
Chesapeake Bay Fiscal 2019 Budget Overview

**Department of Legislative Services
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Analysis of the FY 2019 Maryland Executive Budget, 2018

CHESBAY – Chesapeake Bay – Fiscal 2019 Budget Overview

Chesapeake Bay

Fiscal 2019 Budget Overview

Analysis in Brief

Major Trends

Maryland's Progress Check Mixed for 2017 and Beyond: Maryland is on track to achieve its statewide 2017 targets for phosphorus and sediment but is not achieving its statewide 2017 target for nitrogen. In terms of sectors, Maryland is not meeting its 2017 nitrogen targets for the agriculture, urban/suburban stormwater, and septic sectors. Matters improve for 2017 phosphorus and sediment targets; Maryland is in compliance for all sectors except for urban/suburban stormwater. As expected, the U.S. Environmental Protection Agency (EPA) increased its oversight of Maryland's stormwater sector due to lack of progress.

Chesapeake Bay in "Moderate Ecosystem Health": The health of the bay, as measured by the University of Maryland Center for Environmental Science's Chesapeake Bay Report Card, has generally remained the same since 2003. The overall health of the bay improved slightly in 2016, but still received an overall score of C, indicating that the bay is in "moderate ecosystem health."

Issues

Overall Chesapeake Bay Restoration Funding: Major changes in Chesapeake Bay restoration funding (between fiscal 2018 and 2019) include an increase of \$72.3 million for the Maryland Transit Administration's Purple Line transit project and other transportation projects, an increase of \$34.5 million for land preservation and easement programs funded by the increase in transfer tax revenues, \$19.2 million for Water Quality Revolving Loan Fund special funds, \$16.0 million for Bay Restoration Fund special funds for capital purposes and implementing the Clean Water Commerce Act, and \$2.6 million for higher education projects. These increases are offset partially by reductions of \$60.1 million for Bay Restoration Fund revenue bonds and \$50.0 million for Water Quality Revolving Loan Fund revenue bonds. **The Department of Legislative Services (DLS) recommends the addition of budget bill language to request that the Administration continue to publish the overall Chesapeake Bay restoration data in the Governor's Budget Books and provide the electronic data separately. In addition, DLS recommends that budget bill language be added to the Department of Natural Resources' budget to request that the Administration provide the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund annual report and a revenues and expenditures spreadsheet at the time of the fiscal 2020 budget submission.**

Sufficient Chesapeake Bay Restoration Funding Unclear: The Administration continues to note that the \$5.1 billion funding gap identified in the July 2015 report, *Maryland's Chesapeake Bay Restoration Financing Strategy Final Report* can be closed if the State temporarily loans the excess wastewater sector allocation to meet the expected shortfall in the stormwater and septic sectors, holds municipal separate storm sewer system permit holders to their requirements, and uses the Bay Restoration Fund and Chesapeake and Atlantic Coastal Bays 2010 Trust Fund as cost effectively as possible. However,

it is unclear whether this funding is sufficient to address the planning targets under the new Phase 6 model and the additional reductions that may be necessary in order to address Conowingo Dam infill, growth, and climate change. **DLS recommends that the Administration comment on whether Maryland is on track to meet the requirement of having all practices in place to meet the specified nutrient and sediment reductions by calendar 2025 and what is likely to happen if Maryland and/or the other Chesapeake Bay agreement states do not meet this requirement. In addition, DLS recommends that the agencies submit a report on updated historical spending and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all best management practices (BMP) in place to meet water quality standards for restoring the Chesapeake Bay. It is requested that the report include information on the draft Phase III Watershed Implementation Plans (WIP) and how the loads associated with Conowingo Dam infill, growth of people and animals, and climate change will be addressed.**

Chesapeake Bay Program Funding and Enforcement Questions: The Trump Administration’s federal fiscal 2018 budget request deleted the \$73 million in funding for the Chesapeake Bay Program, and a House of Representatives proposal would instead reduce funding by \$13 million. In addition, a House of Representatives proposal would prohibit EPA from using any funds to take retaliatory actions against any bay jurisdictions in the event that a state does not meet the goals mandated by the EPA’s Chesapeake Bay total maximum daily load (TMDL). Continuing resolutions have funded the EPA and the Chesapeake Bay Program at the federal fiscal 2017 level, but final federal fiscal 2018 funding is uncertain. **DLS recommends that the Administration comment on the impact of the Chesapeake Bay Program being defunded or receiving reduced funding and the potential impact of the EPA being prohibited from using any funds to take retaliatory actions against any of the six states in the Chesapeake Bay watershed in the event that a state does not meet the goals mandated by the EPA’s Chesapeake Bay TMDL.**

Nutrient Trading and Aligning for Growth: The Administration continues to work on an Aligning for Growth policy. One of the major challenges has been addressing stormwater and septic loads from new development. This arises from the fact that agricultural land converted to urban land and land using septic systems results in less nutrient and sediment loading despite the fact that the State does not want to incentivize development on agricultural land. Two Aligning for Growth policy options have been presented: (1) a septic/forest conversion option; and (2) a per capita loading option. **DLS recommends that the Administration comment on the status of an Aligning for Growth policy, including possible components such as a sector loading analysis, how this policy will be incorporated into or complement the Phase III WIP, and the relationship between Aligning for Growth and nutrient trading.**

Capacity to Handle Phosphorus Management Tool Requirements Unclear: The Phosphorus Management Tool (PMT) was developed by scientists at the University of Maryland and is used to identify agricultural lands where the soil is saturated with phosphorus and has a high risk of runoff. There will be a substantial number of acres transitioning to the revised management regimens in the next few years, which will put a premium on dealing with phosphorus management. One of the entities looking at how phosphorus – and nitrogen – will be handled on the fields transitioning into the new management regime is the Delmarva Land and Litter Challenge (DLLC) – farmers, conservationists,

and academics interested in abating poultry-related nutrient pollution on the Delmarva Peninsula. **DLS recommends that the Administration comment on how the large number of acres transitioning to management under the PMT will be handled in the next couple of years and how the work of the DLLC’s transport, technology, and mass balance subcommittees informs this process.**

Conowingo Dam Relicensing and Request for Proposals: The Conowingo Dam has been described as the biggest BMP on the Susquehanna River. However, the Conowingo Dam has reached an end state in terms of sediment and nutrient storage capacity and is now up for relicensing by the Federal Energy Regulatory Commission. In addition, Conowingo Dam infill is now being factored into a separate WIP to be addressed by all Chesapeake Bay Agreement partners. In the meantime, the Maryland Environmental Service has solicited interest for a pilot dredging study with a notice of intent to award the contract to Northgate-Dutra Joint Venture. **DLS recommends that the Administration comment on the role of the Conowingo Dam pilot dredging project proposal relative to the need to reduce upstream loading as part of the separate WIP to address Conowingo Dam infill.**

Stormwater Funding Challenges: Nutrient trading as a way to meet their municipal separate storm sewer system permits is being pursued by 5 Phase I jurisdictions, but time is running out on their permit periods. Nutrient trading regulations could become effective as early as Spring 2018, at which point jurisdictions could then seek a permit modification. However, a permit modification would require public comment and might be challenged in court and so may not be guaranteed. In addition, while wastewater treatment plants are expected to be able to temporarily trade their load reductions below the 3 mg/L operating threshold, there is limited capacity to trade. **DLS recommends that the Administration discuss whether the 10 Phase I jurisdictions will meet their permits before the end of the current permit period, what role nutrient trading is expected to play in the ability of the 10 Phase I jurisdictions to meet the permits, and the implications for both the counties and ongoing Chesapeake Bay restoration progress if the permits are not met.**

Recommended Actions

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

Chesapeake Bay

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Overview

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

The Overarching Goal: Chesapeake Bay Total Maximum Daily Load

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

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

Watershed Implementation Plans

As part of the Chesapeake Bay TMDL, bay jurisdictions must develop watershed implementation plans (WIP) that identify the measures being put in place to reduce pollution and restore the bay. WIPs are submitted to EPA for review and evaluation and (1) identify pollution load reductions to be achieved by various source sectors and in different geographic areas; and (2) help to provide “reasonable assurance” that sources of pollution will be cleaned up, which is a basic requirement of all TMDLs. In calendar 2010, each bay jurisdiction submitted a Phase I WIP that details how the jurisdiction plans to achieve its pollution reduction goals under the TMDL. In calendar 2012, the bay jurisdictions submitted Phase II WIPs that establish more detailed strategies to achieve the bay TMDL on a geographically smaller scale. A Phase III WIP, which must be submitted to EPA by February 8, 2019, will ensure that all practices are in place by calendar 2025 so that restoration goals can be met.

Maryland is embarking on the development of its Phase III WIP in conjunction with submitting and implementing water quality trading and Clean Water Commerce Act regulations, and is developing an Aligning for Growth (formerly Accounting for Growth) policy.

Phase III WIP

Phase III WIP implementation is broken up into three planning periods and comes with new expectations regarding the development of local area planning goals and an accounting for the impact of growth and climate change on loading targets; a separate WIP is planned for the Conowingo Dam. The three Phase III WIP planning periods are as follows (timelines have shifted since last year):

- **Expectations** – final expectations document to be released by EPA in early 2018 reflecting the final December 19 and 20, 2017 Principals’ Staff Committee meeting policy decisions on Conowingo Dam infill, climate change, and accounting for growth;
- **Planning Targets** – draft targets were released on December 22, 2017, with a four month review period ending April 20, 2018, and the release of the final targets on May 7, 2018; and
- **Phase III WIP Documents** – draft and final Phase III WIP documents are due to EPA between February 8, 2019, and June 7, 2019.

Of particular interest to local governments is the potential for the development of local area planning goals. While there is no consensus yet on exactly how these goals would work, the idea is that these goals may be adopted by any local political or programmatic entity (cities, towns, soil conservation districts, *etc.*) for any nonpoint source of nutrient and sediment loading in order to support implementation efforts and provide a framework for tracking progress. The focus is on nonpoint sources of pollution since point sources of pollution – wastewater treatment plants (WWTP), some stormwater discharges, and concentrated animal feeding operations – are already governed by National Pollutant Discharge Elimination System permits. While EPA has not previously engaged at this level, EPA notes that it does not intend to take any federal actions in regard to the adoption of a local area planning goal.

Two-year Milestones

President Barack H. Obama issued an executive order in May 2009 that directed the federal government to lead a renewed effort to restore and protect the bay and its watershed. At the same time, the bay jurisdictions committed to achieving specific, short-term bay restoration “milestones” in order to assess progress toward achieving nitrogen, phosphorus, and sediment reduction goals. Generally, milestones are goals to be reached in two-year increments; they include implementation actions, best management practices (BMP), and program enhancement actions. As a part of this effort, bay jurisdictions must submit pollution reduction progress and program action information to EPA. Although the bay jurisdictions developed the milestones prior to the establishment of the TMDL, the milestones have been incorporated into the TMDL process as a series of checkpoints for assessing progress toward achieving the pollution reduction goals in the TMDL.

Federal Review and Contingency Actions

EPA reviews each jurisdiction's progress toward its two-year milestones. If a jurisdiction's plans are inadequate or its progress is insufficient, EPA may take action to ensure pollution reductions, including increasing oversight of State-issued pollution permits, requiring additional pollution reductions, prohibiting new or expanded pollution discharges, redirecting federal grants, and revising water quality standards to better protect local and downstream waters. Of note, the House of Representatives adopted an amendment in a spending bill prohibiting EPA from using any funds to take retaliatory actions against any bay jurisdictions in the event that a state does not meet the goals mandated by the EPA's Chesapeake Bay TMDL, but it remains to be seen whether this provision will end up in a final bill.

Chesapeake Bay Watershed Agreement

In June 2014, a new Chesapeake Bay Watershed Agreement was signed by representatives from the bay jurisdictions, as well as the Chesapeake Bay Commission and EPA. This agreement sets forth a collaborative plan for restoring and protecting the bay watershed and its living resources. Among other things, the agreement sets a goal to reduce pollutants to the bay by meeting the calendar 2017 and 2025 restoration goals and improving the capacity for monitoring and assessing progress. The agreement indicated that strategies for implementing the agreement's goals should be developed by June 2015. On July 23, 2015, the 25 strategies were released at the Chesapeake Executive Council meeting. Each of the 25 strategies covered 1 or more of the 31 Watershed Agreement outcomes. At the October 5, 2016 Executive Council Meeting, members agreed to sign a resolution to support local government engagement including acknowledging current efforts by local governments and the benefits of future actions at the local level. On December 19 and 20, 2017, the Principals' Staff Committee met to discuss the Phase 6 model, Phase III planning targets for nutrient and sediment loading, climate change, growth of both animals and people by 2025, and Conowingo Dam infill.

Reaching the Goal: Progress to Date

Bay restoration is characterized by the implementation of BMPs that reduce nutrient (nitrogen and phosphorus) and sediment loading. EPA issued its Interim Evaluation of Maryland's 2016-2017 milestones implementation on June 30, 2017, which reflects the progress on BMP implementation. The results of implementing BMPs are reflected in the University of Maryland, College Park Campus (UMCP) Center for Environmental Science's Chesapeake Bay Report Card. The report card compares seven indicators – dissolved oxygen, nitrogen, phosphorus, chlorophyll a, water clarity, aquatic grasses, and benthic community – to scientific goals. The current status of BMP implementation and bay health is outlined below.

BMPs

According to the data provided by Maryland, the State is on track to achieve its statewide 2017 targets for phosphorus and sediment but is not achieving its statewide 2017 target for nitrogen. In terms of sectors, Maryland is not meeting its 2017 nitrogen targets for the agriculture, urban/suburban stormwater, and septic sectors. Matters improve for 2017 phosphorus and sediment targets; Maryland is in compliance for all sectors except for urban/suburban stormwater. EPA’s analysis includes the caveat that data being gathered for the 2017 midpoint assessment could show additional effort is needed for all three pollutants to achieve the 2025 targets. In addition, EPA notes that it has downgraded Maryland’s urban/suburban stormwater sector to enhanced oversight status 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. By March/April 2018, EPA will complete its assessment of the goal to achieve 60% of reductions by 2017 by using the Phase 5.3.2 model.

Health

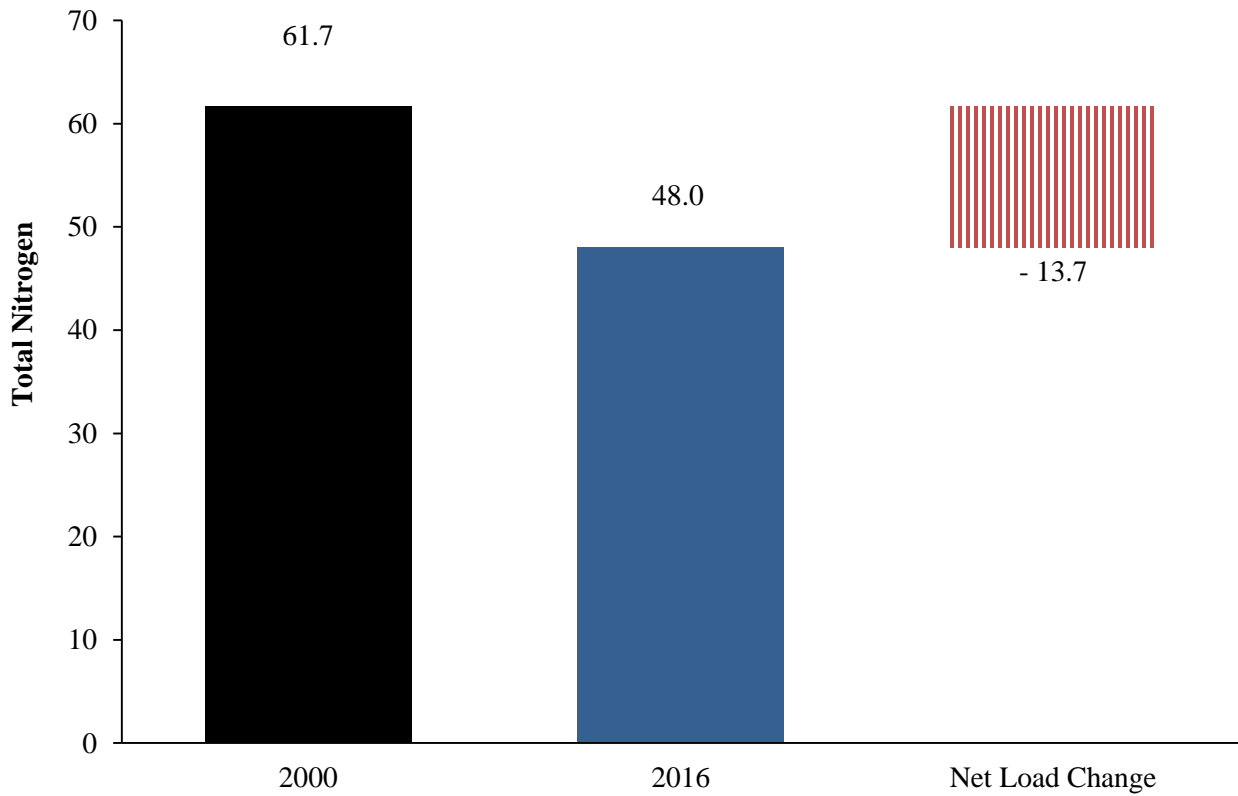
The health of the bay, as measured by the report card, has generally remained the same since 2003. The overall health of the bay improved slightly in 2016, but still received an overall score of C, indicating that the bay is in “moderate ecosystem health.”

Future Milestones and Targets

EPA primarily evaluates progress toward meeting the TMDL by reviewing a jurisdiction’s combined pollution reductions among the various pollution sources. The planning targets for the Phase III WIP are currently under review. The draft planning targets for nitrogen reflect a reduction from 55.89 million pounds in calendar 2013 (the most recent modeled year using the Phase 6 model) to 45.30 million pounds in 2025, or 10.59 million pounds. For phosphorus, the draft planning targets reflect a reduction from 3.919 million pounds to 3.604 million pounds, or 0.315 million pounds.

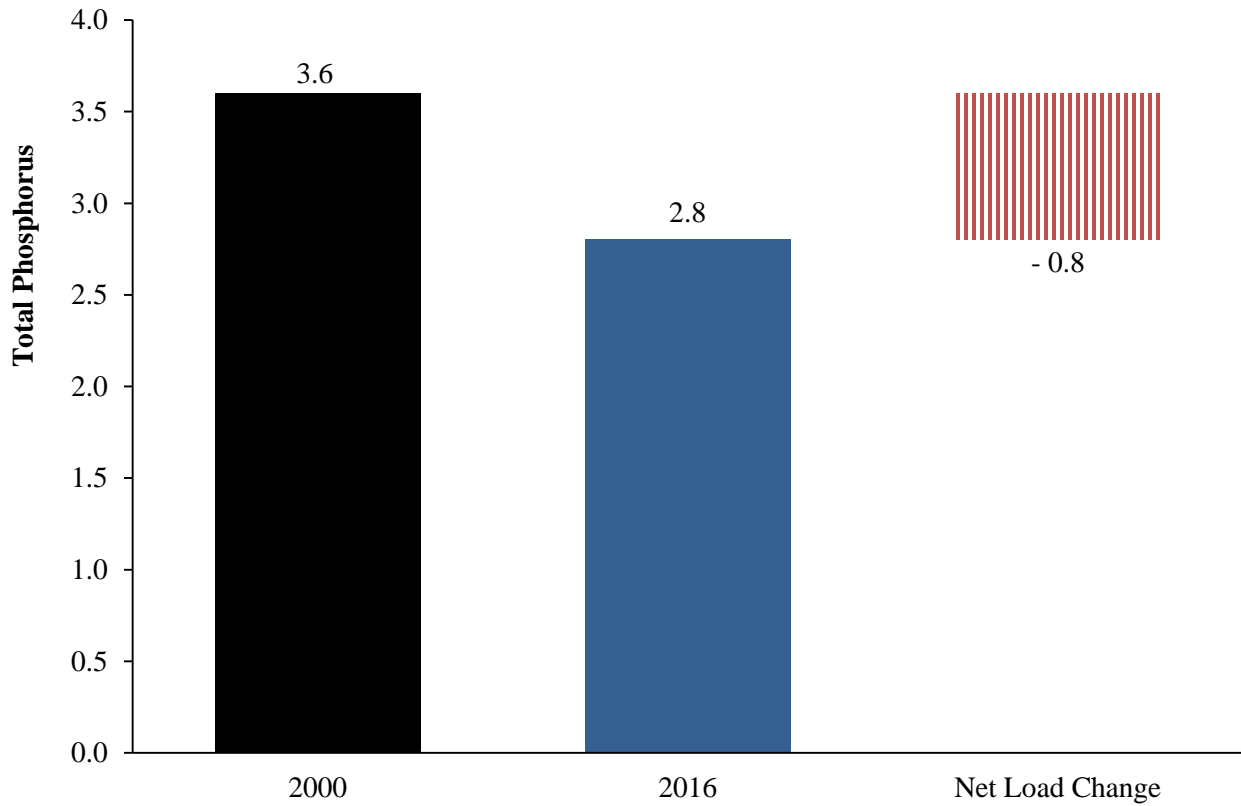
Exhibits 1, 2, and 3 show nitrogen, phosphorus, and sediment loads, respectively, for calendar 2000 and 2016 using the Phase 5.3.2 model. As can be seen, Maryland has made substantial progress. **Exhibit 4** shows, using the Phase 5.3.2 model, the progress and projected trend of Maryland’s nitrogen reductions. Of note, the nitrogen loads are above the target through calendar 2017; however, this is anticipated to be remedied by the Patapsco and Back River WWTPs coming online in calendar 2018. These plants were originally expected to come online by calendar 2017 but were delayed during the construction process. Going forward, projected loading is anticipated to be below the target for the next several years, which would in theory allow for the WWTPs to be used temporarily to cover for the expected exceedance of nitrogen loads by the urban/suburban stormwater and septic sectors.

Exhibit 1
Maryland Total Nitrogen to the Chesapeake Bay
(Million Pounds Per Year)
Calendar 2000 and 2016



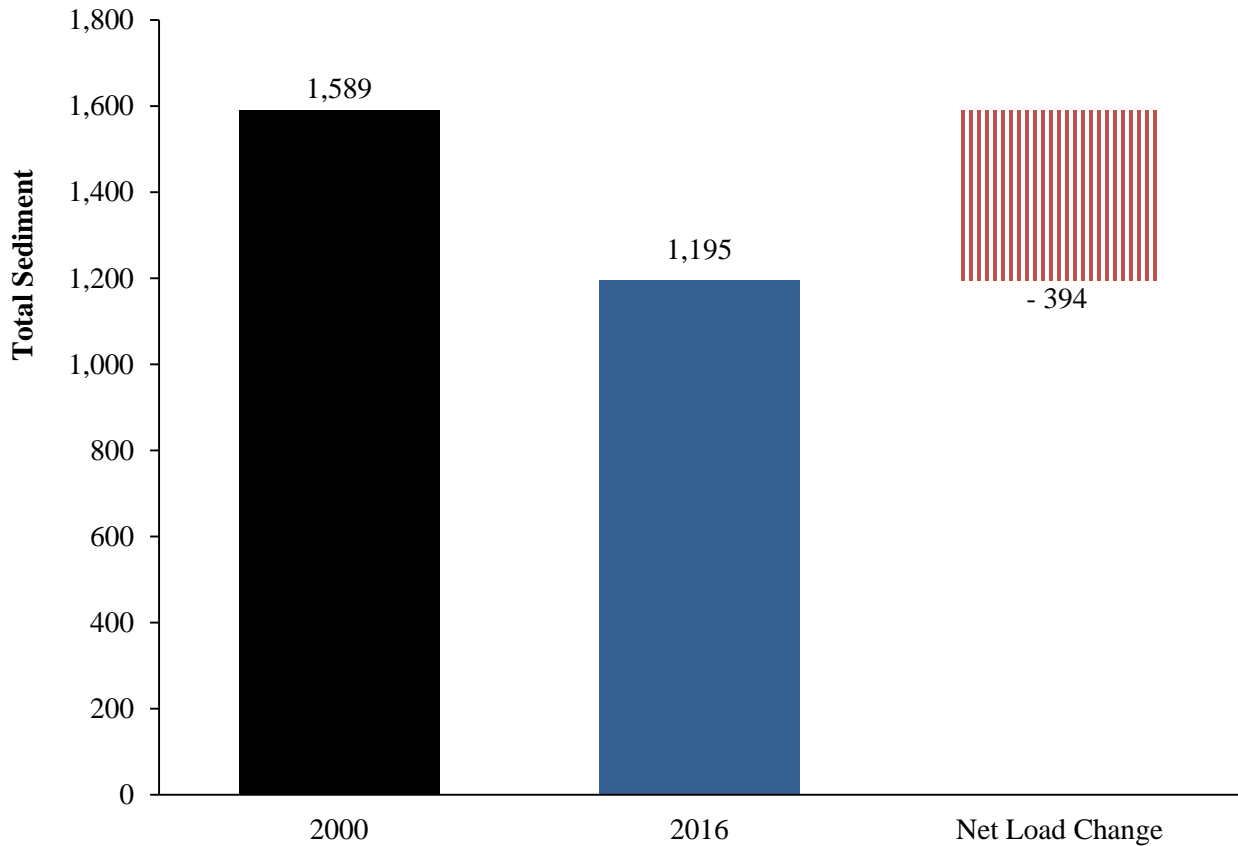
Source: Maryland Department of the Environment

Exhibit 2
Maryland Total Phosphorus to the Chesapeake Bay
(Million Pounds Per Year)
Calendar 2000 and 2016



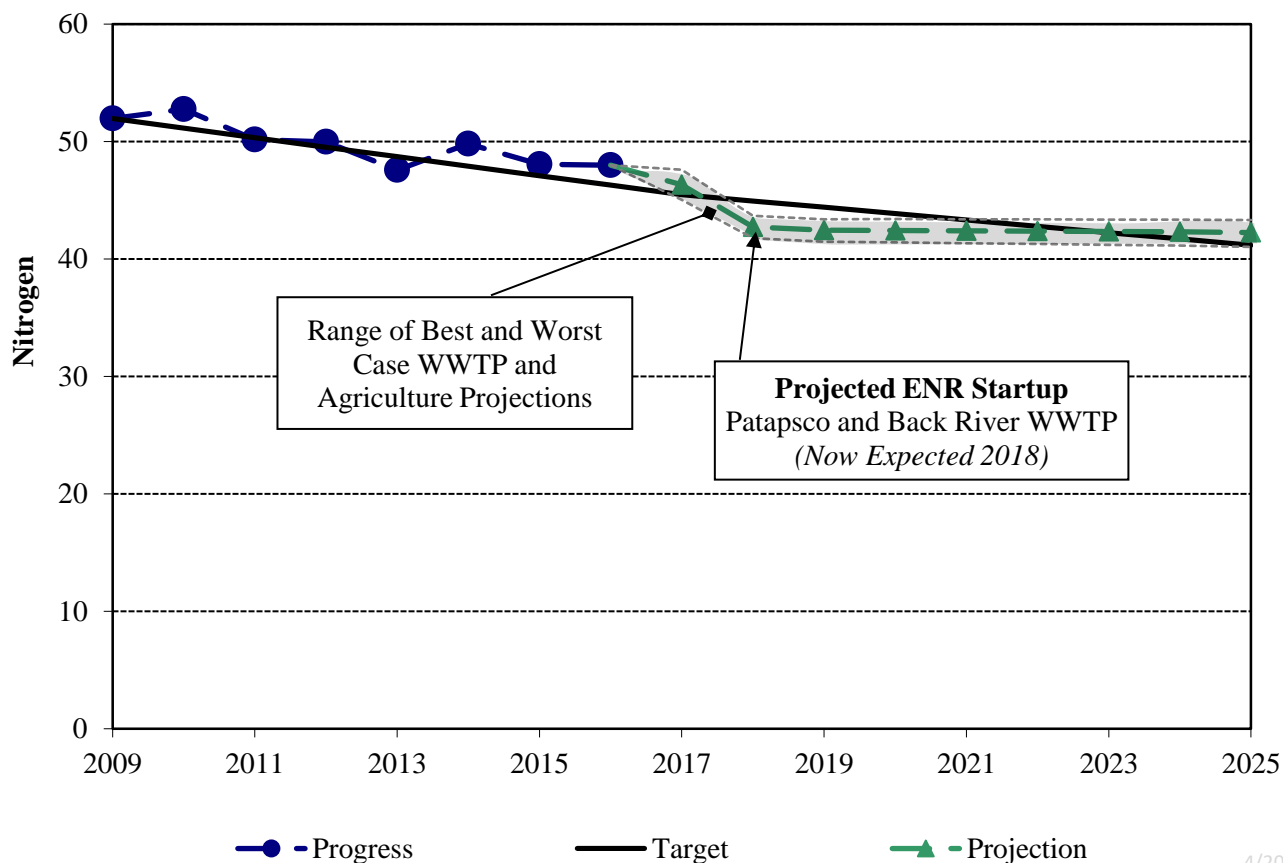
Source: Maryland Department of the Environment

Exhibit 3
Maryland Total Sediment to the Chesapeake Bay
(Million Pounds Per Year)
Calendar 2000 and 2016



Source: Maryland Department of the Environment

Exhibit 4
Nitrogen Loading Progress and Projected Progress
 (Million Pounds Per Year)
 Calendar 2009-2025



4/20

ENR: Enhanced Nutrient Removal
 WWTP: wastewater treatment plant

Source: Maryland Department of the Environment

However, at the December 19 and 20, 2017 Principals’ Staff Committee meeting, the new Phase 6 model was approved, which appears to make the attainment of the nitrogen reduction goal slightly harder to meet, while the phosphorus goal may be slightly easier to meet. In addition, there may be additional load reductions attributable to the Conowingo Dam, growth, and climate change.

Exhibit 5 shows the 1985 baseline for nitrogen loading and current modeled progress through 2013 as well as the draft Phase III planning targets that were released in December 2017. The exhibit

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shows that it has tentatively been determined that the Chesapeake Bay can assimilate 201.253 million pounds of nitrogen, and thus, this is the proposed new loading goal. In addition, the exhibit reflects the possible additional loading reductions associated with accounting for growth, the Conowingo Dam, and climate change. The status of these three considerations is as follows.

- ***Accounting for Growth*** – Maryland is seeking additional information from EPA concerning whether all of Maryland’s planned policies and programs are factored into the calculations about the estimated 1.5 million pound future loading from growth. These programs and policies include environmental site design mimicking predevelopment hydrology for all new development, BMPs on animal waste structures, the Sustainable Growth and Agricultural Preservation Act of 2012 limiting the spread of septic systems on large-lot residential development, the Forest Conservation Act minimizing the loss of forests during land development, and the Critical Area Act minimizing adverse impacts on water quality from growth proximate to the Chesapeake Bay.
- ***Conowingo Dam*** – The Conowingo Dam loading allocation shown at 6.0 million pounds for the entire Chesapeake Bay watershed is the most cost-effective scenario but is preliminary, as the Chesapeake Bay agreement partners are in the midst of balancing the most cost-effective and equitable way of allocating the loading; under the different scenarios, Maryland’s allocation varies from 0.12 million pounds to 1.97 million pounds. The Conowingo Dam allocation will probably involve the development of a separate WIP and may have regional financing components whereby federal funding from the EPA is voluntarily redirected from certain partner jurisdictions in order to help fund the required reductions.
- ***Climate Change*** – The climate change allocation of 2.2 million pounds for Maryland is also preliminary as more research is needed to show how the balance of climate-related impacts affects nitrogen loading to the Chesapeake Bay. For instance, increased volume and intensity of rain may increase nutrient and sediment loads, but sea level rise may dilute the loads and act to flush the Chesapeake Bay. The timeline for climate change considerations is phased as follows: an iterative process of programmatic actions (2018 to 2019); additional scientific research and deliberation (2020 to 2021); and the inclusion of a final accounting in the WIP (2022 to 2023).

Exhibit 5
Nitrogen Loading Planning Targets
Calendar 1985-2025
(Million Pounds Per Year)

<u>Jurisdiction</u>	<u>1985 Baseline</u>	<u>2013 Progress</u>	<u>Phase III Planning Target</u>	<i>Additional Loads (Under Deliberation)</i>		
				<u>Growth</u>	<u>Conowingo Dam (Lowest Load Scenario)</u>	<u>Climate Change</u>
New York	18.710	15.440	11.594	-0.74	0.57	0.400
Pennsylvania	122.414	99.275	73.181	1.66	5.31	4.135
Maryland	83.556	55.893	45.296	1.52	0.12	2.194
West Virginia	8.727	8.065	8.347	-0.02	0.00	0.236
District of Columbia	6.481	1.754	2.425	0.00	0.00	0.006
Delaware	6.968	6.587	4.587	0.48	0.00	0.397
Virginia	84.295	61.530	55.822	1.09	0.00	1.722
Basinwide	331.151	248.544	201.253	4.00	6.01	9.089

Source: Chesapeake Bay Program; Department of Legislative Services

Recent Regulatory Highlights

Two recent sets of regulations have been adopted that are potentially critical to Maryland’s Chesapeake Bay restoration efforts. The regulations address the long-awaited nutrient trading program for nonagricultural sources and the Clean Water Commerce Act authorization to use the Bay Restoration Fund for cost-effective nutrient reduction purchases.

Nutrient Trading

Nutrient trading regulations, formally the Water Quality Trading Program, were submitted on December 8, 2017. The General Assembly’s Joint Committee on Administrative, Executive, and Legislative Review (AELR) has jurisdiction until January 22, 2018; the regulations could become effective as early as Spring 2018. The regulations provide for a voluntary cross-sector market-based approach to reducing the cost of meeting the TMDL that complements the regulatory structure currently in place. Trading of credits, or units of pollution reduction, is proposed within three trading geographies: the Potomac River Basin; the Patuxent River Basin; and the Eastern Shore and Western Shore River basins, including the Maryland portion of the Susquehanna Basin. Various measures are in place to mitigate concerns that credits do not materialize or water quality may be degraded, including a credit reserve, uncertainty ratios, and an antidegradation policy specifying that trading may neither

cause nor contribute to local water quality impairments or prevent the attainment of local water quality standards. Of note, the regulations include performance credits for a WWTP treating nitrogen below 3 mg/L (milligrams) thus potentially allowing WWTP's to trade temporarily their excess load reductions in order to allow stormwater-regulated entities to meet their permits. The success of nutrient trading will be determined by the transparency and accountability of the trades.

Clean Water Commerce Act

The Maryland Department of the Environment (MDE) proposed new regulations for implementing Chapters 366 and 367 of 2017 (Clean Water Commerce Act) on December 11, 2017. The Clean Water Commerce Act regulations could be published as early as January 19 and then AELR has its 45-day review period. The regulations presumably would reflect the intent of the Clean Water Commerce Act to expand the authorized uses of the Bay Restoration Fund to include the purchase of cost-effective nitrogen, phosphorus, or sediment load reductions in support of the State's efforts to restore the health of the Chesapeake Bay. The bill authorized up to \$4 million in fiscal 2018, \$6 million in fiscal 2019, and \$10 million per year in fiscal 2020 and 2021 from the Bay Restoration Fund for that purpose. MDE notes that it is working on a procurement related to the Clean Water Commerce Act; there appears to be \$6 million allocated in MDE's Bay Restoration Fund budget in fiscal 2019.

Transportation Stormwater Management

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

Exhibit 6 reflects the most recent SHA WIP funding estimate, which in the fiscal 2018 to 2023 *Consolidated Transportation Program* is \$697.4 million, including \$214.0 million expended prior to fiscal 2018 and \$54.5 million added in fiscal 2023. SHA notes that the \$53.0 million reduction in total estimated cost from last year's estimate of \$750.4 million is due to efficiencies realized in the construction phase of program implementation, resulting in savings that are partially offset by the addition of fiscal 2023 funding. As shown in **Exhibit 7**, special funds comprise the largest share of the projected fund sources, accounting for 88% of the planned funding, followed by federal funds (5%)

and general obligation (GO) bonds (7%); no general funds are reflected because of the decision to use the TTF to comply with the WIP.

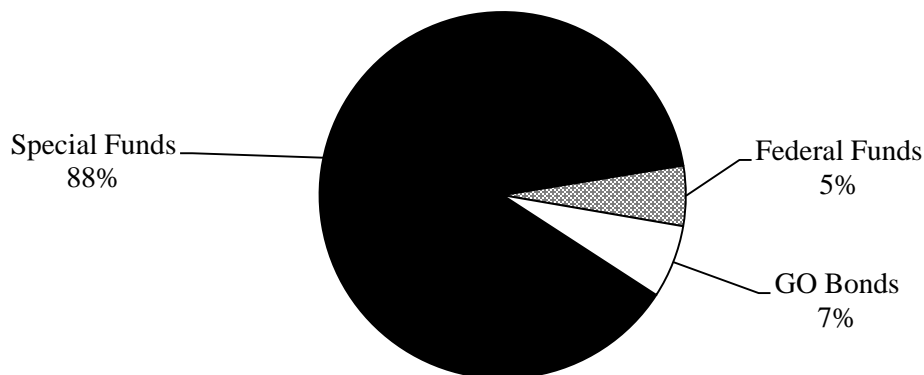
Exhibit 6
SHA Watershed Implementation Plan Funding
Fiscal 2018-2023
(\$ in Thousands)

<u>Source</u>	<u>Prior Auth.</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>Total</u>
Special Funds	\$132,033	\$100,000	\$100,000	\$105,700	\$64,600	\$58,600	\$54,500	\$615,433
Federal Funds	37,000	0	0	0	0	0	0	37,000
GO Bonds	45,000	0	0	0	0	0	0	45,000
Total	\$214,033	\$100,000	\$100,000	\$105,700	\$64,600	\$58,600	\$54,500	\$697,433

GO: general obligation
SHA: State Highway Administration

Source: Maryland Department of Transportation; Fiscal 2018 to 2023 *Consolidated Transportation Program*

Exhibit 7
SHA Watershed Implementation Plan
Total Program Funding Sources



GO: general obligation
SHA: State Highway Administration

Source: Maryland Department of Transportation; Fiscal 2018 to 2023 *Consolidated Transportation Program*

Issues

1. Overall Chesapeake Bay Restoration Funding

The current state of Chesapeake Bay restoration funding may be reviewed at three levels:

- **Overall Chesapeake Bay Restoration** – actions that include environmental education, land preservation, transit projects, and nutrient and sediment reduction among others;
- **Two-year Milestones** – actions for nutrient and sediment reduction only; and
- **Chesapeake and Atlantic Coastal Bays 2010 Trust Fund** – actions for nutrient and sediment reduction from nonpoint sources only using certain revenues.

Overall Chesapeake Bay Restoration

Section 37 of the fiscal 2018 budget bill expressed the General Assembly’s intent that the Department of Natural Resources (DNR), the Department of Budget and Management (DBM), 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 its activities directly related to Chesapeake Bay restoration for the fiscal 2017 actual, fiscal 2018 working appropriation, and fiscal 2019 allowance.

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

Exhibit 8
Overview of Maryland's Funding for Chesapeake Bay Restoration
Fiscal 2015-2019

	<u>2015</u> <u>Actual</u>	<u>2016</u> <u>Actual</u>	<u>2017</u> <u>Actual</u>	<u>2018</u> <u>Approp.</u>	<u>2019</u> <u>Allowance</u>	<u>2018-2019</u> <u>\$ Change</u>	<u>2018-2019</u> <u>% Change</u>
Agency/Program Total Funds							
Department of Natural Resources	\$110,595,649	\$84,660,768	\$94,204,417	\$96,972,984	\$95,466,210	-\$1,506,774	-1.6%
Program Open Space	15,072,000	24,210,428	16,515,928	30,796,662	53,432,004	22,635,342	73.5%
Rural Legacy	16,034,000	10,082,149	17,663,385	22,913,725	25,017,704	2,103,979	9.2%
Department of Planning	5,410,045	5,439,791	4,747,494	5,107,475	4,914,116	-193,359	-3.8%
Department of Agriculture	46,884,891	44,036,219	47,263,229	54,218,674	55,834,263	1,615,589	3.0%
Maryland Agricultural Land Preservation Foundation	22,850,007	24,726,722	20,692,064	41,061,541	50,809,728	9,748,187	23.7%
Maryland Department of the Environment ¹	281,255,048	546,309,366	270,248,755	513,472,973	437,297,276	-76,175,697	-14.8%
Maryland State Department of Education	416,945	416,945	416,945	416,945	416,945	0	0.0%
Maryland Higher Education	35,136,275	19,916,834	25,507,054	28,995,754	31,588,728	2,592,974	8.9%
Maryland Department of Transportation	338,284,342	230,430,909	298,948,863	355,124,723	427,376,724	72,252,001	20.3%
Total	\$871,939,202	\$990,230,131	\$796,208,134	\$1,149,081,456	\$1,182,153,699	\$33,072,243	2.9%
Fund Type							
General Fund	\$32,802,957	\$48,673,415	\$36,660,395	\$36,127,243	\$36,218,704	\$91,461	0.3%
Special Fund	276,779,365	338,028,907	328,687,023	355,916,531	427,425,644	71,509,113	20.1%
Federal Fund	54,269,686	54,285,340	55,597,477	54,269,222	53,294,698	-974,524	-1.8%
Reimbursable Funds	25,226,577	25,562,453	28,507,322	30,604,982	29,279,200	-1,325,782	-4.3%
Current Unrestricted	23,733,937	11,729,446	21,997,774	25,669,993	28,199,913	2,529,919	9.9%
Current Restricted	11,402,338	8,187,388	3,509,280	3,325,761	3,388,816	63,055	1.9%
General Obligation and Revenue Bonds ¹	109,440,000	273,332,273	22,300,000	288,043,000	176,970,000	-111,073,000	-38.6%

	<u>2015 Actual</u>	<u>2016 Actual</u>	<u>2017 Actual</u>	<u>2018 Approp.</u>	<u>2019 Allowance</u>	<u>2018-2019 \$ Change</u>	<u>2018-2019 % Change</u>
Agency/Program Total Funds							
Maryland Department of Transportation Funds	338,284,342	230,430,909	298,948,863	355,124,723	427,376,724	72,252,001	20.3%
Total	\$871,939,202	\$990,230,131	\$796,208,134	\$1,149,081,456	\$1,182,153,699	\$33,072,243	2.9%
Spending Category							
Land Preservation	\$54,779,325	\$59,863,593	\$56,571,415	\$96,554,230	\$130,296,127	\$33,741,897	34.9%
Septic Systems	21,445,045	25,890,960	20,172,494	21,607,475	21,414,116	-193,359	-0.9%
Wastewater Treatment ¹	249,916,427	512,339,242	236,675,142	479,105,221	398,648,966	-80,456,255	-16.8%
Urban Stormwater	33,200,345	9,582,588	12,723,956	14,439,723	12,820,591	-1,619,132	-11.2%
Agricultural BMPs	46,884,891	62,126,219	65,535,383	72,051,674	73,800,963	1,749,289	2.4%
Oyster Restoration	11,888,853	11,084,013	6,413,023	7,643,107	4,639,629	-3,003,478	-39.3%
Transit and Sustainable Transportation	338,284,342	230,430,909	298,948,863	355,124,723	427,376,724	72,252,001	20.3%
Living Resources	66,250,974	41,311,657	55,437,059	54,447,393	55,566,706	1,119,312	2.1%
Education and Research	35,553,220	23,583,779	29,186,279	32,772,699	35,365,673	2,592,974	7.9%
Other	13,735,780	14,017,171	14,544,520	15,335,210	22,224,203	6,888,993	44.9%
Total	\$871,939,202	\$990,230,131	\$796,208,134	\$1,149,081,456	\$1,182,153,699	\$33,072,243	2.9%

BMP: best management practice

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

Note: This presentation only includes State agency programs that have over 50% of their activities directly related to Chesapeake Bay restoration. In addition, funding related to salaries and fringe benefits does not reflect health insurance or increment adjustments. The exhibit reflects \$6,000,000 in special funds in the Maryland Department of the Environment for implementing the Clean Water Commerce Act that was inadvertently left out of Appendix S of the Governor’s Budget Highlights.

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

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The major changes between the fiscal 2018 working appropriation and the fiscal 2019 allowance reflected in the overall Chesapeake Bay restoration spending are as follows.

- ***MDOT*** – increases by \$72.3 million, primarily due to a \$66.6 million increase for the Maryland Transit Administration’s Purple Line transit project, a \$4.4 million increase for an off-site tree planting project, a \$3.7 million increase for a stream restoration project at Piney Run at MD 32, and a \$3.7 million increase for inspections and maintenance for stormwater management and TMDL implementation, which are offset partially by a decrease of \$6.5 million for the Dundalk C Street drainage program lot 403 project.
- ***Program Open Space, Rural Legacy, Maryland Agricultural Land Preservation Foundation*** – increases by \$34.5 million due to an increase in the transfer tax revenue estimate relative to fiscal 2018, fiscal 2017 overattainment funding, and the end of the transfer of transfer tax special funds to the General Fund after fiscal 2018. Of note, the increase would be even greater if the Governor had not included a contingent reduction of \$15.0 million in fiscal 2019 transfer tax repayment funding and had included any portion of the repayment toward the \$50.7 million required by fiscal 2021. Program Open Space’s share of the increase is \$22.6 million in additional transfer tax revenue. The Rural Legacy Program increase of \$2.1 million reflects increased transfer tax revenue and a \$1.0 million increase in the mandated \$5.0 million GO bonds as only \$4.0 million was provided in fiscal 2018. The Maryland Agricultural Land Preservation Foundation increase of \$9.7 million primarily reflects an increase in transfer tax revenue.
- ***Maryland Higher Education*** – increases by \$2.6 million, which is comprised primarily of a funding increase of \$3.5 million for UMCP, which is offset partially by a funding reduction of \$1.3 million for the University of Maryland Eastern Shore (UMES). UMCP’s funding reflects an increase for work related to treatment of 20% of the untreated impervious surfaces for stormwater (\$1.4 million), mitigation projects related to campuswide copper stormwater discharges (\$0.9 million), and implementation of the bicycle/transportation demand management program focusing on improved parking facilities and initiatives to incentivize people to commute by bike and bike on campus (\$0.6 million). UMES’ funding reduction reflects a decrease for projects funded by federal funds from the National Science Foundation’s Education and Human Resources grant (\$900,000), the U.S. Department of Agriculture (USDA) – National Institute of Food and Agriculture’s 1890 Institution Capacity Building Grants (\$248,686), the USDA – Agricultural Research Service’s Agricultural Research Basic and Applied Research (\$88,759), and the USDA – Natural Resources Conservation Service’s Environmental Quality Incentives Program (\$39,471).
- ***MDE*** – decreases by \$76.2 million, primarily due to a \$60.1 million reduction in revenue bond authorization for the Bay Restoration Fund to fund one-time Biological Nutrient Removal program projects in fiscal 2018 and a decrease of \$50.0 million in revenue bond appropriation from \$200.0 million to \$150.0 million for the Water Quality Revolving Loan Fund. These reductions are offset partially by an increase of \$19.2 million in Water Quality Revolving Loan Fund special funds, an increase of \$10.0 million in Bay Restoration Fund special funds for

capital purposes, and a \$6.0 million increase in Bay Restoration Fund special funds for implementation of the Clean Water Commerce Act in MDE's operating budget.

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.

Exhibit 9 shows the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund history in terms of revenues allocated to the fund, fund balance allocation to the General Fund, and revenue allocated to the General Fund. Fiscal 2019 reflects the third year that funding has not been transferred, and thus, available revenues for programs have exceeded \$50 million as originally projected for the fund. DBM has provided out-year estimates that reflect increasing revenue allocations to the fund. According to a November 27, 2017 press release, DNR planned to allocate approximately \$21 million for projects in fiscal 2019 with the submission of letters of intent by January 19, 2018, full proposals by March 30, 2018, and the announcement of awards by July 2018. **Exhibit 10** reflects the allocation of funding for fiscal 2018.

Exhibit 9
Chesapeake and Atlantic Coastal Bays 2010 Trust Fund Summary
Fiscal 2009-2021

	<u>Revenue Allocated to the Fund</u>	<u>Fund Balance Allocated to the General Fund</u>	<u>Revenue Allocated to the General Fund</u>	<u>Total</u>
Actuals				
Fiscal 2009 Actual	\$14,189,433		\$25,000,000	\$39,189,433
Fiscal 2010 Actual	10,521,271		29,486,556	40,007,827
2010 BRFA Fund Balance		\$2,500,000		
Fiscal 2011 Actual	21,002,346		22,101,428	43,103,774
2011 BRFA Fund Balance		970,000		
Fiscal 2012 Actual	21,622,668		20,169,444	41,792,112
Fiscal 2013 Actual	21,217,150		23,076,582	44,293,732
Fiscal 2014 Actual	29,843,703		19,535,845	49,379,548
2014 BRFA Fund Balance		2,400,000		
Fiscal 2015 Actual	36,550,176		14,249,199	50,799,375
Fiscal 2016 Actual	37,118,800		13,264,319	50,383,119
Fiscal 2017 Actual	51,693,552		0	51,693,552
Subtotal	\$243,759,099		\$166,883,373	\$410,642,471
Estimates				
Fiscal 2018	\$51,310,675		\$0	\$51,310,675
Fiscal 2019	52,931,333		0	52,931,333
Fiscal 2020	53,801,240		0	53,801,240
Fiscal 2021	54,680,045		0	54,680,045
Subtotal	\$212,723,293		\$0	\$212,723,293
Total	\$456,482,392		\$166,883,373	\$623,365,764

BRFA: Budget Reconciliation and Financing Act

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

Exhibit 10
Chesapeake and Atlantic Coastal Bays 2010 Trust Fund Projects
Fiscal 2018

<u>Project Location and/or Recipient</u>	<u>Project Title</u>	<u>Project Description</u>
Alliance for the Chesapeake Bay	Asbury Broadneck United Methodist Church Historic Cemetery Revitalization with Water Quality Improvements	Alliance for the Chesapeake Bay intends to capture and treat stormwater runoff from 40.3 acres with 6.4 acres of impervious surfaces, all discharging through county conveyance into an ephemeral stream channel on church property.
Anne Arundel County	Najoles Road Pond Retrofit and Stream Restoration	Anne Arundel County will retrofit the stormwater pond to provide water quality and quantity controls, reducing downstream erosion, restoring the function and stability of 1,800 linear feet (lf) of stream, and stabilize an eroding gully with approximately 360 lf of step pool storm conveyance systems.
Anne Arundel Watershed Stewards Academy	Cattail Creek Restoration	The Berrywood Community Association will restore the stream and introduce stormwater best management practices (BMP) to address erosion issues and to improve the water quality of Cattail Creek.
Baltimore County Department of Environmental Protection and Sustainability	White Marsh Run at Upton Road Stream Restoration	Baltimore County will implement a stream restoration that will restore floodplain connection and stabilize banks along 2,200 lf of highly incised stream channel.
Baltimore County Soil Conservation District	Baltimore County Soil Conservation District Project Proposal for Fiscal 2018 Nonpoint Source Funding	The Baltimore County Soil Conservation District will construct three restoration projects that will use natural design concepts and sustainable practices to cost effectively reduce nitrogen, phosphorus, and sediment loads.

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<u>Project Location and/or Recipient</u>	<u>Project Title</u>	<u>Project Description</u>
Cecil County Department of Public Works	Cecil County Municipal Separate Storm Sewer System Compliance Project	The Cecil County MS4 Compliance Project includes the implementation of a combination of new stormwater management (SWM) practices using Environmental Site Design, retrofits of existing SWM facilities, roadside ditch improvements, and bioswale implementation within Cecil County.
Cecil Land Trust	Principio Creek Restoration – Phase II	Cecil Land Trust will restore approximately 13,700 lf of degraded, channelized, and eroding portions of Principio Creek and its tributaries within the John Zartler property. In addition, 36.8 acres of riparian buffers and wetlands will also be restored.
Chester River Association	Gunston School Restoration and Stormwater Best Management Practices	The Chester River Association will install a suite of BMPs at Gunston School, Queen Anne’s County, which will filter stormwater from about 25.0 acres of grass, fertilized playing fields, parking lots, and roofs situated on the banks of the Corsica River.
City of Rockville	Hungerford – Stoneridge SWM Management Retrofit	The City of Rockville will complete the Hungerford-Stoneridge SWM facility retrofit to provide additional water quality treatment for the drainage area.
Ducks Unlimited, Inc.	Upper Shore Wetland Restoration Program	Ducks Unlimited will restore wetland hydrology, flora, and fauna to prior converted agricultural lands to reduce excess nutrient/sediment loads and provide optimal wildlife habitat in important Chesapeake Bay subwatersheds.
Harford County	Harford County Watershed Restoration Fiscal 2018	Harford County will implement two watershed restoration projects including a combination of stream restorations and SWM retrofits.
Harford Soil Conservation District	Deer Creek Watershed Stream Restoration	The Harford Soil Conservation District will improve water quality and habitat through three stream restoration and wetland restoration projects within the Deer Creek Watershed.
Howard County	Patapsco River Road and Trinity School Bioretentions	Howard County will implement three curb bump out bioretention areas designed for Patapsco River Road and a stormwater facility at Trinity School.

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<u>Project Location and/or Recipient</u>	<u>Project Title</u>	<u>Project Description</u>
Land and Cultural Preservation Fund, Inc.	Waterside Community Riparian Reforestation Project	The Waterside Community Riparian Restoration Project will reforest 33.6 acres with native tree species in the riparian zone along the Tuscarora Creek and the Monocacy River within the Waterside Community in Frederick, Maryland.
Maryland Forestry Foundation	Healthy Forests Healthy Waters – T-3	The Maryland Forestry Foundation will implement forest conservation plans and forest stewardship plans developed by the Maryland Forest Service in cooperation with private forest landowners that support forest based BMPs (<i>e.g.</i> , upland tree planting and riparian forest buffers).
Montgomery County Department of Environmental Protection	Montgomery County Department of Environmental Protection Fiscal 2018 Capital Stormwater and Stream Restoration	Montgomery County’s Department of Environmental Protection will construct two green infrastructure, two pond retrofit, and two combined pond retrofit/stream restoration project sites to help meet municipal separate storm sewer system permit and total maximum daily load requirements to improve water quality and add SWM to uncontrolled impervious areas.
The County Commissioners of Kent County	St. Paul’s Church 580 Streambank Protection – Phase 1	Kent County will restore 125 lf of existing stream bank (1,250 sq. ft. of nontidal wetland buffer) to effect erosion and sediment control.
Town of Oxford	Oxford Causeway Stormwater Bioretention	The Town of Oxford will integrate two new substantial retention areas, and expand and improve existing retention swales in order to increase stormwater retention capacity, improve water quality at final discharge to local waters, and increase coastal resiliency for a critical area of the community.

Source: Department of Natural Resources

One of the components of the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund’s typical allocation of funding is the Innovative Technology Fund, which has a Seed Capital Fund. The Seed Capital Fund invested in a company called Traffax, which was acquired by the company TrafficCast. As a result of this sale, the State received a portion of the revenue in accordance with the Seed Capital Fund’s methodology. Traffax work was to collect and process traffic data to run programs that controlled stop light cycles in order to decrease the delivery of nonpoint source pollution through the reduction of nitrogen oxide emissions from vehicles idling and decreasing drive times.

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

2. Sufficient Chesapeake Bay Restoration Funding Unclear

Section 36 budget bill language in the fiscal 2018 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 requested report included insights from both the July 2015 report *Maryland’s Chesapeake Bay Restoration Financing Strategy Final Report* and the August 2016 report *Chesapeake Bay Environmental Finance Symposium: Recommendations and Final Report* as well as new information on the funding efficiencies of various programs.

Watershed Implementation Plan Cost

Maryland’s restoration cost for the Phase II WIP informs its overall financing strategy. The State’s Phase II WIP included a \$14.4 billion restoration cost estimate for the fiscal 2010 through 2025 time period. In the fiscal 2015 operating budget bill, budget bill language originally included the intent that a report be submitted including projected fiscal 2017 to 2025 annual spending for restoration. In July 2015, the UMCP Environmental Finance Center released a financing strategy covering the intent of the fiscal 2015 budget bill language. The July 2015 report, *Maryland’s Chesapeake Bay Restoration Financing Strategy Final Report*, included estimated costs and revenues, as shown in **Exhibit 11** for the 2010 through 2025 time period. Overall, the UMCP Environmental Finance Center estimated a \$7.8 billion financing gap, primarily in the areas of onsite wastewater (septic systems) and urban stormwater. The updated report on historical and projected Chesapeake Bay restoration spending submitted in December 2016 notes a remaining funding gap between fiscal 2017 and 2025 of \$5.1 billion but continues to indicate that the gap can be closed if the State temporarily loans the excess wastewater sector allocation to meet the expected shortfall in the stormwater and septic sectors, holds MS4 permit holders to their requirements, and uses the Bay Restoration Fund and Chesapeake and Atlantic Coastal Bays 2010 Trust Fund as cost effectively as possible. However, it is unclear whether this funding is sufficient to address the planning targets under the new Phase 6 model and the additional reductions that may be necessary in order to address Conowingo Dam infill, growth, and climate change.

Exhibit 11
Watershed Implementation Plan Financing Gap
Calendar 2010-2025
(\$ in Billions)

<u>Sector</u>	<u>Estimated Costs</u>	<u>Estimated Revenue Flows</u>	<u>Financing Gap</u>
Point Source Wastewater	\$2,430	\$2,430	\$0
Onsite Wastewater	3,700	297	3,403
Agriculture	928	738	190
Urban Stormwater	7,388	3,203	4,185
Total	\$14,446	\$6,668	\$7,778

Source: University of Maryland, College Park Campus Environmental Finance Center

Environmental Finance Symposium

The UMCP Environmental Finance Center, in collaboration with the Chesapeake Bay Program, held the Chesapeake Bay Environmental Finance Symposium on April 25 through 26, 2016. The symposium was driven by a Chesapeake Executive Council resolution that encouraged the identification of innovative approaches to leverage or incentivize private investment in bay restoration. Subsequent to the symposium, an Environmental Finance Symposium Report Action Team was created. The EPA Chesapeake Bay Program Principals’ Staff Committee selected three of the symposium’s recommended actions to focus on in order to have the Environmental Finance Symposium Action Team write a report by March 2017 about the chosen financing ideas. The financing ideas chosen are as follows:

- ***Core Recommendation 1 – Advance a Chesapeake Bay Restoration Economic Development Effort:*** the idea is to encourage the development of innovative technologies for cleaning up the Chesapeake Bay;
- ***Theme Recommendation 1 – Pilot Pay for Success Investment Models:*** the idea is to spur the development of a system in which people compete to provide the lowest cost nutrient and sediment reductions; and
- ***Theme Recommendation 3 – Advance Public-private Partnerships, Where Appropriate:*** the idea is to encourage the development of public-private partnerships (P3) that allow for large-scale work, such as the shift from government-led stormwater reductions that are done on a project-by-project basis and may take up to six months to procure to a model in which a large number of projects can be procured at one time, such as what is being implemented by Corvias Solutions in Prince George’s County.

Funding Efficiency

Budget bill language in the fiscal 2018 budget bill included the request for an analysis by the UMCP Environmental Finance Center on how cost effective the existing State funding sources – such as the Bay Restoration Fund, Chesapeake and Atlantic Coastal Bays 2010 Trust Fund, and Water Quality Revolving Loan fund among others – are for Chesapeake Bay Restoration purposes. The Administration notes in its discussion that there are multiple water quality objectives – low-cost nutrient reductions to the Chesapeake Bay may be in conflict with expensive local urban/suburban stormwater restoration requirements – and other Chesapeake Bay agreements – such as climate change mitigation – that necessarily entail tradeoffs between cost effectiveness and other policies. In addition, each program has special statutory language preventing the aggregation of all Chesapeake Bay restoration funding into one account for allocation.

Bay Restoration Fund

The report notes that the upgrading of WWTPs to enhanced nutrient removal technology varies in cost effectiveness based on the size of the design flow of the WWTP; larger plants are more cost effective. For instance, Piscataway is a large plant with a flow of 30.0 million gallons per day and anticipated reductions of 1,369,845 pounds of nitrogen at an annualized total cost per pound of nitrogen of \$0.99 while the George’s Creek plant is a smaller plant with a flow of only 0.60 million gallons per day and anticipated reductions of 27,397 pounds of nitrogen at an annualized total cost per pound of nitrogen of \$52.31. Since the major WWTPs are almost all upgraded, the annualized total cost per pound of nitrogen is expected to increase with the shift to the upgrading of the minor WWTPs. However, this may be mitigated somewhat by the revision of the Integrated Project Priority System, which guides funding decisions, to provide greater emphasis on cost effectiveness in project selection.

Water Quality Revolving Loan Fund

As with the Bay Restoration Fund, Water Quality Revolving Loan Fund projects are rated with the revised Integrated Project Priority System and thus emphasize cost effectiveness as well as readiness to proceed. In addition, the funding revolves as the principal and interest – albeit at a low interest rate in order to make the loans favorable – is repaid to the program.

Chesapeake and Atlantic Coastal Bays 2010 Trust Fund

The report notes that the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund has a focus on cost effectiveness for nonpoint source projects – a slightly more expensive category of project due to the diffuseness of the output – which is borne out by the data provided. The dollar per pound of nitrogen reduced peaked at \$254 in fiscal 2012 and then decreased to a low of \$8 in fiscal 2013, although the cost has increased in recent years to the current level of \$83 in fiscal 2017. A confounding feature in the data is the increase in funding provided in recent years, which may help to reduce the dollar per pound of nitrogen reduced by averaging out the volatility of projects. Several of the cost mitigating components of the fund are the leveraging of local resources and thus the incentive for local jurisdictions to be conscious of the cost effectiveness of their projects, the competitive solicitation process, and the focus on financing performance instead of implementation rates.

DLS recommends that the Administration comment on whether Maryland is on track to meet the requirement of having all practices in place to meet the specified nutrient and sediment reductions by 2025 and what is likely to happen if Maryland and/or the other Chesapeake Bay agreement states do not meet this requirement. In addition, DLS recommends that the agencies submit a report on updated historical spending and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all BMPs in place to meet water quality standards for restoring the Chesapeake Bay. It is requested that the report include information on the draft Phase III WIPs and how the loads associated with Conowingo Dam infill, growth of people and animals, and climate change will be addressed.

3. Chesapeake Bay Program Funding and Enforcement Questions

President Donald J. Trump's federal fiscal 2018 budget request deleted the \$73 million in funding for the Chesapeake Bay Program. This would have meant a reduction of crucial monitoring funding for Maryland and the elimination of the Chesapeake Bay Program's coordination activities between the states.

Senate Joint Resolution 8 was proposed in the General Assembly of Maryland during the 2017 legislative session and eventually was passed. The resolution expressed the General Assembly's opposition to the proposed federal budget cuts to the Chesapeake Bay Program and other federal programs that support the restoration of the Chesapeake Bay, urged the Governor to publicly oppose the proposed budget cuts, and required the Senate Education, Health, and Environmental Affairs Committee and the House Environment and Transportation Committee to monitor and make recommendations regarding federal budget proposals and actions affecting the Chesapeake Bay and its tributaries. On March 28, 2017, during the deliberations on the resolution, the Hogan Administration submitted testimony indicating that it was gathering information to share with the congressional delegation, EPA, and others in the Administration on a list of direct and indirect impacts to its efforts if sufficient funding, sound science, and regulatory accountability are not included for federal fiscal 2018 and beyond.

Congress passed the federal fiscal 2018 budget continuing resolution on September 7, 2017, which maintained funding for the Chesapeake Bay Program at the federal fiscal 2017 level through December 8, 2017. Subsequently, an additional continuing resolution has been passed. However, on September 14, 2017, the House of Representatives passed an appropriations bill that reduced federal fiscal 2018 funding for the Chesapeake Bay Program by \$13 million to \$60 million, but it still needs to be considered by the Senate. As of January 2018, it appears that EPA's appropriation will be determined after a spending deal is reached.

In addition to the funding reduction, the House of Representatives adopted an amendment prohibiting the EPA from using any funds to take retaliatory actions against any Chesapeake Bay jurisdictions in the event that a state does not meet the goals mandated by the EPA's Chesapeake Bay TMDL. Currently, EPA reviews each jurisdiction's progress toward its two-year milestones. If a jurisdiction's plans are inadequate or its progress is insufficient, EPA may take action to ensure

pollution reductions, including increasing oversight of State-issued pollution permits, requiring additional pollution reductions, prohibiting new or expanded pollution discharges, redirecting federal grants, and revising water quality standards to better protect local and downstream waters.

DLS recommends that the Administration comment on the impact of the Chesapeake Bay Program being defunded or receiving reduced funding and the potential impact of the EPA being prohibited from using any funds to take retaliatory actions against any of the six states in the Chesapeake Bay watershed in the event that a state does not meet the goals mandated by the EPA’s Chesapeake Bay TMDL.

4. Nutrient Trading and Aligning for Growth

The Maryland Water Quality Trading Advisory Committee has been meeting regularly since January 2016 on the State’s nutrient trading policy, which informs what is now called Aligning for Growth. The January 2016 *Draft Maryland Trading and Offset Policy and Guidance Manual – Chesapeake Bay Watershed* has been updated with a draft April 17, 2017 document, which reflects a greater focus on trading to meet stormwater permits. It does not appear, however, that the necessary regulatory and permitting frameworks have been established yet to allow for nutrient trading to meet stormwater permits.

Nutrient trading has shifted from a way to *maintain* the TMDL cap to a way to *meet* the TMDL cap. In particular, it has become a way to meet inexpensively, and perhaps temporarily, the load reductions necessary from the stormwater sector. For instance, Anne Arundel, Baltimore, Charles, Frederick, and Harford counties proposed in their July 2016 stormwater financial assurance plans to trade with WWTPs for up to half of the needed reductions in their five-year stormwater permits, as required by Chapter 124 of 2015 (Watershed Protection and Restoration Programs – Revisions).

In terms of meeting the TMDL cap, the Administration is still working on an Aligning for Growth policy. One of the major challenges has been addressing stormwater and septic loads from new development. This arises from the fact that agricultural land converted to urban land and land using septic systems results in less nutrient and sediment loading despite the fact that the State does not want to incentivize development on agricultural land. Two Aligning for Growth policy options addressing new development have been presented: (1) a septic/forest conversion option in which loads from new septic systems are offset by some amount and stormwater loads from converting forestland is offset; and (2) a per capita loading option that creates both a county and State individual loading benchmark – generally lower in urban areas with infrastructure in place – to which all new development would be compared with a requirement to offset any loading greater than the benchmark. Any final Aligning for Growth option will require stakeholder buy-in to be effective. **DLS recommends that the Administration comment on the status of an Aligning for Growth policy including possible components such as a sector loading analysis, how this policy will be incorporated into or complement the Phase III WIP, and the relationship between Aligning for Growth and nutrient trading.**

5. Capacity to Handle Phosphorus Management Tool Requirements Unclear

The Phosphorus Management Tool (PMT) was developed by scientists at the University of Maryland and is used to identify agricultural lands where the soil is saturated with phosphorus and has a high risk of runoff. The PMT is a component in the State’s WIP for Chesapeake Bay restoration and is being used to reduce phosphorus loads. Regulations incorporated the University of Maryland PMT into the State’s existing nutrient management planning process effective June 8, 2015. The regulations also added recordkeeping and reporting requirements and established the PMT Transition Advisory Committee within the Maryland Department of Agriculture (MDA).

PMT Data

Collecting PMT data has been a challenge for MDA; first, because of the reluctance of some nutrient management planners to release the data for their client farmers and second, because of the need to do field level evaluations to collect data to fill information gaps. In general, fields with a phosphorus fertility index value (FIV) of less than 150 are not subject to additional phosphorus management restrictions while fields with values greater than 150 are subject to increasing restrictions on the management of phosphorus.

The PMT data available as of August 1, 2017, and made available in a presentation to the Phosphorus Management Tool Advisory Committee on September 25, 2017, indicates that 1,105,130 acres, or 86.5%, have reported, which is for 75,671 fields. The 1,105,130 acres fall into the following phosphorus FIV categories: less than 150 – 877,336 acres (79.4%); 150 to 499 – 210,023 acres (19.0%); and greater than 500 – 17,771 acres (1.6%). Fields with an FIV greater than 500 are not allowed to apply phosphorus.

Tier Groups

The phosphorous FIV data informs but is slightly different from the Tier Group data that farms have been divided into for management purposes under the PMT. The Tier Groups are as follows: Tier A – 150-300 average FIV, which means a transition in management of 122,705 acres in 2020; Tier B – 300-450 average FIV, which means a transition of 54,271 acres in 2019; and Tier C – greater than 450 average FIV, which means a transition in management of 10,894 acres in 2018. The exact management practices needed will depend on whether the particular fields fall into low, medium, or high PMT risk categories, but in general there will be a substantial number of acres transitioning to the revised management regimens in the next few years, which will put a premium on dealing with phosphorus management.

Delmarva Land and Litter Challenge

One of the entities looking at how phosphorus – and nitrogen – will be handled on the fields transitioning into the new management regime is the Delmarva Land and Litter Challenge (DLLC). DLLC is comprised of farmers, conservationists, and academics interested in abating poultry-related nutrient pollution on the Delmarva Peninsula; the goal is for the Delmarva Peninsula to be nutrient neutral by 2025. DLLC has three subcommittees addressing poultry manure concerns: transport, technology, and mass balance. The mass balance subcommittee is completing a mass balance methodology for looking at the surplus/deficit status at the county level for nitrogen and phosphorus from inorganic fertilizer, poultry manure, and biosolids. The final mass balance report is not expected until sometime in 2018, and will need to be supplemented by decisions about how to handle the surplus nutrients such as by transportation to fields that can use it, alternative uses such as mushroom growers in Pennsylvania, or various proposed digester and composting technologies.

DLS recommends that the Administration comment on how the large number of acres transitioning to management under the PMT will be handled in the next couple of years and how the work of the DLLC’s transport, technology, and mass balance subcommittees inform this process.

6. Conowingo Dam Relicensing and Request for Proposals

The Conowingo Dam – a peaking hydroelectric facility that uses reservoir storage to generate electricity during peak electricity demand periods – has been described as the biggest BMP on the Susquehanna River. However, the Conowingo Dam, owned by Exelon Corporation, and two other dams in the Lower Susquehanna River – Safe Harbor, owned by Brookfield Renewable, Inc., and Holtwood, owned by Pennsylvania Power and Light – have reached an end state in terms of sediment storage capacity. In addition, the Conowingo Dam is in the midst of relicensing by the Federal Energy Regulatory Commission (FERC); its license expired on September 1, 2014, and it will receive automatic one-year renewals until it is relicensed. However, relicensing is on hold until the Administration determines whether it will grant a CWA – Section 401 water quality certification, which is required before FERC can act on an application for licensing. The water quality certification, in turn, is on hold until enhanced monitoring and modeling data has been incorporated into the approved Chesapeake Bay model as part of the midpoint assessment.

Modeling Data Incorporated

The modeling data has been incorporated into the Phase 6 watershed model, and the final Phase 6 model was adopted by the Principals’ Staff Committee on December 19 and 20, 2017. In addition, the Principals’ Staff Committee agreed in concept to a separate Conowingo Dam target, with a separate WIP laying out how the nitrogen, phosphorus, and sediment loads from the Conowingo Dam will be distributed between jurisdictions and when the reductions need to occur. As a part of this decision, the Principals’ Staff Committee agreed to the concept of pooling resources in areas determined to have the most impact on the Chesapeake Bay; a framework is expected to be determined

by the Principals' Staff Committee by February 2018. In the meantime, Exelon Corporation applied for the current water quality certification for the dam's relicensing on May 16, 2017. As a result, MDE has until May 15, 2018, to complete its review of the CWA – Section 401 water quality certification. The water quality certification will in turn dictate Exelon's potential financial role in the mitigation of Conowingo Dam's nutrient and sediment loads.

Pilot Dredging Project

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

MES received two bids for the September 2017 RFP. On December 28, 2017, MES announced a notice of intent to award the contract to Northgate-Dutra Joint Venture and expects contract negotiations and discussion about beneficial reuse of the dredged material to move forward as soon as the required permits are received and a lease for the proposed staging area is finalized. The contract award process is expected to be completed no later than Friday, March 16, 2018. **DLS recommends that the Administration comment on the role of the Conowingo Dam pilot dredging project proposal relative to the need to reduce upstream loading as part of the separate WIP to address Conowingo Dam infill.**

7. Stormwater Funding Challenges

Committee narrative in the 2016 *Joint Chairmen's Report* (JCR) noted that the \$4.2 billion financing gap for stormwater remediation in the July 2015 report *Maryland's Chesapeake Bay Restoration Financing Strategy Final Report* and that Prince George's County had entered into a P3 for stormwater remediation. Therefore, the budget committees requested that DNR, in coordination with MDE, DBM and UMCP Environmental Finance Center, provide a report on how the other nine Phase I municipal separate storm sewer system jurisdictions are meeting their stormwater requirements, and the costs and benefits of the other nine jurisdictions partnering either individually or collectively with a P3 for stormwater remediation financing.

Background Information

The federal CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States. The National Pollutant Discharge Elimination System (NPDES), a component of the CWA, regulates stormwater discharges from municipal separate storm sewer systems (MS4). There are 10 local jurisdictions and SHA in Maryland that hold NPDES Phase I MS4 permits (Anne Arundel, Baltimore, Carroll, Charles, Frederick, Harford, Howard, Montgomery, and Prince George’s counties; and Baltimore City). In the 2012 legislative session, the General Assembly passed legislation, Chapter 151, which required these 10 jurisdictions to establish a local stormwater remediation fee to assist in financing the implementation of the local MS4 permits, including the requirement of each permit to meet the stormwater-related targets under the Chesapeake Bay TMDL. Subsequently, Chapter 124 of 2015 (Watershed Protection and Restoration Programs – Revisions) repealed the requirement to enact a fee and instead required the jurisdictions to file a financial assurance plan every two years. The first financial assurance plans were submitted on July 1, 2016, and MDE submitted its first annual summary report on the financial assurance plans in October 2016. While MDE determined that the financial assurance plans list sufficient revenue to support stormwater remediation activities, a number of the plans rely on nutrient trading despite the lack of a final State nutrient trading policy and the explicit authority to engage in nutrient trading to meet MS4 permits. MDE notes that the explicit authority will be in place once regulations and the nutrient trading policy are in place, which could become effective as early as Spring 2018, and either the NPDES MS4 permit is modified or a preemptive consent decree is issued.

Financial Assurance Plans

Chapter 124 required financial assurance plans to be filed with MDE by July 1, 2016, and every two years thereafter on the anniversary of the date the permit was issued. The plan must identify all local actions that will be required for the jurisdiction to comply with its Phase I MS4 permit, as well as the funding sources that will support those efforts, including a five-year projection of costs and revenues for permit compliance. The plan must also identify the specific actions and expenditures implemented in the previous fiscal years. For a first financial assurance plan filed by July 1, 2016, funding in the plan is sufficient if it includes dedicated revenues, funds, or sources of funds to meet 75% of the projected costs of compliance with the impervious surface restoration plan requirements of the MS4 permit for the following two years. A subsequent financial assurance plan may be deemed sufficient if it includes dedicated funds to meet 100% of the projected two-year costs of compliance with the impervious surface restoration plan requirements. A local jurisdiction may not file a financial assurance plan until the local governing body holds a public hearing and approves the plan. A financial assurance plan must be made publicly available on MDE’s website within a specified timeframe.

All of the jurisdictions governed by MS4 permits – SHA and Phase II MS4 permittees are not required to file a financial assurance plan – submitted their financial assurance plans, including Montgomery County, which was not required to submit a plan. In addition, all jurisdictions had their financial assurance plans approved by the local governing body.

Current and Projected Restoration

Exhibit 12 compares the impervious surface restoration plan data through fiscal 2016 and separately for fiscal 2017 through 2018, the two-year planned restoration period. Of note, 5 of the 10 jurisdictions have acreage baselines that are pending acceptance by MDE, as of July 10, 2017, which reduce the confidence in the numbers shown. As shown in the exhibit, the average cost per acre is anticipated to increase going forward in 6 of the 10 jurisdictions, which may indicate the depletion of the most cost-effective activities. In addition, a substantial amount of activity is represented for fiscal 2017 through 2018.

Exhibit 12
Restoration Completed and Projected to Meet Impervious Surface Restoration Plan Requirements
Through Fiscal 2018

<u>Jurisdiction</u>	<u>Acres Required to be Restored (Impervious Acre Baseline)</u>	<u>Acre Baseline Accepted by MDE (Y/P/N)</u> ¹	<u>Acres Restored</u>		<u>Cost</u>		<u>Average Cost Per Acre</u>		<u>Restoration</u>	
			<u>Through 2016</u>	<u>Additional 2017-2018</u>	<u>Through 2016</u>	<u>Additional 2017-2018</u>	<u>Through 2016</u>	<u>Additional 2017-2018</u>	<u>Complete Through 2016</u>	<u>Projected Additional 2017-2018</u>
Anne Arundel	5,862	Y	649	4,201	\$6,596,505	\$77,301,728	\$10,164	\$18,401	11.1%	71.7%
Baltimore City	4,291	Y	2,372	3,758	10,561,649	28,916,682	4,453	7,695	55.3%	87.6%
Baltimore	6,036	Y	1,203	5,128	11,388,763	111,198,575	9,467	21,685	19.9%	85.0%
Carroll	1,344	P	1,123	458	12,576,575	12,090,000	11,199	26,397	83.6%	34.1%
Charles	1,410	P	223	1,238	6,592,038	25,921,551	29,561	20,938	15.8%	87.8%
Frederick	1,013	P	161	320	10,192,516	17,622,629	63,308	55,071	15.9%	31.6%
Harford	1,883	P	487	1,586	5,793,000	18,040,000	11,895	11,375	25.9%	84.2%
Howard	2,044	P	157	750	12,838,020	44,661,270	81,771	59,548	7.7%	36.7%
Montgomery	3,777	Y	1,780	1,571	75,031,122	116,102,260	42,152	73,903	47.1%	41.6%
Prince George's	6,105	Y	139	3,854	3,563,000	101,007,378	25,633	26,208	2.3%	63.1%
Total	33,765		8,294	22,864	\$155,133,187	\$552,862,073	\$18,704	\$24,180	24.6%	67.7%

MDE: Maryland Department of the Environment

¹ The Acre Baseline Accepted by the Maryland Department of the Environment is specified as either Yes (Y), Pending (P), or No (N). The average costs per acre and restoration complete totals were recalculated in order to account for a 1,100 acre difference between the total acres restored over fiscal 2017 and 2018 and the original data. This difference appears to reflect that the total was not adjusted when it was determined that Anne Arundel County's plan included a best management practice that had not been approved.

Source: Maryland Department of the Environment; Department of Legislative Services

Financial Assurance Requirements

Exhibit 13 reflects all of the jurisdictions that met MDE’s requirement for reporting at least 75% of two-year costs being available. Trading is not currently allowed by the MS4 permits. However, a number of counties are proposing in their stormwater financial assurance plans to trade with WWTPs for up to half of the needed reductions in their five-year stormwater permits:

- *Anne Arundel (permit expires February 11, 2019)* – 2,044 acres, or 35% of its requirement;
- *Baltimore (permit expires December 22, 2018)* – 1,000 acres, or 17% of its requirement;
- *Charles (permit expires December 25, 2019)* – 705 acres, or 47% of its requirement;
- *Frederick (permit expires December 29, 2019)* – 256 acres, or 25% of its requirement; and
- *Harford (permit expires December 29, 2019)* – 940 acres, or 41% of its requirement.

Exhibit 13
Fulfillment of Revenue Requirement for Two-year Costs
Through Fiscal 2016
(\$ in Millions)

<u>Jurisdiction</u>	<u>Cost</u>	<u>Revenue</u>	<u>Percent of Cost Covered</u>	<u>Meets 75% Requirement (Y/N)</u>
Anne Arundel	\$115.0	\$121.1	105%	Y
Baltimore City	97.7	79.4	81%	Y
Baltimore	92.4	89.5	97%	Y
Carroll	17.7	18.1	102%	Y
Charles	27.3	28.7	105%	Y
Frederick	11.4	11.4	100%	Y
Harford	20.3	23.0	113%	Y
Howard	44.7	40.8	91%	Y
Montgomery	116.1	116.1	100%	Y
Prince George’s	139.4	103.9	75%	Y
Total	\$681.9	\$632.0	93%	

Note: The Maryland Department of the Environment has noted in the past that cost and revenue information was obtained from the Impervious Surface Restoration Plan Revenue worksheet and notes in the most recent report that the cost and revenue figures include theoretical cost sharing.

Source: Maryland Department of the Environment

Nutrient trading may turn out to be the panacea sought by the five counties noted above, but time is running out on their permit periods. Nutrient trading regulations could become effective as early as Spring 2018 at which point jurisdictions could then seek a permit modification. However, a permit modification would require public comment and might be challenged in court and so may not be guaranteed. In addition, while WWTPs are expected to be able to temporarily trade their load reductions below the 3.0 mg/L operating threshold, there is limited capacity to trade. MDE has calculated that 209,012 pounds of nitrogen would be needed if half of the MS4 Phase I counties were to trade for credits to meet their permits. If the baseline for trading by WWTPs was 3.5 mg/L, then it is estimated that there would be 412,030 pounds of nitrogen credits available for the Phase I counties, but since the threshold is only 3.0 mg/L there is estimated to be only 250,491 pounds of nitrogen credits available, 41,479 pounds of nitrogen more than is needed by the Phase I counties. One caveat is that these numbers only reflect the WWTPs at enhanced nutrient removal right now and do not include the Back River and Patapsco plants; these two plants could be expected to deliver substantial trading opportunities if they are able to meet their permits.

Additional Options

The report requested by the 2016 JCR committee narrative provides case studies on P3s in Howard, Carroll, Anne Arundel, and Prince George's counties as follows.

- ***Howard County – Leveraging Homeowner Participation:*** Howard County is using an incentive-based program called “CleanScapes” that encourages homeowners to install dry-wells, green roofs, rain barrels, rain gardens, and permeable pavements on their properties in return for a 50.0% reimbursement or annual percentage reduction on the Watershed Protection Fee. While Howard County reported that homeowners installed rain gardens that treated 12.9 acres for \$0 in fiscal 2014 and 2015, there is no information provided in the report about any reimbursement homeowners may have received and so the costs are likely understated.
- ***Carroll County – Leveraging Grant Money:*** Carroll County's Double Pipe Creek Tree Planting project is noted as an example of leveraging grant money. A DNR grant for planting 10.0 acres of trees on 10 private properties in Double Pipe Creek watershed cost \$45,154 and generated 3.8 acres of impervious acre credit at \$11,883 per acre. The leveraging component appears to be the fact that Carroll County will assume the long-term maintenance costs of the plantings, unless the planting of the trees cost more than \$45,154 and was somehow subsidized by the homeowners.
- ***Anne Arundel County – Pay for Performance:*** Anne Arundel County appears to have followed the lead of the Chesapeake and Atlantic Coastal Bays 2010 Trust Fund allocation process by issuing a \$5.0 million RFP to solicit cost-effective stormwater pollution reductions on private lands by paying for performance – nutrient and sediments reduced – instead of for practices. In addition, the solicitation effectively placed the risk on the private sector as is typical in a P3.

- ***Prince George’s County – Contracting with Private Business Enterprises:*** As noted previously, Prince George’s County has entered into a P3 with Corvias Solutions to achieve its stormwater remediation requirements. Indeed, the partnership is bearing fruit. As of January 15, 2018, 1,215.0 acres have been remediated out of the 6,105.0 acres to be restored by the end of its current permit period, January 1, 2019. In addition, 40.0 acres are in planning, 758.0 acres in design, and 641.0 acres in construction, for a total of 2,654.0 acres in production or completed. This means that Prince George’s County has completed 19.9% of its required restoration and has acres in production or completed representing 43.5% of its requirement. However, the end of its permit period is looming and Prince George’s County has not indicated as of yet that it plans to engage in nutrient trading with WWTPs in order to complete its stormwater mitigation requirement.

DLS recommends that the Administration discuss whether the 10 Phase I jurisdictions will meet their permits before the end of the current permit period, what role nutrient trading is expected to play in the ability of the 10 Phase I jurisdictions to meet the permits, and the repercussions for both the counties and ongoing Chesapeake Bay restoration progress if the permits are not met.

Recommended Actions

1. Add the following section:

SECTION XX. AND BE IT FURTHER ENACTED, That is it is the intent of the General Assembly that the Maryland Department of Planning, the Department of Natural Resources, the Maryland Department of Agriculture, the Maryland Department of the Environment, and the Department of Budget and Management provide a report to the budget committees by December 1, 2018, 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 should include:

- (1) fiscal 2018 annual spending by fund, fund source, program, and State government agency; associated nutrient and sediment reduction; 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 2019 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 2018 to 2025 in order to reach the calendar 2025 requirement of having all best management practices in place to meet water quality standards for restoring the Chesapeake Bay to be both written in narrative form and tabulated in spreadsheet form that is submitted electronically in disaggregated form to DLS;
- (4) an analysis of the various options for financing Chesapeake Bay restoration including public-private partnerships, a regional financing authority, nutrient trading, technological developments, and any other policy innovations that would improve the effectiveness of Maryland and other states’ efforts toward Chesapeake Bay restoration; and
- (5) an analysis on how cost effective the existing State funding sources – such as the Bay Restoration Fund, Chesapeake and Atlantic Coastal Bays 2010 Trust Fund, and Water Quality Revolving Loan Fund among others – are for Chesapeake Bay restoration purposes.

CHESBAY – Chesapeake Bay – Fiscal 2019 Budget Overview

Explanation: This language expresses the intent that 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) provide a report by December 1, 2018, on recent and projected Chesapeake Bay restoration spending and associated impacts and the overall framework to meet the calendar 2025 requirement of having all best management practices in place to meet water quality standards for restoring the Chesapeake Bay. In addition, the language expresses the interest that the report include information on policy innovations that improve the effectiveness of Maryland and other states’ efforts toward Chesapeake Bay restoration and an analysis of how cost effective the State funding sources are that are being used.

Information Request	Authors	Due Date
Historical and projected Chesapeake Bay restoration spending	MDP DNR MDA MDE DBM	December 1, 2018

2. Add the following section:

SECTION XX. AND BE IT FURTHER ENACTED, That it is the intent of the General Assembly that the Department of Budget and Management, the Department of Natural Resources, and the Maryland Department of the Environment provide a report on Chesapeake Bay restoration spending. The report shall be drafted subject to the concurrence of the Department of Legislative Services (DLS) in terms of both electronic format to be used and data to be included. The scope of the report is as follows: Chesapeake Bay restoration operating and capital expenditures by agency, fund type, and particular fund source based on programs that have over 50% of their activities directly related to Chesapeake Bay restoration for the fiscal 2018 actual, fiscal 2019 working appropriation, and fiscal 2020 allowance to be included as an appendix in the fiscal 2020 budget volumes and submitted electronically in disaggregated form to DLS.

Explanation: This language expresses the intent that the Department of Budget and Management (DBM), the Department of Natural Resources (DNR), and the Maryland Department of the Environment (MDE) provide, at the time of the fiscal 2020 budget submission, information on Chesapeake Bay restoration spending for programs that have over 50% of their activities directly related to Chesapeake Bay restoration.

CHESBAY – Chesapeake Bay – Fiscal 2019 Budget Overview

Information Request	Authors	Due Date
Summary of Chesapeake Bay restoration spending for programs that have over 50% of their activities directly related to Chesapeake Bay restoration	DBM DNR MDE	Fiscal 2020 State budget submission