

EXECUTIVE SUMMARY

Approximately half of Pennsylvania's land area drains into the Chesapeake Bay primarily from the Susquehanna and Potomac river basins. The Susquehanna is the largest tributary to the Bay, providing half of the total freshwater flow and 90% of the freshwater flow to the upper bay. Without the support of Pennsylvania, the Chesapeake Bay cannot be restored. Even more importantly, the water that feeds into the Chesapeake Bay is local to Pennsylvania. It is crucial that the local waters of Pennsylvania be restored for use by our citizens.

Pennsylvania and our neighboring states with river basins that drain into the Chesapeake Bay (Delaware, Maryland, New York, West Virginia, and Virginia) along with the District of Columbia are each creating a Watershed Implementation Plan (WIP) that describes the work to be done to reduce nutrient and sediment pollution within the Chesapeake Bay watershed. In 2018, the Chesapeake Bay Program Partnership completed a Midpoint Assessment of the 2010 Total Maximum Daily Load (TMDL) allocations for each state and re-established nutrient reduction planning targets for each jurisdiction within the watershed. The goal of the Chesapeake Bay TMDL is to have all practices to achieve these reductions in place by 2025. Each jurisdiction's plan for meeting their phosphorus (P) and nitrogen (N) pollution reduction goals is outlined in WIPs.

Pennsylvania is committed to having all practices and controls in place by 2025 to achieve the nutrient and sediment reduction planning targets. This plan provides reasonable assurance that Pennsylvania will meet its Chesapeake Bay TMDL commitments. This document, formally known as the "Final Phase 3 Watershed Implementation Plan" (Phase 3 WIP), first finalized in August 2019, spells out how the state government will work in partnership with local governments and the private sector to meet Pennsylvania's goals by 2025. As part of the adaptive management process, Pennsylvania revised the Phase 3 WIP in 2021 to be inclusive of all completed Countywide Action Plans (CAPs) and the climate allocation that was approved by the Chesapeake Bay Principals' Staff Committee (PSC) in December 2020. The 2021 revision also provides updated information related to: programmatic changes; administrative, technical, and financial support; and reported best management practices (BMPs) that have been lost to credit duration expiration, not accounted for due to model cutoff, and progress for 2019 and 2020 reporting years. The 2021 revision to Pennsylvania's Phase 3 WIP also discusses the impact that the COVID-19 global pandemic has had on progress, as well as how Pennsylvania adjusted during that time to remain on track for success.

With 43 counties and over 49,000 miles of streams and rivers that flow into the Susquehanna and Potomac rivers, most of the work outlined in this document will be specific and local in scale. Early in the process, the Commonwealth sought out the leaders in these communities to determine the best way to employ practices and projects to clean up the pollution entering their waterways. Four counties were selected to be early planners — Lancaster, York, Adams, and Franklin. In 2020, four additional

counties completed their CAPs – Bedford, Cumberland, Lebanon, and Centre. These eight counties make up more than 50% of Pennsylvania’s total nitrogen load to the Chesapeake Bay. In 2021, 26 additional counties completed their CAPs. All of this work had been accomplished throughout the COVID-19 global pandemic; the counties and local stakeholders should be commended for their efforts.

This document is a comprehensive strategy based on unprecedented local-level support and engagement. In the development of the previous two phases of Pennsylvania’s Chesapeake Bay WIP, there was not this level of partnership committed to moving forward to improving local water quality. For the first time, Pennsylvania has local planning goals in a form best suited for directly engaging local, regional, and federal partners. Pennsylvania is committed to moving forward with the programmatic and legislative priorities outlined within this plan.

In addition to state government officials, hundreds of individuals representing local government, universities, businesses, agriculture, and environmental organizations contributed their time and expertise to the development of this Phase 3 WIP. The preparation of this plan is guided by the principle that clean water is “Great for PA, Good for the Bay.”



The Phase 3 WIP planning and adaptive management process is an opportunity for Pennsylvania state government to serve our residents and businesses — cleaning up our water, lowering flood risks, and improving the quality of life in our communities.

Public Comment

The Pennsylvania Department of Environmental Protection (DEP) sought public comment on the draft Phase 3 WIP from April 12 through June 7, 2019. Forty commenters submitted 152 comments on the draft Phase 3 WIP. [Appendix 4](#) is the Comment Response document to these comments.

Some common themes among the comments include:

- Support for collaborative approach
- Concern expressed over planning target and funding “gap”

- Clarification needed on how the CAP process will work
- Sector-specific suggestions for additional enhancements, initiatives
- Concern over additional requirements, “unfunded mandates”
- Questions over costs for implementation
- Editing and clean-up needed

The general response to these themes is:

- Pennsylvania’s implementation of the Phase 3 WIP continues the same collaborative approach used to develop the Phase 3 WIP.
- The Phase 3 WIP is realistic and implementable with multiple approaches to achieve the planning targets by 2025.
- The Phase 3 WIP is flexible, with opportunity for updates, improved accounting, and modifications continuing as part of the two-year milestone process to ensure success.

EPA Evaluation of Pennsylvania's Draft Phase 3 WIP

As part of the public comment period, the United States Environmental Protection Agency (EPA) also did a detailed evaluation of Pennsylvania's draft Phase 3 WIP. In this evaluation EPA identified the following strengths:

- Pennsylvania's collaborative approach for engagement of local partners and community engagement.
- The process for the development of the CAPs.
- The identification of specific various commitments for each sector.
- The inclusion of the detailed workload analysis, with an identification of available and needed resources.

EPA also identified some key areas where improvement was needed, including:

- A re-evaluation of activities since the current effort is not projected to achieve 100% of the planning targets.
- Encouragement to expand beyond the approved Bay Program partnership approved practices and approaches for other opportunities to reduce nutrients and sediment.
- An evaluation of the Bay Program Verification Protocols to ensure the higher rate of implementation can be tracked, verified, and reported.
- Enhancement of the level of implementation detail and programmatic commitment descriptions.

In response to EPA's evaluation, the final Phase 3 WIP has:

- Additional programs and practices not previously included to be counted towards progress.
- A re-evaluation of the goals that each sector could realistically achieve by 2025.
- Refined estimates for existing and available resources for implementation.
- Identification of a lead agency with a timeline for completion for each action step for reporting.
- Additional practices and programs not currently recognized that improve water quality in Pennsylvania that should be credited.
- Identified barriers to successful verification of practices that need to be addressed.

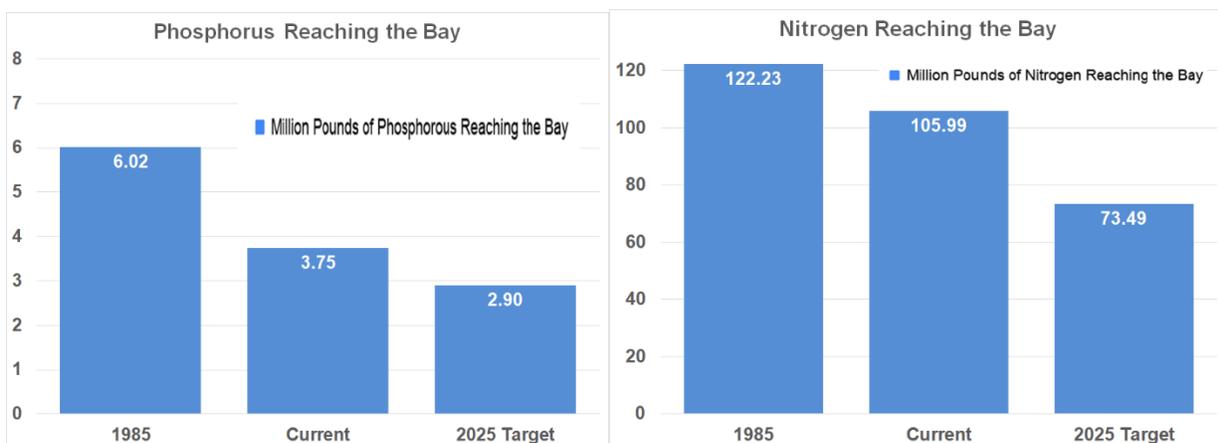
A Brief History

Pennsylvania's efforts to reduce nutrients running into the Chesapeake Bay began in 1985. Since then, Pennsylvania has invested a significant amount of resources through loan, grant, and tax credit programs aimed at restoration efforts. Over the four years preceding finalization of this Phase 3 WIP, Pennsylvania invested approximately \$197 million per year in efforts to reduce nutrient pollution of local waters throughout Pennsylvania's share of the Chesapeake Bay watershed. While significant pollution reductions from those investments have been realized, more is needed. In 2009, EPA set expectations for Pennsylvania and neighboring states to meet by 2025. In 2010, EPA and the Chesapeake Bay Program Partnership established a TMDL to address chlorophyll-A, dissolved oxygen, and clarity impairments within the Bay.

In 2011, Pennsylvania submitted its Phase 1 WIP to EPA. The goal of the Phase 1 WIP was to identify pollutant sources and develop source specific solutions to achieve reductions. In 2012, Pennsylvania submitted its Phase 2 WIP to EPA. The development of the Phase 2 WIP relied heavily on public input and the inclusion of adaptive management principles in the plan.

Both the Phase 1 WIP and Phase 2 WIP led to significant progress in Pennsylvania's share of the Chesapeake Bay watershed. Many streams that once were heavily polluted are now places where residents gather to swim, fish, boat, and play. Pennsylvania has cut the amount of phosphorus pollution going downstream by more than 1/3, and the amount of nitrogen pollution by about 1/6.

The figures below indicate the Edge of Tide (EOT) progress made over time from 1985 to 2020 based on annual BMP Progress Runs. A BMP Progress Run is completed annually by EPA after all reported BMP data is submitted through the National Environmental Information Exchange Network (NEIEN) to CAST and verified by EPA's Chesapeake Bay Program Office (CBPO). Current efforts will continue this progress moving toward the TMDL 2025 target.



Of the nearly 49,000 assessed miles of streams in the Chesapeake Bay watershed, more than 12,000 miles of streams remain polluted. As shown in the figures above, from current to the 2025 target, Pennsylvania must reduce nitrogen pollution levels by 32.5 million pounds and phosphorus levels by 0.85 million pounds.

Challenges

Pennsylvania is a state of nonpoint source “opportunities.” Throughout Pennsylvania, including in the Susquehanna and Potomac river basins, the vast majority of stream, river, and lake impairments are attributable to nonpoint sources like agriculture and urban runoff. Compared to the other states within the Chesapeake Bay watershed, the scale of the nonpoint source challenges in Pennsylvania is one of the most significant factors that has impacted past progress, but one that also presents opportunities for future success.

Pennsylvania has unique nonpoint source challenges and opportunities in urban, suburban, and rural communities. As a state with 33,000 farms covering more than 3 million acres within the Susquehanna and Potomac basins, the scale of nonpoint source challenges is staggering, but not insurmountable. Within Pennsylvania’s share of the Chesapeake Bay watershed, there are over 350 municipalities with National Pollutant Discharge Elimination System (NPDES) permitting obligations relative to Municipal Separate Storm Sewer Systems (MS4s), which is another challenge to address pollution of local waters and the Chesapeake Bay. Statewide, Pennsylvania has over 120 active Combined Sewer Overflow (CSO) communities with 1,584 outfalls. Pennsylvania is a large state that values its agricultural industry and local government partners. Since one size does not fit all, local level support is essential to meet pollution reduction goals.

Pennsylvania has steadily improved the capability to document reductions from programs not included in previous phases of Pennsylvania’s Chesapeake Bay WIPs. There continue to be more BMPs happening “on the ground” than what has historically been accounted for and credited in the Chesapeake Bay Watershed Model used to estimate the pollutant loads going to the Bay.

Consequences

Failing to restore Pennsylvania’s impaired waters will mean that our drinking water resources, outdoor recreation, wildlife, and public health and safety will remain impacted. Local communities will continue to suffer from pollution-related problems such as stormwater and flood damage, contamination of drinking water sources, fouled waterways, and lost recreation opportunities.

Additionally, if EPA determines that Pennsylvania cannot meet its goals on its own, EPA may increase federal enforcement and compliance efforts. For example, EPA has outlined possible consequences including:

- New nitrogen and phosphorus numeric water quality standards for streams and rivers in Pennsylvania.
- More animal feeding operations, industrial and municipal stormwater sources, and urban areas to obtain federal Clean Water Act permits.
- Stricter nutrient or sediment reductions for those that already have permits.
- Redirection of EPA grant funding away from the state's priorities to EPA's priorities.

Purpose

The Phase 3 WIP outlines how Pennsylvania will achieve its goals to reduce nutrient and sediment pollution in local waters that flow to the Chesapeake Bay. The Phase 3 WIP and the Addendums specify the steps Pennsylvania will take through 2025 to meet local water pollution reduction goals in the Bay watershed. Pennsylvania will continue to implement initiatives identified in the previous phases of Pennsylvania's Chesapeake Bay WIP. This Phase 3 WIP builds on the strengths of those previous plans and further sharpens the focus on accelerating progress to meet the 2025 goals.

Section 1 introduces Pennsylvania's Phase 3 WIP, including an overview of the collaborative process by which the Phase 3 WIP was created and an examination of the planning targets the Phase 3 WIP aims to achieve.

Section 2, State Actions, calls on the state government to coordinate the activities of all the partners, provide resources and technical assistance, and report on progress to EPA and our neighboring states, through a combination of programmatic and numeric strategies and priority initiatives. Pennsylvania DEP's Chesapeake Bay Office has the responsibility to coordinate the implementation support elements of Pennsylvania's efforts to implement the Phase 3 WIP.

This section of the WIP describes what state partners are already doing to reduce pollutants, as well as the various legislative, programmatic, regulatory and compliance initiatives for which the state agencies have the lead. Among the state-led initiatives described are the significant funding needs for the Phase 3 WIP that fall on the state agencies and state legislature to address. The Phase 3 WIP Funding Workgroup estimates that the public investment to clean up Pennsylvania waterways upstream of the Chesapeake Bay were approximately \$197 million per year in the years preceding finalization of this Phase 3 WIP. The total investment in both public and private funding from all sources needed to achieve the 2025 goals is estimated to be \$521 million per year — an annual gap of \$324 million. This section describes the range of options the Phase 3 WIP partners recommend state legislature consider for long-term funding of the

Phase 3 WIP with a strong preference for legislation that would create a dedicated and stable funding source for these investments. This section also discusses a recommended amendment to the Right to Know Law that would extend confidentiality protections to farmers who implement or report BMPs on their land. Additionally, proposed fertilizer legislation could address a significant source of nitrogen and phosphorus flowing into Pennsylvania's waterways.

In addition to the programmatic priorities and the actions already being taken, this section lays out a vision for how the agriculture, forestry, stormwater, and wastewater sectors will achieve additional reductions of the pollution they contribute to Pennsylvania's waterways and the Bay downstream. To develop the Phase 3 WIP, a collaborative, deliberative approach was taken, with workgroups of stakeholders representing agriculture, forestry, stormwater, and wastewater sectors. This section of the Phase 3 WIP describes the new or additional actions on which the state partners are focusing in each of these sectors in order to achieve the 2025 targets.

Agriculture

As discussed above, the agricultural sector in Pennsylvania presents a significant nonpoint source opportunity. The Phase 3 WIP envisions the state and its partners working with agriculture in seven strategic areas:

1. Agricultural Compliance – Ensure farmers are continuing to implement their state required Agricultural Erosion and Sediment Control (Ag E&S) or conservation plan, Manure Management/Nutrient Management Plan, and are implementing required barnyard runoff controls, where needed.
2. Soil Health – Use crop and soil management practices that improve long-term soil health and stability.
3. Expanded Nutrient Management – Both manured and non-manured farmlands use nutrient management plans and precision nutrient management practices.
4. Manure Storage Facilities – Install and use animal waste management systems, meeting state regulatory requirements, to adequately store manure for effective nutrient use.
5. Dairy Precision Feeding – Use precision feed management to reduce nitrogen and phosphorus in manure.
6. Integrated Systems for Elimination of Excess Manure – Create integrated (county/regional) programs for transport and/or beneficial use of excess manure.
7. Forest and Grass Riparian Buffers – Plant perennial herbaceous or forest buffers along streams.

Forestry

Statewide, more than half of Pennsylvania's land area is forest (approximately 17 million acres). About 70% of Pennsylvania's forests are privately owned, including 5% held by forest products companies. Approximately 30% of Pennsylvania forests are public lands. Forests and trees in Pennsylvania provide numerous benefits to the Commonwealth, including recreational opportunities, habitat for animals and forest plants, timber, and non-timber forest products, as well as benefits to water quality. Forests are natural pollution filters – holding rainfall, trapping polluted runoff, and stabilizing soils.

However, many forests have been cleared in agricultural, urban, and suburban areas. The Phase 3 WIP envisions the state and its partners working with forestry in five strategic areas:

1. Forest Riparian Buffers – Plant trees and shrubs along streams.
2. Tree Canopy – Plant trees in developed areas.
3. Woods and Pollinator Habitat – Convert lawn and turf areas to woods and meadows.
4. Forest and Natural Area Conservation – Provide credits for land conservation and revise zoning and ordinances to conserve existing natural areas.
5. Stream and Wetland Restoration – Support efforts to restore local streams and wetlands.

Stormwater

Stormwater from developed land may carry pollutants such as sediment, automotive liquids, lawn fertilizers, pesticides, pet waste, trash, and other contaminants into waterways. The Phase 3 WIP contains recommendations for the following seven actions to further reduce stormwater related pollution to local waterways and the Bay:

1. Implement pollutant reduction plans for Municipal Separate Storm Sewer Systems (MS4) Communities – As one component of the 2018 permit, MS4 permittees must implement management practices to achieve the reductions identified in their respective Pollutant Reduction Plans (PRPs) by 2023.
2. New riparian forest buffers – Plant trees and shrubs along streams.
3. Control measures for illicit discharges – DEP to facilitate municipal ordinance amendments to control illicit discharges to storm sewer systems.
4. Industrial stormwater – DEP to develop technical guidance, intended to supplement existing requirements, to inform industrial stormwater discharge permittees engaged in these activities. This guidance will list appropriate BMP

utilization, design standards, and implementation to reduce pollution which are acceptable to manage industrial stormwater.

5. Fertilizer legislation – This proposed legislation could result in nutrient reductions in urbanized areas. When passed, it is estimated that this legislation could reduce nitrogen runoff by 105,000 pounds per year and phosphorus runoff by 4,000 pounds.
6. Erosion and Sediment Control (E&S Control) and Post Construction Stormwater Management (PCSM) – Continue permitting, inspecting, and ensuring compliance with Pennsylvania’s E&S Control and PCSM permit requirements, found in 25 Pa. Code Chapter 102, including DEP programs that implement these provisions not previously reported to the Chesapeake Bay Program for progress. Initial estimates of the projected reductions from the implementation of these programs between now and 2025 are 433,000 pounds of nitrogen and 32,000 pounds of phosphorus.
7. Dirt and Gravel Roads – Continue to implement the Dirt and Gravel Roads Program through the Center for Dirt and Gravel Roads.

Wastewater

Wastewater is the sewage or liquid industrial waste from homes, businesses, schools, industrial facilities, and other institutions. Most wastewater in Pennsylvania is treated before it is released into waterways. Pennsylvania’s wastewater sector has greatly reduced its contribution of nitrogen and phosphorus to the state’s waterways. To reduce these pollutants even more would be extremely costly. The three priority strategies for wastewater are:

1. Continue Current Treatment – Existing significant wastewater treatment systems will continue the successful treatment levels already achieved with biological nutrient removal.
2. Plant Optimization Program – Expand DEP’s current assistance program to maximize operations at wastewater systems to achieve additional reductions where appropriate.
3. Municipalities Implement Onsite Septic System Inspection and Pumping Programs – As a requirement under the Pennsylvania Sewage Facilities Act (Act 537 of 1965), municipalities are required to implement onsite septic system inspection and pumping programs. However, the implementation of these programs is not currently tracked or documented. Municipalities will work with DEP to ensure proper tracking and achieve further reductions.

Finally, Section 2 proposes accounting for actions occurring in the state which reduce nitrogen, phosphorus, and sediment pollution that are not currently credited in the Chesapeake Bay Watershed Model. There are several very successful programs in

place designed to improve Pennsylvania's local streams and waterways that do not currently report progress towards achievement of nutrient and sediment reductions to the Chesapeake Bay Program. There are also new initiatives underway in Pennsylvania that are further accelerating our progress. Section 2 provides details regarding these programs and the expected reductions from these programs. This section includes the state's commitment to expand its capabilities to collect real-time water quality data to document water quality improvement and progress.

Section 3, Countywide Actions, outlines how the counties located within the basin can reduce pollution flowing into Pennsylvania's streams that drain into the Chesapeake Bay. Forty-three of Pennsylvania's counties contain waterways that drain to one of the four major Chesapeake Bay river basins: Susquehanna, Potomac, Eastern Shore, and Western Shore Watersheds.

The Chesapeake Bay Program has modeled Chesapeake Bay pollution sources, including pollution entering Pennsylvania's waterways and where it originates. Each Pennsylvania county has its own goal to reduce its share of pollution. Some counties have more work to do than others. The Phase 3 WIP Steering Committee grouped the 43 counties into four tiers. Tier 1 counties have the most pollution to reduce, and Tier 4 counties have the least.

Continuing the collaborative, deliberative approach to meet the restoration goals, the Commonwealth continues to work with each of these counties to develop and support implementation of Countywide Action Plans (CAPs) for clean water that are realistic and able to be accomplished by local communities. County-level planning is the most feasible planning scale in terms of size, number, existing data, and ability to organize resources. Pennsylvania's nitrogen and phosphorus reduction targets are broken down into local planning goals for each of these 43 counties. There are some "minimal loading" counties that DEP has not asked to participate in the CAP development and implementation process. Instead, those counties will continue to implement the statewide and local programs and priorities, such as those conducted by conservation districts under delegated agreements and contracts with state agencies, and report their efforts through existing programs and processes.

It is important to note that the county clean water goals do not establish any new requirement or regulatory obligation on counties. These goals are simply a way for Pennsylvania to engage with local partners on shared issues and focus resources on efforts that help Pennsylvania reach its goals to clean up local waters that flow to the Chesapeake Bay.

Each of these counties received a county-specific pollution reduction goal, planning tools, and customized technical toolboxes. County leaders have used the toolboxes to develop a mix of approaches that best fits the local needs and desires for local waterways. As examples, some of these approaches included environmental education, regulation and permitting, public works investments, restoration projects, and assistance to streamside property owners.

As part of the Phase 3 WIP planning process, Pennsylvania invited four of the 43 counties in the Chesapeake Bay watershed to participate in a pilot project to develop local CAPs. Lancaster and York counties began in spring 2018, and Adams and Franklin counties began in fall 2018. The Tier 1 counties (Lancaster and York) were completed as part of the pilot project. For the next phase in 2020, the four remaining Tier 2 counties were completed. The Tier 1 and Tier 2 counties collectively account for 54% of Pennsylvania's nitrogen and 42% of Pennsylvania's phosphorus loads. The remaining Tier 3 and Tier 4 counties completed their plans in 2021; these counties collectively account for the remaining 46% of Pennsylvania's nitrogen and 58% of Pennsylvania's phosphorus goals.

Section 4, Federal Actions and Coordination, outlines the federal role in the Chesapeake Bay restoration effort. In 24 counties in Pennsylvania's portion of the Chesapeake Bay watershed, there are federal facilities operated by the U.S. Department of Defense (DOD or Department of Defense), National Park Service, U.S. Fish and Wildlife Service, and the General Services Administration. Each of these federal facilities has nutrient reduction goals assigned and each is required to submit a plan to the Commonwealth for how the facility will achieve these reduction goals. The Department of Defense and the U.S. Fish and Wildlife Service have submitted their plans. DEP worked with EPA and the other federal agencies to complete the plans for the other federal agencies. The total annual reduction goals from these federal facilities is 97,358 pounds of nitrogen and 9,316 pounds of phosphorus.

Successful implementation of the Phase 3 WIP continues to require improved coordination and cooperation between the Commonwealth and federal agencies to track and report on the work they do together to meet Phase 3 WIP goals. Additionally, Pennsylvania continues to need funding from EPA for pollution reductions projects. This section highlights three areas for further coordination:

- Tracking and reporting efforts by the Natural Resources Conservation Service (NRCS) to install many of the pollution prevention practices described in this document.
- Closing gaps in how the partners measure, verify, and report on BMPs and wetland restoration projects.
- Revisions to EPA's Clean Water Act Section 319 grants to make those funds available for projects that meet the goals of the Phase 3 WIP.

Section 5, Existing and Needed Resources, describes how achieving the Phase 3 WIP goals requires an increased investment of approximately \$324 million per year in both public and private funding, and outlines where the money comes from currently, how it is used, and possible sources of additional financial resources. These figures do not account for investments from individual, private investors or local funding that is not currently reported. Recent surveys show a large amount of water quality improvements come from private dollars either directly or indirectly that have not been captured in the

figures below. It would be valuable to capture not only all practices going on the landscape but also all resources being expended through this effort.

In 2019, there were approximately 88 state agency staff involved in the Chesapeake Bay cleanup effort, and it was projected that this number needed to increase to 188. At that time, there were approximately 186 external agency staff supported with state or federal agency resources, such as county conservation district staff, contributing this effort. It was estimated an additional 154 of these external agency staff people were needed. Total costs for these staff resources is \$52,008,734. The dollar amounts in the two tables below are based on information leading up to the 2019 Phase 3 WIP submission. Since that time, Pennsylvania has instituted efficiencies to direct available funding more quickly to the areas of highest impact to local and Chesapeake Bay waters.

Existing	Existing Resources 2018	\$168,522,608
	Existing Staff Resources	\$28,285,954
	Total	\$196,808,562
Total Needed Resources	Statewide Practice Implementation	\$311,779,000
	Pilot County Practice Implementation ¹	\$157,170,000
	Staffing Resources	\$52,148,734
	Total	\$521,097,905
Annual Funding Gap		\$324,289,173

Pennsylvania is taking a phased approach to filling this funding gap. With this approach, at a minimum, at least \$100 million annually for BMP implementation is recommended as a first phase for implementation. With this, the top four priority initiatives are identified. These four initiatives alone will help to achieve 50% of the nitrogen reduction goal and 86% of the phosphorus reduction goal. Some amount of the \$52 million identified for existing and new agency and external staff resources for technical support would also be needed to implement this effort. A minimum of 5% of the cost of implementation is recommended. See the table below.

Priority Initiative	Cost (in millions)	Nitrogen Reduction	Phosphorus Reduction
Agricultural Compliance	\$33.1	14%	12%
Soil Health	\$32.9	14%	14%
Forest Buffers	\$28.1	16%	41%
Grass Buffers	\$3.4	8%	37%
TOTAL	\$97.7	50%	86%

Section 6, Documenting, Tracking, and Verifying, describes Pennsylvania’s efforts to improve the existing Data Management Systems and the capability to document, track, and verify the installation of practices. Revisions and enhancements to Pennsylvania’s BMP Verification Plan are also highlighted. Finally, the inordinate amount of financial and staffing resources needed to “keep” BMPs in the modeling tools, while putting more BMPs on the ground, is insurmountable, and continued engagement with our partners, including EPA, is necessary.

Section 7, Milestones and Progress Reporting, describes the action steps that Pennsylvania is taking to implement the priority initiatives in the Phase 3 WIP. DEP is reporting progress on these action steps to EPA annually, as part of the Programmatic milestone submission. EPA also receives semi-annual progress reports on federal grants, including the Chesapeake Bay Regulatory Accountability Program (CBRAP) grant, the Chesapeake Bay Implementation Grant (CBIG), and the Clean Water Act Section 106 grant. In addition, DEP submits a Nonpoint Source Management Program annual report to EPA for approval. DEP also meets regularly, at least bi-weekly, with EPA's CBPO, and holds quarterly WIP progress calls with EPA's CBPO and Water Division programs. These progress reports are in addition to the annual numeric progress reports completed by DEP, and the annual progress reports completed by the counties on their CAPs. Updates to these action steps and the CAPs will continue to be done every two years.

The action steps are divided into five categories:

1. Communication and Outreach
2. Funding and Resources
3. Expanding Capacity for Technical Assistance
4. Reporting and Tracking
5. Compliance

Section 8, Accounting for Growth, considers growth within the watershed. Pennsylvania's framework to offset this growth includes:

- Conserving and protecting wetlands
- Conserving and limiting development in riparian areas
- Modernizing local planning and zoning to conserve critical forests and habitats
- Preserving farmland as part of a holistic approach to conserving working lands

Section 9, Climate Change, discusses how the Phase 3 WIP accounts for the trend that climate scientists forecast for more rain and more frequent intense storms in Pennsylvania. These anticipated climate change effects create new challenges for the effort to clean up local waterways that flow to the Chesapeake Bay.

The Chesapeake Bay Program Partnership has used computer models to predict how climate change will influence nutrient loads in 2025. In 2020, the Chesapeake Bay Program partnership PSC approved the new climate allocations based on the best available science as presented to the PSC.¹ The revised estimate is that, by 2025, Pennsylvania will need to reduce an additional 1.811 million pounds of nitrogen and an additional 0.095 million pounds of phosphorus due to changing weather patterns.² Preliminary estimates for the climate impact through 2035 indicate that this estimated

¹ See the PSC December 17, 2020 final decision on climate change [here](#).

² See the December 17, 2020 presentation to the PSC [here](#).

load effect could double from 2025 to 2035. The effect of climate change on Pennsylvania's ability to meet the Chesapeake Bay's water quality standards is significant and of increasing concern.

The Phase 3 WIP calls for many actions that are beneficial in a changing climate. The actions that reduce pollution also restore soil health, soften the blow from floods, create habitat, and capture carbon from the atmosphere. This section provides recommendations for making the most of the opportunities to target investments in areas that accelerate waterways cleanup and prepare our communities for a changing climate. This section also provides information about Pennsylvania's Local Climate Action Plan (LCAP) initiative and Pennsylvania's work to join the Regional Greenhouse Gas Initiative (RGGI), both of which began in 2020 and continued into 2021.

Section 10, Communication and Engagement Strategy, acknowledges that it will continue to take a team effort to accomplish the initiatives included in the Phase 3 WIP. This section outlines how the state has coordinated – and will continue to coordinate – the effort among dozens of partners through 2025.

The process for developing the Pennsylvania's Phase 3 WIP was inclusive and transparent, with dozens of organizations and scores of individuals actively engaged in all elements of the Phase 3 WIP. Nearly 100 people from the public and private sectors served on the Phase 3 WIP Steering Committee and workgroups. All Steering Committee and workgroup meetings were open to the public. As the Phase 3 WIP transitions from planning to implementation, this successful structure remains in place, with the Steering Committee being converted to the Phase 3 WIP State Team, which meets on a semi-annual basis. The workgroup leads, other agency partners, and external partners have also been transformed into the Phase 3 WIP Action Leaders Team, which meets on a quarterly basis. These teams are responsible for overseeing the implementation of the Phase 3 WIP, modifying the two-year milestones and tracking progress.

The Phase 3 WIP Communications and Engagement Workgroup developed a matrix of conferences, meetings, and professional periodicals to deliver information about the Phase 3 WIP to industry sectors and stakeholders. For the general public, DEP has developed a "Healthy Waters, Healthy Communities" communication campaign to guide its media and digital outreach. This includes a story map and monthly e-newsletter that showcases agency and partner progress and funding opportunities, which was commenced in June 2020. At the county level, the planning teams are also engaging in outreach to civic and business leaders and citizens as they write and implement their CAPs.

To fulfill the goals of this plan, it will continue to be critical to overcome the three primary hurdles to engagement: (1) ideologic – developing an understanding of the value of the practices; (2) technical – ensuring that once stakeholders are interested in implementation, tools are available to aid them in practice selection, design, and installation; and (3) funding – providing resources to those that are willing and able to

implement the selected practices. The Communications Offices of DEP, DCNR, and PDA, in partnership with the Phase 3 WIP Communications and Engagement Workgroup, have the lead in focusing on the ideologic hurdle to ensure that the Phase 3 WIP is implemented.

Section 11 discusses the sediment targets that were established upon completion of the Phase 3 WIP. Sediment targets developed for the Phase 3 WIPs are based on the sediment loads associated with management actions taken to address the Phase 3 WIP nitrogen and phosphorus targets.

Section 12 concludes Pennsylvania's Phase 3 WIP. The total projected reduction for nitrogen in the Phase 3 WIP is 32.563 million pounds, exceeding the 2025 nitrogen planning target by 60,400 pounds. The total projected reduction for phosphorus in the Phase 3 WIP is 1,146,000 pounds, exceeding the 2025 phosphorus planning target by 300,800 pounds. Pennsylvania's projected reduction for sediment is 1,088,128,000, exceeding the sediment planning target by 420.962 million pounds.

Pennsylvania's first full year of Phase 3 WIP implementation resulted in more than 4.4 million pounds of nitrogen reductions credited in 2020 annual progress. This was an impressive start and Pennsylvania continues to build momentum and adapt strategies to mitigate the short- and long-term challenges associated with the unprecedented global COVID-19 pandemic.

Pennsylvania commits to have practices and controls in place by 2025 necessary to achieve the final Phase 3 WIP phosphorus and nitrogen targets. Pennsylvania, in conjunction with the Bay Program Partnership, is utilizing an adaptive management approach to achieve our collective desired outcome. The two-year milestones, annual progress reporting, semi-annual grant progress reporting, bi-weekly or monthly meetings with EPA's CBPO, and quarterly meetings with EPA Region 3 allow for the assessment of the implementation progress and targeted adjustments to programs and priorities to ensure the practices and controls called for in the Phase 3 WIP are achieved by 2025. EPA Section 319 Nonpoint Source Management staff in the EPA Region 3 Water Division also meet monthly with DEP Chesapeake Bay Office staff to assess progress toward nonpoint source pollution prevention goals and objectives, per the Nonpoint Source Management Plan. DEP also produces and submits annual Nonpoint Source Management reports to EPA Region 3. The additional reductions needed will be achieved through the completion of the remaining CAPs and improved documenting, tracking, and verification of existing practices and programs.

Development of the Phase 3 WIP was just the first step in this final phase of Chesapeake Bay TMDL implementation. With the Phase 3 WIP developed, Pennsylvania is undertaking a series of further planning and implementation activities necessary to restore and maintain the health of local waters and the Chesapeake Bay. Future activities will include: implementation of practices; tracking and reporting of implementation for evaluation of milestone progress every year; reporting every six months on tasks and deliverables for the EPA Section 106 grant, the CBRAP grant, and

the CBIG grant; and practice verification. Federal, state, and local coordination and partnership in these activities is vital.

To ensure sufficient progress to achieve the 2025 targets, Pennsylvania will adaptively manage Phase 3 WIP implementation efforts based on continuous evaluation of technical issues regarding the pace of implementation. Pennsylvania will also evaluate feasible implementation rates and share this information with the Pennsylvania partnership and stakeholders as part of the milestone development process.