Tree Canopy Land Use/Loading Rate Response & Coordination Plan - updated version 1/13/16

I. Background and Purpose

Since 2003, it has been the policy of the Chesapeake Bay Program (CBP) partners to increase Urban Tree Canopy cover for water quality and other benefits. This was reaffirmed and strengthened in the 2014 Chesapeake Bay Agreement Tree Canopy Outcome. As part of the CBP partnership's efforts to refine land use classifications in Phase 6 of the Chesapeake Bay Watershed Model (CBWM), the Forestry Workgroup (FWG) has been coordinating the effort to include Tree Canopy land uses and associated loading rates in the Phase 6 WSM. For the purposes of the model, Tree Canopy refers to smaller patches of trees in developed areas that do not meet the acreage criteria to be classified as Forest.

Some of the key reasons for including Tree Canopy land uses and loading rates in the Phase 6 modeling tools include the following:

- Urban Tree Canopy is the preferred land cover for water quality in developed areas, yet its benefits are not directly accounted for in the current version of the WSM, Phase 5.3.2; thus retaining Tree Canopy has no "value" in the Bay TMDL framework, whereas Forest, Open Space, and other preferred land uses do.
- Including Tree Canopy land uses in the model improves the ability of jurisdictions to track and manage Tree Canopy changes over time, in meeting their watershed goals; this is important for the Bay TMDL as well as Bay Agreement Tree Canopy Outcome.
- Tree Canopy meets the CBP criteria for establishing land uses in the modeling tools - 1) can be mapped, 2) has loading rates specific to that land use, and 3) has distinct best management practices associated with the land use.

Key Progress to Date:

- Dec. 2014 - WQGIT approved inclusion of Tree Canopy in the Phase 6 land use classes, pending determination and approval of refinements to the associated loading rates.
- Three Tree Canopy land uses (LUs) were mapped for inclusion in initial Oct. 1 2015 model calibration 1) Tree Canopy over impervious, 2) Tree Canopy over turf, 3) Tree Canopy over scrub-shrub; see Land Use Workgroup memo (9/23/15) addressing Tree Canopy mapping considerations.
- Sept. 2015 - Urban Tree Canopy Expert Panel provided Technical Memo with recommended loading rates, supported by Literature Synthesis document; FWG approved recommendations and presented to Urban Stormwater Workgroup (USWG); USWG reviewed and provided comments.
- Sept. 28 2015 - WQGIT decided to include Tree Canopy LUs in Oct. 1 calibration of the WSM without unique loading rates and committed to revisit the LU decision after FWG/Expert Panel provide final loading rate recommendations for CBP workgroup/GIT approval.
- Oct-Dec 2015 – FWG/Expert Panel developed and shared with workgroup/GIT leadership a draft version of this Response & Coordination Plan to enable expedited development and review of

Tree Canopy loading rate recommendations in Jan-Apr timeframe, while Expert Panel focuses on the Tree Canopy BMP (for new tree plantings); Expert Panel aims to deliver final report on Tree Canopy BMP for partnership review by April 2016

- Jan. 13 2016 – LUWG distributed memo proposing revised mapping methodology for forest and tree canopy land uses based on pilot test using new high-resolution imagery for Prince George's County; scheduled for WQGIT approval decision at January 25 meeting. They key change in the new methodology is dropping the Tree Canopy over scrub-shrub category, combining those acres into the Forest land use based on similar loading properties.

II. Summary of Key Issues to address

1. SCIENCE: Bolster scientific justification for loading rates/BMP efficiency (**LEAD: Expert Panel**, w/ FWG and stakeholder input)
    a. Interception
    b. Runoff Reduction – 1-to-1 assumption
    c. Infiltration and transpiration
    d. Address BMP efficiency for tree planting/expanded canopy (to capture new tree plantings on annual basis, between Tree Canopy LU updates)

2. MODELING: Address questions about how Tree Canopy LUs should be incorporated into model (**LEAD: FWG** coordinates with workgroups)
    a. Relation of Tree Canopy LU to other urban LU/Loading Rates (Olivia Devereux's draft loading ratios)
    b. Relation of Tree Canopy LU to other stormwater BMPs ; how BMPs will be applied to new LUs
    c. Question of transpiration credit for Tree Canopy over impervious; interflow modeling

3. MAPPING: Confirm that Tree Canopy mapping questions have been answered (**LEAD: FWG/LUWG)**
    a. Revisit Land Use Workgroup (LUWG) memo on mapping/hindcasting/forecasting and address any outstanding questions
    b. Resolve approach to Virginia Tree Canopy mapping issue (leaf off imagery)

4. POLICY/PROGRAMMATIC: Address other jurisdiction questions/concerns beyond technical issues above (**LEAD: FWG** with input from CBPO modeling team, the Expert Panel BMP Recommendations and stakeholders)
    a. How might having Tree Canopy LUs impact loadings and future load reduction requirements
    b. Clarify connections between Tree Canopy LU and BMP credit and reporting requirements

c. Clarify connections between Tree Canopy LU/BMP in model and the CBP Tree Canopy Outcome/tracking
d. Others as needed…

III. Stakeholder Coordination/Communication plan and timeline

1. Work to address key issues with key workgroup representatives, in coordination with Expert Panel process (includes science/modeling/policy issues above and others that arise)
    a. FWG and Expert Panel staff are coordinating with workgroup Chairs/Coordinators to provide ongoing updates and get feedback on issues
    b. Expert Panel/FWG arranged the support of two analysts to focus on the loading rate science/recommendations from Jan.-March
    c. FWG will work with technical contacts starting in December and as needed to assist with working through modeling/science/technical issues
        i. USWG – Tom Schueler
        ii. LUWG – Peter Claggett
        iii. Modeling WG – Gary Shenk
        iv. Watershed Technical WG – Matt Johnston
        v. Expert Panel – Jeremy Hanson, Neely Law
        vi. Others as needed…Olivia Devereux, Jeff Sweeney, etc.…

2. Provide updates and get input on Tree Canopy LU/Loading Rates issues via an all-workgroup/WQGIT webinar in February, and at relevant workgroup/GIT meetings in early 2016 (see Timeline below)

3. Work directly with jurisdictional representatives to address specific concerns **(LEAD: FWG)**
    a. Phone calls with key jurisdiction representatives to work through questions and concerns as needed

4. Pursue options to run modeling scenario(s) for a pilot area as high resolution data become available to scope out impact of Tree Canopy LUs and proposed loading rates, if needed

IV. Timeline – Proposed, to be refined with workgroup/GIT leadership

Dec-Jan – FWG works with Expert Panel staff and workgroup technical contacts on addressing issues for revised loading rate recommendations; Expert Panel seeks additional support from Tree Canopy analysts to assist FWG/Expert Panel with revised loading rate recommendations/justification

Feb-Mar – FWG/Expert Panel present and get input on Tree Canopy loading rate recommendations via all-workgroup/WQGIT webinar in February. Aim for approval decisions at March workgroup and WQGIT meetings if feasible, in time for April beta calibration.

Meeting Schedule:

- Tree Canopy Loading Rate Webinar – Feb. 11, for all workgroups and WQGIT members and interested parties; webinar will be recorded for those who cannot participate on the date.
- Forestry Workgroup – Feb. 3, Mar. 6
- Urban Stormwater Workgroup – Feb. 16, Mar. 15
- Land Use Workgroup - Mar. 2
- Modeling Workgroup - TBD, as needed
- Watershed Technical Workgroup – Mar. 3
- Water Quality GIT – Mar. 14

Apr-July (as needed) – By April, Expert Panel issues Final Tree Canopy BMP Report and goes through approval process with workgroups/GIT