DRAFT

Issue:

Establishing the Phase III WIPs on forecasted 2025 Land-use Conditions

Context

To comply with the Chesapeake Bay TMDL, the Bay states are required to develop Watershed Implementation Plans (WIPs) in three Phases. Phase I WIPs were developed by state agencies in 2010 based on presumed 2010 land use conditions. Phase I outlined statewide strategies for achieving the nutrient and sediment load reductions mandated by USEPA in the Bay TMDL. Phase II WIPs were developed in 2012 based on updated 2010 land use conditions (with 50% more urban area) and provided more detailed local-level strategies for achieving load reductions. Phase II WIPs focused on establishing realistic implementation expectations over the 2012 – 2017 timeframe. The Phase III WIPs will be submitted by state agencies in 2017 as an update to the Phase II WIPs and with an emphasis on establishing realistic implementation expectations over the 2018 – 2025 timeframe.

Base Year for Allocations vs. Base Year for WIPs

During the development of the TMDL and subsequent WIPs, the year 2010 was chosen by the WQGIT as both the base year for the allocations and the base year for the WIPs. These were separate decisions and it is only coincidental that they are the same year. There is no technical requirement for them to remain the same in the future.

*Base year for **Allocations***. The general strategy for the 2010 allocations was to give each jurisdiction and basin a load representative of a percentage, based on position in the watershed and wastewater pre-eminence, of everything that could be done to reduce nutrients and sediment. A basin that is more highly developed for urban or agriculture has a higher allocation, all else being equal, than a more forested basin. The year 2010 was chosen as the base year to estimate the extent of urban and agricultural land use, human and animal populations, and other source factors. Choosing a future year would have given a higher allocation to those areas estimated to be growing fastest and a lower allocation to those areas with slower or negative growth. Choosing a previous year would have the opposite effect.

*Base year for **WIPs***. Part of the WIP creation and evaluation process involves estimating the loads that would result from implementing a planned set of management practices. The partnership must choose a time period to estimate the available land for BMP implementation, the human and animal populations, agricultural systems, etc. Choosing a future year for the base of the WIPs introduces additional uncertainty associated with forecasting, but has the advantage of likely being a more accurate representation of the land available for BMP implementation, quantity of nutrients available from manure, and wastewater flows.

Phase III WIP Land-use Options

For the 2017 Mid-point Assessment and Phase 6 suite of models, the CBP Partners are developing an improved baseline land-use dataset that will generally represent conditions in the year 2012. The improved dataset will include information from the 2012 Census of Agriculture, 2010/11 National Land

Cover Dataset, 2012 Cropland Data Layer, 2010 – 2015 American Community Survey, and local land use/cover data (2010 – 2012) where it is available and provided. In addition, the Phase 6 land use dataset will include a variety of land-use classes that were not present in the land-use data used to develop the Phase II WIPs.

Land-use/land-cover data representing the year 2017 will not exist in the year 2017 due to the time lag required for data development. If the CBP Partners choose 2017 land-use information as the basis for establishing the Phase III WIPs, the information will have to be modeled using the most up-to-date county land use data (ranging in vintage from 2010 – 2015) coupled with the most up-to-date county-level agricultural statistics (ca. 2015 or 2016), regional land cover data, and information on land-use/land-cover trends. The modeling could be done using the Chesapeake Bay Land Change Model which will be informed by county-level population and employment projections, annual population estimates (2010 – 2015), annual building permit trends (2000 – 2015), regional land cover trends (1984 – 2011), annual cropland and animal population trends 2005 – 2015, and forest trends (2000 - 2015).

If the CBP Partners choose 2025 as the basis for developing the Phase III WIPs and evaluating the effects of forecasted 2025 implementation levels, many of the same data and processes used to estimate 2017 conditions, hydrologic calibration period conditions, and 2-year future conditions can be employed. While forecasting land-use change introduces an element of uncertainty into the planning process, so too does ignoring the effects of population growth which continues to maintain a linear trajectory in the watershed as it has since 1950. Moreover, basing restoration decisions on inferred future conditions is not new. The CBP Partners have always relied on inferences about land use conditions, forecasts of atmospheric deposition, and wastewater design flows to inform their restoration planning decisions. The two-year future forecasts are also not static. They can be updated regularly as new data are provided and with the continual refinement of modeling assumptions.

Establishing the Phase III WIPs on forecasted 2025 land-use conditions:

Pros	Cons
Provides a greater degree of reasonable assurance by incorporating common, explicit, and defensible assumptions into each jurisdiction's growth allocation.	Some jurisdictions may not want to include an explicit allocation for growth in their WIPs
Facilitates consistency between the WIPs and offset/trading strategies	Introduces a seemingly new element of uncertainty into the WIPs.
Establishes the basis for crediting land use planning and land conservation as "BMP's" that can reduce each jurisdiction's growth allocation.	New policies may be needed to structure and quantify credits for planning and conservation.
Accounts for the conservative estimate of an additional 500,000 – 750,000 people by 2025 (from 2017).	