

EPA EVALUATION OF THE CONOWINGO 2022-2023 and 2024-2025 MILESTONES

Executive Summary

The Chesapeake Bay Program (CBP) partnership's Principals' Staff Committee (PSC) agreed to develop a separate and collaborative Conowingo Watershed Implementation Plan (CWIP) and associated two-year milestones that would outline the programmatic and numeric commitments that would be taken to reduce the adverse water quality impacts to the Chesapeake Bay resulting from Conowingo Dam infill. According to the CBP partnership's Phase 6 suite of modeling tools, it is estimated that an additional reduction of 6.67 million pounds of nitrogen and 0.26 million pounds of phosphorus is needed to mitigate the water quality impacts of Conowingo Dam infill. This additional reduction must be addressed to attain applicable water quality standards in the Chesapeake Bay.

To assist in this effort, the PSC established the CWIP Steering Committee (Steering Committee), which is composed of a representative from each Bay watershed jurisdiction and the Chesapeake Bay Commission. This Steering Committee is responsible for coordinating the development and implementation of the CWIP and two-year milestones, with oversight and direction from the PSC.

At its July 19, 2022 meeting, the PSC reached consensus that the Susquehanna jurisdictions of Pennsylvania, New York, and Maryland can address the Conowingo nutrients loads through the actions outlined in the CWIP using a phased approach that extends beyond 2025. This phased approach will allow time to build the organizational infrastructure to implement the Conowingo WIP. [Expectations for the CWIP phased approach](#) were developed in July 2023. Phase 1 will focus on implementation through 2025. The CWIP milestones commit to implement practices to reduce 25 percent of the nutrient load (1.675 million pounds of nitrogen and 0.07 million pounds of phosphorus) by 2025.

The U.S. Environmental Protection Agency (EPA) is providing this evaluation of the Conowingo milestones programmatic progress for the 2022-2023 milestone period and final 2024-2025 milestone commitments to the CBP partnership and the public in accordance with its oversight role and responsibility under the CBP partnership's accountability framework and the PSC framework for the CWIP. This evaluation includes an assessment of progress toward meeting programmatic and numeric commitments for the 2022-2023 milestone period, an assessment of programmatic and numeric commitments (e.g., Best Management Practices (BMP) or BMP implementation targets) for the 2024-2025 milestone period, and the status of the relevant water quality monitoring trends.

In reviewing the programmatic progress for the Conowingo 2022-2023 milestone progress and final 2024-2025 milestone commitments, EPA identified strengths as well as areas for improvement. EPA stands ready to assist the Steering Committee with implementing the Conowingo 2024-2025 two-year milestone commitments.

Some notable strengths identified in this evaluation of the 2022-2023 Conowingo milestones and final 2024-2025 milestones include:

- Clarified the amount and sources of funding for the pay-for-performance projects that will ultimately achieve the targeted nutrient reduction goals.
- Committed to fostering relationships with partner organizations in the Susquehanna River watershed to further CWIP goals and implementation.
- Outlined that pay-for-performance contract award criteria incentivize projects with co-benefits to foster new public-private partnerships.

Some key areas that EPA expects to be addressed in the final 2024-2025 milestone period and beyond include:

- Provide additional detail in the 2024-2025 milestone progress to clearly outline the actions taken to build implementation capacity, expand partnerships, and foster innovation, as well as secure additional long-term funding.
- Include updates on specific programmatic efforts and associated BMP implementation in progress reports on steps taken to initiate BMP implementation to meet the 25 percent reduction of the CWIP nutrient targets identified in both the 2022-2023 and 2024-2025 milestones. The CBP partnership decided to evaluate and assess progress in 2026 following the CWIP Phase I implementation to determine whether sufficient programmatic and numeric progress has been made in meeting 25 percent of the CWIP nutrient targets and how to proceed going forward.
- Provide progress updates with the 2024-2025 milestone progress for those 2022-2023 milestones that are listed as ongoing or not currently listed as complete in the final 2022-2023 progress document.

Looking Forward for Future Reviews of Progress

At the 2022 Executive Council meeting, the Executive Council discussed the upcoming year of 2025—the target date the partnership set for achieving certain outcomes under the [2014 Chesapeake Bay Watershed Agreement](#). At that meeting, the Executive Council [charged the PSC](#) to recommend a critical path forward that prioritizes and outlines the next steps for meeting the goals and outcomes of the *Chesapeake Bay Watershed Agreement* leading up to and beyond 2025 with specific considerations for science, restoration, and partnership.

At the [September 2023 PSC meeting](#), the CBP partners agreed to define the targets to be met by 2025 as the Phase III planning targets, the 2025 targets for climate change, and Conowingo targets. Consistent with that decision, this and future evaluations will measure progress toward the Conowingo targets. The [PSC approved a phased approach](#) for what can be achieved at Conowingo by 2025. Conowingo has a separate WIP and milestones to meet those targets.

The PSC approved the finalization and use of the Chesapeake Assessment Scenario Tool ([CAST](#)) [2023](#) (update released June 2024) for tracking progress in the years until the Phase 7.0 suite of modeling tools is complete (estimated in 2028).

In addition, in January 2024 the CBP partnership finalized the [Chesapeake Bay Total Maximum Daily Load \(TMDL\) indicator](#), which is a [new indicator](#) designed to combine monitored and modeled data to estimate the progress of annual pollutant loading rate reductions since 1995 in response to implemented management practices. This indicator was developed to address a CBP partnership interest to compare modeled and monitoring data. This indicator may be used in future evaluations of progress.

Detailed Evaluation of Programmatic and Numeric Commitments

Load Reduction Review

Each year, jurisdictions in the CBP partnership and the Steering Committee report on BMPs installed, tracked, and verified and the pollutant load reductions from wastewater treatment plants. Using CAST-19, this information (or “annual progress runs”) provides an estimate of how much nitrogen, phosphorus, and sediment has been reduced. In its evaluation of the final CWIP, EPA noted that the final CWIP BMP implementation scenario meets the necessary nitrogen reductions and focuses implementation in the most effective areas of the Susquehanna River Basin. Implementation of the CWIP or numeric commitments reflected in the 2022-2023 or 2024-2025 milestones has not yet begun. Therefore, there has not been a submission of annual BMP implementation data to demonstrate progress towards attaining the nutrient targets within the Susquehanna Basin; however, sources of funding for implementation have been identified in the 2024-2025 milestones submission. EPA will have the opportunity to conduct a detailed load reduction review after BMP implementation is initiated. With funding in place, EPA expects nutrient reduction targets to be met and milestones achieved on the timeline(s) defined in the 2024-2025 milestones submission.

EPA also expressed the expectation in its evaluation of the final CWIP that further details on programmatic and numeric actions, capacity to implement the CWIP, finer-scale targeted geographies for CWIP BMP implementation, and the role and engagement of local stakeholders in CWIP implementation will be addressed through the Conowingo two-year milestones. While EPA appreciates that the 2022-2023 and 2024-2025 milestones include commitments to build implementation capacity, foster innovation, and expand partnerships to increase BMP implementation over time, there is insufficient detail in the programmatic and numeric milestones regarding which geographic areas within the Susquehanna Basin will be targeted for implementation, the practices that will be implemented, and the local stakeholders that will be targeted for engagement as part of these implementation efforts.

Numeric Review

2022-2023 Milestone Strengths

- Set milestones to implement practices sufficient to achieve at least 25 percent of total nitrogen and phosphorus reductions identified in the CWIP.

2022-2023 Milestones Not Achieved

- Allocated funds to solicit project proposals which, when implemented, are expected to achieve necessary nutrient load reductions identified in the CWIP; however, no implementation has taken place.

2024-2025 Milestone Strengths

- Provided additional detail about the sources of funding that will be used to implement practices sufficient to achieve necessary nutrient load reductions identified in the CWIP.

Key Areas to Address in the Final 2024-2025 Milestone Period and beyond

- Include details about the specific practices, geographies, and stakeholders involved in implementation efforts in milestones progress reports. While there is a commitment to implement practices to reduce at least 25 percent of the nitrogen and phosphorus reductions identified in the CWIP, or 1.675 million pounds of nitrogen and 0.07 million pounds of phosphorus, there is limited detail on which practices will be targeted for implementation, the specific geographies in which implementation will occur, and the local stakeholders involved in the implementation efforts.

Programmatic Review

Building Implementation Capacity

2022-2023 Milestone Achievements

- Initiated the delivery of implementation funding.

2022-2023 Milestones Not Achieved

- Did not meet target date for roll out of the BMP Opportunity Analysis; target date adjusted.
- Did not meet target date for revising the Audit Framework; target date adjusted.

2024-2025 Milestone Strengths

- Commits to submitting BMP progress and verification data annually, beginning in 2024.

Key Areas to Address in the Final 2024-2025 Milestone Period and beyond

- Include detail in progress reports to define how plans for changes to programmatic capacity have been developed (Action Item 19).
- Include detail in progress reports to define the specific funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative, and regulatory actions that were/are being taken to achieve at least 25 percent of the CWIP nutrient targets (Action Item 20).

Expanding Partnerships

2022-2023 Milestone Achievements

- Identified organizations, including Octoraro Watershed Association, Octoraro Source Water Collaborative, Upper Susquehanna Coalition, Susquehanna River Basin Commission (SRBC), and the Chesapeake Bay Program, to partner with on CWIP implementation.
- Continued regular Steering Committee co-chairs meetings, Steering Committee meetings, and Core Team meetings to maintain transparency with actions taken to support the CWIP.

2022-2023 Milestones Not Achieved

- Did not report if training sessions on implementation and verification of the CWIP were held by Spring 2022.

2024-2025 Milestone Strengths

- Commits to forming, tracking, and developing cooperative or informal agreements with partner organizations in the Susquehanna River watershed to further CWIP goals and implementation.

Key Areas to Address in the Final 2024-2025 Milestone Period and beyond

- Include information in progress reports about how specific target audiences for local, regional, and federal engagement in the CWIP and milestone implementation process were identified (Action Item 15A).
- Include information on the progress made toward completing partner role descriptions (Action Item 15B).
- Provide details in progress reports about the ways in which established partnerships with the Octoraro Watershed Association, Octoraro Source Water Collaborative, Upper Susquehanna Coalition, SRBC, and the Chesapeake Bay Program were further developed.

Fostering Innovation

2022-2023 Milestone Achievements

- Initiated and advertised Pennsylvania Infrastructure Investment Authority (PENNVEST) Clean Water Procurement Program and Maryland Department of the Environment (MDE)/SRBC request for proposals for Verified Nutrient Reductions, targeting pay-for-performance projects.
- Allocated \$48 million in funding to support the pay-for-performance projects that are ultimately selected for implementation.

2022-2023 Milestones Not Achieved

- Did not meet target date for identifying/scoping pilot projects to achieve numeric CWIP goals; target date adjusted.

2024-2025 Milestone Strengths

- Provides information on the sources of funding that will ultimately support selected pay-for-performance projects and outlines that contract award criteria incentivize projects with co-benefits to foster new public-private partnerships.

Key Areas to Address in the Final 2024-2025 Milestone Period and beyond

- Include details in progress reports about the work done to track expert panels for dredging behind the Conowingo dam, freshwater mussel restoration, and manure treatment technologies.
- Include details in progress reports about the scope of implementation for pilot projects that are selected for funding.

Potential Federal Actions and Assistance

At its July 19, 2022 meeting, the PSC reached consensus that the Susquehanna jurisdictions of Pennsylvania, New York, and Maryland can address the Conowingo nutrients loads through

the actions outlined in the CWIP using a phased approach that extends beyond 2025. The CWIP milestones commit to implement practices to reduce 25 percent of the nutrient loads by 2025. EPA, in coordination with the PSC, will assess progress towards achievement of the Conowingo nutrient targets in 2026 to determine if there will be a Phase 2 of implementation or if an alternative path forward needs to be pursued. The Conowingo nutrient targets to the Susquehanna jurisdictions will be those reflected in the final and PSC-approved CWIP.

EPA remains prepared to assist the Steering Committee and the PSC in implementing the 2024-2025 milestones. EPA plans to continue to commit staff, contractual, and funding resources to support the implementation of the Conowingo 2024-2025 milestones and future two-year milestones. This support includes evaluation of the most-effective practices and locations, annual funding assistance to address priority implementation needs, evaluation of implementation capacity under various staffing, funding, regulatory and programmatic scenarios, local planning outreach, legislative and regulatory gap analysis, and monitoring trend analyses. EPA will continue its commitment to track annual progress of the CWIP and two-year milestones and make those results available to the partnership and the public. [See: <https://www.epa.gov/chesapeake-bay-tmdl/epa-oversight-watershed-implementation-plans-wips-and-milestones-chesapeake-bay> and <https://www.chesapeakeprogress.com/>]

Monitoring Trends Summary

The CBP partnership's Chesapeake Bay Program Nontidal Water Quality Monitoring Network, supported by EPA, the U.S. Geological Survey (USGS), SRBC, and the Bay jurisdictions, generates water quality monitoring data in freshwater rivers and streams throughout the watershed that is analyzed by USGS for nutrient and sediment loads and trends. The most recent USGS results (www.usgs.gov/CB-wq-loads-trends) over the long-term 1985-2020 and short term 2011-2020 were made available in January 2023. This analysis mainly focuses on the short term 2011-2020 trends.

While identifying drivers behind individual trends is often complex, the monitoring results are worthy of the Steering Committee's consideration as it develops the programs and BMPs planned for the next two years.

- Implementing efforts in high loading areas can potentially yield the greatest nutrient reduction benefits. Trends are improving at some of Pennsylvania's and Maryland's highest loading monitored watersheds within the Susquehanna River basin for nitrogen and phosphorus. Most of the highest loading monitored watersheds for both nitrogen and phosphorus are in the Lower Susquehanna region and are dominated by the agricultural sector, suggesting agriculture should continue to be a focus.
- Within the Susquehanna River basin, the Lower Susquehanna stations are mostly improving or show no trend for nitrogen, including the monitoring station located in Conowingo, Maryland, whereas the Upper Susquehanna and West Branch stations are relatively mixed with lower loading rates. For phosphorus, the Lower Susquehanna stations are mostly improving or show no trend, including the monitoring station located in Conowingo, Maryland, whereas most of the West Branch stations are degrading or show no trend.

- Additional exploration of these trends can help clarify what may be driving differences between nitrogen and phosphorus trends regionally and locally, which can in turn help inform adaptation of programs, policies, or practices.
- A comprehensive effort has been made to compile and analyze data sets for the watersheds of the Chesapeake Bay Program Nontidal Water Quality Monitoring Network stations. For the first time, station-level monitoring and modeling results, available through the [Monitored and Expected Total Reduction Indicator for the Chesapeake \(METRIC\) tool](#), can be compared to help resource managers gauge expectations on the trajectory and pace of reduction progress at a localized scale.