

Tree Canopy Outcome

Management Strategy



Introduction

The Chesapeake Bay Program partners first recognized and set goals related to urban tree canopy in the 2003 Chesapeake Executive Council Directive (03-01) on Expanded Riparian Forest Buffer Goals:

...WE FURTHER RECOGNIZE THAT URBAN TREE CANOPY COVER offers stormwater control and water quality benefits for municipalities in the Chesapeake Bay watershed and can extend many riparian forest buffer functions to urban settings.

...WE COMMIT TO THE ADOPTION OF AN EXPANDED SET OF GOALS:

- By 2010, work with at least 5 local jurisdictions and communities in each state to complete an assessment of urban forests, adopt a local goal to increase urban tree canopy cover and encourage measures to attain the established goals in order to enhance and extend forest buffer functions in urban areas.
- Encourage increases in the amount of tree canopy in all urban and suburban areas by promoting the adoption of tree canopy goals as a tool for communities in watershed planning.

Since then, through the combined efforts of local, state, and federal resources, there has been a steady progression in the use of high-resolution urban tree canopy assessments to set canopy goals and inform tree planting efforts in communities. These efforts were aided by a 2006 workshop and resulting guidance document, *Urban Tree Canopy Goal Setting: A Guide for Chesapeake Bay Communities*. Figure 1 shows a map of the over 70 communities and 9 counties that have conducted assessments in the Bay watershed.

Despite these achievements, relatively little information exists on the progress communities have made in increasing tree canopy through planting, protection, and maintenance efforts. The 2014 Chesapeake Bay Agreement builds on past progress by setting a quantitative outcome for increasing Urban Tree Canopy and tasking Chesapeake Bay partners with creating a management strategy to assist communities with achieving their goals.

To begin engaging a broad network partners in this Strategy's development, the Chesapeake Urban Tree Canopy Summit was hosted on October 14-15, 2014 in Linthicum, Maryland by the Forestry Workgroup, Alliance for the Chesapeake Bay, and Maryland Dept. of Natural Resources, with funding support from the Environmental Protection Agency. The agenda, recorded presentations, attendee list, and Summit Proceedings report are available on the [Chesapeake UTC Summit website](#). Over 80 representatives from across the watershed attended, and a larger list of over 250 "interested parties" have participated in meetings and updates on the Management Strategy process. In addition to featuring state programs, the Summit highlighted the critical role of urban forestry partner organizations who work closely with local governments on tree canopy goals – groups such as TreeBaltimore, TreeFredericksburg, Parks and People Foundation, Casey Trees, Alliance for the Chesapeake Bay, Virginia Tree Stewards, and many more.

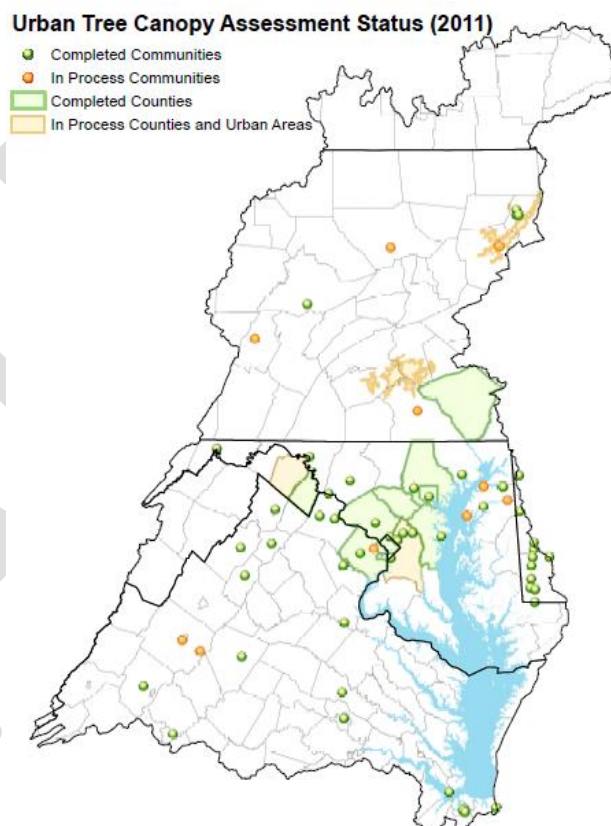


Figure 1. UTC Assessments in Bay watershed (2011)

Note: map will be updated in Final Strategy

I. Goal, Outcome and Baseline

This management strategy identifies approaches for achieving the following goal and outcome:

Vital Habitats Goal: Restore, enhance and protect a network of land and water habitats to support fish and wildlife, and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

Tree Canopy Outcome: Continually increase urban tree canopy capacity to provide air quality, water quality and habitat benefits throughout the watershed. Expand urban tree canopy by 2,400 acres by 2025.

In this Management Strategy, we use a broad definition of “urban” tree canopy that includes all sizes of communities. It is important to note that this goal is intended to reflect a *net gain* in acreage of tree canopy, after accounting for canopy losses due to various factors such as development, storms, pests/diseases, and natural mortality. Meeting the goal requires protecting as much of our existing tree canopy as possible and planting enough to both mitigate losses and expand the tree canopy cover by 2,400 acres.

The goal of 2,400 acres was set in 2013 by each state forestry agency estimating what they thought could be accomplished on an annual and long-term basis over the next 12 years (2013-2025, based on existing programs. However, this estimation was constrained by the fact that most of the states have not had access to good data on the tree planting carried out by varied organizations throughout the state and trends in tree canopy gains/losses. Since two years have already passed since these target estimates were set, we will revisit and revise as needed these state annual targets to meet the 2025 Target as we develop the first 2 Year Workplan. We anticipate that the state targets may be increased over time as better tracking mechanisms and programmatic strategies are put in place:

Table 1. State Targets to meet UTC Outcome

State	Annual Target (New Acres)	2025 Target (New Acres)
Delaware	5	60
DC	40	480
Maryland	45	540
New York	5	60
Pennsylvania	60	720
Virginia	40	480
West Virginia	10	120
TOTAL	205	2460

Although the outcome focuses on the quantity of urban tree canopy in the watershed, it is just as important to address the quality or health of the urban forest in order for its benefits to be sustained over time. Therefore this Strategy recommends a holistic approach to managing the urban tree canopy, incorporating planning, protection and maintenance actions needed to sustain a healthy urban forest.

One component of the urban tree canopy that provides unique water quality benefits is urban riparian forest buffers along waterways. The [Forest Buffer Management Strategy](#) addresses riparian buffer goals and actions throughout the watershed, with an emphasis on agricultural lands. Because this Tree Canopy Strategy is geared towards urban and suburban areas and partners, urban forest buffers will be included in the suite of information, tools, and technical assistance developed to support communities with their tree canopy goals.

Baseline and Current Condition

Although many localities and some counties have conducted high resolution UTC assessments, a Baywide UTC estimate has not yet been developed. A coarse estimate based on the 2011 National Land Cover Dataset (NLCD) Tree Canopy data suggests there are at least 1.5 million acres of tree canopy within the 2010 Census Urban Areas/Urban Clusters of the counties in the watershed. However, based on a comparison with Maryland's recent high resolution statewide tree canopy assessment (1-meter data), the NLCD (30-meter) data underestimates tree canopy cover from 6-50%.

Therefore, USGS and the Land Use Workgroup are in the process of developing a watershed-wide tree canopy dataset that incorporates all the high resolution data available, using NLCD data only in areas where high resolution data do not exist. When completed, this dataset will serve as our baseline for measuring longterm progress on the UTC outcome. The dataset is also intended to be used as a new land use layer in the Chesapeake Bay model, so that the water quality benefits of existing urban tree canopy are better accounted for in pollutant loading estimates. The University of Vermont Spatial Analysis Lab recently completed statewide tree canopy mapping for the state of Maryland as part of a NASA-funded project with University of Maryland, and plans are in place to complete similar statewide tree canopy datasets (1 meter resolution) for Pennsylvania and Delaware in 2015. In addition, Chesapeake Bay Program partners are pursuing a proposal to get high resolution land cover data for the entire watershed. All of these complementary efforts should greatly help to refine the UTC baseline estimate over the next 1-2 years.

Local governments who have conducted UTC assessments already have a good local baseline to work with in tracking progress on their UTC goals, although the baseline assessment year varies by locality. Appendix A of the Final UTC Strategy will provide a table summarizing these assessments to date, with the local tree canopy acreage and percent.

While the watershed-wide baseline is being developed and refined over time, we will begin tracking progress immediately using the existing tracking mechanism of jurisdictions reporting acres of urban tree planting to the Chesapeake Bay model each year for the TMDL (see Section VI on Monitoring Progress). These data will be periodically cross-checked with high resolution aerial imagery to assess whether a net gain in tree canopy is actually happening on the ground.

II. Participating Partners

The following partners have participated in the development of this strategy. A workplan to accompany this management strategy will be completed six months after this document is finalized. It will identify specific partner commitments for implementing the strategy.

Chesapeake Bay Watershed Agreement Signatories

- State of Delaware
- State of Maryland
- District of Columbia
- Commonwealth of Pennsylvania
- State of New York
- State of Virginia
- State of West Virginia
- Chesapeake Bay Commission

The development of the Urban Tree Canopy Management Strategy is being led by the Chesapeake Bay Program [Forestry Workgroup](#). Formed in 1989, the Forestry Workgroup is coordinated by the USDA Forest Service with longstanding representation from all Bay state forestry agencies and a variety of federal, state, local, and nongovernmental partners. The lead state agency representatives contributing to the Urban Tree Canopy Management Strategy are listed below and serve as points of contact for other groups who would like to be involved with the Strategy:

TABLE 2. Key Contacts for Urban Tree Canopy Management Strategy

Jurisdiction	Lead Agency/contact
Federal Coordination	USDA Forest Service Julie Mawhorter, jmawhorter@fs.fed.us
State	
Delaware	Delaware Forest Service Kyle Hoyd, kyle.hoyd@state.de.us Kesha Braunskill, kesha.braunskill@state.de.us
District of Columbia	DDOT Urban Forestry Administration John Thomas, john.pthomas@dc.gov District Dept. of Environment Steve Saari, steve.saari@dc.gov
Maryland	Maryland DNR Forest Service Marian Honeczy, marian.honeczy@maryland.gov
New York	NYSDEC, Div. Lands and Forests Mary Kramarchyk, mary.kramarchyk@dec.ny.gov
Pennsylvania	PA-DCNR Bureau of Forestry Rachel Reyna, rreyna@pa.gov
Virginia	VA Dept. of Forestry Barbara White, Barbara.White@dof.virginia.gov
West Virginia	Cacapon Institute (CB UTC Coordinator) Frank Rodgers, frodgers@cacaponinstitute.org WV Div. of Forestry Herb Peddicord, Herb.F.Peddicord@wv.gov

Local Engagement

The Urban Tree Canopy outcome will only be achieved through the efforts of local governments and their urban forestry partners working to plant, protect, and maintain the community's tree canopy. Local governments play a primary role in achieving UTC goals by establishing and enforcing supportive policies and ordinances, providing funding and staffing, building partnerships with non-profit and private entities, and tracking progress in meeting goals. Nongovernmental urban forestry partners, watershed groups, and other conservation organizations often provide critical support to local governments in planting and maintaining trees, engaging volunteers, and building public support. Because community governance varies significantly across the watershed in structure, policy, and capacity, the Strategy recognizes that flexible, locally adapted approaches are needed to support UTC goals. The rest of the sections of this Strategy identify key needs and management strategies related to local engagement, which will be detailed more fully when the 2 Year Workplan is developed. These efforts will be closely coordinated with the Chesapeake Bay Local Leadership Strategy/Workgroup, the Local Government Advisory Committee, and the Diversity Action Team.

III. Factors Influencing

There are a variety of social and environmental factors that influence the ability to meet Urban Tree Canopy goals. The equation in Figure 2 illustrates the basic components of achieving an urban tree canopy goal, demonstrating that success is not just a matter of how many trees are planted, but how new and existing trees grow and survive over time as a function of the protection and maintenance that is provided, as well as the canopy losses that occur through removals and mortality. Each element of this equation is influenced by various social and environmental factors, summarized in the chart and table below. The Forestry Workgroup and interested stakeholders assisted in ranking some of these key "influencing factors" to help prioritize those areas that we can influence through Strategy actions and collaboration. The Workgroup acknowledges that all factors influencing are a priority, but a rough ranking is included in the Influencing Factors table below.

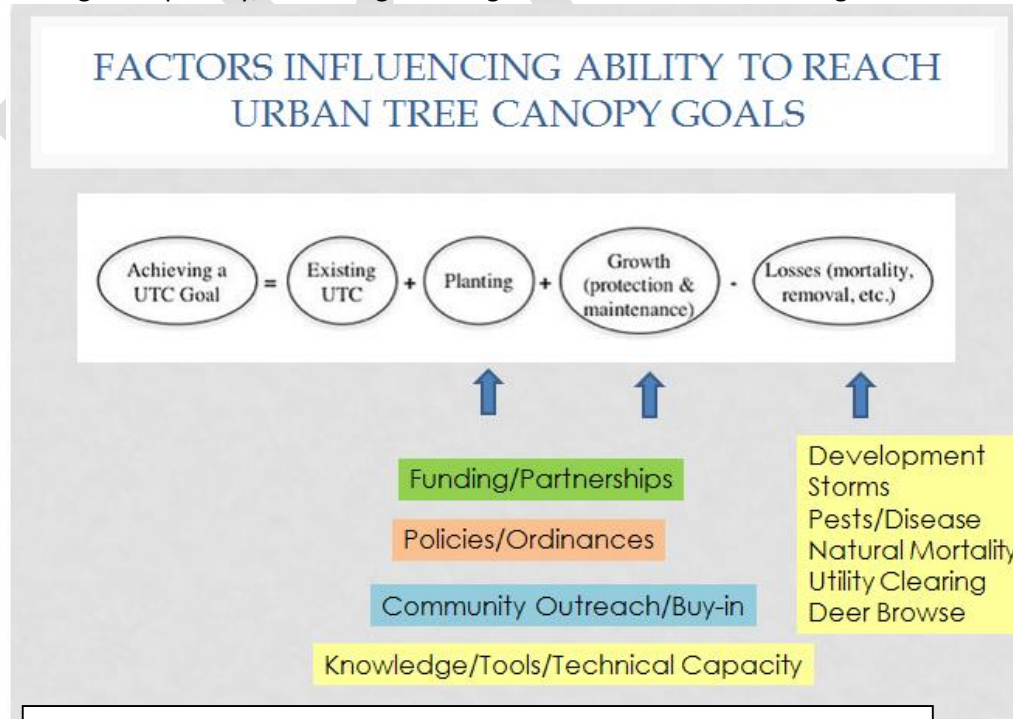


Figure 2. The Basic Components of Achieving an Urban Tree Canopy Goal

TABLE 3. Factors Influencing Ability to Meet Goal	Rank (1=highest, 5 = lowest)
Funding/partnerships <ul style="list-style-type: none"> - State funding - Local funding - Private/foundation/other funding 	1
Policies/ordinances <ul style="list-style-type: none"> - State policies/regulations - Local policies/ordinances - TMDL/Stormwater program priorities 	2
Community outreach and education <ul style="list-style-type: none"> - State or CB-wide outreach campaigns - Locally driven outreach campaigns 	5
Capacity/knowledge <ul style="list-style-type: none"> - Of local government - Of nonprofit/volunteers/partner groups - Of private sector 	4
Key Drivers of Canopy Loss <ul style="list-style-type: none"> - Development - Storms - Pest/disease (e.g. Emerald Ash Borer, etc.) - Utility-related removals - Homeowner/property owner removals - Mortality – poor maintenance/site conditions - Natural Mortality - aging tree populations - Deer Browse 	3

IV. Current Efforts and Gaps

The Chesapeake Urban Tree Canopy Summit held on October 14-15, 2014 provided a helpful synthesis of current efforts and key issues to be addressed in order to meet urban tree canopy goals. The report [Urban Tree Canopy Summit – A Meeting Summary](#) provides a synopsis of these findings as highlighted in the following presentations:

- Meeting Our Goals**
 Chesapeake UTC Goals and Progress, *Julie Mawhorter, USDA Forest Service*
 Putting UTC Assessments into Action, *Morgan Grove, USDA Forest Service*
- Finding the Bright Spots: Key State Strategies**
 Maryland, *Marian Honeczy, Maryland DNR Forest Service*
 Virginia, *Barbara White, Virginia Department of Forestry*
 West Virginia, *Frank Rodgers, West Virginia (Cacapon Institute)*
 Pennsylvania, *Christine Ticehurst, Pennsylvania Bureau of Forestry*
 District of Columbia, *John Thomas, Washington D.C. DDOT Urban Forestry Administration*
- Integrating UTC into Water Quality Goals**
 Green Infrastructure, *Charlotte Katzenmoyer, Lancaster City, PA*
 Watershed Implementation Plans, *Don Outen, Baltimore County, MD*

Stormwater, Washington D.C., *Steve Saari, DDOE/ John Thomas, DDOT*

- **Local Innovations**

Partnerships, *Charlie Murphy, TreeBaltimore*

Outreach Strategies, *Lou Etgen, Alliance for the Chesapeake Bay*

Improving Tree Survival, *Dr. Jessica Sanders, Casey Trees*

Stewardship, *Louise Seals, Virginia Tree Stewards*

Table 1 below summarizes some of the state and local efforts currently in place to support urban tree canopy progress, as well as some of the gaps where existing programs, resources, and/or data are not likely to be sufficient to meet urban tree canopy goals. For a more comprehensive list of the state-level programs and actions currently in place for urban tree canopy, please refer to the preliminary Draft State Action Plans in Section 5 of this Strategy.

Table 4: Current Efforts and Gaps

UTC Strategy Elements	Current Efforts	Gaps
Assessment/Planning	<ul style="list-style-type: none"> • UTC Assessments completed for 70 localities and 9 counties • UTC Goals set by 40+ localities • UTC Implementation Plans developed by 20+ localities • VA: Implementation Plan pilot study and guidance document coming out soon • USFS-Baltimore Field Station-good tools for putting UTC data into action 	<ul style="list-style-type: none"> • Limited examples/data on communities using UTC data and goals to make progress on the ground • Less than a third of assessed localities have developed implementation plans • Green infrastructure plans are lacking in most counties to provide protections for the remaining natural resources
Tree Canopy Protection	<ul style="list-style-type: none"> • MD: Forest Conservation Act, Reforestation Law, Critical Areas Law • VA: Chesapeake Bay Preservation Ordinance; local tree canopy ordinances where applicable- (e.g. select counties/cities in Virginia) • Local – e.g. Annapolis tree canopy protection legislation • See Section 8 for more examples 	<ul style="list-style-type: none"> • Lack of data on tree canopy loss and effectiveness/scope of local policies in place • Health of the urban forest needs more attention, e.g. managing threats such as invasive species, impact of pollutants on trees (exhaust, salt), and climate change impacts • Need to assess and strengthen as needed local and/or state policy tools available to protect canopy (e.g. in development/ stormwater related permitting) • TMDL framework credits tree planting but not protection of canopy

UTC Strategy Elements	Current Efforts	Gaps
		<ul style="list-style-type: none"> • Need for more protective policies for riparian forest buffers in urban/suburban areas
Tree Planting	<p>State Programs</p> <ul style="list-style-type: none"> • DE: annual urban forestry grants • DC: DDOT street tree plantings, DDOE private Riversmart incentive programs (total 4,450-7000+ trees planted/year) • MD: Marylanders Plant Trees (coupons), Lawn To Woodlands, etc. • PA: TreeVitalize tree planting grants • VA: Trees for Clean Water grants • WV: Project Communitree and Bay grants • NY: NYSDEC's Urban and Community Forestry Program assistance to communities Local Funding/Partnerships • Some local urban forestry programs have more robust funding/partnerships/grant successes (TreeBaltimore, etc.) • County programs – e.g. Baltimore County's stormwater utility fee funded tree plantings for TMDL, Montgomery County "Shades of Green", "Leaves for Neighborhoods", and street tree programs • Nonprofit and other private/community partners can play key role 	<ul style="list-style-type: none"> • Most local programs cite inadequate funding/staffing to achieve UTC goals • State funding programs generally not robust enough to meet local needs • Lack of data on local tree planting accomplishments and funding mechanisms • Most tree planting opportunity is on private land but there are few incentive programs to promote private planting • Tree planting has not been well integrated into TMDL/WIP/stormwater goals • Limited programs available to support riparian forest buffer plantings in non-agricultural areas
Tree Survival/Maintenance	<p>State/local citizen stewardship programs:</p> <ul style="list-style-type: none"> • PA: Tree Tenders training • VA: Virginia Tree Stewards trainings and local groups (11) • DC: (Casey Trees) and Baltimore, MD have programs for citizen tree care • WV: in process of developing a 	<ul style="list-style-type: none"> • Lack of proper maintenance results in short life spans • Major lack of funding for tree maintenance/survival by local governments and nonprofit partners • Need to develop and use common standards/best practices for tree planting

UTC Strategy Elements	Current Efforts	Gaps
	<p>"TreeMinders" program</p>	<p>and maintenance to enhance survival</p>
<p>Community Engagement/ Outreach</p>	<ul style="list-style-type: none"> Varies widely by state and locality – very decentralized There are a variety of good national resources/websites/tools to draw from Some effective examples of working with targeted audiences: <ul style="list-style-type: none"> Schools/youth organizations Churches and other civic groups Businesses Utilities 	<ul style="list-style-type: none"> Local government and community buy-in often cited as major challenge (and opportunity) for meeting UTC goals Lack of robust, targeted outreach/ education resources and tools and mechanisms for assisting network of local practitioners
<p>Tracking Progress</p>	<p>Tree Planting</p> <ul style="list-style-type: none"> Tree planting data is currently limited to certain state programs with good databases Online tree tracking tools/apps do exist which could be adapted to CB watershed (e.g. Penn Tree Mapper, Baltimore UTC tools, etc) Chesapeake Forestry BMP Verification guidance has been developed by Forestry Workgroup for urban tree planting which will be used to guide tracking systems <p>Tree Canopy</p> <ul style="list-style-type: none"> Potential for doing state- and region-wide UTC assessments like Maryland's recent statewide assessment to track canopy change over time (5 year intervals); University of Vermont Spatial Analysis Lab worked with NASA and Univ. of Maryland on this for MD and will be completing statewide tree canopy assessment for PA and DE in 2015 	<p>Tree Planting</p> <ul style="list-style-type: none"> Need to develop a tracking support system for tree planting that can capture state/local/ngo data; meets BMP verification/quality control standards; and feeds good data into the Chesapeake Bay Model/TMDL accounting <p>Tree Canopy</p> <ul style="list-style-type: none"> No Bay-wide high resolution UTC dataset currently in place, but CB partners are currently pursuing it

Management Approaches

This section highlights long-term partnership strategies that will be pursued to address key needs and gaps for meeting the Urban Tree Canopy outcome. The first table includes longterm Bay-wide management strategies that will be pursued by the Forestry Workgroup and a network of partners. For a list of preliminary Draft State Action Plans, which outline current and proposed state-level actions to support the urban tree canopy outcomes, please see Appendix 1. These strategies and actions will be refined in the coming months through additional input from state leadership, stakeholders, and public comment. Finally, a more detailed subset of priority near-term actions will be compiled into a 2 Year Workplan, to be finalized by December 2015 in alignment with the jurisdictions 2 Year Milestones for the Chesapeake TMDL. This will include a list of priority actions, tools, and technical support needed to support local government and others.

TABLE 5. Management Approaches (Longterm) *Note: specific, detailed actions to support these will be developed through the 2 Year Workplan	Plan	Protect	Plant	Maintain	Engage	Track
Funding /Partnerships 1.Assess and summarize federal, state, local and private funding opportunities available to support local UTC implementation, , including riparian forest buffers in developed areas 2. Provide guidance/case studies/best practices for local governments and partner organizations on how to strengthen funding and partnerships for UTC 3. Explore options for expanding UTC funding for diverse Chesapeake communities through leveraging federal, state, and private resources (e.g. work with Bay Funders Network)	x	x x	x x	x x	x	
Policy/Ordinances 1.Review state and local policies in place to support urban tree canopy and provide recommendations on best practices, model ordinances, etc. for Bay jurisdictions (e.g.Annapolis tree canopy legislation and volunteer program cited as a model) 2. Work with stormwater program managers (federal/state/local) to better integrate urban tree canopy and riparian buffer goals with TMDL/WIP implementation and MS4 programs 3. Support efforts to credit/incentivize tree canopy protection in addition to planting in the TMDL framework		x x	x x	x x		x

TABLE 5. Management Approaches (Longterm) *Note: specific, detailed actions to support these will be developed through the 2 Year Workplan	Plan	Protect	Plant	Maintain	Engage	Track
Technical Capacity/Knowledge 1. Provide guidance, training, and technical assistance to help local governments and partners develop robust urban tree canopy implementation programs 2. Support the development of Baywide high resolution UTC data updated regularly (e.g. every 5 years) to track progress/net gain 3. Work with states to develop user-friendly tracking and verification systems for groups to report urban tree planting to the Chesapeake Bay model for BMP credit, in alignment with Chesapeake Bay Program Forestry BMP Verification Guidance 4. Provide guidance and standards/best practices for tree planting and maintenance to improve long-term survival	x x	x	x x	x x	X	x x
Community Outreach/Education 1. Use online tools/webinars/listserves to support ongoing training and information sharing in the urban forestry community of practice (e.g. a “Chesapeake Tree Canopy” group within the existing Chesapeake Network tools) 2. Develop and pilot social marketing and other innovative outreach methods to broaden community engagement in urban tree canopy implementation 3. Develop communication and outreach strategies targeted to diverse audiences, focusing on areas with greatest need and opportunity (e.g. low canopy/underserved communities; schools, faith-based, and other civic organizations; homeowner associations; etc.) 4. Work with the Diversity Action Team as described under Cross-Outcome Collaboration below and solicit guidance from LGAC during work plan development to facilitate greater local participation, including representation of underserved and underrepresented communities 5. Continue and increase coordination between local agencies, non-profits, and utilities intended to protect property from and assist homeowners with maintaining over hanging tree limbs threatening property and human				x x	x x x	

TABLE 5. Management Approaches (Longterm) *Note: specific, detailed actions to support these will be developed through the 2 Year Workplan	Plan	Protect	Plant	Maintain	Engage	Track
health.						

Cross-Outcome Collaboration and Multiple Benefits

The Urban Tree Canopy outcome overlaps with and complements a number of other Chesapeake Bay Program outcomes and workgroups and will be integrated as much as possible with these related efforts. We have started to engage and will continue to coordinate our urban tree canopy strategy efforts – in particular in outreach and technical assistance – with the following Chesapeake Bay program workgroups, and any others who express interest in working with us:

- Local Government Advisory Committee and Local Leadership Workgroup
- Water Quality Goal Implementation Team, including Urban Stormwater Workgroup and Land Use Workgroup
- Stewardship Goal Implementation Team, including Citizen Stewardship Team, Education Workgroup (schools initiatives)
- Diversity Action Team, including Outreach and Environmental Justice teams
- Climate Adaptation and Mitigation Strategies

In collaboration with the Diversity Action Team, we have identified Management Approaches for reaching diverse audiences and addressing connections between environmental justice and tree canopy, which include:

- Engage civic organizations that already attract diverse segment of population
 - E.g., partner with the fraternity Alpha Phi Alpha's National Green Initiative, National Urban League, and other alumni chapters from historically black colleges
- Education, communications and outreach to diverse partners on tree canopy benefits and resources to assist communities
 - Involve new communities in data collection; Citizen science for urban dwellers
 - Include targeted heat island monitoring in areas where this is a problem
 - Extend this to maintenance/monitoring
 - Social marketing, selling to the field to promote grass roots tree advocacy
 - should address barriers in diverse communities
 - Collect information for groups so that it's readily available
 - Tree canopy workgroup will send tree benefits to the Diversity Team
 - Need a database of case studies and lessons learned
 - The database should upload communication materials
 - Database needs to be well-organized, promoted
 - Need information on state and county tree ordinances—some FAQs (partner with state to get county ordinance info)
- In conjunction with Environmental Justice team, identify underserved communities defined by those areas with little tree cover. Make it an action to expand tree canopy therein and report out on this effort.

V. Monitoring Progress

At present, the Chesapeake Bay Program partnership does not have a well-established mechanism for tracking progress in achieving the urban tree canopy outcome, so this will be a high priority in the first 2 Year Action Plan. Urban Tree Planting is an approved/credited Best Management Practice (BMP) that can be reported by Bay jurisdictions to the Chesapeake Bay model towards achieving TMDL reductions. Most jurisdictions are reporting some data on state-funded urban tree planting, but most do not have reporting systems set up to get tree planting data from local governments and partners across the state. The Forestry Workgroup will work with state forestry partners and WIP/TMDL reporting contacts in 2015 to help get more comprehensive and consistent tracking and verification systems in place to track progress. These systems will be set up in alignment with the Chesapeake Bay Program's Forestry BMP Verification Guidance, including training, reporting and verifications standards, and state oversight for local urban forestry partners' data submissions.

Over the past two years, the Forestry Workgroup has drafted Forestry BMP Verification Guidance to advise states tree-related BMPs such as riparian forest buffers, urban tree planting, and others. [Add link to guidance doc] This guidance addresses issues related to both tracking of tree planting in the year it occurs and also methods to verify survival and maintenance over time. In 2015, the Forestry Workgroup will be working with state partners on their verification protocols for urban tree planting to address common issues related to tracking tree planting survival and maintenance.

As has been noted throughout this Strategy, it is critical to track progress not only in tree planting but in the net gain or loss of tree canopy over time, due to the many ongoing causes of canopy loss (development, storms, pests, natural mortality, etc.). Therefore, the Forestry Workgroup will collaborate with Bay Program partners on options for tracking urban tree canopy change over time using high resolution aerial assessments. Maryland is the first Bay state to complete a statewide high resolution urban tree canopy assessment, and plans are being developed to repeat this assessment periodically (e.g. every 5 years) to track change over time. Bay Program partners are currently setting up agreements to achieve such "wall-to-wall" high resolution land cover assessments for the entire Chesapeake Bay watershed. These efforts are a high priority for being able to accurately assess long-term progress in the urban tree canopy net gain goals.

VI. Assessing Progress and Adaptively Manage

The 2 Year Workplan will be our main tool for focusing collaboration across federal, state, local, and nongovernmental partners on the urban tree canopy goals. In addition to looking at the growing body of tree planting data that will be developed and reported over the next two years, we will track our progress in meeting the state and Bay-wide partnership actions set out in the plan. Assessment of progress will be aligned with the cycle of state reporting for 2 Year Milestones for the TMDL, because urban tree planting data will be reported as part of meeting these milestones. As the first 2 Year Action Plan is nearing the end of its time window, we will have another Management Strategy assessment and planning process to develop the next 2 Year Workplan, based on what has been achieved, challenges, and lessons learned.

The Chesapeake Bay Program has extended the timeline for completing 2 Year Workplans for the Management Strategy to Dec. 2015 so that states can integrate and align these Strategy actions with their next set of 2 Year Milestones for the TMDL. Therefore, we will work with partners on compiling

a subset of priority actions for the 2 Year Workplan later in the year after the longterm Management Strategy has been finalized in June 2015. We will solicit input from interested parties at that time.

VIII. Biennial Workplan

Biennial workplans for each management strategy will be developed by December 2015. It will include the following information:

- Each key action
- Timeline for the action
- Expected outcome
- Partners responsible for each action
- Estimated resources

DRAFT

Appendix 1: Preliminary Draft State Action Plans

DELAWARE	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
Assessment/ Planning	<ol style="list-style-type: none"> 1. Increase Urban Tree Canopy goals - 50 acres by 2025. Annual target of 5 new acres. 2. UTC assessments completed in 2008 for all municipalities in the Chesapeake Bay Watershed. 3. Update UTC assessments in Chesapeake Bay Watershed using GIS or iTree software. This assessment would determine progress achieved since the DFS's 2008 UTC analysis. 4. Incorporate UTC assessment and planning in Master Plans under development by DNREC. 5. Incorporate UTC goals in Comprehensive Management Planning for each local government. 6. Set new urban tree canopy goal of one new community per year. (2015 Programmatic Milestone) 	<ol style="list-style-type: none"> 1. DFS and DNREC 2. DFS 3. DFS and DNREC 4. DNREC, Watershed Assessment & Management Section (WAMS) 5. Office of State Planning Coordination 6. DFS
Tree Canopy Protection	<ol style="list-style-type: none"> 1. Set more robust tree canopy goals. Work with local governments to increase urban tree canopy goals of no net loss and incorporate into local planning efforts via comprehensive planning, ordinances, or resolutions. 2. Preserving vegetation cover during land development: <ul style="list-style-type: none"> • Delaware Seed Tree Law - regulates the maintenance and reproduction of the pine and yellow-poplar forest resources of the State. • Delaware Department of Transportation Tree Bill – requires transportation construction projects to mitigate for impacts to trees. • Delaware Erosion and Sediment Control Standard and Specifications for Tree Protection – provides protective measures that are necessary to insure the survival of desirable trees on active construction sites. • County unified development codes. 3. Analyze all lands within the Chesapeake Bay Watershed for tree planting opportunities. DNREC conducted a GIS analysis to identify opportunities for future implementation of forested (reforested or afforested) and/or grassed riparian buffers on publically and privately owned lands in the Chesapeake Bay Watershed. The analysis is complete; however, QA/QC is still needed for Sussex County. The analysis and report to be finalized by second quarter 2015. (2015 Programmatic Milestone) 	<ol style="list-style-type: none"> 1. DFS 2. DFS, DelDOT, DNREC, Sediment and Stormwater Program, Conservation Districts, Counties 3. DNREC and DFS

DELAWARE	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
Tree Planting	<ol style="list-style-type: none"> 1. Delaware Forest Service Urban and Community Forestry Annual Grant Program - offers up to \$100,000 each year to communities throughout the state for tree planting, tree care, and tree management projects on publicly owned lands. 2. Partnership Tree Planting Grants for the Chesapeake Bay Watershed – planting grants for non-profit organizations based in Delaware. 3. Chesapeake Bay Implementation Grant and Chesapeake Bay Regulatory and Accountability Grant - allocates funding from Chesapeake Bay Grants provided by EPA for Local Implementation Funding. This funding is intended for use by local governments and/or local watershed jurisdictions in support of Delaware’s Chesapeake Bay WIP. 4. Trees for the Bay Program –offers free trees to residents in the Chesapeake Bay Watershed that purchase a discounted rain barrel from DNREC. 5. Livable Lawns Program –offers \$50 native plant vouchers to residents throughout the state that follow the Livable Lawns guidelines to reduce fertilizer and pesticide runoff from lawns. 6. Target Tree City USA communities to offset Arbor Day expenses. 7. Integrate tree plantings into green infrastructure and stormwater management projects. Promote the use of trees as a natural, cost effective approach. 8. Compiled a list of funding resources in Delaware in support of WIP goals. 	<ol style="list-style-type: none"> 1. DFS 2. DFS 3. DNREC WAMS 4. DFS, DNREC WAMS and 319 Program 5. DNREC, DelDOT, UD 6. DFS and DNREC 7. DFS and DNREC 8. DNREC
Maintenance/ Stewardship	<ol style="list-style-type: none"> 1. Develop maintenance inspections as part of a BMP verification program. (2015 Programmatic Milestone) 2. Increase stewardship with outreach efforts listed below. 3. Develop a volunteer program similar to PA’s Tree Tenders program, utilizing UD Master Gardeners or Delaware Center for Horticulture (DCH) /Delaware Nature Society (DNS) volunteers. 4. 	<ol style="list-style-type: none"> 1. DFS and DNREC 2. Listed below 3. DFS, DCH, UD, DNS
Outreach/ Engagement	<ol style="list-style-type: none"> 1. DFS has two full-time foresters who assist cities, towns, and communities with the management and care of their urban forestry resources. 2. DNREC and DFS have marketing outreach specialists to promote workshops and engage community residents. 3. Delaware has a Chesapeake Bay Communications Committee dedicated to implement the communications and marketing plan for Delaware’s WIP. 4. DFS Annual Tree Care and Arborist Seminar – An annual 	<ol style="list-style-type: none"> 1. DFS 2. DFS and DDA 3. DNREC WAMS 4. DFS 5. DNREC, Delaware Nature Society, Nanticoke Watershed Alliance 6. Nanticoke

DELAWARE	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
	<p>conference to increase knowledge and technical capacity of local contractors and governments within the State.</p> <p>5. Reclaim Our River (ROR) Series is a watershed wide approach to providing residents with important information and techniques of reducing nutrient and sediment pollution. Water oriented recreational activities provide opportunities to share this messaging while connecting residents to their waterways. ROR includes monthly events, workshops and recreational opportunities in the Chesapeake Bay Watershed.</p> <p>6. Hold a series of workshops and outreach education events geared toward homeowners in the Nanticoke Watershed. Topics to include BMPs, like planting trees, which a homeowner can implement on their property.</p>	Watershed Alliance
Tracking Progress	<p>1. DFS maintains records of all planting and management projects funded through the Urban and Community Forestry Grant Program since 1991.</p> <p>2. Development of online reporting tool for NEIEN data submission - DNREC Nonpoint Source BMP Reporting and Tracking Database. DNREC worked with Tetra Tech Inc. to develop an online database for the reporting, tracking, and verification of NPS BMPs in DE, including tree planting practices. This tool will be finalized in 2015 and will be utilized for 2015 progress run submissions. Individuals responsible for reporting practices from their organizations will be given login credentials to upload data. (2015 Programmatic Milestone)</p>	<p>1. DFS</p> <p>2. DNREC WAMS</p>

DISTRICT OF COLUMBIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
Assessment/ Planning	DDOT Urban Forestry Administration (UFA) is working with the FY 11 UTC data and tools to analyze the current canopy for the District. These tools may also be deployed in the field for the residents to view the data and better understand canopy cover. UFA is also using LiDar to analyze the canopy and locate trees on public lands. This effort will help UFA better understand the total count of trees and determine location so that we can commence the condition assessment.	Lead – UFA Partners - USFS
Tree Canopy Protection	UFA currently has several layers of regulation for trees in the District but none of them stop the removal of trees but apply fees or fines to the owner depending on what they have done.	Lead – UFA Partners – DDOE

DISTRICT OF COLUMBIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
	<p>UFA has most recently removed the planting for compensation option for the Urban Forest Preservation Act regulation and now all applications must pay for the loss of trees. This will help UFA get the funds out to the street and trees in the ground faster. Other standards such as the DDOT green infrastructure standards have come out and require a minimum square footage of soil for street trees. Last the DDOT design and engineering standards also have fees and fines for developers looking to remove or have damaged trees in the ROW.</p>	
Tree Planting	<p>UFA continues to plant trees citywide in the ROW at a rate of about 7,500 per year. These trees are installed under the review of our ISA Certified Arborist at DDOT.</p> <p>DDOE also is planting trees under the Riversmart Homes program where residents can request an audit of their property and choose to have trees planted if deemed adequate.</p>	<p>Lead – UFA Partners – DDOE</p>
Maintenance/ Stewardship	<p>UFA currently maintains a very complex GIS based asset management program. This program tracks all street trees in the District to include condition, work history and location. It allows UFA to plan and manage the work load and forecast budgetary needs in the future. This program will also bring in all the trees on public space over the next few years. At that time we will have a very accurate data base that can be used to compare to UTC data or LiDar data. UFA also has over twenty ISA Certified Arborists on staff and two landscape architects to review development plans and track activities in the field that could affect trees. UFA's budget has consistently stayed level or increase each year for the last six years and is forecasted to follow the same pattern.</p>	<p>Lead – UFA Partner – DDOE Partner – USFS Partner - COG</p>
Outreach/ Engagement	<p>UFA's staff covers several meetings with residents of the District each month. During these meetings we review our program and explain why we maintain street trees and the benefits that they provide. We also produce brochures that our staff hands out that identify benefits and reasons why the District maintains a tree canopy. Everyday our staff is engaging with residents and developers citywide regarding urban forestry matters. UFA receives over 13,000 service</p>	<p>Lead – UFA Partner – DDOE Partner – USFS Partner - COG</p>

DISTRICT OF COLUMBIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
	requests, 600 special tree permits and over 3,000 public space permits where we have the opportunity to interact with the customer and discuss urban forestry programs. Our agency also maintains a tweeter account and other social media outlets that UFA uses to communicate with the residents.	
Tracking Progress	UFA currently tracks all work related to the urban tree canopy. We have a very complex GIS based work management system that is the basis for our inventory. This system also tracks work history on every tree so that we can analyze our effort and look for trends. UFA also deploys several ways to track or evaluate canopy changes such as UTC reports, LiDar, Tableau and other tools that allow us to analyze the work that our staff does every day. UFA has plans to continue with the tracking of our tree canopy through the use of urban tree canopy reports, LiDar and the use of Arc GIS.	Co-Lead – DDOE (CB reporting) Co-Lead – UFA Partner – USFS Partner - COG

MARYLAND	Proposed Actions <i>List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals</i>							Who? <i>Possible Lead & Partners</i>
Assessment/Planning	<ul style="list-style-type: none"> Status of local UTC assessments and establishment of goals : 							MD FS, local governments
	County (total census designated places per 2010 Census)	Assessment status	Assessment Date Completed	Current UTC %	Goal Set	UTC Goal	Achieve by date	
	Allegany (total 44 places)	n/a						
	-- Cumberland	Complete	10/1/2008	27%	Y	45%/55%	2020/2030	
	Anne Arundel (total 32 places)	Complete	2/19/2010	58%	Y	varies by zoning		
	-- Annapolis	Complete	6/1/2006	41%	Y	50%	2036	
	Baltimore (total 31 places)	Complete	4/1/2009	49%	Y	50%	2025	
	Baltimore City	Complete	1/1/2006	20%	Y	46%	2036	
	Calvert (total 14 places)	n/a						
	Huntingtown	Completed	?	?	?	?		
	St. Leonard	Completed	?	?	Y	40%		
	Solomons	Completed	?	?	Y	40%		
	Dorchester (total 14 places)	n/a			n/a			
	-- Vienna	none	n/a		Y	TBD		
	-- Cambridge	none	n/a		Y	TBD		
	Frederick (total 24 places)	n/a						
	-- Frederick County Board of Education	Complete		12%	Y	20%	2038	
	-- Brunswick	Complete		38%	Y	48%		
	-- City of Frederick	Complete	10/1/2009	14%	Y	40%	2035	
	-- Lake Linganore Watershed	Underway						
	Harford (total 15 places)	n/a						
	Route 40 area - 7 communities	underway						
	Howard (total 9 places)	Complete	12/1/2009	50%	TBD			
	Kent (total 12 places)	n/a						
	-- Rock Hall	Underway						

MARYLAND	Proposed Actions List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals							Who? Possible Lead & Partners
	-- Millington	Underway						
	-- Chestertown	Complete	4/1/2009	25%	Y	40%	2020	
	-- Betterton	Complete	5/1/2012	39%	Y	45%		
	Montgomery (total 56 places)	Complete	3/14/2011	50%	Y	in targeted master plans		
	-- Rockville	Complete	5/1/2009	44%	N			
	-- Takoma Park	Complete	12/3/2010	59%				
	Prince George's (total 79 places)	Completed	2009	52%	Y	52%	2035	
	-- Bowie	Complete	3/1/2009	46%	N			
	-- Edmonston	Complete	3/1/2009	32%	N			
	-- Greenbelt	Complete	2/1/2009	62%	Y	maintain		
	-- Hyattsville	Complete	8/1/2008	41%	TBD			
	-- Forest Heights	Complete	6/22/2010	34%	TBD			
	Washington (total 61 places)	n/a						
	-- Williamsport	Complete	1/25/2011	28%	TBD			
	Wicomico (total 19 places)	draft	4/1/2014	46%	TBD			
	237 total # places with UTC							
	208 total # places with goals							
	(Total # Places) based on 2010 Census - census designated town, cities and CDP Total 517							
	County (Total # Places) includes the towns listed below it.							
	updated 5/2014							
	<ul style="list-style-type: none">Local governments generally contract with University of Vermont or a local college (Washington College) to have an assessment completed.The Maryland Department of Natural Resources Forest Service (MD FS) has the Statewide Tree Canopy, produced by the University of Maryland, 2011. Data created using a process developed by the University of Vermont and applied to LiDAR and imagery collected over the last several years. County level tree cover data is available for most counties at 1 meter resolution (Garrett County at 2 meter resolution)							

MARYLAND	Proposed Actions <i>List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals</i>	Who? <i>Possible Lead & Partners</i>
	<ul style="list-style-type: none"> Currently, local governments are conducting their own analysis of the data and utilizing the results to determine planting sites. Local government council members or commissioners, with staff input, determine the long-term goals. Staff generally develops the implementation plan or similar document. MD FS will be assisting interested counties in targeted areas to develop the county-wide tree canopy assessment from the Statewide Tree Canopy. The MD FS will assist the local planning & zoning offices with the analysis upon request. 	
Tree Canopy Protection	<ul style="list-style-type: none"> The MD Forest Conservation Act (FCA) and local government's forest conservation ordinances conserve trees and forests during land use change. These programs reduce the loss of forest and require tree/forest mitigation planting regardless of existing forest onsite or not. Conserving forest cover through: <ul style="list-style-type: none"> MD Forest Conservation Act (FCA) of 1991 – conserves forests during land use change. Reforestation Law of 1988 – requires the replacement of forest impacted during highway construction activities. Roadside Tree Law of 1914 – protects safeguards the state's roadside trees by ensuring their proper care and protection. A few local governments have developed more stringent forest conservation ordinances or have created an additional ordinance to capture tree removal not associated with land use change. 	MD FS, local governments
Tree Planting	<ul style="list-style-type: none"> Maryland has a number of existing programs available for private lands such as numerous forest stewardship incentive programs as well as : <ul style="list-style-type: none"> Marylanders Plant Trees coupon program: a coupon program that assists homeowners purchase at least a \$50 tree for \$25 with a \$25 coupon at participating nurseries. Lawn to Woodland program: assists homeowners with at least 1 acre of available land to convert their existing lawn to forest. Backyard Buffer program: assists homeowners create a streamside buffer of native trees and shrubs. Maryland also has a number of existing state programs available to public lands: 	Local partnerships such as in Baltimore: TreeBaltimore, Parks and People Foundation, and Blue Water

MARYLAND	Proposed Actions <i>List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals</i>	Who? <i>Possible Lead & Partners</i>
	<ul style="list-style-type: none"> ○ TreeMendous MD (reduced tree cost program) – assists local governments purchase trees at a reduced cost ○ Gift of Tree donations – enables citizens to purchase a tree in memory or celebration of a person, event or pet and the MD FS plants the tree. ● Local government programs have developed or are developing incentive programs to encourage tree planting such as Neighborhood Green (Frederick Co), Lawn to Leaf (Baltimore Co), coupon programs (Montgomery and Baltimore Counties), etc. ● The MD FS will be developing a program to assist in the efforts to remove paved areas and replace with trees. 	Baltimore
Maintenance/ Stewardship	<ul style="list-style-type: none"> ● Currently, the MD FS plantings completed through some of the forest stewardship incentive programs have a maintenance component. ● Those plantings conducted as required mitigation at the state and local level have a maintenance requirement. ● The MD FS will be looking at existing and new partners to do outreach to educate citizens on the maintenance and stewardship potential of their new planted and existing forest. For example, connecting the Lawn to Woodland program participants to existing University of Maryland Extension’s Woodland Stewardship Education programs. ● The MD FS is also looking at developing a program similar to Pennsylvania’s “Tree Tenders” program to enable interested citizens, who may or may not have trees of their own, to volunteer to care for trees and forests in their neighborhood. 	MD Licensed Tree Experts
Outreach/ Engagement	<ul style="list-style-type: none"> ● The MD FS currently has field staff that work with local governments and local interest groups on tree planting projects and other forestry related issues. ● The Maryland Urban & Community Forestry Council (MUCFC) is a viable council that supports tree planting across the state through their small grant program. The Council also recognizes tree plantings through their PLANT (People Loving and Nurturing Trees) Awards. This awards program recognizes groups that are not eligible for a Tree City USA award. ● The MD FS has developed a TreeMendous MD’s newsletter which can be used to educate the 	Chesapeake Interfaith Environmental Group, Chesapeake Bay Trust, Alliance for

MARYLAND	Proposed Actions <i>List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals</i>	Who? <i>Possible Lead & Partners</i>
	<p>public on tree related topics.</p> <ul style="list-style-type: none"> • The MD FS will be looking at existing and new partners to do outreach to educate citizens on the maintenance and stewardship potential of their new planted and existing forest. For example, connecting the Lawn to Woodland program participants to existing University of Maryland Extension's Woodland Stewardship Education programs. • By more effectively utilizing the TreeMendous MD program, the MD FS will be able to reach targeted audiences (schools/youth , churches, civic groups, businesses and utilities) to hold tree plantings and also educate on the next steps after planting. • Develop a connection between recognition awards programs such as Tree City USA, Tree Campus USA, PLANT Awards and grants to fund the plantings. 	<p>the Chesapeake Bay</p>
Tracking Progress	<ul style="list-style-type: none"> • The MD FS receives annual reports, which include the acres of forest loss and forest planted during land use change, from the local governments on a yearly basis. • The MD FS tracks all plantings related to urban tree canopy including those completed through FCA, Reforestation Law, Marylanders Plant Trees coupon program and TreeMendous MD. • As the statewide data is available, compare the existing MD FS Statewide Tree Canopy to the newly obtained data on a 5 year cycle if possible. • Assist local governments in updating their assessments on a regular scheduled basis and revising their implementation plans accordingly. 	<p>MD FS</p>

PENNSYLVANIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
Assessment/ Planning	<ul style="list-style-type: none"> -TreeVitalize® “Street Tree Inventory” grant -Lunchtime urban forestry webinar series -UTC Assessments (1FTE working with communities to develop UTC plans) -EAB Management Plans 	DCNR BOF/PA U&CFC/PSU Extension urban foresters/local colleges & universities/county planners/ others?
Tree Canopy Protection	<ul style="list-style-type: none"> -Municipal shade tree ordinance work -EAB Management Plans -Tree City USA communities & Tree Campus USA (ordinance required to participate) 	STC/EAC’s/DCNR BOF/ PSU Extension/ Tree City USA communities/others?
Tree Planting	<ul style="list-style-type: none"> -TreeVitalize “Street Tree Planting” grant -TreeVitalize “Trees Count, PA!” coupon program -Unique TreeVitalize planting partnerships (ex: public radio) -Supporting local tree planting initiatives (i.e. Chester Co., Lancaster City, Franklin Co.) 	STC/ EAC’s/community groups/homeowners/nurseries & garden centers/ Conservation Districts & Watershed groups/unique planting partners
Maintenance/ Stewardship	<ul style="list-style-type: none"> -Tree Tenders® (Classroom) -Advanced Tree Tenders -Tree Tenders (online course) -ISA Arborist Short Course (4/year) -Development of Structural Improvement grants -Development of smartphone apps for tree ID & right tree, right place 	Tree Tenders/PSU Extension/
Outreach/ Engagement	<ul style="list-style-type: none"> -Tree Tenders® Trainings -Tree City/Campus USA events (Arbor Day events) -Lunchtime urban forestry webinar series (sessions are recorded and archived at www.pacommunityforests.org) -Facebook & Constant Contact outreach -Penn Tree Map -EAB project (workshops) 	DCNR BOF/ PSU Extension/Tree City & Campus USA
Tracking Progress	<ul style="list-style-type: none"> -Penn Tree Map -Number of TreeVitalize street trees planted -Number of TreeVitalize inventories completed -Number of coupons redeemed -Number of Tree City USA & Tree Campus USA -Five year statistical sampling of grant-funded trees to indicate survival rates 	

WEST VIRGINIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
Assessment/ Planning	<p>The Eastern Panhandle of West Virginia is developing faster than any other region of the state and, according to the 2010 U.S. Census, includes the urban area with the fastest rate of urban growth in the Chesapeake Bay Watershed. This has potential negative impacts to air quality, water quality, competing land uses, quality of life and public health. Assessing and managing canopy cover is the most practical and effective means for urban forestry to positively influence these issues.</p> <p>WV's ongoing Chesapeake Bay Watershed Implementation Plan Section 12 goals is to "Engaging Schools and Community on Urban Tree Canopy (UTC) and other Stormwater Reduction BMPs." In 2011, with support from a USDA Forest Service grant the WV Urban Tree Canopy Assessment & Enhancement program was initiated. Since then two counties have commissioned high resolution UTC studies from the University of Vermont. Additionally the Town of Bath (Berkeley Springs) commissioned an i-Tree Canopy statistical landcover assessment.</p> <p>Jefferson County and the communities of Bolivar, Charles Town, Harpers Ferry, Ranson, and Sheperdstown have completed UTC Plans and set goals. Martinsburg has used the UVM UTC assessment to complete an analysis of parcels and potential for UTC expansion. Martinsburg has completed a statistical i-Tree Street inventory. Bath has completed a full i-Tree Street inventory. Berkeley County, Martinsburg, and Bath continue to work on comprehensive UTC plans and the setting of goals. All the additional incorporated areas in the Potomac Basin have been approached and have the potential to compete i-Tree assessments and inventories.</p>	<p>Cacapon Institute, Frank Rodgers, Executive Director; Tanner Haid, Urban Watershed Forester</p> <p>WVDOF, Herb Peddicord, Chesapeake Bay Forester; Robert Hannah, State Urban Forester; Elizabeth Basham, Urban Forester</p>
Tree Canopy Protection	<p>WV's WIP Objective #10.15 states "[the] strategy for WV's Potomac Basin is to keep loads from Developed Lands equal to those in the 2010NA scenario, or in other words, to "hold the line." This will be achieved here through tracking of land use conversion to lower-loading land use types." Protection of existing UTC is the key to this hold the line strategy. UTC plans include language to protect existing canopy. Additional plans are expected to also have strong language to prioritize the protection of exiting canopy.</p>	<p>Completed assessments and plans are available on the Publication Tab at CacaponInstitute.Org</p>
Tree Planting	<p>WV Project CommuniTree and the WV Chesapeake Bay Tree Grant programs are the primary drivers of tree planting in the</p>	<p>Active CommuniTree partners include</p>

WEST VIRGINIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
	<p>Potomac Basin of WV. Each spring and fall applications are taken for these programs. All eight counties within the Bay watershed have participated in tree planting projects. Each season upwards of 20 tree planting project occur. All Bay related planting are overseen by the WVDOF and significant project partners include the Cacapon Institute, WV DEP, Conservation Agency, and Eastern Panhandle Planning and Development Council (Region 9). All tree planting on public lands are reported to the Bay Program annually.</p> <p>In addition to Bay specific tree planting programs WVDOF also offers the “Mountaineer Treeways” give-away of bare root tree whips from the state nursery. This program is directed toward public roads and has a positive impact on UTC.</p>	<p>WVDEP, WV Conservation Agency and Conservation Districts, and E. Panhandle Planning and Development Council (Region 9)</p> <p>A map of all completed CommuniTree plantings is available on the Forestry Tab at CacaponInstitute.Org</p>
Maintenance/ Stewardship	<p>WV DOF requires a five-year management agreement on all plantings supported by WVDOF. In addition to formal agreements watershed associations, school groups, and the public in general is being engaged in management and stewardship of newly planted trees and existing trees and forest stands in urban areas.</p> <p>WV WIP Objective 12 states includes an effort to “broadly engage the Potomac Highlands community in stormwater management using easily implemented BMPs, including UTC, ...[and BMP that are] broadly scalable to suit a range of human and financial resources while still serving a pollution reduction function (for example, tree plantings and rain gardens).” Turf to Trees is an example of a UTC management strategy that is being pursued.</p> <p>WVDEP Chesapeake Bay Program includes Community Environmental Management. CEM is engaging homeowner associations, parks systems, and faith based organization in BMP implementation and a primary focus of CEM is to engage citizens in UTC assessment and enhancement. Two forest management plans have been completed for participating HOAs. Three additional forest management plans are anticipated to be completed in 2015.</p>	<p>CEM Organizations (2013-14)</p> <ul style="list-style-type: none"> • Greenway Cemetery (Town of Bath) • Patrick Henry Estates • Chapel View HOA • Old Mill Crossings Development • Orchard View HOA • Jefferson County Dept. of Parks & Recreation
Outreach/ Engagement	<p>WV Project CommuniTree engages more than 1,500 volunteers annually. Applicants are required to include education on the importance of trees and tree canopy for stormwater runoff pollution mitigation and the general environmental and ecological benefits of trees. Cacapon Institute’s PHLOW (Potomac Headwaters Leaders of</p>	<p>WV Association of Environmental Educators is an additional partner in outreach and education and includes</p>

WEST VIRGINIA	Strategy Actions – Proposed ongoing and new	Who? <i>Possible Lead/Partners</i>
	<p>Watersheds) is engaging K-12 schools and their broader community in hands-on watershed stewardship education and outreach, including lessons on the importance of trees and tree canopy. More than a dozen school tree planting projects, with associated in-class education, are occurring annually. CEM, mentioned above, is providing “Watershed 101” lessons to neighborhood associations and watershed groups and includes lessons on the importance of UTC. Three CEM projects are underway and two additional community groups have expressed interest in participating in educational activities.</p> <p>Three new education & outreach projects are underway. “Trees for Bees” is a new outreach and engagement project that, in 2014, brought the planting of ~500 trees in developed lands. We anticipate this program to grow. Potomac Valley Audubon Society’s Master Naturalists are being encouraged to advance additional hands-on tree stewardship programs. WVDOF Urban Forestry is developing a “Mountaineer Tree Stewards” training program for the general public.</p>	<p>The Mountain Institute and Potomac Valley Audubon.</p>
Tracking Progress	<p>All public tree plantings supported by the WV Chesapeake Bay Program and all municipal management plans and assessments are tracked by the WV Chesapeake Bay Forester and reported to the Chesapeake Bay Program by WVDEP.</p> <p>Beginning in 2015 the WV Bay Program will begin an aggressive campaign to track, and report on, private tree plantings including the WV Conservation Agency’s “Annual Tree Sale” that has, over the years, provided thousands of trees to the public. To date, due to limitations in WV’s ability to follow up and track the success of these planting they have not been reported.</p>	<p>WVDEP Alana Hartman, Potomac Basin Coordinator</p>
Other?	<p>In addition to UTC being incorporated in municipal stormwater management strategies, UTC is also part of a local voluntary air quality management plan in Jefferson and Berkeley counties, as well as their respected municipalities. The Eastern Panhandle Planning and Development Council (Region 9) has proposed implementing UTC programs as a strategy to maintain their current designation status for National Ambient Air Quality Standards (NAAQS) and protecting human health. They are championing tree plantings, promoting UTC management strategies and encouraging all municipalities in their three counties to include UTC stewardship in local comprehensive plans.</p>	<p>E. Panhandle Planning and Development Council (Region 9), Mathew Pennington, Chesapeake Bay Program Coordinator</p>

VIRGINIA	Ongoing Actions	New Priority Actions		Who?
	List ongoing actions to support communities in your state in meeting UTC goals	Proposed new priority actions to support communities in your state in meeting UTC goals		Possible Lead & Partners
Assessment/ Planning	Green Infrastructure Planning and Implementation	1. Compile and incorporate assessments of forestland change from other agencies, states, universities and conservation groups to better inform urban forestry policies. Some examples include state forest resources assessments, wildlife action plans and ecoregional assessments.	2. Working summit with nontraditional partners for their input and recommendations on how to make urban forest conservation a priority.	VDOF, USFS, Green Infrastructure Center
Assessment/ Planning	Urban Tree Canopy Assessments and Implementation Planning http://gep.frec.vt.edu/va_utc.html Virginia UTC Mapviewer http://www.utcmapper.frec.vt.edu/	1. Encourage communities to complete UTC assessments using i-Tree canopy as a starting point, to better develop customized goals and implementation plans tied to the urban forest.		VDOF, VA Communities, USFS, Funding for an individual to provide technical assistance
Tree Planting	Virginia Trees for Clean Water grants funded by Chesapeake Bay Program and VA DCR Water Quality Improvement Funds.	Try to develop state level dedicated tree planting program funding. We need a dedicated line of funding so that we can more fully develop a reliable grant program		VDOF, Trees Virginia and partners

VIRGINIA	Ongoing Actions	New Priority Actions		Who?
	List ongoing actions to support communities in your state in meeting UTC goals	Proposed new priority actions to support communities in your state in meeting UTC goals		Possible Lead & Partners
Maintenance	Education, workshops, roundtables, brochures, webinars	1. Print and distribute USFS Tree Owner's Manual to agency partners, local communities, utilities and nonprofits to help educate on proper installation and maintenance of urban trees.	-	VDOF, Tree Virginia
Stewardship	<p>Tree City USA Awards</p> <p>Virginia Tree Ordinance Database http://vtod.frec.vt.edu/</p> <p>Virginia UTC Mapviewer http://www.utcmapper.frec.vt.edu/</p> <p>Trees Virginia Tree Stewards</p> <p>Master Naturalist Program</p> <p>Mid-Atlantic Chapter of the International Society of Arboriculture (MAC-ISA)</p> <p>VA Urban Forest Strike Team (UFST)</p> <p>VA Big Tree Program http://bigtree.cnre.vt.edu/</p> <p>All the education and outreach to promote the value of maintaining and conserving urban forest</p> <p>Tree Benefits Calculator http://www.treebenefits.com/calculator/</p>	1. Define the economic values for the services provided by the urban forest using i-Tree programs. Use these values to emphasize the value of green space and urban forest to community leaders.		DOF, PDC, Utilities , Trees Virginia etc.

VIRGINIA	Ongoing Actions	New Priority Actions		Who?
	List ongoing actions to support communities in your state in meeting UTC goals	Proposed new priority actions to support communities in your state in meeting UTC goals		Possible Lead & Partners
Outreach/ Engagement	Provide technical support to state government and non government stakeholders on the benefits of establishing and maintaining urban forests through workshops, meetings, and training opportunities.	-	-	
Outreach/ Engagement	Roanoke Workshop, Waynesboro Workshop, NOVA Urban Forestry Roundtables, Hampton Roads Urban Forestry Roundtables, partner conferences such as the Mid Atlantic Horticulture Short Course, MAC-ISA annual meeting, Trees Virginia Tree Stewards and VA Master Naturalist Program	1. Promote Virginia's Urban and Community Forestry Program by contributing regularly to American Grove, a national level social networking platform for urban forestry.	2. Develop outreach materials to help support the recycling and use of urban forestry operation tree waste.	VDOF, Trees Virginia, VT Extension
Policies		1. Develop and promote a consistent set of standards and policies used state-wide to help integrate and unify Virginia's mission to urban and community forestry.	2. Advocate policies that require a certain percentage of green space per capita in the form of street trees, parks, and open public space to help negate any negative affects of urban growth and increased gray space.	VDOF

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Train DOF Employees	Current urban forestry related training is through the workshops and conferences and UFST participation	1. Train DOF employees to assist localities in assessing the community's tree composition and distribution and their associated ecosystem services.	2. Train DOF employees to work with local planning departments to show the benefits of a tree inventory, UTC assessment and completing an urban forest management plan.	VDOF