TREE CANOPY AND FOREST ACTION PLAN

Strategies to Protect and Enhance the Metropolitan Washington Tree Canopy

November 2026









Metropolitan Washington
Council of Governments

TREE CANOPY AND FOREST ACTION PLAN
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The Metropolitan Washington Council of Governments (COG) is an independent, nonprofit association that brings area leaders together to address major regional issues in the District of Columbia, suburban Maryland, and Northern Virginia. COG's membership is comprised of 300 elected officials from local governments, the Maryland and Virginia state legislatures, and U.S. Congress.

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EXECUTIVE SUMMARY

This Tree Canopy Action Plan reaffirms the significance of urban trees and forests in the Metropolitan Washington Council of Governments (COG) region, presents goals and strategies for tree canopy preservation and expansion, and calls for expansion of regional coordination, partnerships, and communication to maintain the goal of 50 percent tree canopy across metropolitan Washington.

The regional tree canopy goal is attainable when Urban Forestry Programs are well-funded, well-staffed, and are able to adaptively manage to:

- protect from unintended loss to development,
- increase tree and forest resilience to climate change, invasive plants, pests and diseases, and other stressors, and
- have planting and maintenance programs to ensure an abundant future tree canopy for all.

INTRODUCTION

The environmental and socioeconomic benefits of trees are plentiful and well-documented (See COG's 2024 report Conserving Tree and Forests in Metropolitan Washington, Appendix Figures 1 & 2, and Appendix Resources). Despite these benefits, canopy cover in the COG region has been declining. The COG region experienced a net loss of 28,375 acres of tree canopy between 2014 and 2021, resulting in a decline from 51.35 percent in 2014 to 50.7 percent in 2021. The 2014-2021 trend amounts to a yearly loss of 4,053 acres, or about 6.3 square miles, equaling almost five National Airports.

COG Jurisdictional Tree Canopy Coverage - 2014, 2018 and 2021 Comparison

Jurisdiction	Total Land Area (Acres)	Tree Canopy Acres			Percent Tree Canopy		
		2014	2018	2021	2014	2018	2021
District of Columbia	39,339	13,662	13,650	13,694	34.70%	34.70%	34.80%
Suburban MD Subtotal	**1,340,605**	**701,736**	**688,189**	**685,761**	**52.34%**	**51.33%**	**51.15%**
Charles County	292,735	198,905	198,128	196,872	67.90%	67.70%	67.30%
Frederick County	423,252	181,584	181,696	180,079	42.90%	42.90%	42.50%
City of Frederick	15,312	2,796	2,841	2,862	18.26%	18.55%	19.00%
Montgomery County	316,587	153,217	147,597	148,301	48.40%	46.60%	46.80%
City of Gaithersburg	6,609	2,314	2,184	2,190	35.01%	33.05%	33.00%
City of Rockville	8,655	3,459	3,213	3,271	39.97%	37.12%	38.00%
City of Takoma Park	1,341	825	770	768	61.52%	57.42%	57.00%
Prince George's County	308,031	168,030	160,768	160,509	54.50%	52.20%	52.10%
Town of Bladensburg	632	196	170	177	31.01%	26.90%	28.00%
City of Bowie	13,035	6,281	6,006	5,822	48.19%	46.08%	45.00%
City of College Park	3,588	1,429	1,341	1,361	39.83%	37.37%	38.00%
City of Greenbelt	3,993	2,493	2,442	2,453	62.43%	61.16%	61.00%
City of Hyattsville	1,731	595	516	533	34.37%	29.81%	31.00%
City of Laurel	3,047	1,101	1,019	1,007	36.13%	33.44%	33.00%
Northern VA Subtotal	**836,903**	**422,869**	**417,907**	**410,437**	**50.53%**	**49.93%**	**49.04%**
City of Alexandria	9,622	2,646	2,658	2,631	27.50%	27.60%	27.30%
Arlington County	16,625	5,660	5,657	5,562	34.00%	34.00%	33.50%
Fairfax County	251,866	140,172	139,276	137,859	55.70%	55.30%	54.70%
City of Fairfax	4,008	1,638	1,628	1,612	40.90%	40.60%	40.20%
City of Falls Church	1,310	540	535	531	41.20%	40.90%	40.50%
Loudoun County	330,872	147,947	145,066	141,359	44.70%	43.80%	42.70%
Prince William County	214,374	122,147	120,974	118,800	57.00%	56.40%	55.40%
City of Manassas	6,287	1,498	1,494	1,476	23.80%	23.80%	23.50%
City of Manassas Park	1,939	621	619	607	32.00%	31.90%	31.30%
COG Region Total	**2,216,847**	**1,138,267**	**1,119,746**	**1,109,892**	**51.35%**	**50.51%**	**50.07%**

Source: Data is from Chesapeake Bay Program forestry staff, except data for Maryland cities are from the Chesapeake Tree Canopy Network Factsheets.

Concerned by tree canopy loss, the Metropolitan Washington Council of Governments (COG) Board passed Resolution R14-2024 to "protect, manage and expand urban forestry[1] assets for health and quality of life." The April 2024 Resolution set a goal of tree canopy of at least 50 percent across the metropolitan Washington region through 2050. If the region continues to experience the same rate of tree canopy loss, the region will be beneath the 50 percent tree canopy goal by the next assessment cycle in 2028. The region has strong urban forestry programs, but canopy decrease is due to compounding factors including development, by-right private property tree removals, pests and diseases (e.g., deer and Beech leaf disease), storms, drought, and insufficient replacement of aging canopy.

The COG Board Resolution called for two things:

A. Continued tracking of tree canopy trends in the COG region every five years.

- COG is using Chesapeake Bay Program Land Cover/Land Use LIDAR and NAIP aerial imagery to track regional canopy trends, and also a COG annual survey of regional forestry programs.

[1] American Forests defines Urban and Community Forestry as "the planting, maintenance, care and protection of tree populations" within cities, their suburbs, and towns.

B. Development of a regional Action Plan to assist local governments' efforts in protecting and enhancing their tree and forest cover in support of COG's overall 50 percent regional canopy goal.

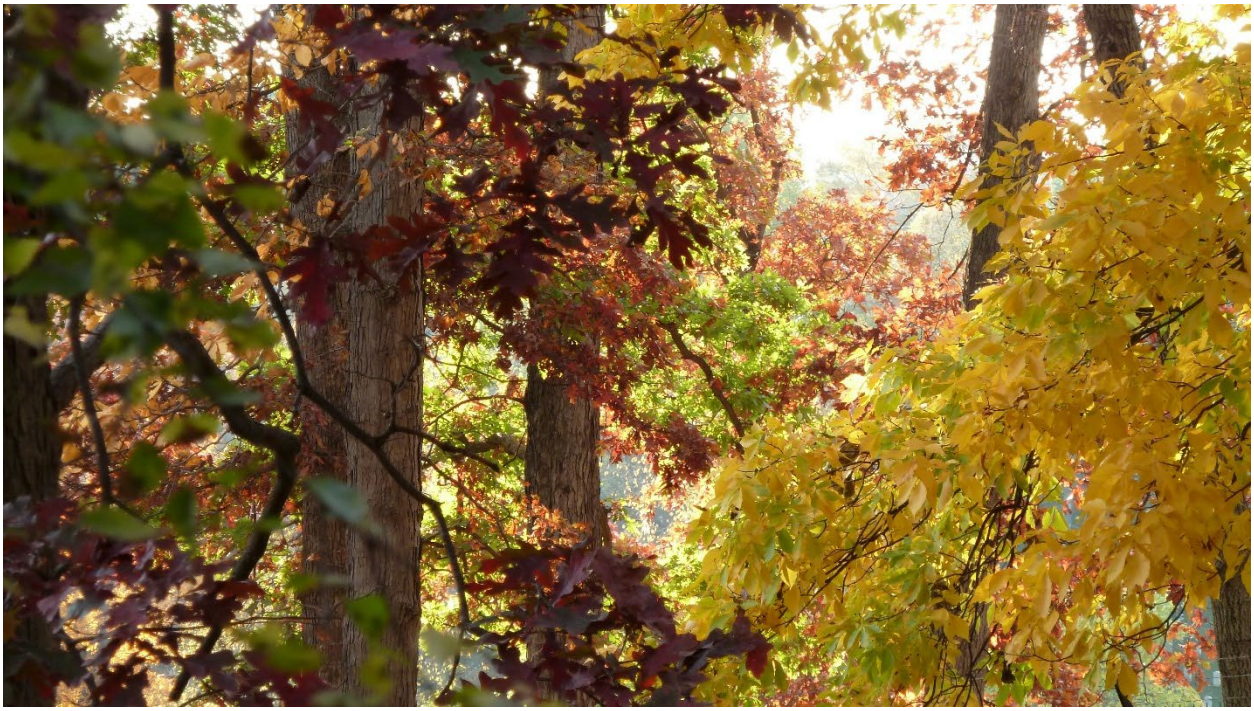
- The Action Plan strategies and progress will be revisited on a five-year cycle.

COG's tree canopy work and development of this Action Plan are guided by the Regional Tree Canopy Subcommittee (RTCS). The RTCS was formed in 2019 to meet multiple objectives of COG's 2030 Climate and Energy Action Plan (CEAP) developed by COG's Climate, Energy, and Environment Policy Committee (CEEPC).

The RTCS is comprised of regional urban and community forestry experts and has produced three reports, in addition to this Action Plan.

- Tree Canopy Management Strategy—Provides a framework of policies and recommendations to address challenges and threats to urban forests and to maximize community benefits of trees while minimizing associated risks. One of its recommendations is to develop an Action Plan.
- Tree Conservation Cookbook—Provides examples of local tree policies and ordinances that are effective for tree conservation and maintenance.
- Conserving Trees and Forests in Metropolitan Washington—Provides the underpinnings for setting COG's Tree Canopy goal and underscores the need for proactive measures to protect, maintain, and enhance the region's tree canopy—leading to the creation of this Action Plan.

COG, with support from the RTCS, will disseminate this Action Plan and support its implementation.



Steve Campbell

CHAPTER 1: PURPOSE OF TREE CANOPY ACTION PLAN

Purpose

The purpose of this Tree Canopy and Forest Action Plan is to:

- Guide COG's 24 local governments in setting and reaching their own local canopy targets in support of the regional tree canopy goal,
- Establish a framework of strategies to protect existing trees and forests and expand canopy where access and benefits are limited,
- Build local government capacity and regional networks needed to sustain that work, and
- Support regional coordination, implementation, and messaging about the need to protect and expand tree canopy.

The future of the region's tree canopy depends on effectively protecting, managing, and sustaining *existing* trees and forests. As climate change, development pressures, invasive species, pests, and other stressors intensify, *local governments* play a critical role in maintaining resilient trees and urban forests. The Chesapeake Bay Program has a Healthy Forests and Trees outcome for the Bay Agreement to support both land and water quality. The Bay Program's Scientific and Technical Advisory Committee (STAC) held a workshop, entitled *Healthy Forests: Proactive Strategies for Managing Threats and Promoting Conservation in the Bay Watershed*. The workshop concluded that forests face multiple stressors and by managing stressors that can be controlled the forests are more resilient to stressors outside of managers' control (such as temperature and precipitation extremes). Forests and trees need active management in order to remain healthy and withstand a myriad of threats. This Action Plan equips local governments with strategies to strengthen resilience, protect existing canopy, and build the partnerships, stewardship, and public support needed to achieve the region's long-term tree canopy goals.

Audience

The Action Plan is for local government decision-makers responsible for overseeing urban forestry programs, especially in under-resourced communities. Where to begin? If limited in time, Strategy 1 (Make Data Informed Decisions), Strategy 6 (Protective Development Ordinances), and Strategy 9 (Budgets) are good starting points.

Goals and Strategies

Protect, maintain, and expand. Retaining healthy existing trees and forests is the most effective foundation for maintaining canopy, while strategic planting is needed to address canopy loss, improve access, and build future tree cover.

For the Action Plan goals below, there are brief strategies to address specific aspects of tree canopy protection and expansion. Chapter 2 is a compilation of these strategies which provide recommendations and best practices, regional examples, and resources to foster additional action. Chapter 3 focuses on local government and COG roles for Action Plan Implementation.

Action Plan Goal 1: **Protect, maintain, and expand healthy, resilient, and accessible tree canopy and forests.**

Objective 1. Improve tree access for all
- Strategy 1. Make data-informed decisions
- Strategy 2. Prioritize tree planting in low canopy areas and align with community values

Objective 2. Enhance the quality of trees and forests
- Strategy 3. Manage Invasive Plant Species
- Strategy 4. Defend Against Pests and Diseases
- Strategy 5. Boost Seed Collection and Tree Supply

Objective 3. Protect the extent of the region's tree canopy
- Strategy 6. Develop and Enforce Protective Development Ordinances
- Strategy 7. Maintain trees and forests for resilience

Action Plan Goal 2: **Build local and regional capacity to implement effective urban and community forestry programs.2**

Objective 1. Foster a skilled regional arboriculture and forestry workforce
- Strategy 8. Expand Workforce through Education, Training, and Professional Development

Objective 2: Build and sustain robust and adaptable budgets to support urban forestry programs
- Strategy 9. Align budgets with programs and plans to adequately manage urban and community forests

Objective 3: Maximize Partnerships:
- Strategy 10. Leverage partnerships to enhance community engagement, advocacy, policy development, pursuit of funding opportunities, tree conservation and planting, and data sharing.

CHAPTER 2: GOALS, OBJECTIVES, AND STRATEGIES

GOAL 1

Protect, maintain, and expand healthy, resilient, and accessible tree canopy and forests.

Objective 1: Improve Tree Access For All

STRATEGY 1: MAKE DATA-INFORMED DECISIONS

COG will publish the regional and jurisdictional Tree Canopy Cover every five years using Chesapeake Bay Program data to assess tree canopy goal progress and trends.

COG members are encouraged to set numeric tree canopy goals and to track canopy trends over time using consistent baseline data and inventory tree and forest assets.

WHY IT MATTERS

To effectively manage a resource, it is essential to monitor it (*Conserving Trees and Forests in Metropolitan Washington).*

Managing a city without understanding its tree[s]…is like managing a grocery store without knowing what is on one-quarter of the grocery store shelves.

-David Nowak, USDA Forest Service

A canopy goal provides a clear, measurable target that elected officials and residents can support and champion. Additionally, tracking tree canopy data is essential for preparing and updating urban forestry master plans, understanding canopy health and diversity, justifying forestry budgets, locating disparities in tree coverage, and developing plans for tree plantings.

Remote sensing, light detection and ranging (LiDAR), and emerging Artificial Intelligence (AI) tools can help monitor canopy cover, assess tree health, and identify maintenance needs. These technologies can reduce staff time in the field and support more efficient planning and decision-making.

RECOMMENDED LOCAL ACTIONS

There are two methods by which foresters track tree coverage: Tree canopy cover and tree inventories.

TREE CANOPY COVER

Tree canopy assessments use remote sensing and geospatial analysis to measure canopy cover. These assessments provide valuable long-term insights into canopy trends and the socioeconomic and environmental factors influencing change.

Metropolitan Washington would benefit from a consistent approach to canopy assessment across jurisdictions. While tracking methods may differ among rural, suburban, and urban areas, monitoring trends across all development types is important.

COG recommends using the Chesapeake Bay Program's (CBP) data because of its high-resolution land use and land cover datasets. CBP combines National Agriculture Imagery Program (NAIP) imagery, LiDAR, and baseline land cover data from 2013/14 to track canopy change. CBP details information on where tree cover occurs (e.g., forests, impervious surfaces, turf grass) and reports land cover percentages by jurisdiction, helping local governments interpret and apply the data.

The CBP Tree Canopy Network also uses i-Tree to estimate annual ecosystem benefits, including air pollution reduction, stormwater runoff mitigation, and carbon sequestration. These metrics help jurisdictions communicate the environmental and economic value of trees to residents. In addition, the CBP tracks where canopy gains and losses occur.

Some jurisdictions also contract with private companies such as PlanIT Geo and Davey Resource Group to assess tree canopy coverage. However, canopy assessments can be costly, particularly for smaller jurisdictions. Monitoring methods differ by landscape: Broad-scale satellite imagery is generally sufficient for rural forests, while urban areas require higher-resolution imagery due to fragmented canopy cover and tall buildings. Communities at the urban-rural edge often need a combination of both approaches.

TREE INVENTORIES

A second type of tree canopy evaluation is a tree inventory—either full-scale or by sampling-- which gathers details about the species composition, age diversity, pest/disease tracking, etc. through on-the-ground evaluation. When surveying trees beyond street tree inventories, communities can survey plots and extrapolate the data.

In deciding whether to inventory trees, consider program size and budget, where the trees are located—such as along streets or within parks, and maintenance responsibilities, Also consider who will use the inventory (e.g., supervisors, maintenance staff, or contractors). These considerations inform what data to collect, how the software is set up, and the standard operating procedures for storing and maintaining the information.

Here are some reasons local government may invest in and conduct inventories or surveys:

- For properties where the local government is responsible for maintenance (such as street trees), localities can track new plantings and maintenance needs, and log progress towards these objectives. Maintenance inventories may assess risk and include trees that need to be staked, mulched, pruned, cabled, or removed.
- To evaluate tree canopy trends for rapidly developing areas, or for equity communities.
- To guide development or update a Forestry Management Plan, Master Plan, or Natural Resources Strategy.
- To build community support for local forestry programs and projects, and protection for mature and significant trees, patches of trees, and remnant forests.

For jurisdictions unable to complete their own tree inventories, or as a supplement, National Forest Inventory and Analysis (FIA) is a free and good baseline tree inventory. The United States Department of Agriculture inventories forest plots every 5 to 10 years, collecting, analyzing, and reporting information on the status, trends, and condition of America's forests.

EXAMPLES OF TREE CANOPY GOALS & ANALYSIS

1. **Arlington County** used Davey Resource Group in 2024 for its tree canopy analysis. Arlington County was able to establish a dashboard with canopy cover data from 2014, 2018, and 2023.

2. The **District of Columbia** Urban Tree Canopy in 2020 Story Map provides an overview of changes in canopy coverage in the District between 2006 and 2020. The District's 40 percent Canopy Goal, urban tree canopy (UTC) Analysis Methodology, UTC Over Time, Change by Land Use, Case Studies, Heritage Trees, Canopy Access and Strategies to Achieve the Goal are included.
3. **City of Fairfax** completed a Phase 1 program evaluation that reviewed existing plans and resources, engaged staff, analyzed available data, benchmarked against peer communities, audited the program against the USFS urban forest sustainability indicators, and recommended next steps. It gave the City a clear picture of where it stood and what to prioritize and led to funding an Urban Forester position; a public tree inventory of about 25,000 trees; and in 2023, an Urban Tree Canopy Assessment; and ultimately, the full Urban Forest Master Plan.

RESOURCES

- Chesapeake Data: Tree Canopy and Forests
- Chesapeake Tree Canopy Network: Understand your Canopy
- iTree tools (Landscape, Canopy) are free
- USDA Forest Service: Nationwide Forest Inventory

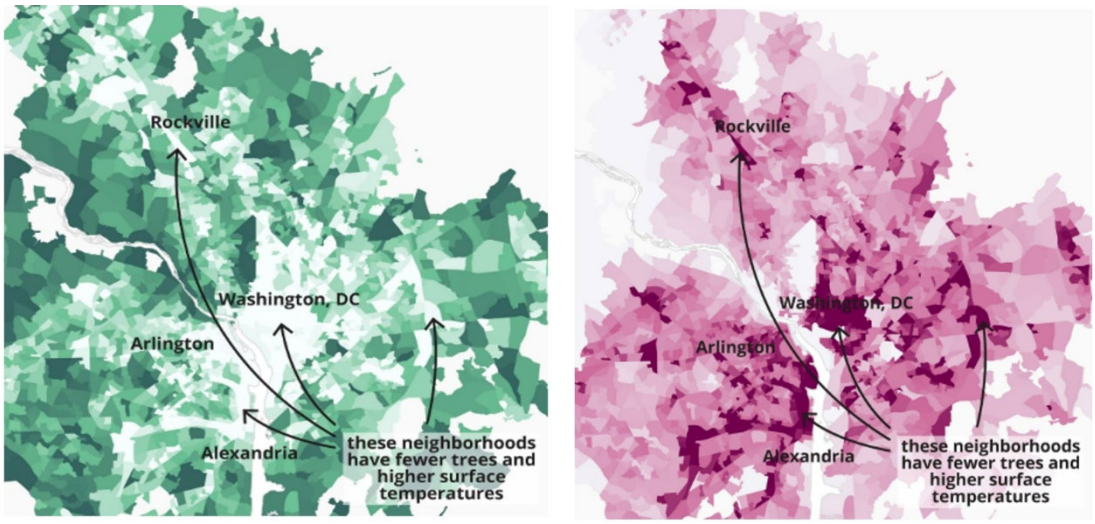
Objective 1: Improve Tree Access For All

STRATEGY 2: PRIORITIZE TREE PLANTING IN LOW CANOPY AREAS AND ALIGN EFFORTS WITH COMMUNITY VALUES

This strategy details how and where to prioritize tree planting based on analysis of existing tree canopy cover and access.

WHY IT MATTERS

Tree benefits are not distributed evenly across the region, so some communities experience fewer of the health, environmental, and economic benefits associated with trees. American Forests' research finds a correlation between race and income and amount of tree canopy. Majority white neighborhoods have on average 33 percent more tree canopy than communities with a people of color majority, and neighborhoods where 90 percent or more of their residents live in poverty have 41 percent fewer trees than communities with only 10 percent or less of their populations experiencing poverty (American Forests June 2021). A concerted effort should be made to work with communities in neighborhoods with low Tree Equity Scores (American Forests) to realize their tree ideals.



Tree Equity Score

A **study of U.S. cities'** neighborhood-scale thermal conditions measured a four-degree difference between DC's coolest and hottest neighborhoods.

RECOMMENDED LOCAL ACTIONS

COG jurisdictions are striving to expand tree access overall, while prioritizing areas with lesser canopy. In doing so, it is important to plant the right tree in the right place for tree viability and to align with community values about the types and locations of trees. Trees may be chosen for shading homes and businesses, limiting heat exposure in high foot traffic areas and common areas where people spend time. Community trees help control flooding, improve water quality, slow stormwater runoff, prevent erosion, and provide wildlife habitat.

Local governments are using several methods to expand access to trees where tree canopy is low including tree giveaway programs; targeting tree planting in public right of ways such as street trees in underserved neighborhoods; and partnering with community-based organizations to plant trees in priority Census tracts. Partnerships can expand tree planting opportunities on privately owned lands (See Figure 3: Why Private Property Matters).

The following actions can increase tree access for all:

- Use American Forests Tree Equity tool, or a similar tool, to calculate your tree equity score and to track progress over time.
- Build partnerships in low-canopy areas to prioritize plantings where communities want them. Visible, neighborhood-level trees receive better care and maintenance from residents.
- Develop policies and budgets supportive of tree access for all. Pairing tree investments with housing stability tools can help ensure that greening low-canopy neighborhoods does not result in rising rents and displacement.
- Provide technical assistance and job training in tree care.
- Integrating tree canopy planning with other departmental planning including departments of transportation, stormwater, and public health to holistically reduce heat exposure and vulnerability by considering cooling corridors, transit stops, schools and other community gathering areas.

EXAMPLES

1. **Arlington County:** Through its Forestry and Natural Resources Plan, the county focuses tree planting and conservation programs in underserved communities under Action step 2.1.1: "direct resources to neighborhoods underserved by existing tree canopy, ecosystem services or access to natural areas." Since adoption of the Plan, planting in Tree Equity Areas has significantly increased.

2. **City of Frederick:** partners with Mobilize Frederick on its "Cooler Neighborhood Project." Prioritizing neighborhoods based on Census data; their goal is to reduce heat islands by raising the canopy cover up to 40 percent in these under-shaded areas.

3. **Washington Metropolitan Area Transit Authority (WMATA)** has mapped heat exposure areas to target and plant shade cover on WMATA-owned land for the most prominent pathways (WMATA "Pedsheds") within a half-mile radius of its Metro stations. Through partnerships with Casey Trees, Anacostia Watershed Society, and nearby communities, they will plant 600 trees. WMATA would like to expand to Metro bus routes as well.

4. **District of Columbia Department of Energy and the Environment** uses a Heat Sensitivity-Exposure Index to show where there is overlap of high heat exposure and community members most sensitive to heat. This helps urban foresters determine the best locations for future plantings. In addition, Department of Transportation urban foresters use tree species climate vulnerability data in their adaptation planning process to choose the best trees for future resilience (https://climatereadyforests.dc.gov/).

RESOURCES

- American Forests Vibrant Cities Lab: Cool Corridors Action
- Fairfax County's Tree Distribution to Community Organizations
- The Nature Conservancy: Six Ways Trees Benefit All of Us
- Urban Forestry and Environmental Justice Playbook: Empowering Communities and Reducing Disaster Risk. Lemir Teron (2024).

Objective 2: Enhance the Quality of Trees and Forests

STRATEGY 3: MANAGE INVASIVE PLANT SPECIES

Local governments can protect trees from invasive plants through education programs, early detection, and rapid treatment.

WHY IT MATTERS

Invasive plants cause significant environmental and economic harm, representing the second leading cause of global biodiversity loss (U.S. Forest Service presentation, *Invasive Species in Eastern Forests: Extent, Impact, and Response*, Kevin Potter, May 5, 2026).

- Invasive species threaten tree canopy by killing trees, preventing regeneration, outcompeting native species, and changing forest ecosystems.
- Invasive species proliferate in fragmented ecosystems, such as roadways,
- Vine removal can add five to 10 years to a tree's lifespan (Maryland Matters).
- Common mid-Atlantic invasive vines and herbaceous perennials include English ivy, kudzu, porcelain-berry, Chinese wisteria, Japanese honeysuckle, Asiatic bittersweet, mile-a-minute, and Japanese knotweed.
- Common invasive trees, grasses and shrubs include Callery (Bradford) pear, Chinese privet, tree-of-heaven and bamboo (MD Invasive Species, DC Invasive Species, (U.S. Forest Service presentation, *Invasive Species in Eastern Forests: Extent, Impact, and Response,* Kevin Potter, May 5, 2026).

RECOMMENDED LOCAL ACTIONS

Discontinuing the sale of invasive plants, community education, and early detection and documentation help to control the spread of invasive plants. When eradication is not possible, they can often be kept in check via targeted treatment (e.g., hand cutting and selective chemical treatment). It is important to maintain an inventory of invasive plants and strategies to control them.

For Urban Forest Management

- Use Integrated Pest Management (IPM) strategies that integrate ecological, cultural, mechanical, and selective chemical methods to sustainably manage vegetation and protect environmental resources.
- Require an invasive management plan as part of a land development approval process.
- Monitor invasive species in the area and create a removal strategy that matches the species' biology (mechanical, chemical, minimizing edge habitat).
- When possible, avoid forest fragmentation[2]. Here is a USFS tool for viewing forest patches.
- Aim to treat areas before land disturbance to reduce further post-disturbance invasions.
- Monitor areas for secondary invasions.
- Prioritize areas to treat based on forest value and the ability to contain populations of invasive plants before they can spread. See Fairfax County Park Authority's Non-native Invasive Plant Assessment site scoring sheet (pg. 81) to prioritize treatment areas.
- Support invasive species research and long-term monitoring programs.

[2] Forest fragmentation means "a loss of forest and the division of the remaining forest into smaller blocks. Fragmentation is of concern primarily because of its impact on the conservation of biological diversity" according to a U.S. Forest Service definition.

- Document outcomes of invasive species treatments to support the scientific community and other jurisdictions.

As Part of Community Response

- Advocate for legislation to ban the sale of invasive species and to enforce regulations.
- Dedicate a portion of city and county annual budgets for controlling invasive plants, as well as pests and diseases.
- Belong to regional rapid response networks such as the Partnership for Regional Invasive Species Management (PRISM).
- Partner with other local organizations to remove invasive species.
- Educate residents about avoiding the spread of invasive species and how to treat them. This includes plants to avoid planting, safe vine removal from trees, and not transporting firewood.
- Incentivize residents with grants or rebates to remove invasive species.
- Encourage diversity in tree canopy, favoring resistant native species where possible.

EXAMPLES

1. National Capital Partnership for Regional Invasive Species Management (NatCap PRISM): NatCap PRISM, created by National Park Service and affiliates and managed by COG, coordinates the early detection of invasive species in metropolitan Washington and co-sponsors training for volunteers interested in removing invasive species from local parks. They use data from apps to monitor emergent potential threats.
2. National Park Service (NPS):

   NPS partners with DC's Rock Creek Conservancy to train teams of volunteers to identify and remove invasive plants in Rock Creek Park, known as "Weed Warriors."
3. The Commonwealth of Virginia passed four bills related to invasive species, as follows:
   a. House Bill 109 — Removes the commercial viability loophole that prevents an invasive plant from being added to Virginia's Noxious Weeds List if it is already being grown or sold in the state.
   b. House Bill 88 — Prohibits the planting of invasive plants along state highways and requires the Virginia Department of Transportation (VDOT) to develop a plan to manage existing invasive plants along those corridors.
   c. House Bill 388 / Senate Bill 89 — Allows localities to have a public service district to manage and control the spread of plants listed as invasive by the Department of Conservation and Recreation.
   d. Senate Bill 163 — Allows volunteers to apply herbicides on state lands under the supervision of a licensed commercial pesticide applicator.
4. Maryland's Invasive Plant Law (Biodiversity and Agriculture Protection Act) was amended June of 2024 to add plants to Maryland's prohibited invasive species list, including Callery pear, burning bush, and English ivy, phased in in 2026.
5. Prince George's County Bill CB-072-2024 and Montgomery County's Bill 26-25 prohibit the sale of bamboo and restrict its unchecked growth.

RESOURCES

- Montgomery Parks, Montgomery County, MD, Weed Warriors
- Fairfax County: Managing Invasive Species
- Maryland Department of Natural Resources Wildlife & Heritage Service: Statewide Eyes
- University of Georgia Center for Invasive Species Early Detection and Distribution Mapping System (EDDMaps.org)

Objective 2: Enhance the Quality of Trees and Forests

STRATEGY 4: DEFEND AGAINST PESTS AND DISEASES

Protect trees from pests and diseases through early detection, education, and regional coordination.

WHY IT MATTERS

Managing pests and diseases is vital for ecosystem health, timber production, public safety, and recreation. Non-native forest pests are especially destructive because local trees lack natural defenses against foreign insects and diseases. According to Robert Venette (May 2026) U.S. Forest Service, Research and Development, the northeastern United States currently suffers from the highest concentration of non-native pests.

Proper maintenance reduces tree stress and susceptibility to pests and diseases. The best defenses against canopy loss are regular monitoring for early signs of infestation and implementing Integrated Pest Management (IPM).

Currently, in metropolitan Washington, a few pests and diseases of note are deer overpopulation, Beech Leaf Disease, Spotted Lanternfly, Spongy Moth, Emerald Ash Borer, and Elm Zigzag Sawfly.

- **Deer overpopulation**—deer in excess of 20 deer per square mile—severely threatens forest regeneration (National Park Service, Fairfax County Deer Management FAQs). Excessive browsing of seeds and saplings stymies self-propagation and destroys wildlife habitat. Additionally, antler rubbing creates open wounds, exposing trees to pests and diseases.
- **Beech leaf disease** is an emerging, lethal disease of American beech trees. Because beech is a major component of the region's forests—including about 10 percent of Fairfax County's canopy—its loss could have significant ecological and canopy impacts.
- **Spotted lanternfly** feeds on a wide range of plants and can weaken grapevines, fruit trees, and hardwoods, posing risks to nurseries and agricultural operations.
- **Emerald ash borer** has already devastated the region's ash tree population, reducing mature ash trees from approximately 300,000 in 2009 to 42,000 in 2023. The insect kills ash and fringe trees by feeding beneath the bark.
- **Spongy moth** defoliates deciduous trees, particularly oaks, weakening them and increasing vulnerability to other stressors and overall decline.
- **Elm zigzag sawfly** is an emerging threat in the region that defoliates native elm trees, causing stress and reducing tree health.
- **Oak decline** is being driven by multiple stressors, including drought, soil compaction, pests, diseases, and climate change. Given the dominance of oaks in eastern forests, their decline poses a significant long-term concern for forest health.

LOCAL SUCCESSES AND RECOMMENDATIONS

- Integrated Pest Management (IPM): Jurisdictions can work with and rely on IPM to understand how to manage pests with effective, low-risk methods, including manual, mechanical, cultural, biological, and chemical applications.
- Early Detection and Rapid Response: Jurisdictions that can regularly monitor trees to detect and report invasive species before they are far into their invasion will be able to better respond and hopefully eradicate them.
- Avoid Improper Maintenance to control the spread of pests and diseases. See Strategy 7 Maintenance for pruning best practices.
- Reduce/expedite process for removal of diseased trees to reduce the spread of disease and physical damage.
- Encourage planting of disease-resistant tree species (favoring native species where possible) and diversify species.
- Implement Deer Management: Reducing deer populations increases the number of seeds and saplings in forests, increasing tree growth and regeneration. Jurisdictions may control deer population, as well as protect vulnerable areas and areas of restoration with physical barriers.

EXAMPLES

1. Arlington County recommends avoiding over-pruning, or topping, trees on private property as this causes trees to be more prone to disease.
2. District Department of Transportation Urban Forestry Division (UDA) prioritizes detecting, monitoring, and evaluating forest health conditions. UFD staff have coordinated with USFS staff to conduct ongoing forest health initiatives/studies such as Dutch Elm Disease, Lecanium Scale and Hypoxylon, which have helped them to adjust services to lower the Dutch Elm infection rates.
3. Fairfax County's Integrated Pest Management Service District
4. Montgomery County waives its tree removal permitting requirement if a tree is in hazardous condition, which can include disease. In those cases, a licensed tree expert or certified arborist is authorized to remove the tree and notify the county afterward. Rapid removal helps protect surrounding trees and the community.
5. The National Park Service has deer management plans in Rock Creek Park and Maryland National Capital Parks (East). Since implementation in 2013, Rock Creek Park has seen tree seedling densities almost triple since starting deer management. Catoctin Mountain Park in Maryland has seen a 13-fold tree seedling density. Deer management has shown to be significant in protecting and restoring native plants in the region and is leading to proposals to expand this management plan to more nearby areas.



A large population of beech trees at Seneca Ridge Regional Park. UCFD monitors the health of beech trees at the park as part of long-term monitoring for beech leaf disease.

Fairfax County, Urban and Community Forestry Division

RESOURCES

- National Park Service: Integrated Pest Management
- National Park Service: Reducing Deer Numbers and Removing Invasive Plants are Key to Long-term Forest Health – Catoctin Mountain Park

Objective 2: Enhance the Quality of Trees and Forests

STRATEGY 5: BOOST SEED COLLECTION AND TREE SUPPLY

Expand seed collection programs to support local nurseries and strengthen tree stock demand in supply chains.

WHY IT MATTERS

Meeting regional tree planting goals depends on a reliable supply of native seeds and planting stock. Seed collection helps maintain genetic diversity, supports nursery production, and ensures native species remain available despite threats from invasive species, pests, diseases, and extreme weather.

LOCAL SUCCESSES AND RECOMMENDATIONS

- Establish seed collection policies that protect native ecosystems and sustainable harvest practices.
- Support native seed collection campaigns and community collection events.
- Focus collection efforts in developed areas where natural regeneration is unlikely.
- Partner with organizations, nurseries, and volunteers to collect seeds, grow trees, and expand planting efforts.
- Communicate with nurseries about future tree supply and demand needs.
- Manage pests and wildlife, particularly deer, which reduce seed availability and forest regeneration (See Pests and Diseases, Strategy 4).

EXAMPLES

- **Frederick County** hosts volunteer seed collections in County parks to give to the Maryland Department of Natural Resources and Forest Service state nursery.
- Arlington County's Native Plant Nursery harvests seeds from local sites for ecotype native plants including herbaceous plants, trees, and shrubs.
- The Casey Trees Farm serves as the state nursery for DC and the surrounding communities.

RESOURCES

- Chesapeake Tree Canopy Network: Addressing Regional Tree Supply Challenges and Opportunities
- Virginia Department of Forestry Acorn and Nut Collection Program
- USDA Forest Service: Collecting Native Seed

Objective 3: Protect the Extent of the Region's Tree Canopy

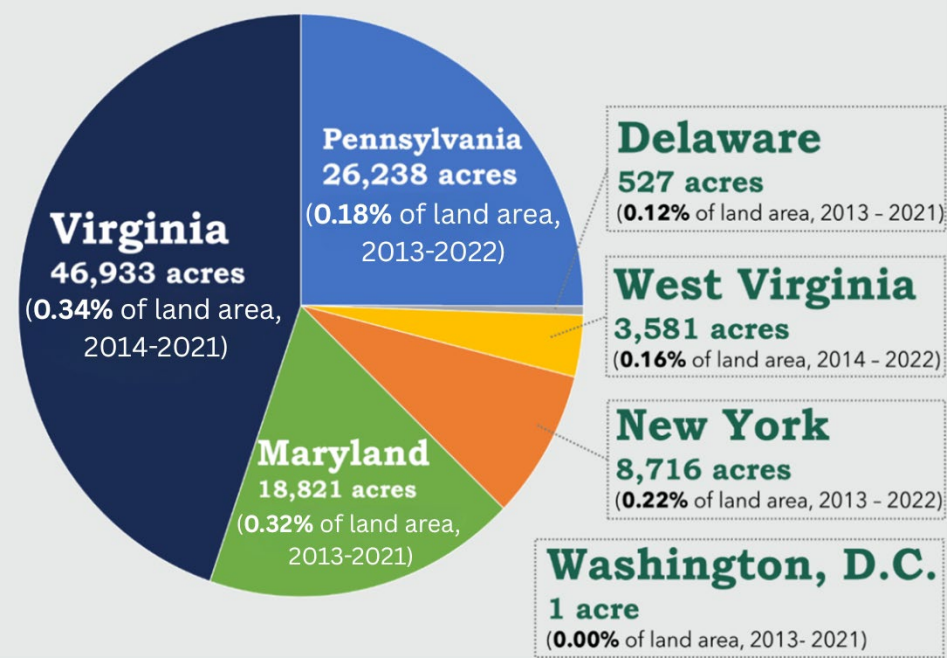
STRATEGY 6: DEVELOP AND ENFORCE PROTECTIVE DEVELOPMENT ORDINANCES

Ensure that city and county ordinances and codes protect against unnecessary tree loss during pre-development and development.

WHY IT MATTERS

Protecting existing forests and trees is critical to achieving regional and jurisdictional canopy goals.

Planting and reforestation cannot keep pace with tree loss, and mature trees provide up to 60 times the services of a newly planted tree (David Nowak, USDA Forest Service) and research states that existing canopy likely protects against heat stress and morbidity better than tree planting alone. Protecting trees early in the development process is critical, particularly for by-right and infill projects where space is limited. Construction impacts—including work on neighboring properties—can damage roots and weaken trees, often leading to delayed decline or mortality.



Tree cover change to development (Chesapeake Bay Program, **State of Chesapeake Forests**).

RECOMMENDED LOCAL ACTIONS

Local authority differs sharply across COG's three states:

- DC has its Tree Canopy Protection and Heritage Tree Acts
- Maryland has the Forest Conservation Act
- Virginia is a Dillion Rule state which gives localities limited enabling authority (e.g., Va. Code §15.2-961 and §15.2-961.1)

Protecting trees during development can be achieved through land development criteria, enforcement, and incentives. Regulations may restrict tree removal or damage, while incentives can encourage conservation. Protections may be based on tree size, age, species, location, or canopy requirements within a zoning district.

LAND DEVELOPMENT CRITERIA

Tree conservation should begin early in the development or redevelopment process. Once a site has been fully engineered, conservation opportunities are often limited and may create delays or inefficiencies. Early planning is especially important for infill development, where space constraints and the risk of damaging adjacent trees are greater.

Recommendations include:

- Enable local governments through state legislation to review development impacts related to comprehensive plan objectives.
- Require certified arborists (e.g., ISA Certified Arborists, Maryland Licensed Foresters or Tree Experts, or equivalent) to prepare Tree Protection Plans during the early design phase. Plans should identify existing trees and root systems, specify protection measures during construction, and address nearby off-site trees that may be affected.
- Tie development and construction permits to tree survival outcomes.
- Consider "proportionate conservation" standards that require post-development canopy to match or exceed pre-development canopy through conservation, reforestation, and planting, while accounting for differences among land uses.
- Incorporate tree protection requirements into related regulations and review processes to improve interagency coordination, clarify responsibilities, strengthen enforcement, and increase overall tree protection.
- Consideration of separate environmental and engineering reviews, with environmental approvals occurring before site plans are finalized.
- Consider a fund, tied to development, for purchasing forested areas for conservation, such as mature forests and environmentally sensitive areas.

ENFORCEMENT

Effective enforcement requires:

- Ordinances that restrict unauthorized tree removal and establish meaningful penalties for violations.
- Authority for urban foresters to issue stop-work orders when protected trees are damaged or removed. In many jurisdictions, this authority is limited to erosion and sediment control, zoning, or code inspectors.
- Adequate funding for inspections and enforcement.

INCENTIVES

Local governments can encourage tree conservation through incentives for developers, including:

- Tax credits
- Fee reductions
- Greater design flexibility (e.g., density bonuses or citing flexibility)
- Expedited permitting
- Canopy multipliers (recommended maximum of 2:1)
- Incentives for private property owners may include:
- Tradable market credits
- Transferable development rights (TDRs)
- Tax credits for conservation easements

EXAMPLES

The following are examples of protective tree ordinances.

1. City of Falls Church Ordinance 2108 requires 10 percent tree canopy within 20 years on all non-residential zones per state code, in response to new construction of mixed-use, high-density buildings with large footprints. Vegetative buffers are also required between differing zones. All residential zones have existing requirements.
2. City of Takoma Park's Permit Requirements of a Permit for Tree Removal and an Impact and Assessment and Protection Plan Permit for construction on Private Property.
3. **District of Columbia**'s **Special and Heritage Trees Ordinance** provides extensive protections for mature trees via their Urban Forest Conservation Act and Tree Canopy Protection Act , and most recently, the Tree Enhancement Amendment Act of 2025. These measures include high fines for removal of Special Trees or Heritage Trees, and provide guidance on how to protect trees during construction, even relocating a Heritage Tree if necessary. The Tree Enhancement Amendment lowers the circumference threshold for trees to qualify for Special Tree protections and will allow fines to rise in pace with inflation. District urban foresters also have the authority to issue Stop Work Orders when protected trees are being compromised. Arlington County also has protections for specimen and heritage trees.
4. **Fairfax County's** ten-year Tree Canopy Requirements stipulate a minimum tree canopy requirement, including a conservation target, by zoning district after ten (10) years and Fairfax County also has Neighboring Construction Tree Protection Requirements.
5. **Frederick County: Adopted** Bill 26-08 (July 7, 2026) to bring the County into compliance with Maryland SB526 (2023) and HB1511 (2024). It establishes a cap on the use of existing forest (now referred to as "Qualified Conservation") to fulfill Forest Resource Ordinance requirements and institutes a requirement for planting riparian buffers independent of satisfying mitigation requirements.
6. **Montgomery County's** Forest Conservation Law, Roadside Tree Protection Law and Tree Canopy Law, work together with Maryland's Roadside Tree Law and Licensed Tree Expert Law to conserve and mitigate disturbance and losses of forests and trees. All three County laws require approvals and mitigation, typically in the form of plantings or fees that are dedicated to planting.
7. **Prince George's County** requires a Natural Resources Inventory (NRI) to be prepared as the first step in most development processes. The NRI serves as an "existing conditions plan" for the

Planning Department (entitlement site plans and/ or MD Forest Conservation Act compliance), for the Soil Conservation District's erosion and sediment control plans, and for the Department of Permitting, Inspections and Enforcement for stormwater management plans.

RESOURCES

- Arbor Day's Tree City USA designation program
- COG Tree Conservation Cookbook
- International Society of Arboriculture: Avoiding Tree Damage During Construction
- Maryland Forest Service: Forest Conservation Technical Manual

Objective 3: Protect the Extent of the Region's Tree Canopy

STRATEGY 7: MAINTAIN TREES & FORESTS FOR CLIMATE RESILIENCE

Routine maintenance can protect communities from storm damage, and having plans in place will assist with pre-storm coordination and efficient post-storm recovery.

WHY IT MATTERS

Trees that are improperly cared for, damaged, or weak can endanger lives and property. Property owners may be found liable for damage caused by poorly maintained trees, and natural disasters can negatively shape public perception of trees. To maximize the benefits of urban trees, jurisdictions should recognize risks posed by trees and implement practices to reduce and recover from them.

Improper maintenance techniques include:

- Allowing diseased or high-risk trees to remain standing
- Topping
- Lion-tailing
- Over- or under-watering
- Volcano mulching
- Planting trees too deeply

LOCAL SUCCESSES AND RECOMMENDATIONS

Private Property

- Educate residents on tree health, storm resilience, and proper maintenance
- Maintain a list of trusted tree care providers that follow accepted planting, pruning, and maintenance standards.
- Promote the use of certified arborists and provide guidance on verifying credentials.
- Consider ordinances that discourage planting species prone to storm failure and protect adequate rooting space where feasible.
- Some insurance companies are requiring home owners to remove trees or limbs. Conduct education for home owners, insurance companies, and realtors about tree inspection by certified arborists as an alternative to tree removal.

Public Property

1. Implement proactive tree management.
    - Conduct regular inspections, prioritize high-risk and high-traffic areas, and follow recommended actions for risk mitigation.
    - Maintain an up-to-date tree inventory documenting condition and hazards.
2. Establish maintenance standards.

- Adopt protocols that prevent topping, lion-tailing, improper watering, volcano mulching, and deep planting.
- Follow accepted planting, pruning, and trimming standards, using current ANSI standards (A300 and Z133)
- Consider requiring managers of public tree programs and private tree care companies to maintain ISA Tree Risk Assessment Qualification (TRAQ) credentials.

3. Prepare for storms and emergencies.
    - Establish response teams with clearly defined roles for public works, emergency management, utilities, municipal arborists, communications staff, procurement personnel, and state partners.
    - Update contact lists and conduct communication exercises annually.
    - Develop a debris management plan that:
        - Identifies staging and disposal sites.
        - Evaluates disposal options, including burning, landfilling, mulching, and composting.
        - Considers wood recovery programs to repurpose salvaged wood.
        - Includes pre-event contracts for hazard tree mitigation and debris hauling.
4. Plant and Maintain Trees and Forests for long-term climate resilience.
    - Remove stakes early to encourage trunk and root development or avoid staking where not necessary.
    - Plant trees in groups where feasible to improve wind resistance.
    - Select storm-resistant and climate-resilient species.
    - Follow established planting, watering, and maintenance guidance.
    - Perform structural pruning every 1 to 3 years while young, and then maintenance inspections every 3 to 8 years once the tree reaches 2" DBH (diameter at breast height), adjusting for species, site, and condition. This will reduce future risk and maintenance costs.

EXAMPLES

1. City of Mount Rainier:

    The Urban Forest Code in Prince George's County requires that *private property* owners obtain a permit if they intend to top, prune more than 25 percent of the crown, or make cuts to trees that are 18 inches or greater in diameter (56.55 inches or larger in circumference) at chest height. By including trees on private property in the tree ordinance, Mt. Rainier is better protecting its tree canopy.

2. City of Alexandria:

   Alexandria's Forest Master Plan defines responsibilities for tree care and storm response. The program manages pruning, tree risk assessments, removals, planting, and emergency response to maintain a healthy and resilient urban forest.

3. DDOT's Urban Forestry Division:

   DDOT assessed the climate vulnerability of DC's street trees and found that 10–25 percent may be at risk from climate change. In response, the agency uses climate vulnerability assessments and developed species-selection guidance to improve the long-term resilience and diversity of the District's urban forest.

4. Fairfax County updated its Public Facilities Manual Chapter 12 *Table 12.14 Tree Selection and Canopy Guide* with tree species that are more environmentally tolerant, native, and commonly available tree species, and eliminating some species that are no longer recommended. It also updates the allowable canopy credit multipliers.

RESOURCES

- Managing Tree Hazards Trees are Good by the International Society of Arboriculture (ISA)
- National Arbor Day Foundation: Do Your Trees Pose a Risk
- Resilience of Trees in Fairfax County VA
- Smart Cities Dive: Prepare Now to Protect Urban Forests from Storms
- Virginia Department of Forestry's Tree Care guide

GOAL 2

Build local and regional capacity to implement effective urban and community forestry programs.

Objective 1: Foster a Skilled Regional Arboriculture and Forestry Workforce

STRATEGY 8: EXPAND WORKFORCE CAPACITY THROUGH EDUCATION, TRAINING, AND PROFESSIONAL DEVELOPMENT

Addressing workforce shortages requires education and training pathways from K–12 through professional development.

WHY IT MATTERS

A skilled and diverse workforce is essential to achieving the region's tree canopy goals. Local governments depend on a range of professionals—from field crews and arborists to planners, managers, and urban foresters—to plant, maintain, protect, and monitor trees and forests. However, workforce shortages persist across the profession. Forestry and arboriculture careers often receive limited attention in K–12 education, while employers face challenges recruiting and retaining workers due to the physical demands of the work, competition from other industries, and the high cost of living in metropolitan Washington. Building a strong workforce requires both cultivating future professionals and supporting the development of existing staff.



Glenarden Woods Elementary Arbor Day, Prince George's County

RECOMMENDED LOCAL ACTIONS

Build the Future Workforce

Increase awareness of forestry and arboriculture careers by creating pathways for students and young adults to gain exposure, experience, and training.

- Partner with middle and high schools, career and technical education programs, and youth organizations to introduce students to forestry and arboriculture careers.
- Support school-based environmental and conservation programs, such as Fairfax County Public Schools' Get2Green initiative.
- Partner with community colleges and universities to strengthen forestry, arboriculture, horticulture, and natural resource curricula and career pathways.
- Develop regional fellowship, internship, and apprenticeship programs that provide hands-on experience and exposure to urban forestry careers.
- Promote existing career camps and training programs, including:
    - Maryland Department of Natural Resources Careers Camp

    - University of Maryland Urban Forestry Career Camp
    - Virginia Department of Forestry's Camp Woods and Wildlife
- Collaborate with tree care companies, nurseries, and nonprofit organizations to create new training opportunities, including paid work experiences, climbing camps, and other skills-based programs.
- Engage youth through extension programs, 4-H, Scouts, conservation organizations, watershed groups, Tree Stewards, Master Naturalists, and other community partners.

Track participation and career outcomes where possible to better understand which programs most effectively encourage long-term careers in forestry and arboriculture.

Strengthen the Existing Workforce

Support current and future employees through professional development, certifications, and strategic workforce planning.

- Assess whether staffing levels, expertise, and funding are sufficient to support tree canopy goals and program responsibilities.
- Evaluate whether forestry programs have the capacity to support emerging needs such as canopy monitoring, land development review, climate adaptation, and community engagement.



District Heights, Prince George's County

- Encourage professional certifications and continuing education opportunities for staff.
- Consider requiring relevant credentials within a specified period after hiring for applicable positions.
- Support training programs offered by organizations such as the International Society of Arboriculture (ISA), Society of American Foresters (SAF), Urban and Community Forestry Society (UCFS), and Tree Risk Assessment Qualification (TRAQ) programs.
- Create career advancement opportunities that improve employee retention and build long-term organizational capacity.

EXAMPLES

1. **The City of Fairfax** City Jobs Program: In partnership with the Lamb Center, the program provides transitional work opportunities for individuals experiencing homelessness and has supported tree planting initiatives through U.S. Forest Service grant funding.
2. **Charles County Resilience Authority Youth Corps Program**: Partners with the Student Conservation Association and Charles County Public Schools to provide paid green job training through tree planting projects.

3. **Arlington County** Park Corps: Introduces high school students to natural resources careers including park management and forestry.
4. **District of Columbia** The Earth Conservation Corps' Tree Corps Program is designed to provide hands-on environmental training, workforce development, and leadership opportunities for young people in Washington, D.C. through U.S. Forest Service grant funding.
5. Rock Creek Conservancy Conservation Corps: Provides hands-on environmental stewardship and workforce development opportunities for young adults.
6. Tree Climbing Academy: Casey Trees partners with Bartlett and Montgomery Parks to offer a one-week paid tree climbing course for young adults 18 and older.
7. Bartlett held a specialized training camp for women in California on using chainsaws, tree climbing, etc. A local opportunity may be with the Maryland DNR's Becoming an Outdoor Woman program.

RESOURCES

Future Workforce Development

- Arbor Day Foundation: Tree Campus K-12 | Arbor Day Foundation
- Sustainable Forestry Initiative: Project Learning Tree

Professional Development and Certifications

- International Society of Arboriculture: Types of Credentials
- Society of American Foresters: Certification & Education
- Urban & Community Forestry Society: Accreditation

Objective 2: Build and Maintain Robust Budgets

STRATEGY 9: ALIGN BUDGETS WITH PROGRAMS AND PLANS TO ADEQUATELY MANAGE URBAN AND COMMUNITY FORESTS

Stable and diversified funding aligned with program priorities, and across departments, ensures program effectiveness.

WHY IT MATTERS

Jurisdictions need consistent budgets to plan and execute programs that adaptively manage threats to trees and forests, implement effective tree planting and maintenance programs, and be shielded from economic downturns.

RECOMMENDED LOCAL ACTIONS

- **Align funding with program priorities.**
  Use budgeting approaches that tie investments to community priorities and desired outcomes. Regularly evaluate forestry programs to ensure funding supports tree canopy goals, responds to community needs, and aligns with broader local government objectives.
- **Diversify funding sources**
  - Relying on a single funding source can limit program stability. Local governments can support forestry programs through general tax revenue (assessments, and special tax districts); Capital Improvement Projects (CIP); stormwater utility fees; grants; permit and inspection fees; municipal bonds; compensatory payment (land development mitigation fees and environmental fines); and miscellaneous funding sources (e.g., Adopt-a-Tree, tree trust, memorial or honor tree program, utility bill donations, tree designated license plates). While CIP funding can support major planting and infrastructure projects, additional funding is often needed for staffing, equipment, and long-term maintenance.
- **Coordinate across departments.**
  Integrating tree canopy goals into transportation, utilities, stormwater, parks, and development projects can reduce costs, improve efficiency, and help conserve existing trees. Early coordination creates opportunities to avoid conflicts, protect tree assets during construction, and plan for replacement plantings.
- **Maintain partnerships with non-governmental and volunteer organizations.**
  - Partner organizations can strengthen capacity, public support, and improve access and use of grants and other funding opportunities.
- **Use data to document needs and demonstrate results.**
  - Canopy assessments, inventories, service records, and performance measures can help local governments establish funding needs, track outcomes, and communicate the value of forestry investments.

EXAMPLES

1. **Arlington County's—MS4 Stormwater Utility Fee**
   Since 2008, Arlington County has used its stormwater utility fee to support tree planting. The county's MS4 permit requires the planting of at least 2,000 trees on public land and 2,000 trees on private property through county programs. This approach advances canopy goals while also reducing stormwater runoff and flooding.

3. **The City of Fairfax —Combined Stormwater and CIP Funding Built Forestry Program Capacity**
   The City of Fairfax used stormwater utility funds to establish an Urban Forester position and capital improvement project (CIP) funding to support program startup, tree planting, invasive species management, and development of its Urban Forest Master Plan. The master plan helped justify consolidating forestry funding into a permanent operating budget.
4. **District of Columbia— Partnership with NGO, Casey Trees**
   District Department of Transportation's (DDOT's) Urban Forestry Division leads tree planting and maintenance on public land, and with support of the City's Tree Fund, partners with the District Department of Energy and Environment (DOEE) and Casey Trees provides free tree planting on private property. Casey Trees complements these efforts through fundraising, nursery operations, volunteer engagement, and advocacy for urban forestry funding.
5. **Montgomery County's Tree Canopy Law and the Tree Montgomery Shade Tree Planting Program**
   Montgomery County's Tree Canopy Law requires mitigation for disturbances during development activity to environmental resources, including mitigating for increases in impervious surfaces and stormwater, compaction of soils, and loss of trees and forests. Based on the area of disturbance, mitigation is required in the form of large shade tree plantings on site or payment into a dedicated tree fund. The Law requires the County to use the dedicated funds to plant large shade trees. These trees are installed on all types of properties across the county at no cost to the owners. The program is administered jointly by the Department of Permitting Services and the Department of Environmental Protection and supports thousands of new tree plantings annually.

RESOURCES

- Arbor Day Foundation: How to Fund Community Forestry and Arbor Day's Tree City USA
- Public Finance Journal: The Promise of Enhanced Public Engagement for Priority-Based Budgeting
- The Environmental Finance Center at the University of Maryland and the Alliance for the Chesapeake Bay: Financing Urban Tree Canopy Programs: Guidebook for Local Governments in the Chesapeake Bay Watershed
- Urban & Community Forestry Society: Accreditation

Objective 3: Maximize Partnerships

STRATEGY 10: LEVERAGE PARTNERSHIPS TO ACHIEVE CANOPY GOALS

Leverage partnerships to enhance community engagement, advocacy, policy development, pursuit of funding opportunities, and data sharing.

WHY IT MATTERS

Partnerships are essential to building the capacity needed to protect and expand tree canopy. They help jurisdictions secure funding, strengthen the workforce, access resources, and engage communities. Expanding partnerships can also increase involvement from residents and private property owners in tree planting, care, and forest management.

RECOMMENDED LOCAL ACTIONS

Methods to seek and establish partnerships may include:

- Attend community organization meetings, networking opportunities, and other local events and connect with their leaders and members.
- Share program details and welcome feedback regarding potential improvements and partnership opportunities.
- Identify goals, needs, and capacities that are shared by a potential partner and the jurisdiction program.
- Communicate with other surrounding jurisdictions, or jurisdictions of similar size and structure, to learn about their programs, approaches, and seek opportunities for collaboration.

COG jurisdictions have established strong partnerships with non-profit conservation and tree planting organizations and other public and private entities. Many COG jurisdictions have Tree Commissions consist of volunteer community members that assist in guiding urban forestry efforts.
Non-profit environmental advocacy groups tend to be remarkably effective at developing community outreach and educational programs and encouraging local volunteers to take part in neighborhood tree planting and tree care projects. Organizations to collaborate with may include:

- Non-profit organizations
- State forestry departments
- Land management agencies
- Electric, gas, sanitation and water authorities
- Building industry associations
- Tree care trade organizations
- Landscape and nursery trade organizations
- Large private and institutional landholders
- Elected officials
- Residents and community organizations including schools, civic groups, volunteers, homeowner associations (HOAs), community health centers and advocates, and faith-based organizations
- State and federal lands

It takes a network of dedicated partners to grow and sustain a healthy urban forest.

-Casey Trees

- Neighborhood action groups

In forming partnerships with new entities, including philanthropic and for-profit entities, local governments should be prepared to articulate their priorities, expenses, and desired outcomes from the partnership.

Because much of the region's tree canopy is located on privately owned land, achieving canopy goals requires sustained partnerships with residents, businesses, institutions, homeowner associations, faith communities, and other landowners (See Appendix Figure 3: Why Private Property Matters).

EXAMPLES

The examples below demonstrate how local governments, nonprofit organizations, community groups, volunteers, and other partners are working together to protect, maintain, and expand tree canopy across the COG region.

1. Anacostia Watershed Society: Works to restore the Anacostia River and its surrounding environment. They engage in seed collection and tree planting to enhance the green spaces in the watershed.
2. Bowie's Plant One Tree On Us Program: City residents can partner with a contractor to select a native tree, decide where it should go, and have it planted for free.
3. Chesapeake Bay Foundation: Advocates for state legislation to help to protect and manage trees and forests, and partners on local projects and tree plantings.
4. Chesapeake Bay Trust: Manages Maryland's Urban Trees Mini Grant program
5. Chesapeake Climate Action Network (CCAN): Partners with Casey Trees on invasive vine removal.
6. Earth Sangha: Works to restore native plant populations in the region, with a focus on restoring forests, meadows, and wetlands. They partner with local, state, and federal governments to protect local habitats and to be a comprehensive source of local-ecotype plants.
7. Fairfax ReLeaf: A nonprofit organization in Fairfax County, Virginia, dedicated to planting and conserving trees. They conduct seed collection drives and tree planting events to improve the urban forest.
8. Maryland Urban and Community Forestry Committee (MUCFC): The Maryland DNR's MUCFC provides grants and technical assistance to local governments and organizations for tree planting and maintenance projects.
9. Plant NOVA Natives: A volunteer coalition with native plant and tree information for Northern Virginia residents.
10. The Neighborhood Design Center: Designs equitable, environmentally focused neighborhood plans that support area communities in increasing trees. Example: Prince George's Right Tree, Right Place program.
11. Tree Montgomery: Provides large shade trees, installed at no cost, across Montgomery County. The program works closely with property owners to plant the right trees in the right locations. While 80 percent of the trees are planted on private residential properties, trees are also planted at businesses, public and private schools, congregations, county facilities, and most other property types.

12. Tree Stewards of Arlington and Alexandria: Trains individuals to become tree stewards, who assist with tree planting, maintenance, and seed collection efforts in their communities. They also help give away trees.

RESOURCES

- Casey Trees: It Takes a Network of Dedicated Partners to Grow and Sustain a Healthy Urban Forest
- Institute for Local Government: Partnering with CBOs for More Broad-Based Public Engagement
- Potomac Conservancy
- Trees Virginia, Virginia's Urban Forest Council
- Virginia Cooperative Extension
- University of Maryland Extension Program
- University of North Carolina at Chapel Hill: Strengthening Relationships between Local Governments and Nonprofits

CHAPTER 3: IMPLEMENTING THE ACTION PLAN

Achieving and sustaining the region's tree canopy goal will require long-term commitment, collaboration, and investment. While every jurisdiction faces unique challenges, the strategies outlined in this Action Plan provide a practical framework for protecting existing trees and forests; expanding canopy where it is needed most; and building the capacity required to manage these resources over time. By integrating tree conservation into local decision-making, strengthening partnerships, engaging communities, and coordinating efforts across the region, local governments can ensure that trees continue to deliver greener, healthier, and more resilient communities across metropolitan Washington.

I. Local Government Roles

In the face of development pressures and climate change, local governments are being asked to:

- Establish or update local canopy goals in alignment with the regional goal
- Track and communicate progress
- Incorporate actions into local plans, budgets, regulations, and work programs
- Expand interagency coordination and hone partnerships

A. Proactive Interagency Coordination

Tree and forest management affect many local government functions and policies. To maximize success, tree conservation should be integrated into existing plans and decision-making processes, including:

- Climate and environmental plans
- Natural resource management policies
- Land use and zoning regulations
- Transportation and infrastructure planning
- Watershed management programs
- Budget and capital improvement planning
- Utility vegetation management
- Hazard/high-risk tree policies and Emergency Management
- Public health and environmental health programs

Regular coordination among departments can help identify overlapping projects, clarify responsibilities, streamline workflows, and improve tree protection and replacement efforts. Coordination is particularly important for transportation, stormwater, and development projects where tree impacts often extend across agency boundaries.

B. Effective Communication

Building support for urban forestry requires clear, targeted, and ongoing communication.

- **Tailor Messages to the Audience**

  Audiences value trees for varied reasons. Communication should reflect the interests and needs of the audience, whether elected officials, planners, developers, residents, schools, community organizations, or volunteers. Use communication channels that each audience prefers and trusts.



Bald Cypress trees, Prince George's County

- **Communicate Opportunities for Involvement**

  Share local canopy goals, progress, and ways residents can participate through activities such as tree planting, invasive species removal, stewardship programs, and advocacy efforts. Monitor feedback and engagement to improve future outreach.

- **Prioritize Engagement, Not Just Outreach**

  Meaningful engagement builds trust, strengthens partnerships, and increases stewardship. Listening to community concerns, including maintenance costs, liability, and property impacts, can help local governments develop solutions that address barriers to tree planting and care.

- **Frame Trees as Critical Infrastructure Assets**

  Trees are infrastructure assets and capital improvements and require long-term investment and regular maintenance. But unlike most infrastructure, they appreciate in value over time. Quantifying benefits and avoided costs can strengthen budget and policy discussions.

II. COG's Implementation Support as Regional Coordinator

As the region's convener, COG will support its members in implementing this Action Plan by:

- Convening the Regional Tree Canopy Subcommittee (RTCS).
- Sharing best practices, research, and funding opportunities.
- Tracking regional and local canopy trends every five years using Chesapeake Bay Program data. Further analysis of drivers of canopy loss and trends by land ownership (public versus private) would be valuable.
- Monitoring other indicators of forestry program progress and regularly reporting them to COG members.
- Facilitating workshops and peer learning opportunities.
- Supporting regional education, outreach, and messaging efforts.

FIGURES AND TABLES

Figure 1: Why Trees Matter

Trees and forests are critical infrastructure that support healthy, resilient, and prosperous communities.

Research consistently shows that trees:

- Store carbon and support climate goals
- Reduce urban heat and provide shade
- Reduce energy use and cooling costs
- Improve air quality
- Reduce stormwater runoff and flooding
- Provide wildlife habitat and ecological benefits
- Increase property values and neighborhood attractiveness
- Strengthen community cohesion and quality of life
- Improve physical and mental health

In the COG region, tree canopy provides $8.26 million in annual benefits for air pollution removal, stormwater capture, and carbon sequestration alone, according to the i-Tree model (State of Chesapeake Forests using 2021 CBP data and i-Tree Landscaping Tool). This valuation does not account for additional tree canopy benefits such as increased property values, neighborhood cooling, energy savings, physical and mental health benefits, and lifetime carbon storage, nor ecological and habitat benefits.

Visit these websites to learn more about the benefits of trees:
https://www.itreetools.org/cta-tree-benefits
https://www.arborday.org/value
https://treepeople.org/22-benefits-of-trees/

Figure 2: Tree Canopy Multi-tool

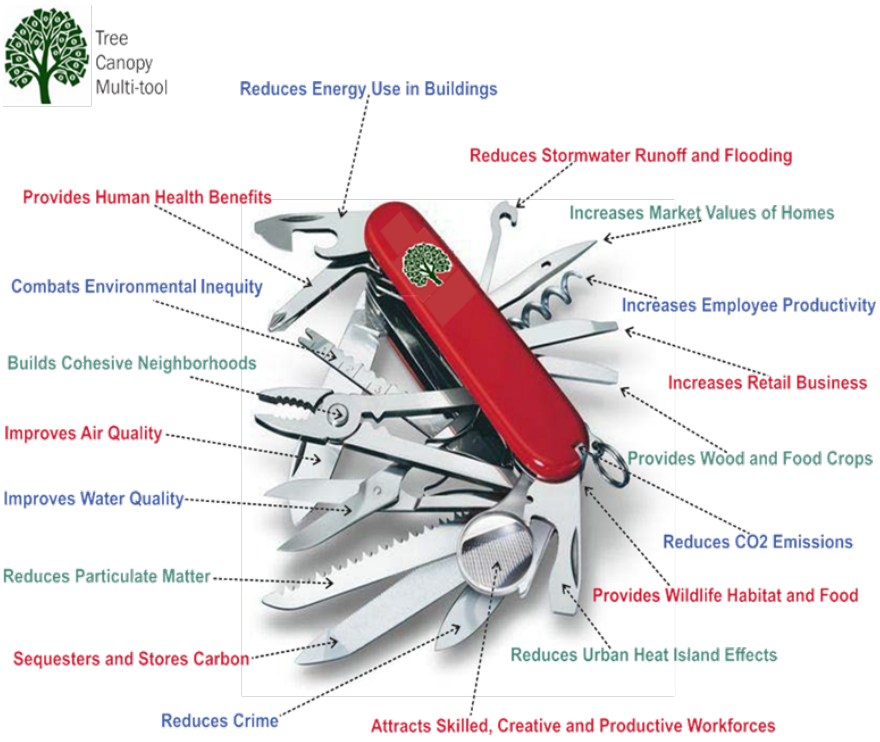


Figure 3: Why Private Property Matters

Forests in the Chesapeake Bay States (NWOS 2023)

	Maryland	New York	Pennsylvania	Virginia	West Virginia
Forested Acres	2.45M Ac (31% of the state)	19M Ac (63%)	16.9M Ac (59%)	13M Ac (51%)	12M Ac (77%)
Privately Owned	2.2M Ac (89%)	14.4M Ac (76%)	11.5M Ac (68%)	9.8M Ac (75%)	6.5M Ac (54%)
Nu Ov	*89 percent of the forested acres in Maryland are privately owned, and 75 percent of the forested acres in Virginia are privately owned.				
Co	USDA Forest Service National Woodland Ownership Survey (2023)				
Management Plan	11.6% (39.6% 10+)	2.6% (7.2% 10+)	2.1% (5.9% 10+)	4% (13.5% 10+)	4% (8.3% 10+)
Harvesting (includes firewood)	42%	78%	69%	79%	72%
Land Protection	4.1%	4.2%	2.3%	4.2%	0.7%
Top Reasons for Owning	Nature protection, Beauty, Privacy	Nature protection, Privacy, Wildlife habitat	Beauty, Wildlife habitat, Nature protection	Nature protection, Privacy, Raise a family	Nature protection, Beauty, Privacy

APPENDIX WITH ADDITIONAL RESOURCES

COG Resources

Conserving Tree and Forests in Metropolitan Washington
Environmental Justice Toolkit 2.0
National Capital Region Partnership for Invasive Species Management (Nat Cap PRISM)
Tree Canopy Management Strategy
Tree Conservation Cookbook

GOAL 1
Strategy 1: Make Data-Informed Decisions

For Setting and Tracking Tree Canopy
Chesapeake Bay: Tree Cover Status and Change Fact Sheet Data Guide
Chesapeake Tree Canopy Network
Davey: TreeKeeper Inventory Management Software
Arlington: Tree Canopy Study Shows Modest Gains
Urban Tree Canopy Assessment: A Community's Path to Understanding and Managing the Urban Forest
State of Chesapeake Forests

For Tree Inventories
NOAA: A Step-by-Step Guide to Taking Urban Forest Inventory Measurements
PlanIT Geo: The Difference Between Tree Inventories and Tree Canopy Assessments
USDA Forest Service: Forest Inventory and Analysis

For Accreditations
Arbor Day Tree City
Urban & Community Forestry Society (UCFS)

Strategy 2: Prioritize Tree Planting in Low Canopy Areas and Align Efforts with Community Values

Tree Access for All
American Forests Vibrant Cities Lab Tree Equity Handbook

Human Health Benefits
The University of Chicago Department of Psychology: Marc Berman Thinks You Should Take a Walk in the Park
World Health Organization: Improving Health and Well-Being through Nature
Healthy Trees, Healthy Lives: Trees can Boost your Health in Surprisingly Diverse Ways
International Society of Arboriculture: Trees Are Good
USU Extension Forestry: Health Benefits of City Trees: Research Evidence & Economic Values .
Arbor Day Foundation: Tree Campus Healthcare
Children & Nature Network

Community Resources
The Giving Grove for Building Orchards
Arbor Day Foundation Implementation Templates

Research Papers
Geoffrey H. Donovan, Jeffrey P. Prestemon, Demetrios Gatziolis, Yvonne L. Michael, Abigail R. Kaminski, Payam Dadvand. *The association between tree planting and mortality: A natural experiment and cost-benefit analysis.* .Environment International, Volume 170 (2022). https://research.fs.usda.gov/treesearch/65639
Urban Trees and Human Health: A Scoping Review
Published in the *International Journal of Environmental Research and Public Health*, this is an extensive literature review of urban trees and human health impacts.

Heat Islands
Alonzo, Michael, Ibsen, Peter, and Locke, Dexter. Urban Trees and Cooling: A Review of the Recent Literature (2018 to 2024**).** Arboriculture & Urban Forestry (AUF). (2025)**.** https://doi.org/10.48044/jauf.2025.023

Garcia, H. C., Graffy, P. M., Barrett, B. W., Visa, M. A., Jia, J., Mallen, E., et al. (2026). *Increasing urban tree canopy associated with reduced mortality: A longitudinal analysis of Chicago neighborhoods*. *GeoHealth*, 10, e2025GH001651. https://doi.org/10.1029/2025GH001651

Heat.gov

Ock, Y., Shandas, V. The hottest areas in U.S. cities are losing the most greenery. *npj Urban Sustain* **6**, 26 (2026). https://doi.org/10.1038/s42949-025-00330-9

Strategy 3: Manage Invasive Plant Species

Public information, trainings, and programs
Casey Trees: Invasive Species
Rock Creek Conservancy Weed Warriors Training Program
U.S. Forest Service: Tree Search
Loudoun County's invasive plant species management program provides grants to residential and commercial land owners to remove invasive plants.
Early Detection and Rapid Response
Fairfax County: Early Detection and Rapid Response
Maryland Invasive Species Council: Invasive Species in Maryland.
Mid-Atlantic Invaders Tool: Search Tool
Urban & Community Forestry Society: Accreditation

Research Papers
Epanchin-Niell, R.S. Economics of invasive species policy and management. Biol Invasions 19, 3333–3354 (2017). https://doi.org/10.1007/s10530-017-1406-4

Panetta, F. & Gooden, B. (2017). Managing for biodiversity: Impact and action thresholds for invasive plants in natural ecosystems. NeoBiota, 34: 53-66. https://doi.org/10.3897/neobiota.34.11821.

Strategy 4: Defend Against Pests and Diseases

District of Columbia: DC Forest Action Plan - Urban Forest Strategy
Casey Trees: DC's Disappearing Forests
USDA Forest Service: Alien Forest Pest Explorer

Research
Invasive Species in Forests and Rangelands of the United States: A Comprehensive Science Synthesis for the United States Forest Sector (Poland, et al., 2021)
National Park Service: Stephanie Perles Research Profile
USDA Forest Service: Tree Search

Strategy 5: Boost Seed Collection and Tree Supply

Local Seed Collection
Tree Montgomery: Why Plant Shade Trees?
Fairfax Releaf: Free Trees
Earth Sangha: Our DC-Area Restoration Work
Center for Plant Conservation: Collecting Seeds from Wild Rare Plant Populations
Maryland Environmental Trust: Landmarks

Tree supply
Casey Trees: Our Tree Farm Nurtures Our Region's Trees

Strategy 6: Develop and Enforce Protective Development Ordinances

Biophilic Cities: Policy Advisory for Protecting Mature Urban Trees on Private Lands
Casey Trees Conservation Easements: Land Conservation
Fairfax County: Protecting Your Trees During Neighboring Construction
International Society of Arboriculture: Guide for Plant Appraisal
NC State Extension: Construction and Tree Protection *Note: It factors depreciation of plant value, whereas tree value appreciates.*
Prince George's County: 2018 Environmental Technical Manual - Prince George's County Planning Department
The Morton Arboretum: 21st Century Ordinance Builder for Tree Protection
Tree Matrix: How Tree Matrix Works
Virginia Law: Chesapeake Bay Preservation Act (CBPA)

Research Papers
Greening Development: Reducing Urban Tree Canopy Loss Through Incentives. Elise M. Willis, et al. Journal of Urban Forestry and Urban Greening 91 (2024) 128184.

Pike, Kaitlyn & O'Herrin, Keith & Klimas, Christie & Vogt, Jess. (2020). Tree conservation during construction: An evaluation of a comprehensive municipal tree ordinance. https://doi.org/10.1016/j.ufug.2020.126914.

Strategy 7: Maintain Trees and Forests for Resiliency

Storm Preparedness
University of Florida IFAS Extension: Wind and Trees: Lessons Learned from Hurricanes
Southern Group of State Foresters: Increasing Public Safety and Retaining Viable Urban Tree Canopy
USDA Forest Service: Forest Ecosystem Atlas

Wind Resiliency
Duryea, Mary L., Eliana Kampf, Allyson Saisbury, Rich Hauer, Ryan W. Klein, Michael Andreu, Andrew Koeser, and Alyssa Vinson. (2007) 2026. "Wind and Trees: Lessons Learned from Hurricanes: FOR 118 FR173, 3 2026". *EDIS* 2026 (4). Gainesville, FL. https://doi.org/10.32473/EDIS-FR173-2007.

GOAL 2

Strategy 8: Expand Workforce Through Education, Training, and Professional Development

Fairfax County Government: Arbor Day at Mount Eagle Elementary School
Urban Forestry: Advancing the Urban Forestry Profession through Research
International Society of Arboriculture: Careers in Arboriculture
Urban & Community Forestry Society: Mentoring Program
Urban & Community Forestry Society: Arborist Exchange Program

Strategy 9: Align budgets with programs and plans to adequately manage urban and community forests

Priority Based Budgeting
Envisio: The Advantages and Disadvantages of Priority Based Budgeting
Budget development
Commonwealth of Virginia Department of Environmental Quality: Authorization to Discharge under the Virginia Stormwater Management Program and the Virginia Stormwater Management Act
Arlington County Government: MS4 Stormwater Permit
PlanIT Geo: Local, County, and State Governments

Funding
Casey Trees: 7,000 Trees and Counting: Our 2025 Impact by the Numbers
Casey Trees: We've Planted 60,000 Trees and Counting
Casey Trees: Get to Know DC's Urban Forestry Division
Tree Montgomery: Montgomery County Tree Canopy Law FY24 Annual Report
Maryland Department of Natural Resources Watershed & Climate Services: Chesapeake and Atlantic Coastal Bays Trust Fund *Note: The Fund is intended to accelerate Maryland's Chesapeake Bay restoration efforts. This is one of the primary funding sources for the Frederick County Creek ReLeaf program.*
Virginia Trees for Clean Water Program

Strategy 10: Leverage Partnerships to Achieve Canopy Goals

Communicating Tree Benefits

- Borealis Solutions: Understanding the Ecosystem: A Comprehensive Guide to Stakeholders in Forestry
- iTree tools
- PlanIT Geo: How to Communicate the Benefits of Trees to Your Community
- PlanIT Geo: Turning Government Leaders into Tree Supporters
- Simply Stakeholders: Stakeholder Communication: Benefits, Best Practices, and Management