

The City of Monroe, Georgia

Community Forest Management Plan



August 29, 2008

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INTRODUCTION

This *Community Forest Management Plan* was developed for city-owned trees and properties, but it also contains recommendations for enhancing the largest component of the community forest—privately owned trees. The same strategies and standards for tree establishment, maintenance, protection, inspection and removal that are applied to city trees in this plan can be adopted by private property tree owners for their own benefit and that of their trees. Parts of this plan can be used by the city to educate private property owners to enhance the function and value of the community forest.

An overview of the plan, background information on this project and the plan's development, and a summary of existing conditions follow.

PLAN OVERVIEW

The City of Monroe's *Community Forest Management Plan* proposes a comprehensive community forest management program. It was designed using data from the city's recent tree inventory and input from city staff, the Monroe Tree Board, and community partners. It adds to existing activities the financial support, city-wide coordination, arboricultural standards, education and outreach, and additional management activities that will guide the city toward achieving its vision and reaching its goals for the city and the community forest.

The City of Monroe's tree population is aging. Few trees have been planted in recent years to replace those aging trees. The plan proposes the removal of 30 trees per year (10 large, 20 small) out of the 120 live trees and 18 dead trees recommended for removal. The plan also proposes the pruning of 20 trees per year. Since little to no tree planting has been done on city street rights-of-way throughout town in recent years, and to replace the trees removed, the plan proposes the planting of 40 trees per year if weather conditions permit.

The plan also proposes the development of a comprehensive education and outreach program. The costs included in this program include training for the city arborist, city staff, tree board members, and the public at large.

Specifically, the Plan proposes the following:

- An approximately \$30,600 annual budget over the next 5 years for a comprehensive program to manage a city asset worth over \$3.4 million dollars.

- Ongoing tree inventory and detailed record keeping and reporting of program activities.
- Designation of an existing Public Works Department employee as a city arborist to coordinate the tree management program and certification as an ISA Certified Arborist.
- Certification of a Monroe Utilities employee as an ISA Certified Arborist.
- Adoption of a city tree management ordinance to protect city trees and formally establish a Monroe Tree Board and plans to evaluate the need for an ordinance regulating trees on new developments.
- Adoption of arboricultural standards for tree care operations.
- Immediate, routine, comprehensive, and long-term management programs for the city's trees, including tree establishment, protection, maintenance, removal and replacement.
- A city-sponsored tree care education and outreach program to give city staff and private property owners the knowledge and skills to manage trees in a correct and cost-effective manner.
- An organized and consistent approach to tree management that distributes tree care activities throughout city departments and community partners, and throughout the calendar year.

In this plan, detailed program descriptions, management strategies, and plans are presented for the city arborist, tree ordinance and arboricultural standards, field operations, education and outreach, budgets, and designation as a Tree City USA. While the scope of this management plan is 5 years, the management activities it proposes are sustainable long into the future.

Before the program details are presented, background information and a discussion of existing conditions are presented.

PROJECT BACKGROUND

This *Community Forest Management Plan* is the second part of year-long project to inventory the city-owned trees in Monroe and develop a plan for their management. All project activities

are being conducted by an urban forestry consultant¹ working with the Monroe Tree Board and city staff. The consultant conducted the tree inventory during May through August 2008. Early in 2008 the development of the management plan began with the processes of defining existing tree management resources and exploring a vision and goals for the city's community forest.

In January 2008 the consultant sent a *Survey of Existing Resources and Activities* for the Community Forest Management Plan to the Public Works Director for distribution to city department directors. The survey was returned by directors from the Public Works and Monroe Utilities departments². The consultant subsequently gathered additional information on public tree management needs, preferences, and priorities.

On May 15, 2008, a Community Forest Strategic Planning Meeting was held at the Monroe Community Center. The meeting, conducted by the consultant, was attended by community leaders that included city staff and members of the Monroe Tree Board. The purpose of the meeting was to brainstorm a community forest vision, explore current issues and needs related to trees, and to develop program goals.

This plan contains this introduction, and two main components: a strategic plan that includes a community forest vision, goals, and management strategies; and, a management plan that contains detailed program descriptions and annual plans.

The tree inventory and management plan projects were funded in part by an Urban and Community Forestry Assistance Program grant to the Oconee River Resource Conservation and Development Council (RCDC) from the Georgia Forestry Commission³ and in part by city funds and in-kind services from a variety of partners. Luther Jones with the RCDC, and Crista Carrell, Monroe Tree Board chairperson and Executive Director of the Georgia Soil and Water Conservation Commission, administered the grant for the city. The tree inventory was conducted and this management plan developed by Connie Head, Consulting Urban Forester with Technical Forestry Services of Commerce, Georgia.

¹ Connie Head, Consulting Urban Forester, Technical Forestry Services

² Steve Worley, Director, Public Works Department; Brian K. Thompson, Director, Monroe Utilities

³ The Georgia Forestry Commission is the statewide agency responsible for "providing leadership, service, and education in the protection and conservation of Georgia's forest resources" (from the Commission's website at www.gfc.state.ga.us).

EXISTING CONDITIONS

COMMUNITY SUPPORT

Based upon input provided at the strategic planning meeting, involvement demonstrated by the Monroe Tree Board and community partners, and the interest expressed by city residents during the inventory process, it is clear that there is widespread community support for trees and their management.

TREE MANAGEMENT PROGRAM

The existing policies, responsibilities, and activities related to tree management that are currently in place within the city were researched through a *Survey of Existing Resources and Activities*, during a strategic planning meeting held with the Monroe Tree Board and city staff, and through discussions between the consultant and city staff.

Currently the Public Works Director has the responsibility for management of the city's trees on city property, in the cemeteries, and on the street rights-of-way. The Monroe Utility Department Director (electric and telecommunications) has responsibility for trees adjacent to overhead and underground utilities. Neither department has responsibility for trees in the parks.

The tree board provides input to the Public Works Director on tree issues and communication and cooperation between Public Works and the board is satisfactory. Both the tree board and the Public Works Director consult with arboricultural professionals when a greater depth of information or expertise is needed for decision-making.

Some elements of a city tree management program are already in place with tree-related activities primarily the responsibility of the Public Works and Monroe Utility departments. Additionally, the Monroe Tree Board and agencies such as Keep Walton Beautiful and the Monroe Downtown Development Authority actively promote trees in the community.

Critically needed tree work is being done. Trees are pruned by the Public Works Department crew along street rights-of-way, around city offices and facilities, and in the cemeteries as needs are identified and after storm damage occurs. The Utility Department has a crew that trims and removes trees that endanger utilities on both public and private property. These trees are routinely pruned on a continuing cycle throughout the city.

The only other routine tree pruning that occurs is on the trees in the Downtown Business District (DBD).

Less than three (3) trees are removed by the city annually by Public Works, usually as a result of storm damage. Citizens are informed by Public Works of the reasons for tree removal. There is a desire within the department to have more information on tree condition so that the city can transition from the current reactive approach to a more proactive approach to management.

The number of trees removed by the Utility Department varies based on need. Tree pruning and tree removal are done by city crews and little to none of this tree work is contracted out.

No tree planting program currently exists. No tree planting has been done along city street rights-of-way by the city in the recent past. The only trees planted recently are those around the new City Hall, and prior to that throughout the DBD.

Between the two (2) departments, adequate equipment is available for tree maintenance, including pruning saws, chainsaws, bucket trucks, chippers, and a water tank.

STAFF EDUCATION AND TRAINING

In the *Survey of Existing Resources and Activities* both directors expressed their desire to learn more about trees and their willingness to take advantage of tree care educational opportunities on a regional and statewide basis. Their answer in the survey show that the topics of greatest interest are:

- Tree pruning
- Tree planting
- Tree mulching

The educational program length most preferred ranges from 4 hours to a full day. The preferred days of the week are Tuesday, Wednesday, and Thursday. Winter months are preferred by the Public Works Director, and the Utility Department Director expressed no preference on time of year.

Both directors stated that cable television is one of the primary outlets available to provide staff and citizens alike with information on community trees and their care.

TREE INVENTORY

A city tree inventory was completed in the City of Monroe during the summer of 2008. Only trees growing on city property were inventoried. All trees and tree groups found in the city cemeteries, around city offices and facilities, in the downtown business district, in the parks, and along street rights-of-way in the central city area were inventoried. The Monroe Tree Inventory Summary Report contains extensive information on the results of the inventory. A few highlights are presented here.

A total of 1,529 data entries are included in the inventory, representing 1,088 trees, 44 tree groups, and 397 tree planting recommendations. The distribution of individual trees by property type is listed in Table 1.

Table 1. Distribution of Data by Site Type and Data Category

Site Type	Total Data Points	Individual Trees	Tree Groups	Tree Planting Recommendations
<i>City Cemeteries</i>	38	35	2	1
<i>City Offices and Facilities</i>	190	179	1	10
<i>Downtown Business District</i>	72	66	0	6
<i>Parks</i>	165	161	4	0
<i>Street Rights-of-Way</i>	1064	647	37	380
TOTAL	1,529	1,088	44	397

Most city trees in the inventory area were found growing on the street rights-of-way (647 trees), but substantial numbers were also found around city offices and facilities (179 trees) and in the parks (161 trees). Most tree planting recommendations were made for vacant planting sites along city street rights-of-way (380 recommendations).

There are 94 different species represented in the inventory showing good diversity. Trees in the arboretum in Matthews Park were inventoried and added substantially to this diversity. There are four (4) predominate species that make up the city tree population—water oak, crapemyrtle, flowering dogwood, and willow oak—which account for 42 percent of all city trees inventoried.

The largest tree inventoried is 58 inches in trunk diameter at 4.5 feet measured at 4.5 feet above the ground. The average diameter of all trees is 13.2 inches, and the largest diameter trees are growing along street rights-of-way, averaging 16.3 inches.

The inventory found that 321 trees (30 percent of all trees) are in excellent condition (greater than 88%), and 606 trees (56 percent of all trees) are in at least good condition (greater than 78%).

There were 18 dead trees inventoried, all recommended for removal, and 120 live trees recommended for removal for various reasons. There were 51 trees given a hazard rating.

The primary management needs identified in the inventory are:

- Removal of 18 dead trees and 120 live trees.
- Removal, pruning or cabling and bracing of 51 trees in hazardous condition.
- Pruning of 634 trees for clearance, correction, crown cleaning, training, risk reduction.
- Annual inspections of 110 trees in marginal condition.
- Soil aeration for 13 trees.
- Cabling and bracing for 10 trees.
- Elimination of the practice of topping crapemyrtles and corrective pruning of those that have been topped.
- Establishment of a routine tree planting program to fill 822 vacant tree planting sites over the next 20 to 30 years.
- Increasing species diversity by choosing high quality native and non-native tree species that are proven performers in Monroe and urban environments.
- Mulching 154 trees and all trees where possible using correct techniques and quality materials.

A conservative estimate of the total value of the city's 1,088 trees using a modified trunk formula method from the 9th Edition of the *Guide for Plant Appraisal* is \$3.4 MM dollars, or an average of \$3,125 per tree.

For more information on the city's tree inventory, contact Mr. Steve Worley, Public Works Director, at (770)267-6933, or sworley@monroega.gov.

BUDGETS AND FUNDING

A review of the City of Monroe's Fiscal Year 2008 Budget⁴ reveals the following:

- Budgeted general fund expenditures of \$9,385,901.
- No line item specifically for trees or tree management in any departmental budget, although a total of \$2,500 allocated for landscape at the Community Center Building (\$2,000) and other city facilities (\$500).

⁴ Viewed at www.monroega.org

- No funds allocated to the Highways and Streets department for landscape.

TREE ORDINANCE

The Monroe Tree Board has produced a draft city tree ordinance, included here in Appendix A. It regulates trees on city property only and formally establishes the Monroe Tree Board. It does not include regulation of trees on new or existing developments or established single-family residential lots.

The ordinance references arboricultural standards as well as a list of recommended trees for planting in Monroe.

PARTNER ORGANIZATIONS

The Monroe Tree Board, Keep Walton Beautiful, the Monroe Downtown Development Authority, the Walton County Cooperative Extension Service, the Walton County Soil and Water Conservation District, and the Georgia Soil and Water Conservation Commission are the city's primary partner organizations involved in community tree care and education in Monroe. Additional partners include the Monroe and Evergreen Garden Clubs, the Historical Society of Walton County, the Georgia Forestry Commission, and the USDA Natural Resource Conservation Service. Many of these partners are represented on the Monroe Tree Board.

In 2008 the Monroe Tree Board and Keep Walton Beautiful organized an afternoon Arbor Day outdoor exhibit and educational program. They provided education programs on recycling, litter and community cleanups, trees, and water resource protection.

The Downtown Development Authority is an advocate for the management of trees in the downtown business district and protection of the historic center of Monroe.

The Georgia Forestry Commission provides technical expertise and advice to the city in all tree-related issues.

STRATEGIC PLAN

The City of Monroe's Community Forest Strategic Plan was developed with input from city staff and community partners. The vision, goals, and implementation strategies that follow are intended to guide overall program direction.

VISION

Monroe is a town well-known for its beautiful, tree-lined streets, shaded parking lots, and forested subdivisions. Trees here are well-maintained according to best management practices and the community forest is healthy and diverse. City officials and staff, and the public at large, recognize that healthy trees are vital to a healthy economy, and that the community forest is an integral part of the city's historic charm and inviting character.

GOALS

The following goals were developed to address community forest management issues identified during a strategic planning meeting and during research and discussion with city staff. A detailed list of the issues, needs, and goals and recommended management actions for the community forest are located in Appendix B.

COMMUNITY FOREST MANAGEMENT GOALS

- I. Conserve and expand tree canopy cover.*
- II. Establish a City arborist to coordinate the city's tree management program.*
- III. Improve the quality and distribution of the tree population.*
- IV. Educate all community partners in tree care so their actions support and promote city tree management goals.*
- V. Adopt a tree management program budget that allows essential tasks to be completed and regular program improvements to take place.*
- VI. Conduct all tree management activities in accordance with standards.*

Additional goals that the city is encouraged to adopt in the near future for the community forest are to establish a minimum overall tree canopy cover and minimum tree canopy cover by zoning district.

IMPLEMENTATION STRATEGIES

The community forest management proposed in this plan is guided by the following strategies:

- I. Manage city trees in a pro-active manner and commit the resources necessary for a prudent and sustainable level of tree management.
- II. Utilize existing city staff, staff knowledge and experience, equipment, and materials to the greatest extent possible to minimize tree management expenses.
- III. Utilize education as a primary tool to improve tree health and longevity, and to reduce tree maintenance costs.
- IV. Accomplish tree management activities in a high quality manner according to arboricultural standards to maximize long-term tree health and longevity and minimize annual per tree costs.
- V. Preserve old, large existing trees for as long as possible while maintaining public health and safety.
- VI. Actively maintain young and middle aged trees to improve their health and chance of reaching their potential.
- VII. Plant additional trees of diverse species on a regular basis to gradually increase species and age diversity and the health and extent of the city's tree canopy cover.
- VIII. Eliminate future conflicts between trees and infrastructure such as sidewalks, streets, and overhead and underground utilities by through careful tree selection and placement.
- IX. Extend program potential and increase overall cost effectiveness by securing grants to fund educational and non-routine tree management projects.
- X. Maintain detailed records of tree care operations to improve accuracy of planning and budgeting processes.
- XI. Communicate program goals, results, and accomplishments to decision makers on a regular basis.

TREE MANAGEMENT PLAN

Considering the existing tree management program, the current condition of the city tree resource, the community's vision and goals, and the boundaries of the implementation strategies, the following program elements are proposed and have been combined to create a framework for the city's comprehensive tree management program:

- City Arborist
- City Tree Ordinance
- City Tree Board
- Arboricultural Standards
- Field Operations
- Education and Outreach
- Information Management
- Tree City USA
- Budget

A discussion of each program element follows.

CITY ARBORIST

The designation of a city arborist to coordinate the community tree management program is proposed in this management plan. Several options exist for filling this role, such as hiring a contractor or a new employee, but this plan recommends that as a first step an existing employee be designated as the city arborist.

Strategies recommended for designating a city arborist are listed below.

1. Take advantage of interest and experience of existing personnel to fill the role of city arborist, preferably in the Public Works Department.
2. Provide city-wide and departmental support for certification and continuing education of city arborist.
3. Consolidate tree management program administration and coordination with city arborist in the Public Works Department, but continue tree management roles as currently exists in the Utility Department.

The minimum qualifications of the city arborist are:

- Interest in trees and their care
- Working knowledge of Microsoft Word, Excel, and PowerPoint or interest and ability to learn these programs
- Commitment and ability to become an ISA Certified Arborist
- Ability to communicate and work effectively with staff, local agencies and organizations, and individual citizens to accomplish tree management goals

The city arborist would be responsible for the following typical activities and tasks:

- Maintain ISA arborist certification
- Staff technical support
- Public tree evaluations
- Coordinate field operations
- Attend tree board meetings and serve as liaison between the tree board and the city
- Serve as a community tree care education and public information resource (staff, local agencies, non-profit organizations, general public, individual citizens)
- Consult with other certified arborists, foresters, landscape architects, horticulturists, and other allied professionals as necessary to make informed and fair tree management decisions
- Enter changes in the tree population into the tree inventory database on a weekly basis or as soon as changes occur; update the complete inventory on a periodic basis
- Complete the inventory of city trees; include trees at other city offices and facilities and those on the streets not yet inventoried
- Maintain standards for tree pruning, protection, removal, placement, planting and other arboricultural practices and augment established practices as necessary
- Schedule and supervise routine tree pruning and removal
- Develop city tree protection plans and supervise their implementation
- Approve tree and site selections for trees to be planted on the city street right-of-way by citizens, businesses, or city staff
- Assist with annual Arbor Day celebration
- Develop annual budgets
- Report program results to mayor and council and provide regular program information to the public via established media outlets
- Update the Community Forest Management Plan as necessary

In addition to these typical activities, the city arborist could also be assigned the following tasks if so desired by the city administration.

- Respond to citizen requests for tree information and evaluate trees growing on private property by request
- Develop a permit system for right-of-way encroachment within the CRZ of city trees, review permit applications, and issue and monitor permits

The city arborist should achieve arborist certification within six (6) months of being designated. To begin the process of studying for the test, the arborist should purchase from ISA the *Arborists' Certification Study Guide*, along with other ISA publications as listed later in the Education and Outreach program outline. All of these educational materials can be shared among staff in the Public Works and Utility departments, and the Monroe Tree Board.

The first priorities of the city arborist will be to become certified under the ISA Certified Arborist program, promote the adoption of a city tree ordinance, and develop recordkeeping systems for tree management programs and field operations. Continuing education and networking at local, regional, and statewide workshops and conferences are also priorities.

CITY TREE ORDINANCE

A city tree ordinance currently does not exist. The development of a draft city tree ordinance has been completed by the Monroe Tree Board, and this draft can be found in Appendix A. The ordinance includes the establishment of a city tree board, arboricultural standards for tree care operations, the city's right to plant, maintain, and remove trees on city property, an official list of trees for planting in Monroe, the requirement for the city to have an annual work plan for the management of the community trees, and establishes the city's right to prune or remove trees on private property when a public nuisance exists.

Proposed strategies for adoption and implementation of a city tree ordinance are:

1. Use the city tree ordinance as a tool to establish tree management standards and policies and to achieve the community forest vision and goals.
2. Set an example for tree management by consistently following and enforcing the tree ordinance and the arboricultural standards it includes on city property.
3. Complete tree canopy cover measurements and set a tree canopy cover goal for the city overall and tree canopy cover requirements for each zoning district.
4. Evaluate the need for regulating trees on new developments within the city by assessing the outcome of current development policies and regulations.

5. Convene a stakeholders group to develop a comprehensive community tree management program that protects trees on public property and regulates trees on new developments.

A list of trees recommended for planting in Monroe has been developed as the city's Official Tree Species List, as referenced in the draft ordinance. It is included in Appendix C.

CITY TREE BOARD

This plan recommends the formal establishment of a city tree board that would act as a liaison between the community and elected officials and staff. The first option for appointing members to the tree board is to have the mayor and council members appoint people to the tree board who represent various interests within the city, and to include people with expertise in tree management. These interests should include:

- Citizens-at-large
- Keep Walton Beautiful
- Monroe Downtown Development Authority
- Development community
- Community groups, such as the Monroe Garden Club or Evergreen Garden Club
- Professionals in the field of arboriculture, forestry, landscape architecture, or horticulture

The number of voting members of the tree board should be at least 5 but no more than 9. The number of ex-officio members of the tree board can be unlimited if so desired by the city, but they should include, at a minimum:

- City Arborist
- City Planner
- Georgia Forestry Commission forester
- Utility Department staff representative

The second option available for appointing members to the tree board is to have the mayor and council members each appoint a community representative from their ward or as a citizens-at-large. This would create a 9-member board. Then, representatives of community groups, agencies, and staff would all be considered ex-officio members. Of course, council members could appoint someone from their ward who also represents one of the groups or professions listed previously.

The tree board should be assigned the following responsibilities:

- Consider, investigate, make findings, report and make recommendations on any tree-related issue to the mayor and council
- Provide input to the city arborist on the *Community Forest Management Plan* and annual work plans
- Provide input on the city tree ordinance and tree species list
- Organize educational programs on tree care
- Collect sponsorships and donations for tree care projects
- Provide a forum for citizens to voice their concerns about tree-related issues at regular tree board meetings
- Provide a forum for the exchange of tree-related information among staff members and for the tree board members to become familiar with staff activities

The tree board should choose a chairperson, vice-chairperson, treasurer, and secretary. The board should develop its own rules of operation, regulations, and keep minutes of all its proceedings, including meetings of the full board and the officers. A majority of the members should constitute a quorum for the official conduct of business.

Meetings of the tree board should be held monthly for timely sharing of information on tree-related activities. The city arborist and Utility Department staff representative should provide the tree board with reports and updates on current activities involving community trees at each meeting. The meetings should be held at a regular time during normal business hours if possible to facilitate attendance by city staff. Tree board meeting dates and times should be announced on the city website, in the external and internal city newsletters, and on the local access cable television station.

Tree board records should be maintained in the office of the city arborist. The mayor and council should receive copies of all meeting announcements, agendas, and minutes, and announcements for all events sponsored or attended by the board.

ARBORICULTURAL STANDARDS

The city, and each department responsible for some aspect of tree care, should adopt and implement professional arboricultural standards for tree care operations.

Fortunately, the International Society of Arboriculture has developed standards for tree care operations for most maintenance activities described in this plan. These standards have been

adopted by the American National Standards Institute (ANSI) and are published by ISA, along with best management practices that supplement many of the standards.

Strategies for adopting arboricultural standards follow.

1. Adopt a single set of standards for both city and private property tree management
2. Adopt existing professional arboricultural standards and best management practices for tree care to increase tree health and longevity, and to minimize annual per tree costs
3. Develop standards for activities for which existing professional arboricultural standards are not published
4. Reference published standards and describe additional standards in the tree ordinance

The following standards should be purchased in Year 1 by the city⁵, referenced in the city tree ordinance, and copies kept on file in the offices of the city clerk and city arborist.

- ANSI Z133.1 American National Standard for Arboricultural Operations – Safety Requirements (2006)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Pruning) (2001)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Tree Lightning Protection Systems) (2002)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Fertilization) (2004)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Transplanting) (2005)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Integrated Vegetation Management a. Electric Utility Right-of-way) (2005)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Management of Trees and Shrubs During Site Planning, Site Development, and Construction) (2005)

⁵ Available at www.isasouthern.org, the website of the Southern Chapter of the International Society of Arboriculture, or at www.isa-arbor.com, the international organization's website

- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Supplemental Support Systems) (2006)

Two (2) copies of the following best management practices published by ISA should be purchased in Management Year 1 and kept in the offices of the city arborist and city clerk.

- Tree Pruning
- Integrated Pest Management
- Tree Support Systems: Cabling, Bracing, Guying, and Propping (Revised)
- Utility Pruning of Trees
- Tree and Shrub Fertilization
- Tree Lightning Protection Systems
- Tree Planting
- Tree Inventories
- Integrated Vegetation Management

The following standards and best management practices should be purchased by the Utility Department in Year 1.

- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Pruning) (2001)
- ANSI A300 American National Standard for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Integrated Vegetation Management a. Electric Utility Right-of-way) (2005)
- Best Management Practices: Utility Pruning of Trees
- Best Management Practices: Integrated Vegetation Management

Compliance with these standards and best management practices should be required of contract line clearance crews. The staff responsible for monitoring contract crews for compliance should become familiar with these standards and practices.

The following additional standards should be adopted by the city in Year 1:

- Tree placement
- Tree mulching
- Tree removal

Recommended standards for each of these activities are outlined below.

TREE PLACEMENT

Recommended standards for the placement and spacing of trees in relation to each other and to infrastructure are listed in Table 2.

Table 2. Minimum Distances Required from Trees to Infrastructure

Infrastructure Component	Minimum distance in feet from infrastructure to trunk of trees of mature size...		
	Small Trees (<25 ft height)	Medium Trees (25 to 40 feet)	Large Trees (>40 feet)
Other Small Trees	15 feet	15 feet	15 feet
Other Medium Trees	15 feet	25 feet	25 feet
Other Large Trees	15 feet	25 feet	40 feet
Street Corners	35 feet	35 feet	35 feet
Overhead Electric Lines	0 feet	25 feet	40 feet
Fire Hydrant	10 feet	10 feet	10 feet
Mailbox	15 feet	15 feet	15 feet
Sign	10 feet	10 feet	10 feet
Driveway	15 feet	15 feet	15 feet
Utility Pole	10 feet	20 feet	30 feet
Utility Equipment	15 feet	15 feet	15 feet
Building	10 feet	20 feet	30 feet

Clearance over roadways for vehicular traffic should be maintained at 16 feet. Clearance above sidewalks for pedestrians should be maintained at 8 feet.

TREE MULCHING

Trees should be mulched to retain soil moisture, improve soil aeration, and provide some nutrients. The following are acceptable mulch materials:

- Wood chips, aged at least 3 months
- Composted leaves and organic matter of medium texture
- Pine straw

Grass clippings, pine bark, stones, shredded rubber and plastic are not recommended as mulch.

Mulch should be applied in an even layer, 3 to 4 inches deep, from 6 inches outside the tree trunk to the tree's dripline, or within the CRZ, whichever is larger. If the entire CRZ or dripline cannot be mulched, then the mulch should be spread out as far as possible. The mulch ring around newly planted trees should increase in size as the tree grows.

Combine adjacent mulch rings into a single mulch bed where possible.

TREE REMOVAL

Standards for tree removal are intended to guide tree removal decision. The following are approved reasons for the removal of trees on city property:

- Tree is in conflict with infrastructure, is causing or has the potential to cause damage to infrastructure, and removal is the only way to resolve the conflict
- Tree is in poor condition and no longer has a positive value as a community asset
- Tree has a high risk of whole tree failure and there is no cost-effective means to reduce the risk
- Tree produces a large amount of litter that results in a public nuisance
- Tree has a structural defect that cannot be eliminated or corrected

Removal of city trees should not be approved under the following conditions or for the following reasons:

- Tree is in good condition
- Tree does not have an elevated risk of whole or partial tree failure
- Normal amount of leaf litter
- Sign clearance

TREE PROTECTION

The entire tree—roots, trunk, and crown—whether newly planted or already established in the landscape, should be protected from damage to maximize tree health and longevity, and to minimize per tree costs. Protection can be passive, achieved through the avoidance of damage to a tree's roots and rooting zone, its trunk, and its large limbs, branches and leaves, or it might be active, involving the installation of tree protection structures, such as fencing or trunk wraps.

ANSI standards for the management and protection of trees during development exist, but a critical root zone (CRZ) where tree roots and the soil in which they grow are to be protected should also be defined for all city trees as the area equivalent to 1.5 feet for every 1 inch DBH, or the farthest extent of the trees branches, *whichever is greater*.

The CRZ will increase annually for newly planted trees and for all trees that are still adding trunk diameter. The rate of increase in the CRZ for a newly planted, fast growing tree is more dramatic than for an older, slower growing tree. To provide a good quality rooting zone for a tree throughout its life, one that is free from compaction, impermeable hardscape, and other

restrictions, the potential mature size of a tree must be considered when selecting a planting location.

Refer to the ANSI standards for further information on tree management on development sites and tree protection.

FIELD OPERATIONS

The following strategies and annual work plans for tree establishment, maintenance, pruning, inspections, and removal are designed to create a predictable and manageable work load and regular progress toward reaching tree management goals.

The two (2) most important activities that need to take place are pruning and removal to reduce risks associated with the city's larger, older trees. The city arborist should use the tree inventory database and to identify the individual trees recommended for pruning and removal. Priorities should be based on the tree's hazard rating, the tree's DBH, and its condition.

To facilitate planning and field operations, City staff should print out and have available the following lists:

- Trees recommended for removal, sorted by condition and hazard rating, with management year.
- Removal recommendations for chains, stakes and guy wires, poison ivy, and vines/woody saplings.
- Trees recommended for risk reduction pruning, sorted by site, street, and address, with management year.
- Trees recommended for all types of pruning, sorted by site, street, and address.
- Trees recommended for inspection, sorted by site, street, and address.

These lists will need to be reprinted as tree inventory data is updated in the database. Updates should be made to the tree inventory data as trees are pruned, removed, and otherwise maintained.

PRUNING

The strategy for addressing the pruning needs identified in the inventory follow.

- Reduce risk to public health and safety first by pruning trees in hazard condition in Year 1.
- For large trees, begin routine pruning in Year 1 along with risk reduction pruning.
- Accomplish the routine pruning of large trees on a street-by-street and area-by-area basis.
- Limit the removal of live wood from large, mature and over-mature trees; remove deadwood and structurally weak limbs only.
- Utilize a contractor for the largest trees and city crews for other large trees and all small trees.

There are only two (2) trees listed in the inventory that need risk reduction pruning. However, there are many large trees that are recommended for crown cleaning pruning to remove deadwood. The pruning of these large trees should be prioritized according to their size and their condition using the tree inventory database. Routine large tree pruning (and emergency pruning) is estimated at 15 trees per year throughout the plan. This routine large tree pruning will be completed by city crews.

Small and young tree pruning can be completed by city crews, and is planned at a level of 60 trees per year, which includes 40 newly planted trees and an additional 20 established trees.

Young tree training pruning is essential and a high priority for all recently planted trees in the DBD, at city parks, and around city offices and facilities. City crews should be trained in the proper techniques for pruning young trees prior to beginning this pruning program. If more than 60 trees can be pruned per year, then this number should be increased as appropriate.

REMOVAL

The strategies for addressing tree removal as recommended in the tree inventory follows.

- Reduce risk to public health and safety first by removing trees in hazard condition in Years 1 and 2.
- For large trees transition from risk reduction removals to routine, non-emergency removals in Year 3 or 4.
- Begin removal of trees less than 18 inches DBH in Year 3 on a street-by-street and area-by-area basis
- Utilize contractors to remove the largest trees.
- Utilize city crews to remove large and small trees.

There are 138 individual trees recommended for removal (120 live, 18 dead) as a result of the tree inventory. Of these 138 trees, 64 have a DBH of 18 inches or greater. With a removal schedule of 10 trees per year, it will take the city 6 years to get all of these trees removed. They should be removed in descending order of hazard rating, then a combination of DBH and condition rating.

There are an additional 74 trees less than 18 inches that need removal. The plan recommends removal of 20 of these smaller trees per year in Years 1, 2, and 3, and then 10 trees per year or as many as needed in Years 4, 5, 6 and beyond.

The city may decide to remove all trees recommended for removal on a single site or street during a single visit rather than removing just the highest priority trees, leaving some for later years.

MULCHING

Mulching is an extremely important and beneficial tree maintenance activity. Strategies for mulching city trees include:

- Mulch all recently planted trees to retain soil moisture, improve health and chance of survival according to standards.
- Utilize local sources of wood chips from tree service contractors and from city operations to develop a good quality supply of mulch.
- Use only aged wood chips (at least 3 months old) or other high quality organic material such as pine straw for mulching city trees.

Sources of mulch should be identified as quickly as possible and Public Works should begin to stockpile high quality city mulch. All young and recently planted trees at city parks and city offices and facilities should be mulched in late winter of Year 1 and the mulch refreshed every year thereafter. The initial mulching of all currently unmulched trees may take up to two (2) years.

All newly planted trees should be mulched at the time of planting and every year thereafter.

TREE ESTABLISHMENT

When a tree is planted the city is making a 25 to 100 year commitment to maintain the tree in a healthy and safe condition. Getting the tree in the ground, however, is only one part of the

entire process of establishing the tree in the landscape. This process, which lasts at least 3 years and up to 5 years, includes the following activities:

- Planting site selection and selection of appropriate species
- Tree selection, ordering, and delivery
- Site preparation
- Tree planting
- Mulching
- Watering
- Protection
- Inspection

Since the inventory shows that there are a substantial number of trees, both large and small, that need to be removed each year, an overall goal of the city's tree establishment program should be to replace each city tree removed with at least four (4) new trees, if seasonal planting conditions are favorable. This results in a modest goal of planting 40 trees each year. The level of tree planting will have to be adjusted, of course, to climatic conditions, especially soil moisture and current rainfall patterns. A lower level of tree planting, 10 to 20 trees annually, is more appropriate in years of severe drought.

Strategies for tree planting include:

- Plant four (4) trees for every one (1) tree removed to increase the city's tree canopy cover.
- Replace recently planted trees that are dead or in advanced decline in locations with high visibility and visitor traffic such as the Downtown Business District.
- Focus on tree quality and planting site quality to maximize the cost-effectiveness of tree establishment efforts.
- Develop a landscape plan for each street that requires a substantial number of new or replacement trees to ensure an organized, cohesive, and successful planting effort.

The recommended priorities for tree planting are as follows:

- Year 1 – Church Street East. This street has wide tree lawns, is well traveled, and is one of the city's main thoroughfares.
- Year 2 – Broad Street South and North. This street has relatively narrow tree lawns, but adequate for the planting of small trees. Some dying and declining dogwoods exist here, and they could be replaced by planting of new, more attractive trees.

- Year 3 – Madison Avenue South and the Mill Village. There are a substantial number of vacant planting sites in this section of town. Madison Avenue South is a well traveled road that would benefit from some addition of tree canopy and color. Some planting in the mill village area could also begin this year.
- Years 4, 5, and 6 – Priorities to be set taking into account tree planting successes in years 1, 2, and 3, and considering the list of recommended tree planting sites provided from the tree inventory. Many options for tree planting exist throughout the city.

The Monroe Tree Board, in conjunction with Keep Walton Beautiful and the Downtown Development Authority, should assist the Public Works Department and city arborist in establishing annual tree planting plans.

ANNUAL INSPECTIONS

An effort to inspect all 110 trees recommended for annual inspections should be made. Trees can be inspected during other routine field operations as time permits. In addition:

- Inspect large trees that are scheduled for removal at least once per year prior to their removal.
- Inspect all trees during routine field operations for current management needs.

The inventory shows that 110 city trees are in marginal condition and should be inspected on an annual basis. A record of the inspection should be made and changes made to the original management recommendations.

CABLING AND BRACING

There were 10 trees found during the inventory that would benefit from cabling and bracing to improve their structural integrity, reduce their risk for failure, and increase their longevity. These trees may, or may not, be good candidates for these procedures. Inspection by an ISA Certified Arborist with experience in the installation of tree support systems should be done as a first step in this process. The management plan and budget include the cabling and bracing of three (3) trees per year in Years 1, 2, and 3, and one (1) trees per year in Years 4, 5, 6 and beyond.

EDUCATION AND OUTREACH

The primary goal of the city's education and outreach program is to make as many people as possible aware of the valuable functions that trees provide, the place trees have as part of the city's infrastructure, tree tolerances and growing requirements, and correct tree maintenance techniques. The more knowledgeable people are about trees and their maintenance, the greater the contribution they can make to maintaining and improving community forest health.

The city and the Monroe Tree Board need to be aggressive in providing tree care education throughout the community to ensure success of the community forest management program. Strategies for the education and outreach program follow.

- Take advantage of local and statewide programs offered by the Georgia Forestry Commission and the Georgia Urban Forest Council (GUFC).
- Purchase a library of educational materials that can be used to for staff training, tree board member education, contractor training, and citizen education.
- Take advantage of free local and regional forestry and arboricultural speakers to provide tree care training for staff.
- Conduct short tree education programs at regular meetings of community organization and agencies.

There are at least three (3) organizations in the region that regularly provide educational programs that the city should take advantage of. These include:

- Georgia Urban Forest Council, Inc.
- Georgia Forestry Commission
- Southern Chapter of the International Society of Arboriculture

EDUCATION AND OUTREACH PLANS

Table 3 contains an outline of the basic components and options for the city's education and outreach program. Additional program options and details are provided in Appendix B.

Table 3. Education and Outreach Program Options

TOPIC/ACTIVITY	TARGET AUDIENCE	SUGGESTED FORMAT AND MEDIA	COORDINATOR
Certified Arborist Training Classes	City staff Local tree service employees	12-week program conducted in Monroe; 1 domain per week;	City staff, Georgia Forestry Commission, Walton County

Table 3. Education and Outreach Program Options

TOPIC/ACTIVITY	TARGET AUDIENCE	SUGGESTED FORMAT AND MEDIA	COORDINATOR
		speakers invited with expertise on each domain	Cooperative Extension Service
General Tree Maintenance	Citizens Businesses Developers Construction Contractors	ISA INTRODUCTION TO ARBORICULTURE TREE MAINTENANCE CD ISA BROCHURES GFC SPEAKER	City Arborist Tree Board
Tree Planting and New Tree Care	Public Works Department Citizens Developers Landscape Contractors	ISA INTRODUCTION TO ARBORICULTURE TREE IDENTIFICATION AND SELECTION CD, and PLANTING & EARLY CARE CD ISA BROCHURES GFC SPEAKER	City Arborist Tree Board
Mature Tree Care	Public Works Department Landscape Contractors Citizens	ISA INTRODUCTION TO ARBORICULTURE DIAGNOSIS & DISORDERS CD GFC SPEAKER	City Arborist Tree Board
Pruning Techniques and No Tree Topping	Utility Department Public Works Department Landscape Contractors Citizens	ISA INTRODUCTION TO ARBORICULTURE PRUNING CD REGIONAL SPEAKERS	City Arborist Tree Board
Tree Protection	Utility Department Public Works Department Developers General Contractors Landscape Contractors Citizens	Annual training program to learn and review basics	City Arborist Tree Board
Evaluating Trees for Failure Risk	Public Works Department Utility Department	ISA Southern Chapter, GUFC, or other sponsored program as available	Professional Organizations
Public Tree Management	Department Representatives from Utility and Public Works	Monthly, Bi-Monthly, or Quarterly Tree Management Information Session ISA INTRODUCTION TO ARBORICULTURE TREE BIOLOGY CD INTRODUCTION TO ARBORICULTURE TREE WORKER SAFETY CD	City Arborist
New Topics in Community Forest	City staff, agency representatives	VARIOUS	City Arborist

Table 3. Education and Outreach Program Options

TOPIC/ACTIVITY	TARGET AUDIENCE	SUGGESTED FORMAT AND MEDIA	COORDINATOR
Management			

INFORMATION MANAGEMENT

Communication between city departments, with the mayor and council, with the tree board, and with the city's many tree care partners is essential to the success of the tree management program. Detailed recordkeeping, regular reporting, and gaining citizen support for the tree management program are important components of this plan. The city should:

- Maintain accurate records of all program activities, work hours, costs, and results to continually improve planning and budgeting.
- Report program results regularly to elected officials and the tree board to encourage their interest, involvement, and support.
- Keep citizens informed on tree program activities and results using established media outlets to encourage their interest, involvement, and support.

Maintenance of all program records as listed in Table 4 should begin in Year 1 and continue through subsequent years, and should be the responsibility of the city arborist. City staff and tree board members are responsible for providing some information to the city arborist where indicated.

Table 4. Records Maintenance

PROGRAM	RECORDS
<i>Tree Establishment</i>	<ul style="list-style-type: none"> • Planting date, location, species, cultivar, size, cost and source for every tree planted by year • Work hours (number of employees multiplied by average hours on task) spent to plant trees • Equipment and equipment hours involved in tree planting • Contract cost for planting (if applicable) • Location, planting date, species, cultivar, size, cost, and source of Arbor Day tree
<i>Tree Maintenance</i>	<ul style="list-style-type: none"> • General locations of trees, type and date of maintenance, source of materials (i.e., mulch), and work hours for maintenance by city crews (number of employees multiplied by average hours on task)
<i>Tree Protection</i>	<ul style="list-style-type: none"> • Tree locations and descriptions, bid specifications, vendor, installation date, and cost for installation of cabling, bracing, and lightning protection systems
<i>Tree Pruning</i>	<ul style="list-style-type: none"> • Tree locations and descriptions, pruning date, and work hours for pruning

Table 4. Records Maintenance

PROGRAM	RECORDS
	<ul style="list-style-type: none"> by city crews (number of employees multiplied by average hours on task) Tree locations and descriptions, bid specifications, vendor, pruning date, and cost for all emergency and routine tree pruning by contract crews Annual cost of utility line clearance pruning provided by Utility Department
<i>Tree Inspections</i>	<ul style="list-style-type: none"> Maintain list of trees in marginal condition Tree locations and descriptions, last inspection date, inspector's name, management recommendations
<i>Tree Removal</i>	<ul style="list-style-type: none"> Tree locations and descriptions, reason(s) for removal, removal date, work hours for removal by city crews (number of employees multiplied by average hours on task) Tree locations and descriptions, reason(s) for removal, bid specifications, vendor, removal date, and cost for all emergency and routine tree removal by contract crews Annual cost of tree removals for associated with electric lines provided by the Utility Department
<i>Tree Board</i>	<ul style="list-style-type: none"> Current member roster provided by tree board secretary Meeting announcements, agendas, minutes, financial reports provided by tree board secretary and treasurer Event announcements, number of participants, volunteer hours provided by tree board secretary
<i>City Arborist</i>	<ul style="list-style-type: none"> Monthly activity reports Number of hours by activity type
<i>Program Events and Accomplishments</i>	<ul style="list-style-type: none"> Date and description of major program events and accomplishment Newspaper articles related to tree program activities Correspondence related to tree program activities

The Utility Department should keep detailed records on the number of trees pruned and removed by the Department, including their locations, descriptions, and the date of action, as well as the work hours (number of people multiplied the average number of hours spent on the tasks). This information should be provided to the city arborist on an annual basis to be incorporated into overall tree management program cost summaries.

The cost of community tree management should be calculated on an annual basis as dollars per capita and dollars per tree using actual expenditures. These costs can be compared from year to year and used to measure program effectiveness over the long term.

TREE CITY USA DESIGNATION

Designation of Monroe as a Tree City USA is one of the tree management program's goals. This designation by the National Arbor Day Foundation⁶ will raise the visibility of the city's

⁶ More information is available at the National Arbor Day Foundation's website, www.arborday.org

community forest management program with signage placed at city entranceways. There are currently 118 cities in Georgia designated as a Tree City.

This designation can be achieved by Arbor Day 2009⁷ if the draft tree ordinance is adopted by December 31, 2008. There are four (4) standards that must be met to become a Tree City under the National Arbor Day Foundations program guidelines.

1. Tree Board or Department. This management plan proposes the establishment of a city tree board. The plan also proposes the designation of a city arborist with responsibility for community forest management.
2. Tree Care Ordinance. This plan proposes the adoption of a city tree ordinance that establishes the city tree board and the city's right to manage their trees. The ordinance should also assign the responsibility for the implementation of the management plan to the city arborist.
3. Annual Community Forestry Budget of \$2 Per Capita Minimum. The forest management budgets proposed in this plan result in average annual expenditures per capita between \$2.00 and \$2.71, without including the cost of existing personnel and equipment.
4. Arbor Day Observance and Proclamation. The city had an Arbor Day celebration in 2008. In the future the city tree board will partner with Keep Walton Beautiful and the city arborist in organizing the annual Arbor Day celebration and getting an Arbor Day proclamation from the Mayor's office.

TREE MANAGEMENT BUDGET

An increase in the city's budget and expenditures for community forest management are essential to the success of this plan and the achievement of the city's community forest vision and goals. The budgets proposed for the next 5 years range between \$25,236 and \$34,236, averaging \$30,600, an amount equivalent to less than 0.3 percent of the city's total annual budget of approximately \$9.5 million dollars.

Strategies to ensure cost-effectiveness of the city's expenditures for tree management include:

1. Utilize existing resources—personnel and equipment—to complete tree pruning and removal activities. Contract out only the work on the largest trees.

⁷ Georgia's Arbor Day is the 3rd Friday in February; National Arbor Day is the last Friday in April

2. Provide enough resources to get basic, necessary management done while having some resources to continually improve the quality of trees and the tree management program.
3. Maintain detailed records of tree related expenses to better predict future expenses.
4. Pro-actively manage tree health and safety at a sustainable level that results in high tree value and predictable annual management costs.
5. Diversify funding sources, using state, federal, and private entity grants for special tree management and education projects.

The approach to the development of the city budget was to use tree inventory information to schedule risk reduction and routine field operations and then estimate the amount of money it will take to complete those operations. Added to these operational costs are the costs for other program elements proposed in this plan, such as education and outreach.

A summary of the proposed total annual budgets prepared for the city is shown in Table 5.

Table 5. Annual Tree Management Budget Summary

Year	Total Amount	Per Capita Amount	Per Tree Amount
1	\$31,520	\$2.50	\$28.97
2	\$32,129	\$2.54	\$29.26
3	\$33,311	\$2.64	\$30.06
4	\$27,236	\$2.16	\$24.36
5	\$25,236	\$2.00	\$22.12
6 and beyond	\$34,236	\$2.71	\$29.41
Average	\$30,611.33	\$2.43	\$27.36

The annual budgets, dollars spent per capita, and per tree costs remain relatively stable over the years. In fact, in the long term, the dollar values per capita and per tree will decrease gradually as the city population increases, as more trees are planted each year than are removed, and as overall tree health improves.

A spreadsheet that contains a work plan and line item details for these annual budgets is part of this plan and has been provided to the city on the project CD. A summary is provided below.

- Beginning in Year 1, the city will designate a city arborist from existing staff, preferably in the Public Works Department. Funds are included in this area for contract services to assist the arborist in evaluating trees and provide other technical expertise. This amount increases through Year 6. By Year 6, the city will have to decide on whether or

not to continue utilizing an existing staff member to coordinate the tree management program, or to hire a full-time person as the city arborist, or to contract out this work.

- Beginning in Year 1, the City should apply for grants to purchase educational materials and pay for training, workshops, and conference registration fees to somewhat reduce the need for city funds. These costs for educational materials and training are highest in the early years.
- Contract costs for tree removal are included only for the removal of five (5) large trees per year, in Years 1, 2 and 3. These will be the largest and highest priority removals. The removal of the other five (5) large trees per year in will all be done by in-house crews. In Years 4, 5, 6, and beyond contract costs for the removal of one (1) tree per year for trees too large for the city crews to handle are included. The plan includes the removal of six (6) large trees per year in Years 4, 5, and 6 by city crews. The removal of an additional 20 smaller trees per year in Years 1, 2, and 3, and 10 trees per year in Years 4, 5, and 6, by city crews is included. The cost of removing large trees is estimated at \$2,500 per tree.
- The pruning of 27 large trees per year is included in the plan, with 2 trees being pruned by contract crews and 25 trees pruned by city crews in Years 1 through 6 and beyond. Also included is the pruning of 60 small trees per year, which includes 40 newly planted trees and an additional 20 established trees. The cost of pruning large trees is estimated at \$800 per tree.

The allocation of these funds should allow the Community Tree Management Plan to be implemented in a quality manner, and to achieve the goal of completing necessary work while allowing regular program improvements to be made.

APPENDICES

APPENDIX A: MONROE TREE ORDINANCE DRAFT

Monroe Tree Ordinance

April 2008

DRAFT

Be it ordained by the City Council of the City of Monroe, Georgia.

Section 1. Definitions

Tree: A “Tree” is herein defined as a woody perennial plant, usually with a single-stem but in some species may be multi-stemmed, that has the potential to attain a height of at least 15 feet and a trunk diameter of at least three (3) inches at 4.5 feet above the groundline.

Street Trees: “Street Trees” are herein defined as trees growing on land lying between property lines on either side of all streets, avenues or rights-of-way within the City.

Park Trees: “Park Trees” are herein defined as trees growing in public parks having individual names, and all areas owned by the City, or to which the public has free access as a park.

Section 2. Protected Trees

All Street and Park trees, and all other trees owned by the City of Monroe, are protected trees. No protected tree may be damaged, destroyed, or removed, except by the City of Monroe, unless written approval is granted by the Monroe Tree Board.

Section 3. Creation and Establishment of Monroe Tree Board

There is hereby created and established a Monroe Tree Board for the City of Monroe, Georgia which shall consist of at least seven members who shall be appointed by the mayor with the approval of the Council.

Section 4. Term of Office

The term of the five persons to be appointed by the mayor shall be three years except that the term of two of the members appointed to the first board shall be for only one year and the term of the two members of the first board shall be for two years. In the event that a vacancy

shall occur during the term of any member, his successor shall be appointed for the unexpired portion of the term.

Section 5. Compensation

Members of the Board shall serve without compensation.

Section 6. Duties and Responsibilities

It shall be the responsibility of the Board to study, investigate, council and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along streets and in other public areas. Such plan will be presented annually to the City Council and upon their acceptance and approval shall constitute the official comprehensive Community Tree Plan for the City of Monroe, Georgia. The Board, when requested by the City Council, shall consider, investigate, make findings, report and recommend upon any special matter of question coming with the scope of its work.

Section 7. Operation

The Board shall choose its own officers, make its own rules and regulations and keep a journal of its proceedings. A majority of the members shall be a quorum for the transaction of business.

Section 8. Official Tree Species List

The Official Tree Species List of the City of Monroe, Georgia, is located in Appendix A. No species other than those included in this list may be planted as Street or Park Trees without written approval of the Monroe Tree Board.

Section 9. Spacing (**insert recommendations from man. plan**)

The spacing of Street Trees will be in accordance with the three species size classes listed in the Official Tree Species List in Appendix A, and no trees may be planted closer together than the following: Small Trees, 15 feet; Medium Trees, 30 feet; and Large Trees, 50 feet; except by written approval of the Monroe Tree Board.

Section 10. Distance from Curb and Sidewalk

The distance trees may be planted from curbs or curblines and sidewalks will be in accordance with the three species size classes listed in the Official Tree Species List in Appendix A of this

ordinance, and no trees may be planted closer to any curb or sidewalk than the following: Small Trees, 2 feet; Medium Trees, 3 feet; and Large Trees, 4 feet.

Section 11. Distances from Street Corner, Fireplugs, Utility Poles, and Driveways

No trees shall be planted closer than 35 feet to any street corner, measured from the point of nearest intersecting curbs or curblines. No trees shall be planted closer than 10 feet to any fireplug or utility pole, or 15 feet to any driveway.

Section 12. Utilities

No trees other than those species listed as Small Trees in the Official Tree Species List in Appendix A of this ordinance may be planted under or within 10 lateral feet of any overhead utility wire, or over or within 5 lateral feet of any underground water line, sewer line, transmission line or other utility.

Section 13. Public Tree Care

The City shall have the right to plant, prune, maintain and remove trees, plants and shrubs within the lines of all streets, alleys, avenues, lanes, squares and public grounds, as may be necessary to insure public safety or preserve or enhance the symmetry and beauty of such public grounds.

The City may remove or cause or order to be removed, any public tree or part thereof which is in an unsafe condition or which by reason of its nature is injurious to sewers, electric power lines, gas lines, water lines, or other public improvements, or is affected with any injurious fungus, insect or other pest. This Section does not prohibit the planting of Street Trees by adjacent property owners providing that the selection of said trees is in accordance with Sections 8 through 12 of this ordinance.

All stumps of Street and Park Trees removed shall be removed below the surface of the ground so that the top of the stump shall not project above the surface of the ground.

All public tree care will be done in accordance with all applicable federal, state, and local laws and environmental regulations.

Section 14. Tree Topping

It shall be unlawful as a normal practice for any person, firm, or City department to top any Street Tree, Park Tree, or other tree on public property. Topping is defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to

such a degree so as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms or other causes or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from this ordinance at the determination of the Monroe Tree Board.

Section 15. Pruning, Corner Clearance

Every owner of any tree overhanging any street or right-of-way within the City shall prune the branches so that such branches shall not obstruct the light from any street lamp or obstruct the view of any street intersection and so that there shall be a clear space of eight feet (8') above the surface of the street or sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decayed limbs which constitute a menace to the safety of the public. The City shall have the right to prune any tree or shrub on private property when it interferes with the proper spread of light along the street from a streetlight or interferes with visibility of any traffic control device or sign.

Section 15. Dead or Diseased Tree Removal on Private Property

The City shall have the right to cause the removal of any dead or diseased trees on private property within the City, when such trees constitute a hazard to life and property, or harbor insects or disease which constitutes a potential threat to other trees within the City. The Monroe Tree Board will notify in writing the owners of such trees. Removal shall be done by said owners at their own expense within sixty (60) days after the date of service of notice. In the event of failure of the owners to comply with such provisions, the City shall have the authority to remove such trees and charge the cost of removal to the property owner.

Section 16. Interference with Monroe Tree Board

It shall be unlawful for any person to prevent, delay or interfere with the Monroe Tree Board, or any of its agents, while engaging in and about the planting, cultivating, mulching, pruning, spraying, or removing of any Street or Park Trees, as authorized in this ordinance.

Section 17. Arborists' License and Bond

It shall be unlawful for any person or firm to engage in the business or occupation of pruning, treating, or removing Street or Park Trees within the City without first applying for and procuring a license. The license fee shall be \$25 annually in advance; provided, however, that no license shall be required of any public service company or City employee doing such work in the pursuit of their public service endeavors. Before any license shall be issued, each applicant shall first file evidence of possession of liability insurance in the minimum amounts of \$50,000

for bodily injury and \$100,000 property damage indemnifying the City or any person injured or damaged resulting from the pursuit of such endeavors as herein described.

Section 19. Review by City Commission

The City Council shall have the right to review the conduct, acts and decisions of the Monroe Tree Board. Any person may appeal from any ruling or order of the Monroe Tree Board to the City Council who may hear the matter and make a final decision.

Section 20. Penalty

Any person violating any provision of this ordinance shall be, upon conviction or plea of guilty, subject to a fine not less than \$500.

APPENDIX B: COMMUNITY FOREST MANAGEMENT GOALS

The overall goal of the city's community forest management program is to maximize the safety, health, longevity, function, and benefits of trees on city property through quality and cost effective management; and to maximize the health and function of trees on private property through regulation of new development and ongoing education of business owners and homeowners.

Detailed goals and management actions, and the issues and needs they address, are shown in Table B1. Further details on each management actions are located in the city's *Community Forest Management Plan*.

Table B1. Community Tree Management Issues, Needs, Goals, and Actions

PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
TREE ORDINANCE	<p><i>Clearcutting of existing trees on development sites is allowed.</i></p> <p><i>Replacement trees planted are often ornamental trees.</i></p> <p><i>There is currently no tree ordinance that regulates trees on public and private development sites.</i></p>	Conserve and expand tree canopy cover.	<p>Adopt a public tree ordinance to protect and manage city trees.</p> <p>Establish a city tree board within the public tree ordinance.</p> <p>Measure current tree canopy cover within the city limits.</p> <p>Conduct development assessments to provide data on the impacts of current policies on tree canopy cover.</p> <p>Establish percent tree canopy cover goals by zoning class and for the</p>	<p>City Arborist</p> <p>Tree Board</p>

⁸ Issues and goals were developed during a strategic planning meeting held with the city tree board and invited guests, from surveys filled out by department directors, and through conversations between the consultant developing the city's tree management plan and city staff and tree board members. Management actions were developed and leaders identified by the consultant to address the issues, needs, and goals.

Table B1. Community Tree Management Issues, Needs, Goals, and Actions

PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
			<p>city overall.</p> <p>Develop tree conservation requirements and standards for new developments.</p> <p>Develop tree planting requirements and standards for new developments.</p> <p>Develop a comprehensive community tree ordinance that requires a minimum tree canopy cover by zoning district for all new development sites.</p> <p>Incorporate the public tree ordinance into the comprehensive ordinance.</p> <p>Adopt a comprehensive community tree ordinance by August 31, 2010.</p>	
PROGRAM ADMINISTRATION	<p><i>No arborist on staff.</i></p> <p><i>No comprehensive community tree management program.</i></p> <p><i>Need better cooperation between departments on tree protection, pruning and other maintenance.</i></p>	Establish a City arborist to coordinate the city's tree management program.	<p>Adopt a Community Tree Management Program plan to guide tree care activities within the city (plan completed in August 2008).</p> <p>Estimate the time required to coordinate the city's tree management program.</p> <p>Evaluate interest of existing staff in trees and in filling the City Arborist, and obtaining credentials</p>	<p>City Council</p> <p>Public Works Director</p> <p>Tree Board</p> <p>City Council</p>

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PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
			<p>as an ISA Certified Arborist.</p> <p>Define options for a City Arborist.</p> <p>Establish and fill the position of City Arborist by July 1, 2009.</p> <p>City arborist communicates on a regular basis with department directors to discuss tree protection, pruning and other maintenance issues and ways to promote tree health.</p> <p>City arborist serves as a technical resource to city staff and the tree board.</p> <p>City Arborist maintains detailed tree management program records.</p> <p>City Arborist maintains tree inventory data.</p>	
TREE PLANTING	<p><i>Trees are not replaced as they are removed.</i></p> <p><i>The city needs more trees and more large trees.</i></p> <p><i>The city needs to fill vacant planting sites through a regular tree planting program.</i></p> <p><i>The tree population</i></p>	Improve the quality and distribution of the tree population.	<p>Adopt an official list of tree species recommended for planting in Monroe.</p> <p>Adopt a policy of replacing every tree removed with four (4) new trees of similar or a better suited species to maintain tree canopy cover.</p> <p>Prioritize tree planting</p>	<p>Tree Board</p> <p>City Arborist</p>

Table B1. Community Tree Management Issues, Needs, Goals, and Actions

PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
	<i>needs greater species and age diversity.</i>		opportunities and locations. Begin a replacement and routine tree establishment program by December 1, 2009.	
INFORMATION AND EDUCATION	<p><i>Want city workers and homeowners to be well-trained in tree care, especially pruning.</i></p> <p><i>Want widespread knowledge of appropriate tree species for Monroe and their growing space requirements.</i></p> <p><i>Want tree-friendly landscaping education.</i></p> <p><i>Want information on the current status of city trees.</i></p>	All community partners are well-educated in tree care and in their actions support and promote city tree management goals.	<p>Establish and implement an ongoing community-wide tree care education program.</p> <p>Publish information on city trees, their benefits, and their values.</p> <p>Post the official list of tree species recommended for planting in Monroe on the city's web site, and highlight and profile preferred species.</p> <p>Include city arborist and department directors as ex-officio members of the tree board.</p> <p>Include representatives of local agencies and non-profit organizations on the tree board.</p> <p>Develop a one (1) page flyer on tree-friendly landscaping by December 31, 2008 and post on the city's website.</p> <p>Hold an annual Arbor Day celebration and distribute information about tree care at the event.</p> <p>Establish a web page on</p>	<p>City Arborist</p> <p>Tree Board</p> <p>Public Works Director</p> <p>Electric and Telecommunications Director</p>

Table B1. Community Tree Management Issues, Needs, Goals, and Actions

PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
			<p>the city's web site to provide information on the city's community tree management program.</p> <p>Conduct an inventory of city-owned trees (1,529 trees inventoried in 2008).</p> <p>Measure current tree canopy cover within the city limits.</p>	
PROGRAM SUPPORT	<p><i>Need more money for tree care.</i></p> <p><i>Want to minimize long-term tree maintenance costs.</i></p> <p><i>More government support for trees and the tree program</i></p> <p><i>More public support for trees and the tree program.</i></p> <p><i>Want a Council member interested in trees on the tree board.</i></p>	A tree management program budget that allows essential tasks to be completed and regular program improvements to take place.	<p>Ask the City Council to appoint a council representative to serve as an advisor on the tree board.</p> <p>Develop and approve a sustainable tree management program budget for field operations and education.</p> <p>Adopt and implement standards and best management practices for tree care to reduce long-term costs.</p> <p>Apply for Urban and Community Forestry Assistance Program grants to partially fund program improvement</p> <p>Maintain detailed records of tree management expenses to improve accuracy of budget projections.</p>	<p>City Arborist</p> <p>City Council</p> <p>Tree Board</p>
STANDARDS	<i>Need proper pruning</i>	Conduct all	Adopt and implement	Public Works

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PROGRAM COMPONENT	ISSUES and NEEDS ⁸	GOALS	MANAGEMENT ACTIONS	LEADERS
	<p><i>of trees near power lines.</i></p> <p><i>Need proper pruning of crapemyrtles.</i></p> <p><i>Staff needs tree maintenance training.</i></p> <p><i>Need to plant trees appropriate for the available space.</i></p>	<p>tree management activities in accordance with standards.</p>	<p>standards and best management practices for tree care.</p> <p>Require compliance with standards for all city trees.</p> <p>Require compliance with standards for trees conserved or planted to meet tree ordinance requirements.</p> <p>Develop standards for tree placement along streets and around other infrastructure.</p> <p>Promote tree care standards on the city's website.</p>	<p>Director</p> <p>Electric and Telecommunications Director</p>

APPENDIX C: OFFICIAL TREE SPECIES LIST

The following list constitutes the city's Official Tree Species List. This list can be modified as experience is gained on the performance over time of trees species in Monroe. The Monroe Tree Board is responsible for the maintenance and revisions of this list, with input from the Public Works Department and the City Arborist. The list includes the typical mature size of the tree, either as small (mature height of 25 feet or less), medium (mature height greater than 25 feet but less than 50 feet), and large (mature height 50 feet or greater).

Table C1. Official Tree Species List for the City of Monroe, Georgia

SPECIES COMMON NAME	LATIN NAME	Height Class in Urban Conditions	Mature Crown Form	Typical Range of Mature Tree Height	Typical Range of Mature Crown Width	Urban Tolerant Tree
Alder, Hazel (Tag)	<i>Alnus serrulata</i>	Small	Multi-Stemmed	10-20	10-20	X
Ash, Green	<i>Fraxinus pennsylvanica</i>	Large	Rounded	60-100	40-50	
Ash, White	<i>Fraxinus americana</i>	Large	Rounded	50-80	30-60	
Baldcypress	<i>Taxodium distichum</i>	Large	Pyramidal	50-100	20-50	X
Basswood, American (Linden)	<i>Tilia americana</i>	Medium	Irregular	60-100	35-50	
Beech, American	<i>Fagus grandifolia</i>	Large	Oval	80-100	50-70	
Birch, River	<i>Betula nigra</i>	Medium	Pyramidal	50-90	40-60	
Blackgum (Tupelo)	<i>Nyssa sylvatica</i>	Medium	Oval	50-100	20-35	X
Buckeye, Bottlebrush	<i>Aesculus parviflora</i>	Small	Multi-Stemmed	15-20	10-15	
Buckeye, Painted	<i>Aesculus sylvatica</i>	Small	Rounded	15-25	5-15	
Buckeye, Red	<i>Aesculus pavia</i>	Small	Rounded	10-15	10-15	
Catalpa, Southern	<i>Catalpa bignonioides</i>	Medium	Rounded	30-40	30-40	
Cedar, Deodar	<i>Cedrus deodara</i>	Large	Pyramidal	40-100	40-100	
Cedar, Japanese	<i>Cryptomeria japonica</i>	Large	Pyramidal	40-60	15-20	X
Chastetree (Vitex)	<i>Vitex agnus-castus</i>	Small	Multi-Stemmed	15-20	10-20	X
Cherry, Black	<i>Prunus serotina</i>	Large	Oval	50-90	15-50	
Cherry, Japanese	<i>Prunus caroliniana</i>	Medium	Oval	20-40	15-25	X
Cherry, Japanese Flowering	<i>Prunus serrulata</i>	Small	Rounded	20-30	20-30	
Chestnut, Chinese	<i>Castanea mollissima</i>	Large	Rounded	40-60	40-60	X
Chinquapin, Allegheny	<i>Castanea pumila</i>	Small	Rounded	10-25	10-25	
Cottonwood, Eastern	<i>Populus deltoides</i>	Large	Pyramidal	50-100	20-75	X
Crabapple, Japanese Flowering	<i>Malus floribunda</i>	Small	Rounded	15-25	15-25	
Crabapple, Southern	<i>Malus angustifolia</i>	Small	Spreading	20-25	10-20	
Crapemyrtle, Common	<i>Lagerstroemia indica</i>	Small	Multi-Stemmed	15-30	10-25	X
Cypress, Leyland	<i>Cupressocyparis leylandii</i>	Medium	Pyramidal	50-60	20-30	
Devilwood	<i>Osmanthus americanus</i>	Small	Rounded	15-25	10-15	
Dogwood, Flowering	<i>Cornus florida</i>	Small	Spreading	15-30	15-30	
Dogwood, Flowering Pink	<i>Cornus florida var. rubra</i>	Small	Spreading	15-30	15-30	

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Dogwood, Kousa	<i>Cornus kousa</i>	Small	Rounded	10-20	10-20	
Dogwood, Swamp	<i>Cornus stricta</i>	Small	Rounded	10-25	10-25	
Elm, American	<i>Ulmus americana</i>	Large	Upright	50-100	30-70	
Elm, Chinese (Lace Bark)	<i>Ulmus parvifolia</i>	Medium	Upright	40-60	30-50	X
Elm, Slippery	<i>Ulmus rubra</i>	Large	Upright	70-80	30-50	
Elm, Winged	<i>Ulmus alata</i>	Large	Upright	70-80	30-50	X
Flametree, Chinese (Bougainvillea)	<i>Koelreuteria bipinnata</i>	Medium	Rounded	20-40	20-40	X
Fringetree (Grancy Gray Beard)	<i>Chionanthus virginicus</i>	Small	Oval	10-30	5-15	
Fringetree, Chinese	<i>Chionanthus retusus</i>	Small	Rounded	15-25	10-15	
Ginkgo (Male Only)	<i>Ginkgo biloba</i>	Medium	Pyramidal	50-75	30-60	X
Goldenraintree	<i>Koelreuteria paniculata</i>	Medium	Rounded	20-40	20-40	
Hackberry, Common	<i>Celtis occidentalis</i>	Large	Spreading	60-90	25-60	X
Hackberry, Georgia	<i>Celtis tenuifolia</i>	Medium	Spreading	25-35	25-35	
Hawthorne, Washington	<i>Crataegus phaenopyrum</i>	Small	Rounded	10-30	5-25	
Hickory, Bitternut	<i>Carya cordiformis</i>	Large	Oval	50-100	50-75	
Hickory, Mockernut	<i>Carya tomentosa</i>	Large	Oval	50-100	50-75	
Hickory, Pecan	<i>Carya illinoensis</i>	Large	Upright	60-100	30-75	
Hickory, Pignut	<i>Carya glabra</i>	Large	Oval	50-100	50-75	
Hickory, Sand	<i>Carya pallida</i>	Large	Oval	40-90	20-40	
Hickory, Shagbark	<i>Carya ovata</i>	Large	Oval	70-100	50-75	
Hickory, Southern Shagbark	<i>Carya ovata var. australis</i>	Large	Oval	60-80	40-60	
Holly, American	<i>Ilex opaca</i>	Medium	Pyramidal	20-70	15-25	X
Holly, Deciduous (Possumhaw)	<i>Ilex decidua</i>	Small	Rounded	10-20	10-20	
Holly, Foster	<i>Ilex x attenuata 'Fosteri'</i>	Small	Pyramidal	15-25	10-15	X
Holly, Ornamental Variety	<i>Ilex species</i>	Small	Rounded	10-20	10-15	
Holly, Savannah	<i>Ilex x attenuata 'Savannah'</i>	Medium	Pyramidal	30-45	10-15	
Holly, Yaupon	<i>Ilex vomitoria</i>	Small	Irregular	10-25	5-10	X
Hophornbeam, American	<i>Ostrya virginiana</i>	Medium	Oval	15-40	10-30	X
Hornbeam, Am. (Ironwood, Blue Beech)	<i>Carpinus caroliniana</i>	Medium	Oval	20-35	15-30	
Hornbeam, European	<i>Carpinus betulus</i>	Medium	Oval	40-60	35-40	X
Hornbeam, Japanese	<i>Carpinus japonica</i>	Medium	Oval	20-30	20-30	
Katsuratree	<i>Cercidiphyllum japonicum</i>	Medium	Spreading	40-60	35-60	
Locust, Black	<i>Robinia pseudoacacia</i>	Large	Spreading	40-90	20-40	X
Magnolia, Japanese (Saucer)	<i>Magnolia x soulangiana</i>	Medium	Upright	20-30	10-30	
Magnolia, Southern	<i>Magnolia grandiflora</i>	Large	Pyramidal	80-100	30-50	
Magnolia, Southern 'Little Gem'	<i>Magnolia grandiflora 'Little Gem'</i>	Medium	Pyramidal	40-60	20-30	
Magnolia, Star	<i>Magnolia stellata</i>	Small	Multi-Stemmed	15-20	15-20	

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Magnolia, Sweetbay	<i>Magnolia virginiana</i>	Medium	Oval	30-60	20-40	
Maple, Chalk	<i>Acer leucoderme</i>	Medium	Spreading	20-40	10-30	X
Maple, Japanese	<i>Acer palmatum</i>	Small	Oval	15-25	10-25	
Maple, Red	<i>Acer rubrum</i>	Medium	Rounded	40-90	20-35	
Maple, Southern Sugar (Florida Sugar)	<i>Acer barbatum</i>	Medium	Rounded	40-70	25-60	X
Maple, Sugar	<i>Acer saccharum</i>	Large	Oval	60-80	30-50	
Maple, Trident	<i>Acer buergeranum</i>	Small	Rounded	20-45	20-30	X
Mulberry, Red	<i>Morus rubra</i>	Large	Rounded	40-70	20-50	
Oak, Black	<i>Quercus velutina</i>	Large	Rounded	70-90	50-60	
Oak, Cherrybark	<i>Quercus falcata</i> var. <i>pagodifolia</i>	Large	Rounded	60-100	30-50	
Oak, Chestnut	<i>Quercus prinus</i>	Large	Rounded	50-80	30-60	
Oak, Diamond Leaf (Laurel)	<i>Quercus laurifolia</i>	Large	Rounded	60-80	50-60	
Oak, Georgia	<i>Quercus georgiana</i>	Large	Rounded	20-40	10-30	
Oak, Laurel	<i>Quercus hemisphaerica</i>	Large	Rounded	60-90	50-60	
Oak, Laurel 'Darlington'	<i>Quercus hemisphaerica</i> 'Darlington'	Large	Rounded	60-90	50-60	
Oak, Northern Red	<i>Quercus rubra</i>	Large	Rounded	60-100	30-60	
Oak, Nuttall	<i>Quercus nuttalli</i>	Large	Rounded	60-80	35-50	
Oak, Oglethorpe	<i>Quercus oglethorpensis</i>	Medium	Rounded	40-70	30-50	
Oak, Overcup	<i>Quercus lyrata</i>	Large	Rounded	30-45	30-45	
Oak, Post	<i>Quercus stellata</i>	Large	Rounded	40-50	35-40	
Oak, Sawtooth	<i>Quercus acutissima</i>	Medium	Oval	50-60	30-60	
Oak, Scarlet	<i>Quercus coccinea</i>	Large	Rounded	50-80	30-50	
Oak, Shumard	<i>Quercus shumardii</i>	Large	Rounded	60-100	30-70	
Oak, Southern Red	<i>Quercus falcata</i>	Large	Rounded	60-100	30-70	
Oak, Swamp Chestnut	<i>Quercus michauxii</i>	Large	Oval	70-90	30-60	
Oak, Swamp White	<i>Quercus bicolor</i>	Large	Oval	70-90	30-60	
Oak, Water	<i>Quercus nigra</i>	Large	Rounded	50-100	30-70	
Oak, White	<i>Quercus alba</i>	Large	Rounded	60-100	30-80	
Oak, Willow	<i>Quercus phellos</i>	Large	Rounded	40-100	30-60	X
Parrotia	<i>Parrotia persica</i>	Small	Rounded	20-40	20-35	
Persimmon, Common	<i>Diospyros virginiana</i>	Large	Oval	70-80	40-60	X
Pine, Loblolly	<i>Pinus taeda</i>	Large	Pyramidal	80-100	20-40	
Pine, Longleaf	<i>Pinus palustris</i>	Large	Pyramidal	60-100	20-40	
Pine, Shortleaf	<i>Pinus echinata</i>	Large	Pyramidal	60-100	20-40	
Pine, Slash	<i>Pinus elliotii</i>	Large	Pyramidal	60-100	20-50	
Pine, Virginia	<i>Pinus virginiana</i>	Medium	Pyramidal	15-70	10-35	X
Pistache, Chinese	<i>Pistacia chinensis</i>	Medium	Rounded	60-80	40-50	X
Planetree, London	<i>Platanus x acerifolia</i>	Large	Irregular	60-100	20-80	X
Plum, Chickasaw	<i>Prunus angustifolia</i>	Small	Rounded	10-20	10-20	

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Plum, Purpleleaf	<i>Prunus cerasifera</i>	Small	Rounded	10-25	10-25	
Poplar, Yellow (Tuliptree)	<i>Liriodendron tulipifera</i>	Large	Oval	80-150	30-60	
Redbud, Eastern	<i>Cercis canadensis</i>	Small	Spreading	25-50	15-25	
Redbud, Eastern White	<i>Cercis canadensis</i> var. <i>alba</i>	Small	Spreading	20-30	15-25	
Redbud, 'Forest Pansy'	<i>Cercis canadensis</i> 'Forest Pansy'	Small	Spreading	20-30	15-25	
Redbud, 'Oklahoma'	<i>Cercis reniformis</i> 'Oklahoma'	Small	Rounded	20-25	15-20	X
Redbud, 'Texas White'	<i>Cercis reniformis</i> 'Texas White'	Small	Rounded	20-25	15-20	
Redcedar, Eastern	<i>Juniperus virginiana</i>	Medium	Pyramidal	40-60	10-20	
Redwood, Dawn	<i>Metasequoia glyptostroboides</i>	Large	Pyramidal	75-100	25-30	X
Sassafras	<i>Sassafras albidum</i>	Medium	Oval	30-60	20-40	
Serviceberry, Downy	<i>Amelanchier arborea</i>	Small	Irregular	15-40	10-20	
Silverbell, Carolina	<i>Halesia carolina</i>	Medium	Irregular	30-60	20-35	
Smoketree, American	<i>Cotinus obovatus</i>	Small	Oval	15-30	10-25	X
Smoketree, Common	<i>Cotinus coggygria</i>	Small	Oval	10-15	10-15	X
Sourwood	<i>Oxydendrum arboreum</i>	Medium	Spreading	30-60	20-30	
Sparkleberry, Tree	<i>Vaccinium arboreum</i>	Small	Irregular	10-20	5-10	
Sugarberry	<i>Celtis laevigata</i>	Large	Spreading	60-80	25-60	
Sweetgum	<i>Liquidambar styraciflua</i>	Large	Oval	60-80	40-60	
Sweetgum, Fruitless	<i>Liquidambar styraciflua</i> 'Rotundiloba'	Large	Oval	50-70	35-45	
Sycamore	<i>Platanus occidentalis</i>	Large	Oval	70-100	30-70	
Walnut, Black	<i>Juglans nigra</i>	Large	Rounded	60-70	50-70	
Waxmyrtle, Southern	<i>Myrica cerifera</i>	Small	Multi-Stemmed	10-30	10-30	
Willow, Black	<i>Salix nigra</i>	Medium	Irregular	30-40	30-40	
Willow, Weeping	<i>Salix babylonica</i>	Large	Rounded	30-70	20-70	
Winterberry, Common	<i>Ilex verticillata</i>	Small	Multi-Stemmed	5-15	5-10	
Witchhazel, Common	<i>Hamamelis virginiana</i>	Small	Spreading	20-35	20-35	
Yellowwood, American	<i>Cladrastis kentukea</i>	Medium	Upright	30-50	40-50	
Zelkova, Japanese	<i>Zelkova serrata</i>	Large	Upright	40-80	30-75	X