

BRIEFING MATERIALS  
October 5-6, 2017 LGAC Meeting

Chesapeake Bay TMDL: Midpoint Assessment

Background: On Dec. 29, 2010, the U.S. Environmental Protection Agency (EPA) established the Chesapeake Bay Total Maximum Daily Load (TMDL), a historic and comprehensive cleanup plan with accountability features to guide federal, state and local actions as they clean up the Chesapeake Bay and the streams, creeks and rivers that feed into it.

- The TMDL calls for a 25% reduction in nitrogen, 24% reduction in phosphorus and 20% reduction in sediment delivered to the bay.
- The TMDL was required under the federal Clean Water Act and responded to consent decrees in Virginia and the District of Columbia from the late 1990s.

Watershed Implementation Plans (WIPs) created by each state serve as a guide for meeting the pollution-reduction targets in the TMDL.

- Phase I WIPs, developed in 2010, describe actions the states need to take by 2017 and 2025.
- Phase II WIPs, developed by the states in 2012, built on the initial Phase I WIPs by identifying specific activities that need to be implemented locally.
- Phase III WIPs will be developed by the states following completion of the Midpoint Assessment
- Two-year “Milestone” targets also guide implementation by describing specific actions to be taken by the state or others during the next two-year period.

Bay Program partners are conducting a “**Midpoint Assessment**” to evaluate progress toward the 2017 goal of having practices in place to meet 60% of the overall nitrogen, phosphorus and sediment reductions required in the TMDL.

As part of the Midpoint Assessment, the suite of computer analysis models that informs ongoing restoration actions, commonly referred to as the Chesapeake Watershed Model or “Model,” is being enhanced. The revised model will allow reporting of newly approved pollution-reduction practices, and now includes updated land use and land cover data that more accurately represent what’s happening on the ground. Finally, the Model has been calibrated using almost three decades’ worth (1985 to 2013) of water quality monitoring data from a watershed-wide network of more than 200 monitoring stations (tidal and nontidal).

Additional Resources:

[Fact Sheet: PHASE III WIP GENERAL INFORMATION](#)

[Bay 101 Video: Monitoring and Modeling the Chesapeake Bay](#)

### Phase III Watershed Implementation Plans

EPA expects DE, MD, NY, PA, VA, WV and District of Columbia (collectively referred to as “jurisdictions”) to describe in their respective Phase III WIPs how they, in collaboration with local, regional, and federal partners, will:

- Specify the programmatic and numeric implementation commitments between 2018 and 2025 needed to achieve their Phase III WIP planning targets;
- Commit to comprehensive strategies for engagement of the full array of their local, regional, and federal partners in WIP implementation (*see below for more on local engagement*);
- By 2025, account for changed conditions due to climate change, Conowingo Dam infill and growth, and address any related additional level of effort; and
- Develop and implement local planning goals below the state-major basin scales and in the form best suited for directly engaging local, regional and federal partners in WIP implementation.

The following issues are covered in more detail below:

- Accounting for Growth
- Climate Change
- Conowingo Dam Infill
- Local Engagement
- Local Area Planning Goals

Additional Resources:

[US EPA Interim Expectations for the Phase III WIPs](#)

## Accounting for Growth

Background: Population in the watershed is expected to increase by 11.5%, from 17.4 million to 19.4 million, between 2010 and 2025 respectively. The 2010 Chesapeake Bay TMDL stated: “WIPS are expected to describe procedures for estimating additional loads due to growth and to provide EPA with information to inform additional pollutant load reductions that are at least sufficient to offset the growth and development that is anticipated in the watershed between 2011 and 2025.”

EPA’s Interim Expectations for Phase III WIPs stated: “There should be greater certainty that increased nutrient and sediment pollutant loads resulting from growth have been accounted for and will be fully offset up through 2025.”

The CBP Land Use Workgroup developed a Chesapeake Bay Land Change Model (CBLCM) to:

1. Provide the specific land-use data input needs for the Watershed Model and to accommodate the best available regional data.
2. ***Inform State offset and trading policies and Phase III Watershed Implementation Plan development through simulating alternative future land use scenarios (in absence of jurisdictional forecasts).***
3. Provide an objective basis for evaluating jurisdictional forecasts.

The Chesapeake Bay Program’s Water Quality Goal Implementation Team (WQGIT) recommends that, to ensure jurisdiction’s account for growth, their WIPs be based on 2025 estimated growth, as simulated using the Current Zoning scenario (formerly referred to as “Current Policy”). *The July 2017 joint LGAC-Land Use Workgroup Local Government Forum informed development of scenarios for the Chesapeake Bay Land Change Model (CBLCM).*

### Caveats:

- Growth will be based upon partnership-approved projections in land uses, crops, animal and septic populations, etc.
- Growth models are not accurate at the parcel scale, use should be restricted to coarser scales, e.g., Land-River Segments, HUC12 watersheds, Counties, etc.
- Growth models and future forecasts should be continually updated every two-years through 2025.

Progress on developing the recommended scenarios will be reviewed with LGAC at the October 5-6, 2017 meeting.

Additional Resources:

[LGAC-Land Use Workgroup Local Government Forum Proceedings](#)

## Climate Change

EPA expects jurisdiction's Phase III WIPs to address how they will account for changed conditions due to climate change.

Known/observed/modeled conditions due to climate change:

- Sea level has risen approximately one-foot in the last century.
- The Chesapeake Bay has warmed by more than 2°F between 1936 and 2006.
- Increased precipitation volume
- Increased precipitation intensity
- Increase in temperature and evapotranspiration
- Impacts to local waters and the Bay differ as shown in the following table:

Pollutant of Concern	Change in delivery to Rivers	Change in delivery to Bay
<b>Nitrogen</b>	+ 1.72%	+ 0.34%
<b>Phosphorous</b>	+ 1.08%	+ 0.04%
<b>Suspended Solids</b>	+ 9.07%	+ 4.00%

Local impacts, such as increased incidence of nuisance flooding and increased stream temperature, may not lend themselves to being addressed in the WIP. This creates a messaging challenge.

The key decision the Partnership is requested to make is whether to include both “Quantitative” and “Qualitative” policies for the incorporation of climate change considerations in the Phase III WIPs.

The Water Quality GIT reviewed recommendations from the Climate Resiliency Workgroup. A summary of these recommendations and decisions made by the WQGIT will be presented at the October 5, 2017 LGAC meeting.

### Additional Resources:

[December 2016 Climate Change Presentation to LGAC](#)

[Climate Change Policy Option Briefing Memo](#)

### Conowingo Dam Infill

EPA expects jurisdiction's Phase III WIPs to address how they will account for changed conditions due to Conowingo Dam Infill.

The Lower Susquehanna Reservoirs are now in the state of dynamic equilibrium (no long-term trapping nutrients and sediment). The 2017 CBP Models have Conowingo infill findings consistent with the 2010 CBP Models. The increase of about 1.5 million pounds phosphorus is consistent with the previous analyses (2 million pounds) going back to 2015. The current best estimates of the increase in net transport of phosphorus loads to the Chesapeake due to Conowingo infill is about 1.5 million pounds which results in an estimated ~1% increase in nonattainment of the Deep Channel Dissolved Oxygen water quality standard under WIP levels of nutrient loads. *See Additional Resources below for reference materials.*

The WQGIT recommendation to the PSC for how to address the changed condition due to infill is:

- Develop a Conowingo infill phosphorus load separate from the Phase III WIP planning targets, the removal of which would become a local planning goal.
- MD, PA, NY, and Exelon would need to determine how to account for reductions equivalent to the Conowingo infill phosphorus load, coming up with a multi-strategy approach.
  - Strategy can go beyond looking at just load reductions – for example, variances, dredging, USACE Comprehensive Plan, contribution(s) from Exelon.
  - Consider a letter from the PSC to Exelon on expectations for addressing increased Conowingo infill loads in the CWA 401 certification.
- Consider future implementation beyond 2025 given the impacts to levels of effort.

Additional information will be presented by the WQGIT Chair at the October 5, 2017 LGAC meeting.

Additional Resources:

[Conowingo Infill Presentation to WQGIT September 25, 2017](#)

## Jurisdiction Local Engagement Strategies for Phase III WIP

Recognizing that implementation of WIPs is heavily reliant on local actions, EPA's Expectations document states that "the Phase III WIP development process should include timely communication and engagement of local, regional, and federal partners and other entities."

LGAC has assumed a leadership role in the Local Government Engagement Initiative: a forum for the Jurisdictions, EPA, and other Key Messengers, to collaborate in the development of strategies and tools to 1) inform local governments about the Midpoint Assessment and 2) enhance local government engagement in the development and implementation of Phase III Watershed Implementation Plans (Phase III WIPs). Bruce, Ann and Ruby attend LGEI meetings. Mary is principal staff for LGEI.

It is critical that local government leaders are involved in developing the Phase III WIP (*due in early 2019*) to ensure the plans are **realistic, reflect local priorities, benefit local communities, and clearly identify the resources (e.g., funding, technical support) needed to get the job done.**

Components of such engagement strategies could include:

- Development of an **overall schedule for engaging local, regional, 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, regional, and federal engagement in the Phase III WIP development process, as well as the geographical and/or source sector areas where local, regional, and federal engagement is most needed to accelerate WIP implementation;
- Clear description of the **specific roles** local, regional, 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, verification, and reporting of those commitments;
- Clear description of local, regional, and federal involvement in their jurisdiction's strategy to account for growth; and
- Resources available to local partners to aid in WIP planning and implementation (e.g., meeting coordination and facilitation services), or, where no financial or technical resources are available, identification of pollution reduction strategies that can be accomplished with no additional resources;

Jurisdiction leads will present their engagement strategies at the October 5, 2017 LGAC meeting. Things to consider as you listen to their presentations:

1. Does the schedule seem reasonable? Are there potential "pinch points" in terms of being able to engage local officials, e.g. budget season?
2. Have they identified the right audiences for communication and engagement?
3. Are they using the right communications channels or trusted sources, i.e. the folks who can get information to you most efficiently and effectively?
4. Have the identified ways you can help engage local officials in your jurisdiction?

Additional Resources:

[Local Government Engagement Initiative Webpage](#)

### Local Area Planning Goals (*Excerpt from EPA Expectations*)

One of the biggest capacity needs identified during the Phase II WIP process was developing a game plan for engaging local partners and focusing the Partnership's efforts at a smaller scale as appropriate, as many localities were unaware of their role in meeting their jurisdiction's WIP commitments. A Task Force was established to develop recommendations to the Partnership on how local planning goals could best be expressed in each of the seven Bay watershed jurisdictions.

The Task Force addressed findings from the 2015 Chesapeake Bay Stakeholder Assessment, 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 planning goals; 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.

As a result of the work completed by the Partnership's Task Force, EPA expects the jurisdictions to work with their local and regional partners, stakeholders, and federal and state facilities to establish measurable local planning goals at a geographic scale below the state-major river basin and implement them through their Phase III WIPs. In and of themselves, these local planning goals do not supersede or modify any statutory or regulatory obligations of the local and regional partners; nor do the goals establish any new requirements or rights for those local and regional partners. Decisions regarding how local and regional stakeholders may be involved in developing and achieving local planning goals will remain with the jurisdiction.

The Task Force developed a recommended list of options for how "local" could be defined for the purposes of establishing local planning goals. When a jurisdiction is considering these options, consideration should be given to any existing political or programmatic structures that could provide guidance and/or funding opportunities that would support implementation efforts and provide a framework for tracking progress.

The options are:

1. Locality jurisdictional boundaries (city, town, county, borough, township) or collections of such sub-state political subdivisions;
2. Federal facilities;
3. State facilities;
4. Soil & Water Conservation District (Conservation District) boundaries;
5. Regional entity boundaries (i.e. planning district commissions; regional river basin commissions and utility districts);
6. Watershed or sub-watersheds of Chesapeake Bay tributaries;
7. Targeted areas with high nitrogen, phosphorus or sediment yields (loadings);
8. Bay segment-sheds as depicted in the 2010 Chesapeake Bay TMDL;
9. Any area (e.g., MS4), entity or political subdivision based on an identified need for pollutant reductions for a given source sector or sectors; and
10. Some combination of the above.

In addition, each jurisdiction will also have the flexibility with regard to how local planning goals are expressed. There are many options for how to express local planning goals in a way that helps jurisdictions achieve their Phase III WIPs, and helps local partners to better understand their expected contributions. All options recommended below are supported by the Partnership's decision support tools (e.g., CAST). In addition, the Task Force recommends that monitoring trend data, provided to the Partnership by USGS or developed by an individual jurisdiction, could also be used to support the establishment of local planning goals either independently, or in conjunction with the support of the Partnership's suite of modeling tools. Goals may be expressed using any one of these options, or in some combination, but should result in measurable outcomes. The options are:

- Percentage of BMP Implementation on land uses defined in the Phase 6 Watershed Model;
- Quantifying implementation goals for particular BMPs;
- Programmatic goals (i.e. ordinances with provisions for erosion and sediment control, urban nutrient management, post-construction performance standards) that include specific implementation, oversight and enforcement requirements;
- Numeric nitrogen, phosphorus and sediment as expressed as reductions or maximum load goals o Numeric load goals for one or more pollutants (delivered load of 300 lbs. phosphorus) o Numeric reduction goals for one or more pollutants (reduce loads by 4000 lbs. nitrogen) o Yield based goals for one or more pollutants (0.41 lbs. phosphorus/acre/year from developed lands);
- Pace of implementation over a certain time frame;
- Percent reduction of existing loads over a certain time frame; and
- Percent of flow in certain tributaries/runoff captured – flow-based targets. EPA expects the jurisdictions to document in their Phase III WIPs the approaches they took in establishing these local planning goals, in coordination with their local and regional partners.