



Washington DC's Urban Tree Canopy in 2020

An overview of changes in urban tree canopy coverage in D.C., between 2006 and 2020

DDOT Urban Forestry
January 14, 2022

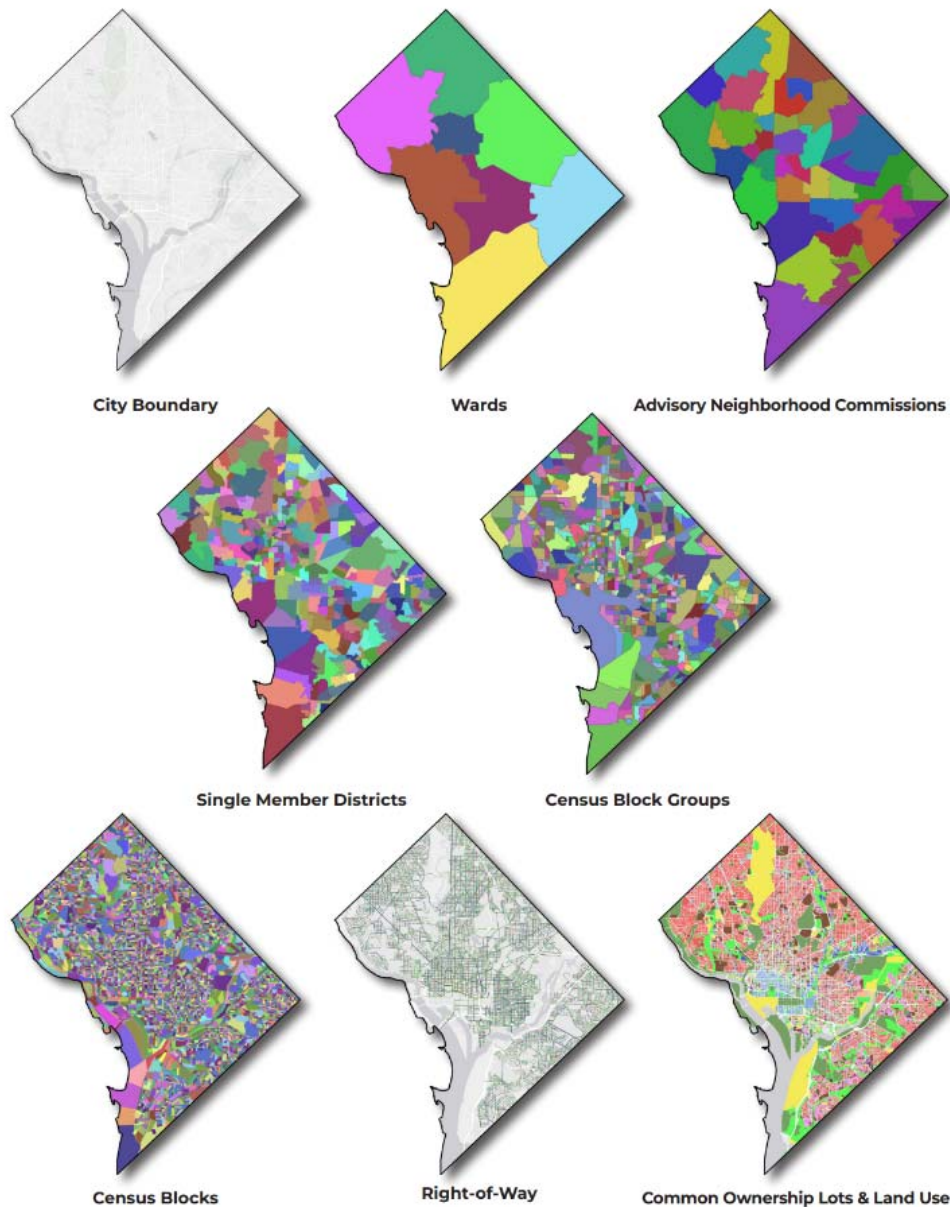
DC's 40% Urban Tree Canopy (UTC) Goal

The launch of Sustainable DC in 2011 established a goal of achieving a citywide tree canopy goal of 40% by 2032. To track our progress toward this goal, DDOT's [Urban Forestry Division](#) performs land cover assessments every five (5) years. To date, four (4) studies have been conducted, spanning the period between 2006 and 2020.

2020 Methodology

The 2020 assessment utilized high-resolution (1-meter) multispectral imagery from the Pleiades satellite constellation collected 2020 and LiDAR data from the District of Columbia also collected in 2020 to derive the land cover data set. The satellite imagery was used to classify all types of land cover, whereas the LiDAR data was primarily used to determine vegetation height and distinguish tree canopy from other

types of vegetation. The land cover data set was aggregated into the below eight (8) geographies.



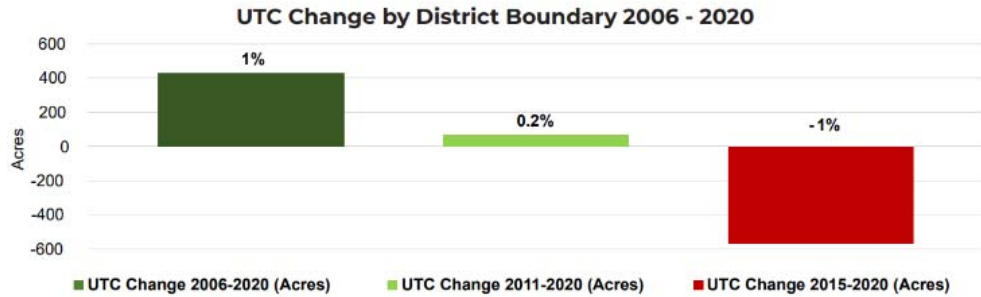
Eight (8) distinct geographic boundaries were explored in this analysis: the full city boundary, right-of-way, wards, land use, advisory neighborhood commissions, single member districts, U.S. census block groups, U.S. census blocks, and common ownership lots.

Urban Tree Canopy, By Study Period

Despite a recent loss of 565 acres between 2015 - 2020, The city has experienced a net gain overall of 425 acres since the initial analysis in 2006. While any overall loss of tree canopy is unwelcome, there are promising signals for future canopy

growth and evidence that the District's regulatory framework is effectively balancing the pressures imposed by economic development on the urban forest resources of the city.

District Boundary	UTC 2006	UTC 2011	UTC 2015	UTC 2020	Change (2006-2020)	Change (2011-2020)	Change (2015-2020)
Percent	36%	37%	39%	37%	1%	0%	-1%
Acres	14,246	14,601	15,236	14,670	425	70	-565



Urban Tree Canopy, by Study Period

Changes by Land Use

While most major land cover types suffered a decline of UTC in the past five (5) years, the public right-of-way has seen sustained growth over not only the most recent study period, but consistently since 2006. These results validate the data driven approach applied by DDOT's Urban Forestry Division, whereby urban forest resources are prioritized and delivered to areas where opportunities are greatest.

Land Use	UTC 2006 (%)	UTC 2011 (%)	UTC 2015 (%)	UTC 2020 (%)	Change (%) 2006-2020	Change (%) 2011-2020	Change (%) 2015-2020
Commercial	9%	10%	7%	7%	-2%	-3%	0%
Hotels and Dormitories	18%	19%	20%	19%	1%	0%	-1%
Industrial	11%	11%	12%	11%	-0%	0%	-1%
Institutional	21%	22%	23%	23%	2%	0%	-0%
Low Density Residential	38%	39%	41%	39%	2%	1%	-2%
Medium Density Residential	21%	24%	24%	22%	1%	-2%	-2%
High Density Residential	19%	21%	22%	20%	1%	-1%	-1%
Not Specified	46%	49%	49%	48%	2%	-1%	-1%
Parking	12%	13%	14%	14%	2%	1%	-0%
Public and Parks	42%	41%	44%	41%	-1%	-1%	-3%
Right of Way (2019 boundary)	34%	34%	36%	37%	3%	3%	1%
Vacant	52%	53%	54%	51%	-1%	-2%	-3%
Totals	37%	38%	40%	38%	1%	-1%	-2%

Canopy Change by Land Use and Study Period

Examples of Land Cover Change

Several phases of development have occurred in the Ft Lincoln & New Town Neighborhoods. You can explore the change, both loss and gain, since 2006 below. While a net loss has occurred, due to the fundamental shift in land use, regrowth of canopy can be seen in both the residential and commercial areas.

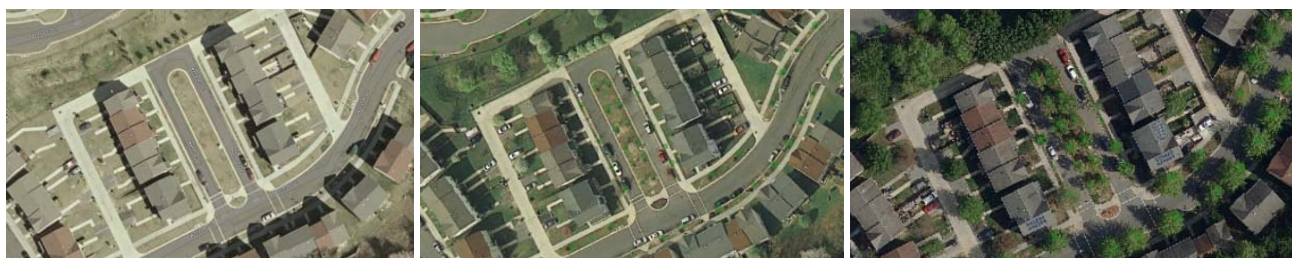
Ft Lincoln/New Town in NE DC

Oxon Run Park is the District's largest municipal park and has been the focus of many tree canopy enhancement efforts. Zoom in on the area below to reveal how the trees planted ~15 years ago by Casey Trees along Valley Ave SE have grown and contributed to canopy expansion in the intervening 15 years.

Tree Canopy Expansion in Oxon Run Park Due to Planting in ~2005

By leveraging insights from earlier land cover assessments, possible planting area can be identified and prioritized. The Wheeler Creek community in Southeast DC provides an excellent example of how land cover assessments enable land managers to direct resources to areas of greatest opportunity. This community was largely devoid of street trees in 2006. By aggressively directing tree planting resources over many years, DDOT has achieved robust canopy growth at the neighborhood scale. Observe the change over time in the Wahler Ct median, which is highlighted in the image gallery below.

Wheeler Creek Community



Wahler Court SE Median in the Wheeler Creek Community in 2005, 2010 & 2019. Median trees were installed in 2009.

Additional examples of tree canopy expansion in the ROW can be seen in the Shipley Terr SE neighborhood, where a new street trees installed nine (9) years ago are beginning to deliver important benefits to residents.

Shipley Terrace SE, Reflecting the Growth of Trees Installed Beginning in 2012

The neighborhoods surrounding the St Elizabeth's campus has undergone many substantial changes in the past 15 years. The District-managed parcel is now home to several new residential, cultural and entertainment facilities, with the development of a new hospital planned for near term development. While the federal component is now home to major federal installations. All of this activity promises to invigorate a promising region of the city, yet it has come at the cost of significant and prolonged tree canopy reduction.

St Elizabeth's Campus and Surrounding Projects

Heritage Tree Protections in Action

In 2016, legislation designated trees with a circumference of 100" or more as Heritage Trees, and provided them protection from removal. While land owners are prevented from removing non-hazardous trees, they are able to relocate them to accommodate development interests. The first instance of Heritage Tree relocation in the District occurred at the former Fannie Mae Headquarters, located on Wisconsin Ave NW. While the site is dominated by tree loss and ongoing development activity, the mature tree relocations are also evident, along the building frontage. Zoom in to see the relocated Heritage Trees in their new locations.

Former Fannie Mae Headquarters in NW DC



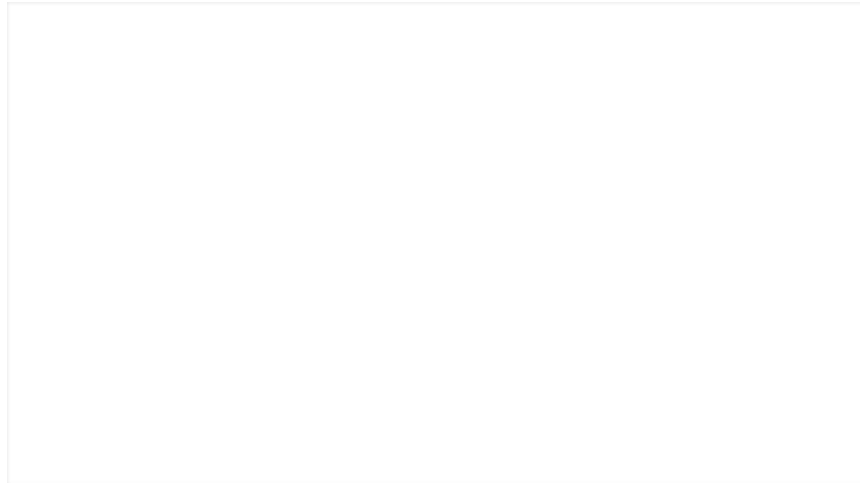
Heritage Tree Relocation; Gif Courtesy [DCist](#)

Another example of Heritage Tree protections in action can be observed at the Ferebee Hope Recreation Center site, in Southeast DC. While most of the site has been cleared to make way for a new school and recreation center, a mature Heritage Tree has been shifted ~150 feet north. You can swipe the view below to see the prior site conditions, compared with the recent changes; the relocated Heritage Tree had been directly in the center of the project site, and has since been moved to the northern edge of the parcel.

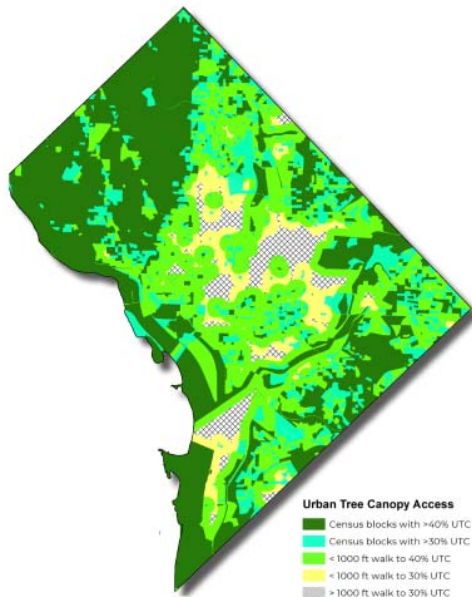


Ferebee Hope in SE DC

Access To Robust Urban Tree Canopy



Cecil Konijnendijk on Twitter: "I am proposing a new 3-30-300 rule for #urbanforestry. At least 3 trees in view from every #home. Every #neighbourhood should have 30 percent #treecanopy (or vegetation cover). Nobody should live more than 300 metres from a larger #park or #greenspace. <https://t.co/6kcpBQ4Fxo> / Twitter"



The **“3-30-300 Rule”** states that every resident should be able to see at least **3** mature trees from their home, live in a neighborhood with at least **30%** canopy cover, and walk to a park or green space within **300** meters.

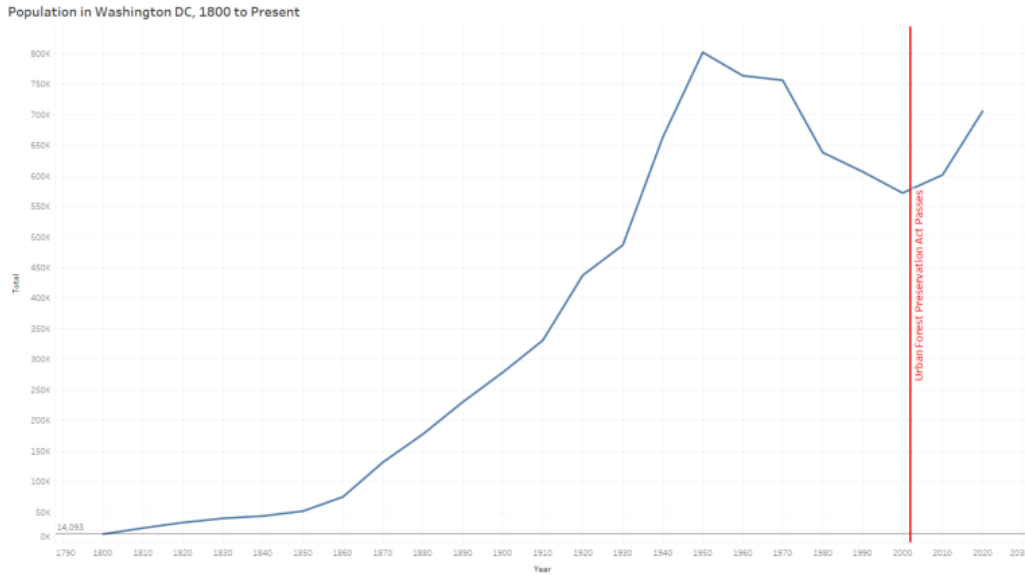
Access to Canopy, within 1,000 Feet. Source: [PlanIT Geo, Inc](#)

Population Meeting Urban Tree Canopy Access Objectives						
Urban Tree Canopy Access Objective	2010 (2011 UTC)		2015 (2015 UTC)		2019 (2020 UTC)	
	#	%	#	%	#	%
Live in a census block group with 40% UTC or greater	131,448	22%	157,464	24%	147,660	21%
Live in a census block group with less than 40% UTC	470,275	78%	490,020	76%	545,023	79%
Live in a census block group with 30% UTC or greater	267,456	44%	297,233	46%	295,928	43%
Live in a census block group with less than 30% UTC	334,267	56%	350,251	54%	396,755	57%
Live within 1,000 ft of a census block with 40% UTC	476,578	79%	529,340	82%	563,847	81%
Live farther than 1,000 ft from a census block with 40% UTC	125,146	21%	118,144	18%	128,835	19%
Live within 1,000 ft of a census block with 30% UTC	564,568	94%	609,711	94%	646,315	93%
Live farther than 1,000 ft from a census block with 30% UTC	37,155	6%	37,775	6%	46,368	7%
Grand Total	601,723	100%	647,484	100%	692,683	100%

Canopy Access by Study Period. Source: [PlanIT Geo, Inc](#)

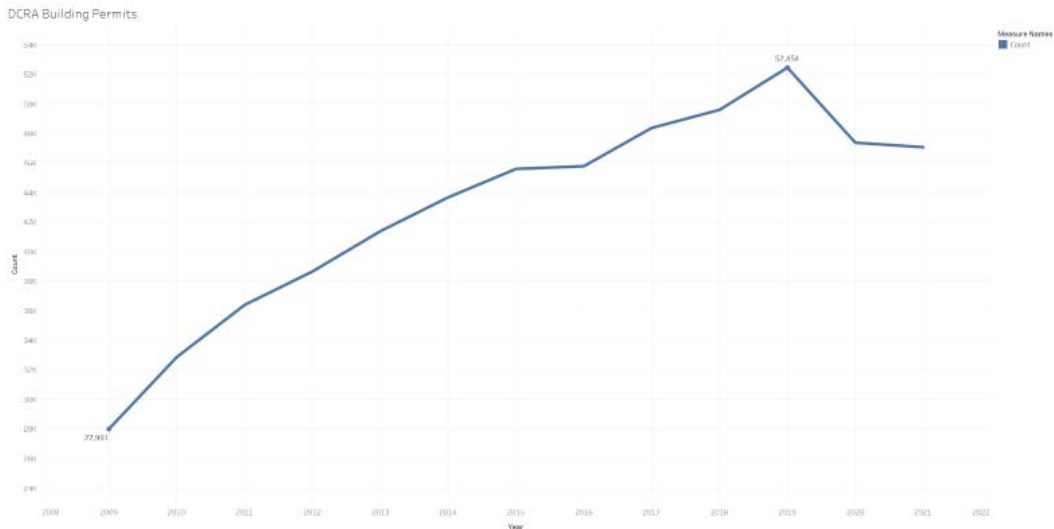
Achieving 40% by 2032

Can recent canopy loss still represent progress?



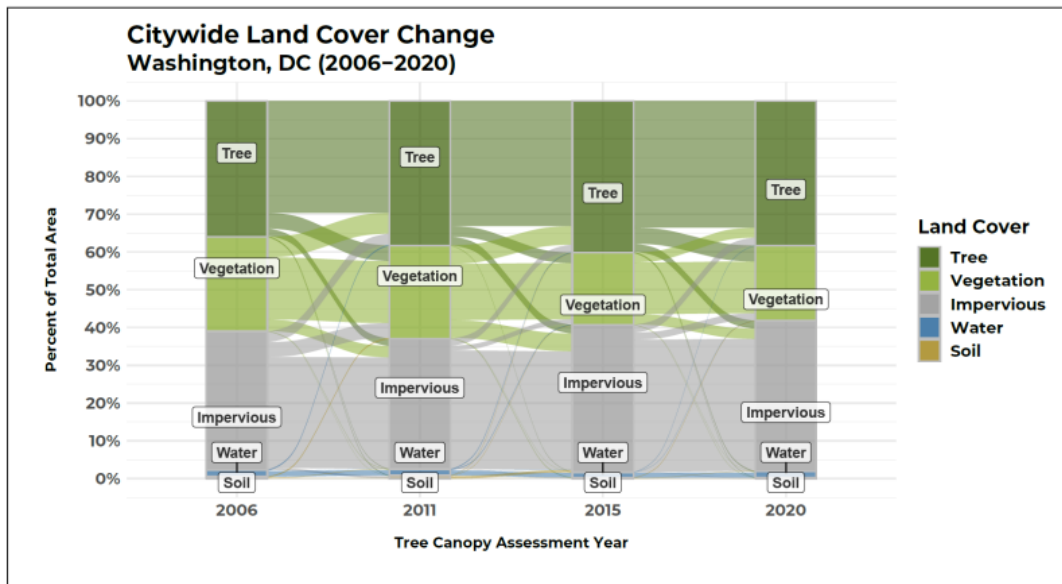
DC's Population and the Passage of the Urban Forest Preservation Act of 2002

Rapid redevelopment, as shown by annual Building Permit data, has reflected the District's sustained growth in population.



Building Permits, Since 2009

Despite an increase of ~150,000 residents since the passage of the Urban Forest Preservation Act of 2002, and the increasing pace of infill development activity, DC has still managed a net increase of 425 acres of Urban Tree Canopy since our initial study in 2006.



Land Cover Conversion by Study Period

Road Ahead

The Urban Forestry Division's number one priority is to expand, preserve, and improve the urban forest. To accomplish this important mission, urban tree canopy needs to be increased across all ownership types, including public land, private property, and institutional land. This will be done by:

- a. Working with Casey Trees , MWCOG and other NGOs in close coordination with the DOEE to increase tree planting on private property, with a prioritized focus on low density residential land
- b. Continuing to sustain full stocking of the street tree population
- c. Working with fellow government agencies, including DCPS, DCPL, DCHA, DGS, and DPR, to continue strategic tree planting and maintenance on District land
- d. Increasing coordination with district agencies to review and advise on Capital Improvement Projects

- e. Completing land cover assessments at 5-year increments, and using these analyses to inform planting decisions
- f. Increasing tree species diversity when planting on District property

For more information about the Urban Forestry Division, visit us online at trees.dc.gov

DC Urban Forestry Online

For more information, please visit the Urban Forestry Division at: trees.dc.gov

2020 Land Cover Study performed by [PlanIT Geo, Inc.](#) on behalf of the [DDOT Urban Forestry Division](#)