Tree Management and Maintenance:

A plan for the Town of Waxhaw's
public trees for 2010-12

Policy Document Adopted November 16, 2010

Waxhaw Tree Management and Maintenance Plan
TABLE OF CONTENTS

Introduction

Waxhaw is located in the piedmont region of central North Carolina. Traditionally, this area has had a diverse, bountiful tree canopy. As Waxhaw grew in the 2000's, development changed the local landscape. Trees were removed and topography was leveled to support an influx of people trying to escape the ever-expanding City of Charlotte. At the time, very little attention was paid to preserving our community's trees.

The Town of Waxhaw has made huge strides over the past few years to become a more environmentally conscious community. Part of that consciousness is the process of understanding the purpose of tree preservation and management. Waxhaw overhauled its tree preservation ordinance, Section 9.21 of the Unified Development Ordinance, in February 2009. Since that time, staff and the Union County Urban Forester have worked to further strengthen and refine the ordinance.

A tree management plan is one of many strategies in tree preservation. Staff, in conjunction with the Union County Urban Forester, created a management plan that furthers the Town's goals as described in the 2030 Comprehensive Plan for tree protection and preservation. On page 36 of the 2030 Comprehensive Plan a strategy to "work with the Beautification Committee and the Public Works Department to develop a long-term strategy for maintaining beautification projects" was outlined.

Although the Beautification Committee was not involved in the creation of the tree management plan, they are involved in tree planting events. This plan may be utilized by the Beautification Committee to determine the location of tree plantings for future events.

In April 2010, Waxhaw was designated as a Tree City, USA®. The Tree City, USA® program provides direction, attention and national recognition for urban and community forestry programs in thousands of towns and cities that more than 135 million Americans call home. This designation supports all of the efforts made in Waxhaw in recent years for tree preservation.

Purpose

The purpose of a tree management plan is to provide Town staff with the information needed to make calculated decisions regarding tree planting, maintenance, management and removal. Staff can be proactive instead of reactive, especially concerning hazardous trees.

Since the Public Services Department is responsible for the care of trees on public property and in publicly maintained rights-of-way, a tree management plan will assist in the budgeting process for those items. Public Services will be able to begin a cyclical management program that will clearly identify the expenses associated with tree maintenance.

As Town staff works through a tree management plan, the public and the Waxhaw Board of Commissioners will be able to measure the progress and success of the program. This will give everyone an opportunity to discuss ways to increase productivity or alter work plans in order to achieve a desired result.

Goals

The goal of this management plan is to provide accurate and clear information to

the public and to the Waxhaw Board of Commissioners on future tree management strategies.

Scope

North Carolina General Statutes do not allow municipalities or counties to regulate trees on private property without special legislation through the State. This management plan will only pertain to trees on Town owned property and in town maintained rights-of-way.

This plan will provide the Public Services department with a schedule for tree maintenance. It will identify trees for planting, pruning, cabling, fertilizing and removal. While not all tree care issues can be anticipated, this plan will put our public trees on a cycle that should increase their vitality over the course of their life.

Tree Inventory

A tree inventory was conducted in November of 2009 in Waxhaw, North Carolina. There were 774 trees located through a GPS survey in the right-of-ways in Waxhaw, North Carolina. Additionally, 530 trees were tallied in 12 sample plots to provide a sample of the trees in the wooded area. The sample plots were used to give a more accurate view of the total environmental benefits that Waxhaw's trees provide. The two most common tree species are Loblolly Pine and Willow Oak. The trees surveyed in Waxhaw, NC store 993.6 tons of carbon and sequester 31.98 tons of carbon per year. The trees remove 1,996.12 pounds of pollution a year from the air. The trees have an estimated compensatory value of $39,829,472. This report is intended to be used as a management tool to sustain and promote healthy trees and improve the environmental quality of the area.

Waxhaw, NC Urban Forest Summary	
Feature	Measure
Number of Right-of-Way Trees	774
Most common Species	Loblolly Pine, Willow Oak
Pollution Removal	1,996.12 lbs/year
Carbon Storage	993.6 tons
Carbon Sequestration	31.98 tons/year
Replacement Value	$39,829,472

Carbon sequestration is a measure of how much carbon a tree takes in every year to create new tissue. Carbon storage is a measure of the total amount of carbon held in the tree. Carbon sequestration is an annual value that is subject to change each year and carbon storage as the total amount taken in during the life of the tree.

- An average car emits one pound of carbon for every mile driven, and the average commuter drives 40 miles to and from work every day. Thus, the average commuter puts out 40 pounds of carbon a day!

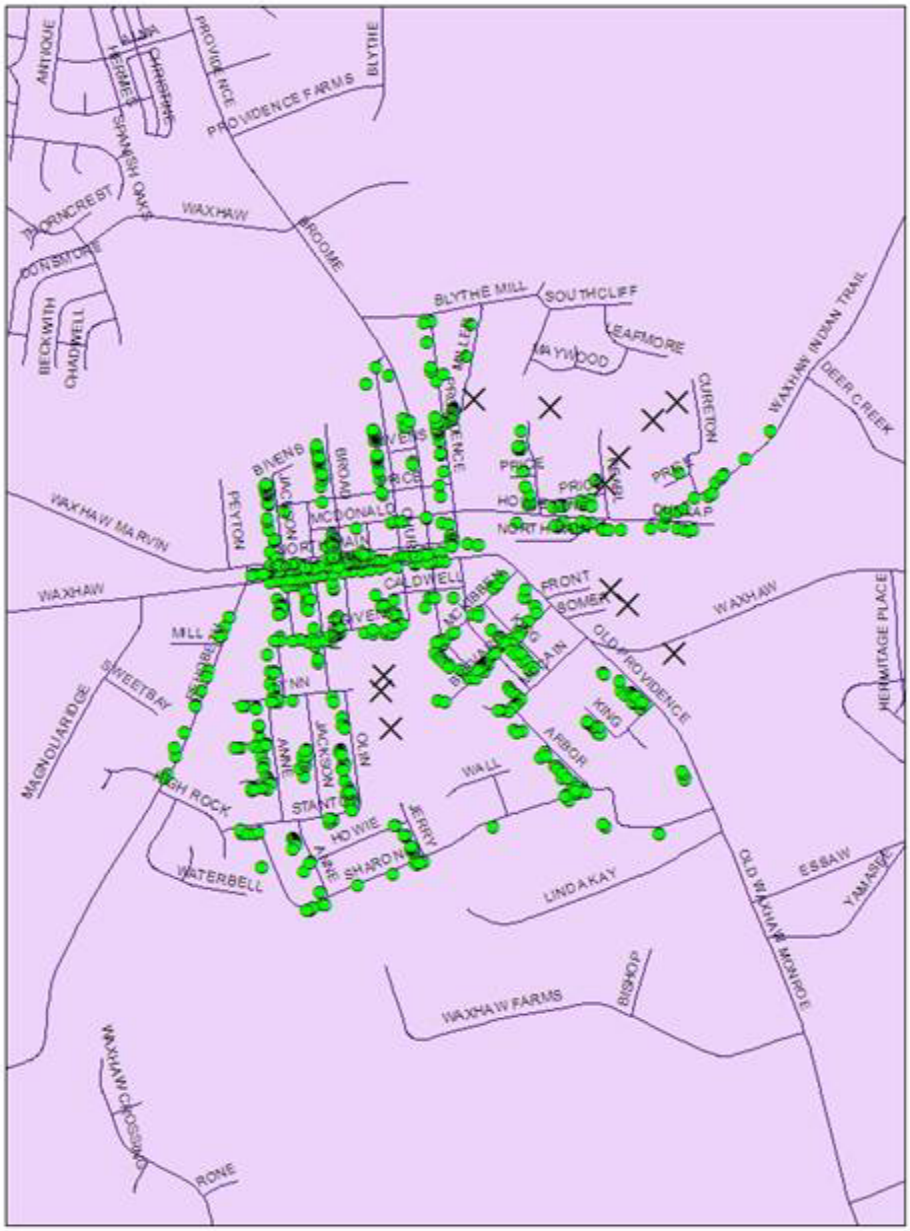
- **The total amount of carbon stored in the tissue of Waxhaw's trees is the equivalent of almost 138 cars emissions for one year!** Waxhaw's trees sequester the equivalent of 4 car's yearly carbon emissions every year.

- Or to look at it another way, **Waxhaw's trees store the equivalent of 117 single family homes emissions for one year!** The trees' carbon sequestration is the equivalent a years' worth of emissions from 4 single family homes.

- It is important to remember carbon sequestration is greater for large healthy trees. However, trees with dead limbs and decaying wood material emit carbon into the atmosphere as the wood decays.

- Continued tree maintenance will enhance the carbon removal and make sure that Waxhaw's trees continue to help the environment.

Map of the Trees Inventoried



Methods

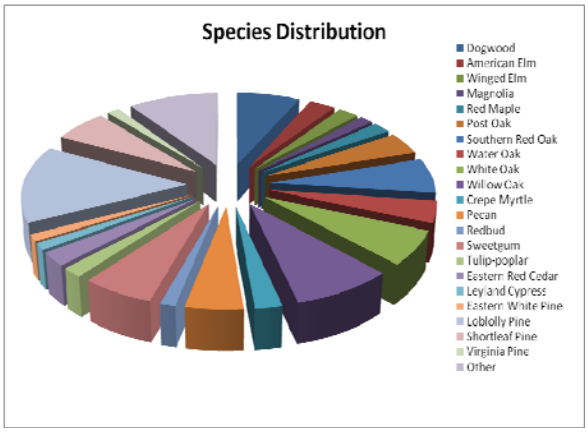
The inventory is a compilation of information gathered about the trees in Waxhaw. Data was collected for twenty-six attributes ranging from diameter at breast height (dbh) to vitality to maintenance recommendations. See *Waxhaw, NC ArborScout Tree Inventory* (February 2010) for further detail.

Results

The following information has been taken from the data and summarized where relevant.

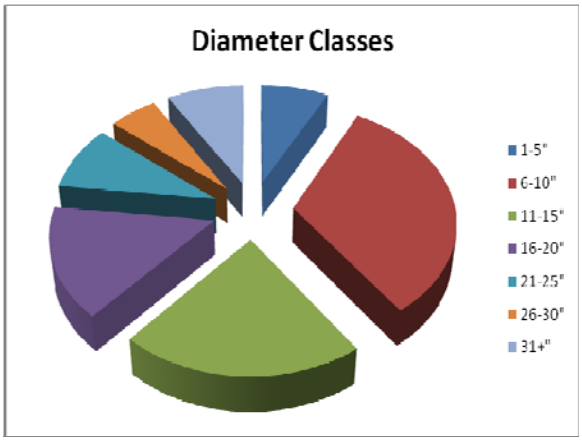
Species Distribution

There are 48 different tree species identified in Waxhaw. The predominant species as ranked by their total number as compared to the total trees inventoried are as follows:



Diameters

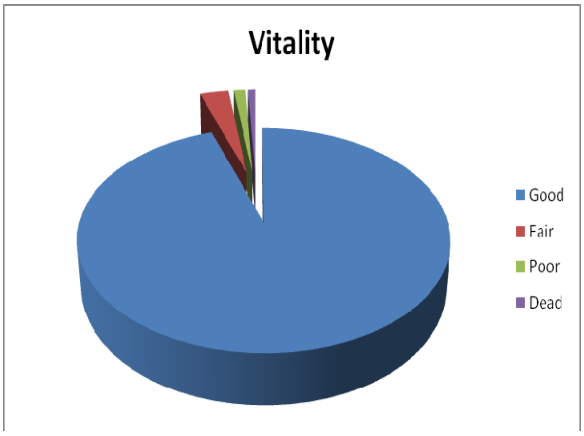
The trees in Waxhaw range from 1 to 60 inches in diameter. The majority of the trees (53%) are between 6 and 15 inches.



Diameter	Number
1-5"	59
6-10"	252
11-15"	165
16-20"	119
21-25"	70
26-30"	42
31+"	67

Vitality Rating

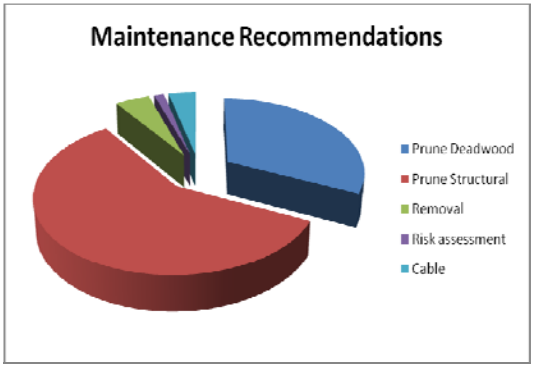
Of the 774 trees surveyed, 94% are in good condition. It is important to note that vitality is not necessarily an indicator of structural integrity or the safety of a tree. Vitality is simply a judgment made by the field technician concerning the outward signs of health of the tree.



Vitality Rating	Number
Good	734
Fair	24
Poor	10
Dead	6

Maintenance Recommendations

The number of trees identified as needing specific tree maintenance.



Maintenance Recommendation	Number of trees
Prune Deadwood	96
Prune Structural	175
Removal	14
Risk Assessment	4
Cable	11

Environmental Benefits

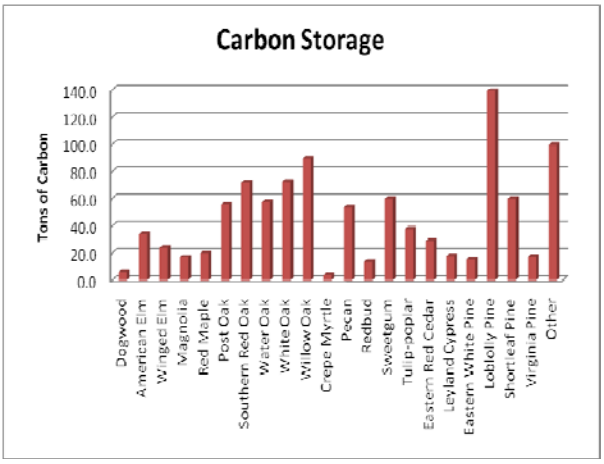
Overview of the environmental benefits from Waxhaw's trees broken up by species:

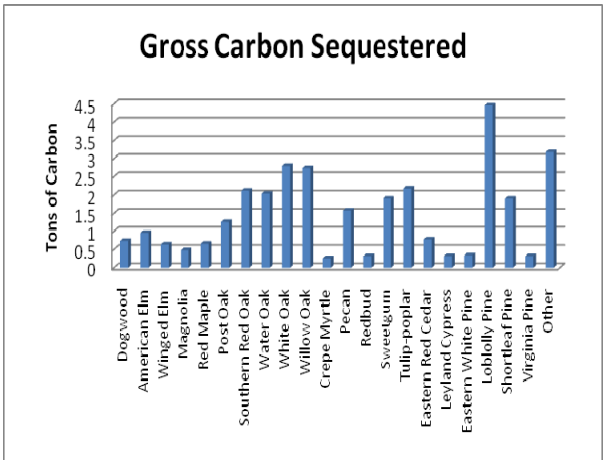
Species	Number of Trees*	Carbon (tons)	Gross Sequestered (lbs)	Values ($)
Dogwood	55	6.2	0.74	353,476
American Elm	23	33.8	0.96	1,194,884
Winged Elm	18	23.8	0.64	896,589
Southern Magnolia	12	17.0	0.48	697,442
Red Maple	16	19.8	0.66	796,864
Post Oak	33	55.8	1.26	1,969,136
Southern Red Oak	51	71.8	2.12	3,198,321
Water Oak	32	57.6	2.04	2,593,178
White Oak	50	72.2	2.80	3,888,915
Willow Oak	67	89.4	2.74	4,425,334
Crepe Myrtle	18	3.6	0.26	319,107
Pecan	38	53.6	1.58	1,991,473
Redbud	10	13.8	0.32	441,477
Sweetgum	48	59.6	1.90	2,389,768
Tulip-poplar	14	37.8	2.18	1,016,932
Eastern Red Cedar	20	28.8	0.78	1,295,737
Leyland Cypress	10	17.8	0.32	578,456
Eastern White Pine	10	15.6	0.34	664,957
Loblolly Pine	112	139.2	4.46	4,576,126
Shortleaf Pine	47	59.6	1.90	2,381,768
Virginia Pine	11	17.4	0.32	598,294
Other Species	78	99.4	3.18	3,561,238
Total	**774**	**993.6**	**31.98**	**39,829,472**

*Number refers to number of trees tallied in right-of-way, all other values refer to the right-of-way trees and the natural areas

Carbon Storage and Sequestration

Climate change has become one of the most important issues of the day. Trees sequester atmospheric carbon by taking in carbon dioxide and reducing energy use in buildings. This helps to mitigate global warming. The main way trees do this is by sequestering carbon in new tissue growth every year. The amount of carbon annually sequestered is increased with healthier trees and larger diameter trees. Gross sequestration by trees in Waxhaw is about 31.98 tons (or 63,960 lbs) of carbon per year.

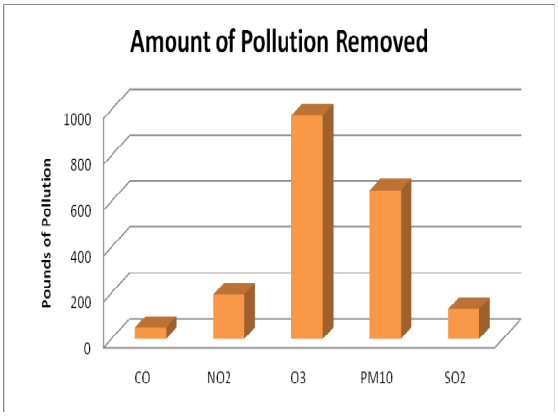




Trees also influence climate change by carbon storage. As they grow, trees store more carbon by holding it in their accumulated tissue. When trees die and decay, they release much of the stored carbon back to the atmosphere. Thus, carbon storage is an indication of the amount of carbon that can be lost if trees are allowed to die and decompose. Trees in Waxhaw store an estimated 993.6 tons of carbon. Of all the species measured, Loblolly Pines store the most carbon, an estimated 278,400lbs (almost 14% of the total carbon stored). Loblolly Pines also sequester the most carbon, an estimated 8,920 pounds per year.

Air Pollution Removal by Urban Trees

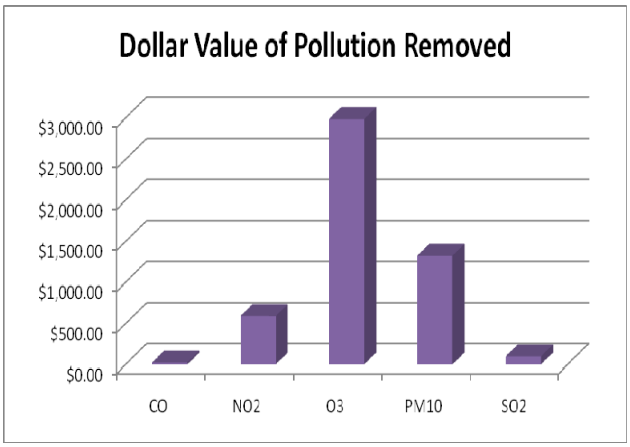
Poor air quality is a big problem in America. It leads to health problems, reduced visibility and is harmful to our ecosystem. Urban forests help improve air quality. They directly remove pollutants from the air, reduce the air temperature, and reduce the energy consumption in buildings. Studies have shown that an increase in tree cover leads to reduced ozone formation.



Carbon Monoxide (CO) is a highly toxic gas that can be fatal to humans and animals. Nitrogen Dioxide (NO_2) results from high temperatures in internal combustion engines and forms with precipitation to create acid rain. Ozone (O_3) is formed from

volatile organic compounds and is harmful to human and environmental health. Particulate matter less than 10 microns (PM_{10}) are generated by fossil fuels and can lead to asthma, heart disease and cancer. Sulfur Dioxide (SO_2) results from burning coal and oil. It, along with Nitrogen Dioxide, create acid rain.

Pollution removal was greatest for Ozone (O_3), followed by particulate matter less than 10 microns (PM_{10}), Nitrogen dioxide (NO_2), Sulfur dioxide (SO_2) and Carbon monoxide (CO). It is estimated that Waxhaw's trees remove 1,996.12 pounds of pollution a year.



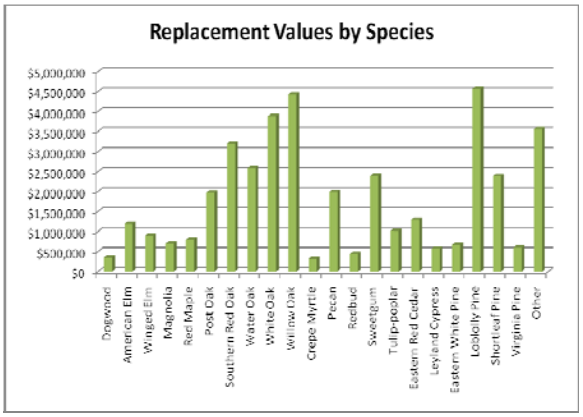
The Environmental Protection Agency (EPA) assigns a dollar value to certain harmful pollutants (shown in the graph above). It is estimated that the value of the 1,996.12 pounds removed annually is $5,023.82.

Replacement and Environmental Values

When computing a value for an urban forest, there are two values that must be considered. The replacement value is simply the cost of having to replace the tree. It is computed based on the Council of Tree and Landscape Appraisers guide.

The second value to consider is the environmental value. This is based on the functions the tree performs. This value is annual and tends to increase with the number of healthy mature trees. Not all environmental values are calculated here (such as energy cost savings, improvements in water quality and reduction in air temperatures). A properly managed urban forest increases in value, while an improperly or poorly managed urban forest loses value.

Estimated Replacement Value	Environmental Value
$39,829,472	$5,023.82 per year



Recommendations

General recommendations to continue improving environmental quality:

Action	Reason
Increase the number of healthy trees	Increase pollution removal
Sustain existing trees	Maintain current pollution removal levels
Sustain large healthy trees	Large healthy trees have the greatest per tree effects
Plant trees with long life spans	Reduce emissions from planting and removal
Plant trees to shade parked cars	Reduce vehicle emissions
Supply ample water to trees	Enhance pollution removal and production
Plant trees in energy saving locations	Reduce pollutant emissions from power plants

Tree Maintenance Plan 2010-2012

Waxhaw realizes the need for proper tree maintenance. The data provided by Arborguard Tree Specialists clearly defines the tree maintenance needs within the inventoried area. The Waxhaw Public Services Department in conjunction with the Union County Urban Forester has determined that all high priorities, as identified by Arborguard Tree Speacialists, for risk management, removal, pruning, cabling and planting would be the best course of action for the first year of the plan. Each successive year could identify and correct the medium and low priority issues.

Risk Management

Public safety is the primary concern for all trees maintained by the Town of Waxhaw. The Public Services Department will continue to make safety a top priority. While the data from Arborguard is static, the Public Services Department is committed to regular inspections for changes in risk.

Removal

Removing all trees that pose unusual threats to public safety is the main focus for the 2010-12 fiscal years. Based on recommendations from Arborguard, the Town will prioritize the 14 recommended removals and see that all trees are removed in the 2010-12 fiscal years either by Public Services staff or by a contractor when necessary. Trees with priority targets (i.e. buildings, playgrounds, sidewalks) will be removed first. *See Appendix A for complete list of trees to be removed.*

Pruning

The tree inventory identified two types of pruning: deadwood pruning and structural pruning. The Waxhaw Public Services Department will prune all trees identified as a high priority in the 2010-12 fiscal years.

In order to effectively manage the eighty-seven trees identified as a high priority, the project area will be divided into quadrants. The quadrants are bound by North Main Street, South Main Street and Broome Street. Staff decided to periodically rotate through the quadrants to ensure that all portions of the inventoried area are reviewed throughout the year for issues that may arise.

Quadrant 1: (north of North Main Street and west of Broome Street)

There are thirty-four trees identified for deadwood or structural pruning in this area. The highest concentration of pruning issues are along West North Main Street (eighteen trees) and North Broad Street (eight trees). The other streets within this quadrant have significantly fewer issues. *See Appendix B for a complete list of trees to be pruned.*

Quadrant 2: (north of North Main Street and east of Broome Street)

There are twenty-five trees identified for deadwood or structural pruning in this area. The highest concentration of pruning issues are along North Providence Street (thirteen) and Howie Mine Road (six). The other streets within this quadrant have significantly fewer issues. *See Appendix B for a complete list of trees to be pruned.*

Quadrant 3: (south of South Main Street and east of Broome Street)

There are fourteen trees identified for deadwood or structural pruning in this area. The highest concentration of pruning issues is along Brevard Street (six). The other streets within this quadrant have fewer issues. *See Appendix B for a complete list of trees to be pruned.*

Quadrant 4: (south of South Main Street and west of Broome Street)

There are fourteen trees identified for deadwood or structural pruning in this area. The highest concentration of pruning issues is along Anne Avenue (three). This quadrant has multiple streets with just one or two trees in need of pruning. *See Appendix B for a complete list of trees to be pruned.*

Cabling

Each year the Waxhaw Public Services Department is increasing their knowledge of proper tree care and maintenance. This fiscal year they intend on learning proper cabling methods for trees that demonstrate weakness which can be corrected through cabling.

The data provided by Arborguard Tree Specialists identified one high priority tree to be cabled within the inventoried area. A White Oak located on South Jackson Avenue was identified as a high priority due to a "cracked stem union".

Plantings

The planting locations that the Waxhaw Public Services Department will focus on in 2010-12 will be the intersection of NC-75 and NC-16 in downtown and the town-owned cemetery on Arbor Drive.

In the fall 2009, the Town of Waxhaw received $550,000 in federal stimulus money to improve the intersection of NC-75 and NC-16. This intersection is heavily travelled by automobiles and large distribution trucks. The intersection is also located in the historic downtown. Large maturing trees line the streets and railroad providing beautiful streetscapes for pedestrians and passers-by. The traffic improvements will result in the removal of some of the trees located close to the intersection. Public Services must work closely with the North Carolina Department of Transportation to determine the number and species of tree to be replanted in this location. The goal is to plant the appropriate amount and type to ensure long-term health and enjoyment.

The Town of Waxhaw has owned the cemetery on Arbor Drive since the Town's inception in 1889. Due to the nature of the use, much of the land is open. The Public Services Department intends on planting at least fifteen various types of trees along the main road, Arbor Drive, and along the interior access driveway of the cemetery.

Urban Forestry Management Plan

The Waxhaw Urban Forestry Management Plan is a long-term action plan. Tasks in this portion of the plan are either ongoing or take more than just a few years to complete. However, the end result is a healthy, vibrant urban forest.

Rights-of-Way

The rights-of-way in Waxhaw are either public - owned and maintained by the state or town – or private. However, due to the age of the street network and infrastructure, the widths and ownership of some of the rights-of-way are unknown.

In order to properly maintain Waxhaw's public trees, the Town must determine where the public space ends and the private space begins. Time must be spent on researching each right-of-way at the Union County Register of Deeds.

Utilities

In many locations throughout town, utilities and trees battle each other for much needed space. Waxhaw has improved its tree planting requirements to ensure these types of conflicts are avoided in the future. However, the existing problem must be resolved. Typically the solution is to remove the tree. Waxhaw must ensure that if trees are removed the property owner, the town or the utility company is mitigating appropriately.

Currently, Providence Road and Kensington Road (from Waxhaw-Marvin Road to the North Carolina/South Carolina line) have the most utility/tree conflicts. Kensington Road has relatively new plantings and Providence Road is the result of years of infrastructure expansion. In both cases, there are trees that will either be removed or improperly pruned in order to resolve the conflict with the utility lines.

The David G. Barnes Park is another example of utility/tree conflicts. In several locations throughout the park, trees have been located directly under utility lines. At some point, trees will have to be removed to ensure that the utility lines function properly. While the Town is committed to mitigating for any trees removed, the trees planted will have to grow for several years to reach the size and health of the ones existing currently.

The current tree preservation ordinance and landscaping ordinance prohibits planting large or medium maturing trees close to utility lines. Much of the conflicts in Waxhaw with utilities should not occur in the future.

Tree Population Management

With input from the Union County Urban Forester and the Beautification Committee, town staff will examine the proportions of tree species that comprise Waxhaw's urban canopy. Based on sound environmental and arboricultural science, we will examine how promoting or limiting the planting of certain species on town property and newly developed property will impact our future canopy (i.e. Crape Myrtle, Bradford Pear). It is our intent to promote long lived, native species, to restrict the overplanting of ornamental and short lived species and maintain a healthy diversity of species. Tree population management could also impact which trees are allowed by our Unified Development Ordinance in large scale reforestation projects or mitigation projects in areas such as subdivisions and other large tree planting opportunities.

Planting Spaces

Arborguard Tree Specialists identified potential planting spaces within the project area *(Figure 14.1)*. They determined that there was enough planting space for at least one hundred fifty-two (152) trees within the inventoried area.

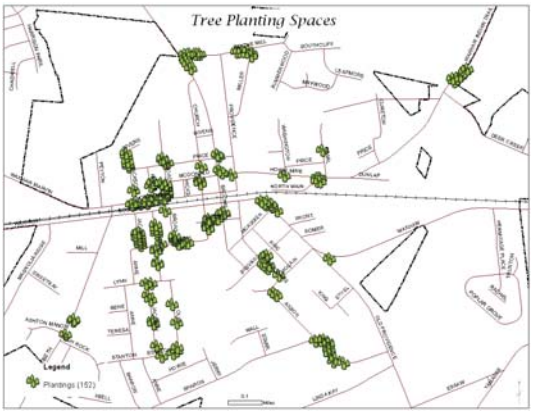


Figure 14.1

Staff is working to create a public tree planting program. However, the Town will continue planting throughout Waxhaw as needed. Municipal planting locations would likely be in state or town right-of-way, on the green downtown or in other locations not appropriate for a public tree planting program. Other planting locations, as referenced on page 12 of this plan, will also be considered.

Annual Inspections

After all fourteen (14) trees are removed as identified by Arborguard, the Public Services Department will survey at risk trees on an annual basis. This will allow the department to identify trees that may have been damaged due to weather or other causes.

Trees identified as "at risk" will be added or modified in the GIS data in order to provide the public, staff and Board of Commissioners a format in which to gauge the progress of our urban forestry efforts.

Maintenance and Upkeep

The Public Services Department spends $2,500 annually on mulching, purchasing pine needles and other necessary items to properly maintain trees in our public spaces. In recent years, Public Services has purchased equipment that has allowed them to perform much of the maintenance themselves. As staff learns about proper maintenance methods, more work can be conducted "in-house" as opposed to contracting out for tree services.

Education and Outreach

The citizens of Waxhaw have shown much support and interest in urban forest issues. Town staff and the Beautification Committee, who addresses tree issues, have already begun to reach out to the community with ongoing efforts to keep the citizens informed and educated regarding the Urban and Community Forestry grant project.

Staff and the Beautification Committee have written and are going to continue to write articles for the Village News. Articles contain various tree-related topics such as Arbor Day, Tree City USA®, tree pollen and tree preservation. The Village News is a great way to continue getting information to the public on a monthly basis.

Waxhaw has several events scattered throughout the year. Recently, the Waxhaw Beautification Committee set up an informational booth at Spring Fest. Their booth contained information on all of the Beautification Committee's projects, one of which is tree education and awareness. Town events are great ways to inform and educate the public.

In 2009 Waxhaw held its first Arbor Day event. The Beautification Committee has committed to growing the event each year. Last year, 2010, they held a poetry contest for Waxhaw Elementary and Kensington Elementary. First, second and third place were chosen from each school and recognized at the 2010 Arbor Day event. In 2011, the Beautification Committee hopes to participate in the national poetry and poster contest. Arbor Day is a great way to get the community together to learn about the Waxhaw's tree preservation efforts.

Outreach to civic groups and local organizations is another great way to reach the public. Staff will create a Power Point© presentation for the Beautification Committee to present to local civic groups and organizations. It will allow a more informal approach to educating a variety of groups in Waxhaw. This will also provide an opportunity for the public to learn how to get involved with their community.

The Planning and Community Development Department has created a brochure, *All About…Waxhaw Urban Forestry*, to aid the public in local urban forest resources. This brochure was made "in-house" so it can be modified as things change. The brochures are available at Town Hall and the Planning and Community Development Department.

Another great method for educating the public would be holding tree pruning classes at ACE Hardware or Lowe's Home Improvement. The Union County Urban Forester is going to coordinate with these local businesses to see if they would be interested in hosting such an event.

Through each of these methods, the citizens of Waxhaw will have multiple opportunities to learn about tree preservation and proper tree maintenance practices. Education is the first step in helping each resident realize the importance of our urban forest.

Goals

Memorial Tree Program

In order to generate public interest and create continuous funding for new trees the Town will organize a Memorial Tree campaign. Citizens will provide the cost of the tree and permanent marker noting the person the tree is honor or memory of. The Town will donate planting services and establishment care. All trees will be from the Town's approved species list. Citizens will be able to choose from pre-approved planting locations on public property. The Town will practice 'right tree, right place'. It is speculated that we will plant 10-15 trees per year.

Gateway Planning

The 2030 Comprehensive Plan discusses gateway areas that indicate one is moving out of one area and into Waxhaw. On page 20-21 the plan states, "Public lands in gateway areas should include appropriate landscaping, trees, and signage announcing entrance/exit to/from the town." It is the goal of the 2030 Comprehensive Plan and this tree management plan to use trees and more specifically, tree species, to define the "entrances" of Waxhaw. While this is only a small portion of the other design elements that should be incorporated into gateway planning, it is a great way to set Waxhaw apart from its neighbors.

Long Term Goals

The broad, long term goal of this management and maintenance plan is to maintain a forty percent (40%) tree canopy. According to American Forest®, "…research indicates that most U.S. communities should strive for an overall tree canopy coverage of 40% to ensure a healthy ecosystem and quality of life." (www.americanforest.org) Forty percent canopy coverage is an achievable goal for Waxhaw. While the development boom may have hit Waxhaw hard, much of the natural landscape still exists.

Waxhaw would like to expand the tree inventory conducted by Arborguard Tree Specialists. A town wide tree inventory will not be accomplished quickly. It would be a multiple year project. A town-wide survey would identify the tree pruning/removal/risk issues that exist in other locations. As areas are inventoried, staff would strongly recommend that a maintenance plan be crafted for each area in order to ensure that the recommendations from the inventory be studied.

The long term goal of the management program is to care for all public trees in an organized, professional manner and have systematic replacement and reforestation of Town property. It is the intent of the Town to lead by example and be proactive in the care and reforestation of Town property. This will be achieved through: annual tree planting of diverse native or naturalized species; young tree pruning and care; mature tree pruning by Certified Arborists; monitoring to Town tree canopy over time; and public outreach and education.

Summary

Tree maintenance and management is necessary to accomplish long-term preservation of Waxhaw's current tree canopy. This document clearly defines the tasks for the 2010-12 fiscal years and will have to be reviewed and revised to address all maintenance and management goals for all successive years. However, the data provided by Arborguard Tree Specialists, coupled with the knowledge and experience of the Public Services department and the Union County Urban Forester, should make identifying issues much easier than before. Waxhaw is not blindly tackling tree related situations.

The Town now has the knowledge and understanding needed to accomplish long-term goals. This plan is a "jumping-off" point for the Town and the community. All future tree management and maintenance plans will be utilize and build upon the methods and concepts provided in this plan.

Appendix A: Trees to be Removed

Softwood

Tree ID	Species	Location
397	Pine-Loblolly	Anne Avenue
434	Pine-Loblolly	Lynn Avenue
444	Pine-Eastern White	Olin Drive
461	Eastern Red Cedar	Olin Drive
467	Pine-Loblolly	Olin Drive
197	Pine-Loblolly	North Church Street

Hardwood

Tree ID	Species	Location
314	Redbud	Howie Mine Road
326	Pecan	Howie Mine Road
342	Oak-Southern Red	Howie Mine Road
631	Oak-Southern Red	McKibben Street
654	Oak-Southern Red	Brevard Street
273	Pecan	Miller Street
275	Elm-American	Miller Street
282	Elm-American	North Providence Street

Appendix B: Trees to be Pruned

Quadrant 1

Tree ID	Species	Maintenance Required	Location
185	Oak-White	Prune Deadwood	McDonald Street
186	Elm-American	Prune Deadwood	McDonald Street
135	Pine-Eastern White	Prune -Structural	North Broad Street
136	Pine-Eastern White	Prune-Structural	North Broad Street
137	Pine-Eastern White	Prune-Structural	North Broad Street
138	Pine-Eastern White	Prune-Structural	North Broad Street
134	Oak-Willow	Prune Deadwood	North Broad Street
139	Oak-Willow	Prune Deadwood	North Broad Street
141	Oak-Willow	Prune Structural	North Broad Street
145	Oak-Willow	Prune Structural	North Broad Street
192	Oak-Post	Prune Deadwood	North Church Street
214	Maple-Red	Prune Structural	North Church Street
175	Pine-Loblolly	Prune-Structural	North Hicks Street
177	Oak-Water	Prune Structural	North Hicks Street
182	Redbud	Prune Structural	North Hicks Street
97	Pine-Shortleaf	Prune Deadwood	West North Main Street
77	Pine-Loblolly	Prune Structural	West North Main Street
75	Oak-Post	Prune Deadwood	West North Main Street
85	Oak-Willow	Prune Deadwood	West North Main Street
179	Oak-Water	Prune Deadwood	West North Main Street
180	Oak-Water	Prune Deadwood	West North Main Street
181	Oak-Water	Prune Deadwood	West North Main Street
51	Oak-Water	Prune Structural	West North Main Street
55	Oak-Water	Prune Structural	West North Main Street
80	Oak-Southern Red	Prune Structural	West North Main Street
89	Oak-Post	Prune Structural	West North Main Street
93	Oak-Post	Prune Structural	West North Main Street
94	Oak-Post	Prune Structural	West North Main Street
95	Oak-Post	Prune Structural	West North Main Street
100	Oak-Southern Red	Prune Structural	West North Main Street
168	Oak-Willow	Prune Structural	West North Main Street
171	Maple-Silver	Prune Structural	West North Main Street
172	Maple-Silver	Prune Structural	West North Main Street
132	Cherry-Black	Prune Structural	West Price Street

Quadrant 2

Tree ID	Species	Maintenance Required	Location
339	Oak-Southern Red	Prune Deadwood	Cureton Street
333	Pine-Shortleaf	Prune-Deadwood	Dunlap Street
328	Oak-Southern Red	Prune Deadwood	Dunlap Street
340	Eastern Red Cedar	Prune-Structural	Howie Mine Road
223	Redbud	Prune Deadwood	Howie Mine Road
311	Oak-Water	Prune Structural	Howie Mine Road
324	Oak-Water	Prune Structural	Howie Mine Road
327	Oak-Willow	Prune Structural	Howie Mine Road
336	Maple-Red	Prune Structural	Howie Mine Road
266	Oak-Willow	Prune Deadwood	Miller Street
274	Blackgum	Prune Deadwood	Miller Street
239	Elm-Winged	Prune Deadwood	North Providence Street

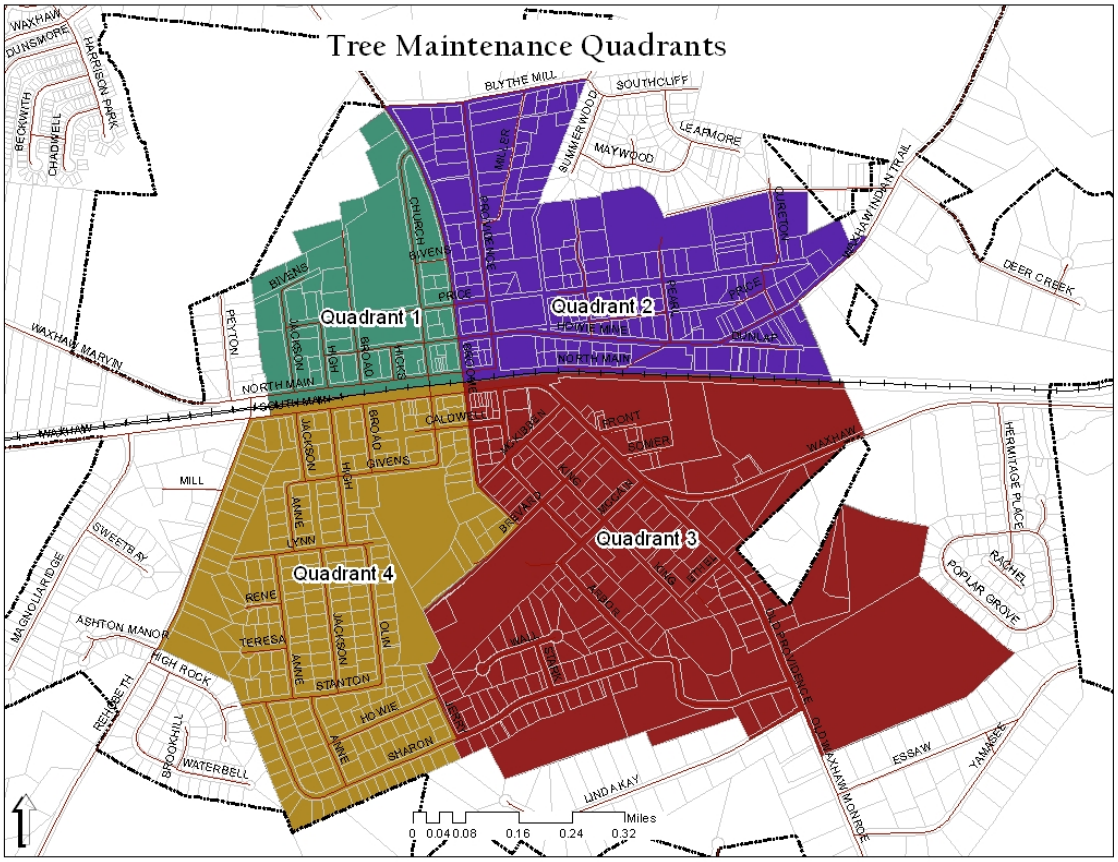
241	Elm-American	Prune Deadwood	North Providence Street
244	Beech-American	Prune Deadwood	North Providence Street
252	Oak-White	Prune Deadwood	North Providence Street
253	Oak-White	Prune Deadwood	North Providence Street
226	Oak-White	Prune Structural	North Providence Street
231	Oak-Willow	Prune Structural	North Providence Street
233	Oak-Water	Prune Structural	North Providence Street
240	Oak-White	Prune Structural	North Providence Street
245	Oak-Willow	Prune Structural	North Providence Street
250	Oak-Water	Prune Structural	North Providence Street
254	Elm-American	Prune Structural	North Providence Street
255	Ash-Green	Prune Structural	North Providence Street
286	Oak-Willow	Prune Deadwood	Washington Street

Quadrant 3

Tree ID	Species	Maintenance Required	Location
643	Oak-Southern Red	Prune Deadwood	Brevard Street
647	Oak-Post	Prune Deadwood	Brevard Street
653	Oak-Southern Red	Prune Deadwood	Brevard Street
658	Oak-Southern Red	Prune Deadwood	Brevard Street
659	Oak-Southern Red	Prune Deadwood	Brevard Street
661	Oak-Post	Prune Deadwood	Brevard Street
689	Oak-Post	Prune Deadwood	King Street
692	Oak-Willow	Prune Structural	King Street
702	Oak-Post	Prune Deadwood	McCain Street
634	Oak-Scarlet	Prune Deadwood	McKibben Street
679	Oak-Southern Red	Prune Deadwood	McKibben Street
755	Oak-Southern Red	Prune Deadwood	Old Providence Road
699	Oak-Post	Prune Deadwood	South Providence Street
700	Oak-Post	Prune Deadwood	South Providence Street

Quadrant 4

Tree ID	Species	Maintenance Required	Location
411	Oak-Northern Red	Prune Deadwood	Anne Avenue
373	Maple-Red	Prune Structural	Anne Avenue
374	Maple-Red	Prune Structural	Anne Avenue
559	Pine-Shortleaf	Prune Deadwood	Arbor Drive
610	Oak-White	Prune Deadwood	Caldwell Street
578	Oak-Southern Red	Prune Deadwood	Givens Street
441	Ash-White	Prune Deadwood	Lynn Street
451	Pine-Loblolly	Prune Deadwood	Olin Drive
447	Oak-Southern Red	Prune Deadwood	Olin Drive
529	Oak-Willow	Prune Structural	Rehobeth Road
582	Elm-American	Prune Deadwood	South Broad Street
583	Elm-American	Prune Deadwood	South Broad Street
574	Pecan	Prune Structural	South High Street
421	Maple-Red	Prune Deadwood	Teresa Circle


Tree Maintenance Quadrants
Quadrant 1
Quadrant 2
Quadrant 3
Quadrant 4
Miles
0 0.04 0.08 0.16 0.24 0.32

Appendix C: Urban Forestry Resources

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Washington, DC 20013
(202) 737-1944
www.americanforests.org

Arbor Day Foundation™
100 Arbor Avenue
Nebraska City, NE 68410
(888) 448-7337
www.arborday.org

Interface South
P.O. Box 110806
Bldg. 164, Mowry Road
Gainesville, FL 32611-0806
(352) 376-3271
www.interfacesouth.org

North Carolina Division of Forest Resources
District Forester Dan Brandon
1933 Mountain Island Highway
Mount Holly, NC 28120
(704) 827-7576
www.dfr.state.nc.us/

North Carolina Urban Forest Council
P.O. Box 25852
Winston-Salem, NC 27114-5852
(919) 857-4849
www.ncufc.org/

Union County Cooperative Extension
3230-D Presson Road
Monroe, NC 28112
(704) 283-3741
www.union.ces.ncsu.edu/

Urban Natural Resources Institute
USDA Forest Service
130 Holsworth natural Resources Center
160 Holsworth Way
University of Massachusetts
Amherst, MA 01003
(413) 545-3755
www.unri.org/