



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029**

Dear Fellow Principals' Staff Committee Members:

Enclosed please find the U.S. Environmental Protection Agency's (EPA) evaluation of the final Conowingo Watershed Implementation Plan (CWIP). I want to thank the members of the Principals' Staff Committee (PSC) and the CWIP Steering Committee, as well as the EPA grantees, for all of their efforts in developing this document collaboratively and through a consensus-based approach.

The final CWIP outlines a strategy for reducing the additional 6 million pounds of nitrogen and 0.26 million pounds of phosphorus due to Conowingo Dam infill by targeting the implementation of cost-effective practices in the most effective areas within the Susquehanna River Basin. EPA's previous comments provided in May 2021 noted concern with the continued lack of dedicated funding and commitments from the state jurisdictions to implement the final CWIP and associated two-year milestones. Without dedicated funding in place or firm commitments to support implementation of the necessary practices and controls by 2025, EPA has no confidence that these load reductions will be achieved. If no funding commitments are made by the jurisdictions, the additional 6-million pounds of nitrogen and 0.26 million pounds of phosphorus will need to be redistributed to the jurisdictions using a Chesapeake Bay Program (CBP) partnership-approved methodology. There are several references that point to EPA's authority to take such an action:

- Section 10<sup>1</sup> of the 2010 Chesapeake Bay Total Maximum Daily Load (Bay TMDL): "If future monitoring shows that trapping efficiencies are reduced, Pennsylvania, New York, and Maryland's respective 2-year milestone delivered loads could be adjusted accordingly. Therefore, it is imperative that those jurisdictions work together to develop an implementation strategy for addressing the sediment, nitrogen, and phosphorus behind the Conowingo Dam through their respective WIPs, so that they are prepared if the trapping efficiencies decrease."
- Section T<sup>2</sup> of the Bay TMDL: "If future monitoring shows the trapping capacity of the dam is reduced, then EPA would consider adjusting the Pennsylvania, Maryland and New York 2-year milestone loads based on the new delivered loads. The adjusted loads would be compared to the 2-year milestone commitments to determine if the states are meeting their target load obligations."
- CBP partnership's Framework for the Conowingo Implementation Plan<sup>3</sup>: 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

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<sup>1</sup> [https://www.epa.gov/sites/default/files/2014-12/documents/cbay\\_final\\_tmdl\\_section\\_10\\_final\\_0.pdf](https://www.epa.gov/sites/default/files/2014-12/documents/cbay_final_tmdl_section_10_final_0.pdf)

<sup>2</sup> [https://www.epa.gov/sites/default/files/2015-02/documents/appendix\\_t\\_susquehanna\\_dams\\_final.pdf](https://www.epa.gov/sites/default/files/2015-02/documents/appendix_t_susquehanna_dams_final.pdf)

<sup>3</sup> [https://www.chesapeakebay.net/channel\\_files/37495/cwip\\_framework\\_-\\_final\\_1\\_31\\_19\\_version.pdf](https://www.chesapeakebay.net/channel_files/37495/cwip_framework_-_final_1_31_19_version.pdf)



goals of the Conowingo WIP (e.g., whether the targets need to be re-evaluated or assigned to specific jurisdictions).”

While the additional pollutant loads due to Conowingo Dam infill would increase the level of effort for the affected jurisdictions, the additional loads could be addressed through the two-year milestone process or an amended Phase III WIP similar to how the CBP partnership decided to address 2025 climate change pollutant loads. Including these additional Conowingo loads into the jurisdictions’ two-year milestones or as amendments to the Phase III WIPs might alleviate competition for resources (e.g., funding, technical and programmatic support) between the jurisdiction WIPs and the CWIP.

We must bring this effort to closure and ensure that we have a implementable path forward to address the pollutant loads from the Conowingo. I encourage the jurisdictions to review and evaluate federal and state funding sources that may provide the needed confidence and commitment to implement the final CWIP. If this is not addressed within the next 60 days, the additional 6 million pounds of nitrogen and 0.26 million pounds of phosphorus will need to be redistributed among the partnership jurisdictions as appropriate.

I want to note that a significant amount of work went into the development of the CWIP. I thank you for your overall dedication and commitment to restoring your local waters that flow to the Chesapeake Bay. I look forward to our continued collaboration on these efforts.

Sincerely,

Adam Ortiz  
Regional Administrator

Enclosure

## **Enclosure: EPA Evaluation of the Final Conowingo Watershed Implementation Plan**

### **Background**

The U.S. Environmental Protection Agency (EPA) is providing this evaluation of the final Conowingo Watershed Implementation Plan (CWIP) to the Chesapeake Bay Program (CBP) partnership and the public in accordance with its oversight role and responsibility under the CBP partnership's accountability framework and the CBP Principals' Staff Committee's (PSC) framework for the CWIP.

When the Chesapeake Bay Total Maximum Daily Load (Bay TMDL) was established in 2010, it was estimated that the reservoir behind the Conowingo Dam would be trapping sediment and associated nutrients through 2025. The trapping of pollutants by the Conowingo reservoir over the past 80 years has not only benefitted the water quality of the Chesapeake Bay, but it has also benefitted the Bay jurisdictions to varying degrees by lessening load reduction responsibilities under the Bay TMDL – i.e., had the reservoir reached trapping capacity prior to the Bay TMDL being established, the Bay jurisdictions would have had a greater lift to meet their respective Bay TMDL allocations. However, studies conducted over the last several years have demonstrated that the reservoir has reached dynamic equilibrium (i.e., the reservoir is near full capacity and is no longer trapping pollutants). The CBP partnership estimates that an additional reduction of 6 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 state water quality standards in the Chesapeake Bay.

The CBP partnership's PSC agreed to develop a separate and collaborative CWIP that would outline the programmatic and numeric commitments that could be taken to reduce the adverse water quality impacts to the Chesapeake Bay resulting from Conowingo Dam infill, as well as a timeline at which those reductions could be achieved. In addition, PSC members agreed to pool resources and to identify a process to fund and implement the CWIP.

To assist in this effort, the PSC established the Conowingo WIP 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, with oversight and direction from the PSC.

EPA is funding three cooperative agreements to provide the Steering Committee and the PSC with third-party assistance to bring highly specialized scientific, technical, and programmatic support in the development and implementation of the CWIP and future two-year milestones. This support also includes:

- Developing and implementing the CWIP and two-year milestones, including targeting implementation of cost-effective and efficient pollutant reduction practices and technologies to achieve the Conowingo planning targets, working directly with federal, state, regional, and local governmental and non-governmental implementation efforts in (but not limited to) the most effective basins;

- Developing, building, and implementing a financing strategy and associated implementation plan, which may include funding for Best Management Practice (BMP) installation and innovative approaches for raising, allocating, and disbursing funds; and
- Tracking, verifying, and reporting the implementation of practices providing nutrient and sediment pollutant load reductions.

EPA evaluated the final CWIP to assess whether the BMP implementation scenario achieves the nitrogen<sup>4</sup> target of 6 million pounds and whether the final CWIP included sufficient programmatic information to provide confidence that the plan will be fully implemented to achieve the CWIP nitrogen target. While EPA does not approve or disapprove a WIP, EPA provides its evaluation for the benefit of the CBP jurisdictions and, as appropriate, may provide recommendations for strengthening a WIP.

### **Executive Summary**

While the draft CWIP underwent a thorough public comment and review period, and responses to those comments were provided and made publicly accessible, there have been minimal substantive changes between the draft and final CWIP. EPA understands that it is the intent of the Center for Watershed Protection and the CWIP Steering Committee 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 CWIP two-year milestones. Therefore, much of EPA's evaluation feedback on the draft CWIP provided in May 2020 and is applicable to the final CWIP.

EPA commends the Center for Watershed Protection and the seven Bay watershed jurisdictions for developing a BMP implementation scenario that meets the necessary nitrogen reductions and focuses implementation in the most effective areas of the Susquehanna River Basin. The final CWIP proposes a comprehensive process for identifying, selecting, and implementing BMPs through a tiered system and technical review team. Also, considerable effort has been expended to conduct local engagement and outreach with affected communities to educate stakeholders about the CWIP process and establish preliminary expectations for implementation efforts that go above and beyond what is reflected in the jurisdictions' Phase III WIPs. It is anticipated that this engagement would only increase as future CWIP two-year milestones are developed and the BMP opportunity analyses are completed.

EPA recognizes that the CWIP could evolve based on implementation successes and challenges. However, critical to the successful implementation of the CWIP is to ensure that the plan complements and does not compete with the jurisdictions' Phase III WIPs, including, as relevant, amended WIPs and two-year milestones in terms of opportunities for BMP implementation and resources, including technical assistance, staffing, and funding. Given the technical assistance gaps and resource needs expressed through the jurisdictions' Phase III WIPs, it is still currently unclear from the final CWIP how resources, funding, and BMP implementation will be focused on meeting the CWIP nitrogen target, as opposed to meeting the jurisdictions' Phase III WIPs. Future CWIP two-year milestones should provide more detail on where exactly implementation will be targeted and identify the affected stakeholders.

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<sup>4</sup> The CBP partnership decided to focus on nitrogen load reductions since the phosphorus target of 260 thousand pounds could be met through the exchange ratios of nitrogen and phosphorus that have been previously approved by the CBP partnership.

While EPA applauds the signing of a Letter of Understanding between the seven Bay watershed jurisdictions and the Susquehanna River Basin Commission (SRBC) to establish SRBC as the financing authority for the CWIP, EPA has little confidence that the final CWIP will be fully implemented to meet the necessary nitrogen reductions without dedicated funding mechanisms in place and the commitment from the states and the public sector to provide an initial investment to initiate CWIP implementation.

### **Load Reduction Review**

When evaluating the final CWIP numeric commitments, EPA modeled implementation scenarios through the CBP partnership's Phase 6 suite of modeling tools. The BMP implementation scenario achieves the nitrogen target of 6 million pounds, with 89% of the nitrogen reductions planned to come from the agriculture sector, 10% from the developed sector, and 1% from the natural sector.

The planned CWIP agricultural nitrogen load reduction for the area of implementation in the Susquehanna River Basin is about 2.5 pounds per acre of agricultural land. The rate of agricultural nitrogen load reduction for the Chesapeake Bay watershed as a whole between the current condition (2019) and the Phase III WIPs (2025) is about 4.4 pounds per acre of agricultural land. Therefore, the rate of agricultural implementation called for in the final CWIP is about half the rate of agricultural implementation reflected in the jurisdictions' Phase III WIPs. In other words, the level of effort necessary to meet the agricultural goals in the final CWIP is less than what is required in the jurisdictions' Phase III WIPs.

### **BMP Review**

The change in planned BMP implementation rates for the final CWIP versus what has been reported to-date, as well as compared to the jurisdictions' Phase III WIPs, is reflected in the table<sup>567</sup> below. The information provides a sense of the level-of-effort planned for the final CWIP versus the history of BMP implementation and the jurisdictions' Phase III WIPs.

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<sup>5</sup> The columns are implementation rates for three periods that have been annualized so comparisons are relevant. The first period is the annualized implementation rate from 2009 (the starting point for the Bay TMDL) and the current year of record (2019). This represents implementation that has occurred in the identified areas over the last 10 years. The second period is the annualized rate from current (2019) to the jurisdictions' Phase III WIPs (2025). This represents the implementation needed over the next 5 years. The last column represents the annualized rate of new implementation that is required to meet the goals of the final CWIP between 2019-2025.

<sup>6</sup> The BMPs listed are solely those that are needed for the final CWIP in addition to what is reflected in the jurisdictions' Phase III WIPs.

<sup>7</sup> The BMP numbers in the table summarize what has been reported and what is planned solely for the area of implementation defined for the final CWIP in Pennsylvania, New York, and Maryland.

			Annualized Implementation in the CWIP Geography 2009 - 2019	Annualized Implementation in the CWIP Geography 2019 - 2025 Jurisdiction WIPs	Annualized Implementation in the CWIP Geography 2025 Jurisdiction WIPs - CWIP
<b>Agriculture Practices</b>					
Nutrient Application Management Core Nitrogen	annual	Acres	20,700	183,200	32,800
Nutrient Application Management Rate Nitrogen	annual	Acres	4,300	42,500	101,400
Nutrient Application Management Placement Nitrogen	annual	Acres	1,500	37,600	33,200
Nutrient Application Management Timing Nitrogen	annual	Acres	1,200	56,000	101,700
Conservation Tillage	annual	Acres	-26,600	-3,800	36,500
High Residue Tillage	annual	Acres	51,800	24,000	8,800
Low Residue Tillage	annual	Acres	19,800	-32,700	1,600
All Tillage Types			45,000	-12,500	46,900
Prescribed Grazing	cumulative	Acres	100	15,500	11,300
Forest Buffers	cumulative	Acres	-1,700	8,500	3,800
Wetland Restoration	cumulative	Acres	-100	500	1,900
Grass Buffers	cumulative	Acres	900	4,900	3,400
Soil and Water Conservation Plan	cumulative	Acres	2,900	211,800	13,000
Manure Incorporation	annual	Acres	400	3,900	31,300
Barnyard Runoff Control + Loafing Lot Management	cumulative	Acres	200	100	100
<b>Urban Practices</b>					
Urban Forest Buffers	cumulative	Acres	30	500	2,900
Urban Forest Planting	cumulative	Acres	20	500	8,100

Generally, the table provides an indication of the significant increase in implementation needed from what has been accomplished since the establishment of the 2010 Bay TMDL. Comparing the final CWIP to the jurisdictions' Phase III WIPs in the same region of the Susquehanna River Basin, the results vary as to the planned level of effort. Where the BMP rates in the final CWIP are considerably higher than both the BMP implementation history (2009–2019) and the jurisdictions' Phase III WIPs, it is important to note the fact that the CWIP design was constrained to only considering implementation beyond what is already planned in the jurisdictions' Phase III WIPs.

The following [BMPs](#) account for 60% of the final CWIP nitrogen load reduction, in order from greatest to least. This includes the inspection and maintenance of these BMPs currently on the ground:

- Forest Buffers
- Nutrient Management Core Nitrogen
- Soil Conservation and Water Quality Plans
- Tillage Management-Low Residue
- Loafing Lot Management
- Tillage Management-Continuous High Residue
- Nutrient Management N Placement
- Manure Incorporation Low Disturbance Early

These practices are some of the most cost-effective across all sectors and are among those BMPs and programs most available after the constraining assumption that jurisdictions will fully implement their Phase III WIPs and achieve their respective Phase III WIP planning targets (practices on the ground) by 2025. In addition, the planned placement of the BMPs considers geographies that have a greater effect on meeting the dissolved oxygen standard in the Chesapeake Bay estuary.

### **Programmatic Commitments**

#### **Bullets on Key Strengths**

- Targets BMP implementation in the most effective areas in the Susquehanna Basin and plans to implement cost-effective BMPs to achieve the nitrogen targets.

- Commits to monitor progress and update the CWIP, as necessary, to ensure BMP implementation goals are achieved.
- Establishes a comprehensive review process that will help ensure only technically sound BMP projects with clear and accurate credit calculations will be considered for funding and implementation.
- Provides assurance and accountability through the existing reporting and tracking protocols that the load reductions associated with practices implemented in the selected geographies are credited towards the CWIP while the tools will help streamline the process across multiple geographic scales that align with the Bay TMDL.
  - The practices reported through FieldDoc as a part of the CWIP, will be reviewed by the Chesapeake Conservancy and reported to the jurisdictions and the EPA separately from other programs and funding sources.
- Adds language to the final CWIP that provides clarity on the steps to be taken to identify the priority geographic areas for implementation, the steps that will be taken to broaden the geographic area, if necessary, and how the plan would be updated to address any changes in nitrogen reductions. EPA expects that any changes to the priority geographic areas for implementation, including an analysis of cost differentials and BMP effectiveness, will be addressed through the two-year milestone process.
- Includes a 2035 CAST implementation scenario as an appendix to the final CWIP. In addition, language was added to ensure consistency between the deadline to achieve the CWIP pollutant load reductions and the [2014 Chesapeake Bay Watershed Agreement](#).

#### **Bullets on Key Enhancements to Address in the CWIP Two-year milestones**

- Explain which programs will be targeted and how to balance resource and technical assistance needs with the existing jurisdictions' Phase III WIPs. The final CWIP notes it will utilize existing programs to implement the CWIP, however it does not explain which programs will be targeted.
- Identify new programs, policies, and/or other programmatic commitments in the CWIP two-year milestones that will demonstrate how the CWIP nitrogen target will be achieved given existing resource constraints.
- Include only CBP partnership-approved BMPs. EPA recognizes the interest of some jurisdictions to utilize the CBP partnership's expert panel processes to determine whether dredging is a viable BMP. However, until the CBP partnership approves that BMP and determines appropriate efficiency values, EPA expects the CWIP to meet the same standard as the jurisdictions' WIPs.
- Provide more supporting information to justify 100 percent implementation of those applicable BMPs reflected in Table 8. While it is understood that a BMP verification plan is being developed for the CWIP, additional programmatic detail (e.g., capacity, technical resources, staffing) is recommended to increase confidence that targeted BMP implementation levels will be achieved by 2025.

#### **Financing Strategy**

Since the release of the draft CWIP, a separate Phase 1 financing strategy was developed that outlined a more detailed financing approach to support implementation of the final CWIP. However, the PSC did not approve the Phase 1 financing strategy, and there are currently no funding mechanisms or

commitments in place to implement the final CWIP and anticipated two-year milestones. Without a PSC-approved financing strategy in place and dedicated funding sources to support CWIP implementation, there is little confidence that the plan will be implemented, and the Conowingo pollutant loads will be reduced by 2025. If there continues to be a lack of funding commitments or confirmed revenue sources to implement the CWIP, EPA, will need to discuss how these pollutant loads will be allocated (e.g., whether those loads are allocated to just the Susquehanna Basin) and addressed through existing Phase III WIPs and future two-year milestones, similar to how the jurisdictions are addressing 2025 climate change loads.

### **Local Engagement Strategies**

#### **Bullets on Key Strengths**

- Commits to integrate its local engagement efforts with existing jurisdictional outreach opportunities to communicate goals and work in partnership with New York, Pennsylvania, and Maryland.
- Targets more in-depth stakeholder outreach in priority areas (e.g., most effective sub-basins) where nutrient reductions are expected to have the greatest impact.
- Commits to provide a mechanism to track implementation to identify BMPs supporting the CWIP.
- Identifies key partners and organizations, such as the Upper Susquehanna Coalition and local conservation district staff, as the primary audiences for stakeholder engagement workshops; communication will take place through web-based meetings and conference calls.
- Continues outreach through CWIP implementation and future two-year milestone development and implementation.
- Notes completion of Phase 1 local engagement in Maryland, Pennsylvania, and New York, which involved engaging key stakeholders in these jurisdictions where implementation is expected to be a priority, per the Primary CWIP Strategy.
- Adds language to the final CWIP that includes commitments or processes for additional outreach and public notice procedures if CWIP amendments are deemed necessary.

#### **Bullets on Key Enhancements to Address in CWIP Two-year milestones**

- Explain the BMP implementation levels expected from each jurisdiction to inform local engagement necessary to meet the expected levels of implementation.
  - The draft CWIP identifies the BMPs for expected reductions in Table 2 and Table 3 includes the summary of reductions expected by each jurisdiction, but it does not provide this additional explanation.
- Include the detailed process in the CWIP two-year milestones which the Chesapeake Conservancy will implement in working closely with the jurisdictions to address communication needs and concerns about implementing BMPs to credit a jurisdiction's Phase III WIP versus the CWIP
- Clearly identifying the responsible party or parties for tracking, verifying, and reporting BMPs to the jurisdiction and the CBP partnership.

### **EPA Oversight and Assistance**

As it has done since the release of the Bay TMDL, EPA will continue to commit staff, contractual, and funding resources to support the implementation of the CWIP and future two-year milestones. This support includes continued financial support and grant oversight and management of the three cooperative agreements; modeling analysis and technical assistance, particularly with geographic and BMP targeting; communications and facilitation support between the CWIP team, Pennsylvania, Maryland, and New York; and coordination with other federal agencies to maximize collaboration and funding opportunities.

In addition, EPA will use its evaluations of the CWIP two-year milestones to determine if corrections or adjustments are necessary to attain the goals of the CWIP (e.g., whether the nitrogen target needs to be re-evaluated or assigned to specific jurisdictions).