Addendum for Appendix B: Considerations and research needs when tree canopy land use loading rates are revisited in the future

Though the USWG and WQGIT approved the Phase 6 land use loading rates for tree canopy over turfgrass and tree canopy over impervious in March 2016, it is important to acknowledge that significant concerns and uncertainty remain for the loading rate recommendations developed by Hynicka and Divers on behalf of the Forestry Workgroup (provided as Appendix B in this report). To that end, the following is a list of items for the partnership's future consideration whenever the tree canopy land uses and loading rates are revisited for future updates to the modeling tools. The list includes some elements also identified in the UTC Expert Panel's report, but also other items that are specific to land use loading rates identified in the review and comment process.

- There is a need for collection of multi-year field data that explicitly measures nutrient fluxes associated with areas of urban tree canopy as it relates to the BMPs defined for Phase 6. The data should be collected in areas representative of applicable conditions within the Chesapeake Bay Watershed. The data may be derived from field research or GIS-based analysis of multiple catchments that could be combined with high resolution imagery and other available data to help isolate the effect of tree canopy changes from factors that usually confound that analysis. The data can be used to inform future expert panels, new versions of the modeling tools or land use loading rates.
- If new data specific to nutrient fluxes from tree canopy over turf and impervious surfaces in the Chesapeake Bay watershed is not gathered, the CBP partnership can consider whether to adjust, drop, or keep the tree canopy land uses and loading rates as presently recommended for future model versions.
- Use available published data and revisit assumptions of seasonal variations pertaining to trees and associated nutrient fluxes – including the effects of tree pollen, leaf litter and detritus – to assess the net overall effect for setting an annualized loading rate. The seasonal variations would need to be accounted for in the annual loading rates used in the modeling tools.
- When considering potential increases in infiltration, there should be consistency with the latest set of model assumptions and methods for groundwater and nitrogen transport, broken down by species if possible. Incorporate available research on the effect of tree canopy to alter soil physical properties such as enhanced infiltration.
- If applicable empirical data is still lacking and a conceptual model is necessary to develop loading rates for tree canopy land use(s) then, the direct and indirect impacts to sediment loads from trees in a watershed should be characterized carefully in coordination with other urban land use loading rates and assumptions.