Evaluation of Delaware's 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 2025[1] 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 Delaware included sufficient information in the WIP to provide confidence[2] that Delaware 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 Delaware 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*. Delaware recommitted to the CBP partnership that it would meet these numeric and programmatic expectations.

Overview

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

- Delaware established a Chesapeake Bay Cover Crop Initiative with a goal of enrolling every eligible acre in cover crops.
- Delaware engaged with appropriate agricultural partners including the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) and conservation districts.

[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, in an effort to be more consistent with applicable guidance and regulations and to avoid potential confusion, EPA is using the term "confidence" instead of "reasonable assurance."

- Delaware revised its Sediment and Stormwater regulations, which focus on runoff reduction practices to minimize any increases in stormwater loads from new development.
- Delaware reviewed and updated the Erosion and Sediment (E&S) Control Handbook and Post-Construction BMP Standards and Specifications, in conjunction with the regulatory revision.
- Delaware developed a data quality and verification plan to improve the processes for tracking, reporting, and verifying BMPs implemented throughout the state. The plan was most recently updated in 2018.

EPA's review, however, also noted potential enhancements in Delaware'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:

- Delaware should provide more detail on how it will accelerate nitrogen reductions in the agriculture sector. For example:
    - Demonstration that increases in cover crop funding are sufficient to achieve the goal of every eligible acre enrolled.
    - Strategy to convert agricultural land to grass or forest buffers, given the challenge in the Phase I and Phase II WIPs.
    - Specific drivers to ensure adoption of supplemental nutrient management practices. It is important to provide more detail on how these implementation rates will be supported and sustained long-term.
- Delaware should provide more detail on how it will achieve 85% nutrient management implementation and compliance and how it is following its Standard Operating Procedures to ensure accurate reporting and verification of all reported acres.
- Delaware should provide additional detail (e.g., new strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms) for BMPs such as tree planting, tree canopy expansion, urban nutrient management, conservation landscaping, urban stream restoration, and septic system denitrification.
- The draft Phase III WIP notes one of the biggest challenges for the wastewater sector is future increases in flow from growth which may require facility upgrades presenting significant financial hardship for the affected communities. It states that future increases in flow will be addressed by maintaining current loads while tightening concentration limits. Delaware should provide a long-term strategy to address this impending issue. For example, such a plan could include requiring facilities to monitor growth in their service area or have a plan of action/advanced planning for expansion needs.

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.

Delaware is currently subject to enhanced oversight in its agriculture sector and ongoing oversight in all other sectors.

Since the release of the 2010 Bay TMDL, EPA has provided increased technical and financial assistance to Delaware to support meeting its 2025 planning goals. During Phase III WIP development, EPA worked closely with staff at Delaware's Department of Natural Resources & Environmental Conservation (DNREC). Since July of 2018, EPA provided more than 1,400 hours of technical assistance to help DNREC 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 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.

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 Delaware 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 Delaware 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 Delaware'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 Delaware's implementation capacity under various staffing, funding, regulatory and programmatic scenarios, local planning outreach, legislative and regulatory gap analysis, and monitoring trend analyses.

Detailed Evaluation

The following sections provide specific highlights of key strengths of Delaware'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 Delaware will have programs and practices in place by 2025 that will promote achievement of its Phase III WIP planning targets. Delaware should maintain these key strengths and address potential enhancements in its final Phase III WIP.

Load Reduction Review

When evaluating Delaware's draft Phase III WIP numeric commitments, EPA modeled implementation scenarios through the CBP partnership's Phase 6 suite of modeling tools and compared those simulated nutrient[3] loads to the Delaware's 2025 statewide and state-basin Phase III WIP planning targets. Simulations indicate that Delaware's plan achieves its statewide Phase III WIP planning targets for nitrogen and

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

phosphorus. Delaware's plan also achieve's its Phase III WIP planning targets for nitrogen and phosphorus in all of its major state-basins[4].

Delaware proposes to achieve its pollutant reductions by implementing best management practices (BMPs) in the agriculture, stormwater, and natural (e.g., stream bed and bank) sectors. Delaware's Phase III WIP addresses each of the additional changing and local conditions identified by the CBP partnership.

Source Sectors

Agriculture

Key Strengths

- Delaware established a Chesapeake Bay Cover Crop Initiative with a goal of enrolling every eligible acre in cover crops.
- Delaware engaged with appropriate agricultural partners including the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) and conservation districts.
- Delaware is exploring other viable options for alternative uses of excess poultry litter nutrients, such as CleanBay Renewables, now that Perdue AgriRecycle has closed.
- Delaware committed to provide incentives to licensed consultants (annual consulting license fee waivers) to report soil phosphorus data.
- Delaware is developing a method for capturing and verifying the supplemental nutrient management practices, such as split application of nutrients, pre-sidedress soil nitrate test, and manure injection, through the Mid-Atlantic 4R (Right Source, Right Rate, Right Time, Right Place) Nutrient Stewardship Association and the Delaware-Maryland 4R Alliance.

Potential Enhancements

- Delaware reissued its Concentrated Animal Feeding Operation (CAFO) General Permit (GP) 2 on April 30, 2019, after its draft Phase III WIP was submitted. Delaware should include a reference to the reissuance in its final Phase III WIP.
- Delaware should provide more detail on how it will accelerate nitrogen reductions in the agriculture sector. Examples include:
    - Demonstration that increases in cover crop funding are sufficient to achieve the goal of every eligible acre enrolled.
    - Strategy to convert agricultural land to grass or forest buffers, given the challenge in the Phase I and Phase II WIPs.
    - Specific drivers to ensure adoption of supplemental nutrient management practices. It is important to provide more detail on how these implementation rates will be supported and sustained long-term.
- Delaware should consider 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.
- Delaware should provide more detail on how it will achieve 85% nutrient management implementation and compliance and how it is following its Standard Operating Procedures to ensure accurate reporting and verification of all reported acres.

[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.

- Delaware should explain the strategy and timeframe for addressing the backlog of cost-share applications for animal waste management systems.
- Delaware should include a contingency plan if funding is not provided or if implementation levels are not on pace to achieve its agricultural goals by 2025. Elements of such a contingency plan could include:
    - Identification of new sources of funding. While NRCS programs like Environmental Quality Incentives Program (EQIP) and Regional Conservation Partnership Program (RCPP) are mentioned in the draft Phase III WIP, there is no assurance that an increase in those funds are available.
    - Strategy to secure increased funding for manure transport to meet the draft Phase III WIP goals.
- Delaware should clarify numbers and ensure consistency in the draft Phase III WIP document. For example, page 53 states "514 total CAFOs within the state…" However, on page 54, Table 4-4 indicates that there are 382 total CAFOs in the state, including 237 in the Chesapeake Bay watershed. Again, page 53 states there are 132 permitted CAFOs under GP1 but Table 4-4 indicates 237 permitted CAFOs in the Chesapeake Bay watershed.
- Delaware should include the number of permits issued and the number of applicants in Table 4-4, and to define "active permit applicant." It is unclear whether Delaware is including the number of applicants in the total number of permitted CAFOs, as the title indicates the table represents the number of CAFO permits then lists the number of applicants.

Stormwater

Key Strengths

- Delaware revised its Sediment and Stormwater regulations, which focus on runoff reduction practices to minimize any increases in stormwater loads from new development.
- Delaware reviewed and updated the Erosion and Sediment (E&S) Control Handbook and Post-Construction BMP Standards and Specifications, in conjunction with the regulatory revision.
- Delaware developed a data quality and verification plan to improve the processes for tracking, reporting, and verifying BMPs implemented throughout the state. The plan was most recently updated in 2018.
- Delaware plans to utilize Chesapeake Bay tools and grant funds to target BMP implementation in watersheds where these practices will be more effective at reducing pollutants to the Chesapeake Bay.
- Delaware awarded Surface Water Matching Planning grants to all currently designated Muncipal Separate Storm Sewer Systems (MS4s) in the Chesapeake Bay watershed to assist in mapping stormwater infrastructure.
- Delaware discussed various funding mechanisms available to implement stormwater BMPs.
- Delaware shifted from individual BMP accounting to the use of the stormwater performance standards through Delaware's statewide Sediment and Stormwater Regulations.
- Delaware committed to conduct regular inspections of all BMPs constructed within and outside of MS4 areas throughout the state, not only through MS4 permit commitments, but also through mandates relating to the Sediment and Stormwater Regulations that require property owners to regularly maintain BMPs.

Potential Enhancements

- Delaware should provide additional information on how existing loads in this sector will be reduced beyond reliance on Delaware's Sediment and Stormwater Regulations (which regulate new development).
- Delaware should provide further detail on future permit changes to the New Castle County (NCC) Phase I MS4 permit since it expired in 2018 and is currently administratively extended. The draft Phase III WIP states that the NCC Phase I MS4 permit will include measures and requirements to address the Chesapeake

Bay TMDL when it is reissued. However, the draft Phase III WIP does not provide details related to those permit requirements, and only notes tracking and monitoring of BMPs in the Chesapeake Bay watershed.

- Delaware should provide additional detail (e.g., new strategies, legislative programs, incentive programs, compliance programs, and/or funding mechanisms) for those BMPs where planned implementation rates are much higher than current implementation rates, such as tree planting, tree canopy expansion, urban nutrient management, conservation landscaping, urban stream restoration, and septic system denitrification.
- Delaware should provide further detail on its plans to address BMP implementation, including how to fund or incentivize implementation, on non-MS4 lands.
- Delaware should provide further detail on its commitment to expand staff to increase compliance with the Erosion and Sediment Control Program.
- Delaware should provide further detail on the requirements that the Tier I MS4s may be subject to in the future, beyond preparation of a TMDL Plan-which is proposed to be in the Tier I 2019 permit. The draft Phase III WIP states that the Tier II MS4 permittees (which will eventually cover most of the municipalities in the Chesapeake Bay watershed) will be required to begin developing their MS4 program in the upcoming permit and will then transition to a Tier I permit.
- Delaware should update the map on page 16 of the draft Phase III WIP to show the regulated Delaware Department of Transportation areas that will require coverage under the Tier II general permit in Sussex County.

Wastewater

Key Strengths

- Delaware is on track to meet its 2025 goals without further enhancements.
- Delaware revised its on-site wastewater disposal regulation requiring new or replacement systems within 1,000 feet of tidal waters and associated tidal wetlands to comply with a 20 gm/L limit for total nitrogen.

Potential Enhancements

- The draft Phase III WIP notes one of the biggest challenges for the wastewater sector is future increases in flow from growth which may require facility upgrades presenting significant financial hardship for the affected communities. It states that future increases in flow will be addressed by maintaining current loads while tightening concentration limits. Delaware should provide a long-term strategy to address this impending issue. For example, such a plan could include requiring facilities to monitor growth in their service area or have a plan of action/advanced planning for expansion needs.
- Section 6.2 (page 97) of the draft Phase III WIP indicates that loads from wastewater treatment plants (WWTPs) will be routinely monitored. As growth occurs and loading from facilities approaches their maximum loads, the draft Phase III WIP notes two potential scenarios: land applying and trading. While land applying may be an option, it is unclear whether facilities will be required to act once their loads are approaching the maximum. Additionally, it is unclear whether trading is feasible for WWTPs since the credit exchange program is still being developed with no projected completion date. Delaware should clarify these issues.
- Delaware should provide further detail on how it established the goal to upgrade 25% of septic systems (i.e., septic system denitrification) and the metrics used to establish this goal.
- Delaware should clarify or confirm the numbers in Table 3-13 and whether it includes small septic systems. For example, if the goal is to upgrade 25% of all septic systems including 1,432 existing small septic systems (page 36), and the table shows a total of 3,983 systems, 25% percent of 3,983 is 996 systems.

Trading & Offsets

Key Strengths

- Delaware is exploring provisions under the new Sediment and Stormwater Regulations by Sussex County, including stormwater management banking, offsets, and trading, along with the creation of a stormwater management offset district.
- Delaware included a strategy developed by the Water Infrastructure Advisory Council for the use of fees-in-lieu collected as offsets for projects unable to comply with the resource protection event requirements under Delaware's Sediment and Stormwater Regulations.
- Delaware established an internal workgroup to better understand the possibilities allowed by the framework of the Sediment and Stormwater Regulations. The internal workgroup has been directed to explore separate regulations for banking, offsets, and trading of items not permissible under the Sediment and Stormwater Regulations (i.e., copper, zinc, and TMDLs other than nitrogen and phosphorus).
- Delaware decreased nitrogen discharges from five WWTPs in Sussex County; as a result, those five WWTPs now have capacity to accommodate future nitrogen loads.

Potential Enhancements

- Delaware should confirm whether it intends to develop a long-term strategy for how the Laurel WWTP will account for longer term growth without significant treatment plant upgrades.

Changing and Local Conditions

Growth

Key Strengths

- Delaware developed its implementation scenarios on 2025 forecasted growth conditions, per the CBP partnership decision, with assumed growth directed towards areas zoned for growth or with the necessary infrastructure and capacity to support growth.
- Delaware discussed specific comprehensive plans for various towns and cities related to growth.

Potential Enhancements

- Delaware should reference its adoption of a custom Land Use Policy to help account for growth.
- Delaware should provide further detail on how it will account for projected increases in nutrient loads in the agricultural sector from changes in crops, animals, and/or fertilizer.
- Delaware should clarify whether stormwater controls under its MS4 GP and individual permit are enough to reduce runoff and nutrient export from new development to pre-development levels.
- Delaware should clarify how it will track and report outcomes from its Livable Lawns Program.

Climate

Key Strengths

- Delaware documented its jurisdiction-specific 2025 numeric climate change loads in the Phase III WIP document. Delaware also commits to working with the CBP partnership to better understand the climate change science and notes the partnership commitment to account for additional nutrient and sediment pollutant loads beginning with the 2022-2023 milestones.
- Delaware summarized existing resources and documentation related to climate change in Delaware such as guidance related to flooding and flood risk mapping tools, guidance on incorporating green infrastructure and sea level rise planning scenarios.
- Delaware is implementing green infrastructure projects in Seaford and Laurel to address flooding and improve infiltration.

Local Engagement Strategies

Key Strengths

- Delaware collaborated with a broad group of stakeholders to participate in the development of the draft Phase III WIP and local planning goals.
- Delaware created a Steering Committee and sector specific workgroups for targeted feedback, holding monthly meetings and larger informational meetings on draft Phase III WIP development progress.
- Delaware utilized individual outreach for farmers and large public venues such as Ag Week, using presentations and pamphlets regarding the draft Phase III WIP.
- Delaware plans for a workgroup in Sussex County to meet in 2019 to review ordinances to support the Phase III WIP implementation goals.

Potential Enhancements

- Delaware should provide further detail on how it will maintain communication and outreach throughout the Phase III WIP implementation to ensure acceptance and success in achieving pollutant reduction goals.
- Delaware should clarify how the state will encourage private sector investment in achieving its Phase III WIP goals.

Local Planning Goals

Key Strengths

- Delaware established measurable local planning goals by county and by sector, following the CBP partnership decision.
- Delaware focuses implementation predominately in Sussex County, which aligns with the areas of highest nutrient loading and current implementation levels.
- Delaware expects the most nutrient reductions from the agricultural sector, which aligns with the most cost-effective reductions and existing land use.
- Delaware clearly identifies each BMP as part of the local planning goal, the current implementation level, and projected implementation rates.

Potential Enhancements

- Delaware should identify the tools and processes to be used to track and report achievement of local planning goals through the two-year milestones and annual progress submissions.

Segment-shed Goals for the Tidal Jurisdictions

Key Strengths

- Delaware provided an explanation of planned implementation in the Nanticoke River watershed.

Potential Enhancements

- Delaware should explicitly reference its tidal segments and describe how implementation is planned for the Nanticoke River Tidal fresh segment.

Other Comments

Potential Enhancements

- Delaware is reporting cropland irrigation for the first time. However, the Cropland Irrigation BMP Expert Panel report concludes that nutrient reduction benefits cannot be ascertained at this point in time without further long-term research. As a result, Delaware should exercise caution in relying on this practice for attaining its Phase III WIP goals since there is no confirmation that it will result in nutrient reduction crediting for the present time.

- 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.
- Jurisdictions agreed to follow CBP partnership-approved BMP verification protocols when developing and implementing the Phase III WIPs. Because Delaware is proposing to increase BMP implementation rates of some BMPs by 10-fold or more in the next seven years, the State should ensure that implementation at this higher rate can be tracked, verified, and reported within that period. Delaware should also evaluate whether the CBP partnership-approved verification protocols should be adjusted to accommodate this increased implementation.
- Delaware 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 Delaware should not rely on the Wetland Enhancement BMP as part of its implementation scenario.