Tree Planting in the Chesapeake Bay Model

FWG Briefing Paper, May 4, 2011

I. Tree Planting on Ag Lands

Current Definition: Tree planting includes any tree planting, except those used to establish riparian forest buffers, targeting lands that are highly erodible or identified as critical resource areas.

***Proposed New Definition*:** Tree planting includes trees planted on any of the agricultural land uses, and not counted toward another BMP (e.g., riparian buffers) or not required by law.

- Reporting is done in acres, using a conversion rate of 100 trees= 1 acre.
- State must report as a net gain in #'s or acres of trees.
- Effectively reduces average edge of field loading from approximately 27 lb/acre of TN to 4 lb/acre.

II. Urban Tree Planting

Current Definition: Urban tree planting is planting trees on urban pervious areas at a rate that would produce a forest-like condition over time. The intent of the planting is to eventually convert the urban area to forest. If the trees are planted as part of the urban landscape, with no intention to convert the area to forest, then this would not count as urban tree planting.

Proposed New Definition: *Urban tree planting is planting trees in an urban or residential environment. The intent of the planting is to have a living tree in that site or nearby in perpetuity and to expand the tree canopy. Planting 100 trees is equivalent to converting one acre of "pervious urban" to forest.*

- Reporting is done in acres, using a conversion rate of 100 trees= 1 acre.
- If impervious surface is removed for a planting, this counts as a separate BMP (Impervious Surface Reduction credit reduces edge of stream loading from 13 lb/acre of TN to 12 lb/acre).
- Effectively reduces edge of stream loading from approximately 12 lb/acre (TN) to 4 lb/acre.
- State must report as a net gain in #'s or acres of trees.

FAQs:

Why is urban Tree Planting counted and not Urban Tree Canopy (UTC)? UTC expansion is a combination of conservation and restoration within the limits of a community. The act of conservation is not currently reflected as a benefit to water quality-- something must change on the ground to reflect a change in water quality. Since it is beneficial to both conserve and restore, we will continue to report both separately.

What about tree canopy over impervious surfaces? The model does not currently differentiate what land use the canopy will impact.

Tracking and crediting urban tree planting is still a relatively new arena. In December, FWG discussed what forestry BMP's had been reported. Several states were not reporting this practice.

Discussion Question: Do the descriptions of these two BMPs (for the model) work? How are tree planting practices tracked?

III. Tree Planting in TMDL Watershed Implementation Plans

	Tree Planting reported thru 2009 (acres)		2025 WIP Target for Tree Planting (new acres) *		Trees planted per year needed to meet WIP target (acre=100 trees)	
	Urban	**Ag**	**Urban**	**Ag**	**Urban**	**Ag**
DE	125	0	2	930	13	6,200
MD	0	15,318	800	3,345	5,333	22,300
PA	0	44,061	1444	0	9,627	0
NY	0	1772	no data	no data	no data	no data
VA	0	16,158	0	126,506	0	843,373
WV	143	4,452	0	0	0	0
DC	29	0	1,347	0	8,980	0

* Note: these WIP targets come from the state input decks submitted to the CB model estimating 2025 practice implementation; in some cases these numbers vary from what appears in the narrative WIP

Discussion Question:
How can the FWG encourage more tree planting in municipalities, for Phase II WIPs or otherwise?
What information, guidance, tools are needed? (E.g., fact sheets, webinars/trainings)
What key topics/issues most need to be addressed?

IV. Stormwater Permits and Urban Tree Planting

EPA has initiated a national rulemaking to establish a program to reduce stormwater discharges from new development and redevelopment and make other regulatory improvements to strengthen its stormwater program. EPA solicited input specifically on Chesapeake Bay-specific provisions of a new stormwater rulemaking (see Federal Register Notice PDF (5 pp, 68KB). Written comments and any supporting data were due by December 7, 2010. EPA held seven public "listening sessions" to request input from the public. As part of the listening sessions, EPA also addressed environmental justice considerations and potential impacts and benefits that may arise as a consequence of the rulemaking.

Can tree planting become an acceptable BMP in MS4 permits? EPA does not currently recognize tree planting as an Urban BMP in NPDES permits. But timing is good to incorporate considering onsite retention standards and using evapo-transpiration and other available water quality/quantity data. Some larger cities have language to facilitate tree planting but none have specifics (except DC). In Pennsylvania, DEP's Stormwater BMP manual recommends tree planting to meet MS4 permit requirements.

The following wording is part of DC's MS4 permit. While it is DC-specific, there's no reason something analogous couldn't be included in other permits. This permit also has a green landscaping provision, development performance standards that require green infrastructure measures to implement, and a number of other things.

"Tree Canopy
No later than one year following issuance of this permit, the permittee shall develop and public notice a strategy to reduce the discharge of stormwater pollutants by expanding tree canopy throughout the city. The permittee shall identify locations throughout the District where tree plantings and expanded tree boxes are technically feasible and commit to specific schedules for implementation at locations throughout the District, with highest priority given to projects that offer the greatest stormwater retention potential. This effort shall include, at a minimum:

1. Achieve a minimum annual tree planting rate of at least 4,150 plantings annually within the District MS4 area. This total shall be calculated as a net increase, such that annual mortality is also included in the estimate. Ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rate within the District. Trees shall be planted in accordance with the Planting Specifications issued by the International Society of Arboriculture as appropriate to the site conditions.
2. Annually document the total trees planted and make an annual estimate of the volume of stormwater that is being removed from the MS4 (and combined system, as relevant) in a typical year of rainfall as a result of the maturing tree canopy over the life of the MS4 permit. Also report annually on the status of achieving 40% canopy District-wide."

Discussion Question:

Would the FWG want to recommend tree planting as an optional or required BMP element of MS4 stormwater permits?

Urban Tree Planting Fact Sheet

Planting trees is one of the best things you can do to improve the health of your local streams and rivers and, ultimately, the Chesapeake Bay!

Across the Chesapeake watershed, we are losing forest at a rate of 100 acres/day. One way to compensate for the loss of forests is to plant trees. Trees contribute to water quality, air quality, recreational opportunities, wild-life habitat, the local economy and quality of life for everyone.

Planting trees in an "urban" area effectively reduces pollutant loading from approximately 12 lb/acre (TN) to 4 lb/acre. This is the same reduced pollution that is applied to a forest.

***Urban Tree Planting*:** *Planting trees in an urban or residential environment, with the intent to increase and sustain the tree canopy. Planting 100 trees is equivalent to converting one acre of urban land to forest. Tree replacement may need to occur but cannot be "counted" as an additional planting.*

Urban Tree Planting Fact Sheet

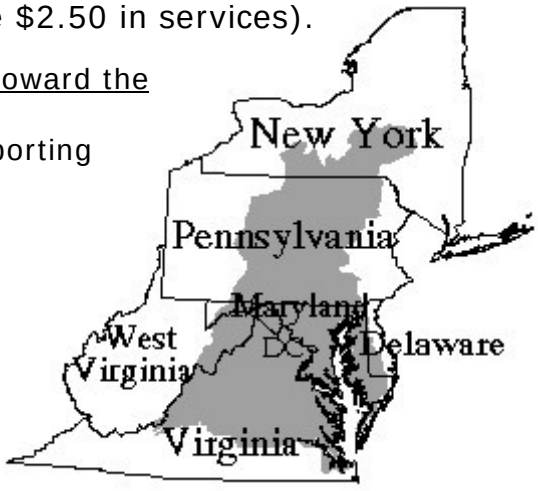
Why does tree planting matter now more than ever?

In 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL), a historic and comprehensive "pollution diet" with rigorous accountability measures to restore clean water in the Chesapeake Bay and all the region's streams, creeks and rivers.

The pollution diet for all streams draining into the Bay amounts to a 25 percent reduction in nitrogen, a 24 percent reduction in phosphorus and a 20 percent reduction in sediment. In 2010, each of the six Chesapeake Bay states (PA, NY, MD, VA, WV, and DE) and Washington D.C. developed a Watershed Implementation Plan, or WIP, to meet their restrictions in these pollutants.

In 2011, while the jurisdictions implement their WIPs, they will begin development of Phase II WIPs, designed to more closely engage local governments, watershed organizations, conservation districts, citizens and other key stakeholders in reducing water pollution. Tree planting counts toward the needed pollution reduction and should be reported.

Tree planting is an ideal practice for local governments because there is a low overhead, trees contribute directly to the local environment, and trees pay us back (for every $1 invested in tree planting, citizens receive $2.50 in services).



How do I ensure my tree planting efforts are counted toward the restoration of the Bay?
Planting should be reported to the state contact for reporting restoration practices to the Chesapeake Bay Program.
State contacts are:

MD: AStrang@dnr.state.md.us
DE: Jennifer.Volk@state.de.us
WV: Herb.F.Peddicord@wv.gov
VA: Barbara.White@dof.virginia.gov
NY: cdy3@cornell.edu
PA: TrCoulter@state.pa.us
DC: Steve.Saari@dc.go

What qualifies as an "urban" area in which to implement this practice? Any developed land (generally speaking, where there are buildings or hard surfaces nearby), not including trees planted for mitigation.

What type of trees should be planted? The best trees to plant are long-lived, native shade trees such as oak trees (e.g., swamp white oak) or disease-resistant elms. If large, shade trees are not appropriate for a given space (e.g., with utility lines overhead), than a smaller tree will do. Follow the adage: "Right tree, right place."

Why is the practice of urban tree planting counted toward pollution reduction and not Urban Tree Canopy (UTC)? Restoration, not conservation, is currently reflected as a benefit to water quality-- something must change on the ground to reflect a change in water quality. UTC expansion is a combination of conservation and restoration within the limits of a community. Since it is beneficial to both conserve and restore, we will continue to track both tree planting and UTC separately.