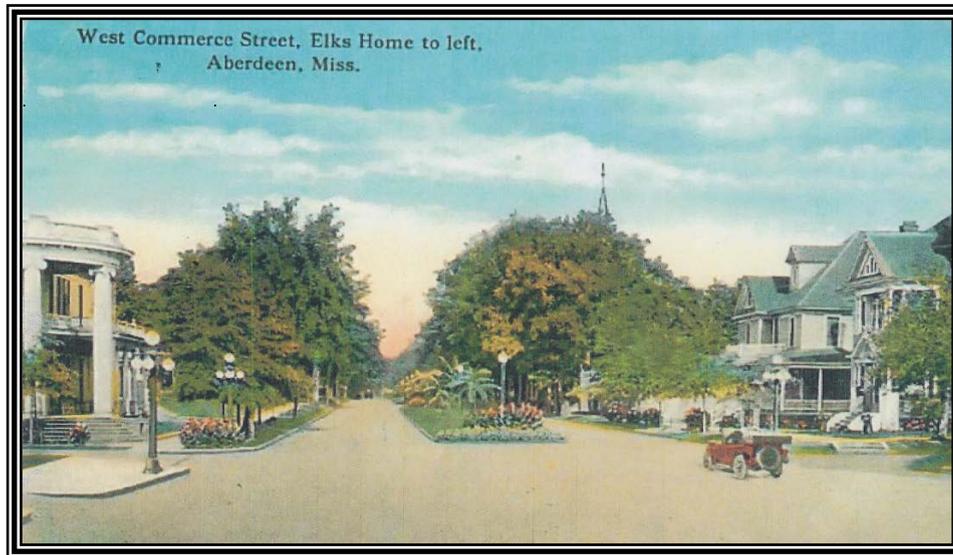


Watch 'Em Grow

A Green Plan for the City of Aberdeen, MS

Developed 2011



City of Aberdeen, Magnolia Boulevard, 1920



This project was funded in part by the Mississippi Forestry Commission, the USDA Forest Service and the Southern Group of State Foresters.

Watch ‘Em Grow

A Green Plan for the City of Aberdeen

About the Plan: The purpose of this plan is to provide general recommendation on how to use community forestry, providing training, technical tools, and professional assistance to enhance Aberdeen’s natural environment for multiple environmental and social benefits.

1. General Information.....	3
2. Photographic Tour of Aberdeen.....	5
3. Aberdeen’s Green Team and Community Recommendations	6
4. Urban Forestry Training and Workshop.....	11
5. Urban Forest Council Sustainable Practices.....	12
6. Urban Forestry Management Plans and Recommendations	16
7. Urban Forester’s Reports and Recommendations.....	42
a. Importance Value of Most of Abundant Trees	42
b. Tree Population Summary.....	43
c. Benefit Values for Southern Region of U.S.	44
d. Benefits and Population Summary.....	45
8. Recommended Tree Species	48
9. Can-Vis Virtual Makeovers	53
10. Ordinance Recommendations.....	56
11. Model Planting	Error! Bookmark not defined.

1. General Information

Aberdeen is a Mississippi Treasure!

Even from her earliest days as a thriving cotton port, Aberdeen has been a city of riches. Today, colorful history, magnificent architecture, choice recreation, modern amenities and genuine Southern hospitality are gems waiting for visitors to discover.

Aberdeen's picturesque tree-lined streets and busy shopping district complement the city's proximity to the scenic Tennessee-Tombigbee Waterway, which provides a water route to the world, connecting the inland waters of the Tennessee River with the Gulf of Mexico. In fact, Aberdeen was founded because of her location on the Tombigbee River and her proximity to rich prairie land ideal for cotton farming.

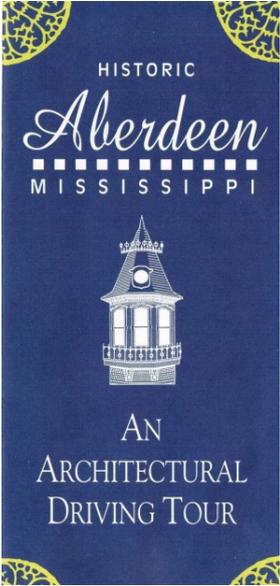
As a historic port city, Aberdeen is accustomed to hosting and accommodating travelers. Residents and visitors alike share access to the area's recreational treasures, which range from community wide events such as festivals and parades to the individual and group activities of shopping, hunting, fishing, hiking and golfing. The city also nurtures local cultural riches, such as theater performances, celebrations and tours, and one of the most complete and varied libraries in Mississippi.



Top 10 Reasons To Retire In Aberdeen!

- 1. Aberdeen is a genuine southern town where you will always be welcome.**
- 2. Aberdeen is certified by the Hometown Mississippi Retirement program. We have met the criteria concerning the things that are important to you.**
- 3. The Tennessee-Tombigbee Waterway, the Blue Bluff Recreation Area and Morgan's Landing Park offer year-round boating, fishing and other activities to keep you in touch with the unspoiled, natural beauty of the area.**
- 4. Aberdeen's prime location in the northeastern part of the state offers you all the amenities you desire...without the crowds.**
- 5. Aberdeen's affordable cost of living will help you stretch those retirement dollars.**
- 6. Aberdeen and the State of Mississippi have special tax incentives for retirees.**
- 7. Aberdeen's low crime rate assures a safe environment in which to live.**
- 8. Quality, state-of-the-art medical care can be found at the Pioneer Hospital of Aberdeen.**
- 9. Aberdeen is located near three major universities which provide excellent continuing education opportunities.**
- 10. Since the 1830s, Aberdeen has been known as a center for culture. Today, different cultural opportunities are provided by the Elkin Theatre Association, the Evans Memorial Library, and over thirty local civic organizations.**

2. Photographic Tour of Aberdeen



3. Aberdeen's Green Team and Community Recommendations

"Greening Aberdeen" Committee Information

Jimmy Autry – Georgia Gulf - autreyj@ggc.com

Jim Ballard – Mayor –

Bill & Kathy Bryant – kathybryant905@att.net – 436-3446

Sara Davidson – Secretary to the Mayor

Ray Van Dusen – dcfc_33@yahoo.com – 255-2401

Marty Hansen – mexicomjonerud@mexconnect.com – 319-8730

Carolyn Holliday – chopaholliday@yahoo.com – 319-6502

Jerry Ledbetter – 436-3679

Chester Leigh – 369-4682

Mac McAllister – macmcallister@phscorporate.com

Curtis Outlaw – 257-9197

Sylvester Reed – 436-9474

Tina Robbins – info@aberdeenms.org – 369-9440

Kathy Seymour – kseymour4@aol.com – 369-4412

Deborah Stubblefield – drstubb@bellsouth.net – 901-371-6163

Joyce Vasser – 315-7673

“Greening Aberdeen” Committee Meetings - City Hall Board Room

Green Team Recommendations

- 1) What are important assets in Aberdeen?
 - Boulevards – old and new
 - Cemetery – Cedar Trees
 - Crepemyrtles – End of Commerce from Matubba to Davis Drive and throughout town
 - Maple Street – from Commerce to Monroe Street
 - Welcome Signs

- 2) Choose an area to do a sample inventory for dollar values.
 - Magnolia Boulevard
 - Cemetery Cedar trees

- 3) What are local goals of the project?
 - Beautification
 - More Livable – easier to walk (shade)
 - Lower maintenance
 - City Tree for Festival
 - Air Quality

- 4) What areas of town need “greening”? Where is the model site for this project?
 - Highway 145
 - Highway 45
 - New Historic District – Silk Stocking Row
 - Acker Park
 - Pocket Park by Visitor’s Bureau
 - Pugh Park
 - Traffic Island @ Highway 8
 - Empty Space behind City Hall
 - Fence along Holley property (Highway 45)
 - Pocket Parks – Age Appropriate Areas

- 5) What are some methods to increase citizens/business involvement/buy-in in this project?
- Short and Long term plans
 - Garden Clubs
 - Buy a tree in honor of someone
 - Business to match contributions
- 6) What are some ideas for developing an effective green campaign for Aberdeen?
- “Watch Em’ Both Grow” Promotion to have grandparents purchase a tree in honor of their grandchildren
 - Penny for a tree – collect pennies from the school
 - Promotional Items for School Children
 - Put donations jars in businesses – Change for Trees
 - Take one tree down, Put one tree up
 - Trim or thin trees instead of removing
 - Power lines underground when sidewalks are redone
- 7) Why is greening Aberdeen beneficial to citizens?
- Lowers energy bills
 - More Livable – get people out of the house more
- 8) What will be challenging to this type of project in Aberdeen?
- Communication

Green Team Meeting Notes - 6/13/2011

Would be good if we had statistics to tie retirees into \$ figures for growing services and economic Impact. We have a large retirement and retiree attraction program that could in turn grow the tree project.

WATCH 'EM GROW

Grandparents buy tree for grandchild and watch 'em grow together Marty Hansen and Sylvester Reed will spearhead this project

LOGO – slogan

*Grandparents Day September 12 (2nd Sunday in Sept) annual event gather and have picture taken with tree to mark growth

*Needs a link with logo on all Aberdeen sites that we can control

City of Aberdeen Visitors Bureau Pilgrimage Blue Bluff
Chamber of Commerce

*Would like a photo gallery to show each tree with an album so photos can be added of Tree/child

*Memorials available for grandchildren to purchase tree for grandparents as well

*Christmas Cards/birthday cards

*Purchase on line or donate to a fund on line

*\$20/yr care taking annual (pruning, fertilizing) maintenance program

GOAL – 300 tree sites throughout the city = \$6,000 maintenance fund \$200-\$500 trees
price to include tree/planting/name plate and initial caretaking

-Replacement in the event if it is necessary

-Tie in projects to improve quality of life in both communities try to include housing projects

-Tree Bank – account for donations can google and find information on existing programs

-Take a tree down – replace a tree

-Pick the Site that is priority

-Public property

-145 from RR tracks to hotel you have to get permits

What you choose to plant must have quality, diversity, fast and slow growing to have sustainability

Forester that will be working with us is **Wes Jones**. Sounds like HWY 145 is our main priority, Do make overs for all desired spots with CanVis

4. Urban Forestry Training and Workshop



Trees In Our Community

A Northeast MS community forestry workshop

Hosted by the City of Aberdeen, MS



Refreshment Sponsors: City of Aberdeen

Where: Aberdeen City Hall, 125 West Commerce Street, Aberdeen, Ms, (662) 369-4165

When: May 19, 2011 (9 AM - 4 PM) No registration cost.

Who Should Attend: Anyone wanting to learn about trees and green spaces; community leaders, homeowners, business owners, developers, foresters, arborists, city workers, nurserymen, city leaders, and others managing land and trees.

To Register: Send your Name and Email to the Mayor Jim Ballard at (662) 369-4165 or the Mississippi Urban Forest Council at dyowell@aol.com or call Donna Yowell (601) 672-0755.

<u>Time</u>	<u>Topic</u>	<u>Instructor</u>
9: 00 AM	Welcome, Aberdeen's Green Future	Mayor Jim Ballard
9:15 AM	Green Re-vitalization, Creating a Green Plan Green Infrastructure	Donna Yowell, Mississippi Urban Forest Council
10: 45AM	Tree Selection and Planting	John Kushla, Mississippi State University Extension Service
Noon	Lunch on Your Own	
1:00 PM	Tree Assessment	John Kushla, Mississippi State University Extension Service
2:00 PM	Placing Value, i-Tree Demonstration	Jason Gordon, Mississippi State University Extension Service
2:45 PM	CanVis, Policies, Local Planning	Donna Yowell, Mississippi Urban Forest Council

Continuing education hours for landscape architects, foresters, engineers, elected officials, parks and recreation, planners, Urban Forest Masters, arborists and others. Funded by an Urban & Community Forestry Grant from the MS Forestry Commission, in cooperation with the USDA Forest Service and the Southern Group of State Foresters" Co-hosted by City of Aberdeen

Introducing Scenic Communities of Mississippi

5. Urban Forest Council Sustainable Practices

Mississippi Urban Forest Council Sustainable Practices

**Donna Yowell
601-672-0755**

If the governing body of a small community is to be sustainable, it must increase its tax base by providing job opportunities to its citizens living within its corporate limits. Sustainable practices can provide the framework to create opportunities for growth in the job market, increased tourism, and provide for a safe and healthy environment.

Manufactured goods and services flowing into a community and cash flowing out, weakens a community, leading to poverty and a decay of environmental services. Cycling goods and services within a community keeps the cash flow within the community's economy, giving citizens control of their own destiny and lessening the effects of outside economic fluctuations.

To jump start this, you must maximize the use of your greatest resources, the imagination and skills of the people (think out of the box) in the community, and make wise choices in regard to the earth's resources, such as, soil, water, fauna and flora.

Sustainable practices can provide for a higher quality of life as well as a healthier environment, but always consider; how can you use this to create jobs and recycle cash flow in your economy?

The following list of sustainable practices should provide a framework for a richer and more diverse community experience.

Recycling

The establishment of a business opportunity- by collecting, recycling and dispersing used debris.

- Sell metal debris that is not restorable or reusable as scrap metal.
- Sell glass, aluminum, plastic, paper, wood and other materials to recycling centers.
- Restore and reuse construction debris, such as, debris of historical significance, hardwood floors, old beams, mantles, rebar and old bricks.
- Create garden art from scrap metal for sale at the First Annual Garden Art and Plant Festival in early spring, at the central lawn by a new farmers market.

Recycle Toxins

- The city should host a citizens hazardous materials recycling day to recycle toxins such as, paint, antifreeze, batteries, oil, pesticides, fuels and other toxic substances and then sell collected materials to recycling centers. Unsalable materials must be disposed of in a safe and legal manner. Consult with the Mississippi Department of Environmental Quality.

Recycle Books

- Book and magazine recycling could take place in a public building (e.g. your local library) to provide free reading material to children and other citizens.

Recycle Vegetative Debris

- Create a business opportunity for the collecting and composting of organic material, and also producing soil amendments and mixes for sale to home owners, the city, and landscape companies.
- After establishing an opportunity for citizens to sell their yard debris the city should develop an ordinance requiring private property owners to keep their yards free of such debris, for the public's health, safety and welfare.

Plant Industry

The following opportunities exist to create an industry around growing, using, and marketing of plant materials.

- Construct a plant nursery – which would entail producing container grown native trees, shrubs and perennials for restoration and landscaping. The production of herbs, vegetables and cut flowers can be produced for retail growers.
- Construct a distribution and production facility which will grow organic vegetables, herbs, and cut flowers. The facility will grow part of their produce and contract grow the other items with local residents, such as, the grandmother growing cut flowers in her front yard.
- Make available products that can be marketed to restaurants, hotels, casinos, and schools.
- Construct a farmers market as an outlet for businesses, the backyard grower and the craftsmen, such as, scrap metal artists.

Storm-water

Storm water collection, storage, use, and discharge provide opportunities for the following:

- Flood control
- A diverse wildlife habitat
- Creation of a diverse visual environment
- Facilitation of higher property values
- Passive recreation, such as, bird watching
- Increased residential development
- Improved water quality
- Irrigation Usage
- Backup water sources for fire departments

The use of rain gardens, bio-swales and green parking lots reduce run-off and allow reductions in the size of storm water structures.

A storm water ordinance will be needed for new construction and renovations.

Native Plant Species

Planting native species reduces the need for chemicals and water and decreases maintenance time providing a much more sustainable landscape.

Bio-fuels

A new practice is the use of vegetation to generate energy for utilities for small public spaces, such as city hall. Small systems are available for this use. For more information:

http://www.cleanenergystates.org/Publications/NREL_Biomass_Gasification_Mkt_Assessment_46190.pdf

Wind and Ice Resistant Plant Material

Planting with storm resistant, native varieties of trees and shrubs have the added benefit of providing wind buffers to protect homes and reduce energy consumption. This practice also protects utilities and structures during storm events.

Low Landscape maintenance

Using native varieties of grasses, shrubs, and trees and reducing grassed areas will decrease maintenance time and costs.

Greenways

Greenways exist in every community in varying degrees. Most communities have town centers or floodway/riparian along streams and other water/drainage courses. It is important that each community identify these areas and use them to the greatest natural capacity as possible. Connecting greenways for multiple benefits such as wildlife habitat, storm-water management and recreation purposes increase the benefit to the community for a multitude of social, economic and environmental benefits.

Forest Canopy

Target tree canopies for most communities should be around 40% of surface space. This will provide maximum benefits derived from shade, water, air, and many other resources.

Ordinance Development

Sustainability plans should include a variety of policies in regard to storm-water management, land development, street and yard maintenance, tree and landscape ordinances, conservation easements, land use zoning for green areas, many other facets of green community development.

Local Citizen's Teams and Resources

During this time of limited resources most communities find it necessary to rely on citizens to become a key part of the improvement strategy for their communities. After all, it's the citizen that truly benefits from the improvements. Organizing volunteers in efforts to promote and implement sustainable community practices is key to a successful program.

6. Urban Forestry Management Plans and Recommendations

Chapter 1 - Guidelines for Sustainable Community Forest Management

1. Conducting a Community Resource Inventory.

Every community possesses an array of resources and qualities that give it unique character and a sense of pride. These resources are vital to the well-being and long-term success of the community and must be protected. Communities desiring to embark on a resource-based planning process, with an ultimate goal of sustainable development, are well-advised to conduct an inventory of the community's resources.

The City of _____ in partnership with the Mississippi Urban Forest Council (MUFC) held planning sessions with the community leaders and local citizens. These sessions provided an opportunity to inventory and develop a list of amenities to include in the plan. Not only were the natural aspects of community planning included, but also included were the social and economic inventories and assessments such as natural resources, historic resources, people resources, churches, parks, schools, public lands, public buildings, business opportunities, community festivals and activities and other amenities. Recommendations suggested by citizens to enhance the community were developed based on both need and opportunity. The list below includes some of the activities suggested for revitalization through community forestry and are to be included in a "Green infrastructure" plan.

Our approach included Street Tree Inventories, local training, recommendations from local citizens, a professional arborist and an urban planner.

Sample inventories provide information needed for a community to make informed and rational decisions about future plantings and development of green spaces.

1. Assemble a small working group of knowledgeable citizens. This group should acknowledge the responsibility of other civic boards and commissions for the creation and maintenance of the inventories.
2. Determine the study area of the inventory. The inventory process is fundamentally the same, no matter the scale (e.g., site, town, watershed, or region.) The best scale for a community to use is that which best suits its needs.
3. Review existing documents that were previously completed by the community. These documents may include conservation and development plans, resource inventories, and special studies or plans. Work of adjacent jurisdictions and/or the help of a regional planning agency may also be helpful.

4. Assemble maps and information from local and state sources. Maps are available from a variety of different sources. When assembling the maps, caution should be taken to *not* get overwhelmed by details. Remember to gather only that information which will help the community make better land use decisions.
5. Write a draft report. The report should include both a map and sources, along with a narrative that describes that map and how it may or may not be used.
6. Publicize and solicit information to both the town's boards and commissions and to its citizens. Use all available resources to publicize the importance of this information to the community. Solicit input from citizens and incorporate constructive and improved information into the inventory. Information from the CRI can be incorporated into nearly all planning decisions that affect the community, from open space to economic development. If the CRI information is to be effective, commissions assigned the responsibility for the inventory must keep it up to-date. The inventory should be revisited to ensure that the most current information available is provided to the community's decision makers.

2. Natural Resource-Based Planning

When community planning and decision-making revolve around natural resources, a thorough and correct natural resource inventory is essential. The inventory should first be conducted at the landscape-level by an interdisciplinary team comprised of individuals from natural resource professions, civic, federal, state and local governments, concerned community organizations and nonprofit organizations. The inventory should include a woodland survey and resource assessment and should produce a Comprehensive Landscape Resource Map, containing all pertinent survey and assessment information. Following the inventory, communities can begin developing an open space plan that is sensitive to the area's unique sense of place and its natural resources. Open space can best be categorized by the functions that it achieves.

Six functional types of open space include:

1. natural resource protection areas, (e.g., animal and vegetative habitat, stream corridors, and rock ridges);
2. outdoor recreation; active, (e.g., parks, pocket parks, playgrounds, beaches, and trails); and passive, (e.g., plazas, sitting areas, arboretums);
3. resource management, (e.g., forests, fisheries, and farmland);
4. protection of public health and safety (e.g., floodplains, wetlands, in unbuildable areas, or areas with limitations for development);
5. areas that shape community character or design (e.g., buffer strips, front, back, and side yards, urban plazas, greenways, open space dedications);
6. historic or archeological sites (e.g., battlegrounds, historic structures and their grounds, historic districts, town greens).

No matter what the intended function for open space, it is important that a community possess a unifying game plan to address new development with a directive, rather than reactive approach. The desires and needs of the community regarding any new development should be communicated clearly and frequently so that irreversible, harmful mistakes are not made. After the open space plan has been developed, a more thorough plan of conservation and development can be created. This plan consists of designating areas of no new development, limited development, and suitable future development. Examples of areas not to be developed include existing developments, committed open spaces, and regulated wetland areas. These areas can be permanently protected through conservation easements. Areas with limited development include those with little net buildable area or those with large lots. These areas can be designed with conservation in mind, making shorter, narrower roads and creating new open space. Areas suitable for future development are those areas considered “growth areas” by communities (e.g., shopping centers, new subdivisions). Whenever possible, areas of limited or new development should be viewed in a regional perspective and possibly linked to form greenways. Additionally, any new developments or alterations to existing developments should incorporate native natural vegetation and trees.

Question 1 - What do you have?

Step A - Assess the tree resource.

An assessment of tree resources is advisable for the city. The assessment will provide the basic information necessary for making management decisions and provides a baseline against which change can be measured. Ideally, this assessment should include all tree resources within the planning area of the municipality. Tree resource assessments are based on various inventory methods, most of which require some type of survey.

Sample survey method would use the iStreets platform and would be carried out by a registered forester familiar with the software. A more complete sample of the town could be performed, but will be more costly and require permission from private landowners. This type of survey would show a more complete representation of the forest as a whole. Again, the sample inventory should not exceed 6% of the total*.

Step B. Review tree management practices.

Understanding the status of the urban or community forest requires knowing how it has been previously managed. Some information that should be collected on past and current management methods and actions include:

1. municipal tree care cycles, practices, including planting, maintenance, and removal,

2. existing ordinances, and level of enforcement practiced (i.e., numbers of violations, permits and citations issued, penalties and fines collected),
3. planning regulations and guidelines pertaining to trees, and numbers of tree-related permits granted, modified, or denied, and
4. activities of municipal departments and public utilities that impact trees.

The purpose of reviewing past and current tree management practices is to identify all activities affecting trees in the community, especially those falling under municipal control. For instance, seemingly unrelated ordinances and planning regulations may directly or indirectly impact forest resources and, therefore, must be taken into account.

Question 2 - What do you want (i.e., goal setting)?

Step C - Identify Needs.

Once information on the status of tree resources and tree management is in hand, a community can assess its urban forestry needs. Urban and community forestry needs can be grouped into three broad categories, with some needs falling into more than one category.

Biological needs (i.e., related to the tree resource itself):

1. increase species and age diversity to provide long-term forest stability,
2. provide sufficient tree planting to keep pace with urban growth and offset tree removal,
3. increase proportion of large-stature trees in the forest for greater canopy effects, and guarantee proper compatibility between trees and planting sites to reduce sidewalk damage and conflicts with overhead utilities that lead to premature tree removal.

Management needs (i.e., needs of those involved with the short and long-term care and maintenance of the urban forest):

1. develop adequate long-term planning to guarantee the sustainability of the urban forest,
2. optimize the use of limited financial and personnel resources, increase training and education for tree program employees to ensure high quality tree care, and coordinate tree-related activities of municipal departments.

Community needs (i.e., those that relate to how the public perceives and interacts with the urban forest and the local urban forest management program):

1. increase public awareness of values and benefits associated with trees,
2. promote private tree care through better public understanding of the biological needs of trees,
3. foster community support for the urban forest management program, and promote conservation of the urban forest by focusing public attention on all tree age classes, not just large heritage trees.

Although the needs listed above are common in many communities, specific needs of each community will vary, and may include others not noted here.

List of Community Forestry Needs for the City

1. Maintenance and Training Needs:

- Planting replacement trees to avoid sidewalk damage
- Utility Pruning (High Need)
- Local Value of Trees and Boulevards
- Small Business Outreach
- Housing and other low income audience education

2. **Green Campaign Development:** Develop a local campaign that includes business, chamber, low income neighborhoods and MDOT. Be sure that the retirement community is involved or leading.... Include city's colorful history in the campaign. Another opportunity is to include high school students in communicating and participating in an active "Green Campaign" to include a series of sustainable activities.

3. **Private Participation:** Many of the green spaces along the highways and other access roads to the city are on private property. Develop a Right Tree, Right Place campaign and a local tree nursery could provide free trees to those property owners. Use the CanVis program to help citizens visualize and understand the benefits associated with a "greener community." Develop a method for home and business owners to plant trees in private green spaces to assist in canopy development. Inventory possible places to plant trees.

4. **City Activities:** The City already does a good job in planting and planning, continue this effort and strive to increase local citizen participation to conduct part of the work.

Other Needs:

- Continued community tree planting programs, education and involvement would be beneficial
- Increased green infrastructure, such as; recycling, bio-swales, rain gardens, pocket parks downtown, green materials and home vegetable and flower gardens.

Step D - Establish Goals and Recommendations.

With information on resources and needs collected, goals to address local urban forestry needs can be set and a management strategy formed. To establish realistic goals, it is important to consider limitations posed by the level of community support, economic realities, and environmental constraints. Limitations on resources may make immediate addressing of all identified needs impractical and, in this case, it will be necessary to prioritize goals. Community involvement and support are critical in the establishment of goals since most urban and community forestry ordinances rely heavily upon voluntary compliance by the public, and compliance will only occur if the public supports the goals set. Involving the public in the goal-setting process allows them to reflect on the values of their community as well as educate themselves on how urban forest management affects their community.

Since goals are tangible ends that the management strategy seeks to achieve, it is important to set goals which are quantifiable, so that progress toward achieving these goals can be monitored. Typical tree program goals, as well as corresponding ordinance provisions for each goal, consistent with good urban forest management are discussed in detail in Appendix B.

Question 3 - How do you get what you want?**Step E - Select tools and formulate the management strategy.**

This step develops a management strategy addressing specific goals. It is important to remember there are many approaches that can be used to address each goal and the pros and cons of each approach should be considered. Feasibility, practicality, legality and economics should be considered in selecting appropriate management tools.

Some typical tools include:

1. public education programs,
2. assistance and incentive programs,
3. voluntary planting programs,

4. mitigation guidelines,
5. planning regulations and guidelines, including the general plan and specific plans, and
6. ordinances.

Community involvement and support continues to be important in this phase of the process; if management approaches and tools are unacceptable to the community, they are unlikely to succeed. Your assessment of current and past management practices should provide ideas about the effectiveness of various methods used in your community and public input and comment should be sought for any new approaches being contemplated or developed. The role of an ordinance becomes apparent at this stage, when it may become necessary to establish new positions, require development and implementation of a community forest master plan, mandate a program of public education, or outlaw destructive practices. Any provisions placed in ordinances should be directly related to the goals your community has established for its community forest, and all ordinances should include all of the essential components previously listed.

Step F - Implement the management strategy.

No matter how ideal a plan may appear on paper, it cannot achieve its goals until it is implemented. Implementation of the management strategy requires several steps, which may differ between communities and include:

1. passing an ordinance,
2. budgeting necessary funds,
3. hiring a municipal forester or arborist,
4. appointing a citizen tree advisor board,
5. formulating a master tree management plan, and
6. developing public education programs.

The above steps need not require funding if a volunteer tree board can be formed and ordinances are in place. Cities can implement a management strategy without funding; planting and conserving many trees. It is often useful to map out an implementation schedule to accomplish the steps involved in your community's management strategy. The schedule should show the steps involved and the time frame within which they should be completed. Additionally, progress checks in the form of required progress reports to the city council or county board of supervisors should be built into the schedule to make certain that delays or problems are detected and addressed. Maintaining a high profile for the management program during implementation will help foster public interest and maintain the commitment of local government.

Question 4 - Are you getting what you want?

Step G - Evaluate and revise.

Monitoring of your implemented management strategy is essential to make certain that progress is being made and standards are being met. Evaluation provides feedback on the effectiveness of the strategy, it also provides opportunities to reassess the needs and goals of the community and it allows readjustments and changes to goals before a crisis develops.

Question 1 - What do you have?

Step A - Assess the tree resource.

A sample tree inventory was undertaken to ecologically and environmentally assessed areas including street tree resources. The aim of the sample inventory was to provide a quick estimation of street tree species, diversity, ecological and environmental benefits. A more complete survey is highly advised.

Step B - Review tree management practices.

Data collected during the sample inventory facilitates assessment of structural components and management practices (i.e., canopy coverage, conditions, distribution, pruning needs) as well as other conflicts associated with public safety for city street trees. This assessment can be categorized by ward and zone type to show where management is needed most to improve street tree health and sustainability and to show how investing in a management program has provided benefits through maintenance of street trees.

Question 2 - What do you want (i.e. goal-setting)?

Step C - Identify Needs.

Calculations of overall canopy cover, condition of street trees, street tree distribution by land use and pruning and maintenance needs aided the city in an assessment of overall management needs. Canopy cover is the driving force behind an urban forest's ability to produce benefits in the community. As canopy cover increases, so also do the benefits afforded by increased leaf area (e.g., greater rainfall interception, shade, cooling, CO₂ reduction, pollutant uptake, aesthetics). Residents pay the city to manage street trees for the benefit of the community and to realize the maximum return on this investment. A city should strive to maintain present canopy cover in a way that promotes annual increases. The recommended canopy cover of an area is 40%

(*Green Infrastructure*, Benedict and McMahon, 2006). Increasing canopy cover now can be a tremendous investment in the future health of the urban forest, especially canopy cover. Unfortunately, budget constraints of municipal tree programs often dictate the length of pruning cycles and maintenance regimes rather than the needs of the urban forest and its constituent components. In fact, many cities do not have a programmed pruning plan, but maintain trees under “request” and “crisis” mode, finding them further and further behind every year. Programmed pruning, under a reasonable timeline, can improve public safety by eliminating conflicts, reducing costs by improving program efficiency and increasing benefits by improving tree health and condition. Any short-term dollar savings realized by cities deferring pruning only do so at the expense of lost tree value.

Step D - Establish Goals.

Guidelines for Effective Urban and Community Forest Management

The city’s first tree board, along with a professional urban forester should provide oversight and guidance in establishing a community forestry program and influence decision-makers to pass the second tree-related ordinance. This ordinance could provide for a broader spectrum of professional expertise on the board (i.e., an arborist, a landscape architect, a horticulturist) and more community involvement by expanding the board to seven members. Part of the work of the board is securing much needed funding through grants.

Question 3 - How do you get what you want?

Steps E and F - Select Tools, Formulate and Implement the Management Strategy.

With respect to street trees; plan goals and objectives by outlining what any city would be proud to achieve: “Main Goal – protect existing trees and increase tree cover in the city.” City street trees and trees within public facilities are to be maintained in a healthy, vigorous condition to provide numerous benefits including shade, wind barriers, improved air quality, and visual relief. The city’s comprehensive urban tree management plan selected tools such as ecologically and horticulturally sound pest and disease control; a high standard of pruning; proper planting and establishment methods; and a timely response to complaints and safety concerns to implement their management strategy. In other words, the city sought to maintain a functional municipal forest that is both healthy and safe, with street tree populations that yield numerous benefits without compromising environmental quality or the well-being of the citizens who live, work, and play there. Ultimately, the city should “get what it wants” by accomplishing their objectives of maintaining mature trees, tree planting, establishing a tree nursery, supplying trees to residents, maintaining young trees and improving tree ordinances. These ordinances can apply to any city wanting to protect, maintain and restore its trees and are, in fact, a good set of objectives and goals for which to strive.

Question 4 - Are you getting what you want?

Step G - Evaluate and Revise.

Although street tree inventories can and do occur as a precursor to new community forest management plans, they can also be helpful in evaluating and revising management plans already in place. As discussed above, this tool was used to evaluate the city's management plan and will, no doubt, be used to make any necessary revisions for the future. As part of the natural resource based plan or overall urban forest management strategy, municipal officials, committees, tree boards and commissions and other affiliated parties must determine and carefully examine any codes, regulations, ordinances, or laws that may affect, however remotely, the plan or strategy. Any and all codes, regulations, ordinances or laws must then be addressed and the plan or strategy altered, prior to approving or initiating any activities.

Some examples of codes, regulations, ordinances or laws that may be in place in Mississippi communities include:

1. subdivision ordinances, (exercise power in subdivision design, including physical layout, street standards, utility service, and open space);
2. zoning regulations, (control land use by dividing the land into different use districts and setting standards for development, including parcel use, lot size, density, street and property line setbacks, and structure size);
3. building codes, (dictate to what standards structures must adhere, including fire resistance, capacity, size and height, and appearance);
4. vegetation ordinances, (address undesirable plants, municipal trees, and arborist certification and licensing);
5. tree protection ordinances, (protect existing trees and other vegetation during development and regulate tree removal by establishing definitions, procedures, penalties and appeals necessary for enforcement);
6. special tree, species, and ecosystem regulations and laws, (often require specific guidelines for their maintenance and protection);
7. landscape ordinances, (require submission and approval of landscape plans, tree location plans, or new tree planting for new developments or development rehabilitation);
8. screening ordinances, (set standards for structural and/or vegetation screening on lot peripheries and vegetated islands within the lot); and
9. energy conservation regulations, (reduce wind speed, mitigate urban heat islands, and reduce overall energy use and waste).

Although not all of the above codes, regulations, ordinances or laws will be in effect in or applicable to, all communities or situations, many will apply and can affect plans or strategies. Communities should take steps to ensure that the review of all

future development includes checking the plan against their Community Forest Management Strategy. Careful examination and attention to detail can help avoid potential conflicts of interest and ensure plan success.

The City Tree Ordinance was reviewed and recommendations were made to be included in this plan.

Tree Ordinance Recommendations:

Revision and Addition Suggestions

Revisions:

- Refine Master Tree List of species

Additions:

- Add Section “Authority, Intent, and Purpose” of Tree Board for public awareness of intentions
- Expand by adding sections to include forester/arborist duties and authority
- Form a solid Community Tree Plan along with a registered forester and include for implementation
- Review adding Section “Enforcement, Penalties, and Appeals”
- Require Permits for certain tree/shrub work? If so, add Section “Permits”
- Protection for public trees and tree abuse?
- Yearly review

Air and water quality remain two of the most critical issues in sustainable environmental planning. Concern over the effects of carbon accumulation in the environment and the potential for long-term climate change have prompted many municipalities to increase their enforcement of urban forestry and landscape ordinances. “Green Laws,” as they are commonly called have taken on a new significance at both the state and local level, as communities strive to maintain and improve the quality of life for their residents and visitors. Standardizing and strengthening these types of guidelines has the obvious potential to enhance the aesthetics and economic property value of an area but may also generate additional economic returns in the form of lower maintenance costs and improved public health.

Along with tree ordinances, Green Laws may be crafted in the form of landscape laws and other codes or regulations designed to address land usage, development and post construction issues. While they are developed with similar purposes and expected outcomes in mind, agencies responsible for each level of responsibility may vary considerably depending upon a community’s size

and funding capability. Some of the most comprehensive examples and strategies for implementing rural Green Laws can be found at the Louisiana State University Web site.

Chapter 2: Guidelines for Conserving Wooded Areas

Conserving Wooded Areas

Best Management Practices (BMPs) to Conserve Wooded Areas at the Landscape Level

Conservation of wooded areas should be an essential part of any land development project.

Conserving and incorporating trees into existing neighborhoods, new developments, and the watershed can lead to more livable communities that retain the integrity and benefits of natural resources and are ultimately more sustainable. Community planners can more easily conserve wooded areas by adopting and following a step-by-step land-use approach that consists of defining goals, conducting an inventory and assessing resources, creating a conservation plan and identifying and selecting land protection options.

Define Goals

Goals to conserve wooded areas across the landscape should include:

- protection and/or restoration of ecological integrity and functions,
- protection and promotion of connectivity and continuity of wooded areas across the landscape and political boundaries,
- establishment or creation of networks of forest communities as open space,
- definition of neighborhood and community boundaries,
- concealment of unsightly or incompatible land-use practices, and
- protection of wildlife habitat and corridors.

Inventory and Assessment of the Resource

A landscape-level resource inventory that includes a woodland survey, resource assessment and produces a Comprehensive Landscape Resource Map should be conducted. The woodland survey and resource assessment consists of:

- delineating tree stands,
- identifying and classifying wooded areas by type and condition,

- assessing ecological functions as well as conservation values of wooded areas within the jurisdiction and adjacent jurisdictions,
- identifying, classifying, and assessing other natural resources (i.e., wetlands, farmlands, areas occupied by rare plant and animal species, and projected green spaces), and
- identifying watershed, drainage, topography, soil types, existing infrastructures, and areas of significant historical and cultural values.

Following the woodland survey and resource assessment, a Comprehensive Landscape Resource Map, containing all pertinent survey and assessment information, can be created.

Creating a Conservation Plan

A conservation plan, based on the resource inventory and assessment data and Comprehensive Landscape Resource Map should be created by:

- identifying and locating wooded areas,
- identifying and locating sites for main transportation systems and utility infrastructure,
- selecting wooded areas to conserve, including:
 - larger tracts or remnant wooded areas,
 - wooded areas that have potential to be connected to others,
 - wooded areas with significant ecological functions and conservation values,
 - wooded areas occupied by rare plant and animal species,
 - areas with reforestation and restoration potential.
- identifying developable areas.

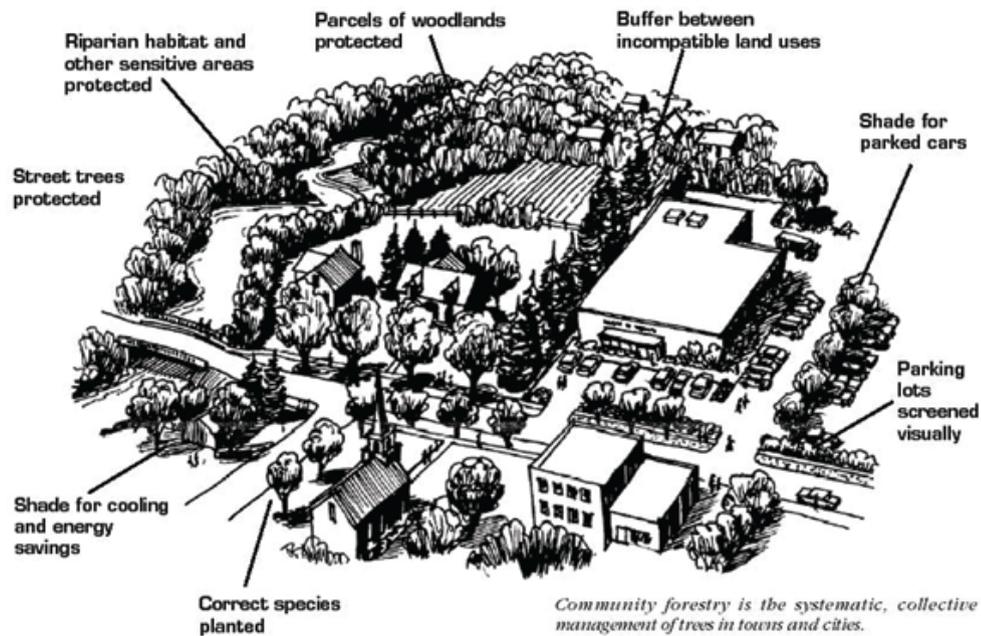


Figure 3-1. Examples of methods to incorporate trees into existing neighborhoods, new developments, and watersheds. Source: Fazio 2003

Management Manual

Once all of the above areas have been identified and recorded on the Comprehensive Landscape Resource Map, the map should be entered in a Geographic Information System (GIS) and shared with other local and regional units of government, developers, builders, and private organizations to promote continuity and connectivity of wooded areas across the landscape and enhance coordination and partnerships among all stakeholders. Developers and builders should also be included in this process and be informed of conservation goals and wooded areas set aside for conservation.

Identify and Select Land Protection Strategies

Following the development of a Comprehensive Landscape Resource Map and identification of wooded areas to conserve, appropriate land-protection options should be selected. Options available to local and regional units of government include use of zoning and subdivision ordinances and consideration of other conservation and protection options.

When drafting ordinances to promote conservation of wooded areas:

- gather input from developers, builders, and citizen organizations,
 - integrate conservation values in zoning codes and policies,
 - identify developable subdivisions and conservation zoning districts in the comprehensive plans,
 - determine the type of development to be allowed using information contained in the Comprehensive Landscape Resource Map,
 - promote flexible subdivision ordinances that encourage variable lot sizes and configurations, street width and setbacks according to traffic, utility types and easements and creative development plans,
 - draft local woodland and tree-protection ordinances for both public and private property,
 - provide incentives to reduce impervious surfaces (including reduced road width, setbacks, parking lots or provision of additional lots, tax incentives and public recognition or awards),
 - promote the use of joint utility easements and trenches for underground utilities and rights of way for overhead lines,
 - create a local natural resource advisory board to foster participation of community organizations including citizens, nonprofit organizations, developers, builders, and contractors,
 - create conservation overlay districts in the jurisdiction using comprehensive plans and zoning ordinances and determine urban growth boundaries for infrastructure (i.e., new water and sewer lines),
 - provide incentives to promote or mandate implementation of conservation designs such as conservation zoning designs, open space designs, conservation subdivision designs, and cluster development designs.
-
- set up conservation standards based on sound protection options of wooded areas (e.g., promotion of the conservation of 50 to 70% of wooded areas in residential zoning districts as natural wooded open space),
 - promote new and flexible approaches to conservation (e.g., dedicate 15 acres of land for park, playground, and public open space for every 1,000 residents or prohibit development on wooded areas of 10 acres or larger) and
 - provide a management strategy to maintain and enhance the quality of protected wooded areas (the strategy should have an education component for the public and include frequent assessments of tree and forest health, fire hazards, and wood utilization).

Other conservation and land protection options that have been developed to assist landowner and local units of government include:

- conservation easements,
- land-retirement programs,
- property tax-relief programs,
- restoration cost-share programs,
- registry programs,
- land transfers,
- deed restrictions,
- mutual covenants,
- management agreements,
- land donations,
- land sales to conservation buyers,
- land exchanges, and
- transfer of development rights.

BMP's to Conserve Wooded Areas at the Subdivision Level

Define goals

Goals to consider in land development should include:

- conservation of green corridors,
- conservation of wooded areas as natural open space or a conservancy area, and
- protection of individual trees.

Inventory and Assessment of the Resource

Resource inventory and assessment at the subdivision level should follow the same steps as those conducted at the landscape level but at the smaller scale of the subdivision. Generally, the resource inventory and assessment for a subdivision is accomplished in three steps:

1. evaluate existing resource information (obtained from larger scale resource inventory and assessments, including any local zone and tree preservation ordinances),
2. conduct site review and survey trees (including identification and location of wooded areas and other natural resources, and delineation of potential wooded areas to protect).

The site review and tree survey is conducted by:

- obtaining aerial photography (available through tax assessor),
 - incorporating remote sensing data,
 - identifying and locating wooded areas and other land types, and
 - delineating potential wooded areas to protect, such as:
 - wooded areas protected or identified by local, state, and federal laws, policies, and/or regulations (i.e., wetlands, greenways, and natural areas),
 - wooded flood plains, wooded stream corridors, steep wooded slopes, and buffer zones, and
 - remnant tracts of wooded areas at least one acre in size with healthy trees.
3. create a Comprehensive Landscape Resource Map for the subdivision that will be used as the basic tool from which all decisions related to the development will be made.



Create a Wooded Area Protection Plan

Using the subdivision Comprehensive Landscape Resource Map, develop a protection plan which includes:

- selection and delineation of wooded areas to protect, considering the following steps:
 - record location of wooded areas to be protected based on the goals and information provided on the resource map,
 - record all areas likely to be adversely impacted during construction,
 - record areas that can be used for reforestation and/or restoration, and
 - locate and delineate developable and buildable sites, and
- submission of development plan for approval which should be collectively reviewed by the developer and the county, city, or township planner.

Select a Protection Method

Once the development plan is approved, the developer and/or builder should select the protection method that consists of several steps:

- determine the protected root zone, which is:
 - off limits to all construction activities, and
 - should be determined and protected prior to construction.
- mark the protected root zone,
- determine the grading area and method,
- define reforestation plan and method (should select suitable tree species planting design to meet intended goals), and
- record trees to be transplanted to other locations.

Monitor and Evaluate the Conservation Plan

If a conservation plan is to succeed, participation and commitment of all parties involved in the development project is essential.

Plan monitoring and evaluation should include:

- education of those involved regarding goals and tree protection measures,
- site inspection which includes frequent visits to the site to check for violations of tree protection plans, and
- financial penalties for violations (may be monetary or replacement of trees).

BMPs to Protect Trees at the Lot Level: New Construction, Remodeling, and Redevelopment Recommended Practices

Proactive planning and use of appropriate approaches and tools can guarantee greater protection and conservation of wooded areas and trees during construction.

To achieve protection goals, the following steps should be taken:

- Define goals, including:
 - protection of wooded areas and trees from construction damage,
 - compliance with zoning regulations, conservation easements, and
 - maintenance and enhancement of community aesthetics and property values.
- Inventory and assess trees by:
 - obtaining or drawing a boundary map of the lot,
 - recording the location of all trees and wooded areas,
 - conducting a tree survey and health assessment, including:
 - tree species and age class, and
 - health condition (i.e., trunk form, crown form, and overall condition), and
 - recording tree survey and health assessment information on the Comprehensive Landscape Resource Map.
- Select trees or groups of trees to protect, using these criteria:
 - select trees or groups of trees as needed to comply with any local tree preservation ordinances,
 - select trees and wooded areas found within conservation easements or covenants,
 - select trees that are suitable to the site conditions (e.g., native species and trees with desirable growth characteristics),
 - select trees that provide direct benefits (e.g., wildlife habitat, shade, windbreak, screening, privacy, etc.),

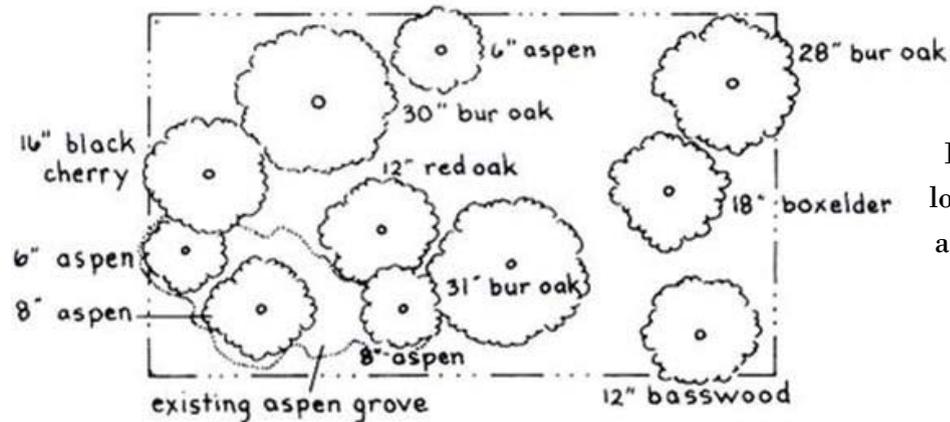


Figure 3-3. A resource map at the individual lot level shows the location of the wooded area and individual trees, species composition, and diameter of trees at breast height.

- select trees that are connected to other trees (e.g., groups or lines of trees) on adjoining property to achieve connectivity,
- pay particular attention to younger trees that may have greater tolerance for site disturbance during construction,
- identify protected trees with colored ribbon, and
- record location of tree and species name on the Comprehensive Landscape Resource Map.
- Select building sites and construction zones and identify other areas such as setbacks, easements, and areas dedicated to conservation.
- Create a tree protection plan by determining and delineating the protected root zone.
- Select and implement tree protection method, and
- Monitor and evaluate by:
 - visiting the building site to check for any disturbance or violation of the tree protection plan,
 - calling for a tree survival and replacement plan to be extended from two to five years following construction,
 - imposing financial penalties, and
 - making referrals to other clients for builders or contractors who do an exceptional job of protecting trees during construction.

Chapter 3: Guidelines for Protecting Urban and Community Streams Protecting Urban and Community Streams

Areas containing community streams must be given special consideration because development in these areas can have a profound impact on stream hydrology, morphology, water quality and biodiversity. Because development is often a gradual

process spanning decades and wide regions of the landscape, stream protection strategies must address the comprehensive protection of stream quality throughout the entire development process.

A local urban stream protection strategy has six primary components roughly corresponding to each stage of a normal development cycle from zoning, planning, site design, construction, stabilization, to final occupancy. These components are watershed-based zoning or land use planning, protection of sensitive areas, establishment of buffer networks, reduction of impervious cover in site design, limitations on erosion during construction, quantity and quality treatment of storm-water runoff and maintenance of stream protection measures.

Watershed-based Zoning or Land Use Planning

To a large extent, the future quality of a stream is determined by community land use decisions. Therefore, careful consideration must be given to these streams during the zoning planning process.

The underlying premise of watershed-based zoning holds that impervious cover, not population density, is a superior measure of growth impact. Based upon the variable of impervious cover, it is possible to classify and manage streams within a community using the sequence of steps involved in watershed-based zoning below.

- Step 1 Conduct a comprehensive physical, chemical, and biological stream inventory to assess the current quality of the community streams.
- Step 2 Refine/verify impervious cover/ stream quality relationships and identify sensitive stream systems.
- Step 3 Measure and map existing and future impervious cover at the sub-watershed level and, if possible, project future impervious cover growth based on the build-out of existing zoning.
- Step 4 Designate sub-watersheds into one of three stream quality categories (sensitive, degrading, non-supporting), based on growth patterns and attainable stream quality under existing environmental conditions and the ultimate level of impervious cover.
- Step 5 Modify the existing master plan to meet sub-watershed targets and assure that future growth and impervious cover is compatible with the designated stream classification for each sub-watershed.
- Step 6 Adopt specific stream protection strategies for each sub-watershed (including, but not limited to, watershed or site limits on impervious cover, BMP selection criteria, stream buffers, land acquisition or other protection measures).
- Step 7 Incorporate any management priorities that may arise from larger watershed planning efforts (e.g., at the scale of watershed, sub-basin, or basin).

Step 8 Implement long-term monitoring and enforcement programs to provide management feedback and assess whether the stream management strategies are achieving stream quality goals set for each sub-watershed. Specific examples of stream protection strategies from watershed-based zoning.

Protection of Sensitive Areas

Sensitive areas such as wetlands, flood plains, steep slopes, critical habitats, shorelines and mature forests can and should be protected through the development, adoption and enforcement of ordinances that prevent development in these areas. Ordinances should describe how each area will be delineated onsite and what protective measures will be taken during all stages of any development process. Additionally, it is a good idea to establish a set of performance criteria to protect these areas.

Establishment of Buffer Networks

There are a number of reasons for creating urban riparian forests or urban stream buffers. In both residential and commercial areas, runoff can contain fertilizers, herbicides, pesticides and other pollutants that can be filtered out by plant roots and broken down by microorganisms and ultimately help add and maintain biodiversity in the urban and community environment.

Benefits of Urban and Community Riparian Forests and Stream Buffers

The buffer's primary value is physical protection of the stream channel from future disturbance or encroachment. A network of buffers acts as a right-of-way for a stream and functions as an integral part of the stream ecosystem but also provides many additional benefits. Benefits are amplified when the streamside management zone is kept in a forested condition. One of the most important benefits of urban and community streamside buffers is their potential ability to remove harmful pollutants from urban storm-water runoff. On the basis of performance data from related vegetative systems, it is possible to estimate the pollutant removal capacity of an urban riparian or stream buffer. A three zone buffer system like the one described below has the potential to achieve the following pollutant removal rates:

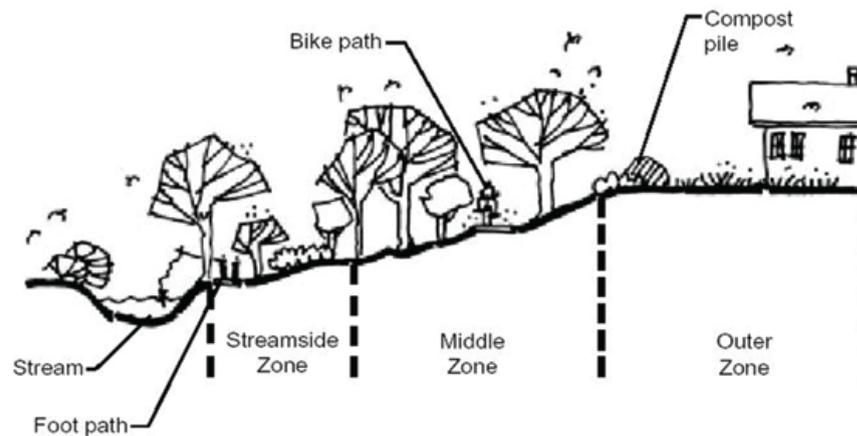
- sediment – 75%,
- total nitrogen – 40%,
- total phosphorus – 50%,
- trace metals – 60 to 70%, and
- hydrocarbons – 75%.

The ability of a particular buffer to remove pollutants, however, depends on many site specific factors. In the case of storm-water runoff treatment, stream buffer use should be restricted to those conditions where site-specific factors assure reliable pollutant removal.

Performance Criteria for Stream Buffers

Planning, design and maintenance of buffers largely affects the ability of a buffer to realize its many benefits. Examples of practical performance criteria are listed below to govern buffer size, management, crossings and storm-water treatment. The 10 example criteria include:

1. Minimum total buffer width—According to a national survey, urban stream buffer sizes range from 20 to 200 ft. in width, with a median of 100 ft. In general, a minimum base width of at least 100 ft. (e.g., 3 to 5 mature trees wide on each side of the channel) is recommended for adequate stream protection.
2. Three-zone buffer system—Riparian or stream buffers are typically broken up into three zones; the Undisturbed Forest or Streamside Zone (Zone 1). Three zone urban buffer system. Source: MDEQ 1994 . The Managed Forest or Middle Zone (Zone 2) and the Runoff Control or Outer Zone (Zone 3), each of which performs a different function, has a different width, vegetative target, and management scheme (Figure 4-1)



Prescriptions are usually based on climatic zone, soil types, soil drainage characteristics, and available and desired tree and shrub species. As an example, on a poorly drained site in the South, recommendations may call for:

- Zone 1 river birch and black willow for bank stabilization,
- Zone 2 cherrybark oak and loblolly pine as filtering mechanisms, and
- Zone 3 maidencane and gray dogwood for grass and shrub runoff control.

For prescriptions on various soil types and drainage capacities and planting recommendations for urban riparian forests in the South see Appendix C.

3. Pre-development vegetative target – Generally, the vegetative target should be based on the natural vegetative community present in the floodplain, as determined from reference riparian zones.
4. Buffer expansion and contraction–The average width of Zone 2 can be expanded to include:
 - the full extent of the 100-year floodplain,
 - all undeveloped steep slopes (greater than 25%),
 - four additional feet of buffer for each 1% increment of slope above 5%, and
 - any adjacent delineated wetlands or critical habitats.

The buffer can also be contracted to accommodate unusual or historical development patterns, shallow lots, stream crossings, or storm-water ponds.

5. Buffer delineation – Three key decisions must be made when delineating buffer boundaries.
 - At what mapping scale will streams be defined? The traditional scale is the blue lines present on the United States Geological Service (USGS) 7.5 minute quadrangle maps 1:24,000 (1in=2,000 ft.).
 - Where does the stream begin and the buffer end? Generally, the stream origin is the point where an intermittent stream forms a distinct channel.
 - From what point should the inner edge of the buffer be measured? Inner edge can be measured from the centerline of small first- or second-order streams and from the top of each stream bank for third and higher order streams.
6. Buffer crossings – Provisions must be made for linear forms of development that must cross the stream or buffer such as roads, bridges, fairways, underground utilities, enclosed storm drains, or outfall channels. Performance criteria such as crossing width, crossing angle, crossing frequency and crossing elevation should be used to minimize impact to the continuity of the buffer network and fish passage.

7. Storm-water runoff – Buffers can be an important component of the storm-water treatment system at a development site. This role is discussed later in the Section “Treatment of Storm-water Runoff.”
8. Buffers during plan review and construction – During each stage of the development process, limits and uses of stream buffer systems should be well-defined.
9. Buffer education and enforcement – Creating high buffer visibility and encouraging greater buffer awareness and stewardship among adjacent residents will help protect the integrity of a buffer system. Steps that will aid in increasing visibility and awareness include:
 - marking buffer boundaries with permanent signs that describe allowable uses,
 - educating buffer owners about benefits and uses of buffers with pamphlets, stream-walks, and meetings with homeowners associations,
 - ensuring that new owners are fully informed about buffer limits/uses when property is sold or transferred,
 - engaging residents in a buffer stewardship program that includes reforestation and backyard “buffer-scaping” programs, and
 - conducting annual buffer-walks to check on encroachment.
10. Buffer flexibility–Incorporating several simple measures into buffer ordinances, such as maintaining buffers in private ownership, buffer averaging and density compensation, variances and conservation easements will help alleviate concerns that buffer requirements could represent an uncompensated taking of private property.

Ordinances for Stream Buffers

To better utilize stream buffers as specific planning tools to protect stream quality and aquatic habitat, ordinances specifying the size and management of the stream buffer should be drafted. The model ordinance provided in Appendix C includes 10 sections that provide suggested language or technical guidance to create the most effective stream buffer zones possible. While much of the model is based on Baltimore County, Maryland’s regulations for the water quality, stream, wetland and floodplain protection, additional features and language have been added in certain sections to enhance the protective functions of the proposed stream buffer.

The language in the sample model ordinance is only intended to provide suggestions for possible wording of a community’s own buffer regulation; it is not meant to be adopted word-for-word. Local situations and concerns will dictate what modifications of the ordinance language will be required. In areas with coastal and estuarine habitats, location- and vegetation specific language

should be added. Coastal and estuarine areas will also want to address important offshore features such as shellfish beds and migratory bird nesting areas that are influenced by nutrient and pollutant runoff. Additionally, regions may adjust buffer width sizes according to rain fall amounts or other climatic variables. Finally, political situations within a community may also influence the final choice of buffer width standards, making flexibility in stream buffer zone establishment very important. While the wording of buffer regulations is flexible, several features were determined to be integral in developing the most effective ordinance possible:

- The establishment of a minimum stream buffer width. A width of at least 100 feet is recommended to recognize all the benefits that the stream buffer can provide.
- The creation of a three-zone buffer system with the functions, widths, vegetative targets, and management schemes for each zone explained in detail.
- Language that creates the ability to expand the buffer to include the 100-year floodplain, steep slopes and any adjacent delineated wetlands or critical habitats.
- A thorough explanation of the limits and uses of the stream buffer system and requirements expected for any development plan during the entire development process—from initial plan review through construction.
- A system to permanently mark the buffer, both physically on-site, and in the land records, should be enacted.
- A designated management system for the buffer, detailing permitted and restricted uses within the buffer and an educational program that guarantees future residents know about the buffer.
- Any waivers or variances which may be granted regarding the buffer should be explained in detail to avoid legal challenges.
- Maintenance guidelines and enforcement procedures for buffer violations should be included. A strong buffer ordinance is only the first step to preserving stream buffers. Communities will also need an effective buffer program that includes the stream buffer performance criteria previously discussed to manage buffers and enforce buffer regulations. Additionally, during the construction phase, communities must make sure that the clearing and grading permit is well integrated with the forest buffer application. Following construction, programs educating citizens about the importance of the buffer and how to manage it, can help preserve the buffer's integrity.

7. Urban Forester's Reports and Recommendations

The following report has been prepared using the computer program STREETS to illustrate the dollar value benefits produced by street trees and the makeup of the population. A sample of street trees was collected along Commerce Street in Aberdeen, Mississippi from the railroad to Matubba Street. This street was chosen by the city of Aberdeen as the area they wanted to have benefits reported on. The following variables were used for Aberdeen: Monroe County, Mississippi; Municipal Budget \$4,300,000; Population 5,800; Total linear miles of streets 27 miles; Total square miles of land area in city 12; Average width of streets 20 feet; and Average width of sidewalks 4 feet.

It was recommended that the city use grant funds to plant dwarf magnolias along Commerce Street to sustain existing magnolia plantings that are slowly declining. Also, it was recommended that group plantings (i.e., magnolias, crape myrtle, red maple) of three or more trees be planted along Commerce Street entrance from the Best Western Hotel to the railroad tracks. This was recommended to provide different seasonal blooming and foliage color.

The annual benefits, population summary, species distribution, and importance values for the trees occurring along Commerce Street are reported as follows:

a. Importance Value of Most of Abundant Trees

Aberdeen

Annual Benefits of All Trees by Species (\$/tree)

7/7/2011

Species	Energy	CO ₂	Air Quality	Stormwater	Aesthetic/Other	Total (\$)	Standard Error
Southern magnolia	10.24	1.92	2.52	34.00	7.17	55.86	(N/A)
Crape Myrtle	1.24	0.17	0.45	1.32	0.96	4.14	(N/A)
Callery pear	11.29	3.11	5.04	22.18	11.59	53.19	(N/A)
American elm	1.72	0.51	0.30	2.39	5.60	10.53	(N/A)
Silver Maple	2.76	0.60	0.96	2.96	4.50	11.78	(N/A)
OTHER STREET	16.01	4.69	-13.22	63.17	23.74	94.39	(N/A)

Importance Values for Most Abundant Trees (All)

7/7/2011

Species	Number of Trees	% of Total Trees	Leaf Area (ft ²)	% of Total Leaf Area	Canopy Cover (ft ²)	% of Total Canopy Cover	Importance Value
Southern magnolia	48	37.2	112,070	57.9	44,365	56.6	50.6
Crape Myrtle	37	28.7	1,290	0.7	3,321	4.2	11.2
Callery pear	30	23.3	54,487	28.1	25,088	32.0	27.8
American elm	6	4.7	854	0.4	726	0.9	2.0
Silver Maple	5	3.9	399	0.2	989	1.3	1.8
OTHER TREES	3	2.3	24,492	12.7	3,909	5.0	6.7
Total	129	100.0	193,592	100.0	78,398	100.0	100.0

Population Summary of All Trees

7/7/2011

Species	DBH Class (in)										Total Standard Error
	0-3	3-6	6-12	12-18	18-24	24-30	30-36	36-42	>42		
Broadleaf Deciduous Large (BDL)											
American elm	0	6	0	0	0	0	0	0	0	0	6
Silver Maple	0	5	0	0	0	0	0	0	0	0	5
BDL OTHER	0	0	0	0	1	0	1	0	0	0	2
Total	0	11	0	0	1	0	1	0	0	0	13 (±NaN)
Broadleaf Deciduous Medium (BDM)											
BDM OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Broadleaf Deciduous Small (BDS)											
Grape Myrtle	7	30	0	0	0	0	0	0	0	0	37
Galley pear	0	0	2	22	6	0	0	0	0	0	30
BDS OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	7	30	2	22	6	0	0	0	0	0	67 (±NaN)
Broadleaf Evergreen Large (BEL)											
BEL OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Broadleaf Evergreen Medium (BEM)											
Southern magnolia	16	2	1	4	17	6	2	0	0	0	48
BEM OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	16	2	1	4	17	6	2	0	0	0	48 (±NaN)
Broadleaf Evergreen Small (BES)											
BES OTHER	0	1	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	1 (±NaN)
Conifer Evergreen Large (CEL)											
CEL OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Conifer Evergreen Medium (CEM)											
CEM OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Conifer Evergreen Small (CES)											
CES OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Palm Evergreen Large (PEL)											
PEL OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Palm Evergreen Medium (PEM)											
PEM OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Palm Evergreen Small (PES)											
PES OTHER	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0 (±NaN)
Grand Total	23	44	3	26	24	6	3	0	0	0	129 (±0)

b. Tree Population Summary

c. **Benefit Values for Southern Region of U.S.**

Commerce Street Tree Inventory

Aberdeen's street tree inventory found on Commerce Street (i.e., in the downtown area) that was used to calculate dollar value benefits started at the Kansas City Southern railroad tracks and proceeded along Commerce Street and ended at Matubba Street. The street tree inventory is separated into segments (i.e., where cross streets bisected Commerce Street) where trees were identified and measured for diameter at breast height (approximately 4.5 feet off the ground) or DBH for use in calculating benefits. Dollar value benefits for these trees were determined by using the U.S. Forest Service's free computer program i-Tree. The benefits determined for the trees identified along Commerce Street (i.e., those occurring within 25 feet of the streets edge) are attached to this report. The aforementioned street tree inventory is attached below. Also, find an attached list of trees recommended for planting in Mississippi.

Recommendations for planting street trees that will be provided through the \$1,500 grant are as follows. It would be sensible to plant dwarf magnolias along Commerce Street approximately 20 to 25 feet from flowering pears that have been heavily pruned. This would be in keeping with the city's forefather's wishes to establish Aberdeen as a city of magnolias. However, this is only a recommendation and should only be considered if it pleases all those concerned.

This report was compiled by Wes Jones (Urban Forestry PhD) an independent consultant hired by the Mississippi Urban Forestry Council.

d. Benefits and Population Summary

Commerce Street Tree Inventory

**Beginning from Kansas City Southern Railroad
and ending Locust Street.**

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
LAIN 2.5"	ULPA 3.0"	LAIN 2.5"
LAIN 2.5"	ULPA 3.0"	LAIN 2.5"
	ULPA 3.0"	

Beginning from Locust Street and ending Maple Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
LAIN 3.0"	ACSA 3.0"	LAIN 2.5"
LAIN 3.0"	ACSA 3.0"	LAIN 2.0"
LAIN 2.5"	ACSA 3.0"	LAIN 2.0"
LAIN 2.0"	ACSA 3.0"	LAIN 2.0"
LAIN 2.0"	ACSA 3.0"	LAIN 2.5"
LAIN 2.0"	ACSA 3.0"	
LAIN 2.5"	ACSA 3.0"	

Beginning Maple Street and ending Meridian Street.

Void of trees.

Beginning Meridian Street and ending Hickory Street.

Void of trees.

Beginning Hickory Street and ending James Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
ILFO 5.0"	Void of Trees	MASO 2.0"
LAIN 2.5"		
LAIN 2.5"		
MAGR 21.5"		
LAIN 3.5"		
LAIN 2.5"		
LAIN 2.5"		
LAIN 3.0"		
LAIN 3.5"		
LAIN 2.5"		
LAIN 2.5"		

Beginning James Street and ending Columbus Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
Void of Trees	MAGR 1.5"	PYCA 20.5"
	MAGR 25.5"	PYCA 16.0"
	MAGR 15.5"	PYCA 14.5"
	MAGR 1.5"	QUFA 19.0"
	MAGR 22.0"	
	MAGR 0.5"	
	MAGR 20.5"	
	MAGR 1.0"	

* Tree name codes are explained at the end of Commerce Street Inventory.

Commerce Street CONTINUED beginning James Street and ending Columbus Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
Void of Trees	MAGR 24.0"	
	MAGR 0.5"	
	MAGR 22.0"	
	MAGR 1.0"	

Beginning at Columbus Street and ending at Long Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
PYCA 21.5"	MAGR 19.0"	LAIN 2.0"
PYCA 15.5"	MAGR 22.0"	LAIN 2.0"
PYCA 16.5"	MAGR 1.0"	LAIN 2.0"

PYCA 14.5"	MAGR 21.0"	LAIN 2.0"
PYCA 16.0"	MAGR 2.0"	PYCA 16.0"
	MAGR 22.5"	LAIN 2.0"
	MAGR 24.0"	LAIN 2.0"
	MAGR 15.5"	PYCA 16.0"
		LAIN 1.0"
		LAIN 3.0"

* Tree name codes are explained at the end of Commerce Street Inventory.

Beginning Long Street and ending Franklin Street.

North Side	Boulevard	South Side
Tree Name* DBH	Tree Name* DBH	Tree Name* DBH
PYCA 15.5"	MAGR 24.0"	PYCA 13.0"
PYCA 15.5"	MAGR 14.0"	PYCA 16.0"
PYCA 17.0"	MAGR 11.0"	PYCA 16.0"
PYCA 10.5"	MAGR 29.0"	PYCA 10.0"
PYCA 16.5"	MAGR 4.0"	PYCA 20.0"
PYCA 17.0"	MAGR 0.5"	PYCA 18.0"
PYCA 19.0"	MAGR 19.0"	PYCA 15.0"
PYCA 16.5"	MAGR 29.5"	
PYCA 15.0"	MAGR 0.5"	
PYCA 15.0"	MAGR 20.0"	
	MAGR 1.0"	
	MAGR 20.0"	
	MAGR 25.0"	
	MAGR 22.5"	
	MAGR 1.0"	

Beginning Franklin Street and ending Matubba Street.

North Side		Boulevard		South Side	
Tree Name*	DBH	Tree Name*	DBH	Tree Name*	DBH
PYCA	14.5"	MAGR	13.5"	PYCA	21.0"
PYCA	14.0"	MAGR	1.0"		
LAIN	3.0"	MAGR	3.5"		
LAIN	1.5"	MAGR	23.0"		

* Tree name codes are explained at the end of Commerce Street Inventory.

Commerce Street CONTINUED beginning Franklin Street and ending Matubba Street.

North Side		Boulevard		South Side	
Tree Name*	DBH	Tree Name*	DBH	Tree Name*	DBH
		MAGR	1.0"		
		MAGR	22.0"		
		MAGR	19.0"		
		MAGR	32.0"		
		MAGR	1.0"		

MAGR 20.0"
MAGR 2.0"

*Tree name codes.

<u>Code</u>	<u>Latin Name</u>	<u>Common Name</u>
ACSA	Acer saccharinum	Silver Maple
LAIN	Lagerstoemia indica	Crape Myrtle
MAGR	Magnolia Grandiflora	Southern Magnolia
MASO	Magnolia soulangeana	Japanese Saucer Magnolia
PYCA	Pyrus calleryana	Flowering Pear
QUFA	Quercus falcata	Red Oak
QUPH	Quercus phellos	Willow Oak
ULPA	Ulmus parvifolia	Lacebark Elm

8. Recommended Tree Species

List of environmental characteristics & tolerances for tree species suitable for urban & community forestry environments in the Southeast from the Mississippi Urban & Community Forestry Management Manual by Amanda L. Husak & Dr. Stephen C. Grado.

Environmental Characteristics and Tolerances

Common Name	Latin Name	Native Tree to Mississippi	Growth Rate ¹	Average Life Span ²	Net Effect on Air Quality ³	Soil Moisture ⁴	Drought Tolerances ⁵	Preferred Soil pH ⁶	Light Requirement ⁷	Construction Tolerances/ Limitations ⁸	Urban Tolerant Tree ⁹
Ash, Green	<i>Fraxinus pennsylvanica</i>	X	F	M	0.09	W	H	sl ac-sl alk	FS	.	
Ash, White	<i>Fraxinus americana</i>	X	M	M	0.1	M	L	sl ac-sl alk	FS	M/IS	
Bald cypress	<i>Taxodium distichum</i>	X	M	L	0.032	M	H	ac-sl alk	FS	G/	X
Beech, American	<i>Fagus gradifolia</i>	X	S	L	0.16	M	L	acidic	FS	P/A	
Birch, River	<i>Betula nigra</i>	X	F	M	0.117	M	L	acidic	PS	G/	
Birch, River 'Heritage'	<i>Betula nigra 'Heritage'</i>	X	F	M	n/a	M	L	acidic	PS	n/a	
Blackgum (Tupelo)	<i>Nyssa sylvatica</i>	X	S	M	-0.053	M	M	sl ac-sl alk	FS	G/	X
Boxelder	<i>Acer negundo</i>	X	F	S	0.036	W	M	adapt	FS	G/	
Catalpa, Southern	<i>Catalpa bignonioides</i>	X	F	S	0.014	M	M	sl ac-sl alk	FS	G/	
Cherry, Black	<i>Prunus serotina</i>	X	F	M	0.083	M	M	sl ac	FS	M/I	
Cottonwood, Eastern	<i>Populus deltoides</i>	X	F	M	-0.708	M	M	sl ac-sl alk	FS	G/	X
Crapemyrtle, Common	<i>Lagerstroemia indica</i>	X	F	M	0.004	M	H	ac-sl alk	FS	n/a	
Dogwood, Flowering	<i>Cornus florida</i>	X	M	M	0.021	M	L	ac-nu	PS	M/IP	
Dogwood, Flow. Pink	<i>Cornus florida var. rubra</i>	X	M	M	n/a	M	L	n/a	PS	n/a	
Elm, American	<i>Ulmus americana</i>	X	M	M	0.143	M	H	sl ac-sl alk	FS	M/P	
Elm, Slippery	<i>Ulmus rubra</i>	X	F	M	0.086	M	M	sl ac-sl alk	FS	M/P	
Elm, Winged	<i>Ulmus alata</i>	X	M	M	0.034	M	H	sl ac-sl alk	FS	G/	X
Hickory, Bitternut	<i>Carya cordiformis</i>	X	F	L	0.069	M	L	acidic	FS	P/S	
Hickory, Mockernut	<i>Carya tomentosa</i>	X	S	L	0.059	D	H	sl ac	FS	MP/S	
Hickory, Pignut	<i>Carya glabra</i>	X	S	L	0.058	M	H	sl ac	FS	M/S	
Hickory, Shagbark	<i>Carya ovata</i>	X	S	L	0.064	M	M	sl ac	FS	P/S	
Hickory, So. Shagbark	<i>Carya ovata var. australis</i>	X	S	L	n/a	M	M	sl ac	FS	n/a	
Holly, American	<i>Ilex opaca</i>	X	S	L	0.013	M	H	acidic	PS	G/	X
Holly, Deciduous	<i>Ilex decidua</i>	X	M	S	n/a	W	H	ac-alk	PS	G/	
Honeylocust	<i>Gleditsia triacanthos</i>	X	F	S	0.009	M	H	sl ac-sl alk	FS	G/	X
Hophornbeam, Am.	<i>Ostrya virginiana</i>	X	S	M	0.032	M	H	ac-alk	SH	M/S	X
Hornbeam, A.	<i>Carpinus caroliniana</i>	X	S	M	0.009	M	M	sl ac-sl alk	PS	M/SC	
Magnolia, Cucumber	<i>Magnolia acuminata</i>	X	F	M	n/a	M	L	acidic	PS	M/I	
Magnolia, Southern	<i>Magnolia grandiflora</i>	X	M	L	0.002	M	M	acidic	FS	M/I	
Magnolia, So.	<i>Magnolia grandiflora</i>	X	S	M	n/a	M	L	acidic	FS	n/a	
Magnolia, Sweetbay	<i>Magnolia virginiana</i>	X	F	M	n/a	W	L	acidic	PS	G/	
Maple, Red	<i>Acer rubrum</i>	X	F	L	0.084	M	L	sl ac	FS	G/	
Maple, Silver	<i>Acer saccharinum</i>	X	F	S	0.084	M	H	ac	FS	P/A	
Maple, Florida Sugar	<i>Acer barbatum</i>	X	M	M	n/a	M	H	ac	FS	M/IS	X

Environmental Characteristics and Tolerances

Common Name	Latin Name	Native Tree to Mississippi	Growth Rate ¹	Average Life Span ²	Net Effect on Air Quality ³	Soil Moisture ⁴	Drought Tolerances ⁵	Preferred Soil pH ⁶	Light Requirement ⁷	Construction Tolerances/ Limitations ⁸	Urban Tolerant Tree ⁹
Maple, Sugar	<i>Acer saccharum</i>	X	M	L	0.1	M	M	sl ac-sl alk	PS	pm	
Maple, Sugar 'Legacy'	<i>Acer saccharum</i> 'Legacy'	X	F	L	0.1	M	M	sl ac-sl alk	PS	n/a	
Mulberry, Red	<i>Morus rubra</i>	X	F	S	0.099	M	H	sl ac-sl alk	FS	G/	
Oak, Cherrybark	<i>Quercus falcata</i>	X	M	L	n/a	M	M	ac	FS	G/	
Oak, Diamond Leaf	<i>Quercus laurifolia</i>	X	M	L	n/a	M	M	ac-sl alk	FS	G/	
Oak, Northern Red	<i>Quercus rubra</i>	X	F	L	0.503	M	M	ac-sl ac	FS	GM/S	
Oak, Nuttall	<i>Quercus nuttalli</i>	X	M	L	n/a	M	M	ac	FS	n/a	
Oak, Overcup	<i>Quercus lyrata</i>	X	M	L	0.159	W	M	ac-sl alk	FS	G/	
Oak, Post	<i>Quercus stellata</i>	X	M	L	0.327	D	H	ac-sl alk	FS	G/	
Oak, Scarlet	<i>Quercus coccinea</i>	X	M	L	0.592	D	H	sl ac	FS	G/	
Oak, Shumard	<i>Quercus shumardii</i>	X	F	L	0.265	M	H	ac-alk	FS	G/	
Oak, Southern Red	<i>Quercus falcata</i>	X	M	L	0.576	M	H	ac	FS	G/	
Oak, Swamp Chestnut	<i>Quercus michauxii</i>	X	M	L	0.544	M	M	n/a	FS	G/	
Oak, Water	<i>Quercus nigra</i>	X	F	M	0.451	M	M	ac-sl alk	FS	G/	
Oak, White	<i>Quercus alba</i>	X	S	L	0.348	M	M	acidic	FS	GM/S	
Oak, Willow	<i>Quercus phellos</i>	X	F	L	0.314	M	H	acidic	FS	GM/S	X
Pecan	<i>Carya illinoensis</i>	X	S	M	0.088	M	L	sl ac-sl alk	FS	mg	
Persimmon, Common	<i>Diospyros virginiana</i>	X	M	S	0.058	M	H	ac-alk	FS	G/P	X
Pine, Loblolly	<i>Pinus taeda</i>	X	F	M	0.016	M	M	acidic	FS	G/	
Pine, Longleaf	<i>Pinus palustris</i>	X	M	L	0.01	M	H	ac-sl alk	FS	GM/C	
Pine, Shortleaf	<i>Pinus echinata</i>	X	M	L	0.008	M	H	ac	PS	GM/P	
Pine, Slash	<i>Pinus elliotii</i>	X	F	M	0.01	M	M	ac-sl alk	FS	G/	
Plum, Chickasaw	<i>Prunus angustifolia</i>	X	F	M	-0.415	M	H	sl ac-sl alk	FS	pg	X
Poplar, Yellow	<i>Liriodendron tulipifera</i>	X	F	M	-0.417	M	H	ac-alk	FS	n/a	
Redbud, Eastern	<i>Cercis canadensis</i>	X	M	L	0.171	M	L	sl ac	FS	P/IS	
Redbud, E. White	<i>Cercis canadensis</i> (alba)	X	F	S	0.012	M	M	ac-sl ac	PS	M/S	
Redcedar, Eastern	<i>Juniperus virginiana</i>	X	M	S	n/a	D	H	ac-sl ac	FS	n/a	
Sassafras	<i>Sassafras albidum</i>	X	F	S	0.022	M	M	ac-sl alk	FS	G	
Sourwood	<i>Oxydendrum arboreum</i>	X	M	S	n/a	D	H	sl ac-sl alk	FS	n/a	X
Sweetgum	<i>Liquidambar styraciflua</i>	X	M	M	0.118	M	M	ac	FS	G/l	
Sycamore	<i>Platanus occidentalis</i>	X	M	M	n/a	M	L	ac-sl alk	FS	n/a	
Willow, Black	<i>Salix nigra</i>	X	M	S	n/a	M	M	ac-alk	FS	G/	

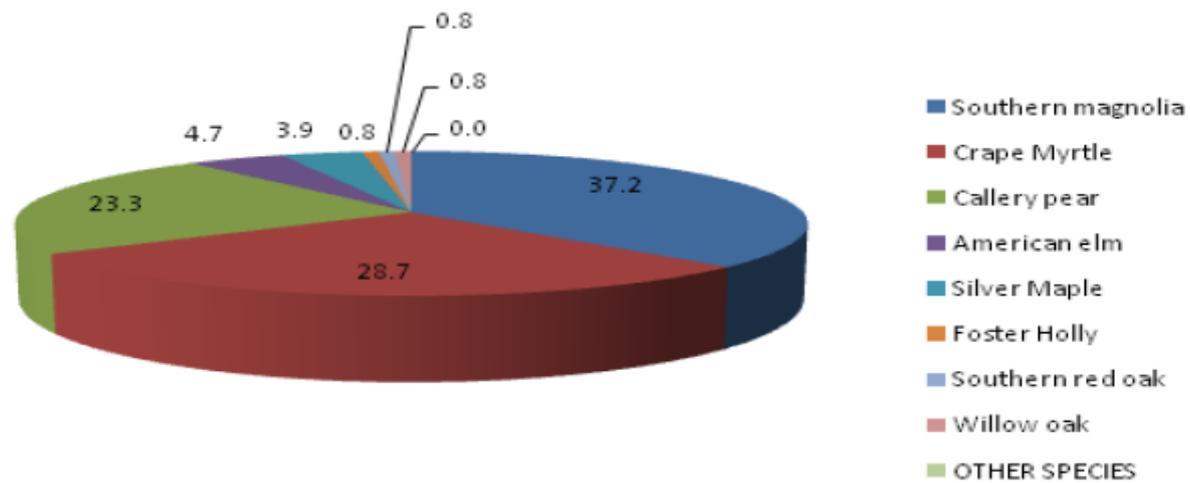
Definitions of Environmental Characteristics and Tolerances

1. Typical rate of growth under urban conditions. S = Slow: 1/2 to 1-1/2 feet/year; M = Moderate: 1-1/2 to 2-1/2 feet/year; F = Fast: 2-1/2 to 3+ feet/year.
2. The average life span (useful service life) of the species when growing under average urban conditions. A tree is at the end of its useful service life when its risk of failure becomes unacceptable and cannot be improved or when the tree is no longer an asset due to its appearance or condition. S = Short: less than 25 years useful service life; M = Moderate: 25 to 40 years useful service life; L = Long: 50 years or greater useful service life.
3. The net monetary effects in cents attributable to the species on air quality; listed as a benefit (positive) or cost (negative). This monetary effect includes the species net effect on ozone, sulfur dioxide, nitrogen dioxide, particulate matter (PM₁₀), and carbon monoxide.
4. The typical soil moisture conditions for the species in its native habitat. H = Hydric: wet and may be occasionally flooded for short periods; M = Mesic: moist but moderately well- to well-drained; X = Xeric: dry and very well-drained.
5. Tolerance of the species to infrequent rain, low soil moisture, full sun, and high temperatures. Low = not tolerant to drought; Moderate = tolerant to mild drought; moderately tolerant to severe drought; High = very tolerant to mild, severe, and prolonged drought.
6. Relative soil acidity or alkalinity preferred by the species. In many cases, a range of pH preference is given if it was available. In other cases, a general level is given. A pH of 7.0 is neutral, a pH of less than 7.0 is acidic, and a pH of greater than 7.0 is alkaline. Ac = acidic (5.0 to 6.0); sl ac = slightly acidic (6.0 to 7.0); nu = neutral (7.0); sl al = slightly alkaline (7.0 to 8.0); al = alkaline (8.0 to 8.5); n/a = no information available.
7. The amount of sunlight the species prefers or will tolerate. Trees that are typically found in the understory or are characteristic of late forest succession stages prefer shade or at least partial shade, while trees that typically form the overstory or are characteristic of early succession stages prefer full sun. FS = Full Sun; PS = Partial Shade; SH = Shade.
8. The broad tolerance of the species in its home range to construction damage, and the limitations that constrain a species tolerance to damage. Tolerances: P = Poor; M = Moderate; G = Good; Limitations: I = physical injury, wood compartmentalization and decay; P = pest complications, including chronic and acute attacks; S = soil conditions, including aeration and water availability; C = limited climatic tolerances, including native range, hardiness, and micro-climate change; A = all of the limitations described above.
9. This recommendation is based upon other characteristics and tolerances to urban conditions; and an "X" indicates the species is suitable for planting under "tough" urban conditions.

Aberdeen

Species Distribution of All Trees (%)

7/7/2011



Species	Percent
Southern magnolia	37.2
Crape Myrtle	28.7
Callery pear	23.3
American elm	4.7
Silver Maple	3.9
Foster Holly	0.8
Southern red oak	0.8
Willow oak	0.8
OTHER SPECIES	0.0
Total	100.0

Species Recommendation by Jim Heinzl, Certified Arborist #SO – 5803A

Please try to not get carried away with the crepe myrtles. While being a great tree for under power wires and also beautiful, there are many other trees that can work well for you.

The American holly, while being a taller and fuller tree, is also an evergreen tree so it offers the green color year around. Redbud is also a very beautiful deciduous tree with pink or white flowers in the spring and turning golden yellow in the fall. The fringe tree would also work under power lines as it grows only to 20' tall. It offers clouds of fragrant white flowers in the fall that turn into clusters of blur-purple fruits in the fall. The fruits are a big hit with the birds. The hawthorn produces sprays of white flowers in early spring. The bees and butterflies love them. In late summer and fall it attracts birds with its small red fruits. Then turns an orange red in the autumn. It grows to about 25'.

I am not trying to overwhelm you but instead I am hoping to show you that you have a variety to chose from. All the trees I have mentioned are relatively small trees.

Jim Heinzl

Certified Arborist #SO-5803A

GreenScapes Property Management LLC

110 Driftwood Drive

Long Beach, MS 39560

228.493.3223

jim@greenscapesms.com

9. Can-Vis Virtual Makeovers







10. Ordinance Recommendations

The City Of Aberdeen Adopted a Tree Ordinance July 2, 1991. We recommend that the City revisit the current ordinance and add some of the suggestions listed below.

"Guide to Writing a City Tree Ordinance"

Model Tree Ordinances for Southern Communities

[Green Laws Home Page](http://www.greenlaws.lsu.edu) www.greenlaws.lsu.edu

Prepared by
Professor Buck Abbey, ASLA
School of Landscape Architecture
Louisiana State University
Baton Rouge, Louisiana

This project was supported by an America the Beautiful Grant to the Louisiana Nursery And Landscape Association (formerly Louisiana Association of Nurserymen) from the Louisiana Department of Agriculture.

INTRODUCTION

Who is responsible for nature in the city? The answer of course is obvious, we are! But often the subtle importance of nature to city livability is overlooked for seemingly more important urban issues such as employment, city services and economic growth.

Environment, we learn from recent research on the subject, is important to all of the above critical urban issues. In fact, recent scientific study indicates that trees do much to make city life more enjoyable thereby increasing employment opportunities, expanding economic growth potential and reducing the cost of energy consumption or other city services. Managing nature in the city requires new legislation.

This information has been prepared to assist any Mississippi city, town, village, planning board, public agency or citizen's group who desire to establish a community "tree management ordinance." Managing city trees helps to manage nature in the city while at the same time improving the visual quality of the landscape. Tree management reduces urban heat build-up, provides critical space for urban wildlife, helps preserve viable topsoil resources, filters water resources and cleans the air. In addition, the urban

tree canopy and associated natural resources can be effectively managed by dedicated citizens who look to the future of the community as a place where their children's children may live in harmony with nature.

Two models of a tree management ordinance are contained within this brochure. The Louisiana Association of Nurserymen hope you will find them useful in making your community a better place to live. Both model tree management ordinances are related and closely parallel each other. One model is designed for larger communities while the other is designed for smaller towns and villages where more informality is the rule. The large community version is somewhat more complex but covers tree management issues in significant detail.

Both model ordinances can be used as a starting point to draft a local ordinance. Text can be added or text can be deleted to serve the purposes of each community. Either ordinance can be used in any community. With a little adjustment to the text, these models can be used in nearby states with similar growing conditions or similar social, political needs.

The models contain three Parts. These parts are based upon the accepted structure of a landscape ordinance contained within the publication "Guide to Writing a Landscape Ordinance," previously published by the Louisiana Association of Nurserymen.

The first part of the model tree ordinance states the "contextual conditions" of the ordinance. What is being drafted and under what circumstances? This section places the ordinance in its proper relationship to the community and to legal codes in effect. Sections one (1) and two (2) are contextual in nature.

The second part of the model tree ordinance consists of the "technical requirements" of this ordinance. These sections create a Commission, establish the town/city arborist and promulgate rules and requirements to manage city trees. Sections three (3) through thirteen (13) set forth the technical requirements of this ordinance.

The final sections of this model, Sections fourteen (14) through eighteen (18) deal with the "administrative components" of the ordinance. In these sections the reader will find text that describes how the ordinance will be administered. Enforcement, penalty, appeals, administrative guidelines, conflicts and effective date of the ordinance are typical administrative aspects which are set forth below.

The outline presented here is based in part upon contemporary provisions and language from tree ordinances and codes collected from throughout the country. Consequently the outline ordinances are comprehensive in scope, but limited, in specific detail and reflects state of the art knowledge in the technical aspects of tree ordinances. Additional detail and specific community needs may be incorporated where necessary.

Any community wishing to use this ordinance as a model may do so. It is suggested that any one wishing to use these models should consult with local experts such as an attorney, arborist, forester, horticulturist or landscape architect.

Because legal, political and technical aspects of this outline ordinance may vary from community to community, these experts can help adapt the models to local conditions.

Both of the model ordinances follow this general outline. This outline places contextual, technical and administrative components of the tree management ordinances in a proper and suitable order that makes reading and understanding the ordinance a much easier task.

OUTLINE TO THE MODEL TREE ORDINANCE

I Contextual Conditions

- Section 1 Short Title
- Section 2 Purpose, Intent & Authority
- Section 3 Definitions

II Technical Requirements

- Section 4 Establishment of a Tree Board of Commission
- Section 5 Authority of the Tree Board of Commission
- Section 6 Appointment & Qualifications Of The Town Arborist
- Section 7 Duties Of The Town Arborist
- Section 8 Authority Of The Town Arborist
- Section 9 Community Tree Plan

- Section 10 Permits Required (Tree Preservation, Protection and Planting)
- Section 11 Trees On Private Property
- Section 12 Trees On Public Property
- Section 13 Interference With The Town Arborist
- Section 14 Protection of Public Trees, Tree Abuse
- Section 15 Placing Materials On Public Property

III Administrative Components

- Section 16 Enforcement, Penalty And Appeals
- Section 17 Administrative Guidelines and Development Standards
- Section 18 Conflicts
- Section 19 Severability
- Section 20 Effective Date

Model for a Large Community

This version of the Model Tree Management Ordinance is suitable for larger communities that have existing administrative departments such as Planning & Zoning Commissions, Parks Departments, or multi-professional Public Works Departments. This version is more formal in nature and more detailed in extent. This model will work well in urban and suburban areas where government structure is already working to provide for community needs.

This ordinance establishes a larger Tree & Landscape Commission of appointed citizens who are charged with developing policy for managing public trees and communicating to others the importance of trees in the community. The TLC created by this ordinance is largely educational, but some administrative tasks would be assigned by the City Administration in keeping with the chartering ordinance and the Bylaws adopted by the city.

The Commission under this model holds regular town meetings, prepares an annual tree management plan and undertakes programs to improve the town tree canopy. This model calls upon the Commission to develop programs to involve the community, organizations and families in tree preservation, planting and tree care. City Commissions should become prime sponsors of tree planting programs in town parks, school yards, cemeteries and other public places.

A City Forester trained in urban forestry, arboriculture, horticulture, landscape architecture or closely related fields is employed by the community to undertake day to day tree management responsibilities. Written permits for planting, maintenance or removal of trees from public property are obtained through the City Forester's office. This ordinance may be enacted by organizing a tree support group, holding public hearings and a vote of the city or town council. It would also prove useful for any city using this model to also consider the employment of a city landscape architect who could work with the Tree & Landscape Commission to advise them on design and construction as it applies to trees plantings and tree preservation activities within the community.

STANDARD CITY TREE MANAGEMENT ORDINANCE

LARGE COMMUNITY MODEL

**CREATION OF A COMMISSION TO REGULATE THE PLANTING, MAINTENANCE, AND REMOVAL OF TREES,
SHRUBS AND OTHER LANDSCAPE MATERIALS ON PUBLIC LAND IN THE CITY OF**
_____, STATE OF MISSISSIPPI.

ORDINANCE NO. _____

**AN ORDINANCE TO MANAGE CITY TREE RESOURCES BY REGULATING THE PLANTING, MAINTENANCE, AND
REMOVAL OF TREES ALONG PUBLIC STREETS, IN PARKS, AND ON OTHER CITY OWNED PROPERTY:
ESTABLISHING A COMMISSION AND CREATING THE OFFICE OF CITY ARBORIST AS THE AGENCY
PRESCRIBING REGULATIONS RELATING TO THE PLANTING, MAINTENANCE, AND REMOVAL OF TREES,
SHRUBS AND OTHER LANDSCAPE MATERIALS ON PUBLIC LAND: PROVIDING FOR THE ISSUING OF
PERMITS FOR THE PLANTING, MAINTENANCE, AND REMOVAL OF TREES ON PUBLIC LAND: PROVIDING FOR
THE PRUNING AND REMOVAL OF TREES ON PUBLIC AND PRIVATE PROPERTY WHICH ENDANGER PUBLIC
SAFETY: AND PROSCRIBING PENALTIES FOR VIOLATION OF THESE ARTICLES.**

**BE IT ORDAINED BY THE COUNCIL OF THE CITY OF _____, STATE OF
MISSISSIPPI.**

Section 1 - Short Title - This Ordinance shall be known and may be cited as the TREE ORDINANCE, for the City of _____.

Section 2 - Purpose, Intent and Authority

- A. The purpose of this Chapter is to set minimum standards to protect, preserve or plant trees to enhance the City’s environmental, economic and aesthetic resources consistent with the goals of the *Comprehensive Plan*, and zoning policy thereby promoting the public health, safety and general welfare of the citizens and contributing to the quality of life by encouraging preservation of the urban forest canopy and its various resources to ensure and sustain development practices.
- B. It is the intent of this ordinance to promote sustainable development practices in relation to trees and forested areas in order to properly plan development, use and preserve native plant species, minimize the destruction of wooded wetlands, assist in the management of on-site storm water flows and water quality enhancement, provide beneficial wildlife habitat and meet minimum urban forest canopy requirements as set forth below.
- C. Further, the standards and requirements of this Chapter seek to promote the preservation, protection and enhancement of nature and nature's unique features with particular emphasis on trees, the urban forest canopy and vegetative cover of the land.
- D. These regulations are enacted to protect the health, safety and welfare of citizens in the following ways:
 - a) Maintaining and protecting property values;
 - b) Providing an acceptable degree of transition between abutting uses;
 - c) Providing appropriate barriers, landscape buffers, visual screens and relief from traffic, noise, heat, glare, and the spread of dust and debris;
 - d) Conserving and extending the water supply and natural resources through the implementation of water-efficient sustainable landscape practices;
 - e) Enhancing the visual and aesthetic appearance of the community;
 - f) Preserving terrain native habitat and vegetation where possible;
 - g) Protect and preserve native trees of a certain species and size and mitigate the removal of other native trees over eight (8) inches DBH caliper;
 - h) Minimize energy use with properly located canopy trees;
 - i) Reduce urban pollutant movement to natural water ways by using storm water BMP’s.

Section 3 - Definitions.

For the purpose of this Ordinance the following terms, phrases, words, and their derivations shall have the meaning given herein.

Community Tree Plan shall mean a written document that guides the work of the Commission and envisions a long range plan for the preservation and improvement of the community urban forest. The Community Tree Plan may contain such data as deemed necessary by the Commission to carry out its legal mandate.

City is the City, Town, Village, or otherwise designated area or political unit of _____, State of Mississippi.

Tree Department is the department of "Parks and Street Trees", "Parks and Forestry", "Forestry Department", "Street Trees", or other designated department of the municipality under whose jurisdiction park and / or street trees fall.

City Arborist is qualified ISA certified arborist designated official of the city assigned to carry out the enforcement of this Ordinance.

Person is any person, firm, partnership, association, corporation, company, or organization of any kind.

Street or Highway means the entire width of every public way or right-of-way when any part thereof is open to the use of the public, as a matter of right, for purposes of vehicular and pedestrian traffic.

Park shall include all public parks having individual names.

Public Places shall include all grounds owned by the city or other properties owned by State of Federal Government in which the Commission has established a cooperative arrangement for tree care.

Property Line shall mean the outer edge of a street or highway right of way (R.O.W).

Treelawn (R.O.W edge) is that part of a street or highway, not covered by sidewalk or other paving, lying between the property line and that portion of the street or highway usually used for vehicular traffic.

Private Trees are trees of the urban forest growing on private property. Private trees are an important part of the urban forest and within the purview of the City.

Public Trees shall include all shade and ornamental trees now or hereafter growing on any street or on any public land where otherwise indicated.

Large Trees known as Class A trees are designated as those attaining a height of forty-five (45) feet or more with a mature spread of 40 feet or more. This is the normal native canopy tree species of the community.

Medium Trees known as Class B trees are designated as those attaining a height of thirty (30) to forty-five (45) feet with a mature spread of 30 feet or more. These trees are normally used as landscape trees, garden trees or open space trees in private gardens, parks, public places and commercial districts..

Small Trees known as Class C trees are designated as those attaining a height of twenty (20) to thirty (30) feet with a mature spread of 20 feet or more. These are small trees with small root structures for use in areas of high concentration of pavement such as parking lots or pedestrian ways.

Principal Thoroughfare shall mean major cross town streets upon which trucks are permitted.

Property Owner shall mean the person owning such property as shown on the Municipal Plat Maps.

Urban Forest shall mean the collection of trees, shrubs, other vegetation and associated natural features that make up the urban tree canopy and its growing zone.

Section 4 - Establishment of a Tree & Landscape Commission.

There shall be created a commission to be known and designated as "Commission."

The Commission shall be composed of nine (9) knowledgeable citizens, a majority of whom shall be residents of _____. Members shall be knowledgeable citizens including citizens with experience, formal training or knowledge of: tree care, gardening, forestry, landscape architecture, horticulture, public utilities, civil engineering, architecture, contracting, arboriculture or planning.

1. Six (6) voting members shall be appointed by the Mayor with approval of the City Council. The seventh (7th) voting member shall be the City Arborist, the eighth (8th) member shall be the Superintendent of the Department of Parks, and ninth (9th) member shall be the Director of Public Works, The latter two shall all be ex-officio members.

2. The six (6) members initially appointed by the Mayor shall be appointed as follows: two (2) for two (2) years; two (2) for three (3) years, and two (2) for four (4) years, and serve until their successors are duly appointed and approved by the Council.
3. Successors to those members appointed by the Mayor shall, thereafter be appointed for terms of four (4) years. Vacancies caused by death, resignation, or otherwise, shall be filled for the unexpired term in the same manner as original appointments are made.
4. All members of the Commission shall serve without pay.

Section 5 - Authority of the Commission.

The duties of the "Commission" shall be as follows:

- A. To study the urban forest including problems involving the city tree population, determine needs, compose and annually review a Community Tree Plan and seek ways to implement needed work.
- B. To recommend to the proper authority, streetscape landscape designs illustrating type and kind of trees to be planted upon each municipal street or parts of municipal streets or in parks or other public lands as is designated in the Community Tree Plan.
- C. To assist the properly constituted officials of the city as well as citizens and community groups, in the dissemination of news and information regarding the selection, planting, and maintenance of trees within the corporate limits, whether they be on private or public property.
- D. To provide regular and special meetings at which time the subject of the urban forest may be discussed by the members of the Commission, officers and personnel of the city and its several divisions, and all others interested in a community tree program.
- E. Within a reasonable time after the appointment of the Commission, the Commission shall meet and organize by the election of a chairman, vice-chairman, and standing committee chairs. The Commission shall recommend to the Mayor and City Council, who will appoint, a City Arborist who will act as secretary and conduct the daily affairs of the Commission.
- F. A majority of voting members shall constitute a quorum for the transaction of business. Any member who regularly fails to attend scheduled meetings will be subject to removal by the Chairman and will be replaced for the balance of his/her term by the appointing authority.
- G. The Commission shall provide for the adoption of rules and procedures and for the holding of regular and special meetings as said Commission shall deem advisable and necessary in order to perform the duties set forth. A journal of proceedings and activities is to be recorded. The Commission shall adopt Bylaws to manage the public service they are charged with carrying out on behalf of citizens.

- H. The Commission shall meet and hold public hearings at least six times a year at a public place and time of their choosing. The meeting shall be open to the public.
- I. The Commission shall propose such legislation as may be needed to pursue the purposes for which the Commission was created.
- J. The Commission shall review design or construction plans for public or private improvements that may call for the removal or planting of trees.
- K. The Commission may assess fines for the unlawful removal of trees.
- L. The Commission may engage in any other lawful activity in pursuit of the mission of this commission which may benefit the urban forest including such activities as:
 - 1. Apply for Tree City Status with the National Arbor Day Foundation
 - 2. Conduct seminars and public education programs
 - 3. Plan and coordinate an annual Arbor Week Observance
 - 4. Develop a community tree bank
 - 5. Develop of a botanical garden
 - 6. Develop a community forest preserve(s)
 - 7. Provide technical advise and assistance to developers, builders, contractors, public utilities, public agencies, homeowners and community groups in the selection of tree species to be planted or naturally occurring trees to be protected during the development of wooded areas.
 - 8. Organize community tree planting projects.
 - 9. Seek grant money, public funding and private contributions to further the work of the Commission

Section 6 - Appointment & Qualifications of the City Arborist.

A City Arborist shall, where possible, be appointed from a Civil Service roster established by competitive examination and interview by the Commission, or where Civil Service does not exist, by interview given by the Commission.

- 1. He/she shall be a person skilled and trained in the arts and sciences of urban forestry, and shall hold a college degree or its equivalent in urban forestry, landscape architecture, horticulture, forestry, arboriculture; or other closely related field.
- 2. In Mississippi, where there is a Mississippi Horticulture Commission, he/she shall have passed a state examination and hold a valid license as an arborist, landscape architect or landscape contractor. He/she shall have had at least three (3) years experience in municipal shade tree work or its equivalent.

3. Upon satisfactory completion of a six (6) months probationary period he/she shall hold office as long as he/she satisfactorily performs the duties of the office.
4. Salary - The City Arborist shall receive a salary commensurate with his training and experience as full compensation for all services rendered.

Section 7 - Duties of the City Arborist.

The City Arborist shall have the following duties.

- A. The City Arborist shall have the authority to promulgate rules and regulations, including arboricultural specifications governing the planting, maintenance, removal, fertilization, pruning, and bracing of trees on the streets or other public sites in the municipality, and shall direct, regulate, and control the planting, maintenance, and removal of all trees growing now or hereafter in any public area of the municipality.
- B. He/she shall cause the provision of this Ordinance to be enforced. In the absence of the City Arborist these duties shall be the responsibility of a qualified alternate designated by the Commission.
- C. He/she shall review planting plans for all projects on public property that may impact existing vegetation or propose new plantings that may affect public safety.

Section 8 - Authority of the City Arborist.

- A. The City Arborist shall report to the Commission on a monthly basis and shall be in attendance at all regular and special meetings of the Commission, Commission Sub-committees or other community meetings as designated by the Chairman.
- B. The City Arborist shall record all activities of the Commission or subcommittees of the Commission.
- C. The City Arborist shall have the authority and jurisdiction of regulating the planting, maintenance, and removal of trees on streets and other publicly owned property to insure safety or preserve the aesthetics of such public sites.
- D. The City Arborist shall have authority over city tree crews or staff as required to pursue the work of the Commission.
- E. The City Arborist shall advise all other city work crews on matters relating to planting, maintenance, or removal of trees on public lands as requested by the various Department heads.
- F. Supervision. The City Arborist shall have the authority and it shall be his duty to supervise or inspect all work done under a permit issued in accordance with the terms of this Ordinance.
- G. Condition of Permit. The City Arborist shall have the authority to affix reasonable conditions to the granting of a permit in accordance with the terms of this Ordinance.

Section 9 - Community Tree Plan.

Community Tree Plan. The City Arborist shall have the authority to formulate a Community Tree Plan with the advice of consultants, city agencies, public hearings, and approval of a Commission.

- A. The Community Tree Plan shall include but not be limited to the goals and mission of the Commission, an inventory of resources, needed work, associated cost and time schedules for such work and relevant information such as activities of the Commission, standard tree maintenance and planting specifications and permit application procedures.
- B. The Community Tree Plan following review and acceptance by the Commission shall be sent forward to the Mayor and City Council with recommendations for action.
- C. The City Arborist shall consider all existing and future utility, public works and environmental factors when recommending improvement for each street, park and other public lands of the municipality.
- D. The City Arborist, with the approval of the Commission, shall have the authority to amend or add to the Community Tree Plan at any time.

Section 10 - Permits Required.

The following permits are required for activities that effect the growth or health of plants.

- A. Planting Maintenance and Removal Permits
 1. No person shall plant, remove, maintain or disturb any tree or shrub on any street or municipal owned property without filing an application and procuring a permit from the City Arborist.
- B. Planting Permit.
 1. Application Data. When making an application for a planting permit the Applicant shall submit a landscape design which illustrates the number of trees or other plants to be planted; their location, grade, species, or variety of each plant; the method of planting; and such other information as the City Arborist shall find reasonably necessary to a fair determination of whether a permit should be issued.
 2. Proper Planting. Whenever any tree shall be planted on public land it shall be planted, fertilized, staked, watered and mulched in accordance with proper planting specifications issued by the City Arborist. All trees planted on public property under this ordinance must be replaced if they fail to survive three growing seasons.

3. **Improper Planting.** Whenever any tree shall be planted in conflict with the provisions of this section, it shall be lawful for the City Arborist to have removed and the exact cost thereof shall be assessed to the owner as provided by law.

C. Maintenance Permit.

1. **Application Data.** When making an application for a maintenance permit the Applicant shall state the number and kinds of trees to be sprayed, fertilized, pruned or otherwise treated; the composition of the spray material to be applied; and such other information as the City Arborist shall require determining whether a permit should be issued.
2. The City Arborist shall annually issue area permits granting permission to public utilities to trim and maintain vegetation on public places. Non emergency trimming shall be done in accordance with standard arboriculture practices and nearby neighbors must be informed by posted door knob notices at least three weeks in advance.

D. Removal and Replacement Permit.

1. When making application for a tree removal permit the Applicant shall illustrate the number and kinds of trees to be removed, their size, locations, health/age condition and their method of removal and such other information as the City Arborist shall find reasonably necessary to a fair determination of whether a permit should be issued.
2. Wherever it is necessary to remove a public tree or trees from a treelawn (R.O.W edge) in connection with the paving of a sidewalk, or the paving or widening of the portion of an entrance drive from a street or highway used for vehicular traffic, the Applicant shall replant such trees or replace them. If site conditions prevent planting on treelawns, this requirement will be satisfied if any equivalent number of trees of the same size and species are planted in an attractive manner on adjacent public property.
3. The Applicant or property owner shall bear the cost of removal and replacement of all trees removed.

Section 11 - Trees on Private Property.

It shall be the duty of any person or persons owning or occupying real property bordering on any street upon which property there may be trees, to prune such trees in such a manner that they will not obstruct or shade the street lights, obstruct the passage of pedestrians on sidewalks, obstruct vision of traffic signs, or obstruct views of any street or alley intersection.

- The minimum clearance of any overhanging portion thereof shall be ten (10) feet over sidewalks, and twelve (12) feet over all streets except truck thoroughfares which shall have a clearance of sixteen (16) feet.

It shall be the duty of any person owning or occupying real property, bordering on any street, park or other public land, on which there may be trees that are diseased or insect infested, to remove, spray or treat such trees in such a manner that they will not infect or damage nearby public vegetation or cause harm to the community or citizens therein.

- The City Arborist may order trees on private land that cause obstructions, present insect or disease problem or otherwise present a danger to public health or safety be pruned, removed or treated.
- Notice to Prune Should any person owning real property bordering on any street fail to prune, remove or treat trees as herein above provided, the City Arborist shall order such person, within three (10) days after receipt of written notice, to so prune, remove or treat such trees.
- Order Required - The order required herein shall be served by mailing a copy of the order to the last known address of the property owner, by certified mail.
- Failure to Comply When a person to whom an order is directed shall fail to comply within the specified time, it shall be lawful for the municipality to prune, remove or treat such trees, and the exact cost thereof shall be assessed to the owner as provided by law in the case of special assessments.

Section 12 - Abuse of Public Trees.

No person shall intentionally damage, cut, carve, transplant, or remove any tree; attach any rope, wire, nails, advertisements, posters, or other contrivance to any tree, allow any gaseous liquid, or solid substance which is harmful to such trees to come in contact with them; or set fire or permit any fire to burn when such fire or the heat thereof will injure any portion of any tree.

Section 13 - Interference with the City Arborist.

No person shall hinder, prevent, delay, or interfere with the City Arborist or any of his assistants while engaged in carrying out the execution or enforcement of this Ordinance; provided, however, that nothing herein shall be construed as an attempt to prohibit the pursuit of any remedy, legal or equitable, in any court of competent jurisdiction for the protection of property rights by the owner of any property within the municipality.

Section 14 - Protection of Municipal Trees.

All public trees shall be protected during construction.

- All trees on any street or other publicly owned property near any excavation or construction of any building, structure, or street work, shall be guarded with a good substantial fence, frame, or box. The "Construction Tree Guard" shall be not less than four (4) feet high and eight (8) feet square, or at a distance in feet from the tree trunk equal to the diameter of the trunk at breast height (D.B. H.) in inches, which ever is greater. All building material, dirt, or other debris shall be kept outside the Construction Tree Guard.
- No person shall change natural drainage, excavate any ditches, tunnels, trenches, or lay any drive within a radius of ten (10) feet from any public tree without first obtaining a written permit from the City Arborist.

Section 15 - Placing Materials on Public Property.

No person shall deposit, place, store, or maintain upon any public place of the municipality, any stone, brick, sand, concrete, or other materials which may impede the free passage of water, air, fertilizer to the roots of any tree growing therein. Sunlight to any public tree can not be permanently blocked by placement of materials without written authorization of the City Arborist.

Section 16 - Enforcement, Penalty and Appeals.

Any person, firm, or corporation violating or failing to comply with any of the provisions of this Ordinance shall be guilty of a misdemeanor, and upon conviction thereof shall be fined a sum no less than one hundred (\$100.00) dollars, nor more than five thousand (\$5,000.00) dollars, or may be imprisoned for a term not exceeding sixty (60) days, or both.

Section 17 - Administrative Guidelines and Development Standards

Permits may be applied for as set forth below.

- Application for permits must be made at the Office of the City Arborist not less than forty-eight (48) hours in advance of the time the work is to be done.
- Standards of Issuance. The City Arborist shall issue the permit provided for herein if, in his judgment, the proposed work is desirable and the proposed method and workmanship thereof are of a satisfactory nature. Permits shall be void if terms are violated.
- Notice of completion shall be given within five (5) days to the City Arborist for his inspection.
- Arboriculture specifications, horticultural standards and workman's qualifications are available from the City Arborist. These specifications, standards and qualifications are to be followed by any person or firm seeking a permit for tree work on public trees.

- Arboriculture specifications include accepted approved methods for maintenance and tree care including fertilization, feeding, insect control, disease prevention and storm damage preparation and repair.
- Horticultural standards include accepted methods for tree planting, mulching, staking, guying, wrapping, balling, tree relocation, pruning, removal, stump grinding and clean up. Recycling of vegetative parts is also addressed in these standards.
- Workman's qualifications include suggested education and training, practical experience, licensing and insurance requirements for workmen and companies doing tree work in the municipality.

Approved Tree List. The following list constitutes the Official Tree Species for the Municipality of _____.

This list has been extracted from the official Community Tree Plan (See Section 4.A.1.). No other species other than those included in this list may be planted as street trees, park trees or ornamental trees on public property without the written consent of the Commission.

Small Trees

Medium Trees

Large Trees

Figure 1 - Official Tree List for Streets, Parks, Cemeteries and Other Public Places

Development Standards. This section of the Tree Management Ordinance shall be carefully connected to the community Landscape Ordinance under which special development standards for trees is written for both trees on private development as well as public trees. Any of the following standards shall be adopted by ordinance as needed and included within the Zoning Code under the Landscape Ordinance and Tree Management chapter.

1. Street Trees. Street trees on public streets and private streets shall be designed, planted and maintained as set forth in this Part as well as in the community landscape code.
2. Tree Inventory. Trees shall be inventoried at the town scale, neighborhood scale or lot scale as set forth in this Part as well as in the community landscape code.

3. Tree Preservation. Preserving trees, natural habitat and transplanting trees with mechanical tree spades shall be done following the standards as set forth in this Part as well as in the community landscape code.
4. Minimum canopy requirements and replacement plantings of trees for the urban forest shall be as set forth in this Part as well as in the community landscape code shall be per trees per acre, caliper inches per acre, or shade distribution pattern per acre or by other such means that will preserve a minimum canopy standard in this community and within the various zoned land uses of this community.
5. Tree protection standards for trees on development site shall be protected as set forth in this Part as well as in the community landscape code.
6. Standards for the planting and maintenance of trees, shrubs, and ground covers for street yards, side and rear buffers, parking lot screens, parking lot interiors, service areas screening, street wall planting areas and onsite storm water BMPs shall be as set forth in this Part as well as in the community landscape code.
7. Standards for sustainable development as it pertains to trees, landscape or the urban forest shall be as set forth in this part as well as in the community landscape code.
8. Disposal and Recycling of community trees and vegetative matter shall as set forth in this part as well as in the community landscape code.
9. Standards for Special Trees. Standards for official trees, memorial trees, ancient trees, unique trees shall be set forth by ordinance and as set forth in this Part as well as within the community landscape code.

Section 18 - Conflicts.

Should any section, clause, or provisions of this Ordinance be declared by the Courts to be invalid, the same shall not affect the validity of the Ordinance as a whole, or parts thereof, other than the part so declared to be invalid.

Section 19 - Severability.

If any subsection, sentence, clause, provision of part of this Ordinance shall be held invalid for any reason, the remainder of this Ordinance shall not be affected thereby, but shall remain in force and effect.

Section 20 - Effective Date.

This Ordinance is hereby declared to be of immediate necessity for the preservation of public peace, health, and safety, and shall be in full force and effective from and after its passage and publication as provided by law.

Passed this _____ day of _____, 19 ____ .

Signed this _____ day of _____, 19 ____ .

_____,
Mayor

Attest: _____,
City Clerk

END OF MODEL TREE ORDINANCE

END OF MODEL TREE ORDINANCE

Prepared for educational purposes only for the Mississippi Urban Forestry Council
Shaping Public Policy Toward Trees Workshop
Pass Christian Mississippi – Jackson, Mississippi May 26, 27 & June 23, 24, 2010
Prof. Buck Abbey, ASLA
LSU Green Laws Research Project

© 2010 D.G. Abbey, ASLA

11. City Park

