

U.S. Environmental Protection Agency's Expectations for the Phase III Watershed Implementation Plans

The U.S. Environmental Protection Agency (EPA) provided expectations for the [Phase I](#) and [Phase II](#) Watershed Implementation Plans (WIPs) in 2009 and 2011, respectively, for the seven Chesapeake Bay watershed jurisdictions to demonstrate reasonable assurance that those allocations assigned to the jurisdictions would be achieved and maintained, and that the 2017¹ targets would be achieved. Through signing the 2014 *Chesapeake Bay Watershed Agreement*, the jurisdictions reaffirmed their commitment to achieving these goals by 2025. In recent discussions, the jurisdictions remain committed to the 2025 goal.

EPA is now providing expectations for the jurisdictions' Phase III WIPs² to maintain accountability in the work under the 2010 Chesapeake Bay Total Maximum Daily Load (Bay TMDL), encourage continued adaptive management to the new information generated during and after the Bay TMDL 2017 midpoint assessment, and lay the groundwork for implementation of the next generation of innovative practices. In addition, the Principals' Staff Committee (PSC) established expectations for how to account for changed conditions due to Conowingo Dam infill, climate, and growth. These expectations are directed toward ensuring that the seven jurisdictions, and their local, regional, and federal partners have all practices in place by 2025³ that will achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation, and chlorophyll-*a* standards.

EPA recognizes that such Phase III WIP commitments may need to be modified as part of the adaptive management process during the 2018-2025 timeframe, and EPA expects the jurisdictions to update those programmatic and/or numeric commitments, as appropriate, through their two-year water quality milestones. Furthermore, EPA commits to working with its federal partners to determine what policies, programs, and funding can be enhanced or streamlined to support the jurisdictions' implementation of their Phase III WIPs. EPA also recognizes that the following factors have contributed to the need for jurisdictions to update or modify their Phase III WIP commitments:

- As a result of past WIP and two-year milestone evaluations and new monitoring trends data, specific actions are needed in each jurisdiction, some more than others.
- Additional pollutant load reductions are being assigned to certain jurisdictions based on the results of the Bay TMDL 2017 midpoint assessment and the Phase 6 suite of modeling tools.
- Across the CBP partnership, and throughout some sectors, there is generally less progress projected under the Phase 6 suite of modeling tools than had been originally anticipated. This shift is due to both a better understanding of the science related to nutrient reductions and to the jurisdictions' improved accounting procedures for pollution control measures.
- Some jurisdictions need to do more under their Phase III WIPs because they did not meet their 2017 pollutant load reduction targets under their Phase II WIPs.

For those jurisdictions where more reductions will be needed to meet the Phase III WIP planning targets versus the Phase II WIPs, jurisdictions will need to consider additional policies, funding, regulations, legislation, and other

¹ By 2017, have practices and controls in place that are expected to achieve 60 percent of the nutrient and sediment pollutant load reductions necessary to achieve applicable water quality standards compared to 2009 levels.

² Draft and final Phase III WIPs will be due to EPA 9 months and 12 months (but no later than December 2019), respectively, after the final Phase III planning targets are approved and released by the CBP partnership.

³ This commitment to have all practices and controls installed by 2025 to achieve applicable water quality standards was reaffirmed by the Chesapeake Bay Program signatories in the 2014 *Chesapeake Bay Watershed Agreement*.

incentives to achieve those reductions in their Phase III WIPs. EPA commits to evaluating and possibly redirecting Bay restoration resources to jurisdictions that were assigned additional pollutant load reductions as a result of the new science and accounting procedures for the Phase III WIP and have committed to achieving those additional pollutant load reductions by 2025. Where jurisdictions have not achieved the levels of pollutant load reductions committed to under their Phase II WIPs by 2017, EPA does not expect to provide additional funding for achieving those pollutant load reductions.

EPA expects each of the seven jurisdictions to describe in their respective Phase III WIPs:

- Programmatic and numeric implementation commitments between 2018 and 2025 needed to achieve their Phase III WIP planning targets;
- Comprehensive strategies for engagement of the full array of their local, regional, and federal partners in WIP implementation; and
- Local planning goals below the state-major basin scales and in the form best suited for directly engaging local, regional, and federal partners in WIP implementation.

The PSC also made decisions on how the seven jurisdictions are to address changed conditions⁴ due to Conowingo Dam infill, growth, and climate and to address any related additional level of effort.

For jurisdictions and pollutant source sectors which are under enhanced levels of federal oversight or are not on trajectory to meet their Phase III WIP planning targets by 2025, EPA expects more detailed documentation⁵ in the Phase III WIPs in comparison with jurisdictions and source sectors with ongoing oversight levels that are on trajectory to meeting their Phase III WIP planning targets by 2025.

Elements EPA Expects in the Phase III WIPs

Programmatic and Numeric Implementation Commitments between 2018-2025

While significant progress has been made to date, challenges to implementation remain. The jurisdictions and EPA, through the continued implementation of their WIPs and the evaluations of jurisdictions' programs and milestones, have identified gaps between the jurisdictions' current programmatic capacity and the capacity they estimate is necessary to fully achieve their Phase III WIP planning targets by 2025. Gaps in programmatic capacity the jurisdictions will need to address in the 2018-2025 timeframe through their Phase III WIPs include:

- Building the financial capacity, technical assistance, regulatory oversight, and other incentives to oversee and implement the necessary MS4 and other stormwater management and prevention programs;
- Increasing and/or sustaining the financial cost share, technical assistance, regulatory oversight, and other incentives to deliver the necessary agricultural conservation practices;
- Securing legislative, regulatory, cost-share, incentive, voluntary, and market-based levels of pollutant load reductions across all source sectors, which in combination, will achieve each jurisdiction's Phase III WIP planning targets; and

⁴ Addressing additional nutrient and sediment loads due to Conowingo Dam infill will be handled through a separate CBP partnership-developed Watershed Implementation Plan.

⁵ Detailed documentation may include programmatic capacity assessments or more detailed strategies than what is reflected in the WIP and two-year milestones.

- Building and implementing the programmatic infrastructure, tracking systems, BMP verification programs, policies, legislation, and regulations necessary to fully account for growth, and offsetting all resultant new or increased pollutant loads through 2025.

EPA expects the Phase III WIPs to include documentation of the programmatic actions and the specific pollutant load reducing practices, treatments, and technologies to be implemented between 2018-2025 in order to achieve the jurisdiction's Phase III WIP planning targets by 2025, including, but not limited to:

- Identification of the specific funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative, and regulatory actions needed to be taken to address recognized gaps in programmatic capacity and quantification of the practice implementation anticipated resulting from each set of actions;
- Full listing of all NPDES permits— for example, municipal and industrial wastewater, Phase I and II MS4s, and CAFOs — included in the jurisdictions' Phase III WIP major river-basin targets with updates to include all NPDES permits(s) that are included as individual wasteload allocations or as part of aggregate wasteload allocations;
- Submission of Phase III WIP input decks for the Phase 6 Chesapeake Bay Watershed Model which includes the level and location⁶ of pollutant load reducing practices, treatments, and technologies that are needed in order to meet the jurisdictions' Phase III WIP planning targets by 2025;
- Greater targeting of more effective pollutant load reduction practices in higher loading watersheds based on modeling and monitoring data⁷; and
- Enhanced level of detail for increasing implementation of pollutant load reduction practices for which implementation is lagging.

EPA expects more detailed and more systematic documentation of planned changes to existing programmatic capacity or development of new programmatic capacity for jurisdictions with source sectors under “enhanced” or “backstop” oversight, or with specific source sectors not on a trajectory to achieve their Phase III WIP planning targets by 2025. These programmatic changes or enhancements should specifically address all the issues and needs documented in EPA's assessments of milestone progress and past programmatic assessments.

EPA also encourages state and local jurisdictions to consider the corollary benefits of BMPs that are targeted for implementation. Corollary benefits are those that not only result in water quality improvements but could address other *2014 Chesapeake Bay Watershed Agreement* Outcomes (e.g., environmental problems, wetlands, or forest buffers), local water quality benefits, as well as economic and ecosystem services benefits generated from restoration activities. To assist in this targeting, the CBP partnership's Management Board convened an Action Team to develop materials to help the state and local jurisdictions consider these corollary benefits. Those [materials](#) include fact sheets and a PowerPoint presentation for use in each state jurisdiction as messaging tools to internal staff and other local decision makers. Proposed standard language for incorporation into the Phase III WIPs that states could use for describing efforts they have taken to incorporate these corollary benefits into their Phase III WIP was also developed. Another tool that the CBP partnership has developed is the Chesapeake Assessment and Scenario Tool (CAST). The primary purpose of CAST is to assist in WIP development and planning.

⁶ Location can be defined as a specific permitted facility, a county, a Phase 6 Watershed Model land/river segment, a Bay segment-shed, or a state-basin.

⁷ Efforts are currently underway on ways to reconcile any differences between monitoring and modeled data.

Comprehensive Local, Regional and Federal Engagement Strategies and Commitments

The implementation of the pollutant load reduction practices, as articulated in the jurisdictions' WIPs, is expected to be carried out by state governments, in partnership with federal agencies, regional and local governments, quasi- and non-governmental organizations, and the private sector, including businesses, farmers, and individual citizens. Therefore, the Phase III WIP development process should include timely communication and engagement of local, regional, and federal partners and other entities. The Phase III WIPs should also clearly articulate how local, regional, and federal partners will be engaged in implementation.

Phase III WIPs should provide a strong foundation for success, built on government leadership, strategically aligned federal-state-local priorities, strong networks, sufficient financial and programmatic capacity, and clear communication of roles and responsibilities. In order to facilitate effective local engagement in the Phase III WIP process, EPA expects the draft and final Phase III WIPs to include documentation of a detailed strategy of how each jurisdiction will engage its respective local, regional, and federal partners in the implementation of the Phase III WIPs. EPA encourages the jurisdictions to tailor their local, regional, and federal engagement strategies to restoration and protection efforts that would resonate with their targeted audiences.

The Phase III WIP local engagement strategies should address the following:

- Identification of specific target audiences for local, regional, and federal engagement in the Phase III WIP implementation process, as well as the geographical and/or source sector areas where local, regional, and federal engagement is most needed to accelerate WIP implementation;
- Clear description of the specific roles local, regional, and federal partners will play in implementing programmatic and numeric (e.g., BMP) commitments in each of the source sectors between 2018-2025, including tracking, verification, and reporting of those commitments;
- Clear description of local, regional, and federal involvement in their jurisdiction's strategy to account for growth;
- Identification of the gaps in capacity in programmatic, financial, technical assistance, or other capacity needed to advance WIP implementation and recommendations to address those gaps and needs;
- Required funding and technical support needed for local partners to aid in WIP implementation;
- Other resources available to local partners to aid in WIP implementation (e.g., meeting facilitation), or, where no (financial or technical) resources are available, identification of pollution reduction strategies that can be accomplished with no additional resources; and
- Examples of successful working relationship or models (e.g., local stormwater ordinance) that local, regional, and federal partners can adopt and replicate in other portions of a jurisdiction's Bay watershed to support WIP implementation.

The CBP partnership has developed a suite of decision support tools (e.g., CAST) for WIP planning and implementation by local, regional, and federal partners. These tools aid in the decision-making process for BMP funding, targeting, and implementation. EPA strongly encourages the jurisdictions to utilize these decision support tools in engaging their local, regional, and federal partners as part of their Phase III WIP development and implementation processes.

Adjustments to Phase III WIP State-basin Targets and the Phase II WIP Source Sector Goals

EPA expects the jurisdictions to consider changes⁸ to their existing Phase II WIP goals to reflect the new information and data from the Bay TMDL's midpoint assessment and lessons learned from previous

⁸ EPA will determine whether to modify the 2010 Chesapeake Bay TMDL based on these changes as reflected in the jurisdictions' final Phase III WIPs.

implementation efforts. Specifically, changes to the existing Phase II WIP source sector goals should be based on:

- EPA and jurisdictional assessments of numeric and programmatic implementation progress to date through the Phase I and Phase II WIPs, two-year milestones, and EPA's sector-specific assessments (i.e., agriculture, stormwater, and trading and offsets);
- Enhanced understanding and the ability to better simulate lag times and delivery factors of nutrients and sediments from the watershed to the Chesapeake Bay and its tidal tributaries and embayments;
- Refinements to the Partnership's Phase 6 suite of modeling and other decision support tools which were used to develop the Phase III WIP planning targets and support the jurisdictions' development and implementation of their Phase III WIPs and two-year milestones;
 - The CBP partnership's PSC approved the Phase 6 suite of modeling tools for management application in the Phase III WIPs and two-year milestones;
- Programmatic and policy implications of the explanations of observed long term trends in watershed and tidal water quality and biological resource monitoring data;
- More specific geographical and/or source sector targeting in the Phase III WIPs and subsequent two-year milestones based on lessons learned from implementation of the Phase I and Phase II WIPs, previous two-year milestones, and the CBP partnership's Modeling Workgroup efforts to run a series of "geographic isolation runs" to determine the [relative effectiveness](#) of each contributing area of the Chesapeake Bay watershed on dissolved oxygen and water clarity in each of the 92 Bay segments; and
- New innovative technologies, treatments, and practices emerging as a result of the CBP partnership's BMP expert panel recommendations.

EPA recognizes the Phase III WIP planning targets (i.e. state-basin targets) reflect changes in certain jurisdictions' level of effort since the release of the Bay TMDL and Phase I and Phase II WIPs. These changes are based on new science gathered under the Bay TMDL's midpoint assessment, CBP partnership-approved data, reporting and accounting procedures, and other methods incorporated into the Phase 6 suite of modeling tools. In addition, the Phase 6 suite of modeling tools shows generally less progress being made in certain jurisdictions and source sectors. EPA will continue to work with the Bay watershed jurisdictions to better understand the scope, sources, and drivers of these changes prior to the release of the final Phase III WIP planning targets so the Bay jurisdictions are best positioned to meet their respective water quality goals.

EPA is emphasizing cooperative federalism and collaboration as the Bay watershed jurisdictions develop Phase III WIPs and future two-year milestones that meet the Phase III WIP planning targets. Jurisdictions can modify their Phase III WIPs through those future two-year milestones as part of the adaptive management framework, as long as those modifications still meet the Phase III WIP planning targets. Jurisdictions are encouraged to work closely with EPA to meet EPA's expectations and respond to unique opportunities in each jurisdiction through Phase III WIP and two-year milestone development and implementation. EPA will continue to evaluate the jurisdictions' progress towards achieving their Phase III WIP planning targets in the 2018-2025 timeframe and may take appropriate federal actions for those jurisdictions that are not making adequate progress towards meeting their Phase III WIP planning targets.

As provided in the Phase II WIP planning target development process, each jurisdiction can adjust its Phase III WIP state-basin targets through nutrient exchanges and exchanges with other basins within that jurisdiction. The Chesapeake Bay Program's Modeling Workgroup will develop exchange ratios that will be used to inform the nitrogen-to-phosphorus, phosphorus-to-nitrogen, and /or basin-to-basin exchanges within each jurisdiction.

The geographic isolations runs will show those geographic areas that are most vulnerable to nonattainment if loads are exchanged within that basin.

Changes in the geographic location of the pollutant load reductions can have a significant influence on local tidal water quality responses. Any exchange ratios developed, and subsequent changes to the state-basin targets, must result in all 92 Chesapeake Bay segments achieving the respective jurisdictions' Chesapeake Bay water quality standards under Phase 6 Chesapeake Bay airshed, watershed, and estuarine water quality/sediment transport model simulated conditions.

Additional expectations on targeting implementation and developing goals at the Bay segment-shed scale can be found in Appendix A and are applicable only to the tidal jurisdictions of Delaware, the District of Columbia, Maryland, and Virginia.

Development and Implementation of Local Planning Goals

One of the biggest capacity needs identified during the Phase II WIP process was developing a strategy for engaging local partners and focusing the Partnership's efforts at a smaller scale, as appropriate, as many localities were unaware of their role in meeting their jurisdiction's WIP commitments. A Task Force was established to develop recommendations to the CBP partnership on how local planning goals could best be expressed in each of the seven Bay watershed jurisdictions. The Task Force addressed findings from the 2015 [Chesapeake Bay Stakeholder Assessment](#), including the goal of raising awareness of local partners' contribution toward achieving the Bay TMDL; the technical capacity of the Partnership's Phase 6 suite of modeling tools in developing local planning goals; how local implementation addresses local conditions, needs, and opportunities, such as local water quality; and the availability of tools to assist in the development and optimization of local implementation strategies.

Per the [December 2016 PSC](#) decision that the Task Force's final recommendations be incorporated into EPA's Phase III WIP expectations document, EPA expects the jurisdictions to work with their local and regional partners, stakeholders, and federal and state facilities to establish measurable local planning goals at a geographic scale below the state-major river basin and implement them through their Phase III WIPs and future two-year milestones. In and of themselves, these local planning goals do not supersede or modify any statutory or regulatory obligations of the local and regional partners; nor do the goals establish any new requirements or rights for those local and regional partners. Decisions regarding how local and regional stakeholders may be involved in developing and achieving local planning goals will remain with the jurisdiction.

The Task Force developed a recommended list of options for how "local" could be defined for the purposes of establishing local planning goals. When a jurisdiction is considering these options, consideration should be given to any existing political or programmatic structures that could provide guidance and/or funding opportunities that would support implementation efforts and provide a framework for tracking progress. The options are:

1. Locality jurisdictional boundaries (city, town, county, borough, township) or collections of such sub-state political subdivisions;
2. Federal facilities;
3. State facilities;
4. Soil & Water Conservation District (Conservation District) boundaries;
5. Regional entity boundaries (i.e. planning district commissions; regional river basin commissions; and utility districts);
6. Watershed or sub-watersheds of Chesapeake Bay tributaries;

7. Targeted areas with high nitrogen, phosphorus, or sediment yields (loadings);
8. Bay segment-sheds as depicted in the 2010 Chesapeake Bay TMDL;
9. Any area (e.g., MS4), entity, or political subdivision based on an identified need for pollutant load reductions for a given source sector or sectors; and
10. Some combination of the above.

In addition, each jurisdiction will also have the flexibility with regard to how local planning goals are expressed. There are many options for how to express local planning goals in a way that helps jurisdictions achieve their Phase III WIPs, and helps local partners to better understand their expected contributions. All options recommended below are supported by the CBP partnership's decision support tools (e.g., CAST). In addition, the Task Force recommends that monitoring trends data, provided to the CBP partnership by USGS or developed by an individual jurisdiction, could also be used to support the establishment of local planning goals either independently, or in conjunction with the support of the CBP partnership's Phase 6 suite of modeling tools. Goals may be expressed using any one of these options, or in some combination, but should result in measurable outcomes. The options are:

- Percentage of BMP Implementation on land uses defined in the Phase 6 Watershed Model;
- Quantifying implementation goals for particular BMPs;
- Programmatic goals (i.e. ordinances with provisions for erosion and sediment control, urban nutrient management, post-construction performance standards) that include specific implementation, oversight, and enforcement requirements;
- Numeric nitrogen, phosphorus, and sediment as expressed as reductions or maximum load goals
 - Numeric load goals for one or more pollutants (delivered load of 300 lbs. phosphorus)
 - Numeric reduction goals for one or more pollutants (reduce loads by 4000 lbs. nitrogen)
 - Yield based goals for one or more pollutants (0.41 lbs. phosphorus/acre/year from developed lands);
- Pace of implementation over a certain time frame;
- Percent reduction of existing loads over a certain time frame; and
- Percent of flow in certain tributaries/runoff captured – flow-based targets.

EPA expects the jurisdictions to document in their draft and final Phase III WIPs the approaches they took in establishing these local planning goals, in coordination with their local and regional partners. In advance of the submission of the draft Phase III WIPs, EPA expects the jurisdictions to share their approaches for establishing local planning goals with EPA and the PSC during its fall 2018 meeting. It is up to each jurisdiction to decide how it will [track and report progress towards achievement of local planning goals through its two-year milestones and/or annual progress reporting to EPA.](#)

PSC Decisions on Accounting for Growth

In December 2017, the CBP partnership's PSC approved the jurisdictions' use of 2025 projected conditions (based on the current zoning scenario) to account for growth (e.g., land use changes and population growth) in the development and implementation of the jurisdictions' Phase III WIPs and two-year milestones. Under this approach, the Chesapeake Bay Program Office modeling team will run the jurisdictions' respective Phase III WIP input decks on these 2025 forecasted conditions at the state, state-basin, and source sector level, using current zoning as the baseline scenario. Through CAST, jurisdictions will also have several alternative future land use scenarios in which to use for projecting 2025 growth conditions, such as forest conservation, growth management, and agricultural conservation.

The jurisdictions' Phase III WIP documents should describe how the jurisdictions are going to offset any increases in nutrient and sediment pollutant loads as a result of growth at the state-basin level, which is consistent with the expectation in the 2010 Bay TMDL. The jurisdictions would also take any steps required by the Clean Water Act and National Pollutant Discharge Elimination System regulations to offset, or adjust source sector goals for, new or increased loads at the general and/or individual permit level. Additionally, the jurisdictions' Phase III WIP documents should describe the programs and regulations that jurisdictions intend to implement to maintain existing land covers, including high quality beneficial land covers (e.g., mature forests). As part of the development of their two-year milestones from 2018-2025, the jurisdictions will have the opportunity to factor in updated future growth projections and ensure local partner review of the future growth forecasts with each two-year update, thus adjusting their milestone commitments accordingly. Any planned or proposed offset should not negatively impact local water quality.

EPA strongly encourages jurisdictions to utilize Partnership-approved approaches, data, and decision support tools for forecasting conditions to fully account for projected growth at the appropriate geographic scales (i.e., state-basin) and for each source sector in their Phase III WIP development process as well as in their succeeding 2018-2025 two-year milestones.

PSC Decisions on Conowingo Dam

The Partnership, building from the [U.S. Army Corps of Engineers Lower Susquehanna River Watershed Assessment study](#), has assessed the loss of trapping capacity of three dams and reservoirs on the lower Susquehanna River, especially Conowingo Dam and reservoir. USGS studies have shown the Conowingo Dam and reservoir are now in a state of "dynamic equilibrium", indicating the Conowingo reservoir is at near-full [capacity](#). The Lower Susquehanna Army Corps of Engineers study concluded more nutrients, not just sediment, are coming over the dam than was assumed in developing the 2010 Bay TMDL; this loss of trapping capacity will need to be addressed in order to attain applicable state water quality standards in the Chesapeake Bay.

Recognizing that reducing increased pollution as a result of the Conowingo Dam infill is an important issue for all CBP partnership members, the PSC agreed to develop a separate and collaborative Conowingo WIP that will provide details on how to reduce adverse water quality impacts to the Chesapeake Bay resulting from Conowingo Dam infill, as well as a timeline at which it can be accomplished. In addition, the total pollutant load reduction targets attributed to Conowingo Reservoir infill would be assigned to a separate Conowingo Planning Target which all Bay jurisdictions would work collaboratively to achieve.

At their [March 2018 meeting](#), the PSC agreed to take the following actions over the next year to support the development and implementation of the [Conowingo WIP](#):

- Establish a Conowingo WIP Steering Committee as a subcommittee of the PSC that will be responsible for developing and implementing the Conowingo WIP with assistance from a third party⁹;
- Create a fund that members of the Conowingo WIP Steering Committee can use to work with the third-party awardee and install the most cost-effective practices in the most effective locations;
 - Partners agreed to contribute resources (e.g. funding, technical assistance, in-kind services, etc.) into a pool to be managed collaboratively to achieve the necessary pollutant load reductions;
- Incorporate the outcome of the Maryland Clean Water Act Section 401 water quality certification into the Conowingo WIP process, as appropriate;
- Develop a financing strategy to support development and implementation of the Conowingo WIP;

⁹ EPA will issue a Request for Proposal (RFP) for the third party and administer the subsequently awarded contract, grant, or cooperative agreement.

- Develop a process by which preferred practices, targeted geographic locations, and implementation projects will be selected and deployed;
- Manage reservoir sediment through dredging and innovative and/or beneficial re-use based upon information from the Maryland pilot project; and
- Determine achievability and in what timeframe the needed pollutant load reductions will occur.

To assist in this effort, EPA will evaluate the Conowingo WIP and provide biennial evaluations of the progress toward attaining the goals in the Conowingo WIP. EPA's evaluations, in consultation with the PSC, and any needed improvement will be used to determine if corrections or adjustments are necessary to attain the goals of the Conowingo WIP (e.g., whether the targets need to be re-evaluated or assigned to specific jurisdictions).

PSC Decisions on Climate Change

At their [March 2018 meeting](#), the PSC agreed to the following approach for addressing climate change impacts in the Phase III WIPs and two-year milestones, recognizing that further information is needed from the CBP partnership's Modeling Workgroup and Climate Resiliency Workgroup on how the additional nutrient and sediment loads based on 2025 climate change conditions were derived, and the data and assumptions behind those calculations.

1. Incorporate Climate Change in the Phase III WIPs

- Include a narrative¹⁰ strategy in the Phase III WIPs that describes the state and local jurisdictions' current action plans and strategies to address climate change and commit to adopting climate change targets by 2021, employing the CBP partnership's Phase 6 suite of models that factor in climate change and other relevant local information. The preliminary modeling estimates attributable to climate change by 2025 to be roughly an additional 9 million pounds of nitrogen and 0.5 million pounds of phosphorus.

2. Understand the Science

- By refining the climate modeling and assessment framework, continue to sharpen the understanding of the science, the impacts of climate change, and any research gaps and needs.
- Develop an estimate of pollutant load changes (nitrogen, phosphorus, and sediment) due to 2025 climate change conditions.
- Develop a better understanding of BMP responses, including new, enhanced, and climate resilient BMPs.
- In March 2021, the CBP partnership will consider results of updated methods, techniques, and studies and refine estimated loads due to climate change for each jurisdiction.
- The PSC agreed that in September 2021, jurisdictions will account for additional nutrient and sediment pollutant loads due to 2025 climate change conditions in a Phase III WIP addendum and/or two-year milestones beginning in 2022.

3. Incorporate into Two-year Milestones

- The PSC agreed that starting with the 2022-2023 milestones, the CBP partnership will determine how climate change will impact the BMPs included in the WIPs and address these vulnerabilities in the two-year milestones.

¹⁰ The CBP partnership's Climate Resiliency Workgroup, in coordination with the Water Quality Goal Implementation Team, is currently drafting and reviewing a draft narrative template as a potential method for implementation of the PSC-approved policy provisions for addressing climate change in Phase III WIPs.

State-Specific Phase III WIP Expectations

[Under the Bay TMDL's accountability framework](#), EPA has communicated its heightened expectations for reasonable assurance in the Chesapeake Bay watershed and its basis for expecting the jurisdictions' WIPs to assist in the demonstration of that reasonable assurance. In April 2017, EPA developed and released state-specific [expectations](#) for Pennsylvania (PA) (see Appendix B) given that three of PA's source sectors are under enhanced or back-stopped levels of federal oversight, PA is significantly off track in meeting their programmatic and numeric WIP and two-year milestone commitments, and PA is not on trajectory to meet their Phase III WIP planning targets by 2025. EPA has updated the PA-specific expectations in Appendix B, recognizing that Pennsylvania's accelerated progress is critical to the achievement of water quality standards in the Chesapeake Bay.

EPA's Role in the Phase III WIP Development and Implementation Processes

EPA is providing these Phase III WIP expectations to the seven Bay watershed jurisdictions and the federal agencies as part of its role under the Bay TMDL's accountability framework. The Bay TMDL is supported by an accountability framework to ensure cleanup commitments are established and met, including WIPs, two-year milestones, a tracking and accountability system for jurisdictions' and federal agencies' activities, and federal actions that may be employed if jurisdictions do not meet their milestone and WIP commitments.

EPA will continue to assess the jurisdictions' and federal agencies' progress toward reaching their Bay TMDL's ultimate nitrogen, phosphorus, and sediment pollutant load reduction targets through its evaluation of the Phase III WIPs and at least biennially using the jurisdictions' and federal agencies' two-year milestones commitments. In addition, [EPA will](#):

- **Continue support for WIP development** and implementation through EPA contractor support, implementation grants, coordination, and resources for on-the-ground service providers and source sector expertise through the CBP partnership's source sector workgroups, and technical assistance through trainings and webinars to help partners estimate nitrogen, phosphorus, and sediment reductions associated with proposed management actions. Support is subject to the availability of federal appropriations;
- **Partner with jurisdictions, federal agencies, and local entities, as requested, in outreach efforts.** EPA will make information such as presentations, fact sheets, and talking points available for partners to share with their audiences and will maintain an up-to-date website on the Bay TMDL and Phase III WIPs;
- **Conduct a review** of the draft Phase III WIPs focused on:
 - a) whether the jurisdictions provided information to show that sources collectively will have the necessary policy, programmatic, legislative, and regulatory infrastructures and practices (including financing, cost-share, technical assistance, and incentives) in place by 2025 to meet their nitrogen, phosphorus, and sediment Phase III WIP planning targets at the state and state-basin level and result, collectively, in achievement of each Chesapeake Bay segment's Chesapeake Bay water quality standards;
 - b) how jurisdictions offset any new or increased loadings at the state and state-basin level, and that any trading mechanisms meet EPA's expectations as set forth in Appendix S of the 2010 Chesapeake Bay TMDL;
 - c) how state-basin and sector-specific strategies differ from the Phase II WIPs due in part to changes resulting from the Bay TMDL's midpoint assessment; and
 - d) whether the jurisdictions have demonstrated with greater confidence that pollutant source sectors receiving enhanced oversight or backstop actions in the 2010 Chesapeake Bay TMDL will meet the Phase III WIP planning targets;

- **Provide comments** on the draft Phase III WIPs and allow the jurisdictions to submit final Phase III WIPs before any potential refinements to the 2010 Chesapeake Bay TMDL are considered by EPA;
- **Take appropriate federal actions** if a jurisdiction's Phase III WIP and two-year milestones do not meet EPA expectations and if there is a lack of adequate progress towards meeting the Phase III WIP planning targets by 2025;
- **Work with its federal partners** to determine what policies, programs, and funding can be enhanced or streamlined to support the jurisdictions' implementation of their Phase III WIPs;
- **Help with coordination among the federal agencies** and the jurisdictions to ensure a system is in place that provides the information and tools needed for the federal agencies to provide input to Phase III WIPs directly to the jurisdictions including commitments to federal actions on federal lands and facilities, two-year water quality milestones, and local planning [goals/targets for federal facilities](#).
- **EPA will provide the federal agencies with a set of expectations** for the development of federal water quality milestones and the role of federal agencies in the development and implementation of the jurisdictions' Phase III WIPs. EPA will annually request federal agencies to submit BMP implementation progress data to the jurisdictions for inclusion in their respective input deck submissions to EPA. EPA will help to identify and resolve issues related to jurisdiction use of implementation data provided by federal agencies to ensure jurisdiction progress reporting fully accounts for progress made by federal agencies. EPA also will assist with the resolution of any disputes among federal agencies and jurisdictions when requested; and
 - **EPA will coordinate these actions with the CBP Federal Office Directors**, the Water Quality GIT's Federal Facilities Workgroup, and where appropriate, the Federal Leadership Committee for the Chesapeake Bay. EPA will evaluate federal agencies' progress in meeting their two-year water quality milestones consistent with the E.O. 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed which states "Federal agencies with property in the watershed will provide leadership and will work with the Bay jurisdictions in the development of their Watershed Implementation Plans to:
 - Estimate nutrient and sediment loads delivered from federal lands to the Bay by providing information on property boundaries, land cover, land use, and implementation of best management practices;
 - Identify pollution reductions from point and non-point sources associated with federal lands that will help restore water quality; and
 - Commit to actions, programs, policies and resources necessary to reduce nitrogen, phosphorous, and sediment by specific dates."

Appendix A: Expectations for Targeting Implementation at the Bay Segment-shed Scale for Delaware, District of Columbia, Maryland, and Virginia

The Bay nutrient and sediment allocations under the 2010 Chesapeake Bay TMDL were established based on: 1) nutrient and sediment pollutant load reductions needed to achieve each of the 92 individual Bay segment's Chesapeake Bay water quality standards; and 2) nutrient and sediment pollutant load reductions necessary to achieve those Bay segment's Chesapeake Bay water quality standards whose water quality conditions are directly influenced by major river basins and jurisdictions throughout the Bay watershed (e.g., Bay segments such as the middle Chesapeake Bay mainstem and the lower Potomac River are affected by nutrient loads from all parts of the Bay watershed).

The CBP partnership's Modeling Workgroup will run a series of geographic isolation runs for both point and non-point sources as part of the development of the draft Phase III WIP planning targets, and to understand the relative effectiveness of each contributing area of the Chesapeake Bay watershed on dissolved oxygen, chlorophyll a, and water clarity in each of the 92 Bay segments. These geographic isolation runs will better quantify the role of geography on nutrient and sediment load changes in restoring Chesapeake Bay water quality at the Bay segment scale. These geographic isolation runs will also identify those Bay segments that are most vulnerable to nonattainment if loads are exchanged within that basin.

EPA expects the four tidal jurisdictions—Delaware, District of Columbia, Maryland and Virginia—to use the information from these geographic isolation runs, as well as explanations of observed long-term trends in watershed and tidal water quality and biological resource monitoring data, to develop Phase III WIPs that demonstrate a greater level of targeting towards those Bay segments significantly out of attainment (based on monitoring assessments) with their Chesapeake Bay water quality standards. Flexibility is a critical element in this process, as tidal jurisdictions may take a diverse suite of actions and use a wide array of information and data to inform targeting at the segment-shed scale. For example, this greater level of targeting could entail developing specific BMP implementation strategies or local planning goals in those segment-sheds where increased implementation is necessary to bring those Bay segments back into attainment. EPA will not use these geographic isolation runs to issue pollutant load reduction targets for each of the 92 Bay segment-sheds beyond the Phase III WIP planning targets at the state-major river basin scale, nor does EPA expect the tidal jurisdictions to develop numeric targets for each of their respective Bay segment-sheds. In the Phase III WIP evaluation process, EPA will conduct a closer review of how the four tidal jurisdictions are focusing implementation efforts on those Bay segment-sheds that are contributing the highest pollutant loads to (1) Bay segments significantly out of attainment and (2) have a highly influential role in water quality standards attainment for other Bay segments.

EPA can assist with coordinating and facilitating these efforts among the jurisdictions (both tidal and non-tidal) to ensure any proposed geographic or nitrogen and phosphorus exchanges and implementation strategies will result in achieving all jurisdictions' Chesapeake Bay water quality standards across all 92 Chesapeake Bay segments. Technical staff are available to work with each of the jurisdictions—tidal and watershed—to analyze the results of the geographic isolation runs conducted for each of the 92 Chesapeake Bay segments and to conduct exchanges of nitrogen and phosphorus within and between their state-basins.

EPA fully recognizes the four tidal jurisdictions will need to continue to work adaptively over time to understand exactly where and from which source sectors these nutrient and sediment pollutant load reductions are needed to achieve their respective Bay segments' Chesapeake Bay water quality standards. This understanding will be

informed by not only modeled data but also through the continued development and communication of short- and long-term monitoring trends data that can help explain how the system is responding and the specific factors influencing those trends. The two-year milestones provide an opportunity for the jurisdictions to continue to refine and/or change their programmatic and implementation strategies, particularly for those Bay segments that remain impaired. The objective is the collective pollutant load reductions documented as occurring over time across each of the four tidal jurisdictions will result, in combination with pollutant load reductions from the three non-tidal watershed jurisdictions—New York, Pennsylvania, and West Virginia – in achievement of Chesapeake Bay water quality standards in each of the 92 Chesapeake Bay segments.

Appendix B: EPA Expectations for Pennsylvania's Phase III WIP

Background

The Chesapeake Bay and its watershed are significant national resources, supporting approximately 18 million people, and an estimated \$1 trillion of economic activity. As an upstream jurisdiction in the nation's largest estuary, Pennsylvania has a significant impact on the Bay and much of its watershed, and has a pivotal role in the ongoing restoration effort. The Susquehanna River provides about 50 percent of the freshwater flows to the estuary, about half of the nitrogen, and more than a quarter of the phosphorus flowing into it. Through a combination of regulatory controls and voluntary actions in urban/suburban and agricultural settings, Pennsylvania has reduced its loadings of nitrogen to the Bay by 14 million pounds¹¹ over the past 32 years (since 1985). During this period, Pennsylvania should have reduced its loadings of nitrogen to the Bay by 28 million pounds. Between 2018-2025, Pennsylvania needs to reduce its nitrogen loadings by 35 million pounds in order to achieve its Phase III WIP nitrogen target.

The Commonwealth faces a number of challenges in meeting its commitments to achieve the pollutant load reductions called for in the Chesapeake Bay Total Maximum Daily Load (Bay TMDL) including limited resources to effectively implement regulatory programs. Pennsylvania has reaffirmed these commitments as a signatory of the 2014 *Chesapeake Bay Watershed Agreement* and in 2016 with the release of the Pennsylvania Chesapeake Bay Restoration Strategy. The Chesapeake Bay Restoration Strategy informed Pennsylvania's 2016-2017 milestones and details Pennsylvania's commitment to increase compliance with state agricultural regulations and to improve tracking of non-cost shared agricultural conservation practices. Additional commitments from Pennsylvania's Restoration Strategy include improving implementation reporting and data tracking systems, creating a Pennsylvania Chesapeake Bay Program office, obtaining additional resources to improve water quality, and identifying legislative, programmatic, or regulatory changes necessary to meet the pollutant load reduction goals by 2025.

Phase I and II WIP and two-year milestone commitments that Pennsylvania has consistently not addressed include:

- Increasing levels of BMP implementation resulting from both programmatic improvements and increases in implementation and targeting of priority practices in the Agriculture and Urban/Suburban Stormwater sectors;
- Targeting geographic areas with the greatest nutrient pollutant load reduction potential for the Chesapeake Bay in order to target funding to the most effective practices and watersheds;
- Revising its October 2010 Nutrient Trading Program regulations to address both the issue of the agriculture baseline being consistent with the Bay TMDL and nutrient credit calculation, as well as reconciling and updating these regulations with the trading policies Pennsylvania placed on its Chesapeake Bay Nutrient Trading website in late 2014 and in its Phase II WIP Supplement in 2016;
- Ensuring farms are implementing manure management plans as required by Chapter 91.36 and Erosion and Sediment Control or Conservation Plans per Chapter 102, and that Pennsylvania is using its authority to ensure BMPs are being implemented per those plans;

¹¹ These reduction estimates are based upon simulations using the Chesapeake Bay Program partnership's Phase 6 suite of modeling tools.

- Pursuing advanced technologies to address manure, and providing additional BMP alternatives if technologies are not providing the intended results; and
- Revising the Stormwater Management BMP manual.

The Chesapeake Bay Program partnership decision support tools allow the Commonwealth to develop various scenarios to demonstrate a combination of cost effective practices with the intent to achieve the 2025 nutrient and sediment pollutant load reduction goals. Pennsylvania can use the scenarios to determine innovative financing mechanisms to make the effort affordable using all available tools.

In addition to requirements under the Clean Water Act, the Commonwealth has its own local incentives to act: impaired water quality conditions in local streams, lakes, and rivers; increased nuisance algae in the Susquehanna River; and high nitrate levels with health implications for local drinking water supplies. Within the Chesapeake Bay watershed, [Pennsylvania has approximately 14,800 miles of impaired rivers/streams \(6,444 miles have a completed TMDL; 8,374 miles are on the 303\(d\) list and in need of a TMDL\)](#). Of the 14,800 impaired miles, Pennsylvania has identified 1,725 miles as impaired for nutrient related impacts (1,368 miles for nutrients, 525 miles for organic enrichment/low Dissolved Oxygen and 33 for excess algal growth) and 4,976 miles impaired for siltation of which sediment (Total Suspended Solids) is a component. Over the past 5 years (2013-2017), based on data in the Safe Drinking Water Information System, within the Chesapeake Bay watershed, Pennsylvania has had over 75 drinking water systems with nitrate Maximum Contaminant Level violations (post-treatment finished water) which have impacted nearly 17,000 people.

With these concerns in mind, EPA provides the following specific expectations to guide Pennsylvania's development of a Phase III Watershed Implementation Plan (WIP) that would outline the actions, document the necessary financial commitments, and provide assurance to the citizens of Pennsylvania, other Chesapeake Bay watershed jurisdictions, and all who depend on a healthy Chesapeake Bay, that Pennsylvania will meet its nutrient and sediment goals under the Bay TMDL.

EPA Expectations

EPA expects that Pennsylvania's Phase III WIP will include the technical details (Best Management Practice (BMP) input deck) and evidence of public stakeholder engagement necessary to show it will meet its Phase III WIP planning targets. With a commitment for execution and a schedule for implementation, the Phase III WIP should include:

- **Local planning goals, showing how the Phase III WIP goals will be achieved through action** at county, municipal, and/or sub-watershed scales — especially in priority areas in the Susquehanna and Potomac River watersheds where the most impact to the Bay and local water quality can be achieved. A wealth of decision support tools and high-resolution information is now available to assist in identifying sources of nutrients and sediment, determining appropriate practices to reduce pollution flows, and calculating costs associated with selected actions such as the [Chesapeake Bay Assessment and Scenario Tool \(CAST\)](#): <http://cast.chesapeakebay.net/>. In addition, the U.S. Geological Survey (USGS) identified sources of nitrogen, phosphorus, and sediment within the Chesapeake Bay that can help Pennsylvania and its local partners determine where to target their efforts: <https://water.usgs.gov/nawqa/sparrow/>;
- **Demonstrated collaboration** among local governments, state agencies, watershed and other citizen organizations, academic institutions, agricultural sector leaders, farmers, stormwater and drinking water utilities, source water specialists, and others as partners in **identifying, planning for, and implementing**

the agricultural, urban stormwater, and wastewater actions needed to meet Pennsylvania's 2025 Bay TMDL goals;

- **Commitment to programmatic, policy, legislative, and regulatory changes** needed to implement Pennsylvania's Phase III WIP and meet Bay TMDL goals. Examples of this commitment, previously discussed with Pennsylvania, include:
 - Public identification of priority practices and priority watersheds to target resources and implementation to maximize nutrient and sediment pollutant load reductions, consistent with the tiered approach for those highest nutrient loading counties. EPA expects Pennsylvania to share the results of the county pilots in Adams, Franklin, Lancaster, and York Counties after they are conducted this summer to determine if EPA funding and resources need to be redirected towards more priority practices and geographic areas;
 - Implementation of initiatives, including Agriculture Recognition Programs and Agricultural Certainty, designed to implement nutrient management planning and other priority agricultural BMPs;
 - Restrictions on manure application during winter months to protect drinking water sources and ensure local and Chesapeake Bay water quality protection, and a plan for proper management of manure during the winter months;
 - Extension of Chapter 38 nutrient management requirements to all animal and crop operations through statutory, regulatory and/or policy changes, as necessary;
 - Implementation of manure treatment and manure transport programs for areas of manure imbalance;
 - Development and implementation of a state agricultural cost share program to assist farmers in implementing priority agricultural conservation practices that are called for in the Pennsylvania's WIP and to address local water quality impairments;
 - Development of agricultural tax credit programs that incentivize compliance with state regulatory requirements and higher levels of agricultural conservation practice implementation. For example, link the Clean and Green tax credit program to compliance with the state agricultural regulatory requirements and consider higher tax credits for higher levels of agricultural conservation practice implementation; and
 - Revision of state trading regulations and NPDES permits to address trading program deficiencies and facilitate MS4 and interstate trading in order to allow permittees to manage their compliance obligations cost effectively and leverage nitrogen and phosphorus reductions.
- **Commitment to the level of staff, partnerships, and financial resources** needed to fully implement the practices, treatments, and technologies necessary to achieve Pennsylvania's Phase III WIP planning targets, including maximizing capacity between the Pennsylvania state agencies to fund and implement grant commitments. An example of this commitment includes:
 - **Perform a workload analysis of the Commonwealth's core state programs, voluntary programs, and grant programs to identify the level of staffing necessary to meet Chesapeake Bay Implementation goals and submit this analysis and a resource strategy, detailing the actions and schedule necessary to address staffing resource needs;**
- **Continuing to track, report, and participate in quarterly grant meetings with EPA to demonstrate Pennsylvania's commitment to reduce the amount of unspent or unliquidated obligations (ULOs)** for Chesapeake Bay Regulatory and Accountability Program (CBRAP) and Chesapeake Bay Implementation Grant (CBIG) grant funding;

- **Contracting out or otherwise obtaining services of a third party** to perform activities central to the implementation of the Phase III WIP;
- **Modification of the current expected reductions for the Urban/Suburban Stormwater sector;** and
- **Commitment to additional reductions of loadings from point sources** to include reductions in current facility specific wasteload allocations for the significant municipal and industrial wastewater discharging facilities in order to increase the share of the allocations to stormwater and/or agriculture.

EPA Oversight

Given the deficits in Pennsylvania's projected pollutant load reductions in the Agricultural and Urban/Suburban Stormwater sectors, EPA commits to continue working closely with Pennsylvania in the development of Pennsylvania's Phase III WIP by providing technical assistance and feedback along the way. EPA will review the details of Pennsylvania's draft Phase III WIP in 2019 to assess the adequacy of the programs and policies for confirmation that the Commonwealth will meet its 2025 Bay TMDL goals.

As long as Pennsylvania remains far off track for nitrogen and phosphorus reductions, EPA expects more frequent and detailed reporting of progress by Pennsylvania as part of EPA's enhanced oversight of Pennsylvania. This oversight reflects EPA expectations that:

- **Pennsylvania will demonstrate there are sufficient resources to meet the Commonwealth's Phase III WIP implementation needs;**
- In coordination with EPA, **Pennsylvania should pursue innovative partnerships with federal, state, and local entities** to incentivize sensible market-based approaches and technologies that enhance economic growth and accelerate nutrient and sediment reductions to maximize protection of Pennsylvania's air, land, and water resources;
- **Every six months Pennsylvania will report on progress towards achieving its programmatic milestone commitments:**
 - EPA will maintain the current milestone progress reporting deadlines of December for numeric progress and January for programmatic progress with an EPA evaluation provided in the spring; and
 - EPA will conduct an additional review of Pennsylvania's programmatic progress with an update from Pennsylvania due the end of September and EPA will provide feedback in the fall;
- **Any Chesapeake Bay funds provided to the Commonwealth for implementation should be applied only for the Pennsylvania identified priority watersheds** within the Susquehanna and Potomac River watersheds, consistent with the county-level tiered approach; and
- **Chesapeake Bay grant workplans should be in alignment with the evaluation findings of priority actions and needs**, and EPA will continue to perform semi-annual grant evaluations with a goal to align the grant evaluation with the progress evaluations.

In EPA's role to provide accountability, EPA will assess all potential and appropriate federal actions under its discretionary authority under the Clean Water Act (CWA) as described in the EPA [letter to the partnership Principals' Staff Committee in December 2009](#) and in the 2010 [Chesapeake Bay TMDL](#) Section 7.2.4 to take any or all of the following potential actions. Several examples of potential actions EPA could take specific to Pennsylvania include:

1. EPA may continue to target federal enforcement and compliance assurance in the watershed, which could include both air and water sources of nitrogen, phosphorus, and sediment pollutant loads;

2. EPA may expand NPDES permit coverage through designation, as provided by the Clean Water Act and its regulations, for the following sources of pollutants not currently regulated under any NPDES permits: animal feeding operations, [industrial and municipal] stormwater sources, and/or urbanized areas. Such designations would require those sources to apply for NPDES permit coverage and would assist Pennsylvania in achieving the pollutant load reductions proposed in its Phase III WIP;
3. EPA may redirect Chesapeake Bay or other EPA grant funding to a third party (through a grant, cooperative agreement, or contract) to implement practices in priority areas in Pennsylvania when the Commonwealth has been unwilling or unable to implement necessary pollutant load reduction practices or spend down EPA grant funds in an efficient and timely manner;
4. EPA may direct Chesapeake Bay funding to identified priorities in the EPA evaluations if the Commonwealth does not adequately target workplans and funding toward priority actions and watersheds within the Susquehanna and Potomac River watersheds and other expectations of EPA's evaluations;
5. EPA may establish finer scale wasteload and load allocations through a Pennsylvania state-specific proposed amendment to the 2010 Chesapeake Bay TMDL to include more specific wasteload allocations for additional municipal and industrial wastewater discharging facilities, concentrated animal feeding operations, and regulated stormwater municipalities, as well as more finely, geographically scaled load allocations for the non-federally regulated agricultural, stormwater, and other pollutant source sectors than are contained in Pennsylvania's Phase III WIP;
6. EPA may require additional reductions of loadings from point sources through a Pennsylvania state-specific proposed amendment to the 2010 Chesapeake Bay TMDL to include reductions in current facility specific wasteload allocations for the significant municipal and industrial wastewater discharging facilities in order to increase the share of the allocations to stormwater and/or agriculture; and
7. EPA may initiate a process to propose promulgating nitrogen and phosphorus numeric water quality standards for Pennsylvania applicable to streams and rivers in Chesapeake Bay watershed.