Chesapeake Urban and Community Tree Canopy Management Strategy –Draft 1/28/15

1. Executive Summary (to be completed in March by CB Communications Team)

2. Outcome and Baseline

Background

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.
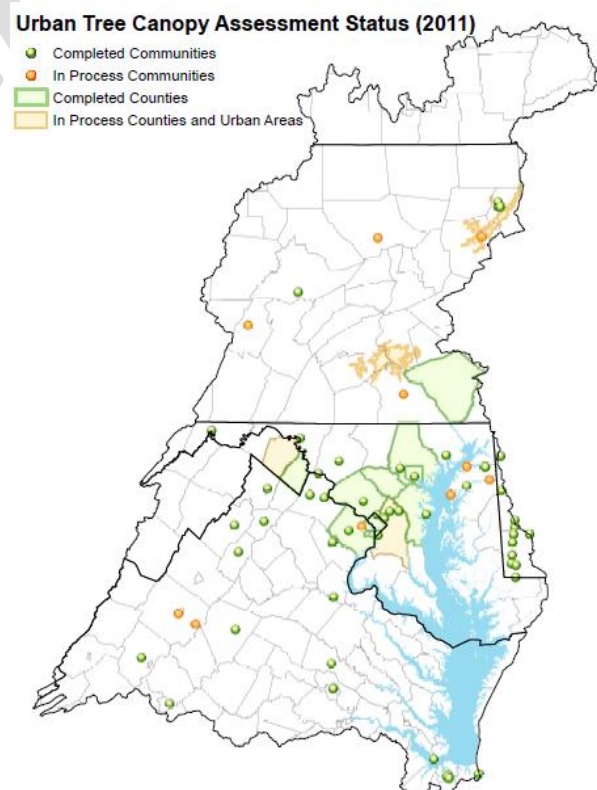

Figure 1. UTC Assessments in Bay watershed (2011)

The 2014 Chesapeake Bay Agreement sets forth the first quantitative, watershed-wide urban tree canopy goal to be adopted by the partnership:

> **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.

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 determined by each state forestry agency estimating what they thought could be accomplished on an annual and long-term basis, based on existing programs. However, this estimation is 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 tee canopy gains/losses. The state targets may be increased over time as better tracking mechanisms and programmatic strategies are put in place:

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

Baseline

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 Baywide 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.

3. Participating Partners & Local Engagement

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. To begin engaging this broad network, 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. 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. 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.

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:

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

Coordination with other Chesapeake Bay Goals and Strategies

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. Some examples of these connections which we will pursue with partners in implementing the Management Strategy include the following:
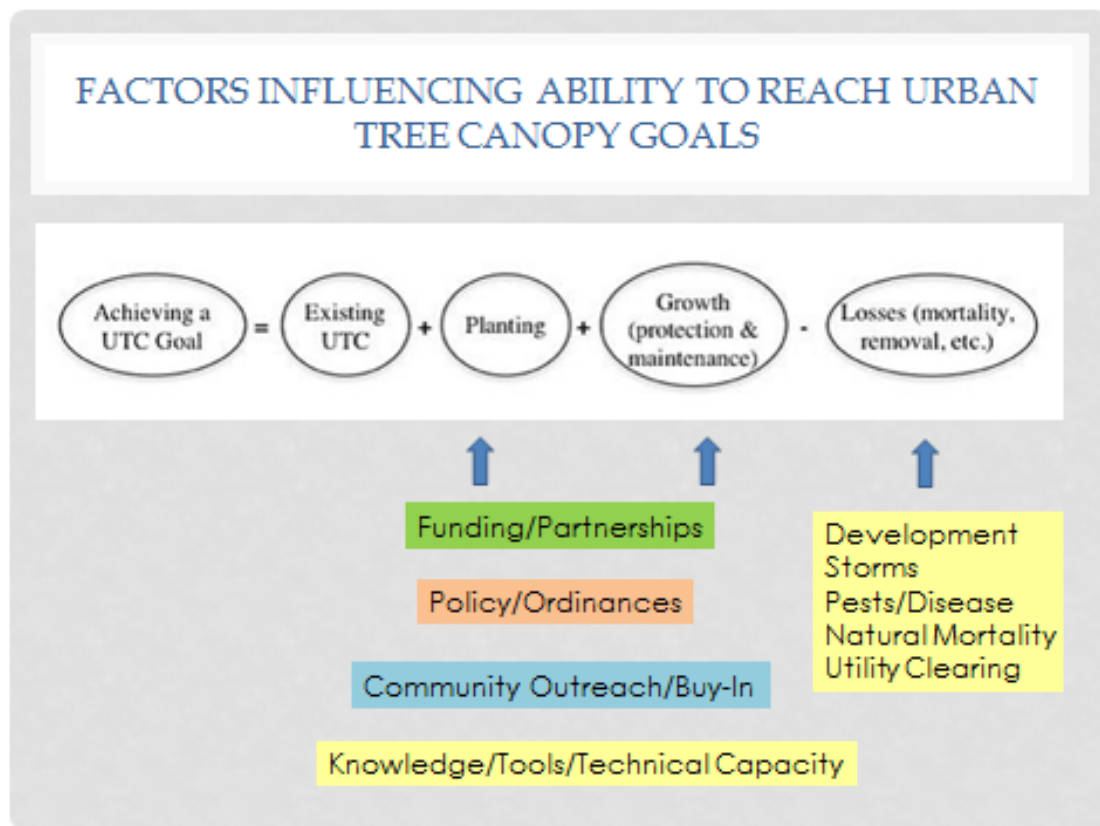
We have started to engage and will continue to coordinate our urban tree canopy strategy efforts – in particular in outreach and technical assistance – with the following Chesapeake Bay program workgroups, and any others who express interest in working with us:

- 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 Workgroup, including Outreach and Environmental Justice teams

- Climate Adaptation and Mitigation Strategies

4. Factors influencing ability to meet goal.

There are a variety of social and environmental factors that influence the ability to meet Urban Tree Canopy goals. The equation in Figure # 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.

FACTORS INFLUENCING ABILITY TO REACH URBAN TREE CANOPY GOALS

Influencing Factors	Rank

Funding/partnerships
   -   State funding
   -   Local funding
   -   Private/foundation/other funding
	Coming soon!

Policies/ordinances
   -   State policies/regulations
   -   Local policies/ordinances
   - TMDL/Stormwater program priorities	

Community outreach and education
   -   State or CB-wide outreach campaigns
   - Locally driven outreach campaigns	

Capacity/knowledge
   -   Of local government
   -   Of nonprofit/volunteers/partner groups
   - Of private sector	

Key Drivers of Canopy Loss
   -   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	

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 1: Current Efforts and Gaps

Urban Tree Canopy Strategy Elements	Current Efforts	Gaps
Assessment/Planning	• 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	• 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
Tree Canopy Protection	• 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) • See Section 8 for more examples	• Lack of data on tree canopy loss and effectiveness/scope of local policies in place • Need to assess and strengthen as needed local and/or state policy tools available to protect canopy (e.g. in development/ stormwater related permitting)
Tree Planting	State Programs • 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.	• 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

	- PA: TreeVitalize tree planting grants - VA: Trees for Clean Water grants - WV: Project Communitree and Bay grants Local Funding/Partnerships - Some local urban forestry programs have more robust funding/partnerships/grant successes (TreeBaltimore, etc.) - Baltimore County – stormwater utility fee funding aggressive tree planting initiatives - Nonprofit and other private/community partners can play key role	- 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
Tree Survival/Maintenance	State/local citizen stewardship programs: - 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 "TreeMinders" program	- 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 and maintenance to enhance survival

Community Engagement/ Outreach	- 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:
	  - Schools/youth organizations
	  - Churches and other civic groups
	  - Businesses
	  - Utilities
		- 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

Tracking Progress	Tree Planting - Tree planting data is currently limited to certain state programs with good databases	Tree Planting - Need to develop a tracking support system for tree planting that can capture

	• Online tree tracking tools/apps do exist which could be adapted to CB watershed (e.g. Penn Tree Mapper, Baltimore UTC tools, etc) • Chesapeake BMP Verification guidance has been developed by Forestry Workgroup for urban tree planting to help guide development of a tracking system Tree Canopy • 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	state/local/ngo data; meets BMP verification/quality control standards; and feeds good data into the Chesapeake Bay Model/TMDL accounting Tree Canopy • No Bay-wide high resolution UTC dataset currently in place, but CB partners are currently pursuing it

5**. Management Approach**

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. This is followed by preliminary Draft State Action Plans which outline current and proposed state-level actions to support the urban tree canopy outcomes. 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.

Management Strategies (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		x	x	x		
2. Provide guidance/case studies/best practices for local governments and partner organizations on how to strengthen funding and partnerships for UTC	x	x	x	x	x	
3. Explore options for expanding UTC funding for Chesapeake communities through leveraging federal, state, and private resources (e.g. work with Bay Funders Network)		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		x	x	x		
2. Work with stormwater program managers (federal/state/local) to better integrate urban tree canopy goals with TMDL/WIP implementation			x			x
Technical Capacity/Knowledge 1. Provide guidance, training, and technical assistance to help local governments and partners develop robust urban tree canopy implementation programs	x	x	x	x	x	x
2. Support the development of Baywide high resolution UTC data updated regularly (e.g. every 5 years) to track progress/net gain	x					x
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						x
4. Provide guidance and standards/best practices for tree planting and maintenance to improve long-term survival			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)					x	
					x	

2. Develop and pilot social marketing and other innovative outreach methods to broaden community engagement in urban tree canopy implementation						x
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.)						

Preliminary Draft State Action Plans

DELAWARE	Strategy Actions – Proposed ongoing and new	Who? *Possible Lead/Partners*
Assessment/ Planning	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)	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	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: • 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.	1. DFS 2. DFS, DelDOT, DNREC, Sediment and Stormwater Program, Conservation Districts, Counties 3. DNREC and DFS

	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)	
Tree Planting	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.	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	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.	1. DFS and DNREC 2. Listed below 3. DFS, DCH, UD, DNS

Outreach/ Engagement	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 conference to increase knowledge and technical capacity of local contractors and governments within the State. 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. 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.	1. DFS 2. DFS and DDA 3. DNREC WAMS 4. DFS 5. DNREC, Delaware Nature Society, Nanticoke Watershed Alliance 6. Nanticoke Watershed Alliance
Tracking Progress	1. DFS maintains records of all planting and management projects funded through the Urban and Community Forestry Grant Program since 1991. 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)	1. DFS 2. DNREC WAMS

DISTRICT OF COLUMBIA	Strategy Actions – Proposed ongoing and new	Who? *Possible Lead/Partners*
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. 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.	Lead – UFA Partners – DDOE
Tree Planting	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.\n\nDDOE 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.	Lead – UFA Partners – DDOE
Maintenance/ Stewardship	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	Lead – UFA Partner – DDOE Partner – USFS Partner - COG

	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.	
Outreach/ Engagement	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 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.	Lead – UFA Partner – DDOE Partner – USFS Partner - COG
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 *List ongoing and proposed new priority actions to support communities in your state in meeting UTC goals*	Who? *Possible Lead & Partners*
Assessment/ Planning	**Ongoing:** • 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	48%	TBD		
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%	
Caroline (total 13 places)	n/a					
Carroll (total 9 places)	n/a					
Cecil (total 8 places)	n/a					
Charles (total 13 places)	n/a					
Dorchester (total 14 places)	n/a			N		
-- 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

Place	Status	Date	%	Y/N	%	Year		
-- Brunswick	Complete		38%	Y	48%			
-- City of Frederick	Complete	10/1/2009	14%	Y	40%	2035		
-- Lake Linganore Watershed	Underway							
Garrett (total 15 places)	n/a							
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							
-- 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	varies by zoning			
-- Rockville	Complete	5/1/2009	44%	N				
-- Takoma Park	Complete	12/3/2010	59%					
Prince George's (total 79 places)	Completed	???	44%	Y	varies by zoning			
-- 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				
Queen Anne's (total 11 places)	n/a							
Somerset (total 11 places)	n/a							
St. Mary's (total 9 places)	n/a							

Talbot (total 6 places)	n/a					
Washington (total 61 places)	n/a					
-- Williamsport	Complete	1/25/2011	28%	TBD		
Wicomico (total 19 places)	draft	4/1/2014	46%	TBD		
Worcester (total 11 places)	n/a					

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

- Local governments generally contract with University of Vermont or a local college (Washington College) to have an assessment completed.
- 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 and Prince Georges' County at 1.2 meter resolution).
- Currently, local governments are conducting their own analysis of the data and utilizing the results to determine planting sites. Local government council/commissioners with staff input determine the long-term goals. Staff generally develops the implementation plan or similar document.

Proposed:
- MD FS will target counties in specific areas and develop the county-wide tree canopy assessment from the Statewide Tree Canopy. The MD FS would assist local P&Z office with analysis, if requested.

Tree Canopy Protection	**Ongoing:** • State and local government's forest conservation programs conserve trees and forests during land use change. Reduce loss and require tree/forest mitigation planting regardless of existing forest onsite or not. • A few local governments have lowered the FCA applicability threshold to capture more projects (Baltimore City) or have created an additional ordinance to capture tree removal (Takoma Park, Town of Somerset, Montgomery County) not associated with land use change.	MD FS, local governments

	• Existing Laws: MD Forest Conservation Act, Reforestation Law, Roadside Tree Law, Critical Area Law. (MDE Nontidal Wetland Upland?) **Proposed:**	

Tree Planting	**Ongoing:**
	• Existing state programs available to private lands:
	  Marylanders Plant Trees coupon program
	  Lawn to Woodland program
	  Forest Stewardship Incentive programs
	  Buffer in a Bag
	
	• Existing state programs available to public lands:
	  TreeMendous MD (reduced tree cost program)
	  Gift of Tree donations
	
	• Local programs – Local governments 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.
	
	Proposed:
	• "under construction" state programs: "paved to green"
		Local partnerships such as in Baltimore: TreeBaltimore and Blue Water Baltimore,

Maintenance/ Stewardship	**Ongoing:** • State program – plantings under forest stewardship incentives can have a required maintenance program. **Proposed:** • MD's Lawn to Woodland program to utilize the outreach potential of the University of Maryland Extension's Woodland Stewardship Education "The Woods in Your Backyard" program to educate these homeowners on their new forest and the stewardship potential. • TreeMendous MD develop a citizen tree care group such as Pennsylvania's "Tree Tenders"	MD Licensed Tree Experts

Outreach/ Engagement	**Ongoing:** • TreeMendous MD's newsletter • Maryland Urban & Community Forestry Council (MUCFC) **Proposed:** • MD's Lawn to Woodland program to utilize outreach potential of the University of Maryland Extension's Woodland Stewardship Education "The Woods in Your Backyard" program for educating these homeowners on their new forest. • More effectively utilize TreeMendous MD: - to work with targeted audiences (schools/youth , churches, civic groups, businesses and utilities) to plant and maintain trees and forests – achieve the buy-in. - utilize the new newsletter to get info to these groups. - work with existing programs for outreach and education. Offer incentives such as Tree City USA, Tree Campus USA, PLANT Awards and grants to fund plantings.	Chesapeake Interfaith Environmental Group, Chesapeake Bay Trust, Alliance for the Chesapeake Bay
Tracking Progress	**Ongoing:** • FCA annual reports - reporting planting and removal • UTC Assessments (5 year updates) both local via Univ of Vermont and MD FS • GGRA (climate change) reports – reporting plantings: FCA, Reforestation Law, Marylanders Plant Trees and TreeMendous (reduced tree cost program) **Proposed:** • Compare the existing MD FS Statewide Tree Canopy to the newly obtained data on a 5 year cycle.	MD FS

PENNSYLVANIA	Strategy Actions – Proposed ongoing and new	Who? *Possible Lead/Partners*
Assessment/ Planning	-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	-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	-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/n urseries & garden centers/ Conservation Districts & Watershed groups/unique planting partners
Maintenance/ Stewardship	-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	-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	-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? *Possible Lead/Partners*
Assessment/ Planning	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. 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. 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.	**Cacapon Institute**, Frank Rodgers, Executive Director; Tanner Haid, Urban Watershed Forester **WVDOF**, Herb Peddicord, Chesapeake Bay Forester; Robert Hannah, State Urban Forester; Elizabeth Basham, Urban Forester
Tree Canopy Protection	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.	Completed assessments and plans are available on the Publication Tab at CacaponInstitute.Org
Tree Planting	WV Project CommuniTree and the WV Chesapeake Bay Tree Grant programs are the primary drivers of tree planting in the Potomac Basin of WV. Each spring and fall applications are	Active CommuniTree partners include **WVDEP, WV**

	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. 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.	**Conservation Agency and Conservation Districts, and E. Panhandle Planning and Development Council (Region 9)** A map of all completed CommuniTree plantings is available on the Forestry Tab at CacaponInstitute.Org
Maintenance/ Stewardship	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. 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. 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.	**CEM Organizations (2013-14)** • 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	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 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	**WV Association of Environmental Educators** is an additional partner in outreach and education and includes **The Mountain Institute** and **Potomac Valley Audubon**.

	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. 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 grown. 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.	
Tracking Progress	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. 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.	**WVDEP** Alana Hartman, Potomac Basin Coordinator
Other?	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.	**E. Panhandle Planning and Development Council (Region 9)**, Mathew Pennington, Chesapeake Bay Program Coordinator

6. 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. Some jurisdictions are reporting limited data on 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 systems in place to track progress.

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 considering proposals for how 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.

7. Assessing Progress & 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.