



CITY OF CHARLOTTESVILLE TREE COMMISSION

STATE OF THE FOREST FISCAL YR 2023

CHARLOTTESVILLE, VA

03.15.2024

PURPOSE

The purpose of this report is to bring to the attention of the Charlottesville City Council and our community as a whole the current state of our urban tree canopy (UTC) and the compelling need for strategic interventions. The City's goal, as mandated in the 2021 Comprehensive Plan, is to achieve an average of 45% tree canopy coverage across the City's geographic area. If the City continues its current canopy management strategies unchanged, our best case 2050 scenario is a canopy loss of around ~13% for a total UTC of 25%.¹ The Commission therefore recommends in the strongest possible terms that the City make every concerted effort to increase tree preservation, planting, and maintenance to ensure such coverage for the community in perpetuity.

THE PROBLEM: THE STATE OF THE FOREST

The 2023 Urban Tree Canopy Assessment by PlanIT Geo indicates that, of the 7,006 acres within the City Boundary, 2,771 acres, or roughly 38%, are presently covered by tree canopy.² The report reveals an increasing trend in canopy loss and an imperiled urban forest with UTC decreasing from 45% in 2014 to 38% in 2023. The significant infiltration of invasive species in the urban canopy has contributed to further decline, with actual canopy coverage likely closer to 25% based on field observations. The PlanIT Geo assessment also highlights disparities in tree canopy coverage among neighborhoods, some of which have canopy coverage as low as 14.5%.³

The following map (see Figure 1) also underscores the distribution of UTC across the City's neighborhoods. It highlights disparities in UTC experienced by residents, families, and businesses in low- and moderate-income neighborhoods. The City has not historically applied itself or its resources to support its lower-income communities, and the urban canopy has suffered as a result. This underscores the urgency of targeted preservation and intensive tree planting efforts in these areas amidst existing urban forest threats.

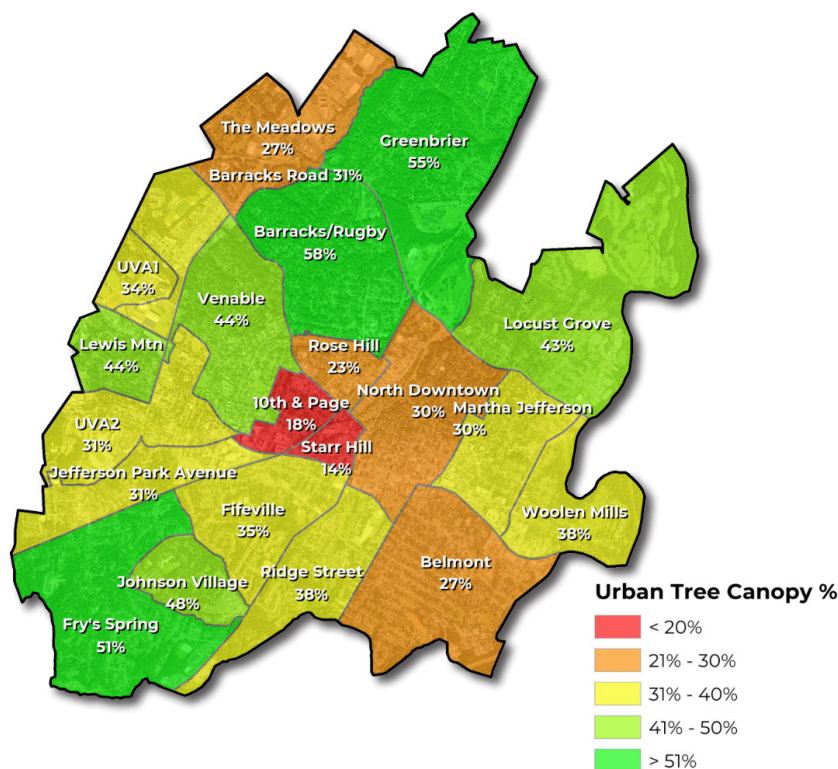


Figure 1: Map of Charlottesville Neighborhoods and Canopy Coverage.⁴

1 An Assessment of Urban Tree Canopy in Charlottesville, Virginia. PlanIT Geo, Inc. January 2022.

2 The PlanIT Geo Report could not distinguish between true "tree canopy" and other types of foliage (e.g., invasive species like Kudzu, English Ivy, etc.).

3 GreenPrint 1.0, page 12.

4 An Assessment of Urban Tree Canopy in Charlottesville, Virginia. PlanIT Geo, Inc. January 2022. Page 9

In addition to the aforementioned concerns, Charlottesville faces a range of region-specific threats and pressures that compound the challenges that our urban forest faces. Pervasive issues such as invasive plant species (e.g., English Ivy, bittersweet, and kudzu) pose a significant risk to the health and biodiversity of native vegetation. The City is also contending with the increasing frequency of climate change related weather events, such as hurricanes, droughts, extreme heat, and severe storms, which can cause immediate damage to trees and disrupt the delicate ecological balance. The spread of tree pests and diseases like emerald ash borer, sudden oak death, and bacterial leaf scorch continue to jeopardize the vitality of Charlottesville’s tree canopy.

In addition to environmental factors, Charlottesville’s new zoning code, designed in part to address historic housing inequity, can and should be implemented in conjunction with plans to increase our urban tree canopy.

Taken together, these challenges underscore the pressing need to preserve and bolster the urban forest in Charlottesville.

WHAT’S AT STAKE

Charlottesville stands to benefit tremendously from revitalizing and maintaining a robust urban canopy. As climate shifts in and beyond Charlottesville, preserving and planting trees constitute not only the “gold standard”⁵ for heat mitigation strategies but also for crucial human and environmental co-benefits (see Figure 2).

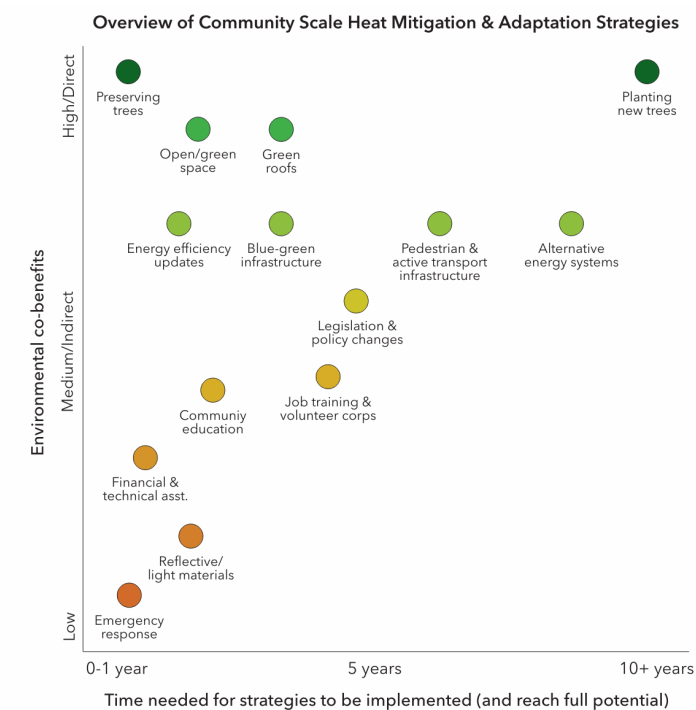


Figure 2: Overview of Community Scale Heat Mitigation & Adaptation Strategies.⁶

By envisioning a positive shift in momentum, we are committed to taking proactive steps by reinforcing our shared reinvestment in a vital and vigorous urban canopy. Attending to our canopy has significant impacts on our collective health and safety. Robust urban forests:⁷

- **Enhance** public health by effectively cooling the air and offering shade for buildings, public spaces, and individuals engaged in outdoor activities, thereby mitigating the adverse impacts of extreme heat and high humidity days.
- **Promote** equitable health outcomes by addressing air pollution, with a focus on protecting the City’s medically vulnerable residents.

5 [City of Charlottesville Heat Mitigation and Adaptation Guidebook](#).
6 [City of Charlottesville Heat Mitigation and Adaptation Guidebook](#), page 2.
7 Wolf, Kathleen. “Green Cities: Good Health.” University of Washington and USDA Forest Service. https://depts.washington.edu/hhwb/Thm_Economics.html

- **Play** a vital role as a foundational element in an integrated health infrastructure by providing numerous health benefits, including increased respiratory function, reduced stress levels, and improved mental health.
- **Safeguard** the City from the detrimental effects of intense storms and flooding events by utilizing urban forests as natural sponges for stormwater runoff, preventing erosion, and filtering pollutants to preserve the health of waterways and aquatic habitats.
- **Alleviate** energy burdens in low- and moderate-income communities, contributing to increased economic resilience.
- **Foster** vibrant, walkable neighborhoods that support community interactions.
- **Provide** healthy wildlife corridors that support biodiversity and deliver valuable ecosystem services for both human and non-human communities.
- **Promote** community safety, stability, and social cohesion.⁸

This strategic effort is poised to bring substantial improvements on a neighborhood-by-neighborhood basis, in particular prioritizing areas where residents currently experience the lowest existing UTC. By collectively embracing this vision and investing in the vibrancy of our urban canopy, we set the stage for shared benefits and responsibilities, creating a thriving urban environment across the City of Charlottesville.

SCENARIOS FOR CANOPY LOSS REVERSAL

The 2023 PlanIT Geo Tree Canopy Assessment analyzed the composition of the City's canopy infrastructure and outlined four possible scenarios and accompanying projected changes in canopy coverage from 2023 to 2050. These four scenarios were called (1) Business as Usual, (2) Maintain Existing Canopy Coverage, (3) Attainable Growth, and (4) Aggressive Growth. The details of these four scenarios are presented in the table below (see Figure 3).

Scenario	Goal	Estimated Citywide UTC % in 2023	Planting Required		Net Tree Canopy Change		Citywide UTC % in 2050	
			Total	Annual	Acres	%	Acres	%
Business as Usual Planting Trends	Calculate the citywide canopy % in 2050 if the City continues to plant approx. 500 trees a year for the next 27 years.	38%	13,492	500	-889	-13%	1,761	25%
Maintain Existing UTC %	Calculate the number of tree plantings required to maintain 38% canopy cover over the next 27 years.	38%	69,431	2,572	5	0%	2,655	38%
Attainable Growth	Calculate the number of tree plantings needed to grow the citywide canopy to 45% by 2050.	38%	99,806	3,697	491	7%	3,141	45%
Aggressive Growth	Calculate the number of tree plantings needed to grow the citywide canopy to 50% by 2050.	38%	121,504	4,500	837	12%	3,487	50%

Figure 3: PlanIT Geo Tree Canopy Assessment Scenarios, 2023–2050.⁹

Maintaining the existing 38% tree canopy cover would require planting approximately 69,431 trees over a 27-year period, or ~2,572 trees per year. If the City adheres to its current goal of planting 500 trees annually, the canopy cover can be

⁸ [USDA Forest Service, Pacific Northwest Research Station](#). "Some city trees may discourage 'shady' behavior; Study explores relationship between urban trees and crime."

⁹ A Forecast Analysis of Possible Planting Scenarios. PlanIT Geo, Inc. 2023

expected to decline to around 25% by 2050.¹⁰ Embracing an “attainable” urban canopy growth option, or ~3,697 trees planted yearly, would raise the Citywide canopy cover to the stated goal of 45%. Alternatively, pursuing an “aggressive” urban planting schedule of 4,500 trees per year could potentially achieve 50% canopy cover, which would align with the stated goals of the Tree Commission in its FY22 report, and also position Charlottesville more closely with those of neighboring communities like the City of Richmond.¹¹

The following table (see Figure 4) shows tree plantings conducted by the City from 2018 to through 2024 and provides a useful reference for where the City stands in regards to the scenarios outlined above.

	2018	2019	2020	2021	2022	2023	2024 (projected)
Tree (2” caliper)	161	134	151	23	139	162	181
Seedling/ Sapling	0	0	0	0	0	32	850-1000

Figure 4: Tree Plantings funded through CIP Fiscal Years 2018-2024¹²

The consequences outlined in PlanIT Geo scenarios above dramatically illustrate that the City must increase its efforts exponentially if we are to attain the City’s stated goal of 45% UTC overall, and address the disparities across neighborhood canopies.

LAYING THE GROUNDWORK FOR A HEALTHY URBAN CANOPY

The Work of the Urban Forester

In the past fiscal year, since the City’s new Urban Forester, Steven Gaines, was appointed, he has done an extraordinary job of laying the groundwork for and initiating an ambitious program to reverse the decline in Charlottesville’s urban forest. During this year, Steve:

- **Wrote** a successful Inflation Reduction Act (IRA) / US Forest Service grant application that provides funding for an exciting, broadly reimagined Forest Management Plan.
- **Initiated and managed** the long-overdue maintenance and care of the willow oaks that are so critical to the shaded beauty of the Downtown Mall.
- **Designed** an extensive program not only to eradicate the invasive species that have engulfed mature trees in the City’s parks, trails, and Rights of Way (ROWS), but also to replant new trees in areas newly liberated from these invasive species.
- **Planted** new trees across in the City’s parks, schoolyards, and ROW (See Figure 4 above).
- **Removed and maintained** hazardous and/or diseased trees (see Figure 5).

10 PlanIT Geo Report.

11 The City of Richmond’s Comprehensive Plan states their tree canopy coverage objectives as follows: “Elevate City-wide tree canopy from 42% to 60%... and aim for a 30% tree canopy in all neighborhoods, prioritizing areas characterized by a high heat vulnerability index rating and low tree canopy coverage.”

12 Table refers to trees planted in City-owned rights of way, schools, and parks throughout the City of Charlottesville. Trees of 2” caliper refer to the size of the tree four-inches above the root collar (balled/burlap) and generally refers to a nursery grown tree approximately 3-5 years old. Seedling/saplings refer to bare-root tree seedlings (approximately 1-2 years old) and usually planted in tree tubes to protect them from deer browse, mowing, etc. CIP funding includes the installation of 2”caliper trees, mulch, stakes, and watering treatments to increase survivability through the summer months.

	2019	2020	2021	2022	2023
Non-Ash Trees	60	65	65	56	70
Ash Trees	2	53	6	15	110
Total	62	118	71	71	180

Figure 5: Tree Removals on City Property Funded Through CIP Fiscal Years 2019-2023.

- **Inoculated** 13 ash trees against emerald ash borer disease, as part of an ongoing effort to preserve the health of our remaining ash trees.
- **Initiated** an innovative program to harvest and mill lumber from tree removals carried out by the City (including the 5 willow oaks that had to be removed from the Downtown Mall in 2023).
- **Collaborated** with community nonprofits on tree planting, invasives management, education, etc.
- **Led** public engagement activities, including Downtown Mall tree walks ahead of planned maintenance work, and Ragged Mountain guided hikes (see Figure 6).



Figure 6: Tree Walk on Charlottesville's Downtown Mall, October 30, 2023.

Tree Commission Activities

Over the past year, the Tree Commission's activities and collaborations reflect an ongoing commitment to lay the groundwork for a vigorous urban forest in the years to come. The members of the Tree Commission:

- **Updated, extended, and renamed** [Comprehensive Tree List](#), an essential tool for site plan approvals, zoning requirement compliance, and City residents.
- **Participated** in the work of the Cville Plans Together Steering Committee (2020-2023) and reviewed Zoning Ordinance (Development Code) drafts (commenting and making recommendations at each stage of the process) in order to provide insight on primary issues including: requirements and incentives for protection of existing trees; requirements for streetscape tree plantings and other landscaping requirements and standards.

- **Reviewed and analyzed** the 2009 Urban Forestry Management Plan and key City urban forest and climate change documents
- **Documented and presented** Urban Forest priorities to partner organizations.
- **Provided feedback and insight** to City Council activities and projects.
- **Participated in public education and advocacy** (e.g., public tabling events, tree giveaways, Arbor Day celebration).
- **Explored** increased collaborative planting and preservation efforts with City staff and expanded outreach to and relationships with a wide variety of tree- and climate-focused community partners.
- **Supported** the City-wide process for Downtown Mall Management Plan Request-for-Proposals (RFP) to design, manage, and implement a long-term management plan.

Partners in Practice

Steve Gaines and the members of the Tree Commission recognize the important work that is carried out by our non-profit partners in Charlottesville. These include, among others, Charlottesville Area Tree Stewards or CATS (which plants and prunes trees and eradicates invasives in the City and County and trains Tree Stewards); ReLeaf Cville (which plants trees in the heat-island neighborhoods in the City); and the Rivanna Conservation Alliance or RCA (which restores riparian buffers and eradicates invasives along City and County streams, the Rivanna River, and the City’s floodplains). A summary of their planting, pruning, and invasive removal activities in FY 2023 is below (see Figure 7).

	Planting (# of trees/plants) + neighborhood	Pruning	Invasive Removal
Charlottesville Area Tree Stewards	13 trees, 10th & Page	Darden Towe Park and VA Department of Forestry	Greenleaf, Ivy Creek, and McIntire Parks; Lochlyn Hill <u>Neighborhood</u> ; Walker and Jackson Burley Schools
ReLeaf Cville	39 trees, 10th & Page		
Rivanna Conservation Alliance	20 trees, 200 herbaceous plants; 950 riparian live stakes		5,400 sq ft of invasives from several City parks

Figure 7: Summary of CATS, ReLeaf, and RCA Planting, Pruning, and Invasive Removal Activities

LOOKING FORWARD

The work of Steven Gaines and the Tree Commission over the past year marks a positive shift in momentum in the project of restoring a healthy urban canopy across Charlottesville. As we have moved into FY 2024, the critical work of invasive removal, tree planting, and maintenance continues.

However, if we want not only to reverse Charlottesville’s UTC decline but also to achieve success in attaining our long-range canopy goals, we call on the City to honor its stated commitment to leadership in environmental protection, climate action, and social justice by taking bold action. To this end, we specifically ask the City to:

- **Fund** the Urban Forester’s August 2024 CIP request.

- **Fund and staff** positions to implement an ongoing program of invasive species control, enforcement of zoning ordinances, and tree planting and maintenance.
- **Develop** incentives for tree planting and preservation on private property.

We look forward to working with the City toward these goals in the years ahead!



Figure 8: Kickoff of the Urban Forestry Invasive Mitigation Efforts in Azalea Park