



# Financing Urban Tree Canopy Programs

*Guidebook for Local Governments in the Chesapeake Bay Watershed*

*Prepared by*  
**the Environmental Finance Center at the University of Maryland  
and the Alliance for the Chesapeake Bay**

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**T**his report was prepared by the Environmental Finance Center at the University of Maryland (UMD-EFC) and the Alliance for the Chesapeake Bay (the Alliance). The EFC project team included Kristel Sheesley, Jen Cotting, and Brandy Espinola. The Alliance project team included Jennifer McGarvey, Mary Gattis, and Jennifer Starr.

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## About the Environmental Finance Center at the University of Maryland

The Environmental Finance Center at the University of Maryland is part of a network of university-based centers across the country that works to advance finance solutions to environmental challenges. Our focus is protecting natural resources by strengthening the capacity of decision-makers to analyze challenges, develop effective financing methods, and build consensus to catalyze action.

Through research, policy analysis, and direct technical assistance, we work to equip communities with the knowledge and tools they need to create more sustainable environments, more resilient societies, and more robust economies. The Environmental Finance Center is housed within the School of Architecture, Planning, and Preservation.



## ENVIRONMENTAL FINANCE CENTER

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## About the Alliance for the Chesapeake Bay

Founded in 1971, the Alliance for the Chesapeake Bay works throughout the Chesapeake Bay Watershed to lead, support, and inspire local action and build partnerships with individuals, communities, governments, businesses, and other groups to restore the lands, rivers, and streams of the Chesapeake Bay Watershed. The Alliance is headquartered in Annapolis, Maryland with additional state offices in Richmond, Virginia, and Lancaster, Pennsylvania.



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# Acknowledgements

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# About This Guidebook

This document presents practical strategies for funding and financing municipal urban tree canopy (UTC) programs in the Chesapeake Bay Watershed. Its target audience is policy makers and urban forestry managers in towns and cities throughout the region, but its content may be of interest to anyone involved in promoting the development and maintenance of thriving community forests. Municipalities that do not yet have a community forestry program and are interested in starting one may find it helpful to access primers offered by the Arbor Day Foundation,<sup>1</sup> the USDA Forest Service,<sup>2</sup> and the Chesapeake Tree Canopy Network.<sup>3</sup>

Prepared by the Environmental Finance Center at the University of Maryland (EFC) and the Alliance for the Chesapeake Bay (the Alliance), the guidebook is the result of a year-long collaboration between EFC, the Alliance, and additional partners including the USDA Forest Service, the Metropolitan Washington Council of Governments (MWCOC), the Chesapeake Bay Program Forestry Workgroup, and the District of Columbia's Department of Energy & Environment. The National Fish and Wildlife Foundation funded this work.

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*“Adequate funding is one of the greatest challenges facing urban forests today. Without sufficient resources to secure professional services, equipment, and management, an urban forestry program cannot fulfill its mission, respond to changes and challenges, and ultimately best serve the public.”*

— JENNIFER GULICK, IN GULICK, J. 2016.

“FUNDING YOUR URBAN FOREST PROGRAM: A GUIDE FOR NEW AND SEASONED CITY FORESTERS.”  
CITY TREES

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*All shovels laid out before a tree planting in Baltimore, MD. Photo courtesy of the Alliance for the Chesapeake Bay.*

Impetus for the guidebook was a recognition that, despite strong regional and local goals to expand urban forests within the Chesapeake Bay Watershed, implementation lags behind intentions. A major impediment to UTC implementation in many Bay localities is a lack of adequate funding to plan and carry out tree planting and maintenance programs. This guidebook aims to help communities overcome this barrier by sharing information on:

- Strategies to build the case for sufficiently and sustainably funding a local urban forestry program;
- A range of funding sources that may be available for urban forestry program implementation; and
- Opportunities to reduce program costs so that limited public dollars can stretch as far as possible.

This document draws on input from project partners as well as from a range of stakeholders throughout the Chesapeake Bay region (see our acknowledgements). A kickoff event in March 2018 gathered nearly three dozen representatives from jurisdictions in metropolitan Washington, DC to discuss needs, challenges, and successes in financing local UTC initiatives. Participants represented the diverse range of communities found throughout the Chesapeake Bay Watershed – urban, rural, high capacity, under resourced, etc. Focus areas for discussion included building the case for sustained funding for local tree programs; developing and funding a UTC budget; and pursuing avenues to reduce the costs of planting and maintaining trees. Following this meeting, project partners conducted a series of interviews with additional stakeholders working on local UTC initiatives watershed wide to further round out content for this guidance document.

## The guidebook is organized into the following sections:

**Introduction: Urban Tree Canopy Efforts in the Chesapeake Bay Watershed** reviews the multiple co-benefits of a thriving urban forest and provides history and context of UTC efforts in the Chesapeake Bay Watershed.

**State Policies and Programs Affecting Local UTC Funding and Implementation** describes major state-level drivers (policy, regulatory, funding) for UTC programs within each Chesapeake Bay state and the District of Columbia.

**Foundations for Successfully Funding UTC Programs** discusses several pre-requisites to successful UTC financing at the local level, including clear forest management goals, supportive regulations, and incorporation of trees into community asset management efforts.

**Funding Strategies for UTC Programs** reviews options available to local governments as they seek to fund their urban forest management efforts sufficiently and sustainably.

**Case Stories of Successful UTC Funding Efforts** profiles local jurisdictions within the Chesapeake Bay Watershed that are implementing successful urban forest funding and financing approaches.

**Appendix: Grants and Programs Available to Support UTC Funding and Finance in the Chesapeake Bay Watershed** lists helpful additional resources to help municipalities fund and implement UTC programs.





1

# Introduction: Urban Tree Canopy Efforts in the Chesapeake Bay Watershed

## Community trees

- ✓ Increase property values
- ✓ Save money for stormwater management
- ✓ Improve air and water quality
- ✓ Reduce energy costs
- ✓ Enhance public health, safety, and quality of life

*Mattawoman Creek and the Potomac River in Charles County, MD.  
Photo courtesy the Chesapeake Bay Program.*



## Benefits of urban forests: a wise investment

Urban trees provide a wealth of well-documented environmental, social, and economic benefits to communities.<sup>4</sup> They have earned particular attention for their ability to treat stormwater, proving to be a cost-effective component of comprehensive stormwater management programs.<sup>5</sup> By absorbing and slowing rainfall, trees reduce instances of localized flooding, limit streambank erosion, filter pollutants, and improve water quality in streams and rivers.<sup>6</sup>

Urban forests are also powerful carbon sinks and oxygen-producers,<sup>7</sup> thereby improving air quality, enhancing public health,<sup>8</sup> and contributing to climate change mitigation. Research has shown that by beautifying streets and neighborhoods, trees increase property values, rental rates, and economic activity in retail areas.<sup>9</sup> Thriving urban forests can even boost public safety and reduce energy costs for homes and businesses by shading and insulating buildings.<sup>10</sup>

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*Urban forests should be viewed not primarily as a cost to communities but rather as a smart investment strategy that produces real economic returns.*

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Given the many benefits that trees provide, it is not surprising that communities have discovered urban forests to be a wise investment of public dollars, providing positive returns-on-investment (ROI). One recent study analyzed municipal investments in urban tree canopy and found a return to the community of \$1.37 to \$3.09 for every dollar spent.<sup>11</sup> Other ROI figures emerging from municipalities are similar: Largo, Florida has reported \$3.01 in benefits for every dollar spent on public tree planting and care; Elgin, Illinois \$4.61; and Pittsburgh \$1.51.<sup>12</sup> Urban forests are unique from other public assets in that they *appreciate* in value over time.<sup>13</sup>

Communities can realize these benefits not only by planting new trees, but also by protecting and conserving the existing canopy. In 2015, the Virginia Department of Forestry, the Rappahannock River Basin Commission, and the Pennsylvania Department of Conservation and Natural Resources conducted the Healthy Watershed Retention analysis to estimate the return on investment of forest retention for water quality benefits in the Rappahannock River Watershed in Virginia and the Yellow Breeches Creek Watershed in Pennsylvania.<sup>14</sup> The analysis suggests a modest forest retention effort would result in \$125+ million and \$12.28+ million saved, respectively for each watershed, in Total Maximum Daily Load compliance costs over a 10 to 15 year period.

It is important to note that the many benefits of urban forests can be realized by communities of all types, from big cities to small towns. Throughout this document, the terms “urban tree canopy” (UTC), “UTC expansion”, “urban trees,” and “urban forests” refer generically to all trees found within the boundaries of a municipality. The terms do not imply any specific best management practice.<sup>15</sup> Additionally, we use the term “UTC program” interchangeably with “community forestry management,” to refer to the broad suite of tree planting and care activities undertaken by a municipal government in the management of its urban forests.

## Context and history for UTC efforts in the Chesapeake Bay Watershed

States in the Chesapeake Bay Watershed have affirmed their intent to preserve and enhance urban tree canopy throughout the region. In the landmark Chesapeake Watershed Agreement signed in 2014,<sup>16</sup> all six Bay states and the District of Columbia committed to “continually increase urban tree canopy to provide air quality, water quality, and habitat benefits throughout the Chesapeake Bay Watershed.”<sup>17</sup> Specifically, signatories pledged to achieve a net gain in urban tree canopy by 2,400 acres watershed-wide by 2025 – the first time that Bay jurisdictions agreed to a quantifiable, trackable goal.

Given the ability of forests to protect and improve water quality, growing and maintaining UTC are core strategies



for complying with the US EPA's 2010 Chesapeake Bay Total Maximum Daily Load (TMDL), which specifies levels of nutrient and sediment pollution reductions that must be achieved in each Bay jurisdiction by 2025 in order to meet water quality standards.<sup>18</sup> Per the TMDL, Bay jurisdictions must meet pollutant load targets by implementing suites of best management practices (BMPs) in several pollution source sectors. Their progress is tracked via the Chesapeake Bay Suite of Modeling Tools, which is managed by the Chesapeake Bay Program Partnership with input from Bay jurisdictions and other stakeholders.<sup>19</sup> Urban tree canopy expansion, urban forest planting, and urban forest buffers are among BMPs eligible for credit within the Model.<sup>20</sup> These three categories are considered different tree planting practices and offer different levels of pollution reductions within the Model.

As part of the TMDL, each Bay jurisdiction is required to develop and employ a Watershed Implementation Plan (WIP) outlining a roadmap for achieving nutrient reductions in partnership with local and federal governments. These WIPs contain pollution reduction goals for each major source sector, including agriculture, developed, and forests. WIP implementation is likely to be an avenue through which Bay jurisdictions will achieve UTC progress. Another key driver for UTC implementation at the local level are federal stormwater management regulations. Enforced by states, these regulations require municipalities and other entities to limit and treat stormwater discharges. As noted above, urban tree canopy is a particularly cost-effective mechanism for helping to complying with regulations while achieving additional community goals.

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*Urban tree canopy BMPs can help states achieve pollution reduction goals and comply with the Chesapeake Bay TMDL.*

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At the regional level, a working group of state, federal, and nonprofit partners<sup>21</sup> have developed a Tree Canopy Outcome Management Strategy to support implementation and tracking of the Bay-wide UTC goal (2,400 additional

acres by 2025). Informed by stakeholder input and updated biennially, this Strategy outlines actions that will be necessary to meet targets. Two needs identified in the Strategy were part of the impetus for this guidebook: (1) assess and summarize federal, state, local and private funding opportunities available to support local UTC implementation, including riparian forest buffers in developed areas, and (2) collect case study/best practices in conjunction with the above key action.<sup>22</sup>

## Extent of local UTC program implementation and funding in the watershed

While it is difficult to comprehensively account for all municipal UTC programs and spending in the Chesapeake Bay region, data collected by the Tree City USA program paints a general picture.<sup>23</sup> An initiative of the National Arbor Day Foundation, Tree City USA is a voluntary recognition program that municipalities and counties may join if they meet the program's four core standards of sound urban forestry management: maintain a tree board or department, have a community tree ordinance in place, spend at least \$2 per capita per year on urban forestry, and officially celebrate Arbor Day.<sup>24</sup> While this data is self-reported by participating jurisdictions and may not be all-inclusive, it nevertheless provides a snapshot of the relative extent of UTC implementation and funding in Chesapeake Bay states and Washington, DC. (see Table 1).

As Table 1 indicates, Bay states vary significantly in the percentage of jurisdictions that have attained Tree City USA designation, from 4% in Pennsylvania to 30% in Delaware. Another way to look at this information is the percentage of the statewide population that lives in a Tree City USA – designated municipality. While only 9% of West Virginians live in such jurisdictions, 77% of Marylanders and 100% of Washington, DC residents do. States also vary in annual per capita spending on urban forestry management (which includes planting, care, and removal of trees), from \$5.14 in West Virginia to \$16.89 in Washington, DC. Across all seven jurisdictions, average annual spending is \$7.68 per capita.

For the Chesapeake Bay Watershed as a whole – which encompasses most of Maryland and all Washington DC

**Table 1. Tree City USA membership status and annual urban forestry spending in Chesapeake Bay States and DC (statewide participation)**

Jurisdiction	Percentage of local jurisdictions that have achieved Tree City USA designation	Percentage of total population living in a Tree City USA jurisdiction	Total annual spending on forestry management in Tree City USA jurisdictions (\$ million)	Per capita annual spending on urban forestry management (\$)
Delaware	30%	20%	1.4	7.09
Maryland	28%	77%	31.1	6.67
New York	8%	63%	86.0	6.81
Pennsylvania	4%	28%	18.8	5.21
Virginia	25%	47%	23.9	5.98
Washington, DC	100%	100%	11.5	16.89
West Virginia	6%	9%	0.8	5.14

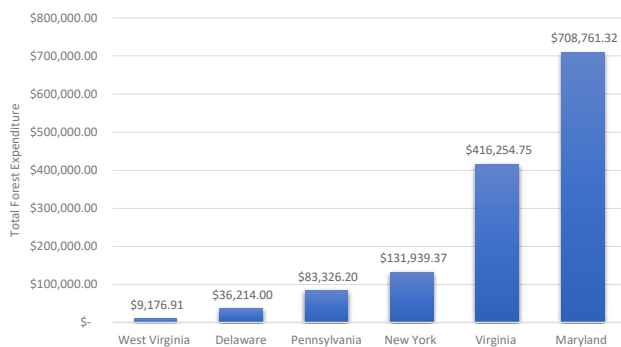
Notes: Data is for 2017. Per capital annual spending column reports expenditures by Tree City designated jurisdictions compared to the total statewide population.

Source: Derived from information available in: Arbor Day Foundation. 2017 Tree City Communities community database. Available: <https://www.arborday.org/programs/treecityusa/directory.cfm>

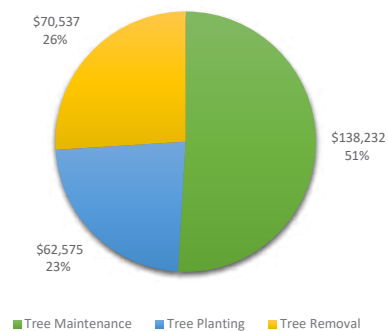
but smaller portions of the other states – 4% of local jurisdictions are designated Tree City USA entities, and total spending on urban forestry management reported by Tree City USA municipalities is \$71 million per year, or \$6.32 per capita.<sup>25</sup> Figure 1 shows reported annual UTC spending by state, for the portion of each state that falls within the Chesapeake Bay Watershed only.

According to Tree City USA data, nearly half of annual forest management expenditures in Tree City USA jurisdictions in the Chesapeake Bay Watershed goes to maintaining existing trees. Nearly equal shares of the remaining expenditures are for tree planting and tree removal (see Figure 2). These figures highlight the relative importance of maintaining existing tree canopy compared to planting new trees.

**Figure 1. Total Annual Urban Forest Management Spending in the Tree City USA Municipalities within the Chesapeake Bay Watershed, Reported by State (2017)**



**Figure 2. Allocation of Annual Urban Forest Management Spending in Tree City USA Municipalities within the Chesapeake Bay Watershed (2017)**



Source: Derived from Arbor Day Foundation. 2017 Tree City Communities community database. Available: <https://www.arborday.org/programs/treecityusa/directory.cfm>



An aerial photograph of a suburban neighborhood. The scene is dominated by lush green trees and well-maintained lawns. Several houses with varying roof colors (blue, brown, grey) are scattered throughout the area. A winding asphalt road cuts through the property, connecting different clusters of homes. The overall atmosphere is peaceful and green.

## 2

# State Policies and Programs Affecting Local UTC Funding and Finance

State policies and programs profoundly affect how local jurisdictions create, fund, and maintain urban tree canopy (UTC) programs. Some state-level actions that may encourage successful development and funding of municipal UTC programs include:

- Adopt statewide legislation and goals supporting urban forest conservation, preservation, and maintenance.
- Approve enabling legislation for municipalities and counties to enact UTC programs.
- Gather and share data on urban tree cover statewide.
- Dedicate funding or other incentives for local UTC implementation (such as competitive grants, direct allocations, etc).
- Provide other resources to support UTC implementation in municipalities, including trainings and/or convenings to encourage cross-municipal collaboration and peer-sharing.

In the Chesapeake Bay Watershed, states differ in terms of the leadership and resources they provide for local UTC implementation. The following is a brief discussion of key state-level drivers (goals, legislation, policies, incentives, funding programs) that may affect local UTC implementation and funding, in each of the six Bay states and the District of Columbia. These summaries were informed in part by interviews with state urban forestry staff in each jurisdiction; contact information for these individuals and other state forestry representatives is provided.

*Photo courtesy Will Parson/Chesapeake Bay Program.*





# Delaware

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Delaware has not adopted statewide tree canopy legislation or formal goals, beyond its commitment in the 2014 Chesapeake Bay Watershed Agreement to add 60 acres of tree canopy coverage in the Delaware portion of the Watershed by 2025. The Delaware Forest Service supports municipalities in conducting tree canopy. As of 2019, fifteen municipalities have passed resolutions to adopt numeric tree canopy goals and associated timelines. Several have gone a step further and adopted specific UTC policies. For example, Newark has incorporated tree protection policies into local plans, and Wilmington has a tree replacement policy in effect.<sup>26</sup>

## Funding

Funding for UTC is available through the Delaware Forest Service, in partnership with the USDA Forest Service and the Delaware Urban and Community Forestry Council. Approximately \$40,000 per year is awarded through competitive grants to help communities conduct tree planting, tree care, and tree management activities on publicly owned lands. Individual grant awards range from \$500 to \$5,000. The amount allocated to this grant program varies year-to-year depending on fund availability. This grant program periodically is supplemented with funding from the US EPA Section 319 Nonpoint Source Management Program via the Delaware Department of Natural Resources and Environmental Control (DNREC) as well as with funding from the state's Regional Greenhouse Gas Initiative via the DNREC Climate and Coastal Energy section.



City of Dover. Photo courtesy of Kesha Braunskill, Delaware Forest Service.





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Maryland's 1991 Forest Conservation Act (FCA) was enacted to "minimize the loss of Maryland's forest resources during land development by making the identification and protection of forests and other sensitive areas an integral part of the site planning process."<sup>27</sup> Administered by the Maryland Department of Natural Resources Forest Service but implemented through local forest conservation programs, FCA regulations apply to any development activity that affects 40,000 square feet or more and requires the submission of an application for a subdivision, grading permit or sediment control permit. Such projects must develop a Forest Conservation Plan, identifying priority areas for conservation. In the first fifteen years after FCA was passed, at least twice as many acres of trees were protected or planted than were removed statewide.<sup>28</sup>

In 2013, Maryland passed the Forest Preservation Act. This law established a state policy to encourage the retention and sustainable management of forestlands to achieve a goal of *no net forest loss*, defined as sustaining 40% of Maryland's land area as tree canopy.<sup>29</sup> Additionally, the state has committed to expand tree canopy coverage in Maryland's portion of the Chesapeake Bay Watershed by 540 acres by 2025, in accordance with the 2014 Chesapeake Bay Watershed Agreement.<sup>30</sup> As of 2018, 51% of Maryland's land area was in tree canopy cover. To support implementation of state forestry goals, in 2015 Maryland developed a Forest Action Plan. This is a five-year strategy intended to assist local jurisdictions with assessing tree canopy cover, establishing UTC goals, implementing tree-friendly regulations for developed areas, and conducting other elements of sound urban forestry management.<sup>31</sup> The plan identifies five main areas for action: sustaining / restoring forests, ensuring forest health, ensuring clean and abundant water, creating jobs



*Photo courtesy of Environmental Finance Center.*

and sustainable communities, and increasing resilience to climate change.<sup>32</sup>

## Funding

Maryland has several funding and incentive programs in place to support the expansion and maintenance of local UTC programs. Funding is available via grants administered by the Maryland Urban & Community Forestry Committee,<sup>33</sup> the Chesapeake Bay Trust,<sup>34</sup> and the Chesapeake and Coastal Bays Trust Fund.<sup>35</sup> In addition, the state administers several long-running incentive programs to encourage tree planting on private property. Marylanders Plant Trees provides small-acreage property owners with a \$25 coupon to purchase a tree valued at \$50 or more at 86 participating nurseries across the state.<sup>36</sup> Tree-mendous Maryland provides towns, parks, and schools with access to affordable trees to plant on public lands.<sup>37</sup> The Lawn to Woodland program is administered by the Maryland Forest Service in collaboration with the National Arbor Day Foundation and provides outreach and no-cost tree planting supplies to landowners with one-to-five acres of plantable space.



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New York has committed to add 60 acres of tree canopy coverage in New York's portion of the Watershed by 2025 as stated in the 2014 Chesapeake Bay Watershed Agreement.

## Funding

The New York Department of Environmental Conservation (DEC) administers two grant programs to help municipalities achieve urban tree canopy goals. The Trees for Tribes program provides landowners,

municipalities, and conservation organizations with native plants and technical assistance to plant trees and shrubs along stream corridors.<sup>38</sup> The Urban and Community Forestry Grants program awards grants on a competitive basis and supports the development of tree inventories and management plans, tree planting, maintenance, and educational programming.<sup>39</sup> Grant amounts depend on the municipality's population size and range from \$11,000 to \$75,000. DEC foresters provide technical assistance to applicants.



*Confluence Park in Binghamton, NY. The park rests at the confluence of the Susquehanna and Chenango Rivers. Photo courtesy of Drew Lewis, Drew Lewis Photography.*





# Pennsylvania

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There are no established statewide tree canopy goals in Pennsylvania, but in the 2014 Chesapeake Bay Watershed Agreement, the Commonwealth committed to add 720 acres of tree canopy coverage in Pennsylvania's portion of the Watershed by 2025. To track progress towards this tree canopy goal, the Commonwealth uses the web-based mapping tool Pennsylvania Community Tree Map, which is built on the OpenTreeMap platform and allows users to add new trees, track existing trees, and record completed maintenance actions.<sup>40</sup> While the tool is available to all Pennsylvania municipalities, the Commonwealth especially encourages those within the Chesapeake Bay Watershed to utilize it. Additionally, recipients of any tree funding from the Pennsylvania Bureau of Forestry are required to report trees planted in the Community Tree Map.

## Funding

A major source of funding for local UTC efforts is TreeVitalize, a public-private partnership between the Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry and the nonprofit organization TreePennsylvania with the support of additional partners. Founded in 2004 in response to research that showed a drop in statewide urban tree canopy, the program provides technical and financial assistance to Pennsylvania communities in three priority areas: community forestry management, urban tree planting, and urban riparian buffers.<sup>41</sup> Municipalities may occasionally receive additional funding to plant trees as part of projects funded through other grant programs administered by the Pennsylvania Department of Conservation and Natural Resources (DCNR). In addition to grants, municipalities can access low-interest loans for stormwater management projects (including trees) through the Pennsylvania Infrastructure Investment Authority. Communities have also been able to commission inventories at little to no cost by leveraging Student Conservation Association volunteers, who are trained by DCNR and Penn State University Extension.



*Susquehanna Township used PATreeMap to document where they added trees during their fall planting event. Photo courtesy of Betsy Logan.*



*Volunteers check on growth of recently planted trees in Harrisburg, following the protocol in Pennsylvania's Young Urban Tree Monitoring Training Toolkit. Photo courtesy the Young Urban Tree Monitoring Toolkit.*



## Washington, DC



*River Corps staff members visit RiverSmart homes in Washington, DC, on April 13, 2017. The River Corps makes home inspections to RiverSmart homes to ensure stormwater practices like trees and rain barrels are properly installed and maintained. Photo courtesy of Will Parson/Chesapeake Bay Program.*



*Photo courtesy of Environmental Finance Center.*

In its long-range master plan, the District of Columbia has articulated a goal to attain 40% urban tree coverage by 2032.<sup>42</sup> Additional district-wide tree canopy goals are set forth in the Chesapeake Bay Watershed Agreement (adding 480 acres of UTC coverage by 2025) and in the District’s Municipal Separate Storm Sewer System stormwater permit (planting 32,000 trees within the MS4 area).<sup>43</sup>

The District’s Urban Forest Preservation Act, passed in 2002 and revised in 2016, established the City’s urban forest preservation program as well as its Tree Fund. The Tree Fund is capitalized by fines and fees collected as a result of the Act and is used to pay for urban tree management activity in the District. The Act requires a tree removal permit, public notification, and a fee of \$55 per inch circumference before the removal or replacement of a “special tree” (44 inches or more in circumference). “Heritage trees” (100 inches or more in circumference) are protected from removal unless they are hazardous to public health.<sup>44</sup> This program is administered by the District Department of Transportation (DDOT).

### Funding

The District Department of Transportation manages all urban tree activity on DC-owned property, including planting, inspection, pruning and removal. These activities are integrated into the District’s 311 service request program and are funded through the Department’s annual capital and operating budgets. Community members can also submit public tree planting requests via the 311 service request program, which DDOT fulfills.<sup>45</sup> The DDOT Urban Forestry Division also participates in the development review process which allows urban foresters to monitor tree removals on public and private properties. This ensures adherence to the DDOT Tree Space Design Standards, tree replacement standards as well as the provisions of the Urban Forest Preservation Act and Tree Canopy Protection Amendment Act.



### State urban forestry contacts:

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Jim Woodworth, Tree Policy Coordinator  
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DC Volunteer Pruning Corps. Photo courtesy of Casey Trees.

The District's Tree Fund, which is capitalized with fees collected via enforcement of the District's tree regulations, can only be spent on tree planting activities, on both public and private lands. To go beyond District-owned property, the District Department of Energy and Environment (DOEE) encourages tree planting on both public and private land by residents and partners, via several programs managed in partnership with Casey Trees, a nonprofit organization dedicated to restoring, enhancing and protecting tree cover in the District. One such program, RiverSmart Homes, provides homeowners with low-cost installation of green infrastructure, including tree plantings, contingent on the homeowner completing a DOEE stormwater audit. DOEE also offers a Tree Rebate program administered through Casey Trees that compensates private property owners for planting eligible trees, with \$50 or \$100 rebates.<sup>46</sup> To scale up from residential to larger sites, stakeholders and community partners may take advantage

of large-parcel tree planting grant funds administered through Casey Trees' Community Tree Planting Program to plant trees on school yards, parks, cemeteries, college campuses, natural areas and the like.

In addition to these programs, DC's Urban Forestry Division recently launched a new program for special tree permit applicants; the promise of a new, free tree as replacement for the loss of a cherished tree. The program uses funds generated by the tree law to increase canopy where there is the greatest potential to plant trees, on private property.

Funding for these programs comes from the Tree Fund, the District's Stormwater Fund, and the Anacostia River Clean Up and Protection Fund (aka "the Bag Fund"). In addition to these public funding streams, Casey Trees offers numerous events, classes and programs such as Pruning Corps, to supplement the District's efforts to maintain and care for the District's urban forest.



## West Virginia



*Paul Wilmoth of Jefferson County, WV, moves mulch around the base of new trees after a volunteer planting led by the Cacapon Institute on April 29, 2017. Wilmoth was a developer for his community, called Deerfield Village, and said that he clustered the homes in order to maximize green space. "That's one of the things that was high on our priority list when we started doing this project, was trying not to have a big footprint on the environment and reducing as much erosion and pollution as possible," Wilmoth said. Photo courtesy of Will Parson/Chesapeake Bay Program.*



*Tree planting at Eagle Intermediate School – one of many school canopy plantings supported by Cacapon Institute and Carla Hardy WV Project CommuniTree. Photo courtesy of Tanner Heid, Cacapon Institute.*

West Virginia has committed to add 120 acres of tree canopy coverage in West Virginia's portion of the Chesapeake Bay Watershed by 2025 per the 2014 Chesapeake Bay Watershed Agreement. While the state has not adopted urban tree canopy legislation or enacted state-level UTC programs, its Division of Forestry (DOF) supports UTC implementation at the local level by providing guidance and technical support to conduct tree canopy assessments and goal-setting. DOF partners with the Cacapon Institute, a nonprofit dedicated to protecting rivers and watershed through science and education. The Institute serves as lead for implementing West Virginia's Chesapeake Bay UTC objectives, by helping communities in targeted watersheds assess and enhance UTC. The Institute has completed or assisted with creating UTC assessments and UTC goals for seven cities, two counties, and all the schools within West Virginia's portion of the Chesapeake Bay Watershed.<sup>47</sup>

In addition to these efforts, West Virginia's Mountaineer Treeways program offers hundreds of free tree seedlings per year to volunteer organizations seeking to plant trees on public property, especially property adjacent to highways. This program is administered by four state agencies: the Division of Forestry, the Division of Natural Resources, the Division of Highways and the Turnpike Authority. Another initiative, the Municipal Tree Restoration Program, helps remove hazardous trees under power lines and plant more appropriate tree species in their place, at no cost to the local government. This program is a collaboration between West Virginia Division of Forestry, West Virginia University and local utility companies. Leadership on UTC efforts also comes from the Region 9 Economic Development Authority, which promotes forest and tree canopy protection in county and municipal management plans and ordinances, and from West Virginia University (WVU),



### State urban forestry contacts:

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which offers a minor in Arboriculture & Urban Forestry and has conducted i-Tree analyses for Morgantown and all of WV's sixteen Tree City USA communities.<sup>48</sup>

## Funding

West Virginia administers grant programs to support urban forestry efforts at the municipal and county level.<sup>49</sup> Federal funding from the Chesapeake Bay Program flows through the WV Department of the Environment to support urban forestry efforts in the eight counties of the Potomac Basin: Berkeley, Grant, Hardy, Hampshire, Morgan, Mineral, and Pendleton. The Chesapeake Bay Community Grants program, which is administered by WVDOF, deploys \$10,000 - \$20,000 annually to local governments within the eight counties of the Potomac River Watershed to implement conservation programs. To be eligible, projects must include a tree planting component. Another source of funding is the Demonstration City grants program, which provides pass-through funding from the USDA Forest Service to Tree City USA communities or entities with similar levels of organization. Eligible applicants may utilize these grants to fund a wide range of urban forestry projects.

Funding for UTC assessments in Jefferson County, Berkeley County, and public schools in the Potomac Basin came from a multi-year USDA Forest Service grant administered by WV DOF and the Cacapon Institute.<sup>50</sup> USDA Forest Service funds have also supported the Potomac Watershed Partnership, which promotes urban forestry BMPs and education in the Shenandoah Valley and across the Potomac Highlands of Pennsylvania, Western Maryland, and West Virginia.

Cacapon Institute, through the Carla Hardy WV Project CommuniTree, offers arboriculture expertise and free trees to municipalities and volunteer groups in the Chesapeake Bay watershed for planting on public land.<sup>51</sup> Schools may apply for tree planting and green infrastructure assistance through the Institute's Potomac Headwaters Leaders of Watersheds project, which has been funded in part by a National Fish & Wildlife Foundation grant. Additionally, private landowners, business associations, watershed associations, and civic groups are encouraged to organize and participate in Your Community BMP, a cost-share program promoting urban forestry and green infrastructure.



*A family visits the Route 9 bicycle path north of Ranson, WV. Since 2012, over 800 trees have been planted along the trail by volunteers from across Jefferson County, turning several miles of roadside into an appealing green space and forested corridor. The Carla Hardy West Virginia Project CommuniTree (CTree) program—led by Cacapon Institute and driven by volunteers—supplied most of the trees in partnership with agencies and local groups like the City of Ranson. A variety of tree species were chosen for visual appeal as well as to provide wildlife habitat, shade, and screening of the highway. Photo courtesy of Will Parson/Chesapeake Bay Program.*



# Virginia

## State urban forestry contacts:

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Jim McGlone, Urban Forest Conservationist  
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Alexandria Tree Stewards caring for a tree. Photo courtesy of Alexandria Tree Stewards.



Roanoke Tree Stewards planting trees. Photo courtesy Roanoke Tree Stewards.

In the 2014 Chesapeake Bay Watershed Agreement, the Commonwealth committed to add 480 acres of tree canopy coverage in Virginia’s portion of the Watershed by 2025. The Commonwealth has passed enabling legislation that allows localities with a population density of at least 75 persons per square mile or any locality within the Chesapeake Bay Watershed to adopt ordinances requiring the replacement of trees lost during land development projects.<sup>52</sup> Many municipalities have passed such ordinances, as catalogued in the Virginia Tree Ordinance Database. Developed by the Virginia Urban Forest Council and Virginia Tech, this database is a “repository of municipal ordinances in Virginia that regulate the use, management, and conservation of trees in urbanized areas”<sup>53</sup> and is intended to support the adoption of additional such local regulations in Virginia.

## Funding

Virginia does not have consistent or dedicated sources of state funding for community tree planting and maintenance. Local jurisdictions fund their own community forestry programs through a variety of means, including by leveraging their stormwater management programs and budgets. Additional UTC progress occurs through implementation of Virginia’s Chesapeake Bay Watershed Implementation Plan.





3

## Foundations for Successful Tree Canopy Funding

As a building's foundation undergirds and stabilizes the structure, certain foundational elements are important to support a community's tree canopy program. Good groundwork in a municipality's political sphere, regulatory frameworks, and administrative processes provides a solid foundation on which to build a UTC financing initiative. Below is a brief discussion of three elements that pave the way for a successful and sustainable urban tree canopy funding strategy. These components are complex and important, and they deserve a resource guide on their own. For additional guidance on building community capacity in these areas, see the resources listed at the end of each section. Further, municipalities seeking basic guidance on how to start a community forestry program may wish to access resources offered by the Arbor Day Foundation,<sup>54</sup> the USDA Forest Service,<sup>55</sup> and the Chesapeake Tree Canopy Network.<sup>56</sup>

*Photo courtesy of the Kesha Braunskill, Delaware Forest Service.*



## Public support and clear vision for community trees

Effective funding for an urban tree canopy program requires a shared community vision for tree planting and care tied to specific programmatic goals and budget needs. Strong leadership and clearly defined goals signal to residents and potential funders that community trees are a priority. Municipalities should seek to identify and cultivate local tree champions who can articulate the community’s urban forest goals and engage a broader set of stakeholders in supporting efforts to protect and expand tree canopy.

Most UTC programs are supported at least in part by tax revenue. Given this reality, it is important that residents understand why urban forestry is a priority for public investment. Specifically, community members should believe that they will receive direct and tangible benefits from the UTC program, and they must trust the

jurisdiction to effectively and efficiently execute forestry management practices. Building public trust takes time and requires genuine efforts by the municipality to solicit input from a representative set of stakeholders, starting early and remaining consistent throughout the program. See Table 2 below for ideas about how to seek and strengthen community support.

A particularly beneficial step in building public buy-in for the local UTC program is to establish clear and consistent messaging around the value of urban trees. Specific messaging points should focus on the forest benefits that related directly to whatever the hot-button concerns are in the particular community, whether that is air quality, stormwater mitigation, economic development, or others. However, all UTC programs will benefit from emphasizing the tangible benefits and positive return-on-investment that community forests bring.

**Table 2. Strategies to build public support for community tree efforts**

Map out community stakeholders (residents, nonprofits, businesses, elected officials, etc.) to identify potential tree champions who may be cultivated and empowered to be advocates.
Solicit public input on needs and values related to community trees, from a diverse and representative set of stakeholders. Consider implementing surveys, convening a tree commission or advisory team, and involving residents in hands-on activities such as plantings.
Establish clear and consistent messaging around the value that trees provide to the community.
Conduct public outreach to educate the community about the importance of trees: advertising, traditional and new social media, special events, etc.
Develop programming and activities that involve various groups in the community (including people with disabilities, children, seniors), such as informational workshops and walking tours.
Promote the local forestry program outside the community to highlight successes and enhance the program's visibility and credibility.
Develop an educational program to orient newly-elected public officials to the community's forestry program.
Promote coordination and communication among city departments regarding the community forest program.



## EXAMPLES

**City of Baltimore, Maryland.** Led by the Baltimore Department of Parks and Recreation, TreeBaltimore is an umbrella organization for all City agencies, private organizations and individuals working to increase tree canopy within the City. After conducting research that showed a low perceived need for trees in Baltimore as well as some negative ideas toward trees (hard to maintain, can hide criminals, can damage pipes), TreeBaltimore launched a social marketing campaign intended to emphasize the benefits of trees rather than attempting to contradict negative associations.<sup>57</sup> The campaign also attempts to make it easier for residents to plant trees and it mobilizes groups to plant trees in a fun, social way, via “TreeUp” events.<sup>58</sup>

**City of Reading, Pennsylvania.** The City of Reading’s shade tree commission is an invaluable asset to the municipality’s urban tree program. The shade tree commission is responsible for the regulation, maintenance, and promotion of shade trees. They also conduct yearly inventories, lead community outreach and education efforts, and in general are invaluable to helping the city meet its urban tree canopy goals.

Table 3, below, offers several self-assessment questions that municipalities may use to identify strengths and needs related to their communities’ vision, messaging, and public buy-in for urban tree management. Following the table is a list of resources that provide additional guidance in these areas.

**Table 3. Self-assessment questions: Do we have leadership, public support, and clear goals for our urban forest?**

✓	Who are our community's tree champions? Do we have strong leadership from elected officials and other decision-makers and stakeholders?
✓	Are we meaningfully engaging members of the public (representative of diverse groups including those traditionally underrepresented) in developing a clear vision for our community forest? Are our urban forest goals clear, actionable, and tied to timelines and budgets?
✓	Do we have an active and empowered tree commission, board, or other citizen group?
✓	Do we have regular opportunities for members of the public to participate in tree planting and care?
✓	Is our tree messaging clear and consistent? Do we emphasize the environmental, social, and economic benefits of trees?
✓	Do staff from various departments need additional training and support regarding tree canopy initiatives in our community?

## Resources

Chesapeake Tree Canopy Network Website.

<http://chesapeaketrees.net/category/outreach-strategies/>

*Includes guides, sample marketing material, case stories and other resources to help communities implement urban forestry outreach.*

City of Takoma Park, Maryland Tree Commission Website.

<https://takomaparkmd.gov/government/boards-commissions-and-committees/tree-commission/>

*Includes information about Takoma Park’s Tree Commission as well as links to helpful resources.*

Community Tree Leadership Forum. Marketing Trees: Leveraging a Positive Perception in a Competitive Marketplace. [http://actrees.org/files/Publications/USEMarketing\\_ACT.pdf](http://actrees.org/files/Publications/USEMarketing_ACT.pdf)

*Describes how to develop an effective community forest program marketing plan.*

PennState Extension. Municipal Tree Commissions. <https://extension.psu.edu/municipal-tree-commissions>

*Explains how communities can form a tree commission to create and sustain an urban forestry program.*

Tree Frederick. Tree Guide. <http://www.cityoffrederick.com/891/Sustainability>

*Planting and maintenance guide for homeowners.*

TreePennsylvania. Young Urban Tree Monitoring Training Toolkit. <https://treepennsylvania.org/young-urban-tree-monitoring-training-toolkit/>

*Training toolkit to enable volunteers to monitor newly planted trees.*

Trees and Stormwater Website.

<http://treesandstormwater.org>

Provides extensive resources for incorporating trees into a local stormwater management program.

Vibrant Cities Lab. Urban Forestry Toolkit.

<https://www.vibrantcitieslab.com/toolkit/>

Offers a step-by-step guide to implementing community forestry.

## Regulations that support community tree goals

Local and state policies and local ordinances provide an opportunity to formalize and legalize the community's urban tree canopy goals. By protecting existing trees and requiring reparations when trees are removed, regulations can dramatically reduce the costs of maintaining and expanding the urban forest. Additionally, fees and fines collected through regulatory enforcement can represent a significant source of revenue for the UTC program.

Urban tree canopy policies may be standalone (e.g. a community forest master plan), and/or they may be integrated into existing planning documents and processes, such as the comprehensive or master plan, transportation plan, economic development plan, capital improvement program plan, and hazard mitigation or emergency management plan.

Many land use and development codes have the potential to encourage forest-friendly practices and patterns, but they can also unintentionally *discourage* such practices. It is worthwhile to audit local codes for barriers to sound urban forest management. Codes and regulations to review include zoning, subdivision, land development, erosion and sediment control, stormwater management, riparian buffers, critical areas, and others. See the list of resources below for guidance on reviewing and revising municipal codes.

*“A basic public tree care ordinance forms the foundation of a city’s tree care program. It provides an opportunity to set good policy and back it with the force of law when necessary.”*

—ARBOR DAY FOUNDATION

In addition to auditing existing codes, many jurisdictions have found it effective to adopt a tree protection ordinance, which regulates the removal, pruning, and planting of trees in public spaces and can generate revenue for ongoing tree maintenance and replacement. Tree ordinances may be designed to prevent the removal of protected trees, require mitigation or the payment of in-lieu-of fees when trees are damaged or lost, and mandate tree plantings in all new developments. Many tree ordinances also support the establishment of a local tree commission or a forestry department and give this entity responsibility for overseeing UTC program goal setting and implementation.

Table 4 offers self-assessment questions that municipalities may use to identify opportunities to make local regulations and practices more supportive of sound urban tree management. These questions come from the Center for Watershed Protection's 2018 guide *Making Your Community Forest-Friendly: A Worksheet for Review of Municipal Codes and Ordinances*. A link to this document and other helpful resources is provided below.

**Table 4. Self-assessment questions: Are our land use codes and practices forest-friendly?**

✓	Do we direct growth away from large, ecologically intact forest land using zoning, land use planning and Smart Growth techniques?
✓	Do we permanently protect valuable forest land through purchase of land and conservation easements?
✓	Do we limit overall forest loss during development through regulations that limit clearing of trees and forests, require forest conservation, require forested stream buffers, promote open space development, protect trees during construction, provide stormwater credits for planting and tree conservation, require tree planting as part of landscaping requirements, require tree planting on Brownfield sites, agricultural land and vacant sites where old structures have been removed?
✓	Have we developed programs for community reforestation of public lands, providing incentives for planting trees on private property and establishing municipal tree programs that support the long-term maintenance of the urban forest?
✓	Do we promote sustainable forest harvesting activities and management on working forest lands?

Source: Adapted from Center for Watershed Protection. 2018. *Making Your Community Forest-Friendly: A Worksheet for Review of Municipal Codes and Ordinances*. <https://owl.cwep.org/mdocs-posts/making-your-community-forest-friendly-a-worksheet-for-review-of-municipal-codes-and-ordinances/>



## Resources

Center for Watershed Protection. 2018. Making Your Community Forest-Friendly: A Worksheet for Review of Municipal Codes and Ordinances. <https://owl.cwbp.org/mdocs-posts/making-your-community-forest-friendly-a-worksheet-for-review-of-municipal-codes-and-ordinances/>

*Worksheet to help communities evaluate and modify development regulations to protect and enhance urban tree canopy.*

Georgia Forestry Commission. 2005. Tree Ordinance Development Guidebook. <http://www.gatrees.org/community-forests/planning-policy/tree-ordinances/2005TreeOrdinance-100.pdf>

*Designed to help communities develop or revise tree ordinances.*

International Society of Arboriculture. 2001. Guidelines for Developing and Evaluating Tree Ordinances. <http://www.isa-arbor.com/Portals/0/Assets/PDF/Certification/Tree-Ordinance-Guidelines.pdf>

*Describes how to plan, draft, and evaluate an urban forest ordinance.*

Ohio Division of Forestry. Urban Forestry Toolbox. <http://forestry.ohiodnr.gov/urbanforestrytoolbox>

*See the “Tree Law and Ordinances” section for resources including a sample tree commission ordinance and a sample tree ordinance.*

Virginia Tree Ordinance Database.

<http://vtod.frec.vt.edu/>

*Provides examples of common tree ordinance terminology and content, drawn from Virginia municipalities.*

US EPA. 2009. Water Quality Scorecard: Incorporating Green Infrastructure Practices at the Municipal, Neighborhood, and Site Scales.

[https://mostcenter.org/sites/default/files/water\\_quality\\_scorecard.pdf](https://mostcenter.org/sites/default/files/water_quality_scorecard.pdf)

*A program evaluation tool that local governments can use to collaboratively identify the barriers to green infrastructure in local codes and ordinances. The scorecard guides municipal staff through 230 policies, codes, and incentives that could be adapted to promote sustainable stormwater management.*

## Trees incorporated into asset management planning

Municipalities already undertake regular planning, budgeting, and evaluation of public assets and infrastructure, such as roads, bridges, emergency vehicles, schools and other public buildings, and water and wastewater infrastructure. Incorporating community trees into these ongoing processes is a cost-effective and practical means of making forest management part of day-to-day municipal operations and it helps protect the community’s investment in trees.

Asset management is a strategic approach to maintaining and sustaining capital goods in order to meet the needs of the community at the lowest overall life cycle cost. It involves maintaining a regular inventory of assets to ascertain their current condition and level of service, as well as developing a prioritized plan for these assets’ regular repair and replacement. This approach ensures adequate maintenance of public goods throughout their useful life, and it helps to avoid unexpected failures, which can disrupt service and increase overall costs.

Trees in public rights-of-way and other public spaces should be considered community assets; they entail both costs (for installation, maintenance, etc.) as well as value (providing economic returns in the form of increased property values, reduced energy costs, improved public health and safety, etc.). Following the asset management framework, municipalities should conduct an inventory of all community trees, noting their age, species, health/condition, estimated monetized value, replacement cost, suitability for the conditions of their site, and other relevant factors. The inventory should also assess the overall forest, including species diversity and equitable distribution of trees throughout the jurisdiction. This information can then drive the development of a comprehensive management plan that details a schedule, protocol and budget for maintaining, removing, and planting trees.

Table 5 offers self-assessment questions that municipalities may use to determine whether their community treats trees as valuable assets that should be systematically monitored, maintained and replaced. Also included is a list of resources that can provide additional guidance in building capacity in this area.

**Table 5. Self-assessment questions: Do we recognize trees as assets and plan for them accordingly?**

✓	Do we formally recognize community trees as a capital asset and include them in routine asset management planning processes?
✓	Have we assessed the value of our trees, as well as their replacement value?
✓	Do we maintain a tree database with photos and details on our trees' location, species, age, and condition?
✓	Do we have an operations, maintenance, and tracking plan for our community trees?
✓	Do we have a plan and budget for maintaining, removing, and replacing trees? Does this plan ensure that the right species are planting in the right conditions, and that trees are distributed equitably throughout the community?

**EXAMPLES**

**City of Charlottesville, Virginia.** The City of Charlottesville recognizes that the overall quality of its urban forest requires organized planning and management. The City's Urban Forest Management Plan<sup>59</sup> aims to ensure that all areas of the City have appropriate tree cover based on land use and density. To inform and track its efforts, the City conducts a canopy study every five years using aerial photography and it records day-to-day forest management activities (plantings, removals, pruning) as well as tree information (size, species, location) in a spreadsheet.

**City of Mount Rainier, Maryland.** A densely urbanized city just outside Washington, DC, Mount Rainier has maintained a basic tree inventory since the 1990s. While it has lacked capacity to undertake its own tree canopy study, the City has utilized a county-wide canopy assessment to estimate UTC coverage in its boundaries.

**Resources**

Center for Watershed Protection. 2018. Accounting for Trees in Stormwater Models. <https://owl.cwep.org/mdocs-posts/accounting-for-trees-in-stormwater-models/>  
*Helps stormwater managers account for trees in runoff and pollutant load calculations so that they may be incorporated more easily into stormwater management strategies.*

Danford, S. et al. 2014. "What Does It Take to Achieve Equitable Urban Tree Canopy Distribution? A Boston Case Study." *Cities and the Environment*: 7(1). <https://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1123&context=cate>  
*Research article exploring whether and how US cities can increase equity in urban canopy cover.*

Environmental Finance Center Network. 2014. Asset Management for Stormwater Issue Brief. [https://mostcenter.org/sites/default/files/asset\\_management\\_for\\_stormwater\\_issue\\_brief.pdf](https://mostcenter.org/sites/default/files/asset_management_for_stormwater_issue_brief.pdf)  
*Overviews the asset management planning framework.*

i-Tree. Tools for Assessing and Managing Forests & Community Trees. <https://www.itreetools.org/>  
*Portal for tools to help quantify tree structure, threats, and benefits.*

Leff, M. 2016. The Sustainable Urban Forest: A Step-by-Step Approach. [http://www.itreetools.org/resources/content/Sustainable\\_Urban\\_Forest\\_Guide\\_14Nov2016.pdf](http://www.itreetools.org/resources/content/Sustainable_Urban_Forest_Guide_14Nov2016.pdf)  
*Guide to help municipalities assess the state of their urban forest, identify management concerns, and chart a path toward long-term sustainability.*

Elmendorf, W. et al. 2005. A Guide to Preserving Trees in Development Projects. PennState College of Agricultural Science. <https://extension.psu.edu/a-guide-to-preserving-trees-in-development-projects>  
*Describes the arguments for and ways to protect trees during construction and development projects.*

Vibrant Cities Lab. Urban Forestry Toolkit. <http://www.vibrantcitieslab.com/toolkit/>  
*A step-by-step guide to implementing community urban forestry. Includes resources related to assessing, prioritizing, planning, building, and sustaining the urban forest. See especially the Community Assessment and Goal Setting Tool.*





## 4

# Funding Strategies for UTC Programs

Urban tree canopy programs – the suite of activities undertaken by a community to maintain and enhance its urban forest – have traditionally been funded via one main source: the local government’s general fund. Used for all basic administrative and operational expenditures, the general fund is often overtaxed by the many and competing demands on its resources. Given the increasing strain on public budgets, many municipalities are encountering a need for alternative or supplementary funding approaches to sustain their forest management programs. Below is a discussion of the range of options available to fund UTC efforts, organized into two broad categories:

**Cost reduction strategies** increase a UTC program’s efficiency and reduce its overall costs. While not explicitly sources of funding, these approaches help stretch public funds and leverage outside resources.

**Revenue generation options** are mechanisms to generate and build revenue streams for UTC program implementation.

Assembling the appropriate mix of cost reduction and funding strategies is highly dependent on a community's particular needs and characteristics. To develop a financing strategy that delivers sufficient and sustainable support for the UTC program, a municipality will need to consider many factors, including desired forest management activities and associated budget needs, existing sources of funding or in-kind support, and the community's appetite for new revenue programs. Just as these conditions vary from one town to the next, the appropriate UTC financing strategy will be rooted in local context and may look different from one jurisdiction to the next.

There are, however, some principles of sound UTC financing that apply across the board. First, it is wise to incorporate a *diverse mix* of funding sources as well as cost-saving approaches into the local UTC financing strategy. Diversification provides stability and helps sustain forest management budgets in the face of unexpected cuts to any one funding source due to leadership changes, shifting budget priorities, or other uncertainties. In addition to being diversified and sustainable, effective UTC funding programs will be designed to raise *sufficient* revenue to support all program elements, including planning, design, planting, protection, and maintenance. This helps to deliver promised program outcomes and reinforce public support for continued funding. The following pages include examples of communities that are successfully implementing these approaches; more in-depth illustrations can be found in the Case Stories section.

## Cost reduction strategies

***Tree ordinances and development regulations.*** As discussed in the previous section, local ordinances and development regulations can protect existing tree canopy and require mitigation for tree removal (in the form of new plantings and/or payments). Shade tree ordinances regulate the removal, maintenance, and replacement of trees in public rights-of-way and other spaces, while land development regulations may be used to require builders to incorporate plantings into new developments. Such

tools can advance a community's urban tree canopy goals without significant investment of public dollars, and they can even provide a funding stream in the form of enforcement fines and mitigation or in-lieu-of payments.

### EXAMPLES

***City of Frederick, Maryland.*** Frederick has enacted a landscaping ordinance, which requires the planting of street trees and other vegetation on public property, as well as a forest conservation ordinance, which requires developers to set aside area for forests and parks, depending on the size of the project.

***Montgomery County, Maryland.*** In 2014, both the Tree Canopy Law and the county's Roadside Tree Protection Law went into effect in Montgomery County. These two laws, in addition to the state-mandated Forest Conservation Law, are important tools to enhance tree canopy, reduce canopy losses, and mitigate for environmental impacts of development.

***Volunteer engagement.*** In many communities, residents are eager to participate in tree planting, inventories, and care. Engaging volunteers to undertake UTC program activities can augment local capacity at little or no cost, and it helps create ambassadors for community tree goals. Municipalities may find it particularly effective to partner with like-minded nonprofit or community organizations to oversee volunteer mobilization and deployment. Not only do such organizations have expertise with volunteer management, they may be able to provide support for a UTC program, including fundraising and advocacy. In addition to these benefits, volunteer labor and donated construction material may often be counted as match for grant applications. Potential sources of volunteers include community service clubs, church and youth groups, and schools.



## EXAMPLE

**City of Cumberland, Maryland.** Cumberland augments its staff capacity by hiring a paid arborist intern each summer to assist with tree inventories, plantings, pruning, and removal. It is able to keep costs low by taking advantage of regional internship programs such as those offered by the Society of Municipal Arborists and the Chesapeake Bay Trust.

**Public-private partnerships.** Municipalities can augment their capacity by partnering with private sector entities, either informally as described above, or more formally through a contractual relationship. As discussed, informal arrangements might include engaging a nonprofit organization or community group to conduct elements of a UTC program that are aligned with the group's mission and workplan, such as education and outreach, volunteer coordination, and fundraising. A *formal* public-private

partnership (P3) is a contractual agreement between a public agency and a private sector entity through which the parties collaboratively deliver a good or service and share in bearing the potential risks and rewards. P3s can be used for an entire project or for selected aspects, such as financing, design, construction, maintenance, and monitoring. Performance-based contracts with private arborist firms to conduct tree planting and maintenance might be particularly appropriate P3 for a municipal UTC program.

## EXAMPLES

**City of Cumberland, Maryland.** Cumberland's Shade Tree Commission has built a network of informal partnerships with organizations that have not traditionally been involved with forestry, such as the local hospital foundation, cemetery associations, and faith-based institutions. These partnerships enable the City to tap into a broader network of supporters in embracing and advocating for the ways that trees benefit the community.

**City of Fredericksburg, Virginia.** As of 2018, the City of Fredericksburg has an established Memorandum of Understanding with the non-profit organization, Trees Fredericksburg. The City and the non-profit formed the MOU after many years of an informal partnership. This MOU formalizes Tree Fredericksburg's role of planting and watering all of the City's new trees.

**Multi-municipal resource sharing.** Powerful cost savings can be achieved when neighboring jurisdictions work together and share resources. This could take the form of regional tree canopy assessments or surveys, or even collaborative planning for UTC goals and implementation. Cooperative purchasing is another cost-saving opportunity whereby municipalities pool demand for products or services, such as tree canopy inventories, arborist services, and maintenance supplies and equipment.

Neighboring towns may even share staff such as urban foresters or arborists. Joint procurement can result in lower prices from suppliers and it enables costs to be split among jurisdictions. One option here is for county-wide or regional contracts with service providers to be structured so that municipalities within the county can add onto the contracts and take advantage of services offered within their own jurisdictions.

## Revenue generation options

**General tax revenue.** Community forest management programs most commonly are funded by local tax revenue deployed via the municipality's general operating budget. While the general fund must support a number of community needs and is often stretched by competing demands, it is nevertheless a relatively stable and reliable source of funds, and municipal budgets likely will and should remain a core source of UTC program funding. These funds are usually unrestricted and are appropriate for ongoing UTC program costs including staffing, maintenance, monitoring and assessments.

Given the many benefits that trees provide and the positive return-on-investment that they generate, there is a strong argument for dedicating a greater portion of the community's annual budget to its UTC program. Additionally, forest program managers may seek opportunities to include line items within other departmental budgets that support elements of the community forest program.

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*“Ultimately, community trees are a local responsibility. Federal assistance, state assistance, and special grants are currently providing important help for planting trees and establishing community forestry programs. But no source of funds should be considered a substitute for including tree care replacement or care in local municipal budgets.”*

-JOHN ROSENOW, IN FAZIO, J. 2010.

ARBOR DAY FOUNDATION.

TREE CITY USA BULLETIN NO. 34:  
HOW TO FUND COMMUNITY FORESTRY.

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### EXAMPLES

**City of Fredericksburg, Virginia.** Tree Fredericksburg, a nonprofit organization founded in 2007 to help the City restore and protect tree canopy, has worked to mobilize volunteers for tree planting and maintenance, and forge partnerships with other organizations interested in urban tree protection. These relationships have been instrumental in increasing the tree planting budget allocation from the City's general annual budget.

**City of Milwaukee, Wisconsin.** Milwaukee taps into a greater share of general funds by integrating tree work into all of its street improvement projects as an essential but financially minor element.<sup>60</sup>

**Capital improvement project budget.** The capital improvement project (CIP) budget is a possible avenue for funding urban tree planting and even maintenance, particularly if the community views trees as capital assets. Capital improvement planning is a process for projecting, budgeting, and financing the development and maintenance of public infrastructure and other fixed assets. While CIPs are ultimately funded via the same means as the community's general operating budget (the local tax base),

they are planned and budgeted via a separate process. This allows for major expenditures to be systematically identified and prioritized for investment – outside the regular general budgeting process. If tree projects are not eligible for inclusion in a community's CIP on their own, another opportunity is to embed tree planting into large-scale infrastructure projects such as road upgrades and facility construction or repairs.



## EXAMPLES

**City of Charlottesville, Virginia.** Charlottesville’s extensive urban forestry program has been funded primarily through its capital improvement plan (CIP) and general operating budget. Strong support from the City’s Tree Commission has secured consistent CIP funding for urban forestry, which has allowed the City to proactively plan upcoming tree projects and maintain its urban forest as a community asset that provides many benefits. General funds are used for unexpected needs such as emergency tree removal following storm damage.

**Town of Woodstock, Virginia.** The small town of Woodstock was able to purchase a wood chipper through its capital budget, enabling the Town to process downed trees into a product.

**Taxes, assessments, and special tax districts.** While new taxes are rarely politically popular, they are one of the main tools available to local governments to fund community needs. Given sufficient public support, it may be possible to levy a special assessment on property owners based on linear feet of street frontage or other metric. Special assessments should be linked to the cost of providing the service (in this case, tree planting and care) and applied uniformly to all beneficiaries of that service, with revenue applied exclusively to providing the service. Even if designed carefully, however, such assessments may

be perceived as unfair or as unduly adding to residents’ tax burden.

Another option is to include urban forestry projects in special assessment districts, such as Tax Increment Financing Districts (in which the costs of improvements are paid back by future tax increases) or Landscape and Lighting Assessment Districts. Property owners may also voluntarily form Special Improvement Districts in which members of the group are assessed fees in order to pay for desired benefits, including green space and trees.<sup>61</sup>

## EXAMPLES

**City of St. Louis, Illinois.** The City transfers a portion of property tax and local sales tax revenue to support its urban tree canopy program.

**City of Cincinnati, Ohio.** Like several other municipalities in Ohio, Cincinnati imposes a special assessment on all properties adjacent to public rights-of-way, as authorized by state statute. The City raises about \$1.9 million per year via its assessment, which is set at 21 cents per foot of street frontage.<sup>62</sup>

**District of Columbia.** DC’s urban forest management program is funded largely via its Tree Fund (with revenue from enforcement of its tree protection ordinance), as well as via the Anacostia River Clean Up and Protection Fund, which imposes a fee for plastic bags used at retail stores.

**City of Frederick, Maryland.** Frederick’s landscaping ordinance and forest conservation easement requirements mandate that developers either include tree plantings in projects or pay into a fee-in-lieu fund.

**Stormwater utility fees.** As communities around the country seek to comply with federal and state stormwater regulations, stormwater utility fees are an increasingly popular method for developing sufficient and dedicated funding for stormwater management. These fees are typically assessed on all property owners, including those

usually exempt from property taxes, meaning that their overall burden is less than a general tax increase. As mentioned above, trees have been shown to treat and mitigate stormwater as a cost-effective complement to traditional gray infrastructure, and thus UTC projects should be an integral part of a community’s stormwater



Photo courtesy of Jenny Willoughby, City of Frederick.



Photo courtesy of Paul Eriksson, City of Cumberland.

management plan. A growing number of local jurisdictions are dedicating a portion of stormwater fee revenue to the municipal UTC program. In addition to using stormwater fees to fund UTC projects, municipal and county stormwater programs could require all stormwater projects to incorporate a planting component whenever appropriate.

## EXAMPLES

**Arlington County, Virginia.** Arlington County established a stormwater fund in 2008 in anticipation of a Municipal Separate Stormwater System (MS4) permit issued in 2013. The County’s MS4 permit includes a voluntary goal of planting 2,000 trees by 2023, a goal supported by a \$200,000 yearly allocation from the County Park Department’s general fund to the County’s stormwater fund. Tree plantings are supported with these funds, while staff and tree maintenance are funded by the Park Department’s general fund.

**City of Mount Rainier, Maryland.** Mount Rainier’s impervious surfaces mitigation fee is imposed on any impervious surface exceeding 150 square feet. The City uses the collected fees to purchase, plant, and maintain trees.

**City of Milwaukee, Wisconsin.** Milwaukee uses stormwater fees to conduct tree canopy maintenance and also recently approved a small increase in the fee, with revenue dedicated for urban forestry management.<sup>63</sup>

**Grants.** Grant funds are gifted from public or private entities, usually for a specific project or initiative. They may come from state or federal government agencies, private foundations and other philanthropic organizations, and corporations. Grants are typically awarded through a competitive application process and require recipients to follow specific implementation timelines and reporting guidelines. These funds are best suited for discrete projects such as tree plantings, inventories and assessments, and special outreach initiatives. While not a long-term or stable source of funding, grants can provide critical one-time funds to round out a UTC budget.



State urban forestry coordinators can help direct jurisdictions to regional, state and federal grant opportunities that fit particular needs.<sup>64</sup> The USDA Forest Service, Environmental Protection Agency, Department of Transportation, and FEMA all offer funding that can support various elements of a UTC program, from canopy inventories to tree plantings. Municipalities are also eligible for many corporate and private foundation grants. Local community foundations are a good source of information for such grants, and can also connect projects with interested individual donors. Nonprofit organizations may partner with local governments to seek and manage grants for which the public agency is not eligible or equipped to administer. Homeowners and businesses may also be eligible for grants; municipalities may find it advantageous to sponsor trainings or other assistance to maximize access to these dollars. See the Appendix for additional information about available grant funding in the Chesapeake Bay region.

**Permit and inspection fees.** Revenue from permit and inspection fees as well as regulatory enforcement fines can make up a sizable share of a local UTC program budget, to the degree allowed under state and municipal codes. If municipal staff review land development and tree work permit applications, a case could be made for compensating them for this time. The City of Pittsburgh has taken this approach, returning a share of annual citywide permit fee revenue to its forest management program.<sup>65</sup> Additionally, if a municipality has passed a tree ordinance, any fines or fees collected through that program should be returned to support tree planting and maintenance.

#### EXAMPLE

**Montgomery County, Maryland.** Montgomery County's Tree Canopy Law ties into the county's sediment control permit requirements. Permit applicants must satisfy mitigation requirements based on the area within the limits of disturbance by planting trees on the property or paying fee-in-lieu into a dedicated account. The county is required to use the fee-in-lieu to purchase, install, and establish shade trees on private property anywhere within the county.



Laura Miller meets with a private homeowner in Montgomery County to select a tree and location for planting as part of the Tree Montgomery program. Photo courtesy of Laura Miller, Montgomery County.



Photo courtesy of Jenny Willoughby, City of Frederick.

**Municipal bonds.** Municipal bonds are a form of debt financing that can infuse funds into immediate needs, but must be repaid with interest and can increase the overall cost of a project. Municipal revenue bonds are issued to finance projects with income-generating potential; borrowed funds are then repaid at least in part by the revenue produced by the project. Tree work may be financed through this mechanism if it is incorporated into larger public infrastructure improvement projects such as street repairs or facility upgrades.<sup>66</sup>

***Compensatory payment, land development mitigation fees, and environmental fines.***

Compensatory payments, mitigation fees, “in lieu of” fees, and environmental fines are monies paid by the responsible party when trees are damaged or removed, either by accident or as part of a land development project. Requirements for such payments must be codified in local statutes. In addition, insurance payments may also compensate municipalities for damage or destruction of public trees in an accident, with settlement proceeds used for new plantings.

**Miscellaneous funding sources.** Various additional sources can provide small amounts of funding to supplement a UTC budget, accomplish specific projects, and help keep a funding program diversified. Some examples include:

- Adopt-a-tree or adopt-a-street programs in which local businesses, community groups, or residents provide volunteer labor and/or funds to plant and maintain trees and other landscaping
- Tree trust or endowment that can accept donated funds from individuals, corporations, or foundations; interest on the principal is used to fund programs and provide match for cost-share grants
- Memorial and honor tree programs in which donations support commemorative tree plantings
- Tax return and utility bill donations, though which residents may contribute to the community forestry program; more than 60% of states allow residents to make donations via their tax return<sup>67</sup>
- Revenue from municipally-owned concessions, recreational facilities and property rents, as well as sales of special items such as wood products

**EXAMPLES**

***City of Reading, Pennsylvania.*** Reading’s Adopt-a-Tree program provides residential property owners with free shade trees in return for a commitment to long-term maintenance. About 50 trees per year are planted via this program.

***Borough of Columbia, Pennsylvania.*** Columbia’s Tree Society collects annual dues from businesses and residents who voluntarily join as members at varying membership levels (from \$2 to \$100). Funds are used to plant 20-30 trees each year on private and public property, undertake tree care activities such as pruning and disease treatment, and conduct public outreach.

***Town of Woodstock, Virginia.*** In 2017, Woodstock adopted a formal policy for an urban wood utilization program. This program helps with community relations, especially around controversial issues like tree removal and fosters new partnerships with the private sector.



A man wearing a white cowboy hat, a blue long-sleeved shirt, and blue jeans is standing in a grassy field. He is looking down at several young trees that have been planted in rows. The trees are supported by wooden stakes and have white protective sleeves around their trunks. The background shows a rolling green hillside with more trees under a clear sky.

## 5

# Case Stories of Successful UTC Funding Efforts

The following case stories demonstrate that successful urban forestry financing can be pursued through a variety of avenues, and that solutions are as varied as the communities themselves. However, some common themes for success emerge, including strong local advocates for urban forestry, selection of funding mechanisms that are appropriate to the community's culture and resources, and a willingness on the part of decision-makers to be innovative and persistent. Communities in the Chesapeake Bay Watershed are encouraged to draw inspiration from these examples, reach out to the provided points of contact for more information as desired, and then chart a course for impactful forestry financing in their own jurisdictions.

*Photo courtesy of Will Parson/Chesapeake Bay Program.*





## Arlington, VA

### CASE STORY

#### Contact Information

Vincent Verweij  
 Urban Forester  
 City of Arlington, Virginia  
[Vverweij@arlingtonva.us](mailto:Vverweij@arlingtonva.us)

Population	225,200
Area	26 square miles
Median Household Income	\$110,388
Watershed	Potomac River
Current Tree Canopy Cover	41%
Tree Canopy Goal	40%
Tree City USA	Yes
Annual Tree Planting Budget	\$250,000
Annual Tree Maintenance Budget	\$900,000 personnel and equipment, \$250,000 contract

Arlington County residents value their urban tree canopy and have prioritized its protection for decades. The County has employed forestry staff since the 1960s, and its citizen-led urban forestry commission has been active since it was established in the early 2000s. The County’s Urban Forest Master Plan, adopted in 2004, set a precedent for providing consistent tree planting funds.

### Financing strategies

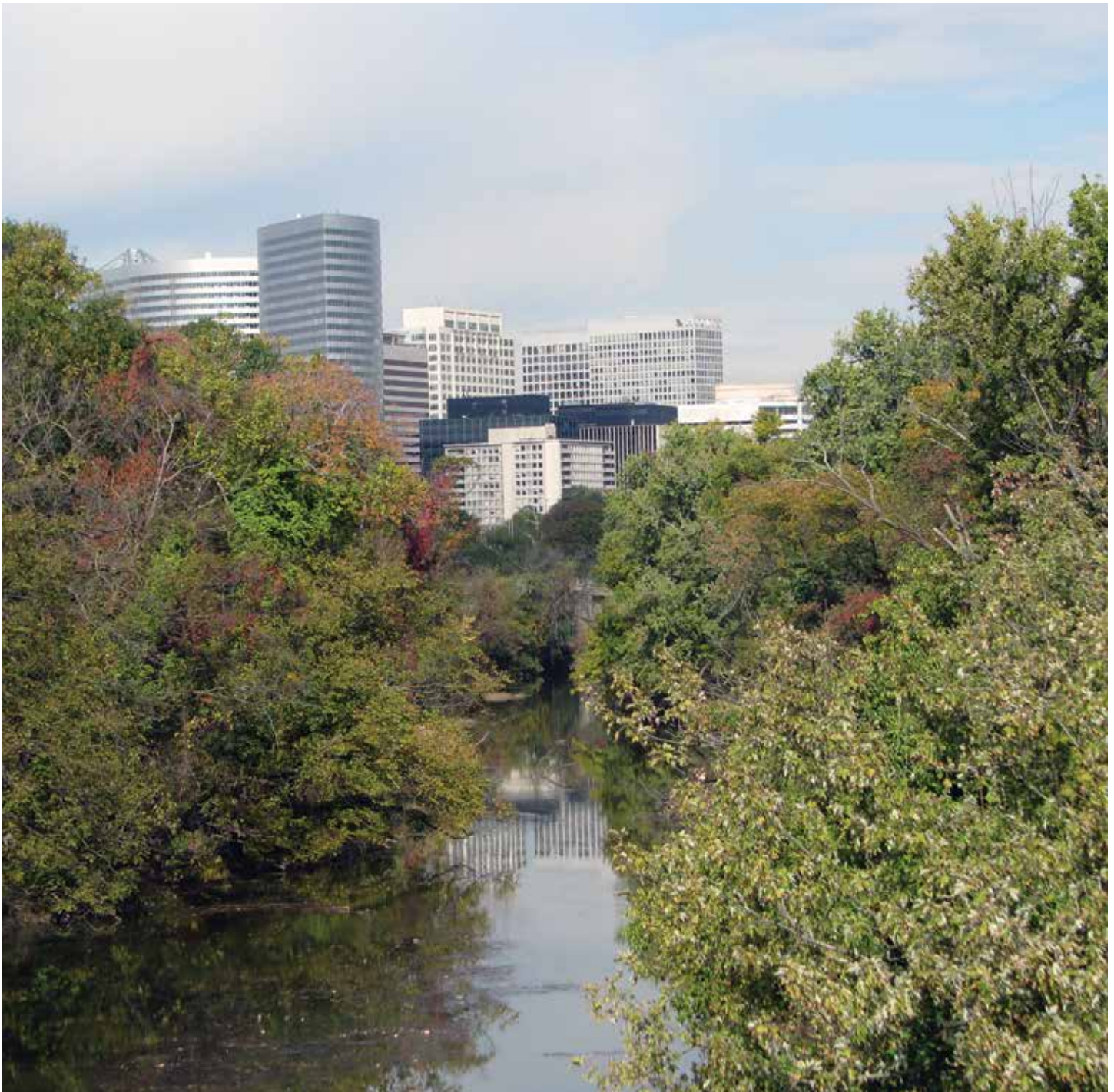
In 2008, Arlington County established a stormwater fund in advance of their municipal separate stormwater system (MS4) permit issued in 2013. The Virginia Department of Environmental Quality (DEQ) issues MS4 permits for the discharge of stormwater into waterways. Within their permit, Arlington County voluntarily reports a goal of planting 2,000 trees by 2023 – an addition inspired by the body of evidence that urban tree canopy brings financial benefits. Meeting this goal is not a requirement, but there is an expectation by DEQ that Arlington County will achieve all goals set within their MS4 permit.

As of 2018, Arlington County allots a little over \$250,000 per year to its tree planting fund. This fund pays for planting trees on public lands, for which the County contracts labor and materials. In 2017, the County Manager elected to shift the tree planting fund from the parks department general fund to the stormwater fund. This shift reflects the presence of the tree planting goal in the MS4 permit. Arlington County supports full and part-time staff positions through its Parks Department general fund to manage projects and to water trees. The general fund also allocates dollars for tree maintenance.



## Take-away lessons

- Voluntarily including tree planting goals in its MS4 stormwater permit was a strong driver for Arlington County to shift tree planting funds to the county's stormwater fund, where it can be effectively deployed.
- Despite strong public support for tree planting and care, Arlington County's tree budget is not untouchable. By diversifying funding sources to include tree planting funds, stormwater funds, and Parks Department general fund, Arlington County's urban forestry program is potentially less sensitive to future budget cuts.



*Photo courtesy of Vincent Verweij, Arlington County.*



# Charlottesville, VA

## CASE STORY

### Contact Information

Mike Ronayne  
 Urban Forester  
 City of Charlottesville, Virginia  
[ronaynem@charlottesville.org](mailto:ronaynem@charlottesville.org)

Population	48,019
Area	10.24 square miles
Median Household Income	\$50,727
Watersheds	Meadow Creek, Moores Creek, Rivanna River
Current Tree Canopy Cover	45%
Tree Canopy Goal	Maintain at least 50% tree canopy
Tree City USA	Yes
Annual Tree Planting Budget	\$50,000
Annual Tree Maintenance Budget	\$218,000

The City of Charlottesville is pursuing an objective to maximize tree canopy at the neighborhood scale based on land use and density. A comprehensive *Urban Forest Management Plan* guides the City in this objective, and canopy assessments every five years measure progress. In between assessments, the City’s Urban Forester tracks tree plantings, removals, pruning, tree size, and species, and uses aerial photography to identify priority neighborhoods for future plantings. Charlottesville’s progress in protecting and maintaining its tree canopy is due in part to its Tree Conservation Ordinance, which protects special trees, as well as its active base of citizen champions who serve on the City’s Tree Commission and/or serve as Tree Stewards.

*“By doing preventative tree work (pruning or removal) we can avoid costly damage in storm events. Many trees that would inconvenience our community by blocking roads, sidewalks or damage people or property in storm situations ideally can be mitigated before they happen.”*

– MIKE RONAYNE, CITY OF CHARLOTTESVILLE, VIRGINIA

### Financing strategies

Charlottesville’s forestry program is funded through the City’s general operating budget and its capital improvement plan (CIP). A CIP is a short- to medium-term plan identifying capital projects and financial resources to fund those projects. The City’s staff, Tree Commission, and citizens advocated to incorporate urban forestry in to the CIP, asserting that trees are a community

*Photo above courtesy of Michael Ronayne, City of Charlottesville.*



asset that requires improvement and maintenance. Charlottesville's CIP earmarks consistent funding for proactive tree maintenance such as tree pruning, emerald ash borer treatments, Dutch elm disease treatments, and tree planting. It also supports planning. The City utilizes general operating funds for last-resort tree removal, unexpected storm damage, and other emergency needs. Occasionally, the City will supplement its tree budget with grants for smaller projects such as its five-year tree canopy studies or smaller tree plantings.

## Take-away lessons

- Active and supportive citizens can be excellent advocates for adequately funding the local forestry program, helping to make the case that community priorities should be supported by tax dollars.
- Embedding tree maintenance and management into the local CIP is an effective method for consistently funding urban forestry needs; it also enables the community to strategically prioritize projects and funding resources.
- It is important to reserve funds (in the operating budget or elsewhere) for unexpected or emergency costs such as damage from storms.

## Resources

Charlottesville Capital Improvement Plan

<http://www.charlottesville.org/home/showdocument?id=61977>

Charlottesville Tree Conservation Ordinance

<http://www.charlottesville.org/home/showdocument?id=27359>

Charlottesville Urban Forest Management Plan

<http://www.charlottesville.org/home/showdocument?id=13979>

Charlottesville Urban Forestry Program

<http://www.charlottesville.org/departments-and-services/departments-h-z/parks-recreation/parks-trails/landscape-management/urban-forestry>



## Cumberland, MD

### CASE STORY

#### Contact Information

Paul Eriksson  
 Natural Resources Specialist,  
 Cumberland, Maryland  
[paul.eriksson@cumberlandmd.gov](mailto:paul.eriksson@cumberlandmd.gov)

Population	21,518
Area	6,340 Acres
Median Household Income	\$34,957
Watersheds	North Branch of the Potomac River, Evitts Creek, and Wills Creek
Current Tree Canopy Cover	49%
Tree Canopy Goal	45% by 2020 and 55% by 2030
Tree City USA	Yes
Annual Tree Planting Budget	\$15,000
Annual Tree Maintenance Budget	\$48,000

At 49%, the overall tree canopy in the City of Cumberland is relatively high. However, this coverage is unevenly distributed, with only 27% coverage in the City’s urbanized areas, and the City is also experiencing significant canopy loss. Cumberland is determined to conserve existing tree canopy by retaining 45% cover by 2020 and increasing to 55% by 2030. To achieve these ambitious canopy goals, the City developed a Strategic Implementation Plan which outlines strategies related to public education, volunteer engagement, and regulation.<sup>2</sup> In order to augment the efforts of a limited staff in implementing this plan, the City leverages the support of interns, a Shade Tree Commission, and a network of volunteers.

### Financing strategies

Since 2008, the City has hired an intern arborist for the summer. The City taps into internship programs offered by organizations like the Society of Municipal Arborists and the Chesapeake Bay Trust to provide salary and benefits for the interns, who work approximately 400 hours over the summer. Interns augment staff capacity and assist with tree plantings, pruning, tree removal, and tree inventory.

In an effort to amplify the City’s outreach efforts, Cumberland’s Shade Tree Commission has created a growing network of tree champions throughout the region. These champions collaborate on projects, act as a sounding board for ideas, and raise awareness about

*Photo above courtesy of Paul Eriksson, City of Cumberland.*



trees in Cumberland. Specifically, the City fosters champions by informally partnering with organizations such as the local hospital foundation, cemetery associations, and faith-based institutions. A success story from one of these collaborations is the development of a community orchard and garden with the local hospital that spurred additional interest in the community in local shade and fruit trees. The City plans to map out these partnerships to achieve a more comprehensive and openly available network, which can help demonstrate to local decision makers the co-benefits of trees and the broad community support of urban tree canopy goals.

## Take-away lessons

- Capitalize on internship programs to augment current staff capacity in the short-term and make the case for additional staff over the long-term.
- Maintain a portfolio of potential partners; even if a collaboration opportunity does not currently exist, it may in the future.
- Champions of the local UTC program are important; they help local leaders responsible for making budgetary decisions see the value in supporting forestry efforts.

## Resources

Cumberland Strategic Implementation Plan  
<http://www.ci.cumberland.md.us/192/Urban-Trees>



*The City of Cumberland and Shade Tree Commission advertising the Get Rooted program at Heritage Days 2012. Photo courtesy of Shade Tree Commission of Cumberland, MD Facebook Page.*



*Photo courtesy of Paul Eriksson, City of Cumberland.*



## Frederick, MD

### CASE STORY

#### Contact Information

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 Arborist, The City of Frederick,  
 Parks & Recreation Department  
[grippeon@cityoffrederick.com](mailto:grippeon@cityoffrederick.com)  
 301-600-1233

Jenny Willoughby  
 Sustainability Manager  
 City of Frederick DPW  
[jwilloughby@cityoffrederick.com](mailto:jwilloughby@cityoffrederick.com)  
 301.600.2843

Population	70,036
Area	22.2 square miles
Median Household Income	\$85,715
Watersheds	Monocacy, Carroll Creek, and Tuscarora
Current Tree Canopy Cover	20%
Tree Canopy Goal	40%
Tree City USA	Yes
Annual Tree Planting Budget	\$40,000
Annual Tree Maintenance Budget	\$105,000

The City of Frederick, Maryland has established a goal to double its tree canopy coverage from 20% to 40%. The City takes a comprehensive, multifaceted approach to community forestry funding and implementation, guided by its 2010 *Urban Forestry Management Plan*. Three City staff members work to support three different elements of the City’s UTC strategy. The City Arborist oversees urban forestry efforts and manages the City’s street and park trees. The Forest Conservation Specialist enforces and implements the City’s Forest Conservation Ordinance that minimizes and mitigates for tree loss due to land development. The Sustainability Manager fosters community engagement and helps residents plant trees on private property. Each staff member is able to focus on their specialty while communicating and coordinating across their separate departments to achieve citywide forestry goals.

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*“If the community is smaller than ours, a larger portion of their budget may be required from development so that the parks and open spaces are forested. Street trees are more difficult to fund with grants and general fund dollars so they should also be part of the development requirement, as it is with our City.”*

- JENNY WILLOUGHBY, CITY OF FREDERICK SUSTAINABILITY MANAGER

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### Financing strategies

Frederick’s tree canopy program is funded primarily through the City’s Parks and Recreation Department’s operating budget, which provides resources for routine maintenance and tree planting on streets, parks, and other public spaces. The program also receives a portion of revenue collected through the

*Photo above courtesy of  
 Jenny Willoughby, City of Frederick.*



City's Stormwater Management Utility Fee program. Funding also comes from enforcement of the City's Forest Conservation Ordinance, which was adopted in 1993 and requires developers to include trees in each project or pay a mitigation fee. Because tree planting costs have risen over time, in 2019, the City is considering an increase to the current fee amount.

In addition to these regulations, the City's Land Management Code includes several sections that help advance UTC goals without requiring direct investment of public funds. These include landscaping standards for streets, parking lots, and other sites during development, as well as parks and open space standards that establish the amount of parkland that must be dedicated during development.<sup>68</sup> Additionally, the Land Management Code allows for compact and/or conservation development, which permits clustered structures on a site, allowing for the preservation of larger open spaces. Such standards ensure that trees and other vegetation are considered in the development permit review process, which not only protects existing canopy from accidental or planned damage, but also engages the development community in being part of tree canopy preservation and expansion in the City.

## Take-away lessons

- Strong state and local forest conservation regulations can go a long way toward protecting and enhancing urban tree cover, by mitigating tree loss, providing for new tree plantings during development, and raising revenue for the UTC program in the form of compensation fees.
- While cross-departmental collaboration is key to advancing a cohesive UTC program, there are advantages to allowing individual staff members to specialize in aspects of program implementation, such as tree maintenance, regulatory enforcement, and community engagement.

## Resources

A Report on the City of Frederick's Existing and Possible Urban Tree Canopy: <https://www.cityoffrederick.com/529/Arborist>

City of Frederick Urban Forestry Management Plan: <https://www.cityoffrederick.com/529/Arborist>

City of Frederick Tree Preservation & Regulations Brochure: <https://www.cityoffrederick.com/529/Arborist>



*Photo courtesy of Jenny Willoughby, City of Frederick.*



*Photo courtesy of Jenny Willoughby, City of Frederick.*



# Frederickburg, VA

## CASE STORY

### Contact Information

Anne Little  
 President, Tree Fredericksburg  
[treefred@cox.net](mailto:treefred@cox.net)

David King  
 Director of Public Works, Fredericksburg  
[dking@fredericksburgva.gov](mailto:dking@fredericksburgva.gov)

*Photo courtesy of Anne Little,  
 Trees Fredericksburg.*

Population	27,853
Area	10.5 square miles
Median Household Income	\$53,980
Watershed	Rappahannock River
Current Tree Canopy Cover	44%
Tree Canopy Goal	49%
Tree City USA	Yes
Annual Tree Planting Budget	\$85,000
Annual Tree Maintenance Budget	Included in the above

An active volunteer-based non-profit may serve as a supplement to or, in the case of Tree Fredericksburg, the foundation of a local urban forestry program. At the time of Tree Fredericksburg's establishment in 2007, the City of Fredericksburg planted approximately 100 trees per year but because of an aging urban forest, the City was losing more trees than it planted. Now after a decade-long renewed effort to plant trees, the City removes approximately 100 trees per year but plants more than 350. In addition, the City has augmented its maintenance efforts so that the program stays balanced. The City anticipates meeting its tree canopy goal in the next five to ten years. Key to its success is a partnership between a dedicated group of volunteers and actively engaged City staff.

### Financing strategies

The City reconstituted the Fredericksburg Clean & Green Commission (formerly the Clean Community Commission) in 2007. Composed of staff representatives, a City Council member, and citizens appointed by City Council, the Commission tasked itself to address, among other things, an underfunded urban forestry program in the City. The Commission quickly recognized the need for a non-profit to channel grant applications that were only available to non-profit entities. In response, Anne Little, the chair of the Commission, and her husband Carl Little founded Tree Fredericksburg.

Tree Fredericksburg started with a grassroots campaign to plant 17 trees in a neighborhood park. They quickly expanded to 175 trees planted in 2008, 258 in 2009, and 600 in 2012. Tree Fredericksburg proved themselves through a culture of competence in tree selection, planting, and care, and they enhanced their relationship with the City through good communication and trust. Particularly fundamental to this relationship was a willing and knowledgeable partner in the assistant Director of Public Works, David





*Fall 2016 volunteer tree planting led by Tree Fredericksburg near James Monroe High School. Photo above courtesy of Anne Little, Tree Fredericksburg.*

King. At this same time, David took it upon himself to obtain his arborist credentials, which paired with a professional background in ecology, and lent an expertise and a strong basis for the success of the program. Recognizing that Tree Fredericksburg had a high capacity to plant trees with volunteers at less cost, the City partnered with Tree Fredericksburg to plant and water the City's new trees. The tree budget went from \$5,000 in 2007 to \$85,000 in 2015. This budget pays for all the planting and care for the City's new trees. Tree Fredericksburg supplements the City's tree budget with grant funds and fundraising dollars to enhance the tree planting program.

In addition to trees planted, Tree Fredericksburg marks their success through volunteer engagement. Over the past ten years, Tree Fredericksburg has engaged over 5,000 volunteers in the region. Anne Little cites raising awareness through outreach as key to amassing this volunteer network. One of their most successful campaigns was in 2012, when the organization used their Cox Conserves Heroes award to purchase gator bags emblazoned with their logo for watering newly planted trees along one of the major thoroughfares in the City. The volunteers who work for Tree Fredericksburg not only sustain the organization, but also help cement the organization as a cornerstone of the Fredericksburg community.

## Take-away lessons

- Close partnerships between the local government entity and a champion community or nonprofit group can achieve great success.
- Keeping elected officials informed of UTC program benefits and needs is critical for the program to thrive.

## Resources

Tree Fredericksburg. <http://www.treefredericksburg.org/>

Cox Conserves Heroes. <https://www.coxconservesheroes.com/>



# Lancaster, PA

## CASE STORY

### Contact Information

Ruth Hocker

City of Lancaster

Public Works Department

[RHocker@cityoflancasterpa.com](mailto:RHocker@cityoflancasterpa.com)

Kristen Thomas

Tree Tenders,

Lancaster County Conservancy

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*Photo above courtesy of  
Ruth Hocker, City of Lancaster.*

Population	59,708
Area	7.4 square miles
Median Household Income	\$40,805
Watersheds	Conestoga River, Little Conestoga Creek, and Susquehanna River
Current Tree Canopy Cover	28%
Tree Canopy Goal	40% by 2040
Tree City USA	Yes
Annual Tree Planting Budget	\$10,000
Annual Tree Maintenance Budget	\$9,000

The City of Lancaster values its urban forest and has been a designated Tree City USA for forty years. The City has adopted an ambitious goal to increase canopy coverage from 28% to at least 40% by 2040.

### Financing strategies

To accelerate its UTC goal attainment, the City of Lancaster launched a special fundraising campaign in partnership with the Lancaster City Alliance and the Lancaster County Conservancy. The campaign featured promotional videos created by a local filmmaker who agreed to produce the videos upfront and receive payment from proceeds of the fundraising effort. The initiative resulted in about \$16,000 worth of donations from corporate sponsors (many of whom committed funds prior to the official campaign launch to help ensure the campaign's ultimate success), individuals, churches, and community groups such as the local rotary club. These funds are being used to make shade trees available to residents at no cost, and to conduct ongoing outreach to homeowners that the City has identified as good candidates for new plantings. Beyond raising money for the City's tree work, the campaign solidified partnerships between the City and UTC supporters. It also spurred the development of Lancaster Tree Tenders, a group of volunteer tree stewards.

The City integrates trees into capital green infrastructure projects to ensure cost-effective plantings coincide with other work already mobilized. The City also budgets \$10,000 annually for street trees and utilizes TreeVitalize grant funding from the Pennsylvania Department of Conservation and Natural Resources to further advance UTC growth.





Photo courtesy of Ruth Hocker, City of Lancaster.



Photo courtesy of Ruth Hocker, City of Lancaster.

## Take-away lessons

- The success of Lancaster’s fundraising campaign was due in large part to the City’s efforts to solicit corporate sponsors before the campaign officially began, paving the way for it to meet its goals.
- Strong marketing for urban tree canopy goals can go a long way in raising funds and recruiting volunteers.
- Integrating trees into capital improvement projects is a cost effective way of furthering UTC goals.

## Resources

Save It Lancaster YouTube Channel. <https://www.youtube.com/channel/UCscLcn4snf7clbiCYW7Jkn-A>



Photo courtesy of Ruth Hocker, City of Lancaster.



Photo courtesy of Ruth Hocker, City of Lancaster.



# Montgomery County, MD

## CASE STORY

### Contact Information

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Population	1.05 million
Area	491 square miles
Median Household Income	\$89,284
Watersheds	Anacostia, Cabin John Creek, Lower Monocacy, Lower Potomac Direct, Patuxent River, Rock Creek, Seneca Creek, Upper Potomac Direct
Current Tree Canopy Cover	50% overall canopy, 25% urban
Tree Canopy Goal	To provide for a sustainable distribution of tree canopy, across small communities and the county as a whole, that is diverse in species composition and age classes.
Tree City USA	Yes
Annual Tree Planting Budget	Multiple departments and agencies have existing tree planting budgets. Please see the budget information linked in the List of Resources.
Annual Tree Maintenance Budget	See note under annual tree planting budget.

Adjacent to Washington DC, Montgomery County is Maryland's most populous county. Its large population supports a demanding and competitive housing market, which over the past two decades has fostered a trend in residential lot redevelopment. The state Forest Conservation Law helps slow the loss of forests during development, but it generally applies to development activity on tracts of land larger than an acre and does not address the loss of tree canopy during infill and redevelopment on small parcels. In response to the challenge of protecting canopy loss during redevelopment projects, the Montgomery County Department of Environmental Protection (DEP) led an eight-year stakeholder process that resulted in the Tree Canopy Law in 2014. In the same year, Montgomery County also developed the county Roadside Tree Protection Law. These two laws, in addition to the Forest Conservation Law, are important tools to enhance tree canopy, reduce canopy loss, and mitigate for environmental impacts of development.



## Financing strategies

The County's Roadside Tree Protection Law protects street trees during development activity and provides funds to replace roadside trees removed during development. This law applies for any activity requiring a right-of-way, sediment and erosion control, or building permit from Montgomery County. Permit applicants must have an approved plan to protect critical root zones of roadside trees and, if a tree is removed, the law requires they plant one replacement roadside tree at or near the location of the removed tree and pay for two additional roadside trees.

In Montgomery County, a sediment control permit is required to include limits of disturbance. The area within these limits of disturbance determines the number of shade trees required as mitigation. Permit holders may satisfy this mitigation requirement by planting trees on the property or paying an equivalent fee-in-lieu (or a mix of planting and fee payment). Permit holders may pay fees instead of planting for any reason.

As of fiscal year 2018, mitigation fees paid because of the Tree Canopy Law totaled approximately \$2.2 million. These fees are dedicated funds for purchasing, installing, and establishing shade trees to enhance shade and canopy, including on private property, multifamily and homeowner association properties, businesses, and schools. DEP staffs Tree Montgomery, the planting program funded through the Tree Canopy Law. Tree Montgomery staff meet with eligible property owners to select species and location for shade trees. A contractor completes all planting work, and Tree Montgomery staff inspect each tree after planting. By the end of fiscal year 2018, Tree Montgomery had planted more than 2,100 shade trees.

The County credits its success in passing both laws to an open and long-term stakeholder process, primarily between the County, the development community, and the environmental community. Key attributes of this process included thoroughly identifying and documenting the problem and a sustained commitment by stakeholders to reach a mutually agreed upon solution. As a result, the Roadside Tree Protection Law and the Tree Canopy Law are comprehensive and straightforward. By attaching both laws to existing permit requirements, they are easy to implement and enforce for both the applicant and the county's Department of Permitting Services. This permit process helps ensure a high degree of compliance with the mitigation requirements of the laws. The fees build flexibility for where the County plants new trees, allowing them to target neighborhoods with little tree canopy cover or with high rates of redevelopment. Since the laws went into effect, there are no changes to the development patterns in the County; however, DEP now has dedicated funding to replant trees lost and move their approach from mitigation to adaptation for managing their urban tree canopy.

## Take-away lessons

- The Tree Canopy Law states that mitigation must ameliorate many of the impacts to the environment caused by development, not just tree or canopy loss. Therefore, any jurisdiction adopting a similar approach may use mitigation fees for a wide variety of projects, not just planting shade trees.
- Incorporating the Tree Canopy Law requirements within the existing mandatory sediment control plan review proved a win-win: the modification has little impact on the application or permit review processes already familiar to developers. Streamlining administration reduces cost of staff time so that nearly 100% go towards spending the fees through the Tree Montgomery program. Any jurisdiction with a similar existing permit review process may consider adapting this approach to include their own tree canopy law.
- The assessed fee amount is flexible. For communities with low capacity to utilize funds, setting a modest fee for mitigation may be more manageable while still providing for dedicated funds.

## Resources

Montgomery County Department of Transportation – Budget for Street Tree Program:

<https://apps.montgomerycountymd.gov/BASISOPERATING/Common/Program.aspx?ID=50D&PROGID=P50P21>

Montgomery County Department of Permitting Services – Revenue from Montgomery County Roadside Tree Protection Law: <https://apps.montgomerycountymd.gov/BASISOPERATING/Common/Department.aspx?ID=75D> (See note under Innovations and Productivity Improvements)

Urban Districts – Budget for Tree Maintenance in Urban Districts: <https://apps.montgomerycountymd.gov/BASISOPERATING/Common/Program.aspx?ID=16V10&PROGID=P18P13>

Montgomery County Department of Environmental Protection – Revenue Projected through Tree Canopy Law: <https://apps.montgomerycountymd.gov/BASISOPERATING/Common/Department.aspx?ID=80D> (See Revenue Line for “Tree Canopy”)

Tree Montgomery Program: <https://treemontgomery.org/>

Montgomery Planning - <http://montgomeryplanning.org/>

Tree Canopy Explorer: <http://montgomeryplanning.org/planning/environment/forest-conservation-and-trees/tree-canopy-analysis/tree-canopy-explorer/>

Forest Conservation and Trees, Forest Conservation Fee-in-lieu Program: <http://montgomeryplanning.org/planning/environment/forest-conservation-and-trees/>

Montgomery Parks - <https://www.montgomeryparks.org/>

Capital Improvements Program - <https://www.montgomeryparks.org/projects/capital-improvements-program/>

For a general overview of tree related Laws in Montgomery County: <https://www.montgomerycountymd.gov/green/trees/laws-and-programs.html>



Population	10,432
Area	2.41 square miles
Median Household Income	\$39,625
Watersheds	Susquehanna River and Shawnee Run Waterway
Current Tree Canopy Cover	43%
Tree Canopy Goal	50% by 2020
Tree City USA	Yes
Annual Tree Planting Budget	\$3,000 - \$5,000
Annual Tree Maintenance Budget	included in the above

Columbia is a small town (borough) located on the Susquehanna River in Lancaster County, Pennsylvania. Current tree canopy cover in the borough is 43%, and with assistance from the USDA Forest Service and the Alliance for the Chesapeake Bay, Columbia developed the goal of increasing its canopy coverage by 7 percentage points by 2020. To achieve this goal, Columbia is working to improve local ordinances and policies, as well as to develop outreach and education strategies that generate additional support for tree plantings. The borough has a record of success on which to build, including being designated as a Tree City USA for 25 consecutive years, as well as having an active Shade Tree Commission that has planted and maintained approximately 850 trees in the community over the past two decades.

## Financing strategies

Columbia's street tree efforts are funded in part through a Tree Society membership program, which is managed by the Columbia Shade Tree Commission and comprised of both residents and local businesses. Membership rates vary, from \$2 for an annual student membership to \$100 for a lifetime membership. In total, the program raises \$2,000 - \$2,500 per year. These funds support the planting of about 20-30 trees annually, as well as tree care activities such as pruning and treatment for disease, in addition to outreach events such as the annual Arbor Day celebration. Perhaps as important as the revenue it raises, the Tree Society is a means for engaging community members in the community's urban tree goals and it has created a network of ambassadors for this work.

## Take-away lessons

- For small towns in particular, donations from residents and businesses can be an effective means of financing urban tree planting and maintenance activities.
- Tree membership societies not only raise funds for UTC efforts but can also create a network of engaged partners to support and celebrate the community forest.



## Columbia, PA

### CASE STORY

#### Contact Information

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*Photo above courtesy of Will Parson/Chesapeake Bay Program.*



# Mount Rainier, MD

## CASE STORY

### Contact Information

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Population	8,147
Area	0.65 square miles
Median Household Income	\$35,920
Watershed	Anacostia River
Current Tree Canopy Cover	Most recent assessment (2011) estimated 33%
Tree Canopy Goal	None
Tree City USA	Yes
Annual Tree Planting Budget	\$10,000
Annual Tree Maintenance Budget	\$2,500

Through community advocacy, supportive local leadership, and dedicated policies, Mount Rainier is setting an example for how small diverse communities may achieve tree canopy gains with limited resources. Following advocacy by the City’s informal Tree Commission, Mount Rainier’s City Council adopted an urban forest chapter in its city code in 2016. In addition to officially establishing a tree commission, the chapter requires the City to appoint or contract a city arborist, outlines the process for designating “exceptional” trees, and provides strict guidelines for enforcing tree protection, including fees and penalties. In addition, it establishes the City’s Tree Replacement Fund, a dedicated fund used to purchase, plant and maintain public trees. The code requires all fees and fines accrued for tree work in the City to supply the Tree Replacement Fund.

### Financing strategies

Mount Rainier, like many small municipalities, implements a wide portfolio of financing strategies to support its urban forestry program. Starting in the 1990s with a federal Small Business Administration grant to replant trees in the business district, the City has pursued state, county, and nonprofit grant programs and tree donations to increase and maintain tree canopy. These opportunities include free trees from the Anacostia Watershed Society, the Prince George’s County’s ReLeaf grants for larger tree plantings, Maryland Urban and Community Forestry Committee (MUCFC) grants for special projects, and purchased discount trees from the state’s TreeMendous program.



Mount Rainier also imposes a mitigation fee for any impervious surface exceeding 150 square feet, with fee revenue used to purchase, plant, and maintain trees. The City utilizes a combination of contractors and staff to manage its forestry program. The City contracts for expert arborist services on an as needed basis, while a tree liaison is employed by the City within the Department of Public Works. The liaison coordinates between the City, the tree commission, and the arborist, serves as the roadside tree expert for the Maryland Roadside Tree Law, and serves as the administrator for Mount Rainier's urban forestry program. The on-staff liaison helps reduce costs overall, compared to contracting with the city arborist to fill those same roles.

## Take-away lesson

- A Tree Commission can be a crucial advocate for an urban forestry program, playing a key role in advocating for budget increases and the passage of tree-friendly ordinances.

## Resources

City of Mount Rainier, Maryland. Impervious Surface Mitigation Ordinance. <http://www.mountrainiermd.org/wp-content/uploads/Ordinance-13-2013.pdf>

City of Mount Rainier, Maryland. Urban Forest Chapter. <http://www.mountrainiermd.org/government/reports-documents/city-documents/urban-forest-12b/>



# Prince George's County, MD

## CASE STORY

### Contact Information

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Population	912,756
Area	499 square miles
Median Household Income	\$75,925
Watersheds	Patuxent and Potomac
Current Tree Canopy Cover	52%
Tree Canopy Goal	Maintain
Tree City USA	Yes
Annual Tree Planting Budget	Annual tree planting budget: Approximately \$300,000 was dedicated to tree plantings over the past several years
Annual Tree Maintenance Budget	As of 2019, exploring ways to do health assessments and increase survivability of trees.

The second most populous county in Maryland, Prince George's County has approximately 52% forest canopy coverage, with 8% of its land area classified as urban tree canopy. In *Plan Prince George's 2035*, the Maryland-National Capital Park and Planning Commission (MNCPPC) recommended sustaining existing levels of combined forest and urban tree canopy coverage at 52% of the county's land area.<sup>69</sup> The County itself has affirmed a goal to increase urban canopy coverage, in particular by augmenting the number of shade trees (those with potential to reach a height of 40 feet or more) along public roads, sidewalks, and transit centers.<sup>70</sup>

A 2016 analysis by the County's Department of the Environment (DoE) identified priority areas for increasing tree canopy coverage – namely, the Anacostia and Potomac Watersheds as well as the northern half of the Western Branch Watershed. These areas have low canopy coverage (below the 45% threshold considered necessary for good stream health in the mid-Atlantic region<sup>71</sup>), high levels of pollutant loading to local streams, and a high percentage of economically-disadvantaged residents. These underserved communities have been the focus of County tree planting efforts. Core initiatives include the Arbor Day Every Day program (which supports plantings on school property), the Tree ReLEAF grant program (which supports plantings on public or common lands), the Stormwater Stewardship grant program (which supports plantings on private property), and the Tree Demonstration and Education program (which hosts trainings on tree selection, planting, and care). On average, DoE plants more than 1,500 trees per year, with additional trees planted through Capital Improvement Projects.



In addition to these DoE programs, the County's Department of Public Works & Transportation (DPW&T) manages two tree planting programs. One is Right Tree Right Place, a comprehensive street tree program that focuses on replacement and care of street trees. The other is Green Up Clean Up, which engages volunteers to beautify their neighborhoods by completing tasks such as weeding, mulching, and planting.

DPW&T tracks county planting and maintenance activities and maintains an inventory of the location and health of all trees located within county rights-of-way. In 2019, DoE will launch oversight protocol to ensure trees are planted properly and that their health is maintained over time. DoE will assess seedlings 11 months after planting, ensure they are replaced when needed, and check the trees every three years thereafter.

## Financing strategies

Prince George's County's tree programs are funded primarily through the Woodland Conservation Fund, which collects fee-in-lieu payments from developers when trees are damaged or destroyed, in accordance with the County's 1989 Woodland Conservation and Tree Preservation Ordinance. Funding also comes from the Local Watershed Protection and Restoration Fund, which is capitalized by county stormwater fee revenue. Specifically, Prince George's uses stormwater funds to implement the County's Rain Check Rebate and Stormwater Management Retrofit programs, which incentivize private property owners to install approved stormwater best management practices, including tree plantings. Forestlands and parks under the jurisdiction of the Maryland National Capital Park and Planning Commission are managed by MNCPPC and have a separate budget.

## Take-away lessons

- Focus tree planting efforts and funding to areas within the jurisdiction with the greatest need and the greatest potential benefit (i.e., high impervious coverage, low tree canopy coverage, high pollutant loads, economically- or otherwise-disadvantaged neighborhoods).
- Tracking and monitoring protocols can help determine that public funds are being spent effectively and ensure that new seedlings have the highest likelihood of thriving; monitoring should be conducted not only for trees planted by the government agency but also for trees planted by community groups that utilized grants or other public support.
- Designated fee programs, such as stormwater management fees and regulatory enforcement fees, are an effective mechanism for financing a wide range of tree canopy programs.

## Resources

Prince George's County. 2011. *A Report on Prince George's County's Existing and Possible Tree Canopy*. [https://www.fs.fed.us/nrs/utc/reports/UTC\\_Report\\_PrinceGeorgesCounty.pdf](https://www.fs.fed.us/nrs/utc/reports/UTC_Report_PrinceGeorgesCounty.pdf)

Prince George's County, Maryland. 2013. *2010 Forest Canopy Assessment*. <http://www.pgiparks.com/DocumentCenter/View/6021/RCP-Tech-Summary-Section-V>

Prince George's County, Maryland. 2015. *The Economic Values of Nature: An Assessment of the Ecosystem Services of Forest and Tree Canopy*. <https://lowimpactdevelopment.org/wp-content/uploads/2018/05/Ecosystem-Services.pdf>



## Reading, PA

### CASE STORY

#### Contact Information

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Population	87,575
Area	9.88 square miles
Median Household Income	\$27,247
Watersheds	Schuylkill River; Lower Delaware River
Current Tree Canopy Cover	6,800 street trees
Tree Canopy Goal	plant 100 trees a year
Tree City USA	Yes
Annual Tree Planting Budget	\$259,000 (any funds not spent by the end of the fiscal year are rolled over to the next year)
Annual Tree Maintenance Budget	Included in the above tree planting budget

The City of Reading is a majority-minority, predominantly low-income community. A 2014 inventory indicated that Reading has approximately 6,800 street trees, and the City has established a goal of growing that number by 100 per year. It is working to meet this goal by engaging residents in a robust Adopt-a-Tree program, pursuing a Complete Streets policy that integrates trees and native plants into road projects, and by ensuring timely replacement of any tree that must be removed.

The City of Reading has had a long-standing Shade Tree Commission, which is responsible for the regulation, maintenance, and promotion of shade trees. The Commission has five standing members and a number of volunteers whose efforts supplement City capacity. The Commission conducts a yearly shade tree inventory, making note of maintenance issues that the City should address. It also leads community outreach and education efforts and provides organizational and implementation support for tree plantings.

*“Volunteers give energy and passion to the entire urban canopy effort since street trees enhance quality of life for them personally, as well as for their neighborhoods.”*

-LESTER KISSINGER, ARBORIST, CITY OF READING

Photo above courtesy of Lester Kissinger, City of Reading.



## Financing strategies

As part of the Reading's Shade Tree initiative, the City developed an Adopt-a-Tree program. Through this program, the City performs a free site assessment at residential properties and then supplies homeowners with free shade trees. In return, the property owner commits to planting and maintaining the tree, saving the City long-term maintenance costs. As of 2019, property owners plant about 50 trees every year. The program helps the City maintain and expand tree canopy cover, minimizes the financial burden on residents, and engages residents as tree stewards.



*Photo courtesy of Lester Kissinger, City of Reading.*

## Take-away lessons

- A Shade Tree Commission or similar entity can provide invaluable resources to augment public capacity and stretch public dollars.
- Residents are more willing to engage in tree canopy efforts when they see the government investing in pathways to participation.
- Community buy-in is integral to tree canopy expansion and maintenance.



# Woodstock, VA

## CASE STORY

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Population	5,248
Area	3.2 square miles
Median Household Income	\$33,095
Watershed	North Fork of the Shenandoah River
Current Tree Canopy Cover	21.7%; 11,000 park and street trees
Tree Canopy Goal	8.3% increase by 2028
Tree City USA	Yes
Annual Tree Planting Budget	\$53,000, \$15,000 to \$20,000 of which comes from the Parks Department's annual budget and the remainder from grants.
Annual Tree Maintenance Budget	Street and park tree maintenance is completed via Public Works general budget funds.

Woodstock's success in planning and managing its urban tree canopy depends on a strong working partnership between the Town's Public Works Department (which also includes the Parks Department crew), the Town Manager, Urban Designer, and volunteer Tree Board. Like many smaller municipalities in the Chesapeake Bay Watershed, the town of Woodstock manages its urban trees without the support of an on-staff arborist.

Woodstock's urban forest is relatively young; as of 2019, many of the 1,100 publicly owned trees grow on recently developed lands that once were orchards and farmland. In anticipation of a maturing forest, however, the Town has planned for future tree removal needs by establishing an urban wood utilization program.

### Financing strategies

Urban wood utilization is an approach to assessing the potential use and value of a given street or park tree at the time of removal in order to utilize as many of its parts as possible and reduce the amount of materials going to landfills. In December 2017, the Town of Woodstock established a policy for an urban wood utilization program. The Town's urban designer crafted the policy upon the request of the Tree Board. Prior to this point, the Town informally practiced urban wood utilization. The Parks Department does most of the Town's tree removal, and historically would

harvest firewood and then mulch the remaining parts of downed trees. An official policy for urban wood utilization was developed in order to more effectively engage the public and local businesses. Having an existing, if informal, model in place helped garner support from the Woodstock Town Council for the policy.

The Town immediately began to reap the benefits of this policy. Woodstock's first tree removal under the new policy was a large tree that had to come down to make way for a new parking lot. The Town used a local sawmill to saw large chunks of wood for slabs to dry in a barn in town. The Town made the remaining wood available for the members of the local woodturner chapter to harvest from the site. Woodstock garnered goodwill from the community by having a specific use for the removed tree and by creating community access to these materials.

The policy also gives the Parks Department more autonomy in making on-the-spot decisions about tree processing. The Department successfully negotiated for a wood chipper in its 2018 capital budget because it could identify the long-term cost savings of owning a chipper that could be brought to removal sites, versus the cost of disposing that wood in the landfill, or having to delay the processing of the tree in order to borrow a chipper from a neighboring community.

Woodstock's urban wood utilization policy has created a platform for the Town to engage local businesses such as mills, woodworkers, architects, and artisans. It is working to build a self-sustaining network of businesses to utilize felled trees in the Town and surrounding areas with minimal involvement of the Town itself.

## Take-away lessons

- An urban wood utilization policy enables clear communication about the uses of trees that must be removed, and it can allay tension around the potentially controversial issue of tree removal.
- Woodworkers and similar artisans can be nontraditional but meaningful partners for community forestry work, and many already have established pathways for utilizing wood (e.g., arborist to mill to architect).



# Appendix:

## Resources Available to Support UTC Programs in the Chesapeake Bay Watershed

The following table includes resources that are available to help Chesapeake Bay communities plan, fund, and implement UTC programs. It includes sources of grant funding, technical assistance, education, and other forms of support. Resources are listed in alphabetical order, first by state and then by resource name.

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
RiverSmart Homes	Washington D.C. / Casey Trees	Local Government, Nonprofit	DC	Provides rebates for and/or direct installation of shade trees on private property.	Residents	<a href="https://doee.dc.gov/service/riversmart-homes-overview">https://doee.dc.gov/service/riversmart-homes-overview</a>
Delaware's Urban and Community Forestry Grant Program	Delaware Community Forestry Council	State	DE	Grants up to \$5,000 for tree planting and tree management.	Municipality; Nonprofit; Schools; Parks; Community organizations	<a href="https://agriculture.delaware.gov/forest-service/urban-and-community/">https://agriculture.delaware.gov/forest-service/urban-and-community/</a>
Alice Kennington Memorial Tree Fund	City of College Park	City	MD	The Memorial Tree Fund receives charitable gifts from donors, which may be used for municipal tree planting. The goal of the Fund is to increase the urban forest and enhance the beauty of the city.	Municipality	<a href="https://www.collegeparkmd.gov/186/Boards-Commissions">https://www.collegeparkmd.gov/186/Boards-Commissions</a>
Anne Arundel County Forestry and Forested Land Protection Grant Program	Anne Arundel County and the Chesapeake Bay Trust	Nonprofit; Local Government	MD	Grants for forestry projects and land protection in Anne Arundel County.	Municipality; Nonprofit; Schools; Parks; Community organizations	<a href="https://cbtrust.org/grants/forestry-and-forested-land-protection/">https://cbtrust.org/grants/forestry-and-forested-land-protection/</a>
Backyard Buffers	MD Department of Natural Resources	State Government	MD	Provides free seedlings to homeowners each year.	Property owners	<a href="https://dnr.maryland.gov/forests/Pages/programs/Backyard-Buffer-Program.aspx">https://dnr.maryland.gov/forests/Pages/programs/Backyard-Buffer-Program.aspx</a>
Centreville Tree Board	Centreville	Local Government	MD	The Centreville Tree Board was established to promote tree planting and preservation within the town of Centreville and to advise the Town Council and the Town Manager on matters related to trees.	Residents	<a href="http://www.townofcentreville.org/departments/parks-recreation/">http://www.townofcentreville.org/departments/parks-recreation/</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Critical Area Offset Fee Fund Grant Program	Baltimore Department of Planning	Local Government	MD	Grants that improve water quality by reducing stormwater pollution and/or conserving and protecting wildlife habitat. This program is funded by a developers in-lieu of fee.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations	<a href="http://www.baltimoresustainability.org/permits/critical-areas/offset-grants/">http://www.baltimoresustainability.org/permits/critical-areas/offset-grants/</a>
Environmental Education Grants	Chesapeake Bay Trust	Nonprofit	MD (occasionally Bay-wide)	Grants offered twice each year for MD schoolyard conservation and meaningful watershed educational experiences.	Schools; Educational organizations	<a href="https://cbtrust.org/grants/environmental-education-mini/">https://cbtrust.org/grants/environmental-education-mini/</a>
Maryland Urban and Community Forestry Committee	Maryland Forestry Board, MD DNR	State	MD	Maryland residents can apply for grants up to \$1,500 for tree planting and education projects that enhance Maryland's urban forests. Tree planting/educational projects must be on public land.	Residents	<a href="http://dnr.maryland.gov/forests/Pages/programs/urban/mcfc.aspx">http://dnr.maryland.gov/forests/Pages/programs/urban/mcfc.aspx</a>
Marylanders Plant Trees	MD Department of Natural Resources	State	MD	Citizens can receive \$25 off the purchase of a native tree at 86 participating nurseries across the State. This program is funded through a settlement from a major power generator for Clean Air Act violations.	Residents	<a href="http://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx">http://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx</a>
Mini Community Planting Grant Program for Anne Arundel County	Anne Arundel County and the Chesapeake Bay Trust	Local Government	MD	Grants of up to \$2,500 to engage in community tree plantings and invasive species removal in Anne Arundel County.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations	<a href="https://cbtrust.org/grants/anne-arundel-county-community-planting/">https://cbtrust.org/grants/anne-arundel-county-community-planting/</a>
City of Laurel Special Program	Laurel	Local Government	MD	Participates with homeowners, developers, and associations in special cooperative tree planting programs. Trees can be obtained at low prices.	Community Organization; Property owner, Developer	<a href="https://www.cityoflaurel.org/dbw/tree-management">https://www.cityoflaurel.org/dbw/tree-management</a>
The Charles County Forestry Grant Program	Charles County and the Chesapeake Bay Trust	Local Government	MD	Grants of up to \$20,000 to implement cost-effective reforestation projects in Charles County to increase tree canopy.	Municipality; Nonprofit; Schools; Parks; Community organizations; Property owners	<a href="https://cbtrust.org/grants/charles-county-forestry/">https://cbtrust.org/grants/charles-county-forestry/</a>
Tree Canopy Enhancement Program	City of College Park	Local Government	MD	City residents and property owners can apply for reimbursement of up to \$150 annually for approved tree(s) planted in their residential lot. College Park's Tree and Landscape Board provides tree care and landscaping information.	Property owners	<a href="https://www.collegeparkmd.gov/DocumentCenter/View/568/Tree-Canopy-Enhancement-Program-editable?bidId=">https://www.collegeparkmd.gov/DocumentCenter/View/568/Tree-Canopy-Enhancement-Program-editable?bidId=</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Tree Care Checklist, Importance of Tree Canopy, other resources	City of Takoma Park	Local Government	MD	Guidance documents on how to care for trees and messaging on the importance of trees	Residents	<a href="https://takomaparkmd.gov/government/boards-commissions-and-committees/tree-commission/">https://takomaparkmd.gov/government/boards-commissions-and-committees/tree-commission/</a>
Tree Rebates	City of Bowie	Local Government	MD	Tree rebates of \$50 and \$100 are available on a first come, first serve basis.	Residents	<a href="http://www.cityofbowie.org/treerebates">http://www.cityofbowie.org/treerebates</a>
Tree-Mendous Maryland	MD Forest Service	State	MD	Provides trees at a reduced cost to be planted on public property.	Residents	<a href="http://dnr.maryland.gov/forests/Pages/treemendous/default.aspx">http://dnr.maryland.gov/forests/Pages/treemendous/default.aspx</a>
University of Maryland Extension Programs	University of Maryland Extension	State; University	MD	The grant writing assistance program offers advice, information, and resources to help agricultural service providers and others turn ideas into fundable projects.	Maryland Municipality; Nonprofits; Residents	<a href="http://extension.umd.edu/grants">http://extension.umd.edu/grants</a>
Various Grants: Chesapeake Bay Program, Climate Program, Sustainability Program	Town Creek Foundation	Nonprofit	MD	Provides resources to help support progressive changes in environmental policy and practice within MD. Supports both research and stakeholder engagement processes to develop strategies for confronting MD's most important environmental challenges.	Nonprofit	<a href="http://www.towncreekfdn.org">http://www.towncreekfdn.org</a>
Community Promotion Grants	City of Frederick	Local Government	MD	Awards funding to organizations in order to support existing funds to either create or enhance services that positively impact the greatest number of City residents.	Nonprofit; Community organizations	<a href="http://www.cityoffrederick.com/1023/Community-Promotion-Grants">http://www.cityoffrederick.com/1023/Community-Promotion-Grants</a>
Montgomery County Watershed Restoration & Outreach	Chesapeake Bay Trust	Nonprofit; Local Government	MD	Grant program to support watershed restoration and outreach projects throughout Montgomery County. This program aims to promote initiatives and projects which will improve water quality in Montgomery County's local streams and waterways through public engagement, education, and on-the-ground restoration.	Nonprofit	<a href="https://cbtrust.org/grants/montgomery-county-watershed-restoration-outreach/">https://cbtrust.org/grants/montgomery-county-watershed-restoration-outreach/</a>
TreeBaltimore Free Tree	TreeBaltimore	Nonprofit	MD	Can get trees for personal yards, street trees, and trees for commercial properties. This nonprofit coordinates tree plantings by city agencies, non-profit organizations, neighborhoods, and community associations.	Residents	<a href="http://treebaltimore.org/get-a-free-tree/">http://treebaltimore.org/get-a-free-tree/</a>



Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
4-H programs	USDA	Federal; University	Multiple	4-H is delivered by Cooperative Extension, a network of 100+ public universities across the nation that provides experiences where young people learn by doing. Kids complete hands-on projects in areas like health, science, agriculture and citizenship, in a positive environment where they receive guidance from adult mentors and are encouraged to take on proactive leadership roles.	Residents	<a href="https://4-h.org/about/what-is-4-h/">https://4-h.org/about/what-is-4-h/</a>
Accounting for Trees in Stormwater Models	Center for Watershed Protection	Nonprofit	Multiple	Intended to help the stormwater engineering community more easily account for trees in runoff and pollutant load calculations and incorporate them into stormwater management strategies.	Municipality; Nonprofit; Schools; Parks; Community organizations	<a href="https://owl.cwp.org/mdocs-posts/accounting-for-trees-in-stormwater-models/">https://owl.cwp.org/mdocs-posts/accounting-for-trees-in-stormwater-models/</a>
Chesapeake Grants	The Campbell Foundation	Nonprofit	Multiple	Grants to accelerate the pace of nutrient reduction in the Bay through engagement of diverse stakeholders and partnerships between agricultural interests and environmental concerns.	Nonprofit	<a href="http://www.campbellfoundation.org/">http://www.campbellfoundation.org/</a>
Environmental Impact Bonds	Chesapeake Bay Foundation	Nonprofit	Multiple	Working with impact investment advisory firm Quantified Ventures, CBF is providing pro bono support to municipalities and water utilities seeking funding for stormwater management and related resilience projects. Quantified Ventures introduced the first-ever Environmental Impact Bond with DC Water in 2016 and is now working with cities across the U.S. to help them tap into impact investment for environmental projects.	Municipality	<a href="http://www.cbf.org/how-we-save-the-bay/programs-initiatives/environmental-impact-bonds-eib.html">http://www.cbf.org/how-we-save-the-bay/programs-initiatives/environmental-impact-bonds-eib.html</a>
Forest Legacy Program	USDA	Federal	Multiple	Purpose is to identify and conserve environmentally important forest areas that are threatened by conversion to non-forest uses. Providing economic incentives to landowners to keep their forest as forests encourages sustainable forest management and supports strong markets for forest products.	Property owners within established Forest Legacy Areas	<a href="https://www.fs.fed.us/managing-land/private-land/forest-legacy/">https://www.fs.fed.us/managing-land/private-land/forest-legacy/</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Innovative Nutrient and Sediment Reduction Grants	National Fish and Wildlife Foundation	Nonprofit	Multiple	Grants to support collaborative and sustainable regional-scale partnerships and networks of practitioners with a shared focus on water quality restoration and protection in order to accelerate the implementation of water quality improvements.	Chesapeake Bay Watershed	<a href="https://www.nfwf.org/chesapeake/Pages/innovative-nutrient-and-sediment-reduction-grants.aspx">https://www.nfwf.org/chesapeake/Pages/innovative-nutrient-and-sediment-reduction-grants.aspx</a>
iTree	USDA	Federal	Multiple	i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban and rural forestry analysis and benefits assessment tools. The i-Tree tools can help strengthen forest management and advocacy efforts by quantifying forest structure and the environmental benefits that trees provide.	Municipality	<a href="https://www.itreetools.org/">https://www.itreetools.org/</a>
Making Your Community Forest-Friendly: A Worksheet for Review of Municipal Codes and Ordinances	Center for Watershed Protection	Nonprofit	Multiple	This worksheet was designed to help communities review and revise their development regulations so future projects conserve and protect valuable trees and woodlands and encourage new plantings. It provides a set of questions to help determine whether existing local codes require, allow or prohibit "forest-friendly" development practices. The document also provides additional resources, ideas and guidance for developing a community forestry program.	Municipality	<a href="https://owl.cwp.org/mdocs-posts/making-your-community-forest-friendly-a-worksheet-for-review-of-municipal-codes-and-ordinances/">https://owl.cwp.org/mdocs-posts/making-your-community-forest-friendly-a-worksheet-for-review-of-municipal-codes-and-ordinances/</a>
Public Works Program	US Department of Commerce	Federal	Multiple	EDA's Public Works program helps distressed communities revitalize, expand, and upgrade their physical infrastructure. This program enables communities to attract new industry; encourage business expansion; diversify local economies; and generate or retain long-term, private-sector jobs and investment through the acquisition or development of land and infrastructure improvements needed for the successful establishment or expansion of industrial or commercial enterprises.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.eda.gov/funding-opportunities/">https://www.eda.gov/funding-opportunities/</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Small Watershed Grants	National Fish and Wildlife Foundation	Nonprofit	Multiple	Grants between \$20,000 and \$200,000 for projects that projects result in improvements to local stream health and habitat, and/or the water quality of the Chesapeake Bay.	Chesapeake Bay Watershed	<a href="https://www.nfwf.org/chesapeake/Pages/small-watershed-grants.aspx">https://www.nfwf.org/chesapeake/Pages/small-watershed-grants.aspx</a>
TD Green Streets Grant Program	Arbor Day Foundation	Nonprofit	Multiple	Grants for innovative local forestry projects in low- to moderate-income neighborhoods.	Municipality	<a href="https://www.arborday.org/programs/TDGreenSpaceGrants/">https://www.arborday.org/programs/TDGreenSpaceGrants/</a>
The Chesapeake Bay Green Streets, Green Jobs, Green Towns (G3) Grant Program	Chesapeake Bay Trust	Federal; State; Local Government	Multiple	Grant for green street project planning, design, and implementation.	Municipality; Nonprofit; Schools; Parks; Community organizations	<a href="https://cbtrust.org/grants/green-streets-green-jobs-green-towns/">https://cbtrust.org/grants/green-streets-green-jobs-green-towns/</a>
Various grants	National Fish and Wildlife Foundation	Nonprofit	Multiple	Supports conservation efforts in all 50 states and U.S. territories. Since its founding, NFWF has supported more than 16,500 projects in large and small environmental organizations, investing more than \$4.8 billion.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.nfwf.org/whatwedo/grants/Pages/home.aspx">https://www.nfwf.org/whatwedo/grants/Pages/home.aspx</a>
Tree City USA	Arbor Day Foundation	Nonprofit	Multiple	Provides guidance and national recognition for community forestry programs.	Municipality	<a href="https://www.arborday.org/programs/treecityusa/index.cfm">https://www.arborday.org/programs/treecityusa/index.cfm</a>
Tree Selection and Care worksheets and videos	Casey Trees	Nonprofit	Multiple	Casey Trees offers a series of guidance resources including: Young Tree Care; Mature Tree Care; Right Tree, Right Place; How to Plant; How to Prune; and more.	Residents	<a href="https://caseytrees.org/">https://caseytrees.org/</a>
Urban and Community Forestry Challenge Cost-Share Grant Program	USDA National Urban and Community Forestry Advisory Council	Federal	Multiple	Funds urban and community forestry projects that have national or multi-state application and impact.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.fs.fed.us/managing-land/urban-forests/ucf/nucfac">https://www.fs.fed.us/managing-land/urban-forests/ucf/nucfac</a>
Urban and Community Forestry Program	USDA Forest Service	Federal	Multiple	Provides technical, financial, research and educational services to local government, nonprofit organizations, community groups, educational institutions, and tribal governments.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.fs.fed.us/managing-land/urban-forests/ucf/program">https://www.fs.fed.us/managing-land/urban-forests/ucf/program</a>



Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Vibrant Cities Lab	USDA Forest Service, American Forests and the National Association of Regional Councils	Federal	Multiple	Comprehensive online tool to help city managers, policy-makers and advocates build thriving urban forest programs. Provides research, case studies and toolkits.	Municipality; Nonprofit; Residents	<a href="http://www.vibrantcitieslab.com/toolkit/">http://www.vibrantcitieslab.com/toolkit/</a>
Youth education	NOAA Chesapeake Bay Office	Federal	Multiple	NOAA Chesapeake Bay Office provides Bay Watershed Education & Training Grants to support Meaningful Watershed Educational Experiences, hands-on watershed education and conservation	Schools	<a href="http://www.chesapeakebay.net">www.chesapeakebay.net</a>
New York ReLeaf	New York State	State	NY	Statewide effort that creates partnerships between forestry professionals and dedicated citizens. Harnesses financial resources of government and the private sector. Volunteers help with plantings and also raise awareness of the importance of trees.		<a href="https://www.dec.ny.gov/lands/5307.html">https://www.dec.ny.gov/lands/5307.html</a>
Street Tree Planting	City of Binghamton	Local Government	NY	Offers free tree plantings in the public right-of-way on residential properties.	Residents	<a href="http://www.binghamton-ny.gov/street-tree-planting">http://www.binghamton-ny.gov/street-tree-planting</a>
Tree Planting Program	The City of Cortland	Local Government	NY	Residents may apply for free trees to be planted on their property in the public right-of-way.	Residents	<a href="https://www.cortland.org/219/Tree-Planting-Program">https://www.cortland.org/219/Tree-Planting-Program</a>
Urban and Community Forestry	NY Department of Environmental Conservation	State	NY	Supports and assists communities in comprehensive planning, management, and education to create healthy urban and community forests. Provides technical and assistance to communities as well as financial assistance through cost-share grants.	Municipality	<a href="https://www.dec.ny.gov/lands/4957.html">https://www.dec.ny.gov/lands/4957.html</a>
Urban and Community Forestry Grants	NY Department of Environmental Conservation	State	NY	Communities can apply for grants to conduct tree inventories and management plans, tree planting, maintenance, and education programming. Communities may request from \$11,000 to \$75,000 depending on municipal population.	Community organizations	<a href="https://dec.ny.gov/lands/5285.html">https://dec.ny.gov/lands/5285.html</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Pennsylvania Community Tree Map (Open Tree Map), Young Urban Tree Monitoring Training Toolkit	TreePennsylvania	Nonprofit	PA	In conjunction with the Bureau of Forestry, Penn State Extension, and USDA Forest Service, TreePennsylvania developed a training toolkit to enable volunteers/citizen scientists to monitor newly planted trees across the state. The training toolkit is adaptable to suit a wide-range of tree monitoring needs and/or activities.	Municipality; Residents	<a href="https://www.opentreemap.org/patremap/map/">https://www.opentreemap.org/patremap/map/</a>
Pennvest	Pennvest	State	PA	PENNVEST funds sewer, stormwater and drinking water projects throughout the Commonwealth. Provides low-interest loans for eligible environmental stewardship projects.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.pennvest.pa.gov/">https://www.pennvest.pa.gov/</a>
Technical assistance	PennState Extension Urban Forestry	University	PA	Offers technical assistance and education for urban forestry in Pennsylvania.	Municipalities; Community organizations; Residents	<a href="https://extension.psu.edu/community-development/urban-forestry/see-all-urban-forestry">https://extension.psu.edu/community-development/urban-forestry/see-all-urban-forestry</a>
Tree Tenders / Tree Vitalize Grants	Department of Conservation and Natural Resources	State	PA	TreeVitalize is a public-private partnership established by DCNR to help build capacity within communities to plan for, plant, and care for trees, and to offer educational trainings to help citizens understand the diverse benefits of trees and the importance of properly planting and maintaining them. TreeVitalize offers a broad range of services to support sustainable urban and community forestry programs across the state.	Municipality; Nonprofit	<a href="http://www.dcnr.pa.gov/Communities/CommunityTreeManagement/Pages/default.aspx">http://www.dcnr.pa.gov/Communities/CommunityTreeManagement/Pages/default.aspx</a>
30 in 30 Grant	Keep Virginia Beautiful	Nonprofit	VA	Grants of \$500-\$1,000 can be used to support beautification and greening efforts, including tree plantings, within Virginia's communities.	Municipality; Nonprofit; Schools; Parks; Community organizations	<a href="https://keepvirginiabeautiful.org/programs/30-in-30/">https://keepvirginiabeautiful.org/programs/30-in-30/</a>

Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Fairfax ReLeaf	Fairfax	Nonprofit	VA	Nonprofit that engages volunteers to plant and preserve trees, improve community appearance and restore habitat on public and commons lands in Northern Virginia. Fairfax ReLeaf serves as a practical laboratory for assessing techniques to lessen the impact of development on the environment in one of the most rapidly changing forest/urban interface areas in the country.	Northern Virginia Municipality	<a href="http://www.fairfaxreleaf.org">http://www.fairfaxreleaf.org</a>
McLean Trees Foundation	McLean	Organization	VA	Since its founding in 1970 as a semi-autonomous working committee of the McLean Citizens Association, the McLean Trees Foundation has helped to maintain, restore, and enhance McLean's urban forest on public and private property.		<a href="http://www.mcleantreesfoundation.org/">http://www.mcleantreesfoundation.org/</a>
Pure Water Forum Grant	Pure Water Forum Grant	Nonprofit	VA	Funds education and outreach activities and best management practices.	Municipality; Nonprofit; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="https://www.purewaterforum.org/grants">https://www.purewaterforum.org/grants</a>
Tree Fredericksburg	Fredericksburg	Nonprofit	VA	Volunteer organization with the aim to restore and maintain a vibrant urban forest in the City of Fredericksburg.	Municipality	<a href="https://treefredericksburg.org">https://treefredericksburg.org</a>
Tree Stewards	Alexandria and Arlington	Organization	VA	TreeStewards of Arlington and Alexandria are volunteers who take the lead within their communities to enhance a sustainable urban forest through volunteer activities and public education programs. Volunteer activities include: planting, pruning, mulching and watering of street, park and school trees; staffing informational booths at farmers' markets and local festivals; leading neighborhood Tree Walks and speaking at community gatherings; advocating for trees wherever and whenever needed.	Municipalities of Arlington and Alexandria	<a href="https://treestewards.org/about/">https://treestewards.org/about/</a>



Resource	Provider	Type of Provider	State	Summary	Eligibility	Link
Trees Virginia	Virginia Urban Forest Council	Nonprofit	VA	Trees Virginia is managed by the Virginia Urban Forest Council and provides support to tree steward groups across the state, hosts workshops and training for urban forestry professionals and volunteers, and other educational materials.	Municipality; Nonprofits; Schools; Parks; Faith-based organizations; Community organizations; Property owners	<a href="http://www.treesvirginia.org/">http://www.treesvirginia.org/</a>
Your Community BMP	Cacapon Institute	Nonprofit	WV	Provides trees at half price to organizations willing and able to organize six or more private landowners for tree plantings (e.g., clubs, watershed associations, HOA, scouts).	Private landowners (business or residential) in WV Potomac Basin	<a href="http://www.cacaponinstitute.org">www.cacaponinstitute.org</a>

# Endnotes

## About this Guidebook

<sup>1</sup> See: <https://www.arborday.org/programs/treecityusa/>

<sup>2</sup> See: <https://www.fs.fed.us/managing-land/urban-forests/ucf>

<sup>3</sup> See: <http://chesapeakektrees.net/>

## 1. Introduction

<sup>4</sup> Vibrant Cities Lab, an initiative of the USDA Forest Service, provides a current synthesis of information related to these benefits. See: <http://www.vibrantcitieslab.com/toolkit/>

<sup>5</sup> Ohio-Kentucky-Indiana Regional Council of Governments et al. Trees & Stormwater website. Accessed 1/19: <http://treesandstormwater.org/>

<sup>6</sup> For information on forest buffers as a cost-effective strategy for improving water quality, see: Kauffman, Gerald. 24 January 2018. "The Cost of Clean Water in the Delaware River Basin (USA)." *Water* 2018, 10, 95.

<sup>7</sup> McPherson, E.G. 1998. "Atmospheric carbon dioxide reduction by Sacramento's urban forest." *Journal of Arboriculture*. 24(4): 215-223. Available: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.627.6287&rep=rep1&type=pdf>

<sup>8</sup> Nowak, D. 2002. "The Effects of Urban Trees on Air Quality." USDA Forest Service. Available: [https://www.nrs.fs.fed.us/units/urban/local-resources/downloads/Tree\\_Air\\_Qual.pdf](https://www.nrs.fs.fed.us/units/urban/local-resources/downloads/Tree_Air_Qual.pdf)

<sup>9</sup> McPherson, E. et al. 2015. "The State of California's Street Trees." USDA Forest Service. Available: [https://www.fs.fed.us/psw/topics/urban\\_forestry/documents/20150422CAStreetTrees.pdf](https://www.fs.fed.us/psw/topics/urban_forestry/documents/20150422CAStreetTrees.pdf)

<sup>10</sup> Simpson, J.R. and E.G. McPherson. 1998. "Simulation of Tree Shade Impacts on Residential Energy Use for Space Conditioning in Sacramento." *Atmospheric Environment*, 32:69-74. Available: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.471.1621&rep=rep1&type=pdf>

<sup>11</sup> McPherson, G., et al. 2005. "Municipal Forest Benefits and Costs in five US Cities." *Journal of Forestry*. Available: [https://www.fs.fed.us/psw/publications/mcpherson/psw\\_2005\\_mcpherson003.pdf](https://www.fs.fed.us/psw/publications/mcpherson/psw_2005_mcpherson003.pdf)

<sup>12</sup> Gulick, Jennifer. 2016. "Funding Your Urban Forest Program: A Guide for New and Seasoned City Foresters." *Society of Municipal Arborists*. Available: <https://www.urban-forestry.com/assets/documents/funding-your-uf-program-jenny-gulick.pdf>

<sup>13</sup> USDA Forest Service Center for Urban Forest Research. 2004. "The Large Tree Argument: The Case of Large-Stature Trees vs. Small-Stature Trees." Available: [https://www.fs.fed.us/psw/topics/urban\\_forestry/products/cufr\\_511\\_large\\_tree\\_argument.pdf](https://www.fs.fed.us/psw/topics/urban_forestry/products/cufr_511_large_tree_argument.pdf)

<sup>14</sup> Chesapeake Bay Program Partnership Healthy Watersheds Goal Implementation Team et al. *Healthy Watersheds Forest Retention Projects Phases 1 & 2 Final Report*. June 2017. Available: [http://www.dof.virginia.gov/website/17-6-30%20Healthy%20Waters%20Forest%20Retention%20-%20FINAL%20REPORT%20\(July%202017\).pdf](http://www.dof.virginia.gov/website/17-6-30%20Healthy%20Waters%20Forest%20Retention%20-%20FINAL%20REPORT%20(July%202017).pdf)

<sup>15</sup> For more information see the discussion of the specific urban tree canopy best management practices that are eligible for credit within the Chesapeake Bay Program's suite of modeling tools under the Chesapeake Bay TMDL.

<sup>16</sup> The 2014 document in which all six states in the watershed and the District of Columbia publicly committed to achieving the outcomes necessary to restore the land and waters of the Chesapeake Bay watershed. See: [http://chesapeakestormwater.net/wp-content/uploads/dlm\\_uploads/2017/06/U11.-Urban-Tree-Planting-Fact-Sheet-final.pdf](http://chesapeakestormwater.net/wp-content/uploads/dlm_uploads/2017/06/U11.-Urban-Tree-Planting-Fact-Sheet-final.pdf) <https://www.epa.gov/sites/production/files/2016-01/documents/attachment1chesapeakebaywatershedagreement.pdf>

<sup>17</sup> Chesapeake Bay Program. Chesapeake Watershed Agreement. 2014. Available: <https://www.epa.gov/sites/production/files/2016-01/documents/attachment1chesapeakebaywatershedagreement.pdf>

<sup>18</sup> US Environmental Protection Agency. 2010. Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorous and Sediment.

<sup>19</sup> See: [https://www.chesapeakebay.net/what/publications/phase\\_6\\_modeling\\_tools](https://www.chesapeakebay.net/what/publications/phase_6_modeling_tools)

<sup>20</sup> See the Chesapeake Stormwater Network's Urban Tree Canopy Expansion resources: <http://chesapeakestormwater.net/urban-tree-canopy-expansion/>

<sup>21</sup> Lead partners include the Chesapeake Bay Program Forestry Workgroup representing each Bay state and D.C., the USDA Forest Service, and the Alliance for the Chesapeake Bay.

<sup>22</sup> Chesapeake Bay Program. 2015. Tree Canopy Outcome Management Strategy. Available: [https://www.chesapeakebay.net/documents/22044/3b\\_urban\\_tree\\_canopy\\_final.pdf](https://www.chesapeakebay.net/documents/22044/3b_urban_tree_canopy_final.pdf)

<sup>23</sup> This document reports 2017 numbers. Arbor Day Foundation. 2017 Tree City Communities website. Accessed 2/1/19: <https://www.arborday.org/programs/treecityusa/directory.cfm>

<sup>24</sup> Arbor Day Foundation. Tree City USA Standards website. Accessed 2/1/19: <https://www.arborday.org/programs/treecityusa/about.cfm>

<sup>25</sup> Arbor Day Foundation. 2017 Tree City Communities Community Database. Available: <https://www.arborday.org/programs/treecityusa/directory.cfm>

## 2. State Policies and Programs Affecting Local UTC Funding and Finance

<sup>26</sup> City of Wilmington, Delaware. City Tree Regulations website. Available: <https://www.wilmingtonde.gov/residents/urban-forestry-program/city-tree-regulations>

<sup>27</sup> Maryland Department of Natural Resources. Forest Conservation Act website. Accessed 2/1/19: <http://dnr.maryland.gov/forests/Pages/programapps/newfca.aspx>

<sup>28</sup> Ibid.

<sup>29</sup> Maryland Department of Legislative Services. 2017. "Forest Conservation Act and Other Forestry Programs in Maryland." Available: <http://dls.maryland.gov/pubs/prod/NatRes/Forest-Conservation-Act-and-Other-Forestry-Programs-in-Maryland.pdf>

<sup>30</sup> Chesapeake Bay Program. Chesapeake Watershed Agreement. 2014. Available: <https://www.epa.gov/sites/production/files/2016-01/documents/attachment1chesapeakebaywatershedagreement.pdf>

<sup>31</sup> Maryland Department of Natural Resources. 2015. "2015 Forest Action Plan: Strategy 2016-2020." Available: [http://dnr.maryland.gov/forests/Documents/2015\\_DRAFT%20ForestStrategyUpdate.pdf](http://dnr.maryland.gov/forests/Documents/2015_DRAFT%20ForestStrategyUpdate.pdf)

<sup>32</sup> Ibid.

<sup>33</sup> Maryland Department of Natural Resources. Maryland Urban & Community Forestry Committee Grants Program website. Accessed 2/1/19: <http://dnr.maryland.gov/forests/Pages/programs/urban/mucfcgrant.aspx>

<sup>34</sup> Chesapeake Bay Trust. Grant Programs website. Accessed 2/1/19: <https://cbtrust.org/grants/>

<sup>35</sup> Maryland Department of Natural Resources. Chesapeake and Coastal Bays Trust Fund website. Accessed 2/1/19: <http://dnr.maryland.gov/ccs/Pages/funding/trust-fund.aspx>

<sup>36</sup> Maryland Department of Natural Resources. Marylanders Plant Trees website. Accessed 2/1/19: <http://dnr.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx>

<sup>37</sup> Maryland Department of Natural Resources. Tree-mendous Maryland website. Accessed 2/1/19: <http://dnr.maryland.gov/forests/Pages/treemendous/default.aspx>

<sup>38</sup> New York Department of Environmental Conservation. Trees for Tribes Program website. Accessed 2/1/19: <https://www.dec.ny.gov/animals/77710.html>

<sup>39</sup> New York Department of Environmental Conservation. Urban and Community Forestry Grants website. Accessed 2/1/19: <https://www.dec.ny.gov/lands/5285.html>



<sup>40</sup> Pennsylvania’s OpenTreeMap Interface <https://www.opentreemap.org/patreemap/map/>

<sup>41</sup> TreePennsylvania. TreeVitalize Grants Program website. Accessed 1/3/19: <https://treepennsylvania.org/treevitalize-grants-program/>

<sup>42</sup> District of Columbia. The Sustainable DC Plan. Accessed 2/2/19: <http://www.sustainabledc.org/>

<sup>43</sup> U.S. Environmental Protection Agency. Permits Issued by the Mid-Atlantic Region. Accessed 2/2/19: <https://www3.epa.gov/reg3wapd/npdes/dcpermits.htm>

<sup>44</sup> District of Columbia. 2016. DC Act 21-386. Available: [https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page\\_content/attachments/B21-0318-SignedAct.pdf](https://ddot.dc.gov/sites/default/files/dc/sites/ddot/page_content/attachments/B21-0318-SignedAct.pdf)

<sup>45</sup> District of Columbia. DC Request a Tree Service or Planting website. Accessed 2/2/19: <https://ddot.dc.gov/page/request-street-tree-service-or-planting>

<sup>46</sup> Casey Trees. Tree Rebate website. Accessed 2/2/19: <https://caseytrees.org/resources/tree-rebate/>

<sup>47</sup> Cacapon Institute has also written a UTC report and subdivision UTC assessment for Jefferson County Parks & Recreation; completed a UTC analysis for the City of Martinsburg; conducted an i-Tree streets inventory for Martinsburg, completed a UTC assessment for all public schools in the eight counties of West Virginia’s Potomac Basin, and conducted similar UTC efforts. See [www.cacaponinstitute.org](http://www.cacaponinstitute.org) for more information.

<sup>48</sup> Arboriculture & Urban Forestry Program, Davis College, School of Natural Resources, WVU, 2017. Available: <https://drive.google.com/open?id=1k5cZtVLzGZ-ACvHki1u7pnUj9oki1gXB>

<sup>49</sup> West Virginia Division of Forestry. Urban Forestry website. Accessed 2/2/19: <http://www.wvforestry.com/urban.cfm?menu-call=urban>

<sup>50</sup> Cacapon Institute. 2016. West Virginia Urban Tree Canopy Assessment & Enhancement. Available: [https://drive.google.com/open?id=1XXTv\\_NhEkME7d3XBOJTdpcN0xcvi0WxC](https://drive.google.com/open?id=1XXTv_NhEkME7d3XBOJTdpcN0xcvi0WxC)

<sup>51</sup> Cacapon Institute. Carla Hardy West Virginia Project CommuniTree (CTree) website. Available: [www.cacaponinstitute.org](http://www.cacaponinstitute.org)

<sup>52</sup> Code of Virginia. 15.2-961. Replacement of trees during development process in certain localities. Available: <http://lis.virginia.gov/cgi-bin/legp604.exe?181+ful+CHAP0399>

<sup>53</sup> Virginia Tech Department of Forest Resources and Environmental Conservation. “Virginia Tree Ordinance Database” website. Accessed 1/3/19: <http://vtod.frec.vt.edu/>

### 3. Foundations for Successful Tree Canopy Funding

<sup>54</sup> See: <https://www.arborday.org/programs/treecityusa/>

<sup>55</sup> See: <https://www.fs.fed.us/managing-land/urban-forests/ucf>

<sup>56</sup> See: <http://chesapeakeketrees.net/>

<sup>57</sup> Chesapeake Tree Canopy Network. “Baltimore, MD: Reaching New Audiences.” Accessed 2/2/19: <http://chesapeakeketrees.net/2016/06/07/baltimore-md-reaching-new-audiences/>

<sup>58</sup> See TreeUp and other TreeBaltimore marketing messaging on their website: <http://treebaltimore.org/>

<sup>59</sup> City of Charlottesville, VA. 2009. Urban Forest Management Plan. Available: <http://www.charlottesville.org/home/showdocument?id=13979>

### 4. Funding Strategies for UTC Programs

<sup>60</sup> Fazio, J. 2010. Arbor Day Foundation. *Tree City USA Bulletin No. 34: How to Fund Community Forestry*.

<sup>61</sup> Elmendorf, W. 5/9/16. “Sustaining and Funding an Urban Forestry Program.” PennState Extension. Available: <https://extension.psu.edu/sustaining-and-funding-an-urban-forestry-program>

<sup>62</sup> Trombly, M. 12/19/17. “Will Cincinnatians pay more in taxes to bolster the city’s street trees program?” [Cincinnati.com](http://Cincinnati.com)

<sup>63</sup> Gulick, Jennifer. 2016. “Funding Your Urban Forest Program: A Guide for New and Seasoned City Foresters.” *Society of Municipal Arborists*. Available: <https://www.urban-forestry.com/assets/documents/funding-your-uf-program-jenny-gulick.pdf>

<sup>64</sup> See Section 2 of this report for state urban forest coordinator contact information.

<sup>65</sup> Gulick, Jennifer. 2016. “Funding Your Urban Forest Program: A Guide for New and Seasoned City Foresters.” *Society of Municipal Arborists*. Available: <https://www.urban-forestry.com/assets/documents/funding-your-uf-program-jenny-gulick.pdf>

<sup>66</sup> Elmendorf, W. 5/9/16. “Sustaining and Funding an Urban Forestry Program.” PennState Extension. Available: <https://extension.psu.edu/sustaining-and-funding-an-urban-forestry-program>

<sup>67</sup> Fazio, J. 2010. Arbor Day Foundation. Tree City USA Bulletin No. 34: How to Fund Community Forestry.

## 5. Case Stores of Successful UTC Funding Efforts

<sup>68</sup> City of Frederick, Maryland. 2010. Urban Forestry Management Plan. Available: <https://www.cityoffrederick.com/Document-Center/View/912/UrbanForestryManagementPlan?bidId=>

<sup>69</sup> Maryland-National Capital Park and Planning Commission. 2014. Plan Prince George’s 2035 Approved General Plan. Maryland-National Capital Area Park and Planning Commission, Upper Marlboro, MD.

<sup>70</sup> Prince George’s County. 2014. County Resolution 23-2014, “Establishment of County Policy for Shade trees within County Rights-of-Way.”

<sup>71</sup> Goetz, S. J., R. K. Wright, A. J. Smith, E. Zinecker, and E. Schaub. 2003. “IKONOS imagery for resource management: Tree cover, impervious surfaces, and riparian buffer analyses in the mid-Atlantic region.” *Remote Sensing of Environment* 88(1):195–208.



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