April 18, 2016

MEMORANDUM

SUBJECT: Decision-making in the 2017 Midpoint Assessment

FROM: Nicholas A. DiPasquale
Chair, Management Board

TO: The Honorable Thomas McLain Middleton
Chairman, Chesapeake Bay Commission

The Chesapeake Bay Program (CBP) partnership is currently engaged in a midpoint assessment of progress to ensure that the seven Chesapeake Bay watershed jurisdictions are on track with meeting the Chesapeake Bay Total Maximum Daily Load (Bay TMDL)'s 2025 goal of putting all practices in place to restore the Chesapeake Bay. Key to this effort is to incorporate 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 jurisdictions' Watershed Implementation Plans (WIPs).

The CBP is a dynamic and diverse partnership built on the principles of collaboration, scientific inquiry, and adaptive management to restore and protect the Chesapeake Bay. The CBP partnership is organized into committees, goal implementation teams, workgroups, and action teams with a focus on a taking a collaborative, consensus-based approach to shared decision-making. Partnership groups at each of these levels have clearly defined and very specific coordination, leadership and decision making roles and responsibilities in the Midpoint Assessment process, from developing decision support tools (e.g., Modeling Workgroup) to making major policy decisions effecting multiple jurisdictions (e.g., Principals' Staff Committee).

The Water Quality Goal Implementation Team (WQGIT) functions as the "lead systems integrator" for the Midpoint Assessment. As such, the WQGIT is responsible for setting the priorities of the Midpoint Assessment; working with the Modeling Workgroup and the WQGIT's source sector workgroups (agriculture, urban stormwater, forestry, wastewater) to define the scientific and technical issues to be addressed under each priority; and determining the schedule for partnership briefings and decisions on these priorities. James Davis-Martin, Virginia Department of Environmental Quality, and Teresa Koon, West Virginia Department of Environmental Protection, are the Chair and Vice-Chair of the WQGIT, respectively, who work closely with the source sector workgroup chairs and coordinators to provide programmatic direction, oversight, and support. Lucinda Power, EPA, coordinates the WQGIT and is responsible for managing the overall schedule for the Midpoint Assessment, ensuring deliverables associated with each Midpoint Assessment priority are finalized for partnership discussion and decision, and working with the source sector workgroups to raise key technical, programmatic or policy concerns for the WQGIT, the Management Board, and the Principals' Staff Committee.

Through the October 22-23, 2012 WQGIT meeting, the 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. The Midpoint Assessment priorities are directed towards helping the seven watershed jurisdictions prepare their Phase III WIPs, which will guide two-year milestones and BMP implementation from 2018 to 2025. We continue to address and implement these priorities as a partnership, with clear decision-making roles and processes articulated. The enclosure entitled, "Midpoint Assessment Roles & Decisions 2016-2018," outlines each Midpoint Assessment priority with its associated schedule and the assigned decision-making lead within the Chesapeake Bay Program partnership.

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 decision support tools, such as the Chesapeake Bay Watershed Model (CBWM) and the Chesapeake Bay Water Quality Sediment Transport Model (CBWQSTM). Many of the fundamental modeling processes have remained the same but have been improved with better, and more recent, input information such as the addition of simulation years, increased number of monitoring stations, updated BMP efficiencies, phosphorus-saturated soils, and the incorporation of the latest science on Conowingo Dam and climate change. Refinements are intended to improve accuracy, transparency, and confidence in the modeling tools. A critical piece of this is incorporating more local land use data into our tools so we have an improved accounting of actions being implemented on the ground at the local level.

Maryland and West Virginia are the two state jurisdictions leading the Phase 6 modeling development process through the partnership's Modeling Workgroup. Lee Currey, Maryland Department of the Environment, and Dave Montali, West Virginia Department of Environment Protection, are the two co-chairs of the CBP partnership's Modeling Workgroup. The partners and involved stakeholders have over one full year—from January 2016 – April 2017, to review these modeling tool refinements. This is the first time in the history of the CBP partnership that we've had this level of partnership and stakeholder engagement with the development and hands-on review of these modeling and other decision support tools. Over this 15-month review period, the partnership will have the opportunity to fine-tune scenarios, incorporate final data inputs, and run sensitivity and uncertainty analyses.

The CBP partnership's Scientific and Technical Advisory Committee (STAC), chaired by Dr. Lisa Wainger, University of Maryland Center for Environmental Science, continues to have the critical oversight and independent review responsibilities within the Midpoint Assessment. Several STAC-sponsored independent scientific peer reviews and technical workshops will be conducted in the 2015/2016 timeframe, including workshops on Conowingo Dam, climate change, optimization, and model uncertainty. Independent peer reviews of the Phase 6 CBWM and the approaches being taken in modeling Conowingo Dam and the effects of climate change are scheduled for later this spring and into the summer.

The Modeling Workgroup is the primary partnership group responsible for model development and refinements, soliciting feedback from the partnership, and making any necessary revisions to the tools based on this partnership review period. The partnership's WQGIT has the responsibility for approving the full suite of partnership models and decision support tools for management application.

Collection of Local Land Use & Land Cover Data

One of the key concerns expressed by local jurisdictions during the Phase II WIP process was a lack of understanding of their share of the pollution load reductions needed to meet the statewide allocations. In an effort to address this concern, the CBP partnership has led an effort over the past two years to collect local land

use data from the state and local jurisdictions, as well as acquire high resolution (1 meter) land cover data for the entire watershed. The purpose of this effort is to (1) assist state and local jurisdictions with WIP implementation and development; (2) help EPA refine the Phase III WIP planning targets and expectations; (3) help understand and address sector growth; (4) define additional land use types and associated pollution loading rates, and (5) support BMP verification and implementation of the 2014 Chesapeake Bay Watershed Agreement's Management Strategies. With better land use information from state and local jurisdictions, we can refine our modeling tools to get to a local scale that makes sense to each jurisdiction.

The WQGIT's Land Use Workgroup, chaired by Karl Berger, Metropolitan Washington Council of Governments, has been charged with collecting more refined land use data from local jurisdictions. To date, the Chesapeake Bay Program Office (CBPO) has received parcel, land use, land cover, or sewer service data from over 80% of the counties/cities in the Bay watershed. High resolution land cover data is currently being developed by a nationally recognized experts at the Chesapeake Conservancy, University of Vermont and Worldview Solutions for the CBP partnership in 2016. Once this data is incorporated into the Phase 6 modeling tools and updated on a routine basis, the partnership and wider Bay community will be able to understand the "rate of change" in land use every 3-4 years down the road. In addition, localities can use such data for water resource and environmental planning, the very local scale targeting of restoration and conservation efforts, and public education and outreach. Many local jurisdictions are spending tens of thousands of dollars acquiring high resolution land cover data for a variety of purposes. All of the data being acquired by the partnership will be made provided to local jurisdictions for review and acceptance and will be made available to them at no cost for their own uses, as will the data updates that occur every 2-3 years.

It is imperative that this local data reflect partnership input so our decision support tools are relevant and credible to our local partners. The partnership's Land Use Workgroup will produce the draft Phase 6 Land Use Database following quality assurance, local review, and an accuracy assessment of the high-resolution data. State and local jurisdictions can review their draft local land use and land cover data on a rolling basis from early summer – fall 2016. The CBP partnership has developed lists of hundreds of local government contacts who will be notified when their local jurisdiction's draft land use and land cover data are ready for a 4-week review. The U.S. Geological Survey (USGS) has developed a website to facilitate review and dissemination of the Phase 6 Land Use Database; the website can be accessed at: http://chesapeake.usgs.gov/phase6/. The Phase 6 Land Use Database will be finalized in December 2016, under the direction of the Land Use Workgroup, and then approved for inclusion in the partnership's suite of modeling and other decision support tools by the WQGIT.

Local Area Targets Development

One of the biggest capacity needs identified during the Phase II WIP process is developing a game plan for engaging local partners, as many localities are unaware of their role in meeting their state's WIP commitments. The development of local area targets could lead to more meaningful engagement by local partners in the WIP implementation process.

At the request of the WQGIT, a cross-sector task force has been established to develop recommendations as to whether the Phase III WIPs should include local area targets and, if so, options for how these targets could be expressed. (The process for developing local are targets will likely need to be tailored to each jurisdiction, given their unique governance structures, WIP priorities, and stakeholder groups.) The membership of this task force is comprised of federal, state and local jurisdictional representatives.

The task force will address findings from the recently published *Chesapeake Bay Stakeholder Assessment*[1], 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 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, to be co-chaired by a state and a local jurisdictional representative, is expected to deliver its recommendations in March 2017 for approval by the WQGIT, the Management Board, and the Principals' Staff Committee, in advance of EPA releasing its Phase III WIP expectations (June 2017) and the draft Phase III WIP planning targets (July 2017).

Water Quality Monitoring & Trends

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 water quality standards. The CBP partnership is interested in better understanding what the monitoring data is showing, and how that's being used to assess progress under the Bay TMDL. These explanations of observed long term trends in stream, river and tidal Bay water quality, are being coordinated and led by the partnership's Integrated Trends Analysis Team, co-chaired by Dr. Jeremy Testa, University of Maryland Center for Environmental Science, and Dr. Joel Blomquist, USGS.

Monitoring data provides a direct measure of progress toward reducing pollutant loads and attaining the Bay watershed jurisdictions' water quality standards. Although the partnership's CBWM is the primary tool to assess progress toward reducing nutrient and sediment loads for the Bay TMDL, monitoring results can be used as supplementary information[2]. Through the CBP partnership's nontidal water-quality network, nutrient and sediment data are collected at over 120 sites throughout the Chesapeake Bay watershed. USGS uses the data to compute loads and trends available at: http://cbrim.er.usgs.gov/index.html. Efforts are underway to show state and local jurisdictions where we are seeing 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.

The CBP partnership expects to have explanations of the observed long term trends across the Bay watershed by the end of 2016. However, partnership groups have been and will continue to be updated on recent findings from water quality trends data, as it becomes available.

Best Management Practice Expert Panels

To date, the CBP partnership has approved over 200 BMPs for nutrient and sediment reduction credit in the CBP modeling tools. Convening BMP Expert Panels and crediting BMPs is an ongoing focus and priority under the Midpoint Assessment, given the integral role BMP implementation plays in the jurisdictions' WIPs and two-year milestones. It allows the partnership to credit actions that are happening on the ground and that the Bay jurisdictions report to the EPA for progress and milestones.

The partnership currently has 19 BMP Expert Panels underway to inform the development of the Phase 6 modeling tools (full list enclosed). There is a formalized process in place for crediting these practices through the partnership's BMP Expert Panel Protocol. Recent efforts have been focused on streamlining the partnership

[1] http://www.chesapeakebay.net/channel_files/22350/chbaytmdlstakeholderassessment7dec2015.pdf

[2] EPA has already begun to incorporating monitoring information into its assessment of progress through the interim evaluation of the 2014-2015 milestones

review and comment of these recommendations; providing regular panel updates to the partnership groups; and strengthening oversight over panel membership and scope.

It is the WQGIT's source sector workgroups that approve the convening of Expert Panels and decide the priority of the BMP Expert Panel queue. Final approval of a BMP's associated nutrient and sediment reduction efficiencies is a WQGIT decision. However, all CBP partnership groups as well as public stakeholders are provided with the opportunity to review an Expert Panel's charge, membership, and draft report prior to WQGIT approval of the nutrient and sediment reduction efficiencies.

Midpoint Assessment and Local Engagement

The Midpoint Assessment provides the CBP partnership with an unprecedented opportunity to engage our local partners and to help them understand their contribution to these WIP goals. It cannot be emphasized enough how getting this local buy-in and strengthening their engagement and capacity-building is an essential component to successfully achieving our shared water quality goals.

The foundation of this process is implementation, and how we can make implementation more streamlined and the challenges more understandable for the partnership as we move towards 2018 and 2025. All of the Midpoint Assessment priorities and activities feed into strengthening local engagement by ensuring they have the tools and data they need to understand their share in implementation and how these efforts will have benefits in their local waterways and in the Chesapeake Bay.

The Midpoint Assessment has been a partnership process every step of the way since 2012. We have strong state and local jurisdictional leadership across partnership's committees, workgroups and teams that are responsible for addressing and implementing these identified priorities. As a partnership, we've strived for:

- Early involvement in strategic issues for increased awareness and buy-in;
- Information sharing at critical points;
- Active involvement in decision making processes; and
- Availability of resources to facilitate key activities, like workshops and expert panels.

EPA, in coordination with the seven Bay watershed jurisdictions and working through the partnership's Communications Workgroup, chaired by Bill Hayden, Virginia Department of Environmental Quality, along with vice chair Catherine Krikstan, University of Maryland Center for Environmental Science, will develop a communications and outreach strategy on the Midpoint Assessment and Phase III WIP process. This communications and outreach strategy will be designed to inform local governments, sector stakeholders and citizens, and federal agencies of opportunities for participation, what needs to happen and why, what resources are available, and the implications of success and failure. The state jurisdictions are also encouraged to develop jurisdiction-specific communications and outreach strategies in preparation of the Phase III WIP, since the state jurisdictions are ultimately responsible for engaging their local partners in WIP implementation.

Enclosures