Preliminary Expectations for the Phase III Watershed Implementation Plans

The U.S. Environmental Protection Agency (EPA) provided expectations for the Phase I[1] and Phase II[2] Watershed Implementation Plans (WIPs) in 2009 and 2011, respectively, for the seven Chesapeake Bay watershed jurisdictions to demonstrate reasonable assurance that those allocations would be achieved and maintained, and that the 2017[3] interim targets would be achieved. EPA is providing the following preliminary expectations[4] for the jurisdictions' Phase III WIPs to maintain accountability in the work of the Chesapeake Bay Program partnership, encourage continued adaptive management to the new information generated during the Chesapeake Bay Total Maximum Daily Loading (Bay TMDL) midpoint assessment[5], and lay the groundwork for implementation of the next generation of innovative practices. These expectations are directed towards ensuring EPA and the public has reasonable assurance that the seven jurisdictions, and their local and federal partners, have in place, or are committed to put in place, the funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative, and regulatory infrastructures necessary to achieve their 2025[6] targets goals.

EPA expects each of the seven jurisdictions to describe in their respective Phase III WIPs how they, in collaboration with local and federal partners, will:

- Specify the programmatic and numeric implementation commitments between 2018 and 2025 needed to achieve their 2025 goals;
- Commit to comprehensive strategies for engagement of the full array of their local, regional, and federal partners in WIP implementation;
- Account for all population growth and changes in land uses and offset all resultant new or increased nutrient and sediment pollutant loads;
- Make adjustments to the jurisdictions' state-basin, Bay segment watershed, and source sector Phase III WIP planning targets to factor in the new information developed through the Bay TMDL's midpoint assessment;
- Develop and implement local area targets at the scales and in the form best suited for directly engaging local and federal partners in WIP implementation; and
- Factor in the projected influence of continued climate change on Chesapeake Bay watershed pollutant loads and Bay water quality into their 2018-2025 programmatic and numeric commitments.

For jurisdictions and pollutant source sectors which are under enhanced levels of federal oversight or are not on trajectory to meet their 2017 interim targets, EPA expects more detailed documentation in comparison with jurisdictions and source sectors with ongoing oversight levels and that are on trajectory to meeting their 2017 interim targets. For these jurisdictions and source sectors, EPA may develop **state-specific Phase III WIP expectations** which go above and beyond the above described base-level WIP expectations applicable to all seven jurisdictions.

---

[1] USEPA (2009), letter from Region III Acting Administrator William C. Early to Secretary L. Preston Bryant, Virginia Department of Natural Resources, November 4, accessed at http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/tmdl_implementation_letter_110409.pdf

[2] USEPA (2011), Guide for Chesapeake Bay Jurisdictions for the Development of Phase II Watershed Implementation Plans, March 30, accessed at https://www.epa.gov/sites/production/files/2015-07/documents/guideforthephaseiiwips_330final.pdf

[3] By 2017, have practices and controls in place that are expected to achieve 60 percent of the nutrient and sediment pollution load reductions necessary to achieve applicable water quality standards compared to 2009 levels.

[4] See Appendix A for the schedule and process for partnership review and feedback on the preliminary Phase III WIP expectations.

[5] See Appendix B for further information about the Bay TMDL's midpoint assessment and its priorities.

[6] By 2025, have all practices and controls installed to achieve the Bay's dissolved oxygen, water clarity/submerged aquatic vegetation and chlorophyll a standards.

Elements EPA Expects in Phase III WIPs

Programmatic and Numeric Implementation Commitments between 2018-2025

While significant progress has been made to date[7], challenges to implementation remain. The jurisdictions and EPA, through the continued implementation of their WIPs and evaluations of jurisdictions' programs and milestones, respectively, have identified gaps between the jurisdictions' current programmatic capacity and the capacity they estimate is necessary to fully achieve their 2025 nutrient and sediment load goals. Gaps in programmatic capacity the jurisdictions will need to address in the 2018-2025 timeframe through their Phase III WIPs include:

- Building the financial capacity, technical assistance and regulatory oversight to oversee and implement MS4 and other stormwater management and prevention programs;
- Increasing and sustaining the financial cost share, technical assistance and regulatory oversight capacity to deliver agricultural conservation practices at levels consistent with those projected as needed to achieve their agricultural sector load reductions;
- Securing the right balance of legislative, regulatory, cost-share, incentive, voluntary and market-based implementation across all source sectors, which in combination, will achieve each jurisdiction's 2025 goals;
- Further enhancing existing BMP tracking, verification and reporting programs to be fully inclusive of local agencies, federal agencies, non-governmental organizations and businesses reporting pollutant load reducing practices for credit; and
- Building the programmatic infrastructure, tracking system, policies, legislation and regulations necessary for fully accounting for population growth and land use changes, and offsetting all resultant new or increased pollutant loads through 2025 and beyond.

EPA expects documentation of the programmatic actions and, to the extent possible, the specific pollutant load reducing practices, treatments and technologies to be implemented between 2018-2025 in order to achieve the jurisdiction's 2025 goals, including, but not limited to:

- Identification of the specific funding, financing, cost-share, technical assistance, voluntary, incentive, policy, programmatic, legislative and regulatory actions needed to be taken to address recognized gaps in programmatic capacity and quantification of the practice implementation anticipated resulting from each set of actions;
- Full listing of all NPDES permits—municipal and industrial wastewater, Phase I and II MS4s, and CAFOs—included in the jurisdictions' Phase III WIP major river-basin targets updated to include all NPDES permits(s) that are expected to be included as individual wasteload allocations or as part of aggregate wasteload allocations;
- Submission of Phase III WIP input decks[8] for running through the Phase 6 Scenario Builder and the Phase 6 Chesapeake Bay Watershed Model which includes the level and location of pollutant load reducing practices, treatments and technologies that are expected to be in place by 2025;
- Consideration of greater targeting of more pollutant load reduction effective practices in higher loading watersheds based on modeling and monitoring data[9]; and

[7] Additional information on key implementation successes to date can be found in Appendix C.

[8] EPA expects nutrient and sediment controls will be reported through each jurisdictions' National Environmental Information Exchange Network (NEIEN).

[9] Efforts are currently underway by the CBP partnership on ways to reconcile any differences between monitoring and modeled data.

- Identification of plans for implementation of more innovative, next generation pollutant load reducing practices, treatments and technologies.

EPA expects more detailed and more systematic documentation of planned changes to existing programmatic capacity or development of new programmatic capacity for jurisdictions with source sectors under "enhanced oversight" or "backstop oversight," or with specific source sectors not on trajectory to achieve their 2017 interim targets. These programmatic changes or enhancements must specifically address all the issues and needs documented in EPA's assessments of milestone progress and past programmatic assessments. Further, EPA expects a preview of the forthcoming 2-year milestones commitments—programmatic and numeric—from 2018 through 2025, spelling out the steps to be taken over time to both close the programmatic capacity gaps and get the respective source sectors back on trajectory for achieving their 2025 goals.

Comprehensive Local Engagement Strategies and Commitments

Much of the implementation of the pollutant reduction practices, as articulated in the jurisdictions' WIPs, is expected to be carried out at the local level. This includes municipalities, counties, soil and water conservation districts, MS4 communities, regional planning authorities, federal facilities and agencies, and private sector businesses and groups as well as individuals. Therefore, successful implementation of jurisdictional WIP commitments requires a strong network built from government leadership, financial and programmatic capacity, and clear communication of the technical assistance needs.

Phase III WIP development should be designed to include timely dialogue with the responsible local agencies and other local, regional, and federal partners, taking into consideration the required funding and technical support. In order to facilitate effective local engagement in the Phase III WIP process, EPA expects the following elements to be addressed in both the development and implementation of the jurisdictions' Phase III WIPs:

- Detailed strategy of <u>how</u> jurisdictions will engage their local and federal partners in developing and implementing the Phase III WIPs. EPA encourages the jurisdictions to tailor their local and federal engagement strategies to restoration and protection efforts that would resonate with their targeted audiences. Components of such strategies could include:
    - Development of an overall schedule for engaging local and federal partners, including a schedule and description of key policy and technical decisions related to the Phase III WIPs in order to allow localities and federal agencies to actively participate in decision making processes;
    - Identification of specific target audiences for local and federal engagement in the Phase III WIP development process, as well as the geographical and/or source sector areas where local and federal engagement is most needed to accelerate WIP implementation;
    - Clear description of the specific roles local and federal partners will play in implementing programmatic and numeric (e.g., BMP) commitments in each of the source sectors between 2018-2025, including tracking, reporting and verification of those commitments; as well as a clear description of local and federal involvement in their jurisdiction's strategy to account for population growth and land use changes; and
    - Resources available to the local and federal partners to aid in WIP planning and implementation.
- Identification of the capacity and technical assistance needs of targeted local and federal partners to advance WIP implementation, including recommendations to address those needs; and
- Identification of examples that demonstrate successful working relationships or models (e.g., local stormwater ordinance) that local and federal partners can adopt and replicate in other portions of a jurisdiction's Bay watershed to support WIP implementation. These examples can help facilitate

participation and accountability of local and federal stakeholders in the Phase III WIP development and implementation processes.

The CBP partnership has developed a suite of decision support tools (e.g. CAST/MAST/VAST/BayFAST) for WIP planning and implementation by local and federal partners. These tools aid in the decision making process for BMP funding, targeting and implementation. EPA strongly encourages the jurisdictions to utilize these decision support tools in engaging their local and federal partners as part of their Phase III WIP development and implementation processes.

Accounting for Growth and Offsetting New or Increased Pollutant Loads

There must be greater certainty that increased nutrient and sediment pollutant loads resulting from continued population growth and land use changes have been accounted for and will be fully offset up through and beyond 2025. Therefore, EPA is setting the clear expectation that each jurisdiction's Phase III WIP will describe the specific procedures, underlying data sources and programmatic commitments for regular accounting of population growth and land use changes and the operational tracking and accountability mechanisms for ensuring all new or increasing pollutant loads are fully offset. EPA strongly encourages jurisdictions to utilize partnership approved approaches, data and decision support tools[10] for forecasting future population and land use conditions to fully account for projected growth at the appropriate geographic scales and for each source sector in their Phase III WIP development process as well as in their succeeding 2018-2025 two-year milestones.

Adjustments to State-basin, Bay Segment Watershed and Source Sector Phase III WIP Planning Targets

As stated in EPA's 2011 *Guide for Chesapeake Bay Jurisdictions for the Development of Phase II Watershed Implementation Plans*, each Bay jurisdiction can modify its Phase III WIP source sector targets to reflect new information and data from the Bay TMDL's midpoint assessment, EPA's assessments of progress, and lessons learned from previous WIP implementation efforts. The Phase III WIP planning targets (i.e., state-basin targets) will be developed by EPA and the jurisdictions using the Phase 6 suite of modeling tools and with full consideration of the long term water quality monitoring trends. EPA expects jurisdictions to consider changes to their state-basins, Bay segment watershed and source sector loading targets. These changes should reflect the wealth of new information and insights based on evaluation of the past 30 years of implementation and resultant observed responses in the water quality of the watershed's stream and rivers and the tidal Bay's mainstem, tidal tributary and embayment water quality conditions and biological resources.

Adjustments to these state-basin, Bay segment watershed and source sector targets could be based on:

- Refinements to the partnership's Phase 6 suite of modeling and other decision support tools which will be used to develop the Phase III WIP planning targets and support the jurisdictions' development and implementation of their Phase III WIPs and two-year milestones;
- Enhanced understanding and the ability to better simulate lag times and delivery factors of nutrients and sediments from the watershed to the Chesapeake Bay and its tidal tributaries and embayments;
- Implementation actions needed to respond to partnership decisions on how to address the infill of Conowingo Dam and its reservoir and how to account for the ongoing and projected effects of climate change on Bay watershed pollutant loads and Bay water quality;
- EPA and jurisdictional assessments of numeric and programmatic implementation progress to date through the Phase I and Phase II WIPs and two-year milestones;

[10] The CBP partnership is currently exploring the potential use of 2025 forecasted conditions to account for projected growth in the Phase III WIP development process. This would entail running the Phase III WIP input decks on these 2025 forecasted conditions.

- Programmatic and policy implications of the explanations of observed long term trends in watershed and tidal water quality and biological resource monitoring data;
- More specific geographical or source sector targeting in the 2018-2025 timeframe based on lessons learned from implementation of the Phase I and Phase II WIPs and two-year milestones;
- Accounting for population growth and land use changes and the need to offset new and increased pollutant loadings as a result of this growth; and
- New innovative technologies, treatments and practices emerging as a result of the CBP partnership's BMP expert panel recommendations.

Any changes to the existing state-basin, Bay segment watershed and source sector targets must cumulatively result in model-simulated achievement of the jurisdictions' applicable Chesapeake Bay water quality standards under Phase 6 Chesapeake Bay watershed and estuarine water quality/sediment transport model simulated conditions. Changes in the geographic location of the pollutant load reductions can have a significant influence on tidal water quality responses.

Development and Implementation of Local Area Targets

The development of local area targets could lead to more meaningful engagement by local partners in the Phase III WIP development and implementation processes and increased awareness of their roles and specific responsibilities in meeting their state jurisdiction's WIP commitments. Therefore, EPA expects jurisdictions to develop local area targets and implement them through their Phase III WIPs at the scales and in the forms best suited for directly engaging their local and federal partners in WIP implementation. EPA's expectation encompasses a high level of flexibility for tailoring the local area targets by jurisdiction and even within a single jurisdiction to different partners and source sectors, fully consistent with the Local Area Targets Task Force's recommendations[11] adopted by the partnership.

Additional Implementation Actions Needed to Offset the Reduced Trapping Capacity of Conowingo Dam

Based on findings reported in the Lower Susquehanna River Watershed Assessment and the follow-through additional research, monitoring and modeling work, EPA expects the impacted jurisdictions' Phase III WIPs will document the additional practices and other management actions needed to fully offset the additional nutrient and sediment pollutant loads due to the reduced trapping capacity of Conowingo Dam and its reservoir.

Incorporating Projected Influence of Climate Change into the Phase III WIPs

In 2012, the CBP partnership identified climate change as one of the key priorities of the Bay TMDL's midpoint assessment. As a result, the partnership developed the tools and procedures to quantify the effects of climate change on watershed flows and pollutant loads, storm intensity, increased estuarine temperatures, sea level rise, and ecosystem influences, including loss of tidal wetland attenuation with sea level rise, as well as other ecosystem influences in the Chesapeake Bay watershed. Therefore, EPA expects each jurisdiction to factor in the projected influence of continued climate change on Chesapeake Bay watershed pollutant loads and Bay water quality responses into their 2018-2025 programmatic and numeric commitments within their Phase III WIP, consistent with the partnership's climate change related decisions and adopted findings.

State-Specific Phase III WIP Expectations

EPA may develop state-specific expectations for jurisdictions and pollutant source sectors which are under enhanced or back-stopped levels of federal oversight, significantly off track in meeting their programmatic and

[11] The Local Area Targets Task Force is expected to deliver its recommendations to the CBP partnership in March 2017, in advance of EPA releasing its final Phase III WIP expectations (April 2017) and the draft Phase III WIP planning targets (June 2017).

numeric WIP and two-year milestone commitments, or not on trajectory to meet their 2017 interim targets. The following information could inform EPA's development of these state-specific expectations for the Phase III WIPs:

- Necessary shifts in source sector targets based on jurisdictional progress to date (including achievement of the 60% by 2017 goal);
- Identifications of programmatic capacity gaps and needs, such as changes to existing or new incentive based programs, funding priorities, and legislative and regulatory initiatives likely needed to ensure the jurisdiction can achieve its 2025 goals;
- Findings from the work underway on explaining trends observed in the watershed and tidal water quality monitoring data;
- Key findings from EPA's agriculture and stormwater assessments completed to date; and
- EPA's two-year milestone evaluations that highlight key programmatic and implementation gaps and recommendations.

Appendix A: Schedule for Development and Partnership Review of the Phase III WIP Expectations

The CBP partnership has requested that EPA release its draft expectations for the Phase III WIPs well prior to April 2017 (current CBP partnership-approved timing for the release of the final set of expectations). The purpose of this document is to provide the jurisdictions with preliminary draft expectations for the jurisdictions' Phase III WIPs and to provide the below schedule for when key decisions and review and feedback from the jurisdictional and other partners will be made to inform the final set of expectations.

EPA will present a preliminary draft version of the Phase III WIP expectations to the CBP partnership within the June – August 2016 timeframe:

- June 27 and July 11: Water Quality Goal Implementation Team conference calls
- July 12: Local Area Targets Task Force Conference Call
- July 14: Management Board Meeting
- August 10: Principals' Staff Committee Conference Call

Based on the combined feedback from the above described partnership reviews and the series of Bay TMDL's midpoint assessment issues, EPA will fully develop its Phase III WIP expectations in early 2017:

- January 2017: EPA releases the complete revised draft Phase III WIP expectations for partnership review and feedback.
- April 2017: Based on this partnership feedback, EPA releases final Phase III WIP expectations.

Appendix B: Potential Impacts to Levels of Effort Due to Partnership Decisions on Key Midpoint Assessment Priorities

Bay TMDL's Midpoint Assessment

The Bay TMDL document calls for an assessment in 2017 to review the CBP partnership's progress toward meeting the nutrient and sediment pollutant load reductions identified in the 2010 Bay TMDL, Phase I and II WIPs and two-year milestones. Key to this effort is incorporating the latest science, data, tools and BMPs into the partnership's decision support tools that help guide implementation. An essential focus and additional benefit of the midpoint assessment is using this information to facilitate and optimize implementation of the seven Bay watershed jurisdictions' WIPs.

Through the October 22-23, 2012 Water Quality Goal Implementation Team meeting, the CBP partnership outlined the overall priorities and schedule for the midpoint assessment. In December 2012, the Principals' Staff Committee approved the priorities and guiding principles of the midpoint assessment.[12]

This midpoint assessment not only encompasses a review of the implementation of the jurisdictions' WIPs and milestones but also includes review of the water quality monitoring data, modeling and decision-support tools utilized by the CBP partnership. The intent is that this assessment will strengthen and enhance the partnership's decision support tools used to develop and support implementation of the jurisdictions' Phase III WIPs and for meeting the shared objective in restoring the Chesapeake Bay and its tributaries. Below please find descriptions of the priorities of the Bay TMDL's midpoint assessment that pose potential changes to current levels of effort (as expressed in the Phase II WIPs) to meet the Bay TMDL allocations by 2025.

Potential Impacts to Levels of Effort Due to Partnership Decisions on Key Midpoint Assessment Priorities

Refinement of the Phase 6 Watershed Model and Other Decision-Support Tools

A key effort underway as part of the midpoint assessment is enhancing the CBP partnership's suite of decision support tools, such as the Chesapeake Bay Watershed Model and the Chesapeake Bay Water Quality Sediment Transport Model. Many of the fundamental modeling processes have remained the same but have been improved with updated input information such as the addition of simulation years, increased number of monitoring stations, new and updated BMP efficiencies, and the incorporation of the latest science on phosphorus-saturated soils, Conowingo Dam and climate change. Refinements are intended to improve accuracy, transparency, and confidence in these modeling and other decision support tools.

The final Phase 6 suite of modeling tools will be used to develop the Phase III WIP planning targets, and will reflect those enhancements incorporated into these tools (e.g. modeling approaches to Conowingo and phosphorus-saturated soils).

Key deadlines: The Phase 6 suite of modeling tools is expected to be finalized by June 2017. EPA expects to release draft and final Phase III WIP planning targets in June 2017 and December 2017, respectively, working in collaboration with its jurisdictional partners.

Collection of Local Land Use & Land Cover Data

The CBP partnership has led an effort over the past several years to collect local land use data from the states and hundreds of local jurisdictions, as well as acquire high resolution (1 meter) land cover data for the entire Chesapeake Bay watershed. The purposes of this effort are to (1) assist state and local Bay jurisdictions with

[12] Water Quality Goal Implementation Team (2012), Guiding Principles: The 2017 Chesapeake Bay TMDL Midpoint Assessment, November 26, 2012 accessed at: http://www.chesapeakebay.net/channel_files/19044/attachment_iv.a._-_guiding_principles_working_draft_11.26.12.pdf

Phase III WIP development and implementation; (2) help EPA refine the Phase III WIP planning targets; (3) help understand and address projected growth in sector loads; (4) define additional land use types and associated pollutant loading rates; (5) support BMP verification; and (6) support implementation of the *2014 Chesapeake Bay Watershed Agreement's* Management Strategies. With better land use information from state and local jurisdictions, the CBP partnership will refine its modeling tools to provide more accurate outputs at a smaller scale appropriate to each jurisdiction.

Key deadline: The Phase 6 land use dataset is expected to be finalized and incorporated into the Phase 6 suite of modeling tools by December 2016.

Water Quality Monitoring & Trends[13]

The USGS and other academic and state agency partners are currently focused on conducting analyses of water quality changes to better understand and explain the factors affecting water quality response to BMPs; analyzing trends of nutrients and sediment in the watershed; and assessing attainment of applicable water quality standards. Monitoring data provides a direct measure of progress toward reducing pollutant loads and attaining applicable water quality standards. Through the CBP partnership's nontidal water-quality network, nutrient and sediment data are collected at over 120 sites throughout the Chesapeake Bay watershed. Efforts are underway to show state and local jurisdictions where that monitoring data is showing positive trends in response to management actions taken as well as areas where there is little improvement or degrading trends in local and regional water quality. Understanding these long term trends will help drive and target future implementation.

Key deadline: The CBP partnership expects to have a better understanding of the explanation of watershed and tidal water quality trends data by December 2016.

Addressing lag times in the Chesapeake Bay Decision Support Tools

During the 2016 Phase 6 model review period, the CBP partnership will analyze the effects of lag time on BMP implementation in all portions of the watershed, including the estimated time to reach full effectiveness, through the running of various scenarios. While management scenarios would not include lag time, the CBPO Modeling Team could, upon request, incorporate lag times into select scenarios to assist the jurisdictions in optimizing their Phase III WIPs and 2-year milestones. This could also be used to assist jurisdictions in explaining why water quality conditions have not yet fully responded to management actions in certain parts of the watershed.

Key deadline: The ability to include lag times in planning scenarios is expected to be available in 2017.

Local Area Targets Development

One of the biggest capacity needs identified during the Phase II WIP process was developing a game plan for engaging local partners, as many localities were unaware of their role in meeting their state jurisdiction's WIP commitments. The CBP partnership's Local Area Targets Task Force was established to develop recommendations to the partnership on how local area targets could be expressed in each of the seven Bay watershed jurisdictions.

The task force will address findings from the recently published *Chesapeake Bay Stakeholder Assessment*[14], including the goal of raising awareness of local partners' contribution toward achieving the Bay TMDL; the technical capacity of the partnership's Phase 6 suite of modeling tools in developing local area targets; how local

[13] USGS data to compute loads and trends are available at: http://cbrim.er.usgs.gov/index.html.

[14] The Phase III WIP Stakeholder Assessment can be found at: http://www.chesapeakebay.net/channel_files/22350/chbaytmdlstakeholderassessment7dec2015.pdf

implementation addresses local conditions, needs and opportunities, such as local water quality; and the availability of tools to assist in the development and optimization of local implementation strategies.

The task force is expected to deliver its recommendations to the CBP partnership in March 2017, in advance of EPA releasing its final Phase III WIP expectations (April 2017) and the draft Phase III WIP planning targets (June 2017). The final Phase III WIP expectations will include the task force's recommendations approved by the CBP partnership.

Key deadline: The Task Force expects to deliver its recommendations to the CBP partnership by no later than March 2017, with preliminary recommendations delivered to the Water Quality Goal Implementation Team by fall 2016.

Addressing Impacts from Conowingo Dam

The CBP partnership is working with the U.S. Army Corps of Engineers Lower Susquehanna River Watershed Assessment (LSRWA) study to assess the trapping capacity of dams on the Susquehanna, especially the Conowingo, as well as to provide greater representation of local impoundments and reservoirs in the Phase 6 Chesapeake Bay Watershed Model. Previous USGS studies have shown that the Conowingo Dam is now in a state of "dynamic equilibrium", indicating that the Conowingo Reservoir is at near-full capacity. The Lower Susquehanna Army Corps of Engineers study concluded that more nutrients, not just sediment, are coming over the dam than was assumed in developing the 2010 Bay TMDL; this reduced trapping capacity will need to be addressed in order to attain applicable state water quality standards in the Chesapeake Bay.

Key deadline: By the end of 2016, the CBP partnership will address how to fully offset the additional nutrient and sediment loads coming over Conowingo Dam due to the Conowingo Reservoir reaching its capacity to trap nutrients and sediments.

Possible Changes to the James River Chlorophyll-a Criteria

The CBP partnership is closely watching the ongoing reassessment of the current James River numeric chlorophyll-a criteria that were adopted into Virginia's water quality standards regulations specifically to protect aquatic life in the tidal James River. That reassessment could result in recommended changes to the criteria and/or the criteria attainment assessment procedures. Before any changes to existing criteria could become effective, Virginia would first need to adopt them through a public process and then EPA would need to review and approve them. In addition, Virginia has funded the development of a new James River estuary water quality model which will be used in the development of the Phase III WIP planning targets for the James River watershed. Any changes to the existing criteria and criteria assessment procedures along with the introduction of a new modeling system could have implications for not only the James River watershed's Phase III WIP planning targets but also other river basins' planning targets.

Key deadline: Throughout 2016, EPA will continue to review any possible/proposed changes to tidal James River chlorophyll-a water quality criteria and criteria assessment procedures, and will provide Virginia with any comments or feedback for consideration in its decision as to whether to proceed with proposing regulatory changes. Virginia and the Chesapeake Bay Program Office will work together to apply the new James River estuary water quality model to get an early understand of implications for the Phase III WIP planning targets.

Factoring in Effects from Climate Change into the Phase III WIPs

Through the combined efforts of the CBP Modeling Workgroup and the CBP Climate Change Workgroup, the CBP partners are developing the tools needed to quantify the effects of changes in watershed flows, storm intensity and changes in hypoxia due to increased temperatures and sea level rise in the estuary and the larger

Chesapeake Bay watershed. Current efforts are underway to frame a range of future climate change scenarios based on estimated 2025 and 2050 conditions.

Key deadline: The CBP partnership is expected to decide by the end of 2016 if, when, and how to incorporate these climate change considerations into the jurisdictions' Phase III WIPs.

Develop Phase III WIPs Based on 2025 Forecasted Conditions

The CBP partnership is currently exploring the potential use of 2025 forecasted conditions for the Phase III WIPs to account for projected growth early on in the Phase III WIP development process. This would entail running the Phase III WIP input decks on these 2025 conditions. This approach accounts for projected growth in pollutant load (and any declines) directly into the jurisdictions' development of the Phase III WIPs. Jurisdictions would still need to document actual growth and offset any increases in growth beyond what is projected, which is consistent with the expectation in the 2010 Bay TMDL. Bay jurisdictions also would still need to take any steps required by the Clean Water Act and National Pollutant Discharge Elimination System regulations to offset new or increased growth at the general and/or individual permit level. As part the development of their 2-year milestones from 2018-2025, the jurisdictions will have the opportunity to factor in updated future growth projections, thus adjusting their milestone commitments accordingly.

Key deadline: The CBP partnership is expected to decide by the fall of 2016 whether to develop Phase III WIPs based on 2025 forecasted conditions.

Appendix C: Key Achievements in Bay TMDL & WIP Implementation

It is important to note key successes achieved to date in reducing nutrient and sediment pollutants to the Bay and its tributaries to understand what strategies have been successful in WIP implementation.

- ***Adult Female Blue Crab Abundance*.** Between 2015 and 2016, the abundance of adult female blue crabs in the Chesapeake Bay increased 92 percent from 101 million to 194 million. This number is above the 70 million threshold but below the 215 million target.
- ***Underwater Grass Abundance*.** Between 2014, and 2015, underwater grass abundance in the Chesapeake Bay rose 21 percent, bringing underwater grasses in the nation's largest estuary to the highest total of the last three decades.
- ***Water Clarity.*** Satellite data collected by the National Oceanic and Atmospheric Administration revealed that in October and November of 2015, most of the Chesapeake Bay was clearer than it has been at this time during the previous five years. These trends are consistent with the past decade of trends in water clarity measured at hundreds of tidal Bay mainstem, tributary and embayment stations as part of the CBP partnership's Chesapeake Bay Mainstem and Tidal Tributary Water Quality Monitoring Network.
- ***Watershed Water Quality Trends.*** The U.S. Geological Survey (USGS) has reported that the majority of the stations in the CBP partnership's Chesapeake Bay Watershed Water Quality Monitoring Network are showing decreasing nitrogen, phosphorus and sediment loading trends over the past decade after accounting for the effects of river flow. These unprecedented trends reflect the individual and collective implementation efforts of pollutant load reduction practices over the past 3 decades across the wastewater, air quality, agriculture, forestry, and urban stormwater sectors.
- ***Water Quality Standards Attainment.*** Recent results from CBP partnership's Chesapeake Bay Mainstem and Tidal Tributary Water Quality Monitoring Network for the 2012 to 2014 assessment period indicate that 34 percent of the applicable water quality standards for the Chesapeake Bay were met during this time. These results mark a 17 percent increase from those of the previous assessment period, during which 29 percent of applicable water quality standards were met. A trend analysis from the 1985 to 1987 assessment period to the present shows a positive trend in the percentage of applicable water quality standards met in the Bay and its tidal tributaries.
- ***Wastewater Sector Progress.*** Upgrades and operational efficiencies at wastewater treatment plants throughout the Chesapeake Bay watershed have achieved steep reductions in nitrogen and phosphorus pollution, putting this sector at the forefront of Bay restoration. The wastewater sector has reduced nitrogen going to the Bay by 57 percent and phosphorus by 75 percent since 1985 and, for the first time, is effectively meeting its 2025 nutrient pollution limits in the Chesapeake Bay TMDL, according to Chesapeake Bay Program analysis.
- ***American Shad Abundance.*** Between 2000 and 2014, American shad abundance as measured in the Chesapeake Bay increased from 11 percent to 39 percent of the goal (note: abundance fell from 44 to 39 percent of the goal between 2014 and 2015).
- ***2014 Watershed Agreement***. On June 16, 2014, a new Chesapeake Bay Watershed Agreement was signed by all seven Bay jurisdictions. This commits the Bay's headwater states to full partnership into the CBP partnership. The 2014 Watershed Agreement requires the development of Management Strategies by the signatories to address and fulfill the outcomes reflected in the Agreement. The Agreement's 2017 and 2025 WIP Outcomes reaffirm the Bay jurisdictions' commitment to implement WIPs and meet the loading allocations under the Bay TMDL.
- ***Establishment of federal facility targets.*** In June 2015, the CBP partnership approved a protocol for setting nutrient, phosphorus and sediment pollution reduction targets for federal facilities, consistent with the Bay TMDL and *Executive Order 13508 Strategy for Protecting and Restoring the Chesapeake Bay*

Watershed. As a result, EPA and the jurisdictions set nutrient and sediment pollution reduction targets for more than 700 federal facilities throughout the Chesapeake Bay watershed.

Appendix D: EPA Role in the Phase III WIP Development & Implementation Processes

EPA is providing these Phase III WIP expectations to the Bay jurisdictions as part of its role under the Bay TMDL's accountability framework[15]. The Bay TMDL is supported by a rigorous accountability framework to ensure cleanup commitments are established and met, including WIPs, two-year milestones, a tracking and accountability system for jurisdictions' activities and federal actions that may be employed if jurisdictions do not meet their milestone and WIP commitments.

EPA will continue to assess the Bay jurisdictions' progress toward reaching their Bay TMDL's ultimate nitrogen, phosphorus and sediment reduction goals through its evaluation of the Phase III WIPs and at least biennially using the jurisdictions' two-year milestones commitments. In addition, EPA will[16]:

- **Continue support for WIP development** and implementation through EPA contractor support, implementation grants, coordination and resources for on-the-ground service providers and source sector expertise through the CBP partnership's source sector workgroups, and technical assistance through trainings, including Scenario Builder analysis and webinars to help partners estimate nitrogen, phosphorus and sediment reductions associated with proposed management actions. Support is subject to the availability of federal appropriations.
- **Help coordinate with federal agencies** to provide input to Phase III WIPs including commitments to federal actions on federal lands and facilities, two-year water quality milestones and targets for federal facilities. EPA also will assist with the resolution of any disputes among federal agencies and jurisdictions when requested.
- **Partner with Bay jurisdictions and local entities, as requested, in outreach efforts**. EPA will make information such as presentations, fact sheets and talking points available for partners to share with their audiences and will maintain an up-to-date website on the Bay TMDL and Phase III WIPs.
- **Conduct a targeted reasonable assurance review** focused on: a) whether the jurisdictions provide reasonable assurance that sources will meet nitrogen, phosphorus and sediment allocations by 2025, they offset or accommodate within the TMDL any new or increased loadings, and that any trading mechanisms meet EPA's expectations as set forth in Appendix S of the Bay TMDL; b) whether state-basin and sector-specific strategies differ from the Phase II WIPs due in part to changes resulting from the Bay TMDL's midpoint assessment; and c) whether the jurisdictions have more clearly demonstrated reasonable assurance for pollutant source sectors receiving enhanced oversight or backstop actions in the 2010 Bay TMDL.
- **Provide comments** on the draft Phase III WIPs and allow the jurisdictions to submit final Phase III WIPs before any potential refinements to the Bay TMDL are considered by EPA.
- **Take appropriate federal actions** if a jurisdiction's Phase III WIP does not meet EPA expectations, particularly as it relates to state-basin and sector strategies that will rely on local partners for implementation.

[15] Additional information about EPA's role in the WIP process can be found in Appendix D.

[16] USEPA (2011), Guide for Chesapeake Bay Jurisdictions for the Development of Phase II Watershed Implementation Plans, March 30, accessed at https://www.epa.gov/sites/production/files/2015-07/documents/guideforthephaseiiwips_330final.pdf