

City¹ of Oxford

Newton County

Atlanta MSA

2003 Population Estimate 2,040; +6.8% change from 2000 Census.

Tree City USA for 8 years.

Tree Board with 7 members; no meeting frequency required by ordinance.

Landscape and Tree Preservation Ordinance

First adopted 1998. Last revised 2005.

Addresses public and private property.

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City of Oxford Tree Maintenance Guidelines and Standards (August 30, 2004)

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¹Listed as "town" by the Georgia Municipal Association, but officially a "city".

TREE ORDINANCE
City of Oxford, Georgia

SECTION 1 – DEFINITIONS

Street trees are herein defined as trees and other sizable woody vegetation on land lying between property lines on either side of all streets, avenues, or ways within the City, including designated, but unopened, City street rights-of-way.

Parks, trails, and gardens are herein defined as areas containing existing or planted vegetation on lands owned by the City of Oxford, which are maintained by the City of Oxford and which are open to the public for purposes of recreation, education, and other appropriate uses. Regulations for the use of such areas may be established by the City of Oxford in consultation with the Tree Board.

SECTION 2 – CREATION AND ESTABLISHMENT OF A CITY TREE BOARD

There is hereby created and established a City Tree Board for the City of Oxford, Georgia, which shall consist of seven (7) members, citizens and residents of this City, who shall be appointed by the Mayor with the approval of the City Council.

The Tree Board may include as non-voting participants in its meetings persons who are not residents of the City of Oxford, but whose knowledge or experience will contribute to the work of the Tree Board. The immediate past chairperson of the Tree Board shall serve as a non-voting, ex-officio member of the Board for one (1) year following his/her tenure.

SECTION 3 – TERM OF OFFICE

Each member of the Tree Board shall serve for one (1) year and may be appointed for one (1) or two (2) additional years. The Chairperson of the Tree Board shall serve for three (3) years. In the event that a vacancy occurs during the term of any member, his or her successor shall be appointed by the Mayor and Council to serve for the unexpired portion of the term. Should any member fail to perform his or her duties as a member of the Tree Board, the chairperson of the Tree Board shall recommend to the Mayor and Council that a replacement member be appointed.

SECTION 4 – COMPENSATION

Members of the Tree Board shall serve without compensation, but may be reimbursed by the City for any necessary expenses incurred in connection with their responsibilities.

SECTION 5 – DUTIES AND RESPONSIBILITIES

It shall be the responsibility of the Tree Board to study, investigate, and counsel the City concerning street trees, parks, trails, and gardens in the City of Oxford. The Tree Board shall develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or distribution of trees and shrubs along streets and in other public areas such as parks, trails, gardens, and plantings around City buildings and facilities. Such plan will be presented annually to the City Council, and upon their acceptance and approval shall constitute the official comprehensive City of Oxford Tree Plan. The Tree Board, when requested by the City Council, shall consider, investigate, make findings, report and recommend upon any special matter of question coming within the scope of its work.

The comprehensive City of Oxford Tree Plan shall serve as guideline for all work on trees within the City of Oxford. The Oxford Mayor and City Council, employees of the City of Oxford, and any persons or firms employed for services to the City which involve street trees or trees in other public areas, will be guided by the official comprehensive City of Oxford Tree Plan. Any proposed action which would depart significantly from this Tree Plan shall first be brought to the attention of the Tree Board for comments. However, nothing in this section shall prohibit the Oxford Mayor, City Council, or City employees from taking needed emergency measures as provided for elsewhere in the City of Oxford Code of Ordinances.

SECTION 6 – OPERATION

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

SECTION 7 – LIST OF TREES

The Tree Board shall develop a list of trees that are desirable or undesirable for planting in the City of Oxford. These will be classified as small, medium and large trees.

SECTION 8 – SPACING OF TREES

The spacing of street trees may not be closer together than the following: small trees, 30 feet; medium trees, 40 feet; large trees, 50 feet. Exceptions to this spacing may be made in special plantings designed or approved by a landscape architect in consultation with the Tree Board.

SECTION 9 – DISTANCES FROM CURB AND SIDEWALK

The distances trees may be planted from the curbs or curblines and sidewalks shall not be closer than the following: small trees, 2 feet; medium trees, 3 feet; large trees, 4 feet. Where a paved City street does not have curb and/or sidewalk, these planting distances shall be doubled to 4 feet, 6 feet, and 8 feet, respectively, measured from the edge of the pavement. Distances of plantings from street drainage ditches, where these exist, shall be determined by the City in consultation with the Tree Board on a case-by-case basis for specific streets or portions of streets.

SECTION 10 – DISTANCES FROM STREET CORNERS, FIRE HYDRANTS AND OTHER INFRASTRUCTURE

No street tree shall be planted closer than 35 feet from any street corner, measured from the point of nearest intersecting curbs, curb lines, or pavements. No street tree shall be planted closer than 10 feet from any fire hydrant or utility pole. No street tree shall be planted closer than 15 feet to any driveway or mailbox.

SECTION 11 – UTILITY LINES

Only small (less than 25 feet in height at maturity) trees or shrubs may be planted under or within 10 lateral feet of any overhead utility wire. No tree shall be planted under overhead utility distribution lines if the average mature height of the tree is greater than the lowest overhead wire. No street tree may be planted over or within 5 feet of any underground water line, sewer line, transmission line or other utility line.

The City reserves the right to prune or cause to be pruned any trees near or within 15 feet of overhead energized electrical utility lines. Pruning shall be done in accordance with ANSI Standards and International Society of Arboriculture Best Management Practices.

SECTION 12 – PUBLIC TREE CARE

The City of Oxford shall have the right to plant, prune, maintain and remove trees, plants and shrubs within the lines of all streets, alleys, avenues, and public grounds as may be necessary to insure public safety or to enhance the symmetry and beauty of such public grounds. This section does not prohibit the planting of street trees by adjacent property owners providing that the selection and location of said trees is in accord with the Tree Plan and with all relevant sections of this Tree Ordinance.

The Tree Board may recommend to the City of Oxford to remove or to order to be removed any tree or part thereof which is in an unsafe condition or which by reason of its nature is injurious to sewers, electric power lines, gas lines, water lines, or any other public improvements; or which is affected with any injurious fungus, insect, or other pest.

SECTION 13 – TREE TOPPING

It shall be unlawful as a normal practice for any person, firm, or City department to top any street tree, park tree, or other tree on public property. Topping is defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree as to remove the normal canopy and disfigure the tree. Trees severely damaged by storms, disease, or other causes, or certain trees under utility wires or other obstructions where other pruning practices are impractical may be exempted from this ordinance by the City following consultation with the City Tree Board.

SECTION 14 – PRUNING, CORNER CLEARANCE

Every owner of any tree overhanging any street or right-of-way within the City shall prune the branches so that such branches shall not obstruct the light from any street light or obstruct the view of any street intersection and so that there shall be a clear space of eight (8) feet above the surface of the street or sidewalk. The City shall have the right to prune any tree or shrub on private property when it interferes with the proper spread of light along the street from a street light or interferes with visibility of any traffic control device or sign.

SECTION 15 – REMOVAL OF DEAD OR DISEASED TREES

The City shall have the right to recommend the removal of any dead or diseased trees on private property within the City when such trees constitute a hazard to life or property, or when such trees harbor insects or disease which constitute a potential threat to other trees within the City. When trees on private property are judged by the City to constitute a potential immediate hazard to City utility lines or to persons using City street rights-of-way, the City may request owners of such trees to trim or remove such trees at the owner's expense. The City will notify owners of such hazardous trees by registered mail, giving a reasonable period of time for the tree owner to take remedial action. Said owners shall remove all dead, diseased, or dangerous trees, or broken or decayed limbs which constitute a danger to the safety of the public.

After the designated time period, if no remedial action has been taken, the City may notify the owner(s) of such hazardous trees that the City will assume no liability for any harm which may occur to property or persons from such trees, and that tree owners may be held responsible for expenses and liabilities incurred should such hazardous trees cause damage or harm on, or to, public property.

SECTION 16 – HISTORIC TREES

Any tree which has been determined to be of notable historic or horticultural interest because of its age, size, or historic association and which has been so designated in the official records of the City of Oxford shall come under these rules: It shall be unlawful to cut, prune, top, remove any designated historic tree, or trench, excavate, cut and fill, compact, or disturb the soil in any manner within the drip line of any designated historic tree, except as recommended by the Oxford Tree Board in consultation with certified arborist(s) under contract with the City of Oxford.

SECTION 17 – NON-INTERFERENCE

It shall be unlawful for any person to prevent, delay, or interfere with City of Oxford employees or any agents of the City while they are engaged in and about the planting, cultivating, mulching, pruning, spraying, or removing of any street trees, park trees, or trees on private grounds as authorized in this Tree Ordinance.

SECTION 18 – CONFORMITY TO STANDARDS OF TREE CARE

The Oxford Tree Board shall establish and submit to the Mayor and City Council standards and guidelines for the planting and maintenance of street, park, and public trees in the City of Oxford. Such standards and guidelines shall be in accord with standards and guidelines established by such agencies as ISA (International Society of Arboriculture), the American National Standards Institute, and other appropriate agencies.

Copies of these tree maintenance standards and guidelines shall be available through the office of the Oxford City Clerk. City employees shall be trained in the use of the standards and guidelines for work on City trees. Any firm doing tree work in the City (planting, pruning, treating, or removing street, park, and public trees) shall be provided with a copy of the tree maintenance standards and guidelines and shall in its contract with the City of Oxford agree to follow provisions of the standards and guidelines.

Further, each firm contracting to do tree work for the City of Oxford shall file evidence of possession of liability insurance in the minimum amounts of fifty thousand dollars (\$50,000) for bodily injury and one hundred thousand dollars (\$100,000) property damage indemnifying the City of any personal injury or damage resulting from the pursuit of such endeavors as herein described.

SECTION 19 – REVIEW BY CITY COUNCIL

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

SECTION 20 – TREE CANOPY COVER ON NEW DEVELOPMENT

Each new development within the City shall be required to conserve, or plant if trees are not available for conservation, a specified amount of tree canopy cover as a percent of the buildable land area. The tree canopy cover requirements are as follows:

AR	Agricultural/Residential	60%
C	Commercial	40%
OP	Office/Professional	50%
PI	Public/Institutional	50%
R-15	Single Family	40%
R-20	Single Family	50%
R-30	Single Family	60%
RD	Duplex	50%
RM	Residential Multi-Family	40%
	Historic Areas	50%

The tree canopy shall be well-distributed throughout the property. Trees planted to achieve tree canopy cover requirements shall be chosen from the City of Oxford tree species list.

Further, all parking areas with five (5) or more parking spaces shall be required to have fifty-percent (50%) tree canopy cover within 15 years after completion of construction or renovation. Tree canopy cover credits for newly planted trees are included in the City of Oxford tree species list.

All plans for development shall be approved by the Tree Board prior to any site disturbance including tree removal, soil disturbance including grading, grubbing, or timber harvesting or the issuance of any permits for such activities.

SECTION 21 – SEVERABILITY

In the event that any section, subsection, sentence, clause, or phrase of this ordinance shall be declared or adjudged invalid or unconstitutional, such adjudication shall in no manner affect the other sections, sentences, clauses, or phrases of this ordinance, which shall remain in full force and effect, as if the section, subsection, sentence, clause, or phrase so declared or adjudged invalid or unconstitutional were not originally a part thereof.

SECTION 22 – AMENDMENTS

The Mayor and City Council may amend this ordinance upon recommendation of the City Tree Board, of any interested citizen of the City of Oxford, or by their own volition.

SECTION 23 – PENALTY

Any person violating any provision of this ordinance shall, upon conviction or a plea of guilty, be subject to fines or other legal penalties as established by the Mayor and City Council and/or the Municipal Court of Oxford.

Adopted this _____ day of _____, 2005.

Mayor

attest:

City Clerk

City of Oxford
Tree Maintenance
Guidelines and Standards



August 30, 2004

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These *Tree Maintenance Guidelines and Standards* apply to trees growing within the City of Oxford, Georgia. The **guidelines** establish a path or direction for community tree management now and in the future. The Oxford Tree Board and the City of Oxford have adopted these guidelines as public policy. The **standards** originate from established arboricultural standards for tree maintenance used within the tree care industry and related professions. The guidelines and standards apply to trees planted or conserved to satisfy the City's Tree Ordinance.

Trees perform many beneficial functions and provide environmental, economic, and social benefits. They also require an investment in time and money to properly install, maintain, and remove them. Therefore, the goal of these Tree Maintenance Guidelines and Standards is to provide the information required for the responsible and pro-active maintenance of trees.

Both the terms "tree management" and "tree maintenance" are used in this document. While the maintenance of individual trees is a very important component of a community tree management program, there are many other essential program components, such as policy development, ordinances and regulations, planning, budgeting, education, marketing, and volunteer management. This document focuses almost entirely on *tree maintenance*.

The guidelines and standards included in this document address 4 categories of tree management activities:

- ☞ Chapter 1: Tree Establishment
- ☞ Chapter 2: Tree Maintenance
- ☞ Chapter 3: Tree Protection
- ☞ Chapter 4: Tree Removal and Replacement

Some specialized tree maintenance activities, such as the installation of lightning protection systems and tree support systems (cabling and bracing), and micro-injection of systemic nutrients or pesticides are not addressed in this document. More information may be found on these topics at the websites listed in *Appendix A. Community Forestry Resources*.



Chapter 1: Tree Establishment Guidelines and Standards

A long-term perspective is necessary when you are considering establishing a tree in the landscape. The decisions you make on tree and site selection will have long-term consequences. A basic amount of homework should be done to insure you make the *right* decisions prior to, during, and after planting your tree. It takes a lot of work and money to get trees in the ground, and the longer they live and the healthier they are, the greater the benefits they provide. Therefore, the goals of *tree establishment* are:

- ☞ Healthy and long-lived trees.
- ☞ Trees that provide substantial benefits to individuals, the community, and the environment.

Tree establishment can be defined as *the successful act of installing a tree in the landscape*. To be successful, you must make the right decisions during all of the following activities:

- ☞ selecting a growing site;
- ☞ selecting a tree species;
- ☞ selecting a quality tree;
- ☞ planting the tree; and,
- ☞ providing care after planting.

This Chapter includes guidelines and standards for the activities listed above. The protection of newly planted trees can also be considered part of the establishment process, but since protecting trees throughout their lives is so important, guidelines and standards for tree protection are contained in a separate chapter.

Planting Site and Tree Species Selection Guidelines

Which comes first—selecting a planting site, or selecting a particular tree species? Either one may come first.

- ☞ If you have a specific location where you want to plant a tree, choose an appropriate species for that site.
- ☞ If you have a particular tree you want to plant, choose a site that meets that tree's needs.

Regardless of which comes first, always match the planting site's characteristics to the tree's requirements. The Tree Board maintains a list of desirable and undesirable trees to plant in the City, which is contained in *Appendix B. City of Oxford List of Desirable and Undesirable Trees*. See also *Appendix A* for more sources of information on tree species.

To begin the analysis of the site conditions, first determine if it is even suitable for any tree. If the soil is poor quality or significantly compacted, if the tree will cause a reduction in traffic sight visibility, or if the space is just too small and future conflicts with buildings and other hardscape are inevitable, look for another site.

A good quality site will have the following characteristics:

- ☞ Soil that is well aerated, has a suitable pH (between 5.0 and 6.0 for evergreen conifers, between 6.0 and 7.0 for hardwoods), and has some organic matter (5% is ideal).
- ☞ The right amount of soil moisture; most trees prefer a moist, well-drained soil; some prefer a dry soil; a few prefer a very wet soil.
- ☞ Adequate space for tree growth, including the roots, trunk, and crown (limbs and leaves); consider the anticipated mature size of the tree and plan for that amount of space.
- ☞ The right amount of light; most understory trees prefer partial to full shade, and most overstory trees prefer partial to full sun.

When selecting a species, consider the following guidelines:

- ☞ A diversity of species should be planted across a yard, community, or street to help maintain overall forest health.
- ☞ Promote age diversity by planting 1 to a few trees every couple of years, so that trees are at different stages of their life history.

- ☞ Consider leaf texture and leaf drop habit. Evergreen trees may be more suitable than deciduous trees for screening and noise reduction. A mixture of textures and leaf types is desirable.
- ☞ Consider the amount of litter a tree produces and avoid planting trees with large, messy, or unpleasant fruits or flowers near walkways, parking areas, patios, or windows.

Planting Site and Tree Species Selection Standards

1. Invasive species should not be planted.
2. Only small trees (mature height potential of less than 25 feet) should be planted under or within 10 lateral feet of any overhead utility wire.
3. Medium trees (mature height potential of 25 to 50 feet) should be planted at least 25 feet from overhead utility lines.
4. Large trees (mature height potential of greater than 50 feet) should be planted at least 35 feet from overhead utility lines.
5. Trees should be planted at least 5 feet from underground water lines, sewer lines, transmission line, or other utility.
6. Small trees should be planted at least 2 feet from curbs and sidewalks. Medium trees should be planted at least 3 feet from curbs and sidewalks. Large trees should be planted at least 4 feet from curbs and sidewalks.
7. No tree should be planted closer than 10 feet to a fire hydrant.
8. No tree should be planted closer than 15 feet to a power transformer, utility pole, driveway, or mailbox.
9. For street trees, the minimum distance between small trees should be 15 feet, between medium trees should be 25 feet, and between large trees should be 35 feet.
10. In parking lots, the open soil surface area around small trees should be at least 100 (10 x 10 feet) square feet; around medium trees the area should be at least 225 (15 x 15 feet) square feet; around large trees the area should be at least 400 (20 x 20 feet) square feet. This may be reduced if structural soil is used outside of the open soil area to increase root penetration.

Tree Quality Guidelines

While it is important to select the right planting site and tree species, it is as important to select a good quality tree to help insure tree-planting success. The guidelines below are recommendations for selecting a good quality tree, however they may not be absolutely necessary in every situation, especially if standards are otherwise adhered to and diligence is taken to insure tree survival.

- ☞ Inspect and select trees personally in the nursery to determine if they meet the standards.
- ☞ Tree should be a minimum of 1.5-inch trunk caliper (diameter measured at 6 inches above the ground) and 4 feet tall, and a maximum of 4 inches in caliper and 15 feet tall.
- ☞ Select single trunk trees for most situations. Multiple trunks can eventually form a forked stem with included bark, wounds may occur between the stems as they rub together in the wind, and they often create a greater sight obstruction.
- ☞ Trees delivered by a vendor should be labeled by the vendor with the species and cultivar. Any tree mislabeled or misidentified should be rejected at pick-up or delivery. Any tree that leafs out in the spring that is not of the species and type ordered should be replaced by the vendor.

Tree Quality Standards

All nursery stock purchased should meet the ANSI Z60.1-1990 American Standard for Nursery Stock, published by the American Association of Nurserymen and available from the International Society of Arboriculture at www.isa-arbor.com. In addition, a tree selected for planting should have at a minimum the following characteristics:

1. Container grown, balled and burlapped, or bare root trees should be acceptable.
2. The soil and roots should be kept moist and protected from freezing or excessively high temperatures; no tree should be accepted if the root ball or soil in the container is cracked or dry, or if the trunk is loose in the ball.
3. Balled and burlapped trees will have at least the minimum diameter ball size for each diameter inch tree trunk caliper in accordance with ANSI Standards.
4. The minimum acceptable root ball size is 24 inches in diameter. In general, the root ball should be the diameter equivalent of 1 foot for every 1 inch trunk caliper.
5. Tree should be free from stem encircling or girdling roots.
6. No large roots should be cut close to the root crown/stem base.
7. The first order roots should be located just below the soil line.
8. Roots should otherwise be healthy and vigorous.
9. Tree should appear healthy and vigorous, with a good crown shape and color.
10. Tree should have a normal habit of growth for the species.
11. Crossing branches or branches growing upward inside the crown should be avoided.
12. Tree should be properly target pruned—not flush cut, trimmed, rounded-over, hedged, tipped, or topped.
13. Tree should have a single dominant leader with no side branches taller than the main leader, and no forks, included bark, or dead leader.
14. Approximately $\frac{2}{3}$ rds of the tree's total height should consist of living branches.
15. Tree should be free from disease and insect infestation.
16. Tree should be free from wound paint, mechanical injury, bruises, or scrapes affecting the trunk, or limbs.

17. All tree stems will be wrapped for shipment and installation.
18. All balled and burlapped trees should have a root ball contained within a metal basket with nylon webbing attached for ease of unloading.
19. All trees should be covered by a mesh tarp while being transported to avoid drying out the roots, bark, buds, and/or leaves.

Tree Planting Standards

Another very important step in the establishment of a tree is the actual planting of the tree. If planted correctly, it will thrive. If not planted correctly, it could easily die within the first year, or struggle for years before eventually dying. When trees struggle after planting, it is most often the result of poor handling during planting, planting too deeply, or roots that are restricted and don't penetrate out into the surrounding soil. The width of the planting hole and the depth at which the tree is planted are especially important therefore.

1. Handle the tree during transporting and planting by the root ball or container only to avoid breaking roots. Do not move the tree by its trunk (unless it is bare root).
2. Have the location of all underground utilities marked prior to excavation. Call the Utilities Protection Center at 1-800-282-7411 at least 3 days prior to the planting date to request utility locates.
3. The tree roots, trunk, and limbs should be protected from mechanical damage during the planting process. Keep the trunk wrapped until the tree is in the ground.
4. The width of the planting hole should be at least 2 times the width of the root ball in non-compacted soil. In compacted soil, the width of the planting hole should be at least 4 times the width of the root ball.
5. The depth of the planting hole should be no greater than the height of the root ball. The soil at the bottom of the planting hole should be undisturbed.
6. The sides of the planting hole should be sloped inward toward the bottom of the hole, and the sides should be rough to encourage root penetration.
7. The tree should be planted with its first order roots just beneath the soil at ground level. In most cases, the root ball will have excess soil over the first order roots which should be removed.
8. The burlap and wire basket should be removed from the tree and the planting hole. If the removal of the entire basket and burlap is not possible without the root ball disintegrating, then remove at least the upper half of both the burlap and the wire basket. Bend the remainder of the wire basket down and push the burlap down into the bottom of the planting hole.
9. If burlap has been treated to be decay resistant or is made out of plastic, it should be removed.
10. All straps, twine, plastic flagging, and tags should be removed from the tree.
11. No amendments, such as peat or fertilizer, should be added to the soil.
12. Backfill the hole with the native soil to encourage rooting outside of the planting hole.
13. Soil should not be added on top of the root ball.

14. The tree should be watered during and immediately after planting.
15. The tree should be watered daily during the first week after planting.
16. The tree should be watered weekly thereafter in the absence of adequate rainfall.
17. The tree should be mulched immediately after planting (see Mulching Guidelines).
18. The tree should not be pruned, except for the removal of broken, dead, diseased, or dying branches.
19. Do not use stakes and guy wires on the tree unless the roots are damaged, unstable, or the tree appears otherwise unable to support itself. Tall stakes at least 4 feet tall above ground should be used, and the ties should be placed at the top of the stake and form a right angle to the stake when tied to the tree. Use soft materials to tie the tree to the staking. Allow for some trunk flexibility.

New Tree Maintenance Standards

New trees require substantial care after planting to help them become well established in the landscape. Their future value will be directly related to the amount of care they receive at this time. The first 3 years of maintenance are dedicated to stabilizing the tree and creating ideal conditions for root and shoot growth. New tree maintenance standards follow.

1. Trees should be inspected regularly.
2. Trees should be watered at least once per week with at least 1 inch of water during dry periods, within the dripline of the tree.
3. Trees should be mulched annually. Mulch rings should be expanded each year to match the expansion of the dripline (see *Mulching Guidelines*).
4. No fertilizer should be applied to the rooting zone within the first year after planting.
5. Watering bags or rings should be removed after the first growing season.
6. Stakes, guy wires, and ties should be removed after the first growing season.
7. Young tree training pruning should be done in the first, second, and third winter after planting to produce good long-term form according to ANSI A300-1995 American National Standard for Tree Care Operations—Tree, Shrub and Other Woody Plant Maintenance—Standard Practices. See the *Tree Pruning Standards* for more information.
8. Tree trunks, roots, and limbs should not be damaged by mowers or string weed trimmers.



Chapter 2: Ongoing Tree Maintenance Guidelines and Standards

There are many activities involved in ongoing tree maintenance. The primary maintenance activities that are considered essential for tree health are included in this chapter. The activities addressed include:

- ☞ Tree Mulching
- ☞ Tree Irrigation
- ☞ Tree Pruning
- ☞ Tree Fertilization

When tree support systems or lightning protection systems are installed, these systems should be designed and installed according to the latest ANSI Standards and Best Management Practices available from the International Society of Arboriculture at www.isa-arbor.com.

Additional information on these and other tree maintenance activities can be gathered from the sources listed in *Appendix A*.

Tree Mulching Guidelines

Mulch is simple to apply and provides many benefits. Mulch materials are often readily available and sometimes at little to no cost. There are many benefits to mulch, such as:

- ☞ Conserves soil moisture.
- ☞ Moderates soil temperatures.
- ☞ Improves soil texture.
- ☞ Improves soil fertility.
- ☞ Delineates planting/growing beds.
- ☞ Reduces turf and mowing time.

However, if mulch is applied incorrectly or unsuitable materials are used, then serious consequences to the tree can result. Some negative effects on trees can result from the following improper procedures:

- ☞ Mulch applied too thickly can promote root decay and stem encircling and girdling roots.
- ☞ Mulch piled up around the stem can promote trunk decay and damage by insects, diseases, or rodents.
- ☞ Mulch materials such as rocks and gravel can increase soil temperatures as they absorb heat.
- ☞ Impervious materials such as plastic or fine landscape fabric can reduce or eliminate water penetration, slow down or eliminate the exchange of gases between the air and the soil, and increase soil temperatures through heat absorption.
- ☞ Mulch restricted to the immediate area around the trunk does not provide the roots much benefit.

To apply mulch properly, follow these standards:

1. Apply mulch at least once per year, preferably in the late winter. If possible, mulch a second time, in the fall.
2. Use only good quality organic materials such as a tree's own leaves (best), pine straw, compost, or aged wood chips (at least 3 months).
3. Avoid using grass clippings, pine bark, plastic, or rocks.
4. For newly planted trees, apply mulch in at least a 6 foot diameter centered on the tree.

5. Apply the mulch out from the trunk to at least the dripline (farthest extent of the branches), or 1.0 feet out from the trunk for each 1.0-inch in trunk diameter (measured at 4.5 feet above the ground).

For example: A tree with a 12-inch diameter trunk should be mulched at least 12 feet out from the trunk (radius), for a total diameter of 24 feet. If the dripline of the 12-inch tree extends out 15 feet from the trunk, mulch out 15 feet, for a total diameter of 30 feet. In some cases this may not be practical, so mulch out as far as possible.

6. Apply in an even layer, 3-4 inches thick, around the tree trunk, but keep the mulch at least 6 inches away from the trunk.
7. You may apply a herbicide to the turf and other herbaceous plants in the area where the mulch will be applied to kill them and keep them from coming up through the mulch. Weeds that do come up through the mulch can be managed through herbicides or hand pulling out of the ground.
8. Avoid using string weed trimmers around the base of trees or to remove weeds in the mulch bed; hand pull weeds or use a contact herbicide to kill weeds.

Tree Irrigation Guidelines

Adequate water is critical to the survival of newly planted trees. During times of low rainfall or during drought conditions, it may be critical for well-established trees and trees that have sustained root damage. They may not make it without supplemental watering.

- ☞ Trees may be watered either by an underground irrigation system or by hand.
- ☞ When hand watering, consider using one of the several products available that can be placed around a tree's trunk to hold a substantial amount of water and release it slowly to the tree's roots over several hours. These are in the form of bags that are zipped around the trunk and hold 20 gallons of water or a plastic ring that lays on the ground around the trunk and holds several gallons of water.
- ☞ Water newly planted trees once per day during the first week in the ground to insure that the roots do not dry out.
- ☞ After the first week, water weekly throughout the growing season in the absence of adequate rainfall.
- ☞ Avoid over-watering. If you see the water is not draining, water less frequently.
- ☞ Water within the dripline of the tree. Tree roots can grow 3 feet or more each year, so place the water where the roots can take it up.
- ☞ Avoid wetting the trunk during irrigation to discourage diseases and decay.

Tree Pruning Guidelines

Pruning is an activity that can be done by anyone if they know a few of the basic principles. The smaller a tree is, the easier it is for the average individual to prune it. The larger the tree the safer and more practical it is to have a professional tree service do the pruning. See the "Tree Pruning Standards" for more information on safety and pruning standards for professional tree services and landscape contractors.

Since pruning deals with sharp equipment, climbing, and possibly nearby or overhead power lines, working safely is very important. *Inexperienced individuals should not climb trees to prune them, use a chain saw to prune trees, use a chain saw on a ladder, nor prune trees near overhead power or other utility lines.* Begin by wearing the proper personal protective gear, including safety glasses or goggles and gloves if using a hand pruning saw or pruning shears. A hardhat should be worn when pruning large limbs overhead.

Some other tree pruning guidelines are listed below.

- ☞ When hiring a tree service, require that the work be supervised by an ISA (International Society of Arboriculture) Certified Arborist. A list of Certified Arborists in your area can be found at www.isa-arbor.com.
- ☞ Prune trees regularly to maintain their health, structural integrity, and form.
- ☞ Keep pruning equipment sharp, clean, and in good operating condition.
- ☞ Remove deadwood from trees to allow the branch collar to seal over and help seal out insects and diseases and other harmful organisms.
- ☞ Tree pruning should begin at the time a tree is planted (please see "Tree Planting" and "New Tree Maintenance Standards" in *Tree Establishment Guidelines and Standards*, Chapter 1).
- ☞ Prune trees when young to develop good branch structure and strength and tree form (see Young Tree Pruning Guidelines).
- ☞ At the time of planting or within the 1st year, remove only broken, dead, diseased, dying, crossed, rubbing, and otherwise objectionable branches.
- ☞ In the 2nd year, begin a regular program of pruning a tree to "train" its form and preserve its health and structural integrity.
 - ✓ Remove dead, dying, diseased, crossed, rubbing, or broken branches.
 - ✓ Select a central leader. Subordinate over several years and then remove co-dominant limbs.
 - ✓ Select the lowest permanent branch.

- ✓ Select the main scaffold limbs.
- ✓ Subordinate temporary branches over several years and then remove.
- ☞ Trees can be pruned at any time of year if absolutely necessary to correct a hazard situation or to remove deadwood.
- ☞ The best times to prune trees are in the dormant season (winter), or in mid summer after leaf expansion has occurred and growth has slowed.
- ☞ Prune to achieve 16 feet for vehicular clearance over a roadway and 8 feet over a walkway for pedestrian traffic and 8 feet over a lawn for mower clearance.

Tree Pruning Standards

For persons who prune trees for their living, there are more extensive standards that they should know, understand, and practice than those found here. They should be have a working knowledge of the ANSI A300-1995 American National Standard for Tree Care Operations—Tree, Shrub and Other Woody Plant Maintenance—Standard Practices published by the American National Standards Institute and Best Management Practices for Tree Pruning published by the International Society of Arboriculture for tree pruning. They should also adhere to ANSI Z133.1-2000 American National Standard for Arboricultural Operations—Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush—Safety Requirements published by the American National Standards Institute. These standards and practices are available from the International Society of Arboriculture (ISA) at www.isa-arbor.com. Utility pruning should be done in accordance with the ISA's Best Management Practices for Utility Pruning of Trees.

The standards listed below serve as minimum requirements for tree service personnel and landscape contractor personnel. It also serves as basic information for the individual who wants to prune the small and young trees in their yard or around their business.

1. Never “top” a tree. This decreases the tree’s health, safety, longevity, and chances of survival.
2. Never use climbing spikes or spurs while pruning trees, except during an emergency.
3. When pruning diseased limbs, clean equipment before moving to non-diseased limbs or trees.
4. Make pruning cuts just outside the branch collar.
5. Prune back to the parent branch or stem, without leaving stubs, and do not cut flush to the stem.
6. Do not remove more than 1/4th of the foliage of the entire tree in any one growing season.
7. Do not remove more than 1/3rd of the foliage from a branch unless you are removing the entire branch.
8. Pruning for utility line clearance should be in accordance with ANSI A-300 standards. Natural target pruning should be used. Topping should not be allowed.
9. Minimize the amount of live wood removed from a mature or declining tree.

Tree Fertilization Guidelines

Most trees do not require fertilization and have access to enough phosphorus (P) and potassium (K) for normal growth. If they are growing in healthy, well-aerated soil covered with a generous layer of mulch, they should not need nitrogen (N). Nitrogen fertilization will promote growth of the tree's crown, but this may not always be desirable. Increased top growth demands more activity by the root system and also requires more pruning.

To check the macro-nutrient and micro-nutrient levels available to your tree, you can sample the soil and have it tested. The soil can also be tested for the pH (the pH regulates the amount of an element that is available to a tree to uptake) and percent of organic matter present (5% is ideal). Leaf tissue can also be sampled for its elemental content. Contact your local Georgia Cooperative Extension Service office for more information on soil and tissue sampling and testing.

The guidelines for tree fertilization follow.

- ☞ Maintain a soil pH of 5.0 to 6.0 for optimal tree growth for evergreen conifers, and 6.0 to 7.0 for most broadleaf trees.
- ☞ Maintain a soil organic matter of 5%.
- ☞ Preserve topsoil or if it must be removed during construction, replace in areas where trees are to be planted.
- ☞ Apply fertilizer based upon deficiencies and recommendations by a soil test.
- ☞ Maintain a layer of mulch around trees (see "Mulching Guidelines") to add nutrients to the soil.
- ☞ Maintain soil health by avoiding compaction, chemical contamination, topsoil removal, and cuts and fills.

Tree Fertilization Standards

All tree fertilization should be done in accordance with the ANSI A300 (Part 2)-1998 American National Standard for Tree Care Operations—Tree, Shrub, and Other Woody Plant Maintenance—Standard Practices (Fertilization), published by the American National Standards Institute, and the International Society of Arboriculture's Best Management Practices for Tree and Shrub Fertilization. These documents are available at www.isa-arbor.com. Some of these standards are listed below, along with additional standards that must be met.

1. Do not fertilize newly planted, drought-stressed, or severely damaged trees.
2. Apply fertilizer when the roots are actively growing—in late winter, early spring, and early summer.
3. Use an NPK fertilizer ratio of 3:1:1 or 3:1:2 in the absence of a recent soil test.
4. Use slow release organic fertilizers with a salt index of less than 50.
5. Apply slow release fertilizers to trees at a rate between 2 and 4 pounds of actual nitrogen per 1000 square feet of root area.
6. Apply fertilizer beneath the dripline of trees, but only once to overlapping root zones.
7. Make sub-surface applications of fertilizer where turf or groundcover exists beneath trees, or where runoff is likely.
8. Make sub-surface applications of fertilizer 4-12 inches deep, in holes that are 2-4 inches in diameter and spaced 12 – 36 inches apart. Fertilizer should not be closer than 2 inches to the surface.
9. Do not use fertilizer injections and implants for routine fertilization.



Chapter 3: Tree Protection Guidelines and Standards

Trees can only live a long and healthy life if they are continually protected from damage to their roots, trunk, limbs, twigs, and leaves. It takes only a few seconds, as in the case of a lightning strike, or a few minutes, in the case of soil trenching and root damage. A tree's reaction to these and other types of damage is not always immediate. Very often it takes a tree 1 to 5 years to die after damage occurs, after it has used up all of its reserve energy. Poor planning or carelessness may kill a tree that has survived in good condition for as long as 100 or more years.

It is especially important to note that a tree's roots normally extend out from the trunk 2 to 3 times the width of the tree's crown (beyond the dripline). They grow 18-24 inches deep at the most in our soils.

Tree Protection Guidelines

Protection should begin when a tree is planted. It should continue throughout a tree's life, during which its environment can change drastically. Conditions that may have once been conducive to tree growth and health can change into hostile conditions.

The changes that are harmful to trees include:

- ☞ Soil compaction from heavy equipment and vehicle traffic, pedestrian traffic, or materials storage.
- ☞ Soil contamination from equipment washouts (especially concrete) and vehicle fluids.
- ☞ Grubbing of understory vegetation.
- ☞ Planting or cultivation of invasive trees, shrubs, and vines, such as Chinese privet, wysteria, English ivy, and other species.
- ☞ Removal of topsoil and compaction of subsoil.
- ☞ Grade changes including soil cuts and backfill.
- ☞ Trenching for utility line installation or repair, or irrigation system installation.
- ☞ Paving over a tree's root zone for parking lots, roadways, driveways, sidewalks, plazas, and patios.
- ☞ Fires near a tree's trunk or limbs or beneath its crown.
- ☞ Placing nails, screws, and spikes into trunks to attach mail boxes, signs, lighting, or other structures.
- ☞ Trunk wounds and cavities; mower and weed trimmer damage to the base of young trees and trees with thin bark.

☞ Broken limbs, limbs with wounds and cavities.

The critical root zone is equivalent to 1 foot in distance from the trunk for every 1 inch in trunk diameter at 4.5 feet above the ground.

The above changes should be avoided within the dripline of the tree. For a mature tree, the area within the dripline, or an area extending out 1.0 feet from the tree trunk for every 1" in tree trunk diameter at 4.5 (*dbh*) feet above the ground is known as the *critical root zone*. Protecting tree roots within the critical root zone is vital to maintaining tree health.

Tree Protection Standards

Avoiding at all times the harmful activities mentioned above is the best way to protect a tree, whether it is newly planted, well established, mature, or declining. The following tree protection standards should be met.

Avoid any activities that may cause harm to tree roots within the critical root zone (CRZ). This zone extends out around the tree 1 foot for every 1 inch in trunk diameter measured at 4.5 feet above the ground. The *tree protection zone* includes the CRZ and all parts of the tree above and below ground within the CRZ.

1. Trees should be protected at all times within the tree protection zone from damage to their roots, trunk, limbs, branches, or leaves.
2. Activities that may be harmful to the tree should be avoided within the tree protection zone. See the guidelines above for a list of some of these activities.
3. The tree protection zone should be expanded with the dripline as the tree grows.
4. During any activities that may affect a tree, including nearby construction, tree protection fencing should be installed at the critical root zone.
5. During any activities that may wound a tree's trunk or major scaffold limb, the tree's trunk or limb should be wrapped with impact resistant materials to eliminate damage to the bark or wood.
6. Historic trees should be protected from damage at all times.



Chapter 4: Tree Removal and Replacement Guidelines and Standards

Unfortunately, there comes a time in every tree's life when it has to be removed unless it is living in a remote or wooded area that is not regularly used.

The decision to remove a tree may be one of the most difficult that an individual has to make of all the tree care decisions that occur. When should a tree be removed? Who should remove it? Should it be replaced? The answer to some of these questions can be found in the Guidelines and Standards for tree removal and replacement that follow.

Tree Removal Guidelines

- ☞ Trees with limbs that are structurally weak or dead or whole trees with a chance of failure due to a structural defect or root or trunk decay should be removed as soon as possible after they are identified.
- ☞ For large, historic, or otherwise significant community trees, a public notice could be published or placed on the tree to provide information on the reasons for the removal and estimated date of removal.
- ☞ Maintain a list of trees in marginal condition and inspect these trees on a regular basis to insure their maintenance needs are met and their safety is maintained.
- ☞ Notify private property tree owners of the need to remove a tree if it becomes evident that the tree is in danger of failure or has a serious pest problem.

Tree Removal Standards

The following standards should be followed when considering the removal of trees in the community.

1. Dead and dying trees should be removed.
2. Diseased trees that are untreatable and a hazard to other trees around it should be removed.
3. Trees in irreconcilable conflict with infrastructure, such as utility lines, utility poles, streets, buildings, etc., should be removed.
4. Trees should not be removed, topped, root pruned, or otherwise damaged if they are in conflict with a sign, billboard, sidewalk or driveway pavement, or other hardscape unless it is agreed by all property owners involved that it is appropriate.
5. Only qualified people should be allowed to remove trees within falling distance of overhead energized electrical power lines.
6. Prior to any excavation for stump removal, all underground utilities should be marked. The person doing the excavating should request locates by calling the Utilities Protection Center at 1-800-282-7411.

Tree Replacement Guidelines

Tree replacement is an important part of the tree maintenance cycle, and is essential if the tree canopy cover is to be maintained. Tree replacement is required for trees that die on new developments as outlined in the City of Oxford's Tree Ordinance. If trees are replaced on a regular basis, and new trees planted in vacant spaces, the City of Oxford's tree canopy cover should be maintained at the least and ideally increased over time.

To begin the tree replacement process, turn to Tree Establishment Guidelines and Standards. This Chapter will help you begin the process of planting another tree in the landscape.



Appendix A. Community Forestry Resources

The following agencies and organizations can provide you with more information on managing community trees.

<http://wcufrre.ucdavis.edu/>

CENTER FOR URBAN FOREST RESEARCH

Results of research that provides reliable scientific evidence that trees add value to communities. Research on issues such as energy conservation, airborne pollutants, atmospheric carbon dioxide, stormwater runoff, and home values.

www.gfc.state.ga.us

GEORGIA FORESTRY COMMISSION

Provides information on Urban and Community Forestry issues, including Tree Ordinance Development, Community Tree Benefits and Care, Tree City USA and Arbor Day programs, and the Urban/Wildland Interface. Information on the USDA Forest Service's Urban and Community Forestry Assistance Program that provides grants to municipalities and non-profit organizations can be found here.

www.gufc.org

GEORGIA URBAN FOREST COUNCIL, INC.

Statewide organization that conducts tree care educational programs, quarterly meetings with educational component, and an annual fall Conference and Awards program. Offers memberships with discounts to programs.

www.cfr.washington.edu/research.envmind/

HUMAN DIMENSIONS IN URBAN FORESTRY

Features research on peoples' perceptions and behaviors regarding nature in cities. Includes research on Nature and Consumer Environments, Trees and Transportation, Civic Ecology, International Urban Greening, Urban Forestry and Human Benefits.

www.isa-arbor.org

INTERNATIONAL SOCIETY OF ARBORICULTURE

A worldwide professional organization dedicated to fostering a greater appreciation for trees and to promoting research, technology, and the professional practice of arboriculture. Source of information and publications on all aspects of tree care. Conducts the voluntary certification programs for arborists, utility arborists, municipal arborists, master arborists, and tree care workers.

www.arborday.org

NATIONAL ARBOR DAY FOUNDATION

Organization that helps people plant and care for trees and encourages the celebration of Arbor Day. Conducts the Tree City USA and Tree City USA Growth Award programs. Provides educational programs on a variety of topics related to urban forestry. Information also on tree conservation and use.

www.urbanforestrysouth.org

SOUTHERN CENTER FOR URBAN FORESTRY RESEARCH AND INFORMATION

Formed to help communities and landowners across the Southern U.S. manage trees and forests where people live, work and play through research and information transfer. Partnership project of the USDA Forest Service.

www.isasouthern.org

SOUTHERN CHAPTER OF THE INTERNATIONAL SOCIETY OF ARBORICULTURE

Southern Chapter of ISA located in Mt. Airy, North Carolina. Publications available by ISA including ANSI Standards, Best Management Practices, and Arborist Certification Study Guide. Conducts an annual Conference and Trade Show in the spring.

www.treelink.org

TREELINK

Provides information, research, and networking for people working in urban and community forestry, including researchers, arborists, community group leaders, and volunteers.

<http://hort.ifas.ufl.edu/woody/>

UNIVERSITY OF FLORIDA DEPARTMENT OF ENVIRONMENTAL HORTICULTURE

Source of information on all aspects of woody plant culture, including tree species selection, planting, pruning, and pest identification and management.

www.forestry.uga.edu/warnell/service/

UNIVERSITY OF GEORGIA WARNELL SCHOOL OF FOREST RESOURCES – SERVICE AND OUTREACH

Publications on all aspects of urban and community forestry, including assessing construction damage, drought effects on trees, fertilization, tree species, storm damaged trees, tree growth, and much more.

Appendix B. City of Oxford List of Desirable and Undesirable Trees

The City of Oxford Tree Board maintains a list of trees that are desirable for planting, which also includes trees that are not recommended, or are undesirable, for planting. The list is part of these Guidelines and Standards and contains tree canopy cover credits for each species, along with much more information.

Please see the following pages for *the City of Oxford's List of Desirable and Undesirable Trees*.