

City of Hendersonville

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Urban Forestry

Management Recommendations

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Executive Summary

Outline

- What is Urban & Community Forestry?
- Summarize Document
- Provides interpretations and recommendations
- The following management recommendations are based upon a review of the Street Tree Planting & Maintenance Plan(December 2010), Recommended Landscape Species List (September 2023), Tree Canopy Assessment Report (October 2023), Article IV- Trees and Shrubs Tree Protection Ordinance(Draft), and a driving and walking tour of Hendersonville City.
- Note: No stakeholder analysis, certain goals were assumed in this document, this document doesn't serve as a management plan, but as a stepping stone towards one
- Challenges to come, growth and development, inequities,climate change, disconnection from nature

Primary Management Recommendations

➤ **Coordination**

- Create Urban Forester Position
- Develop & Maintain Tree Inventory
- Set Goals

➤ **Protection & Maintenance**

- Prioritize education and enforcement strategies to protect trees from “common offenses” (e.g. volcano mulching , weed wacker damage, topping)
- Prioritize Establishment Care of Planted Trees
- Develop Tree Protection Ordinances for New Development

➤ **Growth**

- Prioritize strategies to grow the canopy equitably across the city

➤ **Community Forestry**

- Cultivate an Environmental Stewardship Culture

Management Recommendations

Overview

17 Urban & community forestry recommendations are listed in the 4 charts(Coordination, Protection & Maintenance, Growth, Community Forestry) that follow. Often, multiple strategies are listed as tools for meeting each recommendation. A proposed phase is associated with each strategy in order to prompt consideration of where it might fall along a progression. More detailed information on each strategy can be found below each table.

*Primary Management Recommendations

Recommendations

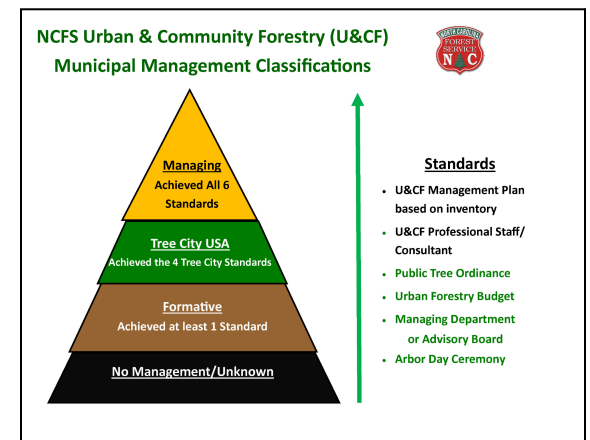
Coordination				
Recommendation	Strategies	Phase		
1. Increase City Staff Capacity	Create an Urban Forester position*	1		
	Ensure competitive pay for any arborist/forester staff	1		
	Consider adding position to support urban forester		2	
	Consider creating a City Conservation Corps or similar program			3
2. Develop & Maintain Tree Inventory*	Hire a consultant to complete a tree inventory and ensure this data will be managed afterwards		2	

3. Coordinate Across Departments & Management Plans	Create opportunities for cross-training between departments		2	
	Ordinance: Ensure that relevant departments/staff are included in process at the appropriate time		2	
4. Set Goals*	Set overarching goals for management of the urban forest	1		3
	Set Urban Canopy Goals focused on equitably growing the canopy across the city	1		3
5. Complete Urban & Community Forestry Management Plan	Hire a consultant to guide the city through an Urban & Community Forestry Management Plan. Prioritize the stakeholder engagement process.			3

Recommendation 1: Increase City Staff Capacity

Strategy 1a: Create an Urban Forester position*

- Create a full-time Urban Forester position with the City of Hendersonville. Alternatively, an Urban Forester Position could be jointly funded by cooperating cities in the area (e.g. Mills River, Fletcher). Sharing an Urban Forester would decrease costs and serve as a vehicle for greater coordination across municipalities.
- The Urban Forester role will provide the increased capacity and necessary expertise required for strategically planning and implementing many of the recommendations laid out in the rest of this document. This is especially important as development pressure increases.
- While enforcement and assisting developers with navigating the tree ordinances will be a crucial part of the Urban Forester's role it is important to balance this "reactive" component of the role with the many other crucial components of the role including but not limited to cross-training city staff, maintaining tree inventory data, strategic



planning, stakeholder engagement, grant management, outreach resource development, tree maintenance and planting program development, tree removal management, and most importantly leading the implementation of many of the recommendations in this document.

- Hiring an Urban Forester increases Hendersonville's status on the NC Forest Service's Urban & Community Forestry Municipal Management Classification to 5/6

Strategy 1b: Ensure competitive pay for any arborist/forester staff

- Oftentimes cities pay their parks and arborist crews lower wages than local contractors. This usually results in extremely high turnover of city staff. This high turnover causes a disproportionate amount of time spent hiring and training new staff and a lesser experienced crew resulting in lower quality work. Ensure that pay for city positions is competitive with local contractors

Strategy 1c: Consider adding position to support urban forester

- As development pressures increase, Hendersonville grows in size and population, and Urban Forestry programming grows, there will be an increased need for assisting urban forestry staff. This staff member can help with a variety of tasks including new development site visits and coordinating an urban forestry corps(Strategy 1d). This position would also help avoid gaps in coverage (especially important for communication with contractors) when the Urban Forester is away from work.

Strategy 1d: Consider creating a City Conservation Corps or similar program

- A City Conservation Corps(or a similar program) for young adults would serve to provide extra help with tasks such as establishment care, plantings, outreach, greenspace management, etc. as well as adding capacity to the NeighborWoods program.

Recommendation 2: Develop & Maintain Tree Inventory*

Strategy 2a: Hire a consultant to complete a tree inventory and ensure this data will be managed afterwards

- A good complete tree inventory will provide the city the geolocation, dbh, species, and maintenance needs of all the public trees within the city. This data will help the city
 - Identify under-canopied areas at a finer scale than a canopy assessment

- Determine the city's species composition and age-class distribution to more strategically select species and locations for new plantings
- Increase efficiency in conducting tree removals and pruning
- Track new plantings and schedule routine establishment care and health assessment checks
- An Urban Forester should be hired before conducting a tree inventory to ensure that the data will be maintained
- Systems should be developed ensuring that all tree workers (city staff, Neighborwoods, etc.) are updating the tree inventory
- The tree inventory can be shared publicly to gather more public interest in the urban forest
- A tree inventory is a necessary step towards reaching a 6/6 on the NC Forest Service's Urban & Community Forestry Municipal Management Classification and getting a Urban & Community Forest Management Plan
- Tree Inventory Platforms
 - TreePlotter(PlanITGeo)- This platform is gaining tons of popularity right now. PlanITGeo has partnered with the NC Forest Service on it's tree inventory grant and the new [NC Urban & Community Forestry Cloud](#)
 - ArcGIS & ArcGIS Field Maps App- This is the basis of most tree inventory programs. Since most cities already have a GIS department, this could be an affordable way to go and is very easy to set up for someone with GIS experience. It also could serve as a temporary system for tracking trees until a professional inventory is conducted. The data can be moved into TreePlotter and many of the other systems when ready
 - There are many others, whichever system you choose ensure that you will own and have access to the data at the end of the inventory

Recommendation 3: Coordinate Across Departments & Management Plans

Strategy 3a: Create opportunities for cross-training between departments

Strategy 3b: Ordinance: Ensure that relevant departments/staff are included in process at the appropriate time

- Tree pits and root space- coordinate with sidewalk improvements
- Parks, silvicultural and natural regeneration opportunities

Recommendation 4: Set Goals

Strategy 4a: Set overarching goals for management of the urban forest

Equity

Strategy 4b: Set Urban Canopy Goals focused on equitably growing the canopy across the city

Set Goals by neighborhoods & census tracts? overall=35%, every neighborhood should be 30%?

- How much do forests grow on their own?
- Use Inventory and ITree

Recommendation 5: Complete an Urban & Community Forestry Management Plan

Strategy 5a: Hire a consultant to guide the city through an Urban & Community Forestry Management Plan. Prioritize the stakeholder engagement process.

Protection & Maintenance

Recommendation	Strategies	Phase		
6. Prevent Human-Caused Tree Damage	Prioritize education and enforcement strategies to protect young trees “common offenses” (e.g. volcano mulching , weed wacker damage, topping)	1		
	Ordinance: Update Arborist license requirements: See Article IV Recommendations		2	
7. Prioritize Establishment Care of Planted Trees	Increase capacity to perform establishment care tasks (NeighborWoods, Conservation Corps, City etc.)	1		
	Establish routine tree check-ins at year 1 & year 3	1		
	Ensure watering plans are set before planting. Prioritize stewardship contracts whenever possible but utilize the most practical watering system for the situation	1		
	Maintain tree inventory data by consistently tracking all tree plantings, maintenance, and removals		2	
	Ordinance: Set newly-planted tree “establishment care” requirements and contracts for contractors		2	
8. Support the Strategic Removal of Hazardous Trees	Post signage informing the public of hazardous tree removals	1		
	Develop a Cost-Share Program to support the removal of hazardous trees on private property for low-income households		2	
	Strategize methods for the strategic removal of young invasive trees			3

	Utilize tree inventory to strategize staged tree removals			3
9. Develop Tree Protection Ordinances for New Development	Streamline negotiation & enforcement process between city staff and developers		2	
	Balance implementation of ordinances with staff's capacity to support	1	2	3
	Conduct outreach to local contractors updating them of new ordinances		2	
	?Maintain Canopy %, Measuring Canopy %, Tree Credit System close loopholes	1		
	? Parking Lots - Shaded area standard in 15 years from planting?, but balance with soil volume	1		
	Ordinance: Create soil volume standards for tree plantings	1		
	Ordinance: Maintain genetic, species, age, structural, and ecosystem diversity		2	
	Prioritize protecting forests and connectivity over individual trees		2	
10. Strategically Develop the Fee-in-Lieu Program	Ensure fee-in-lieu doesn't accidentally replace city tree budget	1		
	Explore alternative options to collecting a fee-in-lieu. Develop a menu of alternative nature-based solutions for negotiations with developers		2	
	Set appropriate fees to support the purchase, planning, planting, and maintenance of the trees in perpetuity. Explore additional uses for the fees		2	
	Consider how to design a fee-in-lieu system that doesn't disproportionately penalize local contractors		2	

Recommendation 6: Prevent Human-Caused Tree Damage

Strategy 6a: Prioritize education and enforcement strategies to protect young trees “common offenses” (e.g. volcano mulching, weed wacker damage, topping)

- Educational materials could be developed informing contractors to not engage in these practices. Volcano mulching and topping are both legacy techniques that have been shown to be harmful to tree health.
- The following are all causes of slow tree death/shortened lifespans. In the case of volcano mulching and weed wacker trunk damage, the tree's health may not decline until many years later, after the establishment care period. A simple ordinance requiring developers to replace any dead or dying trees after 3 years of planting will not suffice in these cases.
 - **Volcano Mulching-** The Urban Forester can require volcano mulched trees to be re-mulched before approving the project and can penalize topping
 - **Weed Wacker Trunk Damage-** Create large mulch rings around trees and educate landscapers and mowing crews on protecting trunks
 - **Topping-** Enhance topping ordinance to guide tree workers towards directional pruning methods. Hire urban forester to further enforce the arborist licensing ordinance and/or penalize topping
 - **Tree Pit Grates-** Monitor city trees to make sure grates are not girdling trees. Remove girdling grates or replace them with grates that have removable rings for tree growth

Strategy 6b: Ordinance: Update Arborist license requirements: See Article IV Recommendations

Recommendation 7: Prioritize Establishment Care of Planted Trees

Strategy 7a: Increase capacity to perform establishment care tasks (NeighborWoods, Conservation Corps, City etc.)

Strategy 7b: Establish routine tree check-ins at year 1 & year 3

Strategy 7c: Ensure watering plans are set before planting. Prioritize stewardship contracts whenever possible but utilize the most practical watering system for the situation

Strategy 7d: Maintain tree inventory data by consistently tracking all tree plantings, maintenance, and removals

Strategy 7e: Ordinance: Set newly-planted tree "establishment care" requirements and contracts for contractors

replacement of dead and unhealthy and poorly managed trees. OR fee-in-lieu for damaged trees (BUT volcanoes, trunk damage etc. may survive and struggle so look for more than survivability)

Recommendation 8: Support the Strategic Removal of Hazardous Trees

Strategy 8a: Post signage informing the public of hazardous tree removals

Strategy 8b: Develop a Cost-Share Program to support the removal of hazardous trees on private property for low-income households

Strategy 8c: Strategize methods for the strategic removal of young invasive trees

Strategy 8d: Utilize tree inventory to strategize staged tree removals

Recommendation 9: Develop Tree Protection Ordinances for New Development

Strategy 9a: Streamline negotiation & enforcement process between city staff and developers

Who talks to developers during the process? Flexibility, Clear language in Ordinance on who enforces and makes decisions. Urban Forester gets to make site specific decisions. Remember, ecology is complex, allow urban forester to make judgment calls

Balance implementation of ordinances with capacity to support

Strategy 9b: Balance implementation of ordinances with staff's capacity to support

Strategic Enforcement. Don't overburden forester with enforcement duties. Penalties need to make sense. Support local economy, fees and overly bureaucratic processes will favor larger companies.

Strategy 9c: Conduct outreach to local contractors updating them of new ordinances

Outreach to local contractors- Notify of new ordinances and provide resource list (consultants for tree canopy assessment etc.). Ask for their feedback!

Strategy 9d: Streamline negotiation & enforcement process between city staff and developers

Strategy 9e: *Parking Lots*

Decide what you want to prioritize here

Strategy 9f: Ordinance: Create soil volume standards for tree plantings

Soil Volume, topsoiling(double check NCDEQ rules are being followed)

Tiny ROW strips

Setbacks

Strategy 9g: Ordinance: Maintain genetic, species, age, structural, and ecosystem diversity

- Species Diversity 10,20,30
- Maintain Age Diversity, Age Diversity replacement
- Maintain Local Germplasm & genetic Diversity
- Canopy Layers
- Ecosystem Diversity (Not just hard to develop areas)
- Parking lots- save 1 old tree? Wild idea! (Remember the human relationship to trees)

Strategy 9h: Prioritize protecting forests and connectivity over individual trees

Strategy 9i: Streamline negotiation & enforcement process between city staff and developers

- Woodland/Native Forest Protection
- Create wildlife corridors

Recommendation 10: Strategically Develop the Fee-in-Lieu Program

Strategy 10a: Ensure fee-in-lieu doesn't accidentally replace city tree budget

Strategy 10b: Explore alternative options to collecting a fee-in-lieu. Develop a menu of alternative nature-based solutions for negotiations with developers

Exhaust other options first, leverage the contractors skills and resources

Menu of other options, remember the larger goal is ecological health

Nature-based solutions? ROW increase, bioswales. Get creative, this can be a negotiation process.

- Lots of strip mall heat islands
- Depaving?

Strategy 10c: Set appropriate fees to support the purchase, planning, planting, and maintenance of the trees in perpetuity. Explore additional uses for the fees

High enough cost to maintain a tree or land in perpetuity.

Consider capacity to use money and maintain

Buy Land Now

Maintenance systems? Greenspace

Strategy 10d: Consider how to design a fee-in-lieu system that doesn't disproportionately penalize local contractors

Growth

Recommendation	Strategies	Phase		
11. Update Planting Guidelines for Developers	Ordinance: Increase flexibility of ordinance and move specific planting standards to a planting guidelines document	1		
12. Increase Capacity of NeighborWoods	Consider opportunities to increase NeighborWoods' capacity	1		
13. Plant Trees	Prioritize strategies to grow the canopy equitably across the city	1		
	Guide species selections towards maintaining species and genetic diversity	1		
	Prioritize large tree planting project	1		
	Explore diversifying tree planting stock options (e.g. small trees, bareroot)		2	
	Support fruit tree plantings of low-maintenance species		2	
14. Support Natural Regeneration	Identify opportunities to support natural regeneration in forested areas and edge environments			3

Recommendation 11: Update Planting Guidelines for Developers

Strategy 1a: Ordinance: Increase flexibility of ordinance and move specific planting standards to a planting guidelines document

- Don't include size of planting stock!
- Planting best practices-No volcanoes! Ordinances

Recommendation 12: Support & Increase Capacity of NeighborWoods

Strategy 1a: Consider opportunities to increase NeighborWoods' capacity

Inventory updates, pruning, marking natural regeneration

Financial and training support

Recommendation 13: Plant Trees

Strategy 1a: Prioritize strategies to grow the canopy equitably across the city

Equity & Access- Create systems to further improve equitable access to NeighborWood trees

Utilize Canopy Data, Tree Equity Score, and Tree inventory to guide targeted outreach and tree plantings in under-canopied neighborhoods

Strategy 1b: Guide species selections towards maintaining species and genetic diversity

Strategy 1c: Prioritize large tree planting project

Strategy 1d: Explore diversifying tree planting stock options (e.g. small trees, bareroot)

Strategy 1a: Support fruit tree plantings of low-maintenance species

Recommendation 14: Support Natural Regeneration

Strategy 1a: Identify opportunities to support natural regeneration in forested areas and edge environments

Community Forestry

Recommendation	Strategies	Phase		
15. Increase Education	Update NeighborWoods' Website	1		
	Consider developing tree stewardship training programs			3
	Create paid opportunities for youth			3
16. Connect and Involve Stakeholders	Further connections and conversation opportunities with all potential stakeholders (developers, public health, community gardens, etc.)	1	2	3
17. Cultivate an Environmental Stewardship Culture	Provide public access to tree inventory map		2	
	Prioritize tree stewardship contracts & tree tags	1		
	Consider developing a neighborhood forest steward program to support the stewardship of trees in locations where stewardship contracts are impractical			3
	Identify opportunities to support greenspace stewardship and creation			3

Recommendation 15: Increase Education

Strategy 15a: Update NeighborWoods' Website

Strategy 15b: Consider developing tree stewardship training programs

Strategy 15c: Create paid opportunities for youth

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Recommendation 16: Connect and Involve Stakeholders

Strategy 1a: Further connections and conversation opportunities with all potential stakeholders (developers, public health, community gardens, etc.)

Recommendation 17: Cultivate an Environmental Stewardship Culture

Strategy 17a: Provide public access to tree inventory map

Strategy 17b: Prioritize tree stewardship contracts & tree tags

Strategy 17c: Consider developing a neighborhood forest steward program to support the stewardship of trees in locations where stewardship contracts are impractical

Strategy 17d: Identify opportunities to support greenspace stewardship and creation

Notes on Hendersonville Urban Forestry Documents

Street Tree Planting & Maintenance Plan-December 2010

The Street Tree Planting & Maintenance Plan is a fairly comprehensive document and guide for urban forestry in Hendersonville. Many of the ideas included in the document are also included in this document's recommendations. Below are some of the shared recommendations that deserve to be highlighted again.

Key Overlapping Recommendations

- **Establishment Care!**
-
-
-

In the 14 years since the preparation of The Street Tree Planting & Maintenance Plan there have been many developments in the urban forestry field as well as significant changes in the Western North Carolina Region. Below are some of the most critical recommendation updates and ideas not included in The Street Tree Planting & Maintenance Plan.

Key Updates and New Recommendations

- **Equity**
- **Diversity expansion**
- **Community Forestry/Stewardship**
- **Tree Protection Ordinances**

Recommended Landscape Species List- September 2023

- Rock star
- How is this communicated?
- Add Diversity expectations?

Tree Canopy Assessment Report- October 2023

Interpreting the document

- **Tree Canopy Assessment**
 - Overall Tree Canopy Loss Stats
 - Breakdowns by
 - Land Type
 - Zoning
 - Income
 - People of Color
 - Unique Stats
 - Notes on those stats and reality
 - Vacant Lots, Parks, Greenspaces
 - Urban Heat Island effect, inequities in tree canopy cover
- Tree Canopy Study
 - Interpreting the Maps
 - Feedback
 - Missing Maps:
 - Maps needs to have landmarks on it
 - tree canopy values by neighborhood
 - Tree canopy- Zoning overlaid with census blocks(current tree canopy)
 - Map canopy % by neighborhood & add landmarks to maps(roads and big points)
- Ground Truthing, driving and walking tour

Article IV- Trees and Shrubs

Additional feedback within documents

Tree Protection Ordinance (Draft)

Additional feedback within documents

Resources

- [Tree Equity Score](#)
- [NC Urban & Community Forestry Cloud](#)
- Itree tools
- ISA Guide to Tree Ordinances
- Tree Ordinances

About the Author

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