

EPA EVALUATION OF WEST VIRGINIA’S 2020-2021 and 2022-2023 MILESTONES

Executive Summary

The Chesapeake Bay Program (CBP) partnership established the goal to have all practices and controls in place by 2025 that were necessary to meet applicable water quality standards in the Chesapeake Bay (Bay) and its tidal tributaries (“2025 Goal”). The seven jurisdictions (Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia) in the CBP partnership agreed to develop and implement a framework for holding each partner accountable for reducing nitrogen, phosphorus, and sediment loads to meet water quality standards in the Bay and its tidal tributaries. The U.S. Environmental Protection Agency (EPA) is providing this evaluation of West Virginia’s 2020-2021 and 2022-2023 milestones to the CBP partnership and the public in accordance with its oversight role and responsibility under the CBP partnership’s accountability framework.

In that role, EPA has evaluated West Virginia’s progress toward attaining its portion of the 2025 goal. This evaluation includes an assessment of progress toward attaining nutrient and sediment goals at the state and state-basin level and progress toward meeting sector-specific programmatic commitments for the 2020-2021 milestone period. This evaluation also provides an assessment of sector-specific programmatic and numeric commitments (e.g., Best Management Practices (BMP) or BMP implementation targets) for the 2022-2023 milestone period and the status of the relevant water quality monitoring trends.

In reviewing West Virginia’s final programmatic progress for the 2020-2021 milestones, the 2021 numeric progress, and the final 2022-2023 milestone commitments, EPA identified sector-by-sector strengths as well as areas for enhancement. According to the data provided by West Virginia for the 2021 progress run, West Virginia did achieve its statewide 2021 targets for nitrogen, phosphorus, and sediment. EPA stands ready to assist West Virginia with implementing its 2022-2023 two-year milestone commitments.

Some notable strengths identified in this evaluation of West Virginia’s 2020-2021 milestones and the final 2022-2023 milestones include:

- Commits to maintain 90,000 acres of nutrient management plans annually.
- Commits to implement a formal riparian buffer outreach strategy to increase the adoption of buffers to 200 new acres annually.

Some key areas that EPA expects West Virginia to address in the 2022-2023 milestone period include:

- Reissue the Phase II Municipal Separate Storm Sewer System (MS4) general permit.
- Accelerate implementation of BMPs in the agricultural sector since several BMP implementation targets were missed in the 2020-2021 milestone period.

Detailed Evaluation of Overall Load Reductions and Source Sectors

Load Reduction Review

When evaluating West Virginia’s 2020-2021 milestone implementation, EPA simulated nutrient and sediment loads using the Chesapeake Assessment Scenario Tool 2019 (CAST-19)¹ and wastewater discharge data reported by West Virginia, and compared those simulated loads to West Virginia’s statewide and state-basin (Potomac and James) Phase III Watershed Implementation Plan (WIP) planning targets.

According to the data provided by West Virginia for the 2021 progress run², West Virginia achieved its statewide 2021 targets for nitrogen, phosphorus, and sediment. West Virginia achieved its 2021 nitrogen, phosphorus, and sediment targets for the Potomac and James basins.

Table 1. Loads and Targets for West Virginia based on CAST-19 and reported wastewater data

Pollutant	2009 Progress Loads (M lbs/year)	2021 Progress Loads (M lbs/year)	2025 Target (M lbs/year)
Nitrogen	8.04	7.92	8.23
Phosphorus	0.631	0.438	0.433
Sediment	597.9	553.9	608.9

West Virginia developed specific BMP implementation targets for the 2020-2021 and 2022-2023 milestones for those practices identified in West Virginia’s Phase III WIP that account for the majority of the nitrogen reductions. Table 2 provides a summary of West Virginia’s 2021 progress compared to the 2009 baseline and the 2025 targets, as well as the 2022-2023 commitments, for these priority BMPs.

¹ CAST-19 is part of the Phase 6.0 suite of modeling tools for the Chesapeake Bay.

² Each year, jurisdictions in the CBP partnership report on the BMPs installed, tracked and verified and the pollutant load reductions from wastewater treatment plants. Using the Chesapeake Assessment Scenario Tool 2019, this information (or “annual progress runs”) provides an estimate of how much nitrogen, phosphorus and sediment has been reduced.

Table 2. Progress toward Targets for West Virginia’s priority BMPs (those that account for the majority of the nitrogen reductions)

BMP³	2009 Progress	2021 Progress	2022-2023 Milestone Target	2025 WIP Target
Poultry Waste Management Systems (% implementation level)	76.6%	79.0%	Not identified	85.0%
Forest Buffers on Fenced Pasture Corridor (acres in buffers)	2,554	2,788	Not identified	5,701

The summary progress from the CBP partnership’s modeling tools for 2009 and 2021 incorporate BMP credit duration. The CBP partnership decided to remove reported BMPs from the model simulation at the end of their established lifespans unless verified by the state as inspected and continuing to function as designed. West Virginia is expected to provide detailed programmatic milestones to support these BMP implementation targets. In the sector-specific sections below, EPA provides its evaluation of these programmatic milestones and the connection to increased implementation.

Looking Forward for Future Reviews of Progress

The CBP partnership is just a few years away from the 2025 date that has been agreed upon for several of the goals and outcomes under the [2014 Chesapeake Bay Watershed Agreement](#), including the 2025 Goal. Given the number of changing conditions (e.g., human and animal population growth, 2025 and 2035 climate impacts, model updates) that have and will continue to impact progress and the level of effort towards meeting these goals, it is critical to begin planning for the future.

Source Sector Review

Agriculture

West Virginia is predominantly relying on agriculture BMP implementation to meet its 2025 targets based on its Phase III WIP. West Virginia continues to make incremental progress toward its goals however, the current pace of implementation is not on track to meet its Phase III WIP goals in this sector. EPA expects West Virginia to accelerate BMP implementation in the agricultural sector.

³ BMP levels are units reported or planned by the jurisdiction. The levels are calculated using CAST-19 of the Phase 6.0 suite of modeling tools and include everything established or installed, reported, and functioning through the particular year, e.g., through 2009, or through 2021, etc., not just new reported implementation, unless otherwise noted.

2020-2021 Milestone Achievements

- Assessed the status of expiring poultry animal waste storage structures and determined that 81.8 percent were fully functional and were retained and reported through the National Environmental Information Exchange Network.
- Verified that conservation planning is included in Environmental Quality Incentives Program and Conservation Reserve Enhancement contracts.

2020-2021 Milestones Not Achieved

- Did not fully meet its goals of transferring a minimum of 7,500 tons of wet litter annually from the Potomac Valley Conservation District; 4,879.34 tons were transferred in 2020 and 3,927.3 tons were transferred in 2021.
- Did not conserve 7,500 acres of agricultural land under the West Virginia Farmland Preservation Program and County Farmland Protection Boards; approximately 5,534 acres were conserved.
- Fell short of constructing animal waste storage facilities on new poultry operations for a minimum of 5,000 animal units; new animal waste storage facilities were constructed on 4,612.05 animal units.
- Fell slightly short of maintaining cover crop implementation of a minimum of 7,000 acres annually within the Potomac Valley and Eastern Panhandle Conservation Districts; a total of 6,685 acres were planted in the fall of 2020 and a total of 6,499 acres were planted in the fall of 2021.

2022-2023 Milestone Strengths

- Commits to implement a formal riparian buffer outreach strategy to increase the adoption of effective buffers to 200 new acres annually.
- Commits to maintain 90,000 acres of nutrient management plans annually.
- Commits to construct animal waste storage facilities for a minimum of 1,250 animal units.
- Commits to assess operational status of all expiring animal waste storage structures built in 2007 and 2008, in consultation with the U.S. Department of Agriculture's Natural Resources Conservation Service.

Key Areas to Address in the 2022-2023 Milestone Period

- Accelerate BMP implementation in the agricultural sector and identify what programs will be implemented to achieve the implementation levels, especially since several BMP implementation targets were not met in the 2020-2021 milestone period.
- Provide programmatic and numeric commitments to support implementation of livestock and poultry waste management systems.
- Report how many miles of stream exclusion fencing and associated BMPs can be covered with the \$54,681 annual funding that West Virginia proposes for the Most Effective Basins funding.
- Report how many miles of stream exclusion fencing and associated BMPs can be covered with the \$100,000 annual funding that West Virginia proposes for the Eastern Panhandle Conservation District and the Potomac Valley Conservation District.

Urban/Suburban Stormwater

West Virginia is expecting additional nutrient reductions from the stormwater sector by 2025 based on its Phase III WIP. EPA expects West Virginia to accelerate BMP implementation in the urban/suburban stormwater.

2020-2021 Milestone Achievements

- Completed green infrastructure project for the City of Martinsburg.
- Developed Multi-Jurisdictional Hazard Mitigation Plan containing goals and strategies for nature-based BMPs.
- Analyzed the CAST 2019 land use data to determine impact on nutrient and sediment loads.
- Held virtual workshop on using the updated West Virginia Stormwater Management and Design Guidance Manual.

2020-2021 Milestones Not Achieved

- Did not reissue the Phase II MS4 general permit.
- Did not add additional information on biochar or guidance for municipalities, contractors, and homeowners into the West Virginia Stormwater Management and Design Guidance Manual.

2022-2023 Milestone Strengths

- Commits to have one community voluntarily adopt an ordinance that includes a one-inch capture requirement.
- Commits to have one or two communities develop conceptual plans for the use of green infrastructure, with one community including a green infrastructure retrofit project.
- Commits to develop a series of videos on Chesapeake Bay BMPs and commits to coordinate a workshop on stormwater management topics.

Key Areas to Address in the 2022-2023 Milestone Period

- While West Virginia included a milestone to work on reissuing the expired Phase II MS4 general permit, there should be a commitment and targeted date to reissue the permit within this milestone period.

Wastewater Treatment Plants and Onsite Systems

2020-2021 Milestone Achievements

- Updated inventory of Wastewater Treatment Plants (WWTPs) with upgrades and schedules.
- Assisted the Warm Springs Public Service District to develop and apply for funding to conduct an inflow and infiltration management project. Funding has been secured with the US Department of Agriculture Rural Utilities Services Water and Wastewater Loan/Grant Program and the project is currently in the design phase.
- Reported new septic installations and connections to Publicly Owned Treatment Works (POTWs) in annual progress submissions to demonstrate overall minimal growth on septic systems.

2020-2021 Milestones Not Achieved

- None.

2022-2023 Milestone Strengths

- Commits to update inventory of WWTPs with upgrades and schedules as needed.
- Continues to review compliance of newly upgraded systems with National Pollutant Discharge Elimination System permit limits.
- Continues to report new septic installations and connections to POTWs in annual progress submissions.

Key Areas to Address in the 2022-2023 Milestone Period

- None.

Growth, Offsets, and Trading

2020-2021 Milestone Achievements

- Updated and maintained offset tracking and accountability system in accordance with EPA expectations.
- Continued to approve, if appropriate, offset requests on a case-by-case basis.
- Reported the number of POTWs that have reached 90 percent design flow and evaluation of plant capacity at permit reissuance.

2020-2021 Milestones Not Achieved

- None.

2022-2023 Milestone Strengths

- Commits to update and maintain offset tracking and accountability system in accordance with EPA requirements.
- Commits to approve, if appropriate, offset requests on a case-by-case basis.

Key Areas to Address in the 2022-2023 Milestone Period

- Continue to work with EPA in offsetting any new or increased nutrient and sediment loads in West Virginia's portion of the Chesapeake Bay watershed.

Climate

In 2020, the Principals' Staff Committee (PSC) issued a directive that by 2022 all jurisdictions would account for the additional nutrient loads due to 2025 climate change conditions in a Phase III WIP addendum, or in the two-year milestones, if they had not already done so in their Phase III WIP. West Virginia addressed the 2025 climate change loads through its 2019 Phase III WIP. Therefore, this evaluation reflects the work and effort that West Virginia put toward addressing the 2025 climate loads understanding that expectations related to 2025 climate change conditions could change as a result of future PSC decisions and future model updates.

At its August 29, 2022 meeting, the PSC decided to address "unaccounted additional loads" after 2025. The CBP partnership will define "unaccounted additional loads" and will determine how to address them. This decision came after West Virginia completed the work and effort noted in this section to address the 2025 climate loads.

2022-2023 Milestone Strengths

- Met the 2020 PSC directive to address the additional nutrient loads due to 2025 climate change conditions by including a CAST scenario in its 2019 Phase III WIP that demonstrates an ability to account for the additional nutrient pollutant loads.
- Includes a narrative in its 2022-2023 two-year milestones to describe the current understanding of the 2035 climate change conditions.

Key Areas to Address in the 2022-2023 Milestone Period

- None.

Other (BMP verification, Segment-shed Goals for the Tidal Jurisdictions, Local Engagement, etc.)

2020-2021 Milestone Achievements

- None.

2020-2021 Milestones Not Achieved

- None.

2022-2023 Milestone Strengths

- Commits to investigate and manage at least one DEIJ-focused project annually.
- Commits to identify two new nutrient-reducing projects for which DEIJ/Most Effective Basin funding is appropriate.

Key Areas to Address in the 2022-2023 Milestone Period

- None.

Potential Federal Actions and Assistance

As noted in its Phase III WIP evaluations, EPA remains prepared to assist each of the seven watershed jurisdictions in implementing the 2022-2023 milestones. EPA will work with each jurisdiction to develop specific oversight and assistance activities to provide prioritized support for implementation efforts, including funding, technical assistance and analysis, training, and regulatory reviews.

EPA plans to continue to commit staff, contractual and funding resources to support the seven watershed jurisdictions in implementing the 2022-2023 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 Bay jurisdictions' 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 Bay jurisdictions on WIP and two-year milestone implementation to reduce pollutants from federal lands. EPA will continue its commitment to track annual progress of the Bay jurisdictions 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), the Susquehanna River Basin Commission (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 period 1985-2020 and short term 2009-2020 for most stations were made available in September 2020. New nutrient and suspended-sediment load and trend results became available for the nine River Input Monitoring (RIM) stations for the long-term period 1985-2020 and short term 2011-2020.

While identifying drivers behind individual trends is often complex, the monitoring results are worthy of West Virginia's consideration as it develops the programs and BMPs planned for the next two years. EPA's initial summary of how the monitoring results in West Virginia's watersheds can potentially inform planning are below.

- Trends at all of West Virginia's monitored watersheds are improving for phosphorus. Trends at half of the monitored watersheds are improving for nitrogen, while the other half show no trend. Additional exploration of these trends can help clarify successful programs, policies, or practices in improving areas, and identify additional implementation options in areas showing no trend. All of West Virginia's monitored watersheds are predominantly a mix of agriculture and forested land.