

# Executive Summary

Chesapeake Bay is intrinsic to Maryland's identity, economy, history, and legacy. The State's success in restoring and preserving this national treasure requires balanced solutions that are cost-effective, spur innovation, stimulate market-based approaches, and create a restoration economy. Bay restoration will test the collective will of the seven watershed jurisdictions to live in harmony with the region's natural systems that span from the southern tier of New York to the capes of Virginia.

The Total Maximum Daily Load established current Chesapeake pollution reduction goals in 2010 and set a deadline to meet them in 2025. At the midpoint between the start of the TMDL and its 2025 deadline, Maryland sees improving signs of recovery for Chesapeake Bay in both water quality and the Bay's living resources, including bay grasses and blue crabs. This third phase of Maryland's Chesapeake Bay Watershed Implementation Plan (WIP) identifies the strategies, opportunities, and challenges to meet the 2025 Chesapeake Bay Restoration targets and sustain restoration into the future.

The Phase III WIP builds on lessons learned from Phases I and II<sup>1</sup> and charts a course to 2025 that is locally-driven, achievable, and balanced. To develop the Phase III WIP, Maryland agencies met with county public works and planning departments, municipalities, soil conservation districts, NGOs, and the public. Maryland hosted these stakeholder meetings to understand which restoration strategies are working and which are not, to anticipate plans and restoration actions from now to 2025, and recognize where resources and collaborations are needed. To establish local planning goals, the State compiled the stakeholder information into local summaries, along with local pollution sources, progress to date, and pollution reductions required by permits or contract. These local goals, combined with State-level reduction strategies, are projected to achieve Maryland's 2025 Chesapeake Bay restoration targets.

## ***Implementing Maryland's Phase III WIP Will Achieve the 2025 Chesapeake Bay Restoration Targets***

Maryland's 2025 nutrient targets for Bay restoration are 45.8 million pounds of total nitrogen (TN) per year and 3.68 million pounds of total phosphorus (TP) per year (Figure 1). This represents a substantial increase in effort over the Phase II WIP, with an additional million pounds of nitrogen reductions required by 2025. Maryland's Phase III WIP strategy, which accounts for growth in human and livestock populations to 2025, achieves a nitrogen load of 44.8 million pounds per year and a phosphorus load of 3.28 million pounds per year. In surpassing its nitrogen and phosphorus targets by 1.0 million and 0.44 million pounds per year respectively, Maryland is not only providing itself a margin of safety toward its current targets, with the expectation that some strategies might not be fully executed by 2025, but more importantly, advancing a plan for reductions that can be applied toward its forthcoming climate change goals. In fact, looking at the combined reductions for both nutrients, the plan described in this report puts Maryland most of the way toward its anticipated climate change goals. A formal plan for the climate change goals will be drafted by 2022. In meeting its nutrient targets, the State will also achieve its

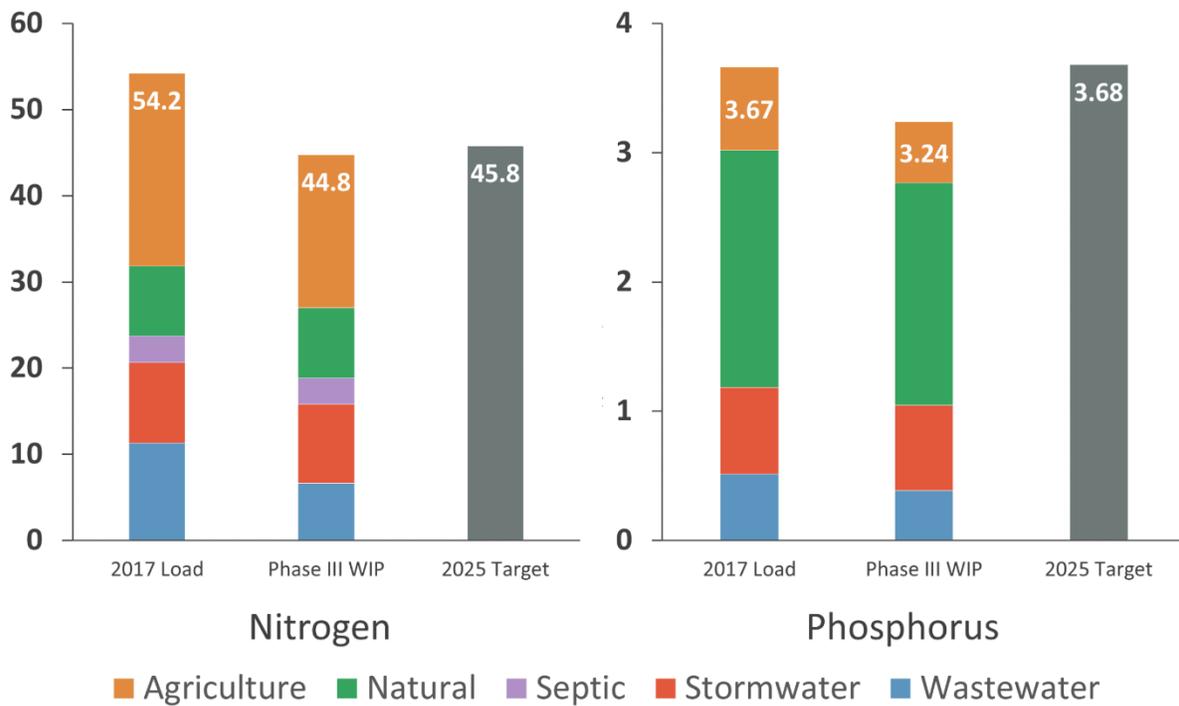
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<sup>1</sup> [mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/wip.aspx](http://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Pages/wip.aspx)

sediment goals. Because phosphorus attaches to sediment, practices that reduce phosphorus tend to drive sediment reductions as well.

## Maryland’s Nutrient Loads Entering Chesapeake Bay

(Million Pounds/Year)



Source: Maryland Phase III WIP Scenario; CAST 2019

**Figure 1:** Current and projected total nitrogen and phosphorus loads by sector relative to Chesapeake Bay restoration targets.

Implementing key pollution reduction strategies among the five major source sectors including agriculture, natural lands, septic, stormwater, and wastewater, drives Maryland’s success in meeting its restoration targets (Figure 1). Table 1 identifies priority nitrogen and phosphorus reduction strategies and the estimated nutrient reduction associated with each practice within each major source sector. The table also includes strategies for land conservation, which impact the agricultural, septic and stormwater sectors, and preliminary strategies for atmospheric deposition, which are not being formally credited toward the Phase III WIP. For detailed information on atmospheric deposition, see Appendix G. For detailed information on every Phase III WIP practice by major sector, see Appendix B.

**Table 1: Core aspects of Maryland's Phase III WIP strategy. NOTE: This table is not intended to capture all practices, just the highlights. For details on each sector's strategies, refer to Appendix B.**

Sector	Core Phase III WIP Strategies	TN Reduced (lbs TN EoT/yr)	TP Reduced (lbs TP EoT/yr)	Cost
<b>Agriculture</b> <i>Maintain Current Practices</i>	Conservation Technical Assistance <i>(1 million acres of Conservation Plans + Design &amp; Oversight of all BMP implementation)</i>	1,100,000	53,000	\$13,800,000
	Nutrient Management Compliance	1,600,000	76,000	\$3,100,000
	Cover Crops   <b>470,000 acres/year</b>	2,300,000	2,000	\$25,500,000/yr
	Manure Transport   <b>100,000 tons/year</b>	228,000	26,000	\$2,000,000/yr
<b>Agriculture</b> <i>Future Practices</i>	Verification of existing BMPs	87,500	1,500	\$3,500,000
	Implementation of Additional BMPs <i>(The Maryland Agricultural Water Quality Cost-Share (MACS) Program)</i>	652,000	10,600	\$65,100,000
<b>Atmospheric Deposition of Nitrogen</b> <i>Potential future practices not currently counted towards Maryland's Phase III WIP</i>	126 Petition to EPA <i>(Optimization of power plants to 5 upwind states) No WIP credit</i>	250,000	-	Unknown
	Green House Reduction Act <i>(Plan for a 40% reduction in GHGs by 2030)</i>	No estimate	-	Unknown
	Regional Greenhouse Gas Initiative <i>(Regional cap and trade program for power plants)</i>	No estimate	-	Unknown
	Clean and Renewable Energy Standard (CARES) <i>(100% clean electricity by 2040)</i>	No estimate	-	Unknown
	Transportation Initiatives <i>(Mobile source emission reduction programs (fuel standards, MPG, and Evs))</i>	No estimate	-	Unknown
	Maryland EmPOWER <i>(Residential and commercial energy efficiency program)</i>	No estimate	-	Unknown

Sector	Core Phase III WIP Strategies	TN Reduced (lbs TN EoT/yr)	TP Reduced (lbs TP EoT/yr)	Cost
Atmospheric Deposition of Nitrogen	Volkswagen Settlement ( <i>NOx mitigation projects in high emitting sectors</i> )	No estimate	-	Unknown
	<i>Potential future practices not currently counted towards Maryland's Phase III WIP</i>			
	Maryland's 2019 Petition to the Ozone Transport Commission ( <i>Optimization of power plants in Pennsylvania</i> ) <b>No WIP credit</b>	No estimate	-	Unknown
Conservation Practices	Land Conservation; Local and State-level land conservation and land use programs and policies that prevent nutrient pollution	85,000	6,000	\$125,000,000/yr ( <i>Maryland Agricultural Land Preservation Foundation (MALPF) for 2019-2025, Rural Legacy Program, and Program Open Space-Stateside</i> )
Natural Filters on Public Lands	Upland Tree Planting and Streamside Forest Buffers   <b>1,150 acres</b>	8,000	700	\$11,900,000
	Wetland Restoration   <b>175 acres</b>	600	50	\$875,000
	Stream Restoration   <b>6 miles</b>	2,500	2,250	\$22,400,000
	Shoreline Management (Living Shoreline Technique)   <b>0.56 miles</b>	150	100	\$1,800,000
	Oyster Aquaculture   <b>350,000 bushels</b>	20,000	1,000	\$17,500,000
	Oyster Reef Restoration   <b>867 acres</b>	65,000	3,300	\$4,700,000
Natural Filters on Other Lands	Accelerate pace of tree planting and wetlands creation through financial and permit incentives	Captured in Agriculture and Stormwater Strategies		
Septic	Best Available Technology (BAT) Upgrades   <b>6,440 systems</b>	40,000	-	\$70,100,000
	Connection to Wastewater Treatment Plants (WWTP)   <b>1,600 connections</b>	16,800	-	\$9,100,000

Sector	Core Phase III WIP Strategies	TN Reduced (lbs TN EoT/yr)	TP Reduced (lbs TP EoT/yr)	Cost
Septic	Septic Pumping <i>(Not available until Septic Stewardship Plans developed by 2021)</i>	-	-	TBD - Septic Stewardship
Stormwater	Complete current Phase 1 Municipal Separate Storm Sewer (MS4) permits restoration requirement <i>(completion dates: 2018 and 2019)</i>   <b>20,000 impervious acres</b>	85,000	43,000	\$1,180,000,000
	Complete new Phase 1 MS4 restoration requirement <i>(completion dates: 2023 &amp; 2024)</i>   <b>17,500 impervious acres</b>	86,000	12,000	\$1,195,000,000
	Complete Current Phase 2 MS4 restoration requirement <i>(completion date: 2025)</i>   <b>3,000 impervious acres</b>	15,000	6,000	\$208,000,000
	Miscellaneous implementation on non-MS4 counties <i>(e.g. trading, trust fund)</i>   <b>400 impervious acres</b>	3,000	400	\$42,000,000
Wastewater	Complete Bay Restoration Fund (BRF)-Funded Enhanced Nutrient Removal (ENR) upgrades to 67 significant municipal wastewater plants	4,000,000	100,000	Fully Funded Pre-WIP III
	Continue funding ENR upgrades for non-significant municipal plants through the BRF <i>(11 additional plants by 2025, for a total of 16)</i>	25,000	5,000	\$50,000,000
	Provide Operations and Management (O&M) Grant through the BRF for facilities achieving nitrogen discharge concentrations of 3.0 mg/L	425,000	No additional planned reductions	\$10,000,000/yr
	Incentivize higher treatment levels (beyond 3.0 mg/L of nitrogen) through water quality trading and the Clean Water Commerce Act (through 2021)	No estimate	No estimate	\$10,000,000/yr
	Complete upgrades to federal significant municipal plant	3,000	300	No State costs
	Continue minor industrial reductions	No estimate	No estimate	No State costs

Sector	Core Phase III WIP Strategies	TN Reduced (lbs TN EoT/yr)	TP Reduced (lbs TP EoT/yr)	Cost
Wastewater	Maintain achievement of significant industrial Waste Load Allocations	No additional reductions	No additional planned reductions	No State costs
	Implement sewer projects to address combined sewer overflows (CSOs), sanitary sewer overflows (SSOs) and inflow and infiltration (I/I)	20,000	2,000	\$40,000,000

## Financial Assurance and Creating a Restoration Economy

An independent [2015 assessment by the University of Maryland Environmental Finance Center<sup>2</sup>](#) (EFC) confirmed that sufficient resources are in place to achieve interim and final Bay restoration targets. In other words, no new State-based fees or taxes are required moving forward as long as:

1. Maryland leverages wastewater treatment plant reductions wisely in the interim while stormwater and septic sectors build capacity for steady progress;
2. Maryland continues effective and consistent enforcement of existing environmental regulations;
3. Maryland fully funds State Chesapeake Bay grant programs and directs these resources in the most cost-effective manner possible.

A cursory analysis of 2019 restoration funding suggests that Maryland has sufficient financial capacity to meet Chesapeake Bay’s Water Quality Standards (WQS). However, it is necessary to realize that the EFC based this analysis on current year funding and estimated implementation costs. The analysis also did not factor in the substantial federal and local funding sources that fund implementation efforts to achieve Maryland’s Total Maximum Daily Load (TMDL) targets. An analysis of current and projected Bay funding will be done by Maryland’s Bay Cabinet on an annual basis to confirm Maryland’s continued fiscal capacity to achieve and sustain our 2025 WIP targets.

The State’s fiscal year 2019 budget fully funds Bay restoration for the third consecutive year by investing a record \$1.2 billion in State funds for comprehensive Chesapeake Bay restoration efforts. This record funding for important conservation and regulatory programs includes \$52.9 million for the Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund). The fiscal year 2019 budget also marks the first time since 2008 that no funding for transfer tax programs, including Program Open Space, is diverted to the General Fund. In total, these Bay restoration programs received \$253 million in 2019, an increase of \$67 million from the prior fiscal year. As chair of the Chesapeake Executive Council, Governor Hogan fought to preserve full federal Chesapeake Bay Restoration funding. Governor Hogan also helped ensure Maryland’s farmers received necessary federal resources for conservation practices through both the Farm

<sup>2</sup> [efc.umd.edu/assets/financing\\_strategy\\_final\\_6\\_5.pdf](http://efc.umd.edu/assets/financing_strategy_final_6_5.pdf)

Bill and a CBP partnership Agricultural Technical Assistance directive. Maryland is working with the CBP partnership to increase federal funds targeted for Bay restoration.

Over Fiscal Years 2000 – 2018, the State spent about \$8.4 billion on Chesapeake Bay restoration activities. This amount includes funding for activities that directly reduce nutrient and sediment inputs to the Bay (e.g., cover crops and wastewater treatment plant upgrades), activities that indirectly support Bay restoration (e.g., monitoring, education, outreach), and activities that prevent or minimize future degradation of the Bay (e.g., land conservation). Local jurisdictions are also spending approximately \$300 million per year to retrofit older communities with stormwater controls. These stormwater controls reduce nutrient delivery to the Bay and provide significant local co-benefits to communities, including reduced flooding and improved stream health.

As Maryland implements the Phase III WIP, it will build on past successes by developing and exploring financing innovations that stretch funding and grow business opportunities that benefit both the environment and economy. This financial exploration and development can be accomplished by expanding successful “pay for performance” models that pay for achieved nutrient reductions versus the traditional approach of paying for future reductions promised through a proposed project. Maryland will also explore accelerating overall restoration efforts by incorporating resources from the private sector through public-private partnerships, such as the oyster program in Anne Arundel County. The State will also leverage the financing innovations being explored in the Conowingo WIP (CWIP). There are real and exciting opportunities to restore the Chesapeake Bay by bringing the environmental and finance sectors together to stimulate a restoration economy. Finally, retaining full federal funding for Chesapeake Bay restoration is paramount to meeting and sustaining Maryland's 2025 restoration targets. The State must also leverage or expand equally important funding sources like the Farm Bill, as well as EPA's Clean Water State Revolving Fund, with specific strategies on utilizing its Land Conservation Projects program.

## ***Current and Future Challenges to Chesapeake Bay Restoration***

While Maryland is on track to meet its 2025 restoration goals with the Phase III WIP strategies and current level of resources and investments, the latest science suggests that several factors need consideration in order to achieve and sustain restoration into the future. These factors include:

### **A Changing Climate**

Impacts of climate change, including increased precipitation and storm events, are causing heightened nutrient and sediment loads to the Chesapeake Bay. The Phase III WIP highlights climate change strategies that, in addition to reducing nutrient and sediment loads, mitigate carbon emissions, build climate resilience, and support local needs, such as flooding and infrastructure. As a national leader on climate change, Maryland has a comprehensive portfolio of climate mitigation and adaptation practices. The Phase III WIP focuses on climate practices that provide nutrient reductions; however, is not intended to provide a complete inventory of Maryland's climate-related actions.

The CBP partnership understands that more science is needed to both quantify potential increases in watershed-wide nitrogen loads and to understand how current pollution reduction practices will perform under a changing climate. Between now and March 2021, the CBP partnership is committed to improving scientific understanding of these impacts, identifying outstanding research needs, and refining nutrient and sediment load estimates for each Bay jurisdiction.

### Population Growth Beyond 2025

When developing its 2025 State basin targets, Maryland accounted for the impact on Bay water quality from projected growth in human and agricultural animal populations. As human and domestic animal populations grow beyond 2025, pollutant loads are also expected to increase from additional wastewater, septic systems, manure, and higher stormwater loads from new development. When considering increased loads from expected climate change impacts, sustaining the State's restoration targets will be challenging. Achieving and maintaining restoration targets will require innovative and collaborative approaches.

### Conowingo Dam

The CBP partnership estimates that, after full Phase III WIP implementation, Bay jurisdictions need to achieve an additional watershed-wide reduction of 6 million pounds of nitrogen per year and 0.26 million pounds of phosphorus per year. This additional reduction is needed to mitigate the increased pollution from Conowingo Dam infill and meet downstream WQS. Through Clean Water Act Section 401 water quality certification (WQC) authority, Maryland has assigned the responsibility of this pollution reduction to Exelon, Conowingo Dam's operator. The CBP partnership also agreed to complement Maryland's WQC efforts by working collaboratively to reduce the increased pollutant loads flowing over Conowingo Dam. A separate Conowingo WIP (CWIP) accounts for the additional Conowingo loads. The CWIP pools CBP partnership funding into a single fund, explores innovative financing strategies, public-private partnerships, and targets cost-effective practices in locations that provide the most significant water quality benefits to the Bay. The CBP partnership will provide a draft CWIP, open to public comment, according to a schedule that is still under development.

### Local Implementation Challenges

#### ***Maintenance and Verification***

Much of the on-the-ground implementation to achieve Maryland's Bay restoration targets occurs at the local government level. Maryland's local partners are installing physical infrastructure, including larger capital projects, like upgrading wastewater plants, and smaller scale stormwater retrofits that are designed to reduce pollution at its source. Like all infrastructure projects, proper installation and maintenance of pollution reduction practices are needed to achieve their intended function. Maryland has approved verification protocols to ensure pollution reduction practices are working correctly and continue to count towards Bay restoration credit.<sup>3</sup> Local jurisdictions, soil conservation districts, and other partners who are

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<sup>3</sup> Maryland BMP verification protocols are available at:

[https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Documents/BMP%20Verification/MD\\_Verification%20Protocols\\_Master\\_Doc.pdf](https://mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Documents/BMP%20Verification/MD_Verification%20Protocols_Master_Doc.pdf)

implementing these projects on the ground have identified maintenance, verification, funding programs, and accounting as resource challenges impacting restoration progress.

### ***Restoration Capacity***

Local partners also need continued resources to build restoration capacity. These resources can be in the form of permitting assistance, technical assistance, knowledge transfer, more dedicated staff, and financial incentives. Local needs vary regionally, by sector, and within individual jurisdictions. Because there is no one-size-fits-all solution to local challenges, ongoing engagement and capacity building are necessary throughout the implementation process to ensure restoration progress.

## **Maryland's Approach to Addressing Current and Future Chesapeake Bay Restoration Challenges**

Tackling Bay restoration is challenging and requires an agreement on a principled approach to restoration. This approach must be backed by diverse strategies and contingencies implemented through a robust accountability and adaptive management framework. Some of the guiding principles Maryland uses to address these challenges and sustain restoration into the future include:

### **Balancing Regulations and Incentives**

Maryland has many regulatory tools under the federal Clean Water Act and State law that set numeric pollutant discharge limits, restoration conditions, or other requirements on the regulated community. Some examples across sectors include: federal National Pollutant Discharge Elimination System (NPDES) permit limits on wastewater treatment plant pollution discharges; federal and State restoration requirements, under MS4 permits, for stormwater management retrofit practices; State requirements for agricultural nutrient management plans; and State BAT requirements for onsite (septic) systems in the Critical Area (within 1,000 feet of tidal shorelines).

Maryland also has pollution sources within the stormwater, agricultural, and septic sectors, such as small communities, that have no Bay restoration requirements. These pre-law stormwater discharges (non-MS4s) nevertheless play an essential role in ultimately achieving Bay restoration targets. Maryland utilizes both federal and State funding programs to finance Wastewater Treatment Plant (WWTP) upgrades, stormwater management retrofits, agricultural BMPs, natural land restoration and conservation, and septic upgrades. Additionally, the State employs local financing structures and private investments to implement restoration across all sectors. Maryland uses a balanced approach of effective regulations and financial incentives to drive restoration progress across sectors by prioritizing areas that achieve the most pollution reductions.

### **Using Wastewater Treatment Plant Capacity Wisely While Driving Long-term and Sustained Progress in Slower Paced Sectors**

Accelerated pollution reductions from wastewater treatment plants and farms are the primary drivers of Maryland's success in meeting its 2025 Bay restoration targets. However, as Maryland's population

grows, wastewater plant discharges will increase from the growing use of public wastewater. Continued steady progress is required in both the stormwater and septic sectors to ensure that pollution reductions keep pace with increased loads from climate change and population growth. MS4 permits now cover over 90 percent of Maryland's developed landscape and are legally enforceable mechanisms to ensure long term steady restoration progress. The septic sector will make continued steady progress with upgrades, innovative technologies, sewer hookups and the recent Septic Stewardship law that helps local jurisdictions with septic maintenance through pumpouts.

### Creating a Restoration Economy and Driving Innovation

In addition to traditional funding approaches, the Hogan administration is pursuing market-based strategies that are designed to stimulate a restoration economy and reduce costs. Nutrient credit trading is one such tool that allows an entity to purchase non-mandated pollution reductions from another entity. This nutrient credit trading creates a marketplace that innovates sectors to develop the most cost-effective pollution reduction practices. Simultaneously, other innovative financing strategies, including the Clean Water Commerce Act and the CWIP, drive innovation by creating funding streams for the most cost-effective practices. These financing strategies develop collaborative funding models, such as public-private partnerships, to reduce the public costs of restoration. Aligning Maryland's greenhouse gas (GHG) reduction actions with Bay restoration actions that have significant carbon sequestration benefits can leverage and diversify the financing needed to accelerate pollution reduction practices. Additionally, Maryland is actively pursuing water reuse technologies that benefit its citizens with long term water supply sustainability while concurrently reducing pollution loads to the Chesapeake Bay<sup>4</sup>.

### Locally-Driven Restoration and Co-benefits

Chesapeake Bay restoration will not be successful without sufficient capacity and close collaboration with local partners. County governments, federal property owners in the state, such as the Department of Defense, municipalities, soil conservation districts, farmers, citizens, and NGOs are the boots on the ground implementing restoration practices through permits or grant/incentive programs. To ensure continued progress, restoration practices for local partnerships should be cost-effective, achievable, provide benefits to communities, and address local challenges, such as flooding.

Understanding and resolving restoration barriers through continued local engagement, targeted strategies, and controlling ongoing maintenance costs is crucial to sustain restoration in the long-term. Maryland embraces a continuous improvement philosophy to build on success and learn from shortcomings. State agencies work with local partners to develop strategies that address barriers through two-year milestones and progress evaluations. These adaptive strategies accelerate cost-effective implementation that meets local needs. Maryland is forming a workgroup to improve technical assistance delivery to local partners. Additionally, the State is working with those partners to develop a strategic implementation plan for addressing local restoration challenges.

### Accounting for and Leveraging Conservation and Protection Programs

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<sup>4</sup> [mde.maryland.gov/programs/Water/waterconservation/Pages/water\\_reuse.aspx](http://mde.maryland.gov/programs/Water/waterconservation/Pages/water_reuse.aspx)

Protecting Maryland's ecologically significant lands, aquatic resources, and wildlife is among the most effective ways to sustain Bay restoration. These protections preserve the lowest pollution-loading land uses from being converting to higher pollution land uses, like development, that would set Maryland further behind in its Bay restoration goals. Maryland is ensuring its Bay restoration effort fully accounts for land conservation programs, while fully funding land conservation programs for future acquisitions. Additionally, the State is reviewing current conservation and protection program effectiveness, through monitoring results and other measures, in achieving conservation and protection goals. Maryland is evaluating these programs to further leverage restoration opportunities on conserved and protected lands.

### Holistic Ecosystem Management

While Maryland's Phase III WIP is designed to be consistent with EPA's expectations and achieve the TMDL nitrogen, phosphorus, and sediment targets, Maryland is also strongly committed to the broader goals outlined in the current (2014) Chesapeake Bay Agreement<sup>5</sup>. Included in these Bay agreement goals are sustainable fisheries, vital habitats, reducing toxic contaminants, healthy watersheds, land conservation, stewardship, public access, environmental literacy, and climate resiliency. These watershed goals provide critical feedback loops that improve water quality. This improvement can be through aquatic resources, such as restored fisheries providing nutrient uptake and water filtration services, or nitrogen and carbon uptake in the plant tissue of submerged vegetation. Water quality improvements can also come from land-based practices that include wetlands and forest buffers that capture and process nutrients before they enter surface waters. Maryland's commitment to this broader ecosystem management framework helps the State achieve its TMDL restoration targets while maintaining the productivity of the Bay's living resources and supporting local economies.

### Accountability and Adaptive Management Framework

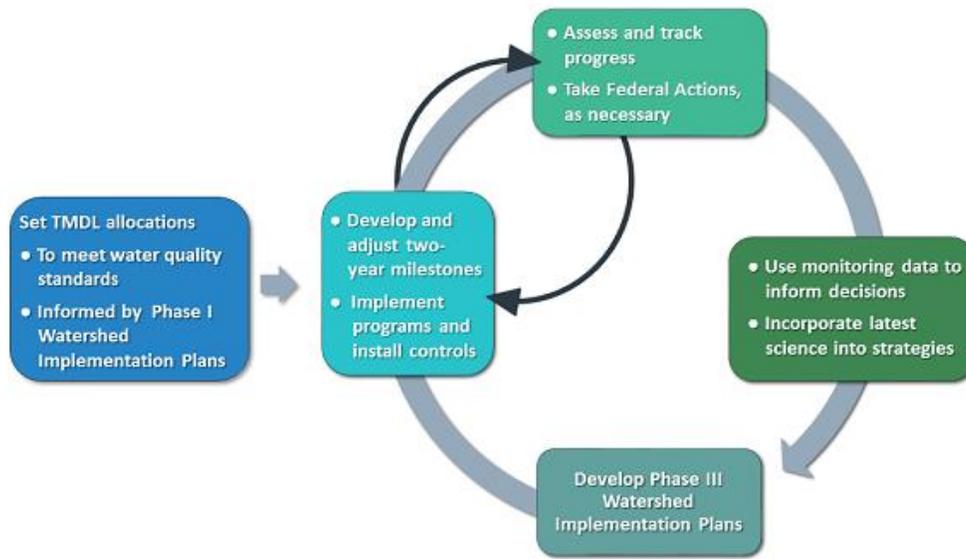
Figure 2 shows the accountability and adaptive management framework that underpins Chesapeake Bay restoration.

As part of this accountability framework, the CBP partners develop short term goals, called milestones, to assure restoration progress. Milestones identify the restoration practices, programs, policies and resources that jurisdictions commit to implementing over two-year periods. EPA evaluates jurisdictions progress towards achieving their milestone commitments and takes appropriate federal actions, as necessary, to help jurisdictions remain on track.

Maryland submitted its 2018-2019 milestones to EPA in January 2018 and expects to submit its 2020-2021 milestones in January 2020. These milestones include annual evaluations to gauge progress and serve as essential checkpoints on the path to restoring Chesapeake Bay by 2025. Milestones provide Maryland the opportunity to adaptively manage the restoration process, incorporate new science on restoration practices performance, and apply the main lessons learned from the successes or failures of Phase III WIP. Additionally, Chesapeake Bay water quality and living resources data are used to ensure results are seen in the Bay, as well as to adjust to new science or changing conditions.

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<sup>5</sup> [chesapeakebay.net/what/what\\_guides\\_us/watershed\\_agreement](https://chesapeakebay.net/what/what_guides_us/watershed_agreement)



**Figure 2:** Chesapeake Bay TMDL Accountability Framework. Graphic courtesy of the EPA Chesapeake Bay Program web site at [epa.gov/chesapeake-bay-tmdl/ensuring-results-chesapeake-bay](http://epa.gov/chesapeake-bay-tmdl/ensuring-results-chesapeake-bay)

## Conclusion

There are both substantial challenges and significant opportunities in restoring and protecting the Chesapeake Bay watershed and rich natural heritage that defines this region. To do so, Marylanders must sustain the collective resolve to revive this national treasure, work to control costs, stimulate a restoration economy, leverage local and regional partnerships, and create private or public partnerships. Moreover, they must implement restoration practices that achieve multiple benefits, promote and adopt innovation, and adaptively manage and build on restoration successes. Finally, successful Chesapeake Bay restoration depends on Maryland’s continued strong leadership in the CBP partnership, full commitment from upstream states, and EPA’s maintenance of a strong restoration oversight and accountability role.

The Chesapeake Bay is a dynamic system influenced by natural ecosystem processes and the pressures of climate change, population growth, land use changes, and invasive species. Maryland and CBP are committed to the science that informs policy development, measures the effectiveness of management actions, and decisively shows that Bay jurisdictions must sustain restoration beyond 2025. As one participant keenly observed during the State’s local engagement process: 2025 is not the end of Bay restoration, but rather another benchmark on the restoration journey.