

Evaluation of the West Virginia Draft Phase III Watershed Implementation Plan

Background

The seven jurisdictions (Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia) in the Chesapeake Bay Program (CBP) partnership agreed to develop Watershed Implementation Plans (WIPs) in three phases to provide a framework for reducing nitrogen, phosphorus, and sediment loads to meet water quality standards in the Chesapeake Bay and its tidal tributaries. The Phase III WIPs provide a road map for the numeric and programmatic commitments the jurisdictions intend to implement between 2019 and 2025 so that all practices are in place by 2025¹ to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation, and chlorophyll-a standards. The 2010 Chesapeake Bay Total Maximum Daily Load (Bay TMDL) document outlined the process for the development of WIPs and for tracking progress towards attaining the CBP partnership restoration goals.

The U.S. Environmental Protection Agency (EPA) is providing this evaluation to the CBP partnership and the public. The draft Phase III WIP was evaluated to determine whether West Virginia included sufficient information in the WIP to provide confidence² that West Virginia will achieve its statewide and state-basin Phase III WIP planning targets by 2025. The seven jurisdictions, EPA, and the Chesapeake Bay Commission jointly approved these Phase III WIP planning targets in July 2018.

The seven jurisdictions each divided their respective Phase III WIP planning targets into reduction goals for specific source sectors to more finely demonstrate how overall pollutant load reductions would be achieved by 2025. Those major source sectors include agriculture, wastewater, and stormwater. Each jurisdiction could shift reductions between source sectors through development and implementation of programs for pollutant trading and offsetting. In addition, the CBP partnership decided that jurisdictions would highlight pollutant reductions from federal facilities separately in each WIP and would consider the following when addressing specific source sector pollutant reductions: growth, local engagement strategies, local planning goals, and climate. The CBP partnership expects these local and changing conditions to be addressed in each jurisdiction's Phase III WIP.

This evaluation is also based on whether West Virginia met the numeric and programmatic expectations as described in the June 2018 *U.S. Environmental Protection Agency's Expectations for the Phase III Watershed Implementation Plans*. West Virginia recommitted to the CBP partnership that it would meet these numeric and programmatic expectations.

Overview

EPA's review of West Virginia's draft Phase III WIP found many areas in which the State excelled in addressing the expectations. Some of the notable strengths include:

- West Virginia conducted a robust engagement effort with appropriate agricultural organizations and non-governmental organizations in developing the draft Phase III WIP.
- West Virginia ensured coverage of the West Virginia portion of the Chesapeake Bay watershed expected to experience the most growth by post-construction stormwater management regulations.

¹ 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.

² The phrase "reasonable assurance" is a term of art specific to TMDL establishment. In evaluating the Phase I WIPs, EPA used the phrase and concept of "reasonable assurance" because those WIPs ultimately formed the basis of the 2010 Bay TMDL. EPA continued to use the phrase in its evaluation of the Phase II WIPs, but was using it in a more general way, as TMDL establishment had been completed. In Phase III, to be more consistent with applicable guidance and regulations and to avoid potential confusion, EPA is using the term "confidence" instead of "reasonable assurance."

- West Virginia constructed a new treatment plant operated by the Moorefield Regional Wastewater Authority to treat combined wastewater from the Town of Moorefield and two poultry processing significant industrial facilities, which accounts for a significant share of required nutrient reductions from this sector.
- West Virginia included a requirement that Publicly Owned Treat Works (POTWs) permittees develop plans of action to address and offset new growth when the average flow of treated wastewater reaches 90% of design flow.

EPA's review, however, also noted potential enhancements in West Virginia's draft Phase III WIP that should be areas of focus in revising the draft document prior to submitting a final WIP. These areas include:

- West Virginia should provide more detail on how it will accelerate nitrogen reductions in the agricultural sector.
- West Virginia should elaborate on the specific "guidance and support" to be provided to encourage priority activities identified by local wastewater authorities in the draft Phase III WIP.

EPA Oversight and Assistance

The 2010 Bay TMDL contains an accountability framework that guides and supports restoration efforts and includes: three phases of WIPs, two-year milestones, and EPA's tracking and assessment of restoration progress. EPA tracks and assesses annual progress and two-year milestone commitments to determine if the Bay jurisdictions are on track toward meeting their water quality goals.

Under the accountability framework, EPA assigns each jurisdiction's source sectors (e.g., agriculture, stormwater, wastewater, and trading and offsets) a level of oversight based on its evaluation of whether the jurisdiction provided sufficient information in its WIP and/or two-year milestones that load reductions and programmatic commitments will be achieved in those source sectors by 2025. The levels of oversight are as follows:

- **Ongoing oversight:** EPA, while having no significant concerns with a jurisdiction's strategy to implement the TMDL goals, will continue to monitor progress.
- **Enhanced oversight:** EPA, having identified specific concerns with a jurisdiction's strategy to implement the TMDL goals, may take additional federal actions, as necessary, to ensure that the jurisdiction stays on-track.
- **Backstop oversight:** EPA, having identified substantial concerns with a jurisdiction's strategy to implement the TMDL goals, has taken necessary federal actions to help the jurisdiction get back on-track.

West Virginia is currently subject to ongoing oversight in all source sector categories.

Since the release of 2010 Bay TMDL, EPA has provided technical and financial assistance to West Virginia to support meeting its 2025 planning goals and during Phase III WIP development, EPA continued to assist staff at West Virginia's Department of Environmental Protection (WVDEP). EPA provided approximately 1,100 hours of technical assistance to help WVDEP incorporate the results of the Bay TMDL's Midpoint Assessment into their input data for the draft Phase III WIP. This included understanding changes in pollutant loadings and Best Management Practice (BMP) implementation under a new suite of modeling tools; acquiring high resolution land use and land cover data; developing local planning goals; and adapting to changing conditions, such as climate.

EPA has worked with West Virginia to increase and accelerate BMP implementation and identify options to strengthen programmatic commitments. EPA remains committed to providing resources to help improve water quality in West Virginia. This assistance has been instrumental in advancing West Virginia's Chesapeake Bay

cleanup efforts, and continued support will be critical as West Virginia begins Phase III WIP implementation and considers new strategies to reduce nutrient pollution to its local waters.

On February 6, 2019, EPA issued an updated Water Quality Trading Policy Memo to promote market-based mechanisms for improving water quality. This policy update includes additional flexibilities that state and local policy makers may consider incorporating into trading and other market-based programs to promote water quality improvements and may provide West Virginia with an opportunity to update or improve its current policies and regulations related to nutrient accounting and trading. EPA welcomes the opportunity to discuss with West Virginia new market-based approaches to consider in support of finalizing the Phase III WIP.

EPA will continue to commit staff, contractual, and funding resources to support the finalization and implementation of West Virginia's Phase III WIPs and future two-year milestones. This support includes evaluation of the most-effective practices and locations, annual WIP assistance funding to address priority implementation needs, evaluation of West Virginia's implementation capacity under various staffing, funding, regulatory and programmatic scenarios, local planning outreach, legislative and regulatory gap analysis, and monitoring trend analyses. In addition, EPA will continue to work with federal partners to provide leadership and coordinate with West Virginia on WIP and two-year milestone implementation to reduce pollution from federal lands.

Detailed Evaluation

The following sections provide specific highlights of key strengths of West Virginia's draft Phase III WIP. These sections also provide potential enhancements for the WIP, designed to provide greater confidence to the CBP partnership and the public that West Virginia will have programs and practices in place by 2025 that will promote achievement of its Phase III WIP planning targets. West Virginia should maintain these key strengths and address potential enhancements in its final Phase III WIP.

Load Reduction Review

When evaluating West Virginia's Phase III WIP numeric commitments, EPA modeled implementation scenarios through the CBP partnership's Phase 6 suite of modeling tools and compared those simulated nutrient³ loads to the West Virginia's 2025 statewide and state-basin Phase III WIP planning targets. Simulations indicate that West Virginia's plan achieves its statewide Phase III WIP planning targets for nitrogen and phosphorus. West Virginia's plan achieves its Phase III WIP planning targets for nitrogen and phosphorus in the West Virginia Potomac River basin⁴, but the plan does not achieve its nitrogen planning target in the West Virginia James River basin.

While West Virginia did make numeric reduction commitments to address climate change (i.e., 236,000 pounds of nitrogen and 17,000 pounds of phosphorus), EPA's analysis only evaluated West Virginia's attainment of the statewide and state-basin Phase III WIP planning targets. EPA will work with West Virginia prior to the release of its final Phase III WIP to determine if the additional climate change reduction commitments will achieve water quality standards in the Chesapeake Bay and its tidal tributaries.

³ Phase III WIP planning targets for sediment are currently under development by the CBP partnership.

⁴ Each jurisdiction has the option of adjusting its Phase III WIP state-basin planning targets through nutrient exchanges and/or exchanges with other basins within that jurisdiction. Any adjustments to the state-basin planning targets must still 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.

West Virginia proposes to achieve most of its pollutant reductions by implementing (Best Management Practices (BMPs) in the agriculture and stormwater sectors. West Virginia's Phase III WIP addresses each of the additional changing and local conditions identified by the CBP partnership.

Source Sectors

Agriculture

Key Strengths

- West Virginia conducted a robust engagement effort with appropriate agricultural organizations and non-governmental organizations in developing the draft Phase III WIP.
- West Virginia indicated that the West Virginia Department of Agriculture (WVDA) will continue to provide free service for voluntary nutrient management plans (including sampling) into the future.
- West Virginia focused on priority agricultural practices that are desired by producers and good for both local and Chesapeake Bay water quality.
- West Virginia partnered with U.S. Fish and Wildlife Service and Trout Unlimited to offer fencing for Conservation Reserve Enhancement Program (CREP) contract recipients (and other Farm Bill program recipients) to help keep livestock out of the buffer area and away from the stream.
- West Virginia focused implementation of nutrient-reducing practices in Lost River and Cacapon River watersheds to address local water quality.
- West Virginia completed substantial work within the poultry industry to reduce nutrient loads.
- West Virginia placed commendable emphasis on BMPs with co-benefits through numerous references to stream health, local aquatic life, vital habitats, brook trout, flood control/mitigation, and recreational activities. As such, West Virginia focused on BMPs including forested buffers, exclusion fencing, and stream restoration in the draft Phase III WIP.
- West Virginia described a strong agricultural education and outreach component in the draft Phase III WIP.

Potential Enhancements

- West Virginia should provide more detail on how it will accelerate nitrogen reductions in the agricultural sector. Examples where West Virginia should provide more detail include:
 - Development, enhancement and implementation of the following initiatives: partnering with NGOs on voluntary conservation, market-based approaches, pay for performance approaches, public-private partnerships, and improving regulatory compliance.
 - Confirmation of sufficient WVDA staffing and Natural Resource Conservation Service (NRCS) funding to maintain and update nutrient management plan acres.
 - New strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms to support increased implementation levels for the following BMPs: prescribed grazing, poultry mortality composting, forest buffers, conservation tillage, and soil conservation and water quality plans.
 - Strategy to encourage and fund animal waste management facilities and address storage capacity issues from increased animal density.
 - New strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms to support accelerated implementation of soil health practices beyond holding field day educational events.
 - Explanation of how West Virginia will increase exclusion fencing and forest buffer implementation by 40% by 2025 when during the past five years acres under implementation have been essentially steady.

- West Virginia should provide a further explanation of the following components of West Virginia’s strategy for poultry litter:
 - In-house-built-up-litter option for poultry waste storage.
 - Alternative uses of poultry litter.
 - Manure transport out of Hardy County.
- West Virginia should revise Table 2: Priority Planned Agriculture BMPs in its draft Phase III WIP to match BMP levels entered in the Chesapeake Assessment Scenario Tool.

Stormwater

Key Strengths

- West Virginia ensured coverage of the West Virginia portion of the Chesapeake Bay watershed expected to experience the most growth by post-construction stormwater management regulations.
- West Virginia investigated the Urban Tree Canopy (UTC) ordinance in the Eastern Panhandle of West Virginia.
- West Virginia leveraged non-traditional funding sources for nutrient and sediment implementation through the Region 9 Bay Coordinator (e.g. Federal Emergency Management Agency Community Rating System for green infrastructure [GI] co-benefits, Drinking Water Source protection plans, targeting schools for future opportunities, “Dig Once” Capital Improvement Plan strategy).
- West Virginia launched the Advancing Green Infrastructure Technical Assistance pilot program, which provides local communities with GI planning opportunity assessments as well as conceptual design plans.
- West Virginia leveraged grant money to fund positions (Region 9 Chesapeake Bay Coordinator, Potomac Basin Coordinator, 2 storm water specialists) for local technical assistance.
- West Virginia voluntarily adopted stormwater ordinances with construction and post-construction requirements similar to Municipal Separate Storm Sewer System (MS4) permittees by Jefferson County and a few non-regulated municipalities along the eastern panhandle.
- West Virginia implemented twice the Phase II WIP goal for stream restoration and plans to implement 75,000 more feet of restoration through 2025.
- West Virginia plans minor revisions to the Construction Stormwater Guidance manual, including reducing fertilizer application rates and phasing application of nutrients to reduce nutrient runoff from construction sites.
- West Virginia intends to use grant money to assist municipalities in developing Infrastructure Asset Management Planning programs and Capital Improvement Plans, as well as incorporating green infrastructure into public projects and spaces such as schools and parks.
- The City of Martinsburg and Berkeley County plan to establish utility and stormwater fees.

Potential Enhancements

- West Virginia should include additional detail related to reductions to be achieved by 2025 without additional reductions from existing development. Examples where more detail should be provided include:
 - Role of MS4 general permit into the state’s overall water quality strategy.
 - Strategy for how voluntary BMPs implemented in Morgan County will offset most of the nutrient and sediment load increases due to development, including the tracking, verifying, and reporting of these BMPs.
 - Strategy to address the list of local needs identified in the draft Phase III WIP.

Wastewater**Key Strengths**

- West Virginia constructed a new treatment plant operated by the Moorefield Regional Wastewater Authority to treat combined wastewater from the Town of Moorefield and two poultry processing significant industrial facilities, which accounts for a significant share of required nutrient reductions from this sector.
- West Virginia commits to maintain permit compliance by significant facilities.

Potential Enhancements

- West Virginia should elaborate on the specific “guidance and support” to be provided to encourage priority activities identified by local wastewater authorities in the draft Phase III WIP.

Trading & Offsets**Key Strengths**

- West Virginia included a requirement that POTWs permittees develop plans of action to address and offset new growth when the average flow of treated wastewater reaches 90% of design flow.
- West Virginia accounted for prior wastewater offsets and trades in the draft Phase III WIP that occurred during the period of Phase II WIP implementation.
- West Virginia allows MS4 permittees to develop a payment-in-lieu program or offset mitigation to address runoff reduction and stormwater treatment requirements at the most difficult sites.

Federal Facilities**Key Strengths**

- West Virginia included a Federal Facilities section in its draft Phase III WIP and included a sector-specific discussion of what is expected from federal facilities.
- West Virginia explained its rationale for why federal facilities were excluded from local planning goals due to the small number of facilities and negligible loading.

Potential Enhancements

- West Virginia should continue to evaluate federal agency narratives and implementation scenarios if received and will include in the final Phase III WIP submission.

Changing and Local Conditions**Growth****Key Strengths**

- West Virginia developed its implementation scenario on 2025 forecasted growth conditions, per the CBP partnership decision.
- West Virginia developed a custom Land Policy growth scenario focused on land conservation activities to reduce nitrogen by approximately 900 pounds. This modest impact is associated with generally low population growth rates in West Virginia’s portion of the watershed.
- West Virginia provided county-specific areal extent of agricultural and forest conservation that has occurred since 2013 and planned estimates of planned additional conservation through 2025 to support West Virginia’s custom Land Policy growth scenario.
- West Virginia included in all its National Pollutant Discharge Elimination System (NPDES) permits for POTWs a requirement that permittees develop plans of action to address growth when the average flow of treated wastewater reaches 90% of design flow.
- West Virginia allows existing POTWs and industrial facilities to expand and be permitted to discharge increased flow if also upgraded with new nutrient reduction technology sufficient to maintain allocated loads.

- West Virginia employs an innovative approach to address pollutant loads through the promotion and use of biochar.

Potential Enhancements

- West Virginia should report new septic installations and connections to POTWs in its annual progress submissions to verify the one-mile buffer assumption and overall minimal growth on septic systems.
- West Virginia should provide more detail as to why the construction area discrepancy in the 2025 Current Zoning scenario isn't anticipated to adversely impact West Virginia's ability to attain its Phase III WIP planning targets. In 2018, this discrepancy resulted in an underestimation of approximately 50,000 pounds of total nitrogen and 10,000 pounds of total phosphorus for the stormwater sector.
- West Virginia should elaborate on expected trends for agricultural growth, especially concerning projections of state-basin trends in livestock and poultry animals (e.g. numbers of animals, weights, etc.).

Climate

Key Strengths

- West Virginia documented its jurisdiction-specific 2025 numeric climate change loads in its draft Phase III WIP and committed to address these numeric loads now, as opposed to its 2022-2023 milestones. West Virginia expects to account for the anticipated increase in loads due to climate change through its excess nutrient reductions.
- West Virginia included information on the Eastern Panhandle Regional Planning and Development GI retrofitting in nonregulated communities which will produce local flooding and Combined Sewer Overflow (CSO) co-benefits.

Potential Enhancements

- West Virginia should provide additional details on state and local climate strategies and actions, including information on which BMPs may include climate co-benefits. This expectation is per the CBP partnership's decision on how to address climate change in the jurisdictions' Phase III WIPs.

Local Engagement Strategies

Key Strengths

- West Virginia adequately described local engagement in both Phase III WIP development and implementation and identified educational and technical assistance programs that will be central to Phase III WIP implementation like watershed school, green infrastructure design assistance, agricultural producer workshops, and equipment rental.
- West Virginia clearly defined stakeholders to be involved in Phase III WIP implementation, including agricultural, conservation, and nonprofit organizations (e.g. Cacapon Institute, Trout Unlimited, Eastern Panhandle Conservation District, Potomac Valley Conservation District).
- West Virginia documented capacity and technical assistance gaps and needs by local partners to advance Phase III WIP implementation in multiple sectors including forestry, developed lands, and agriculture.
- West Virginia provided examples of successful working relationships and models to support Phase III WIP implementation (e.g. Trout Unlimited, West Virginia Conservation Agency, and WV Department of Transportation Division of Highways fish-friendly culverts partnership).

Potential Enhancements

- West Virginia should explain how local partners will be involved in the verification and reporting of BMPs, particularly in the agriculture sector.

Local Planning Goals

Potential Enhancements

- West Virginia did not develop measurable local planning goals below the major state-basin scale, per the CBP partnership decision. EPA recognizes that planning goals were expressed in terms of priority BMP implementation goals in the agriculture sector; however, these were not allocated among conservation district, county, or any other sub-jurisdiction political or programmatic structure.

Other Comments

Potential Enhancements

- West Virginia should consider changing acres of “Wetland Enhancement” to “Wetland Rehabilitation.” The current CBP partnership Wetland BMP Expert Panel expects to recommend elimination of “Wetland Enhancement” as a water quality BMP. Both practices will remain for the next two-year milestone period, but West Virginia should not rely on the Wetland Enhancement BMP as part of its implementation scenario.
- Regarding plans to conduct an inventory of data for BMPs that have already been implemented, it is important that future reporting of this data include accurate implementation and inspection dates, following the CBP partnership’s verification protocols. Much of the historic implementation of practices and programs has already been accounted for in the calibration of the CBP partnership’s Phase 6 suite of modeling tools through the changes in loads and water quality at monitored locations.