

# CONSERVING TREES AND FORESTS IN METROPOLITAN WASHINGTON REGION

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## Regional Tree Canopy Goals

**Jeffrey King, Director, COG Climate Energy and Air Programs**

Michael Knapp, Chair, CEEPC Regional Tree Canopy Subcommittee

Brian LeCouteur, COG Urban Forester

Gary Allen, Maryland Forestry Foundation

Mark Buscaino, Casey Trees

Climate Energy and Environment Policy Committee (CEEPC)

March 27, 2024

# Briefing Outline

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- **Background and Committee**
- **Report Sections and Contents**
- **Canopy Goals**
- **Regional Leadership and Success Stories**
- **Recommendations and Resolution**

# Background

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## History of COG Tree Canopy Initiatives

- 2008 National Ambient Air Quality Standards (NAAQS) for Ozone
- Voluntary Measure - State Implementation Plan (2005)
- 2012 COG-Climate Energy environment Policy Committee (CEEPC)
  - ✓ Ad-hoc Regional Tree Canopy Workgroup Established
  - ✓ Tree Canopy Management Strategy Developed (2018)
- 2019 COG Board Establishes Regional Tree Canopy Subcommittee under CEEPC
  - ✓ Regional Resource Guide on Tree and Urban Forest Conservation (Cookbook)  
(Based on recommendations contained in 2018 report)
  - ✓ Regional Tree Canopy Goals

Regional Tree Action Plan (Upcoming)

# COG Board of Directors Resolution R7-2019 (RTCS)

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## COG Board of Directors Resolution R7-2019 February 13, 2019

“The board endorses the establishment of a Regional Tree Canopy Subcommittee of CEEPC...which would be charged with protecting, managing, and expanding urban forestry assets for health and quality of life; optimizing urban forest programs; **developing a regional urban forest action plan and canopy goals**; inspiring the community to take ownership of efforts to protect and expand urban forests; and integrating urban forestry with Region Forward and meeting Chesapeake Bay water quality goals.”

# COG Regional Tree Canopy Subcommittee

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## **District of Columbia:**

District of Columbia, James Woodworth  
District of Columbia, Earl Eutsler  
District of Columbia, Stephen Gyor  
Casey Trees, Mark Buscaino

## **Maryland:**

Montgomery County, Michael Knapp \*  
Maryland Department of Natural Resources, Iris C. Allen  
Prince George County MNCPPC, Kim Finch  
City of Bowie, Rick Kellner  
Montgomery County, Laura Miller  
Frederick County, Shannon Moore  
Department of Natural Resources, Anne Hairston-Strang  
Maryland Sustainable Forestry Council, Gary Allen

## **Virginia:**

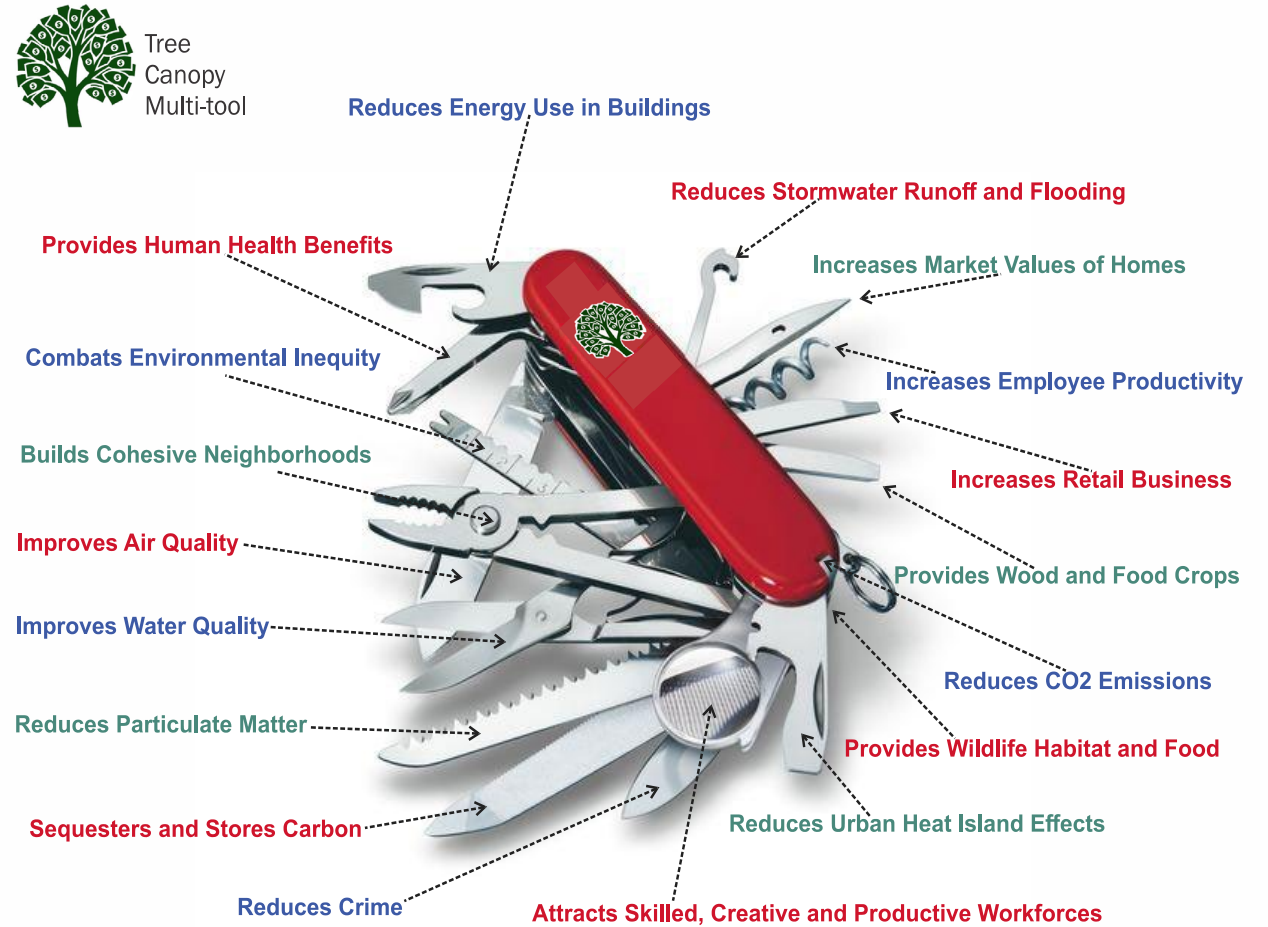
Fairfax County, Charles Smith  
Department of Forestry, Jim McGlone  
Fairfax County, Brian Keightley  
Loudoun County, Kyle Dingus,  
City of Falls Church, Kate Reich  
Arlington County, Vincent Verweij

## **COG Staff:**

Brian LeCouteur, RTCS Staff Liaison  
Jeffrey King  
Karl Berger  
Phong Trieu  
Kelsey Boatwright

# Hyper-functionality of Trees

Over four decades of research demonstrates that trees and forests contribute significant levels of environmental and ecological services and should be regarded as an indispensable component of public infrastructure. More recent research has revealed the positive relationships between urban forests, public health, equitable communities, and vibrant economies.



# Current Canopy Levels and Recent Trends

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Tree Canopy in the report corresponds to four classes of land cover\* associated with forests, woodlands and individual trees.

A national analysis conducted by the U.S. Forest Service in 2014 found that 40% to 60 % urban tree canopy is attainable under ideal conditions in forested states.

Current tree canopy coverage for entire COG membership area (2,213,976 acres) is estimated at 49.6%\*

Regional tree canopy loss detected between 2014 and 2018 was 17,133 acres, or an average of 4,383 acres of tree canopy loss each year.\*

If 2014/2018 loss trend were to continue until 2050 the total area canopy loss would equal 119,932 acres

\*Chesapeake Bay Program Land Use/Land Cover Project (CBP 2022 LULC Project).

# Jurisdictional Canopy Levels and Recent Trends

	Jurisdiction	Total Acreage of Jurisdiction w/o bodies of water <sup>#</sup>	Acres of Tree Canopy 2014	Acres of Tree Canopy 2018	% Tree Cover 2014	% Tree Cover 2018	Acres of Tree Canopy Gain/Loss
1	Arlington County, Virginia	16,638.28	5,647.7	5,655.3	33.9%	34.0%	7.6
2	Charles County, Maryland	292,971.63	198,908.4	198,119.6	67.9%	67.6%	788.9
3	Fairfax County, Virginia	250,252.38	140,120.1	139,299.2	56.0%	55.7%	821.0
4	Frederick County, Maryland	422,776.31	179,592.1	181,709.0	42.5%	43.0%	2,116.8
5	Loudoun County, Virginia	330,071.15	147,938.1	145,075.4	44.8%	44.0%	2,862.7
6	Montgomery County, Maryland	315,589.05	153,264.0	147,479.5	48.6%	46.7%	5,784.4
7	Prince George's County, Maryland	308,890.48	168,099.1	160,808.4	54.4%	52.1%	7,290.7
8	Prince William County, Virginia	214,563.21	122,543.7	121,310.1	57.1%	56.5%	1,233.6
9	City of Alexandria, Virginia	9,558.58	2,639.3	2,658.1	27.6%	27.8%	18.8
10	District of Columbia	39,120.61	15,235.8	14,760.3	38.9%	37.7%	475.5
11	City of Fairfax, Virginia	3,993.88	1,636.5	1,626.6	41.0%	40.7%	9.9
12	City of Falls Church, Virginia	1,309.72	541.1	536.4	41.3%	41.0%	4.6
13	City of Manassas, Virginia	6,299.49	1,502.4	1,498.9	23.8%	23.8%	3.5
14	City of Manassas Park, Virginia	1,941.63	426.0	424.6	21.9%	21.9%	1.4





# Potential Future Canopy Levels

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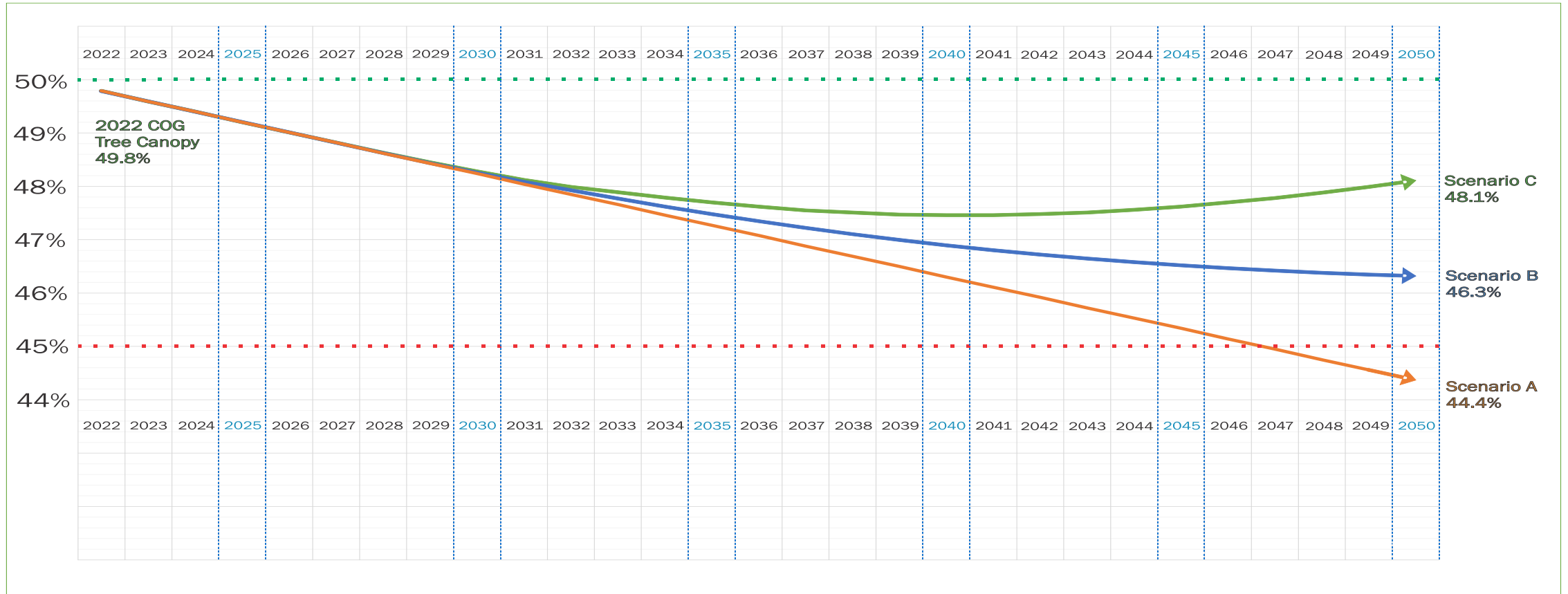
The 2014/2018 trendline provides an opportunity to project future canopy levels and to assess the impacts of different methods of tree conservation.

Three alternative projections for 2050 based on different levels of tree preservation, tree planting, and post-planting quality assurance/replacement practices.

- Scenario A uses 2014/2018 trendline to plot possible canopy trends through 2050. Projects 2050 canopy level at 44.4%
- Scenario B plots impact of planting 109,300 each year in GOG region and increasing tree preservation associated with land development by 5%.
- Scenario C plots impact of planting 206,000 trees planted each year and increasing tree preservation associated with land development by 10%

# Possible Gains/Losses

Graph 1: Projected Changes to COG Region Tree Canopy 2022 to 2050



# Tree Canopy Loss has Consequences

## Environmental Services and Benefits Associated with a 10% loss of Existing Canopy

	<b>Annual Air Pollution Removal in LBS</b>	<b>Gallons of Stormwater Runoff Reduced Annually</b>	<b>Tons of Carbon Sequestered Annually</b>
<b>Service</b>	7,983,710/year	616,171,576/year	141,842 tons/year
<b>Monetary Benefit</b>	\$9,643,014/year	\$5,579,099/year	\$26,569,310 tons/year
<b>Accumulated Service over 29-years</b>	231,527,592 lbs.	17,868,975,699 gallons	3,546,051 tons
<b>Monetary Benefit over 29-years</b>	\$279,647,415	\$161,793,881	\$770,510,000

Source: Understanding Your Canopy. Chesapeake Tree Canopy Network. Services and monetary benefits extrapolated from 2018 tree cover data using iTree Landscape software. <https://chesapeaketrees.net/understand-your-canopy/>

# Tree Canopy Goal Recommendations

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The RTCS report recommends three tiers of goals:

- 1. An overarching goal of 50%.** This identifies the minimum percentage of tree canopy coverage recommended for the entire COG membership area. The time covered - present day until 2050.
- 2. Intermediate Goals based on Population Density and Urbanization.** These goals are provided to help communities identify tree canopy goals for watersheds, planning districts, census tracts, and towns and smaller cities.
- 3. *Smaller Scale Target Goals for General Land Use Categories:*** These target goals identify mature canopy coverage levels that associated with 18 general classes of land use categories encountered in the COG region.

The intermediate and smaller scale target goals reflect a “*take care of the pennies and the dollars will take care of themselves*” approach to achieving and sustaining the regional goal.

# Intermediate Goals: Population Density and Urbanization

Human Population Density *	Land Use Description	Tree Canopy Base Percent (2018)	Tree Canopy Target (2050)
Urban Centers			
> 3,000	Densely urbanized	33.5%	35% – 40%
1,500 to 2,999	Urbanized	39.2%	40% – 45%
< 1,500	Suburban/Residential	38.5%	45% – 55%
Other Areas			
> 2,000	Densely Urbanized	40.2%	35% – 45%
1,000 to 2,000	Urbanized	56.7%	55% – 60%
700 to 999	Partly urbanized	56.3%	55% – 60%
300 to 699	Suburban/Residential	50.4%	55% – 60%
< 299	Exurban / Transitioning from agricultural	54.9%	50% – 55%
< 299	Exurban areas – active agriculture	44.8%	40% – 45%

\* Per Square Kilometer OR Per 0.4 Sq. Miles OR Per 260 acres

# Target Goals for General Land Use Categories - 1

No	Land Use <i>Type</i>	Examples and Considerations	2018 Canopy Levels	Target Goal 2050
1	Residential, Low	Detached homes, either single-family or duplex. Primary land use type hosting tree canopy	52%	55%
2	Residential, Medium	Single Family homes with medium yards. Attached homes, such as townhomes or single/double storied multi-family buildings	47%	50%
3	Residential, High	Single family homes with narrow setbacks, townhomes, high-rise condominiums & apartment buildings with parking lots and limited open space	36%	35%
4	Residential, Urban High	High rise condo buildings & apartment buildings only	No Data	25%
5	Commercial, Low	Single or double-story buildings, sometimes with parking lots, e.g., office parks	23%	35%
6	Commercial, Medium	Multi-story buildings, with parking lots and/or small parking garages	23%	30%
7	Commercial, High	High rise commercial	23%	25%
8	Mixed Use (Medium)	Commercial mixed with residential or other compatible uses, including high density mixed use. Varied definitions across COG jurisdictions	38%	40%
9	Mixed Use, High	RTCS added this category to differentiate from the conventional Mixed-Use category	38%	25%

# Target Goals for General Land Use Categories - 2

No	Land Use Type	Examples and Considerations	2018 Canopy Levels	Target Goal 2050
10	Industrial and Railway	Manufacturing, Industrial parks, quarries/asphalt/concrete plants, railways, and their immediate rights-of-way	32%	<b>30%</b>
11	Park, Low Development	Natural parks with trails, and minimal constructed facilities (nature centers, bathrooms) and arboreta	No Data	<b>80%</b>
12	Park, Medium Development	Passive recreation (cemeteries, gardens, and golf courses)	No Data	<b>40%</b>
13	Park, High Development	Sports fields, paved plazas, heavy traffic urban parks with high density of buildings	No Data	<b>30%</b>
14	Local Roads	Leading to residential or connecting small residential roads, low speed	No Data	<b>20%</b>
15	Arterials	Transportation within a local community, medium speed	No Data	<b>15%</b>
16	Freeways and Highways	Interstate Transportation, high speed	No Data	<b>15%</b>
17	Airports, Quarries, Landfills & Uses Restricting Tree Growth	Often have space to plant buffers and in areas dedicated to arrivals/departures, parking lot landscaping and pedestrian areas	No Data	<b>10%</b>
18	Agricultural	Consider stream buffers and road buffers, not including commercial forests and nurseries	No Data	<b>25%</b>

# Regional Leadership in Forest Preservation: 1990 to Present

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Virginia's  
Leadership  
in Tree  
Conservation

1989 TO  
PRESENT  
MICHAEL  
KNAPP



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# 1989 Tree Conservation Legislation - Virginia State Code

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- The **Virginia General Assembly** enacted two bills that allow local governments to provide for the preservation and replacement of trees.
  - § 15.2-961 **Replacement of Trees** - allows urban localities to require prescribed levels of tree canopy 10-years after the development of residential, commercial and industrial properties. Although focused on tree replacement, this law also allowed credits for preserving existing trees.
  - § 10.1-1127.1. **Tree Conservation Ordinance** - allows localities to regulate the preservation and removal heritage, specimen, memorial and street trees.
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# 2008 Tree Conservation - VA Planning District 8

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- § 15.2-961.1 Conservation of Trees during Land Development places greater emphasis on tree preservation during land development than earlier legislation. Allows localities to give credits for preserving rare and threatened forest communities; planting trees for water quality improvement; energy conservation in buildings; and for providing wildlife benefits. Also allows localities to create a planting fund to use when it is not feasible to plant trees on development sites. Fairfax County, VA adopted a local ordinance based on this legislation in 2009.
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# 2024 Tree Conservation Bills (passed by Senate and House of Delegates)

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- **H 529** Replacement of trees during development process in certain localities. Expands provisions of § **15.2-961** to all Virginia localities
  - **H 1100** (Trees; conservation and replacement during development process). Expands provisions of § **15.2-961.1** to all Virginia localities.
  - Governor's Action Deadline 11:59 p.m., April 8, 2024
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# Maryland's Leadership in Tree Conservation

1990 TO  
PRESENT

GARY G ALLEN,  
PRESIDENT,  
MARYLAND FORESTRY  
FOUNDATION



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# 1990 Prince Georges County – Woodland Conservation Ordinance

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- When it was first introduced, the **Woodland Conservation Ordinance** (WCO) was groundbreaking in the State of Maryland and nationally. It provided, for the first time, direction and requirements with regard to the preservation of trees and woodlands during the land development process. The County had a vision to be a leader in the environmental field, as a way to provide its citizens with the healthiest, most sustainable, and beautiful communities within which to live and work.
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In 1991, the General Assembly of Maryland adopted the **Forest Conservation Act**. At that time, most of the provisions of the Prince George's County ordinance were adopted by the state.



## Goals change 2009 and 2013

- In 2009 the state passed the **Sustainable Forestry Act**
- And
- In 2013 adopted a **No net loss goal** for the FCA



# In response to climate change and GHG reduction

- In **2021** the state adopted the **Tree Solutions NOW Act** to plant **five million additional trees** in the Maryland landscape “The Growing 5 Million Trees in Maryland Plan provides a roadmap that builds on Maryland’s existing investments in climate action, ecosystem restoration, and forest management,” said Suzanne E. Dorsey, deputy secretary of the Maryland Department of the Environment “The plan uses best-available science to track and verify environmental outcomes to maximize the many benefits that trees provide, including carbon sequestration, reduced flooding, improved air and water quality, and reduced heat islands.”

# 2023 **Forest Conservation Act updated**

- SB 526 signed into law in May 2023 includes the most significant changes to Maryland's landmark Forest Conservation Act since the law was passed more than 30 years ago. The new forest protections, among the strongest in the country, received strong bipartisan approval in both the Senate and House of Delegates.

# A step at a time

In every case we set a **goal** provided technical **assistance** and ensured **progress**







# Canopy Goal setting in Washington DC

MARK BUSCAINO,

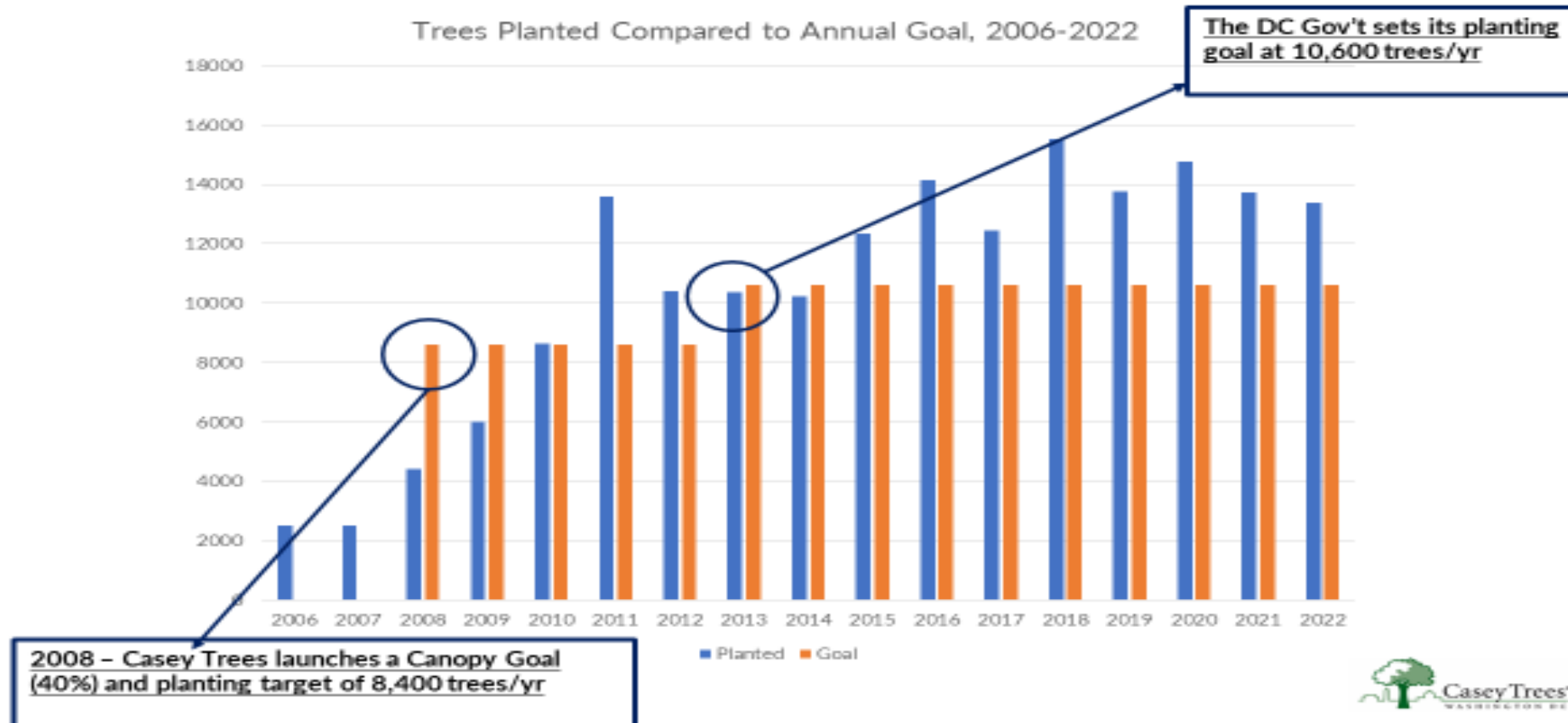
EXECUTIVE DIRECTOR

CASEY TREES



# Regional Potential Based on Local Success Story

## RESULTS – TREE PLANTING

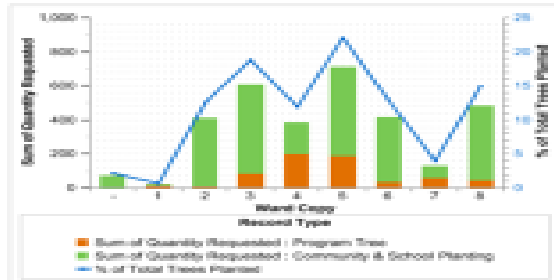


# Regional Potential Based on Local Success Story

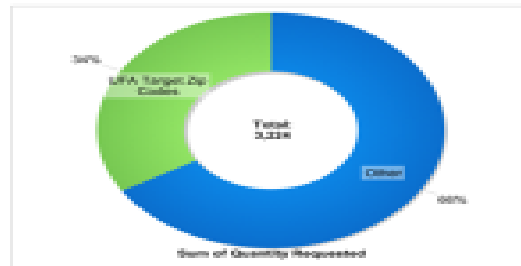
Total Trees Planted by Program - Current FY

Record Type	Sum of Quantity Requested	% of Total Trees Planted
Community & School Planting	2,406	81%
Program Trees	618	19%
<b>Total</b>	<b>3,024</b>	

Total Trees Planted by Ward - Current FY

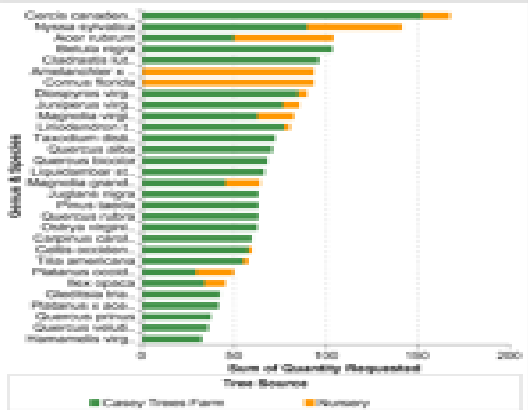


Total Trees Planted in Target Zip Codes - Current FY



\*Click on this report to see specific calculations for each UFA Target Zip Code (28002, 20016, 20012, 28026, 20032)

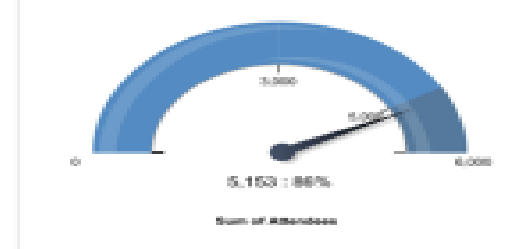
Top 30 Species Planted (Genus & Species)



\*Species not listed (all trees grouped by their genus and species)

Trees Planted by Species - Last 365 Days

Total Engagement - Current FY



Programs/Event Attendees - Current FY

Total Engagements	5,153
- Adult Engagements	4,768
- Youth Engagements	1,845
Total Attendees	2,375
- Total New Attendees	1,625

\*The term "Attendees" counts unique individuals (i.e. individuals are counted only once for the FY, no matter how many events they attend), whereas "Engagements" counts interactions/attendance (i.e. individuals are counted for every event they attend).

## FRAMEWORK & ASSESSMENTS

- #1 **CANOPY GOAL**  
40% by 2032
- #2 **INVENTORY**  
3-5 Year Rotation
- #3 **ENGAGE PROGRAM STRATEGIES**  
Tree Planting, Advocacy, Education, etc.
- #4 **REPORT PROGRESS**  
Tree Report Card
- #5 **ASSESS/MODIFY**
- #6 **REPEAT**



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# Current Tree Conservation Bills - District of Columbia

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- The **Tree Preservation Enhancement Amendment Act** would reduce the Special Tree threshold to 25” (instead of 44” trunk circumference), thereby protecting more trees that will have the largest ecological and environmental impact on our area.
  - The **Office of Natural Area Conservation Establishment Act** seeks to create a new office within DOEE to more directly manage natural areas in DC and would support community-level groups who take care of forest patches in their neighborhoods.
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# Regional Potential Based on Local Success Story

## OVERALL RESULTS



Citywide Investment increased from \$1M to \$25M



Tree Planting increased from 500 to 14,000/Year

Street Tree Spaces at 95% Stocking



Urban Forest Advisory Council Formed

Tree Protection & Replacement Laws Enacted and Enforced



Agency Guidelines Modified to Better Care for and Plant City Trees



Four administrations spanning 22 years have maintained or increased tree budgets





# Canopy Goal Recommendations

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# Intended Use of the Canopy Goal Recommendations

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The recommended percentages of tree canopy coverage should be regarded as best management practices and aspiration.

They are not intended to be applied in a prescriptive fashion or to be interpreted as universally applicable to every scenario.

Just as individual jurisdictions must identify conservation objectives based on the unique set of conditions present within their geographic boundaries; determining what the optimal level of tree canopy is for any property or geographic area must be addressed on a site-by-site basis and based on the set of conditions observed at that time.

# Tree Canopy Goal Recommendations

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Attempting to forecast how regional canopy levels will be impacted by climate change and shifting societal values; economic patterns; housing and transportation needs, etc., contains many uncertainties.

For this reason, the percentages expressed in these goals may ultimately prove less valuable than creating an expectation within COG to periodically reexamine and report on the status of the region's tree and forests.

**RTCS recommends that the regional goal and supporting target goals be viewed as fluid and reevaluated once every five years to allow reaction to changing conditions and unforeseeable events.**

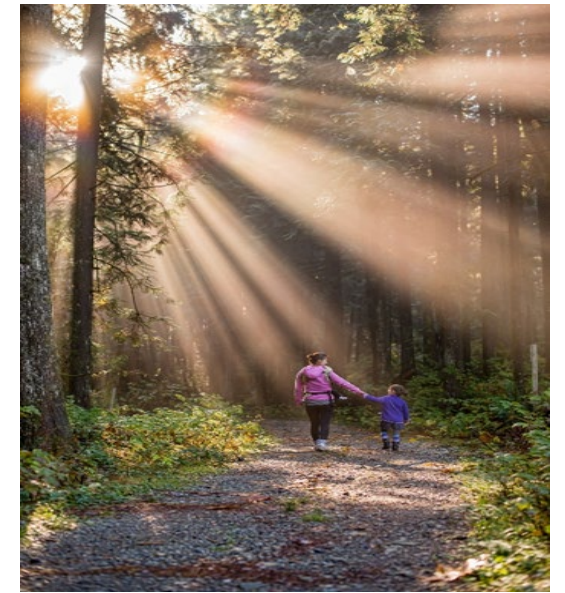
An opportunity to project canopy gain/loss trend lines with higher confidence will occur in 2025 and 2030 when the Chesapeake Bay Program is scheduled to release updated CBP LULC data

# Tree Canopy Goal Recommendations

An analysis of CBP 2022 LULC data, comprehensive land use and transportation plans, local zoning maps, regional population projections, and green infrastructure plans suggests that it is feasible to support a tree canopy coverage of 45% to 50% over the next 25 years.

COG's record of leadership for regional initiatives and goals should be extended to trees.

COG can provide leadership at the national level by adopting/endorsing the regional tree canopy goals.



# Proposed COG Board Resolution

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**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS THAT:**

The Board establishes a regional goal of achieving and maintaining an average tree canopy coverage of 50% across the Metropolitan Washington region by 2050, as recommended by the Regional Tree Canopy Subcommittee (RTCS); and

The Board encourages member jurisdictions to develop and implement strategies, policies, and programs to support the achievement of the regional tree canopy goal, including updates to relevant ordinances and the development of tree planting and preservation initiatives and goals.

Further, the Board will reassess the regional goal and supporting target goals every five years to evaluate tree canopy cover and monitor progress towards achieving the established tree canopy goal in the Metropolitan Washington region.

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Council of Governments