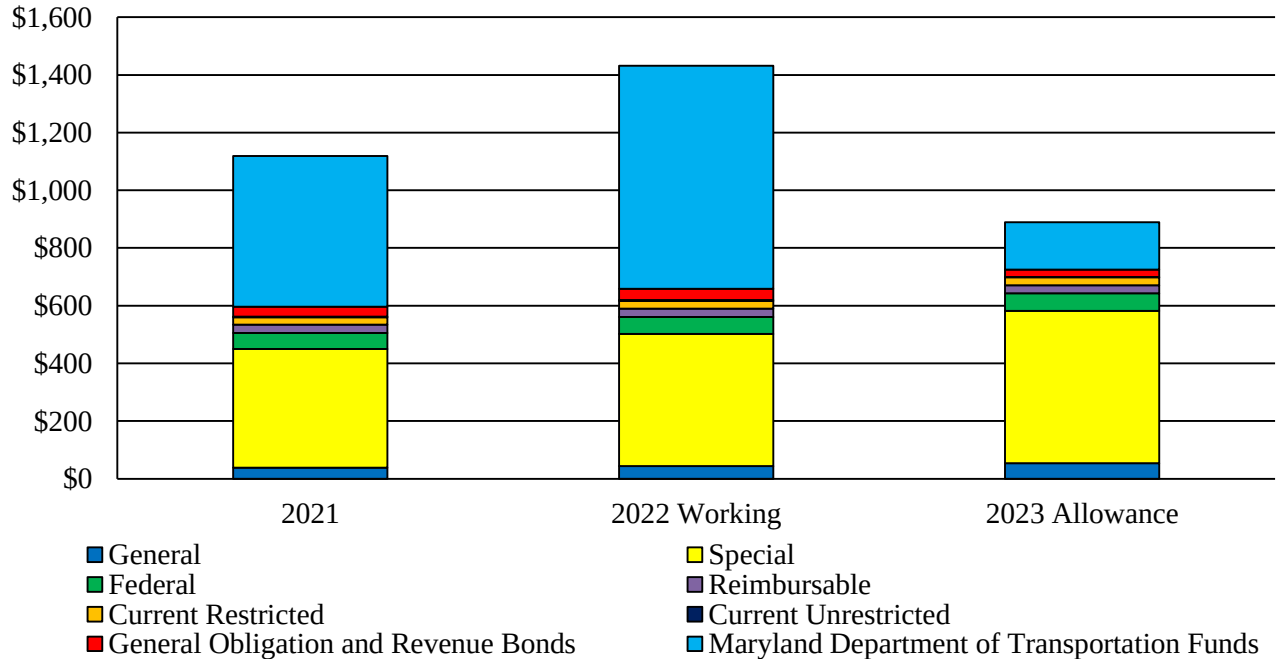
Executive Summary

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 2023 Budget Decreases $542.1 Million, or 38%, to $889.4 Million
($ in Millions)



Note: The exhibit reflects additional general obligation bond funding in fiscal 2020 through 2023 for the Resiliency through Restoration Initiative Program (formerly the Coastal Resiliency Program) that was inadvertently left out of Appendix L of the Governor's Budget Highlights. The exhibit does not reflect fiscal 2023 funding of $25.0 million in general obligation bonds for the Conowingo Watershed Implementation Plan budgeted in the Maryland Department of the Environment and $6.0 million in general obligation bonds for dredging the Conowingo Dam budgeted in the Maryland Environmental Service.

Source: Department of Budget and Management

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 2.1 million pounds per year relative to the calendar 2020 level in order 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 2020, receiving an overall score of C (45%), indicating that the bay is in moderate ecosystem health. In addition, the Chesapeake Bay watershed's health scored 64% (B-) in 2020.

- ***Administration Signals Support for Pay-for-performance Plans and Private Conservation Financing:*** In an October 1, 2021 letter to the Presiding Officers of the General Assembly, Governor Lawrence J. Hogan, Jr. set forth the Administration's environmental priorities for the 2022 legislative session, which include passing legislation to create a public-private financing mechanism for certain conservation projects. A report released in May 2021 by the Environmental Policy Innovation Center and Chesapeake Conservancy and entitled *Private Conservation Finance: The Chesapeake Bay's Global Lead and How to Expand It* supports the Governor's plans. A new "Cover Crop+" option for the Cover Crop Program could provide an outcome-based procurement opportunity for the Administration to consider.

- ***Overall Chesapeake Bay Restoration Funding:*** Chesapeake Bay restoration funding declines by a net $542.1 million between fiscal 2022 and 2023. The major change is a $609.3 million reduction in the Maryland Transit Administration's (MTA) Purple Line transit project, which is offset partially by increases of $56.3 million in additional transfer tax special funds for Program Open Space (POS) State Side, the Rural Legacy Program, and the Maryland Agricultural Land Preservation Foundation (MALPF) and $13.9 million in general obligation (GO) bond funding for oyster restoration.

- ***Historical and Projected Chesapeake Bay Restoration Spending:*** There are a number of programs and policies in place or being considered in order to meet the 2025 goal of having all best management practices (BMP) in place to meet the Chesapeake Bay TMDL. However, there are a number of concerns about the State's ability to address all of the nutrient and sediment reductions needed to meet the 2025 goal. These concerns may be broken down into short-term impacts – the Patapsco and Back River wastewater treatment plant failures and Conowingo Dam financing – and long-term impacts – stormwater and septic sector loads and climate change.

- ***Conowingo Dam Relicensing, WIP, and Sediment Study:*** The public review of the draft Conowingo Dam WIP developed by the Bay Program partnership concluded on January 21, 2021, and the Phase I financing strategy for the WIP was completed on July 1, 2021. The Conowingo Dam was relicensed by the Federal Energy Regulatory Commission (FERC) on March 18, 2021, after an agreement between the Maryland Department of the Environment (MDE) and Exelon was reached 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, thus settling Exelon's legal challenges to the water quality certification. There are, however, continuing legal challenges regarding the water quality certification and relicensing of the dam. Finally, there is 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 pilot dredging project was completed in October 2021 and included additional sediment characterization and reuse evaluation of dredge area sediments. It is anticipated that a report reflecting the findings of the demonstration projects – dredging and innovative reuse – will be published by summer 2022.

- ***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. The updated strategy is intended meet the 2025 pollution reduction goals for the state, but questions remain about its viability.

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.

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 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 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
Eastern Shore	15.6	1.3	2,903.4
Patuxent	3.2	0.3	437.7
Potomac	15.8	1.1	1,928.0
Susquehanna	1.6	0.1	113.8
Western Shore	9.6	1.0	2,959.9
Total	**45.8**	**3.7**	**8,342.8**

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 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, BMPs, 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, the federal fiscal 2022 budget request increased program funding to $90.5 million, a $3 million increase from the prior fiscal year. On July 29, 2021, the House of Representatives passed an appropriations bill to increase the funding for the program to $90.5 million. Although this bill has not yet been voted on by the Senate, on October 18, 2021, the Senate Committee on Appropriations released a spending bill that also includes $90.5 million for the program.

The U.S. Congress passed the Infrastructure Investment and Jobs Act (IIJA) 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 October 7, 2021, U.S. senators from Delaware, Maryland, Pennsylvania, and Virginia sent a letter to Senator Debbie Stabenow, Chair of the Senate Committee on Agriculture, Nutrition, and Forestry, requesting $750.0 million in upcoming budget reconciliation legislation for natural resources conservation programs in the bay watershed. This funding, allocated from up to four programs within the U.S. Department of Agriculture, would be used for conservation practices that reduce nitrogen loads going into the bay and mitigate the impacts of climate change. This money is separate from the bay restoration funding under the IIJA. As of November 2, 2021, as much as $737.0 million of the funding requested was expected to be included in the budget reconciliation package.

Most recently, on December 2, 2021, a continuing resolution was passed by both the House and the Senate. The continuing resolution continues federal fiscal 2022 appropriations to federal agencies through the earlier of February 18, 2022, or the enactment of the applicable appropriations act. Most programs and activities are funded at the federal fiscal 2021 levels. This means that Chesapeake Bay Program funding remains at $87.5 million for the time being.

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.

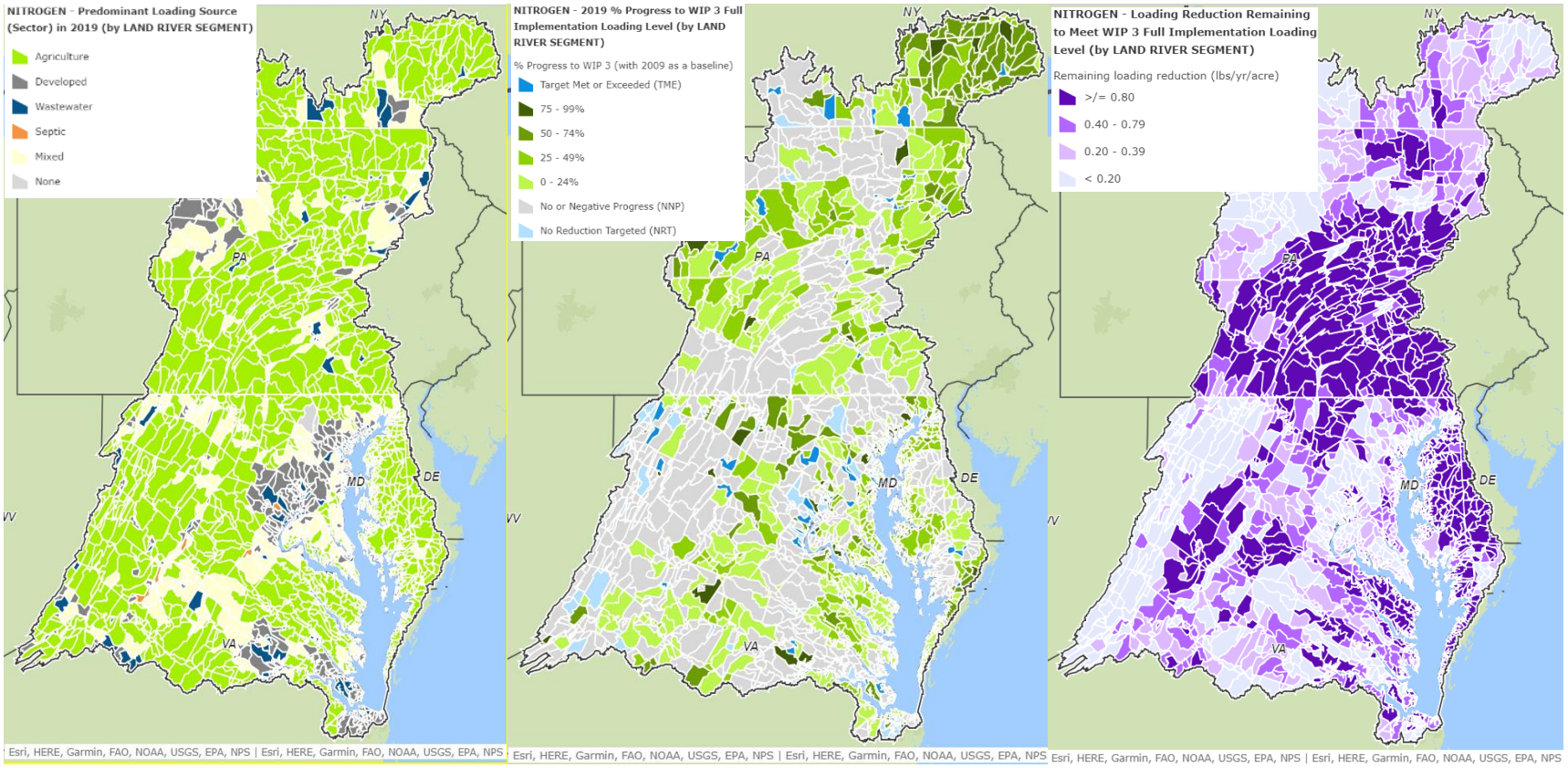
The modeling of the 2020 loading data is under review. Therefore, for illustrative purposes, **Exhibit 2** reflects (1) the predominant nitrogen loading source in calendar 2019 for each land river segment – the smallest available geographic area for which data is available; (2) the calendar 2019 percent 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 anticipates that the State will achieve (and possibly exceed) statewide nutrient and sediment pollution reduction goals by calendar 2025. 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 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 July 2020 evaluation of Maryland's 2018-2019 completed and 2020-2021 projected milestones, EPA noted that Maryland did not achieve its 2019 targets for nitrogen and phosphorus but did achieve its target for sediment. EPA acknowledged that while the phosphorus loading results from 2019 progress are significantly higher than in past years, this was explained by Maryland as being due to unusually wet weather and known data errors that would be corrected in future reporting years. Initial results of the 2020 progress reflect that phosphorus loads were closer to achieving the Phase III WIP planning targets. In terms of next steps for the 2020-2021 milestone period, EPA recommended that Maryland describe how it will ensure that growth in loads will not exceed Phase III planning targets and how it will meet the local planning goals in the agricultural sector.

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 2.1 million pounds per year relative to the calendar 2020 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, 2018, 2019, and 2020; 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:

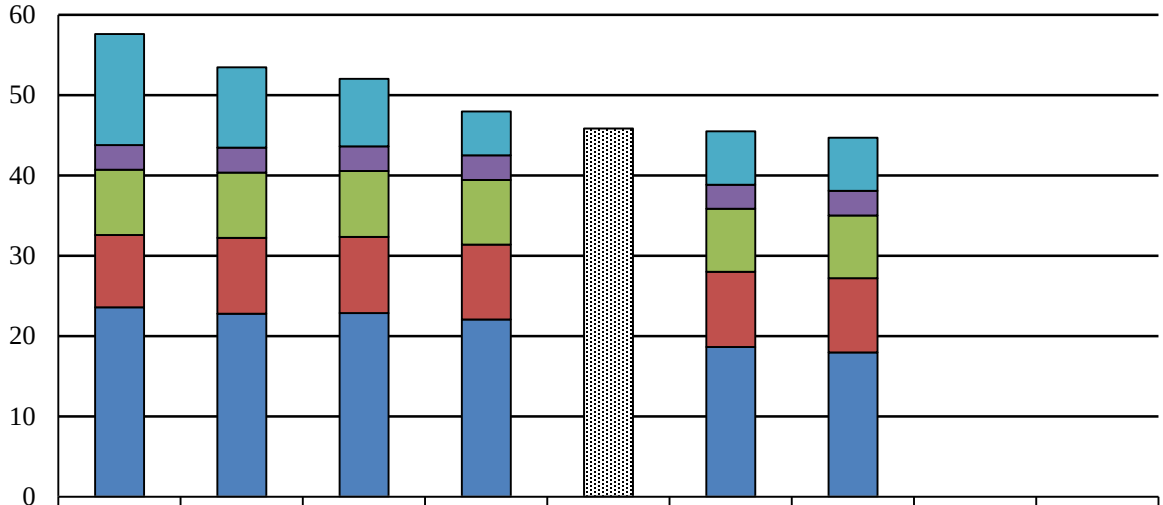
- ***Progress:*** Maryland reduced 4.1 million pounds of nitrogen between calendar 2019 and 2020, which would appear to be sufficient to reach the 45.8 million pounds of nitrogen if this recent progress is maintained;

- ***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 does not appear to need to increase the pace of progress relative to the overall 2009-2020 period 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 18.5% of its load compared to the 6.5% reduced in the 2009-2020 period.

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



	2009 Actual	2018 Actual	2019 Actual	2020 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2020 Percent Change	2020-2025 Official Percent Change
Total	57.6	53.5	52.0	48.0	45.8	45.5	44.7	-16.7%	-6.8%
Wastewater	13.8	10.0	8.4	5.5		6.6	6.6	-60.6%	21.7%
Septic	3.0	3.1	3.1	3.1		3.0	3.1	1.1%	-0.8%
Natural	8.1	8.1	8.2	8.0		7.8	7.8	-1.1%	-2.9%
Developed	9.0	9.4	9.5	9.3		9.4	9.3	3.7%	-0.9%
Agriculture	23.6	22.8	22.9	22.1		18.6	18.0	-6.5%	-18.5%

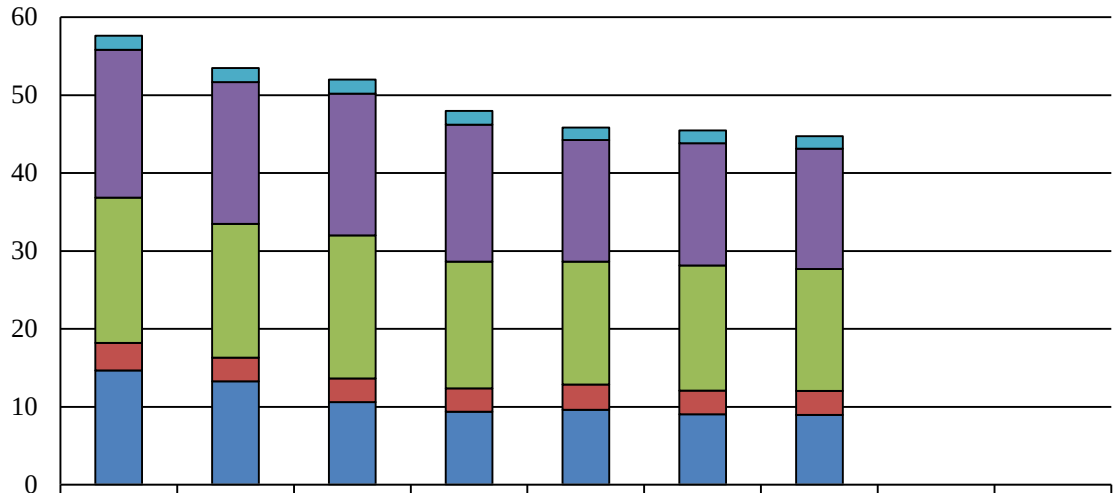
WIP: Watershed Implementation Plan

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 Eastern Shore basin – predominated by the agricultural sector – will have to reduce 12.1% of its load compared to the 7.4% reduced in the 2009-2020 period. In contrast, Maryland's Western Shore basin – predominated by the wastewater sectors that have seen substantial reductions due to the upgrade of wastewater treatment plants – will only have to reduce 4.2% of its load compared to the 36.2% reduced in the 2009 to 2020 period.

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



	2009 Actual	2018 Actual	2019 Actual	2020 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2020 Percent Change	2020-2025 Official Percent Change
Total	57.6	53.5	52.0	48.0	45.8	45.5	44.7	-16.7%	-6.8%
Susquehanna River Basin	1.8	1.8	1.8	1.8	1.6	1.6	1.6	-2.1%	-10.8%
Eastern Shore	19.0	18.2	18.2	17.6	15.6	15.7	15.4	-7.4%	-12.1%
Potomac River Basin	18.7	17.2	18.4	16.3	15.8	16.1	15.6	-12.9%	-3.8%
Patuxent River Basin	3.5	3.0	3.1	3.0	3.2	3.0	3.1	-14.2%	2.5%
Western Shore	14.7	13.3	10.6	9.4	9.6	9.0	9.0	-36.2%	-4.2%

WIP: Watershed Implementation Plan

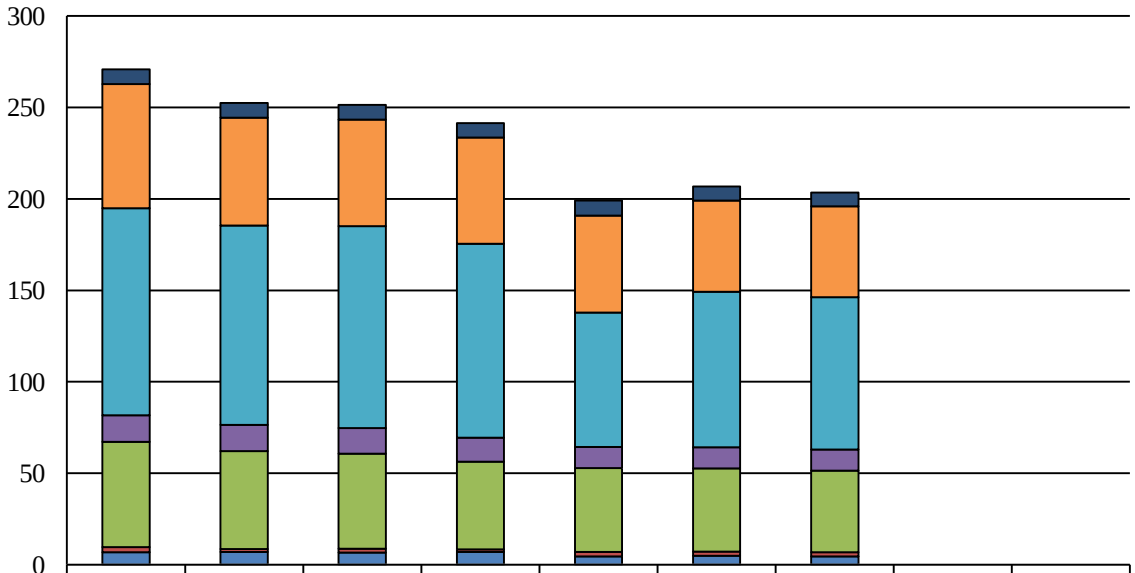
Source: Chesapeake Bay Program – Chesapeake Assessment and Scenario Tool

Lastly, there is the Chesapeake Bay watershed nitrogen pollution loading as a whole, which is reflected in **Exhibit 6**. As shown, Pennsylvania, which contributes the largest amount of nitrogen pollution loading, has to substantially increase its load reductions by 2025 from the 6.4% between 2009 and 2020 to 21.4% between 2020 and 2025.

Exhibit 6

Chesapeake Bay Watershed Nitrogen Pollution Loads by State Trends and Targets

(Millions Pounds Per Year)



	2009 Actual	2018 Actual	2019 Actual	2020 Actual	2025 Target	2025 WIP Goal (2019)	2025 WIP Goal (Official)	2009-2020 Percent Change	2020-2025 Official Percent Change
Total	270.8	252.4	251.5	241.5	199.0	206.9	203.4	-10.8%	-15.8%
West Virginia	8.0	8.0	8.1	8.0	8.2	7.8	7.5	-1.0%	-5.8%
Virginia	67.9	59.0	58.3	58.0	53.0	49.9	49.6	-14.6%	-14.5%
Pennsylvania	113.2	108.9	110.4	106.0	73.5	84.9	83.3	-6.4%	-21.4%
New York	14.4	14.4	13.9	13.2	11.5	11.6	11.6	-8.2%	-12.7%
Maryland	57.6	53.5	52.0	48.0	45.8	45.5	44.7	-16.7%	-6.8%
District of Columbia	2.8	1.6	2.1	1.4	2.4	2.3	2.3	-48.7%	
Delaware	6.9	6.9	6.7	6.9	4.6	4.9	4.5	0.7%	-35.3%

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 second year of reporting for the watershed.

- ***Chesapeake Bay Health Score:*** The Chesapeake Bay health score compares 10 indicators – dissolved oxygen, nitrogen, phosphorus, chlorophyll a, water clarity, aquatic grasses, benthic community, blue crab, bay anchovy, and striped bass – to scientific goals. 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 2020, receiving an overall score of C (45%), indicating that the bay is in moderate ecosystem health. The highest-scoring region was the Lower Bay (C+ or 57%), which is the part of the bay closest to the Atlantic Ocean. The lowest-scoring region was the Patapsco and Back Rivers (D- or 23%).

- ***Chesapeake Bay Watershed Health Score:*** The Chesapeake Bay watershed health score compares nine indicators – nitrogen, phosphorus, benthic community, protected lands, turbidity, stewardship, social index, walkability, and heat vulnerability index – to scientific and administrative goals. The health of the Chesapeake Bay watershed has only been scored for two years, so there is no long-term trend. The Chesapeake Bay watershed scored 64% (B-) in 2020. The highest-scoring region was the West Branch Susquehanna (A- or 80%). The lowest-scoring region was the York in Virginia (C or 50%). Of note, the Choptank River region (C+) is the only region in Maryland that had a C score and is noted as the region in the watershed with the lowest scores for turbidity – a measure of water clarity in terms of how much light passes through the water column – and stewardship – which examines citizen behavior, volunteerism, and civic engagement.

Recent Regulatory Highlights

MDE submitted proposed regulations to the Maryland Register on January 15, 2021, authorizing MDE to provide additional funding to local governments for operation and maintenance grants for wastewater treatment plants beyond enhanced nutrient removal or below 3 mg/L nitrogen and 0.3 mg/L phosphorus. MDE has only awarded approximately $6 million a year in operation and maintenance grants despite the authorization to issue up to 10% of annual revenues, or approximately $11 million, since wastewater treatment plants have been upgraded and certified as operating at 3 mg/L nitrogen and 0.3 mg/L phosphorus. As of January 2021, the current revenue allocation included $30,000 per 1 million gallons per day (MGD) design capacity with a maximum of $300,000 for a 10 MGD or larger wastewater treatment plant. Since then, regulations were implemented to provide additional grants for those facilities achieving better than enhanced nutrient removal as part of the allocation of the fiscal 2022 operation and maintenance grants at the August 11, 2021 Board of Public Works meeting.

The Maryland Department of Agriculture (MDA) submitted proposed emergency regulations to the Joint Committee on Administrative, Executive, and Legislative Review on June 25, 2021, in order to implement the provisions of Chapter 120 of 2021. Chapter 120 increases the amount of State funding that fixed natural practices are eligible to receive under MDA's Maryland Agricultural Water Quality Cost-Share Program (from up to 87.5% of eligible costs to up to 100% of eligible costs). Fixed natural filter practices include the following: the planting of riparian forest buffers; the planting of riparian herbaceous cover; tree plantings that are on agricultural land and outside a riparian buffer; wetland restoration; and pasture management, including rotational grazing systems such as livestock fencing and watering systems implemented as part of the conversion of cropland to pasture.

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 2022 to 2027 *Consolidated Transportation Program* is $623.7 million, including $489.2 million expended prior to fiscal 2022 and $36.1 million added in fiscal 2027. The $32.3 million increase in total estimated costs from last year's estimate of $594.1 million is due to the addition of fiscal 2027 funding.

Exhibit 7
SHA Watershed Implementation Plan Funding
Fiscal 2022-2027
($ in Thousands)

Source	Prior Auth.	2022	2023	2024	2025	2026	2027	Total
Special Funds	$251,582	$4,161	$4,500	$4,515	$6,503	$20,118	$20,083	$311,462
Federal Funds	192,618	11,031	7,261	9,537	14,674	16,039	16,028	267,188
GO Bonds	45,000	0	0	0	0	0	0	45,000
Total	**$489,200**	**$15,192**	**$11,761**	**$14,052**	**$21,177**	**$36,157**	**$36,111**	**$623,650**

GO: general obligation
SHA: State Highway Administration

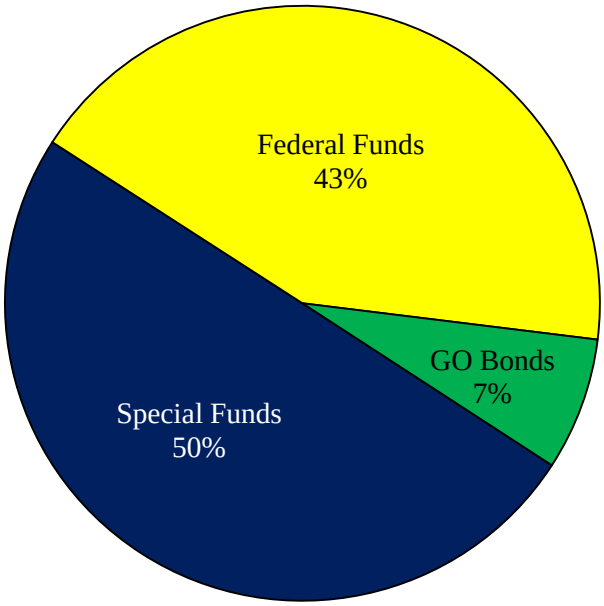
Note: The GO bond funding was set up through the Secretary's Office, The State Highway Administration spent its own funds and then was reimbursed by the Secretary's Office. However, the GO bond funding is reflected here in order to account for the funding for the Maryland Department of Transportation 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 2022-2027 *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 50% of the planned funding, followed by federal funds (43%) and GO bonds (7%). SHA has noted in the past that the increase in federal funds reflected since the fiscal 2021 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 8
SHA Watershed Implementation Plan
Total Program Funding Sources



GO: general obligation
SHA: State Highway Administration

Source: Maryland Department of Transportation; Fiscal 2022 to 2027 *Consolidated Transportation Program*

Issues

1. Administration Signals Support for Pay-for-performance Plans and Private Conservation Financing

In an October 1, 2021 letter to the Presiding Officers of the General Assembly, Governor Lawrence J. Hogan, Jr. set forth the Administration's environmental priorities for the 2022 legislative session, which include passing legislation to create a public-private financing mechanism for certain conservation projects. In the letter, the Governor referenced legislation proposed in 2021 (Senate Bill 737) that would have altered a broad variety of existing programs related to environmental conservation and natural resources management and included provisions to promote (1) private investment for State environmental projects and markets and (2) pay-for-performance procurement for environmental and conservation projects, including the installation and repair of green and blue infrastructure. According to the Governor, these procurement reforms and market-based strategies will facilitate investment in green and blue infrastructure that is necessary to achieve bay restoration goals.

The Governor's plans are supported by a report released in May 2021 by the Environmental Policy Innovation Center and Chesapeake Conservancy entitled *Private Conservation Finance: The Chesapeake Bay's Global Lead and How to Expand It*. The report notes conservation financing programs in a number of states, including nine State and local government programs in Maryland. In addition, the report notes that approximately $4.2 billion in private conservation finance has been spent on Chesapeake Bay restoration as follows: $1.7 billion for transferable tax benefits in Virginia and Pennsylvania; $1.3 billion for forest certification systems; $620 million for wetland, stream, and nutrient mitigation banking; $450 million for pay for success contracts and public-private partnerships (P3); and $40 million for environmental impact bonds. To advance private conservation finance, the report makes the following recommendations:

- ***Procurement:*** Shift public procurement to the purchase of environmental outcomes and use of pay for success contracting. This means that the government gives up some program and project control but is compensated by shifting project risks to the private sector since the government will only need to fund projects initially paid for by the private sector if the projects are successful. Economies of scale can be achieved by allowing local governments to use State contracts for stormwater remediation and by bundling many smaller projects into fewer large projects that will attract private conservation financing entity investment.

- ***Green Infrastructure Valuation:*** Value natural capital and green infrastructure assets – climate resilience, flood reduction, water quality, and community wellbeing and justice – by incorporating their associated costs and benefits into State and local budgeting, zoning decisions, and offset policies that replace damages.

- ***P3s:*** Establish "Chesapeake Bay Green Banks" and P3s – such as the Prince George's County stormwater collaboration with Corvias Solutions – to coordinate public and private capital in

order to address environmental problems that include a profit opportunity, a public funding component, and costly transactional complexity. The need for government to shift from a regulator role to a facilitator/problem-solver role is noted.

- ***Environmental Impact Offsetting:*** Allow private companies to offset private environmental impacts without involving payment into a government offset account. The three concerns raised about government offset accounts are as follows: the payments underprice the cost of offsetting the environmental harm; the government is slow to spend money on offset projects; and the payments, or lack thereof, influence government approval decisions on projects.

In terms of new procurement opportunities, the Soil Health Advisory Committee discussed the possibility of three options for incentivizing soil health. One of these options is a "Cover Crop+" option, which would involve the implementation of multispecies and/or extended season cover crops over a five-year contract with the ability to integrate livestock and to include both an annual fixed base rate payment as well as an ecosystem service payment. The "Cover Crop+" option could involve outcome-based payments if the following issues are addressed: tests or metrics can be derived to account for the outcomes of particular cover crop applications; the capacity to collect the data necessary to validate outcomes for all enrolled fields is supported; and producer risk tolerance can be overcome. **The Department of Legislative Services (DLS) recommends that the Administration discuss the possibility of an outcome-based payments system for the Cover Crop Program.**

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

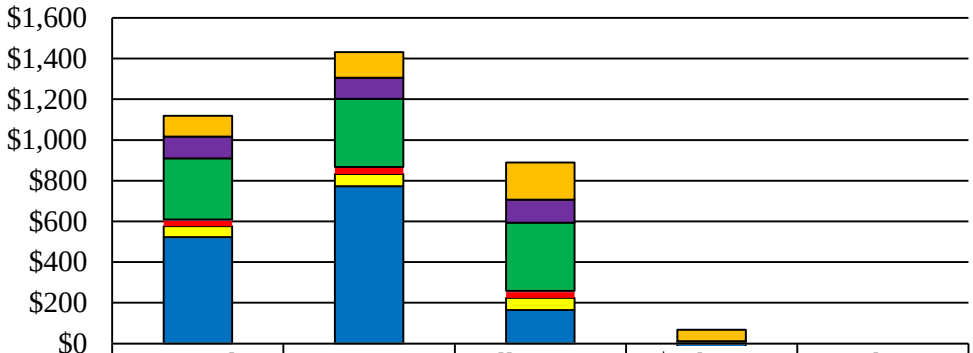
- ***Chesapeake and Atlantic Coastal Bays 2010 Trust Fund:*** actions for nutrient and sediment reduction from nonpoint sources only using certain revenues.

Overall Chesapeake Bay Restoration

The 2021 *Joint Chairmen's Report* 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 2021 actual, the fiscal 2022 working appropriation, and the fiscal 2023 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 2021-2023 Allowance



	Actual 2021	Approp. 2022	Allowance 2023	$ Change 2022-2023	% Change 2022-2023
Total	$1,118.5	$1,431.6	$889.4	-$542.1	-37.9%
POS, Rural Legacy, MALPF	102.0	126.3	182.7	56.3	44.6%
DNR*	106.2	103.6	112.6	9.1	8.7%
MDE	301.0	333.8	335.4	1.5	0.5%
MSDE	0.0	0.0	0.5	0.4	2602.3%
MDP	6.2	5.6	5.8	0.1	2.6%
Higher Education	26.9	29.3	28.7	-0.6	-2.2%
MDA	53.8	60.4	59.1	-1.4	-2.2%
MDOT	$522.3	$772.5	$164.8	-$607.6	-78.7%

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 additional general obligation bond funding in fiscal 2020 through 2023 for the Resiliency through Restoration Initiative Program (formerly the Coastal Resiliency Program) that was inadvertently left out of 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 general obligation bonds for the Conowingo Watershed Implementation Plan budgeted in the Maryland Department of the Environment and $6.0 million in general obligation bonds for dredging the Conowingo Dam budgeted in the Maryland Environmental Service.

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

The overall Chesapeake Bay restoration spending declines by $542.1 million, or 37.9%, between the fiscal 2022 working appropriation and the fiscal 2023 allowance. The major changes reflected in the overall Chesapeake Bay restoration spending are as follows.

- ***MDOT:*** Decreases by $607.6 million, primarily due to a reduction of $609.3 million for the MTA's Purple Line transit project. Other decreases include $4.4 million for a TMDL compliance program in SHA and $4.3 million for the Baltimore-Washington SCMaglev project, which are partially offset by an increase of $8.0 million for the Metro maintenance facility improvements project at the Wabash Rail Shop and $3.9 million for the Baltimore Street Access project as part of the Transportation Alternatives Program.

- ***DNR:*** Increases by $9.1 million, primarily due to an increase of $13.4 million in GO bond funding for oyster restoration. This increase is partially offset by decreases of $2.1 million in special funds reflecting less gas tax and short-term rental vehicle tax revenue to support Chesapeake and Atlantic Coastal Bays 2010 Trust Fund spending relative to the fiscal 2022 revenue estimate; $1.0 million in general funds for the State Lakes Protection and Restoration Fund; and $1.0 million in general funds and $1.2 million in special funds for a pilot dredging project at Deep Creek Lake.

- ***POS, Rural Legacy, and MALPF:*** Increases by $56.3 million due to an increase of $31.7 million in additional transfer tax special funds for POS State Side, $19.4 million for MALPF, and $5.3 million for the Rural Legacy Program due to an increased transfer tax revenue estimate for fiscal 2023 and an overattainment of revenue from fiscal 2021 that is applied to fiscal 2023.

While not reflected in the exhibit, the Administration's fiscal 2023 budget includes $25.0 million in general obligation bonds for the Conowingo Watershed Implementation Plan budgeted in the Maryland Department of the Environment and $6.0 million in general obligation bonds for dredging the Conowingo Dam budgeted in the Maryland Environmental Service.

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 annual work and expenditure plan was not received in time for inclusion in this analysis. Therefore, the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund will be discussed further in DNR's operating budget analysis.

DLS recommends the addition of committee narrative 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. 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 2024 budget submission.

3. Historical and Projected Chesapeake Bay Restoration Spending

Section 21 of the fiscal 2022 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 notes, among other updates, that there are a number of programs and policies in place or are being considered in order to meet the 2025 goal of having all BMPs in place to meet the Chesapeake Bay TMDL. However, there are a number of concerns raised in the report about the State's ability to address all of the nutrient and sediment reductions needed to meet the 2025 goal. These concerns may be broken down into short-term and long-term impacts.

Short-term Impacts

Short-term impacts reflect concerns that may limit the ability of Maryland to meet the TMDL by 2025. These concerns include recent wastewater treatment plant failures and the financing of the Conowingo Dam WIP.

- ***Wastewater Treatment Plant Failures:*** Operations and structural problems at the Patapsco and Back River major wastewater treatment plants – exacerbated by the COVID-19 pandemic – are anticipated to increase wastewater sector loads in the State fiscal 2021 Chesapeake Bay TMDL progress results. Blue Water Baltimore, Inc. – home of the Baltimore Harbor Waterkeeper – filed a lawsuit against the Mayor and City Council of Baltimore on December 15, 2021, to seek redress for the permit violations at the two plants. Subsequently, MDE also filed a lawsuit against the Mayor and City Council of Baltimore on January 21, 2022. The increase in the wastewater loads from the two plants highlights the risk/reward payoff of relying on large point sources for the majority of Maryland's nutrient and sediment reductions to date.

- ***Conowingo Dam:*** The Conowingo Dam WIP has been developed and a financing strategy devised, but it still remains to be seen if the Chesapeake Bay partners will provide the necessary funding to implement the WIP. The financing strategy likely is the most cost-effective way to address the nutrient and sediment loads associated with the Conowingo Dam, but it appears that there are still challenges associated with financing projects across state lines even if the chosen financing authority – the Susquehanna River Basin Commission – is an interstate entity already.

Long-term Impacts

Long-term impacts reflect concerns that may limit the ability of Maryland to maintain its nutrient and sediment loads in order to meet the TMDL over time. These concerns include development and population growth increasing nutrient and sediment loads from the stormwater and septic sectors and the increased loads from rainfall associated with climate change.

- ***Stormwater and Septic Sectors:*** Stormwater and septic sector loads continue to increase, putting additional pressure on the wastewater and agricultural sectors to reach the 2025 goal. After 2025, both the stormwater and septic sectors will bear the full responsibility for maintaining the TMDL as anticipated growth will erode the gains made in the wastewater sector, despite this growth also likely contributing to growth in the stormwater and septic sectors as well. The plan to rely on stormwater restoration through MS4 permits and the requirement for new development and redevelopment to implement Environmental Site Design to the Maximum Extent Practicable does not appear viable given the current pace of stormwater restoration, the fact that stormwater sector loads have been increasing, and the prohibitive costs of stormwater restoration. In addition, the MS4 permits for the 10 largest jurisdictions have expired and have had to be continued administratively. Of particular concern is the lack of progress in stormwater restoration in Prince George's County noted in the 2021 *Annual Report on Financial Assurance Plans and the Watershed Protection and Restoration Program*. Prince George's County's partnership with Corvias Solutions to implement stormwater restoration is consistently noted as a model P3, but the 2021 Annual Report notes that Prince George's County only restored 2,387 acres, or 39%, of the 6,105 acres it was required to restore leading to the establishment of a consent decree. In terms of funding, the 2021 annual report notes that the total stormwater restoration cost is $644.9 million for fiscal 2021 and 2022 and that Baltimore City is $24.1 million short of the funding it needs to meet its requirement and, yet, Baltimore City is still in compliance with funding requirements because its MS4 permit has expired and thus presumably the stormwater restoration requirement as well.

- ***Climate Change:*** Nutrient and sediment loading associated with climate change is a more recently realized requirement relative to the TMDL. Chapters 640 and 641 of 2021 require MDE to submit a climate load allocation addendum to the Chesapeake Bay TMDL Phase III WIP, as well as updated two-year milestones, to EPA by December 31, 2025. MDE submitted the addendum to EPA on January 13, 2022, along with the 2022 to 2023 milestones. However, the Chesapeake Bay restoration spending report notes that the additional climate load reductions are anticipated to be addressed by incentivizing increased performance of the State's wastewater treatment plants upgraded to enhanced nutrient removal technology, despite the expectation of population growth increasing loads in the wastewater sector and the current challenges facing two of the State's largest wastewater treatment plants – Patapsco and Back River.

DLS recommends that the Administration comment on how it plans to deal with the short-term impacts of the Patapsco and Back River wastewater treatment plant failures and Conowingo Dam WIP implementation and the long-term impacts of growth in stormwater and septic sector nutrient and sediment loadings and climate change. DLS also recommends that

language be included requesting a similar report from the agencies for the fiscal 2024 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 on the Phase III WIP implementation and how the loads associated with the Conowingo Dam infill, growth of people and animals, and climate change will be addressed.

4. Conowingo Dam Relicensing, WIP, 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.

In its May 8, 2021 evaluation of the draft Conowingo WIP (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. 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.

In addition, 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 1-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. MDE is creating a web page to solicit feedback from stakeholders on the types of nutrient reduction projects funded with the Conowingo Dam recertification settlement monies and intends to have all public comments by the end of February 2022. 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 are 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.

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 the Maryland Environmental Service (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 in order 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 is anticipated that a report reflecting the findings of the demonstration projects – dredging and innovative reuse – will be published by summer 2022.

The Administration's fiscal 2023 budget includes $25.0 million in general obligation bonds for the Conowingo Watershed Implementation Plan budgeted in the Maryland Department of the Environment and $6.0 million in general obligation bonds for dredging the Conowingo Dam budgeted in the Maryland Environmental Service. The Conowingo Watershed Implementation Plan funding is budgeted in MDE and will support natural filtration and watershed protection efforts while the Conowingo Dam dredging funding is budgeted in the Maryland Environmental Service and will support the implementation of the large-scale dredging and beneficial reuse project to reduce nutrient impacts to the Chesapeake Bay.

DLS recommends that the Administration comment on the likelihood that the Chesapeake Bay partners will contribute funding to the CWIP; the status of Conowingo Dam relicensing, including legal challenges; and any preliminary findings from the pilot dredging and sediment characterization studies.

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 are 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 states 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.

Pennsylvania submitted an amendment to its Phase III WIP to EPA on December 31, 2021. The updated strategy is intended to meet the 2025 pollution reduction goals for the state, but questions remain. For instance, the plan relies on the reinstatement of agricultural BMPs that were installed years ago and that the Chesapeake Bay Program no longer considers effective. The plan also credits reductions from state programs that Pennsylvania indicates have not been counted to the fullest extent. **DLS recommends that the Administration comment on President Joseph R. Biden, Jr. Administration's plans for regulatory oversight of the Chesapeake Bay TMDL.**

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 2022 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 2023 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 2022 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, 2022, 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, 2022, 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, 2022

Appendix 1
Overview of Maryland's Funding for Chesapeake Bay Restoration
Fiscal 2019-2023

	Actual 2019	Actual 2020	Actual 2021	Approp. 2022	Allowance 2023	$ Change 2022-2023	% Change 2022-2023
Agency/Program Total Funds							
Department of Natural Resources[1]	$104,574,459	$100,229,050	$106,211,467	$103,558,443	$112,610,022	$9,051,579	8.7%
Program Open Space	48,532,004	41,127,317	41,939,587	57,231,796	88,924,301	31,692,505	55.4%
Rural Legacy	25,017,704	18,852,009	17,999,092	20,037,061	25,287,706	5,250,645	26.2%
Department of Planning	4,780,521	11,381,759	6,240,498	5,625,027	5,769,004	143,977	2.6%
Department of Agriculture	51,982,820	66,166,531	53,768,935	60,419,796	59,068,739	-1,351,057	-2.2%
Maryland Agricultural Land Preservation Foundation	50,727,806	46,815,967	42,105,177	49,052,331	68,452,886	19,400,555	39.6%
Maryland Department of the Environment[2]	291,314,759	300,943,995	300,974,292	333,848,432	335,366,761	1,518,329	0.5%
Maryland State Department of Education	436,998	458,375	18,931	17,038	460,424	443,386	2602.3%
Maryland Higher Education	24,305,543	20,798,820	26,939,804	29,308,933	28,663,167	-645,766	-2.2%
Maryland Department of Transportation	382,733,958	485,686,817	522,337,519	772,452,551	164,829,335	-607,623,217	-78.7%
Total	**$984,406,571**	**$1,092,460,640**	**$1,118,535,303**	**$1,431,551,408**	**$889,432,345**	**-$542,119,063**	**-37.9%**
Fund Type							
General Fund	$34,330,361	$41,962,395	$38,399,356	$43,561,675	$53,561,796	$10,000,121	23.0%
Special Fund	430,993,468	393,864,109	411,161,629	458,439,121	528,749,815	70,310,694	15.3%
Federal Fund	53,566,901	90,863,039	56,383,313	59,046,240	60,299,643	1,253,403	2.1%
Reimbursable Funds	26,781,340	31,326,460	28,757,882	29,271,888	28,446,590	-825,299	-2.8%
Current Unrestricted	22,522,169	20,092,124	24,578,415	26,106,877	27,028,415	921,538	3.5%
Current Restricted	1,783,373	706,696	2,361,389	3,202,055	1,634,752	-1,567,304	-48.9%
General Obligation and Revenue Bonds[1,2]	31,695,000	27,959,000	34,555,800	39,471,000	24,882,000	-14,589,000	-37.0%
Maryland Department of Transportation Funds	382,733,958	485,686,817	522,337,519	772,452,551	164,829,335	-607,623,217	-78.7%
Total	**$984,406,571**	**$1,092,460,640**	**$1,118,535,303**	**$1,431,551,408**	**$889,432,345**	**-$542,119,063**	**-37.9%**
Spending Category							

	Actual 2019	Actual 2020	Actual 2021	Approp. 2022	Allowance 2023	$ Change 2022-2023	% Change 2022-2023
Land Preservation	$125,676,709	$109,692,236	$105,023,122	$129,959,652	$186,084,139	$56,124,487	43.2%
Septic Systems	21,225,521	27,836,759	22,695,498	22,125,027	22,269,004	143,977	0.7%
Wastewater Treatment	248,461,134	259,333,475	255,819,798	280,109,959	260,014,756	-20,095,203	-7.2%
Urban Stormwater	141,873,775	131,936,584	119,826,093	53,598,802	50,439,530	-3,159,272	-5.9%
Agricultural BMPs	70,055,992	82,349,091	73,151,525	78,493,232	78,030,582	-462,650	-0.6%
Oyster Restoration	9,257,692	9,006,661	13,075,617	4,752,439	18,384,695	13,632,256	286.8%
Transit and Sustainable Transportation	243,795,070	355,059,457	409,356,274	726,851,294	126,767,322	-600,083,972	-82.6%
Living Resources[1,2]	68,255,731	59,939,388	57,082,389	58,053,904	55,392,175	-2,661,729	-4.6%
Education and Research	24,788,383	21,331,990	27,088,790	29,367,448	29,243,591	-123,857	-0.4%
Other	31,016,564	35,974,999	35,416,196	48,239,651	62,806,551	14,566,900	30.2%
Total	**$984,406,571**	**$1,092,460,640**	**$1,118,535,303**	**$1,431,551,408**	**$889,432,345**	**-$542,119,063**	**-37.9%**

BMP: best management practice

[1] Reflects an additional $4,725,000 in general obligation (GO) bonds in fiscal 2019, $3,085,000 in GO bonds in fiscal 2020, $4,160,000 in 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 was inadvertently left out of Appendix L of the Governor's Budget Highlights.
[2] Reflects $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 presentation does not reflect fiscal 2023 funding of $25.0 million in general obligation bonds for the Conowingo Watershed Implementation Plan budgeted in the Maryland Department of the Environment and $6.0 million in general obligation bonds for dredging the Conowingo Dam budgeted in the Maryland Environmental Service.

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