Vegetation Working Group Report

Adopted by the Environmental Advisory Commission on October 3, 2024.

Introduction:

In response to Horizons 2026, the Vegetation Working Group was established by citizens' documented interest in increasing urban tree canopy in Greenville. The Vegetation Working Group is a subcommittee of the Environmental Advisory Commission (EAC) of the City of Greenville. The Vegetation Working Group members consist of Dorothea Ames, Craig Becker, Brian Carawan, Joshua Gardner (EAC member liaison), Ann Maxwell, Andrea Pike, and Melissa Tilley, all residents of Greenville who have interest and expertise in the value of maintaining thriving ecosystems through protective measures for trees and vegetation via our urban forestry.

Urban forests provide many benefits for cities. Some of these benefits include, but are not limited to the following (as reflected in the South Carolina Forestry Commission):

- Reduce air pollution and fight atmospheric greenhouse gasses
- Conserve water, reduce soil erosion and slow runoff
- Save energy and provide shade for pedestrians
- Modify local climate by helping cool the "heat island" effect of our inner cities
- Increase economic stability
- Reduce noise pollution
- Create wildlife and plant diversity
- Increase property values and make Greenville a more desirable place to live
- Improve mental and physical health for residents

Tree canopy refers to the coverage of the city that is shaded by trees. Greenville is at an astonishingly low tree canopy percentage of 34%. To compare, other cities in North Carolina's tree canopy percentage is reflected in the following data: Charlotte, 47%; Raleigh, 48%; Greensboro, 38%; Durham, 52%; Winston-Salem, 47%; Cary, 47%; High Point, 41%; Asheville, 44%. Even smaller municipalities in North Carolina have a much higher tree canopy percentage, as reflected in the following data: Wendell, 46%; Zebulon, 44%; Edenton, 30%. Restoring tree canopy in Greenville is an urgent, critical issue.

The Vegetation Working Group has met consistently from April to October 2024. Group members have studied existing ordinances for Greenville and other municipalities throughout North Carolina, reviewed Greenville's Horizons 2026 plan, examined the NC Cooperative Extension's recommendations on tree canopy , and attended the NC Urban Forestry Council's recent conference on tree ordinances. Through extensive research, the group has identified four

critical recommendations for the City of Greenville to either revise or adopt regarding vegetation management. The recommendations are as follows:

1. **Implement a Tree and Foliage Protection Plan**
2. **Incorporate at least one full-time Urban Forester/Arborist**
3. **Establish retroactive measures to save native canopy trees and continue tree planting**
4. **Revise current city ordinances to adjust buffer yards, streetscaping, and parking lot vegetation requirements**

Recommendation 1: The first recommendation is to develop a Tree and Foliage Management Plan.

Rationale: A Tree and Foliage Management Plan creates the opportunity for native trees, and other vegetation, to be taken into consideration as part of the planning process for new development, redevelopment, expansion, and changes in zoning. It is a multi prong approach to managing the tree canopy in perpetuity and it includes incentives and enforcement standards. The Urban Foresters/Arborists will use the plan in order to promote tree canopy preservation and growth in the city.

The Tree and Foliage Management Plan is part of any development plan and must be submitted along with the Preliminary and Final plats. The Urban Forester/Arborist is responsible for approving or disapproving the plan.

It includes requirements for a vegetation survey and a Tree Save Area (TSA), critical root zone protections, guidelines for replanting when a specimen tree must be removed, tree removal permit requirements, etc.

A vegetation survey shows existing specimen trees on land that is being considered for development. The survey can be drawn up by a surveyor. It is used to explore whether changes to development plans can be made in order to save specimen trees. As a surveyor is already required for preliminary development, these additional steps would not require extra hire or labor for a developer, as the surveyor would simply follow the additional criteria reflected by city ordinance (as many cities and municipalities already require).

One important aspect of preserving trees that are deemed worth saving is the protection of the critical root zone. The critical root zone is the area near a tree trunk that is protected during construction in order to ensure its survival. The International Society of Arboriculture currently recommends one foot radius of protection for every inch of trunk caliper. The critical root zone protection area should be required in the Tree and Foliage Protection Plan.

A Tree Save Area (TSA) or Tree Conservation Area (TCA) is a designated area on every single parcel for the purpose of protecting healthy existing or planted trees. It covers a percentage of the total area of the parcel. The City of Charlotte, North Carolina, refers to the tree save area as "an area measured in square feet containing existing healthy tree canopy in a single-family subdivision or an area containing existing or mitigated off site healthy tree canopy in a commercial development" (Chapter 21, City of Charlotte Code of Ordinances). Disturbance of the TSA is prohibited.

A TSA of X% for all parcels must be present on the Preliminary and Final Plats. If there is no existing forest, the TSA will have to be planted. An Urban Forester/Arborist will inspect the TSA prior to issuance of Certificate of Occupancy (CO). Because planting new trees is not practical during certain times of the year, bonding could be required to ensure planting occurs. Yearly inspections of TSA on commercial properties will be required. If the TSA is compromised, a larger percentage of the parcel will be required for a TSA and replanting must occur within a certain time period.

A tree removal permit will be required to remove any canopy tree. Adult canopy trees that measure 18-32 inches Diameter at Breast Height (DBH) are highly valued for their canopy size and expected longevity. Therefore, trees in this size range that are cut down must be replaced at an inch for an inch rate or payment into a Mitigation Fund must be made.

Overall, this recommendation is consistent with Horizons 2026 Action 6.5.: Develop a Tree Planting and Preservation Policy.

Recommendation 2: The second recommendation is to implement at least one full-time Urban Forester/Arborist.

Rationale: Tree and Foliage Management Plans can be complex at best and therefore it is imperative to have the special skills required to make the best decisions. To ensure recommendations in this report are met and to further have expert advice on all matters regarding vegetation management, at least one full-time urban forester/arborist is needed for the city. Cities smaller than Greenville have full-time urban foresters/arborists. An ideal full-time urban forester/arborist candidate would be someone with education and experience in urban forestry and/or city planning with an emphasis or specialization in urban forestry. Thus, the city could consider the possibility of a joint appointment in Planning and Development (as other cities and municipalities have).

Additionally, some of the ways in which a full-time urban forester/arborist could benefit the city include, but are not limited to the following duties:

- Help develop tree and foliage management ordinances and keep ordinances current as new research develops

- Meet with developers to discuss Tree and Foliage Management Plan needs prior to Preliminary Plat
- Approve or disapprove plats (Preliminary and Final) based on Tree and Foliage Management Plan
- Issue tree and foliage removal permits based on Tree and Foliage Management Plan
- Inspect tree and foliage management areas on developments prior to, during, and after construction
- Inspect plant material for new plantings on commercial properties to assure quality plant material and proper planting and mulching
- Inspect critical root zone protection barriers before and during construction
- Inspect commercial developments yearly to assure vegetation is maintained in perpetuity (inspections could be triggered by yearly stormwater inspections)
- Involve or create an advisory tree board which can assist with Urban Forestry issues
- Enforce vegetation ordinances
- Educate the general public, landscapers, and landscape maintenance personnel on how to care for trees (mulch volcanoes, weed eating around tree trunks)
- Apply for vegetation related grants
- Establish and maintain relationship with NC Urban Forestry Council and NC State Cooperative Extension in order to stay current on knowledge of the field

Recommendation 3: The third recommendation is to establish retroactive measures that will ensure the livelihood of all current healthy, large, native canopy trees.

Rationale: Greenville's tree canopy coverage is very low compared to other NC cities. Measures need to be enacted to avoid tree clearing without verified cause or reason (as enforced by an urban forester/arborist).

We need a tree removal permitting process for current landowners. If a request is for removal of a healthy native specimen tree, and such removal would reduce the tree canopy to below X% for the lot, replanting and/or mitigation funding should be required.

Overall, this recommendation is consistent with Horizons 2026 Action 6.1.4.: Ensure Increased Tree Canopy and Action 6.5.: Develop a Tree Planting and Preservation Policy.

Recommendation 4: The fourth recommendation is to revise current City of Greenville landscaping ordinances in regard to adjusting buffer yards, streetscaping, and parking lot requirements.

Rationale: Buffer yard, streetscaping, and parking lot vegetation requirements need to be reviewed in order to make sure they are based on what current urban forestry standards are and

what is identified by the expertise of an urban forester/arborist. This should be an ongoing practice to ensure Greenville's requirements are always consistent with current standards. For example, it is now common knowledge that buffer yards, streetscaping, and parking lot vegetation should be maintained in perpetuity. If a tree or shrub dies in a buffer yard, it should be replaced by the landowner. In order to assure longevity, trees and shrubs should be planted in good soil, using proper planting techniques, with regular maintenance. In parking lots, we should require medians with groupings of trees instead of islands with individual trees.

Additionally, we recommend the following:

- Require more natural, forested looking buffer yards, streetscapes, and when possible, parking lots
- Use root bridge techniques under sidewalks to prevent heaving sidewalks and to allow tree roots more generous access to water and soil thereby improving the health and longevity of our planted canopy trees
- Require at least 50% native plants in new plantings
- Eliminate the substitution of small trees for canopy trees except when a variance is allowed by the Urban Forester/Arborist
- Street trees planted in tree boxes (openings in the sidewalk) should be allowed a minimum of 300 square feet of surface space and 900 cubic feet of soil volume. Root bridges, soil improvements and technical soils are concepts that can be used to improve the health and longevity of trees planted in these spaces.
- Eliminate mulch volcanoes which are proven to be detrimental to the health of trees
- Eliminate tree topping, even on crape myrtles. Tree topping results in loss of tree canopy coverage. When tree topping occurs, the landowner should be required to plant new trees to mitigate the lost canopy.

Overall, this recommendation is consistent with Horizons 2026 Policies 1.2.4.: Develop Cohesive Streetscapes, 1.4.11.: Plant Street Trees, 6.4.2.: Increase Tree Canopy, and 7.5.1.: Preserve Green Space in a Network for Activity.

Conclusion:

Vegetation protection and planting is essential for maintaining a thriving ecosystem, creating a healthy place for people to live, and ensuring a community is best prepared for climate related impacts in the future. The recommendations stated in this report provide a clear vision for direct measures to be implemented in Greenville regarding vegetation protection and planting. Furthermore, the Vegetation Working Group strongly encourages the incorporation of the recommendations provided in this report for the timely Unified Development Ordinance.

Works Cited:

SC Forestry Commission:
https://www.scfc.gov/management/urban-forestry/benefits-of-urban-trees/

NC Cooperative Extension Service: Protecting and Retaining Trees: A Guide for Municipalities and Counties in North Carolina

Greenville Tree Canopy Data:

https://planitgeo.com/library/tree-canopy-assessment-project-summary-greenville-nc/

Charlotte Tree Canopy Data:
https://storymaps.arcgis.com/stories/17016df33e0a4450a1543c61d594585a

Durham Tree Canopy Data:
https://www.durhamnc.gov/DocumentCenter/View/34155/Tree-Canopy-Assessment

Winston-Salem Tree Canopy Data: https://www.cityofws.org/757/Urban-Forestry

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Edenton Tree Canopy Data:
https://www.ncforestservice.gov/Urban/grant/20/EdentonNC_TreeCanopyAssessmentReport_2022.pdf

Guilford County Tree Canopy Data:
https://www.greensboro-nc.gov/home/showpublisheddocument/18940/636510647144300000

Horizons 2026:
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