



Sam Houston State University

MEMBER THE TEXAS STATE UNIVERSITY SYSTEM

CAMPUS TREE CARE PLAN

Purpose

The purpose of the Sam Houston State University (SHSU) campus tree care plan is to define the policies and guidelines to establish and maintain a safe, sustainable, healthy, and attractive campus urban forest.

The objectives of this plan are to:

- Set standards for new tree selection and planting procedures
- Define the guidelines for the maintenance and removal of campus trees
- Establish a tree protection program to ensure the survival and health of select trees on campus
- Map the future goals and targets for the campus urban forest program

Responsible Department

The SHSU Landscape Services department is responsible for the implementation and enforcement of the campus tree care plan. The Landscape Services Supervisor will be the contact person.

Tree Advisory Committee

The SHSU Tree Advisory Committee will serve as a think-tank for urban forest management at SHSU. The committee will analyze current topics that impact trees on campus, discuss new and existing management techniques and be a forum for learning. The committee members are listed below:

Lorcan Kilmurry	SHSU – Landscape Services Supervisor
John T. Adams	SHSU – Director of Campus Services
Dr. Tim Pannkuk	SHSU – Associate Professor Agricultural Science
Ben Plunkett	Texas A&M – Forest Service, District Forester II
Kelly Anthony	Bachelor of Science
Seth Pruski	SHSU – Undergraduate Student
Luke Penick	SHSU – Undergraduate Student



Campus Tree Care Practices

New Tree Selection

New trees planted on campus will be coordinated by the Landscape Services Supervisor. Tree species will be selected based on the characteristics of the planting site and the objectives for installing the tree. Nursery stock will be examined for the existence of circling/girdling roots, pests/pathogens, vigor and structure. Any nursery stock with circling/girdling roots, pests/pathogens, reduced tree vigor or poor structure will be rejected. No multi-stemmed nursery stock will be planted unless authorized by the Landscape Services Supervisor. The sites for tree planting and the spacing between new trees will be coordinated by the Landscape Services Supervisor and the Director of Facilities Campus Services.

Planting Trees

When planting a tree, the hole will be dug no deeper than the depth of the tree's root ball and 2-3 times the diameter of root ball. The trunk flare will be 1-2 inches above the existing grade of the soil. The sides of the hole will be sloped with unglazed sides and the soil underneath the root ball will be undisturbed or lightly compacted to prevent settling.

Once the tree is removed from its container the roots will be inspected. Any kinked or circling roots will either be straightened inside the planting hole or severed. The tree will be placed upright in the bottom of the hole and the trunk flare will be checked to ensure that it is 1-2 inches above the existing soil grade. Any staking materials and wrapping should be removed from the root ball and trunk of the tree and discarded.

The hole will be filled in with the original soil that was removed while digging. Any debris or rocks found in the planting hole will be discarded and any large clumps of clay or compacted soil will be broken up. No fill dirt will be placed on top of the root ball. The soil surrounding the tree should be lightly packed down as the hole is filled to reduce any settling. The tree should be watered after planting and any voids filled in with remaining soil. After the tree has been planted, 2-4 inches of coarse wood mulch should be placed on and around the planting hole all the way up to but not touching the trunk of the tree. Tree staking will only be used in extreme situations.

Pruning Objectives

Campus trees will only be pruned to accomplish a predetermined goal. These goals include:

- Safety
- Maintenance of health, structure, and appearance
- Controlling tree size and shape
- Training young trees
- Crown restoration

All pruning activities on campus must follow the ANSI A300 standards for tree pruning. A maximum of 25% of the live foliage of a tree can be removed at any one time.



Pruning Techniques

Crown Cleaning

Crown cleaning involves the removal of dead, dying, diseased, damaged or weakly attached limbs and branches of a tree.

Crown Thinning

Crown thinning is the selective removal of limbs and branches in a tree's crown. Limbs with weak attachments, included bark and limbs that are growing too close together or rubbing will be removed.

Crown Raising

Crown raising is the removal of lower limbs to provide clearance for pedestrians, vehicles, buildings and signage.

Crown Reduction

Crown reduction is used to limit the size of a tree that has become too large for an area or has become unsafe. The primary use of this pruning technique on campus is to reduce the size of trees growing onto or rubbing against university buildings and facilities or limiting the visibility of university signage.

Tree Removals

The removal of campus trees will be based on safety, tree health, competition with more desirable trees and conflicts with construction, trenching and maintenance. The decision to remove a tree will be based on an evaluation made by the campus arborist. The campus arborist will complete a tree removal form for each tree (Appendix A). If the tree is being removed for safety reasons a tree risk assessment will be completed. Trees removals that involve specialized skills or equipment will be conducted by an outside contractor.

Pest and Disease Management

Campus trees will be treated for pests and diseases on an as needed basis. Any trees that are showing signs of stress, insect/disease symptoms or loss of vigor will be thoroughly inspected to determine if any pests or diseases are present. If found, the appropriate remediation methods will be conducted immediately.

Storm Recovery

The Grounds staff, under the supervision of the Landscape supervisor, will be responsible for the clean-up and restoration of trees damaged by storms. These efforts will initially be focused on the major roads and walkways through campus, in order to make them safe for students and university personnel. Once the major traffic areas have been cleared, the hazards in the less frequently occupied areas of



campus will be rectified. Each tree damaged in a storm will be evaluated to determine if the tree should be removed or if it can be restored to a safe, healthy state that can provide future benefits to the campus. Outside contractors will be used in situations where specialized skills and equipment are required.

Species Selection

Trees that are native to Texas and more specifically the piney woods region will be the primary focus when selecting trees to plant on campus.

The recommended and prohibited species list can be seen in Appendix B. This list not absolute. Other species will be used based on availability, site characteristics and special circumstances.

Tree Protection

All trees that will be impacted by construction, trenching or maintenance activities will be subject to the guidelines for tree protection. Before any construction, trenching or maintenance activities are conducted on campus, the Landscape Services Supervisor will review the planned activities and determine if there will be any impact to campus tree crowns or critical root zones (CRZ). The Landscape Supervisor must be notified of any dig permits that are located inside the CRZ of a campus tree.

The CRZ of a tree will be defined as a circle radiating from the trunk of the tree that has a radius of 1 foot for every inch of tree diameter at 4.5 feet from the ground (DBH). For example, an elm tree with a DBH of 15 inches will have a CRZ that extends 15 feet from the trunk of the tree in all directions. The minimum CRZ for any tree is a circle within a 6 foot radius. The campus arborist is responsible for establishing the CRZ for each tree.

Impacts include any disturbance of the roots or soil within the CRZ, vehicle or foot traffic over the CRZ, materials being stored or discarded within the CRZ, any increase or decrease in the grade of the soil within the CRZ or the damage of any limbs or live foliage.

After the Landscape Supervisor has reviewed the proposed activities, a decision will be made to protect a tree during the activity or have the tree removed. The cost of removing trees due to construction, trenching or maintenance activities will be done at the cost of the project. Trees that are of an undesirable species, designated as hazard trees, have poor vigor or are unable to provide future benefits to the site will not be candidates for protection. Desirable species with good health, vigor, structure and future benefit to the site will be candidates for protection.

When a tree has been chosen for protection, the following minimum guidelines must be followed:



- At least 50% of the tree's total CRZ must be preserved undisturbed at its natural grade.
- No cuts, fill or material storage is permitted within a circle radiating ½ of the radius of the CRZ from the trunk of the tree.
- The ½ CRZ circle must be surrounded by a minimum 4 foot chain link fence and the fence cannot be moved or altered by anyone without consent from the campus arborist.
- Any available space inside the CRZ must be covered with 4 inches of coarse mulch.
- The trunk and limbs of the tree must be protected from equipment and vehicles.

The Landscape Supervisor will perform regular inspections of the work site to ensure that the minimum standards are being followed. If these criteria cannot be followed to the satisfaction of the supervisor, the tree will be a candidate for removal at the cost of the project.

Goals and Targets

Tree Inventory

To better understand the dynamics and current status of the SHSU campus urban forest, a campus tree inventory will be completed. The inventory will build upon past campus inventories that are either outdated or unusable due to the loss of data. The inventory will collect data on tree species diversity, tree characteristics and health. Each campus tree will be allocated a number and location with a GPS unit. Location and tree data will be used to create a GIS map that will be used to manage the campus urban forest. The inventory will be updated whenever trees are added to or removed from campus. The inventory will be completed in blocks with each block covering a specific area of campus. Inventorying the main campus and satellite campuses will be a multi-year project.

Tree Risk Assessment

All trees have the potential to fail and pose different amounts of risk. To better understand and manage tree related risk a tree risk assessment survey will be conducted on campus. During the tree inventory a Level 1 tree risk assessment will be conducted. This assessment uses a visual inspection of the tree to identify obvious defects or tree conditions and locate targets. The tree will be given a rating of low, moderate or high risk. Any tree given a moderate or high rating may be subject to further assessments to determine if and how the risks can be mitigated. Due to the aging and neglected state of the current campus tree population this project will be continuous and tree risk assessments will be conducted on an as needed basis.

Tree Damage Assessment

All trees damaged by non-natural forces will be assessed by the campus arborist. The findings of this assessment will be submitted in a report to the Grounds Department and any other involved parties. The report will give a description of the damaged tree, describe the damage and give a recommendation on how the damage can



be remediated. This report will then be given to the damaging party along with any requests. Any act of tree vandalism will be reported to the university police department.

Prohibited Practices

- No trees will be planted or removed without approval by the Landscape Services Supervisor.
- No cuts or incisions will be made on any campus trees without the approval of the Landscape Services Supervisor
- Campus trees will not be harmed for use in art, leisure, or advertising activities. This includes implanting foreign objects such as small nails, staples, or cordage onto or into trees, or attaching signage to tree trunks.
- Trees will not be used to lock bikes, mopeds, scooters, etc.

Communication Strategy

The SHSU campus tree care program will be made available to all university contractors, students, faculty, staff, and administrators after it has been approved. The SHSU newspaper, *The Houstonian*, as well as social media, will be used as an outlet to inform university faculty, staff, and students about the creation and details of the Campus Tree Care Plan and the benefits of being a Tree Campus USA. The Landscape Services Supervisor will also provide information about the SHSU Tree Care Plan during events such as Texas Arbor Day, guest speaking appearances in the community, as a guest speaker for university events. Any questions, comments or issues with the plan will be directed to the Landscape Services Supervisor.



Glossary of Terms

½ CRZ - A circle radiating from the tree trunk with a radius that equals ½ foot for every inch in tree DBH.

Circular/girdling root - A tree root that encircles all or part of a tree trunk or other roots.

Critical root zones (CRZ) - A circle radiating from the tree trunk with a radius that equals 1 foot for every inch in tree DBH

DBH - The diameter of a tree taken at 4.5 feet from the ground.

Glazed sides - A feature that occurs when the sides of hole become smoothed and compacted creating a barrier that roots and water have difficulty passing through.

Hazard trees - A tree that has been identified as a source of harm.

Included bark - Bark that has become imbedded in the union between stems or branches. This weakens the structure of the union.

Radius - A straight line from the center to the circumference of a circle.

Target - People, property or activities that could be injured, damaged or disrupted by a tree.

Tree risk assessment - The systematic process of identifying, evaluating and analyzing tree risk.

Trunk flare - The area at the base of the trunk that naturally widens above the roots.

Visual inspection - Evaluating the structural integrity of a tree by inspecting external symptoms of stress and defects.



Appendix A



CAMPUS TREE REMOVAL FORM

Date:	Tree #:
Tree species:	Tree location:
Tree DBH (dia. @ 4.5 ft):	Tree status:
Tree height (est):	Inspected by:
Reason for removal:	

Images:

- Attach completed ISA Basic Tree Risk Assessment Form (If needed)
- Attach contractor bids (If applicable)



Appendix B

Recommended Species

American elm (*Ulmus americana*)
American holly (*Ilex opaca*)
American sycamore (*Platanus occidentalis*)
bald cypress (*Taxodium distichum*)
black hickory (*Carya texana*)
black walnut (*Juglans nigra*)
blackgum (*Nyssa sylvatica*)
catalpa (*Catalpa bignonioides*)
cedar elm (*Ulmus crassifolia*)
cherrybark oak (*Quercus pagoda*)
eastern red bud (*Cercis canadensis*)
eastern red-cedar (*Juniperus virginiana*)
flowering dogwood (*Cornus florida*)
fringe tree (*Chionanthus virginicus*)
green ash (*Fraxinus pennsylvanica*)
live oak (*Quercus virginiana*)
loblolly pine (*Pinus taeda*)
longleaf pine (*Pinus palustris*)
mockernut hickory (*Carya tomentosa*)
overcup oak (*Quercus lyrata*)
pecan (*Carya illinoensis*)
post oak (*Quercus stellata*)
red maple (*Acer rubrum*)
river birch (*Betula nigra*)
shagbark hickory (*Carya ovata*)
shortleaf pine (*Pinus echinata*)
shumard oak (*Quercus shumardii*)
southern magnolia (*Magnolia grandiflora*)
southern red oak (*Quercus falcata*)
swamp chestnut oak (*Quercus michauxii*)
sweetgum (*Liquidambar styraciflua*)
thornless honey locust (*Gleditsia triacanthos var.inermis*)
white oak (*Quercus alba*)

Prohibited Species

box-elder (*Acer negundo*)
chinaberry tree (*Melia azedarach*)
Chinese tallow tree (*Triadica sebifera*)
mimosa (*Albizia julibrissin*)
silver maple (*Acer saccharinum*)
sugarberry (*Celtis laevigata*)
water oak (*Quercus nigra*)
willow oak (*Quercus phellos*)