



Georgia Tech Campus Tree Care Plan

- I. The purposes of campus tree care plan are to:
 - Facilitate the achievement of 55% tree canopy on campus as recommended by the 2006 Campus Landscape Master Plan.
 - Facilitate the achievement of 22% woodlands coverage on campus as recommended by the 2006 Campus Landscape Master Plan.
 - Protect and maintain the campus urban forest by managing the impact of development and constructions on campus trees.
 - Provide protection and to make sure that removal of all trees on campus are conducted with proper considerations and adequate replacement program, according to our approved 2006 Campus Landscape Master Plan.
- II. The responsibility of the Campus Tree Care Plan rests with Georgia Tech Facilities Department.
- III. The Campus Tree Advisory Committee is composed of:
 - Hyacinth Ide, Facilities Landscape Manager
 - Anne Boykin Smith, Master Planner, Capital Planning & Space Management
 - Jerry Young, Landscape Project Manager, Facilities Design & Construction
 - Lisa Jackson, Information Analysis III, Center for GIS, School of Architecture
 - Byron Amos, Vine City Neighborhood
 - Dr. Gerald Pullman, Professor, School of Biology
 - George Roberts, Construction Foreperson, Landscape Services
 - Michael Walsh, Horticulturist II, Certified Arborist, Landscape Services
 - Brett Testa, Horticulturist I, Certified Arborist, Landscape Services
 - Donna Chronic, Horticulturist II, Landscape Services
 - Ed Lanz, Project Superintendent, Georgia Certified Landscape Professional, Housing Department
 - Paul Thurner, Home Park Neighborhood
 - Marcia Kinstler, Director of Sustainability, Georgia Tech
 - Brent Beamon, Arborist from the City of Atlanta
 - Ritchie Brown, Senior Facilities Manager, Parking & Transportation, Georgia Tech
 - Drew Getty, Kristie Champion, Deanna Murphy, Jason Vargo, Rahn Austin, Joseph Staubes, Yi Lin Pei, Student representatives (during the academic year August 2008 – June 2009)

Roles of Representatives

The committee members will accept to serve for a period of one calendar year with a renewal option. Members shall appoint officials who will conduct the day to day business of the committee. Committee members are expected to actively participate and contribute in policy/guideline issues as well as research/information gathering that would aid in the campus tree care plan.

Georgia Tech Care Policies – Tree Planting

Plant Selection

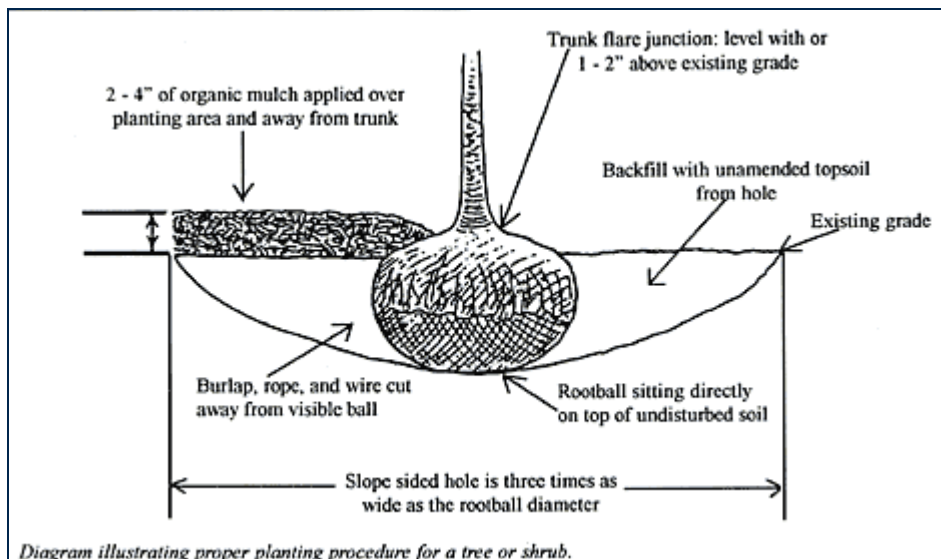
Plant species used on Georgia Tech campus will come from the list of the Landscape Standards in the 2006 Landscape Master Plan. The list contains both native and exotic species that have been screened for adaptability to physical conditions and serviceability, to meeting planting needs based on site orientation, drainage, soil condition, use, etc. Where appropriate, the best plant shall be selected for a given site, which may or may not be a “native”. Trees to be used on campus must be preselected at the farm or nursery for good quality and tagged. Only trees of 2”-2 ½” minimum caliper and maximum of 4”-4 ½” caliper will be planted.

Site Preparation

The planting hole should be dug no deeper than the rootball when measured from the bottom of the rootball to the trunk flare. If the hole is deeper than the rootball, it often results in the settling of the plant above the trunk flare and structure roots which can result in the rootball being planted too deep. But the width of the hole should be at least 2 to 3 times the diameter of the rootball with sloping sides.

Preventive Setting the Plant and Back Filling the Hole

Plants must be set with trunk flare 1”-2” above the existing grade. Once the plant is properly placed, all visible ropes and burlaps at the top one-third should be cut away. The top 8”-16” of the wire basket should be removed once the rootball is stable in the planting hole; backfill the planting hole with the existing soil. If the existing soil is of a poor quality, addition of soil amendment as recommended by the soil analysis should be used. The backfill soil should be tamped firm enough to remove large air pockets, but not too firm as to remove all fine air spaces needed for a well aerated soil for root development. Complete the backfill by making sure that the trunk flare is completely exposed, spread mulch at 2-4” depth but not touching the trunk, water the rootball and the planting area deeply.



Newly planted trees must receive adequate water weekly during the entire first growing season right up until dormancy in the fall, by irrigation or placement of ooze bag or hand watering.

Transplanting

Desirable trees in a development area or other construction sites shall be transplanted by staff if the tree caliper is between 2”-4” where there is an acceptable location and during the planting season (October to March). Trees of larger caliper shall be contracted out using comparable tree spades.

Fertilizing

Newly planted trees should not receive fertilization during the first growing season except in a situation where a soil test recommends its use. A slow release type of fertilizer should be used around the tree basin. Trees in poor condition should receive deep root fertilization of 5-35-10 plus micro nutrients, with repeat application if necessary. Also, when necessary, we shall use 10-20-10 for evergreen trees and 25-10-10 for general application. Routine tree fertilization is not recommended; however, campus trees receive adequate nutrients from turf, shrubs and groundcover routine application of fertilizers.

Staking

Staking of trees at planting is not required if the rootball is stable. If staking must be done, it will be done in accordance with ANSI most recent edition.

Pruning

After planting, only broken or damaged branches should be pruned. Tree wrapping is generally not recommended.

Landscaping

Landscaping on Georgia Tech campus must adhere to the five plant communities indicated in the 2006 Landscape Master Plan. They are Woodland, Parkland, Meadowland, Ornamental and Lawn. All landscaping, new and old shall use the list of acceptable plants in the Campus Landscape Master Plan. The best plant materials should be chosen based on the site conditions, not based solely on the merit of its being native. The objectives are to increase campus tree canopy to a minimum of 55% and campus coverage by Woodlands to 22%.



Georgia Tech Care Policies – Tree Maintenance and Removal

Preventive Maintenance Pruning

The tree team systematically prunes trees annually through a preventive maintenance pruning program. Preventive maintenance pruning is conducted on an as needed basis at this time. All campus trees are periodically surveyed and rated based on their pruning needs to determine scheduling priorities.

Service Requests

The tree team typically prunes 300 trees annually by service request. Requests are made by customers around campus, which is then followed up by an inspection of the trees by the staff arborist who generates the evaluation and tree rating to determine the type of pruning to be performed by staff. **See appendix A**, routine inspections by staff provide most of our pruning needs.

Fallen Limb Removal

When limbs fall from trees on campus, members of the campus community can call in or make a service request (via web base) and by staff inspection to promptly clean up the debris. Every attempt will be made to clean up dropped limbs within the same day, depending on the severity of the storm and the extent of the tree damage (except in the Greek and religious properties). We do not maintain private properties on Georgia Tech Campus.

Hazard and Emergency Tree Removal

From 2004-2008, Georgia Tech Landscape Services and new construction has removed a yearly average of 111 trees. During the same period, 428 trees were also planted annually. When a tree removal request is made, a certified arborist evaluates the tree in question and makes the determination for removal or not based, on the result. If the tree is considered a hazardous tree, it is then scheduled for removal. All hazardous trees have two things in common, a significant defect and a potential target for falling on a building, car or pedestrian. Most tree removals are done by staff or contractor. Very large trees needing a crane are contracted out.

Stump Grinding

After trees are removed the stumps are then scheduled for grinding, provided there is adequate access to the site. When the stump is ground out, the grindings are raked and left slightly mounded to allow for decay and settling to occur.

Managing for Catastrophic Events

In the event of severe weather conditions such as tornadoes or hurricanes, falling trees will be removed by Landscape Services staff or an outside tree removal company. Roads and streets shall be cleared first, then access to critical buildings, administration, buildings with critical labs, library, student center, etc. in that order. In the advance of severe weather conditions, all necessary equipment shall be checked for readiness and safety by staff.

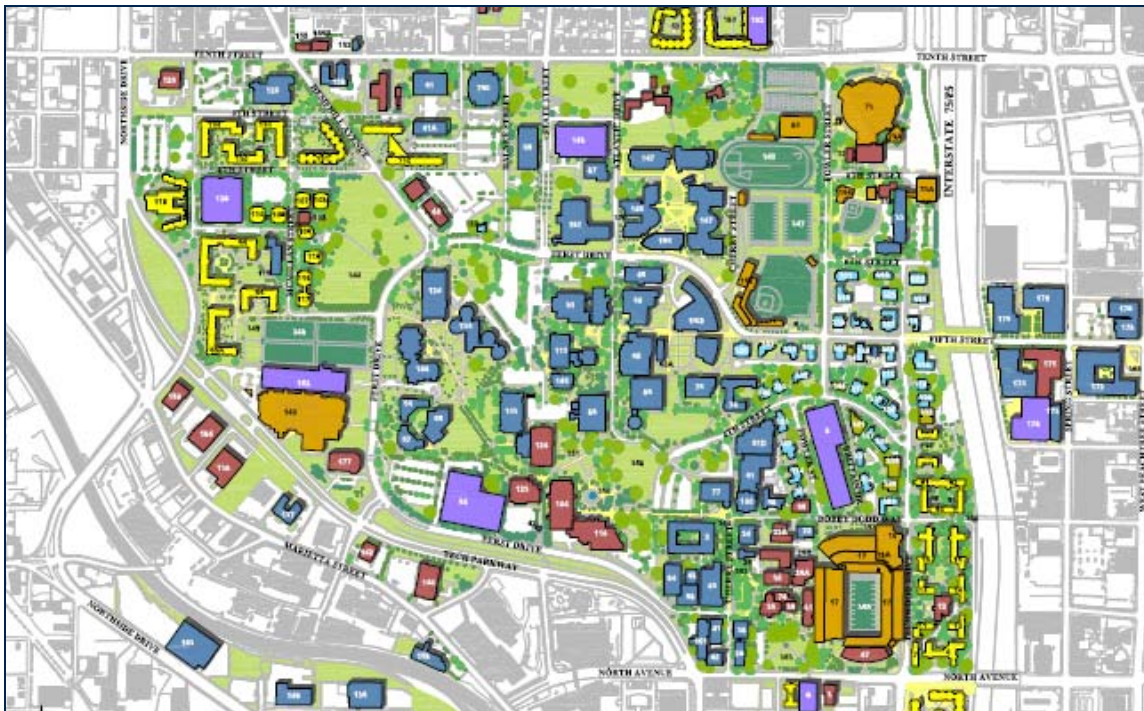
Protection and Preservation Policies and Procedures

Tree protection zones shall be established and maintained for all trees to be preserved in a construction site. Construct a simple barrier for each tree or grouping to protect the trunk and root systems. This reduces damage from heavy equipment and trucks. Wood, plastic or chain link 4' fencing would be suitable. Install the barrier fence for every inch diameter of that tree's diameter breast height (DBH), provided that in no case shall the protection zone be less than a radius of 2.5 feet. No root raking shall be allowed within any tree protection zone at anytime during clearing, grading or construction of a project. No equipment or vehicle shall be parked or construction material stored, or substances poured or disposed of or placed within any tree protection zone at anytime during clearing or construction of a project. To the extent possible, all site work shall be planned and conducted in a manner that will minimize damage to protected trees from environmental changes such as altered site drainage or any other land disturbance within or immediately adjacent to the critical root zone of the tree.

New Building or Facilities Construction

Development activities shall be planned to the extent possible in order to preserve and protect trees on Georgia Tech Campus. Any tree on Georgia Tech campus that must be removed to accommodate development, damage during storm events, disease and water/sewer repairs must be shown on the site plan and a method of compensation shall apply as prescribed by the 2006 Campus Landscape Master Plan, on page 65.

- a) A 1" diameter tree shall be compensated with an equivalent monetary value.
- b) A 1" diameter tree shall cost no less than \$175.00 (2008 cost)
- c) The sum total of the diameter of replacement trees (inches) shall be multiplied by that year's actual cost of the tree market value.
- d) An account shall be created to receive and manage the tree replacement program. This will allow for the flexibility of planting time or the issue of not having ready site or if the site has insufficient space for tree planting and payment shall be made to the tree planting and replacement account. The tree replacement or planting account shall be a separate account so that the funds can be used from year to year for the purpose of tree planting and replacement only.



Design Requirements

Design of a new development or reconstruction shall include a green space plan in the proposal. Such plans shall include a tree protection, tree establishment and landscape plan. Such plan shall conform to the landscape standards as prescribed in the Campus Landscape Master Plan.

Goals and Targets

Develop an integrated, ecologically based landscape and open space system that will help Georgia Tech achieve its goal of environmental sustainability by 1) increasing campus tree canopy to a minimum of 55%, 2) increase campus coverage by Woodlands to 22% and 3) completion of a Campus Tree Inventory. In 2004, the campus tree inventory as indicated in the 2006 Campus Landscape Master Plan was 5000 trees and the tree canopy coverage was 15-18%. In 2008, there are about 6,700 trees on Georgia Tech campus providing approximately 33.8% of tree canopy. A GIS Tree Inventory is in progress to update the Campus Tree Inventory.

Tree Damage Assessment

All damaged trees on Georgia Tech campus shall be assessed by a Certified Arborists using the existing tree evaluation form. Results from the evaluation determines whether the tree should be removed, pruned or receive treatment such as fertilization, and insect/disease control, **see appendix B**. Removed trees are updated on the tree inventory list. Whenever it is determined that violation of this procedure has occurred, the Facilities representative or designee shall immediately issue written and oral notice to the person or company or department in violation, identifying the nature and location of the violation and specifying that remedial action is necessary to bring the violation into compliance. The person or company or department in violation shall immediately, conditions permitting, commence remedial action and shall have seven (7) working days after the receipt of the notice, or such longer times as may be specified in the notice, to complete the remedial actions required to bring the activity into compliance with this policy,

Prohibited Practices

Under no condition shall a tree be planted on Georgia Tech campus for dedication without pre-approval from the office of the Executive Vice President for Administration & Finance through the office of Capital Planning & Space Management.

Definitions

Caliper - The diameter or thickness of the main stem of a young tree or sapling as measured at six (6") inches above ground level. This measurement is used for nursery-grown trees having a diameter of four inches or less.

Canopy trees - A tree that will grow to a mature height of at least 40 feet with a spread of at least 30 feet.

Clearing - The removal of trees or other vegetation of two inches DBH or greater.

Critical Root Zone - The minimum area surrounding a tree that is considered essential to support the viability of the tree and is equal to a radius of one foot per inch of trunk diameter (DBH).

Development - The act, process or state of erecting buildings or structures, or making improvements to a parcel or tract of land.

Diameter, breast height (DBH) - The diameter or width of the main stem of a tree as measured 4.5 feet above the natural grade at its base. Whenever a branch, limb, defect or abnormal swelling of the trunk occurs at this height, the DBH shall be measured at the nearest point above or below 4.5 feet at which a normal diameter occurs.

Green space - Any area retained as permeable unpaved ground and dedicated on the site plan to supporting vegetation.

Green space plan - A map and/or supporting documentation which describes for particular site where vegetation is to be retained or planted in compliance with these regulations. The green space plan shall include a tree establishment plan, or a tree protection plan, and a landscape plan.

Impervious surface - A solid base underlying a container that is nonporous, unable to absorb hazardous material, free of cracks or gaps and is sufficient to contain leaks, spills and accumulated precipitation until collected material is detected and removed.

Landscape plan - A map and supporting documentation which describes for a particular site where vegetation, is to be retained or provided in compliance with the requirements of this policy. The landscape plan shall include any required buffer elements.

Native tree - Any tree species which occurs naturally and is indigenous within the region.

Tree establishment plan - A map and supporting documentation which describes, for a particular site where existing trees are to be planted in compliance with the requirements of these regulations, the types of trees and their corresponding trees for reforestations.

Tree protection plan - A map and supporting documentation which describes for a particular site where existing trees are to be retained in compliance with the requirements of the regulations, the types of trees and their corresponding tree for reforestations.

Tree protection zone - The area surrounding a preserved or planted tree that is essential to the tree's health and survival, and is protected within the guidelines of these regulations.

Communication Strategy

After the adoption of the Campus Tree Care Plan and Policies by the Advisory Committee and Georgia Tech Administration approval, an article on Georgia Tech's participation in the Tree Campus USA shall be placed in the student's newspaper "The Technique" and the staff news paper "The Whistle". Also, the adoptions shall be sent to the Georgia Tech community via the electronics email distribution system and placed on the Georgia Tech Facilities Website. Additionally, a press release shall be made to the local media through the office of Institute Communication & Public Affairs.

Dedicate Annual Expenditures for Campus Tree Program

Staff and Equipment

Georgia Tech has dedicated two full time employees (a certified arborist & equipment operator) and 1/3 of Foreperson's time totaling \$138,518.39 for the tree program. On average, Georgia Tech Landscape Services spends \$19,000.00 to purchase new trees per year. The following equipment is used in the maintenance and care of our campus trees.

Chipper truck with 25' bucket	\$ 52,756.20
Vermeer 1250 Chipper	\$ 20,000.00
Vermeer Stump Grinder	\$ 11,542.90
New Holland Ford Backhoe	\$ 55,542.90
Bobcat 863 Loader	\$ 19,960.84
Chainsaw (4)	\$ 3,600.00
Pole saw	\$ 749.00
Climbing Gears	\$ 1,122.75
<i>Subtotal (Equipment Invested)</i>	<i>\$165,481.69</i>
Equipment Maintenance/yr	\$ 1,722.69
Grand total on equipment	\$167,215.38
Annual Contract Labor Cost	\$ 18,590.00



Tech Beautification Day

The Georgia Tech Beautification Day and Earth Day held annually in April, account for over 500 students, faculty & staff volunteers. At 3 hours per volunteers x \$18 equals \$27,000.00 of volunteer labor per year. They participate in planting trees, shrubs, groundcover, flowers, laying sod, spreading pine straw and wood chips, pulling weeds, picking up trash, etc. on the Georgia Tech campus. Some Hands-On-Atlanta members also participate with the students, faculty and staff.

Other associated costs of the campus tree management are:

- Development of Georgia Tech Campus Landscape Master Plan in 2006
- Three staff members are Certified Arborists of the International Society of Arboriculture with assorted fees of \$2,500.00
- Development of 5000 campus tree inventory in 2004 at \$35,000.00

Summary

Summary of the dollar value dedicated to the tree program by Georgia Tech are:

Labor staff/yr	\$138,518.39
Labor contract/yr	\$ 18,590.00
Labor volunteer/yr	\$ 27,000.00
Tree purchase/yr	\$ 19,000.00
Materials/yr	\$ 7,500.00
Equipment investment	\$195,481.69
Equipment maintenance/yr	\$ 1,722.69
Tree inventory cost	\$ 35,000.00
Staff associations & training cost	\$ 2,500.00

TOTAL **\$445,312.77**

Georgia Tech’s full time student population is 19,410 x \$3 annual expenditure requirement is \$58,230.00. Therefore, Georgia Tech is well over the required amount of expenditures needed for Tree Campus USA participation.

