Texas State University

Tree Care Plan

Revised September 18, 2018

1. PURPOSE

A well-developed tree care plan is necessary to ensure the beautification and diversification of foliage found on the 495-acre San Marcos campus, the 101- acre campus in Round Rock, the 69-acre Science, Technology, and Advanced Research (STAR) Park, plus 4,522 additional acres of recreational, instructional, farm, and ranch land. The Campus Tree Care Plan details arboriculture policies, procedures, and practices to be used in plant selection, site location, maintenance, evaluation, protection, removals and replacement.

The overall goal of the plan is to ensure a safe, attractive and sustainable campus urban forest. Specific objectives of the plan include:

- Ensure proper species selection that allows for tree diversity with attention to native species as identified in the Texas State Plant Palette.
- Protect high-value campus trees during construction and renovation projects when feasible.
- Ensure that trees are reasonably replaced when there is mortality due to weather, pest infestations, injury, or construction displacement.
- Promote tree health and safety by utilizing best management practices when maintaining campus trees.
- Reduce liability of the university associated with trees.

2. RESPONSIBLE DEPARTMENT

Responsibility for enforcement of the plan will be shared between units in the Facilities Department, with the majority being within Grounds Operations via the Director.

3. CAMPUS TREE ADVISORY COMMITTEE

The Campus Tree Advisory Committee will consist of faculty, staff, and students who will serve for a period of two years with a renewal option.

Committee members will provide guidance regarding the care and improvement of the campus landscape with particular attention to the campus urban forest.

4. CAMPUS ARBORICULTURE PRACTICES

A. Plant selection

A Plant Palette was developed as part of the 2006-2015 Campus Master Plan, updated with the 2017-2027 University Master Plan and will be used for all plant selections, including trees, and is located in the Texas State Construction Standards, Division 32 – Exterior Improvements, Section 32 93 00_Plants, Part 2 - Plants 2.02, http://www.facilities.txstate.edu/pdc/Projects_Documents/Construction-Standards/_Construction_Standards_Links.html. Requests for any variance from this document must be provided in writing to the Facilities Department for approval.

A high-quality tree has:

- enough sound roots to support healthy growth.
- a trunk free of mechanical wounds and wounds from incorrect tree pruning.
- a strong form with well-spaced, firmly attached branches.

A low-quality tree has:

- crushed, circling, or girdling roots in a small root ball or small container.
- a trunk with wounds from mechanical impacts or incorrect pruning.
- a weak form in which multiple stems squeeze against each other or branches squeeze against the trunk.

Any of these problems alone or in combination with the others will greatly reduce the tree's chances for a long, attractive, healthy, and productive life.

B. Site Location

Considering the area in which a tree is to be planted is key to ensuring its future health. When preparing a site for planting the following will be considered:

- Height - Will the tree come in contact with anything when it is fully grown?
- Canopy Spread - How wide will the tree grow, and how will that affect other trees or buildings in the area?
- Form - Is the tree columnar, round, or v-shaped. The shape of the tree dictates how much space it needs to grow, the area of leaves it will drop, and how much shade it will provide.
- Habitat - The best plant materials should be chosen based on the site conditions, not based solely on the merit of its being native. Research and consider soil, sun, and moisture requirements to ensure the tree is the right pick for the proposed planting site.
- Fruit - Does the tree produce fruit or not? Fallen fruit could hinder walkways or draw animals into normally human-dominated areas.

C. Mulching and Irrigation

Newly planted trees: The best approach to watering a recently planted tree until establishment is to use some form of drip irrigation and mulch.

- Drip irrigation will be utilized when necessary, as it delivers water slowly, efficiently, and dependably to the root zone to maintain soil moisture during the critical establishment period and or drought (drought being a frequent and widespread occurrence in central Texas).

- Mulch will be added to all recently planted trees to a depth of 4 inches as needed throughout the year. Mulch will be added to encourage the water that is applied toward the tree root zone to remain in the expanding root zone longer between waterings.

Established trees: While it is normally not necessary to irrigate established trees, it may be advisable to do some watering of certain species to ensure survival of particularly valuable trees during drought periods. Repeating the watering procedure as needed in different locations during drought conditions should significantly reduce drought stress without using an inordinate amount of water.

D. Fertilization

Generally speaking, if a tree shows signs of nutrient deficiency it is because of an improper match of a tree to the site. All efforts will be made to insure that the proper tree is planted in the proper site. However, circumstances may occur that justify the use of fertilizer as needed.

- Fertilization will be taken into account on a tree by tree basis.
- Trees making satisfactory growth and not showing symptoms of nutrient deficiency will not be fertilized.
- Specifications for fertilization will be in accordance with results from soil or plant tissue testing. Organic based fertilizers should be the first option.
- Application techniques will predominantly involve both surface applications and subsurface application. However, if the situation warrants, liquid injection, implants or microinjections may be utilized.
- Fertilizer, that includes any kind of herbicide, will never be used around a tree. These fertilizers may be beneficial to turf, but can damage trees.

E. Pest Management

Effective management for insect problems and plant diseases is a key factor in ensuring the longevity of trees. Following are guidelines for proper pest management.

Monitoring/inspections: The landscape will be observed or inspected throughout the year for pest and disease occurrences as well as any harm from environmental stresses (e.g., drought effects, leaf and bark scorch, nutrient deficiencies, etc.). In cases where insect or disease occurrence is a problem, monitoring and thresholds will be used to assess the extent of the

problem and to determine if and when tree remediation measures are needed.

Tree Remediation: Integrated Pest Management (IPM) is a systematic approach used to control pests that incorporates cultural, mechanical, physical, biological, and chemical methods as control measures. Cultural control, the primary course of action, will begin with selecting healthy specimens of pest resistant species, properly planting them, and maintaining their vigor with necessary irrigation and other cultural practices. In addition to proper installation and establishment, most time and effort will be spent by appropriately pruning, training, and establishing trees to minimize pest problems.

F. Pruning

Pruning will be conducted with a reason or goal in mind. Most pruning will be corrective or preventive in nature, for example, removal of diseased or storm-damaged branches, reduction of tree height, shaping for design and training purposes, cleaning the tree canopy, and raising the crown.

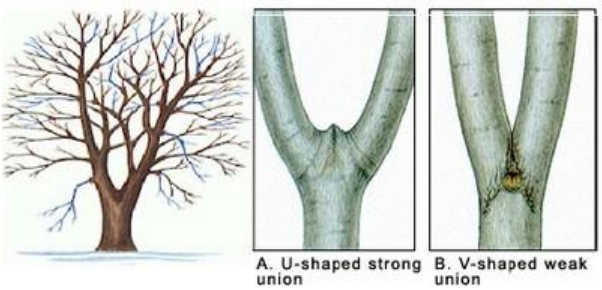
The following, listed in priority order, are conditions that may necessitate pruning:

- Trees with safety hazards
- Training new trees
- Special requests via work orders
- Clearance pruning for buildings, sidewalks, light poles, power lines, roads, and signs

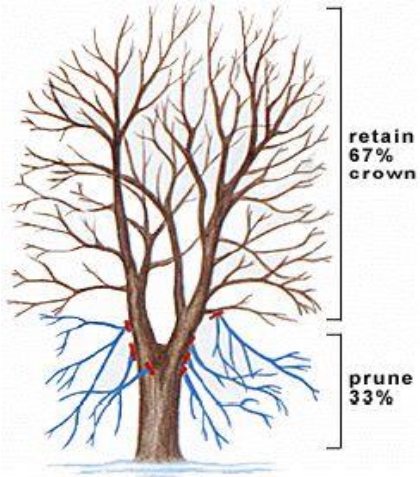
Pruning will be in accordance with the tree species, location, age, and growth rates. The correct timing and procedures for pruning will ensure healthy trees. The following practices will be followed.

- No more than 25% (one-fourth) of the crown of the tree will be pruned at one time.
- Pruning must ensure that living branches compose at least 66% (two-thirds) of the height of the tree.
- Exceptions to the above include repair of storm damage, reduction in height to avoid crowding utility lines, or raising the crown to meet municipal bylaws.
- Branches to be removed or thinned by pruning should be less than 2 inches in diameter. If absolutely necessary, branches between 2 and 4 inches in diameter can be pruned.

Crown Thinning - Assess how a tree will be pruned from the top down.



- Favor branches with strong, U-shaped angles of attachment.
- Remove branches with weak, V-shaped angles of attachment and/or included bark.
- Ideally, lateral branches should be evenly spaced on the main stem of young trees.
- Remove any branches that rub or cross another branch.

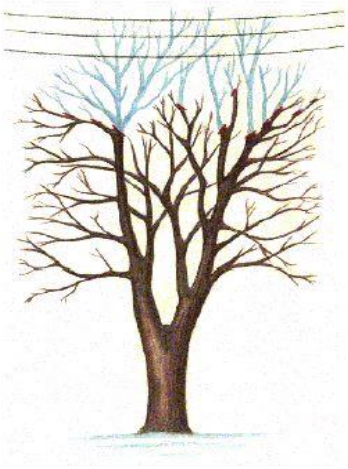


Crown Raising - Assess how the tree will be pruned from the bottom up.

- When possible maintain live branches on at least 66% (two-thirds) of a tree's total height.
- Removal of too many lower branches will hinder the development of a strong trunk.
- Remove basal sprouts and vigorous epicormic sprouts.

Crown Reducing - Use crown reduction pruning only when absolutely necessary.

- Make the pruning cut at a lateral branch.
- If it is necessary to remove more than 50% (one-half) of the foliage from a branch, the entire branch should be removed.



G. Oak Wilt Disease

Due to threat of Oak Wilt disease, pruning of any oak trees (*Quercus spp*.) should be conducted during the hottest (July and August) or coldest (December and January)

times of the year. Pruning should be done by an ISA Certified Arborist and may be performed, when necessary, outside of these times if performed by such Arborist. Wound dressing must be applied to pruning cuts or to damaged trunks or limbs, within 15 minutes of pruning at all times of the year.

H. Tree Removal

Nuisance trees that need to be removed should be brought to the attention of the Grounds Operations Department. On occasion, a second opinion will be required from an approved Certified Arborist confirming or denying need for the removal. The approved Certified Arborist will provide a Tree Structure Evaluation Report if requested. A Tree Removal Form *(see Appendix A for blank form and Appendix A1 for example)* will be completed by a representative from the Grounds Operations Department and forwarded to the Associate Vice President of Facilities, allowing for proper notification of university administration that a tree removal will take place. Copies of the forms will be shared with the Campus Tree Advisory Committee.

Acceptable requests for tree removals include:

- Dead trees
- Diseased or insect infested trees that are not treatable
- Nuisance trees because of condition, size, fruit or seed drop, and root conflicts
- Trees affected adversely by construction or maintenance improvements made around the tree that may interfere with the trees Critical Root Zone and natural growth size
- Safety hazards which cannot be corrected by cultural practices
- Interference with the growth and development of a more desirable tree

The Grounds Operations Department will determine the best method of removal. Many removals will be performed in house with existing staff. If it is determined that a tree is too hazardous or too large for the Grounds Operations staff to safely remove, the work will be contracted out to an approved tree care company.

For every mature tree that is removed on campus for the reasons cited above, another tree will be planted on campus in the following November. If fewer than 20 trees are removed, the University will plant no less than 20 trees at the annual Arbor Day event.

5. PROTECTION AND MAINTENANCE PROCEDURES DURING CONSTRUCTION PROJECTS

A. Tree Protection during Construction Projects

Construction projects on the Texas State campus that may have an adverse effect on tree(s) survivability and vigor must follow the Texas State Construction Standards Division 01-Earth, Section 31 23 16 Tree Protection, for tree protection throughout the entire construction project.

For the duration of any construction project, the Texas State Project Manager may request a Tree Preservation Inspection Checklist (*see Appendix B)* be completed. This same checklist may be completed any time during any construction project by the Assistant Director of Grounds Operations. This form will provide guidance to the responsible contractor or Project Manager as to the status of existing trees involved in the construction project. Direction will be given the contractor as to how best alleviate issues causing stress to existing trees.

B. Maintenance of newly Planted Trees at Construction Sites

Maintenance of newly planted trees at construction sites will be the contractor's responsibility until substantial completion and final acceptance of the project. There will be a three (3) month maintenance period after substantial completion is reached. Maintenance shall include but will not be limited to the following;

- Weeding - manual and chemical within one week of Ground Operations request, must provide written record of application
- Cultivating and pruning as requested by Grounds Operation
- Re-staking, adjustments of stakes and removal after one year of growth
- Restoring tree wells
- Maintenance of mulch cover
- Removal and replacement of dead trees

See Texas State Construction Standards Section Division 32 – Exterior Improvements, Section 32 93 00_Plants 1.02 Maintenance, http://www.facilities.txstate.edu/pdc/Projects_Documents/Construction-Standards/_Construction_Standards_Links.html.

6. GOALS AND TARGETS

A. Tree Inventory/Tree Trail

A tree inventory was completed throughout most of campus over 10 years ago. The inventory will be updated annually by the Grounds Operations Department and also as a service learning project through the Texas State University Horticulture

Department's Woody Plants Materials class. During these annual updates new tree additions will be tagged and removals will be documented. The inventory allows the university to more efficiently maintain, monitor, and renew our urban forest. The inventory will also serve as an educational tool for researchers and students in many disciplines. This annual tree inventory update is a valuable as well as practical hands-on-approach for students wishing to be involved in future arboricultural practices. Texas Tree Trails were created and loaded directly onto the Texas Forest Service website. Another project under development is a web-based resource of photos of different species of trees on campus.

B. Tree Replacement

As trees are removed on campus, records will be maintained as noted in section 4.H, Tree Removal. In November of each year, trees will be planted on campus, essentially resulting in a zero net loss when it comes to tree removal and replacement. However, if fewer than 20 trees are removed in any one year, a minimum of 20 trees will be planted in that November.

C. Arbor Day Event

Texas State University will host an Arbor Day event every November in association with the tree replacement program. The campus community will be invited to help with the planting of the trees to replace those that were removed for various reasons throughout the year. A proper tree planting demonstration and explanation will be included at this event, as well as an explanation of what the Tree Campus USA designation is and which institutions are certified across the State of Texas. Tree related questions will be answered. Participants will be provided their choice of Texas State Arbor Day flashlight or Texas State Arbor Day water bottle.

D. Service Learning Programs

The Horticulture Program in the Agriculture Department will continue to work with students to identify other service learning programs involving trees. The Grounds Operations Department will also work with students to identify service learning programs involving trees – one such program under investigation is the establishment of a tree nursery to be located at the Agriculture and Biology Greenhouse property.

7. TREE DAMAGE ASSESSMENT, ENFORCEMENT, AND PENALTIES

In response to any major storm or catastrophic event, the Grounds Operations Department will assess tree damage across campus. Grounds Operations will remove all debris from fallen trees unless the damage is beyond their capabilities, then appropriate personnel will be contracted. Any tree posing a threat for

pedestrians and or property will be tended to first. Any appropriate salvageable materials will be saved, chipped, and used as mulch throughout campus.

The Grounds Operations Department will assess all tree damage first. After assessment, the Grounds Operations Department may hire a certified arborist for further assessment. Results of the assessment of damage will be dealt with accordingly, from simple pruning to removal of the entire tree(s). Removed trees will be updated on the tree inventory list.

Damage to trees as a result of vandalism will be handled by University Police Department. If the responsible individuals are not students, they will be subject to the State of Texas Judicial System. Students found guilty of vandalism to any tree(s) on campus will be subject to the actions described in the Texas State University Student Handbook, section 3.04 Interim Disciplinary Action.

8. PROHIBITED PRACTICES

A. Trees for Art Work

Campus trees may not be harmed or disfigured in any fashion to support art projects. Requests for approval of the use of campus trees for art projects in any manner must be submitted to the Grounds Operations Department via e-mail and must include a detailed description of the project. The decision of the Assistant Director of Grounds Operations to approve or not approve the project will be final.

B. Trees for Advertising

Campus trees may not be utilized in any manner for the purpose of advertising (e.g., flyers, banners, posters, etc.). Texas State maintains public bulletin boards and kiosks for the purpose of posting signs. Specific procedures are available in UPPS No 07.04.02, Posting/Distribution of Temporary Signs, Informational Booths and Banners on Campus. http://www.txstate.edu/effective/upps/upps-07-04-02.html Violations will be handled by the removal of the signs, notifying Student Justice or the University Police Department, and assessing costs for damage to the tree(s).

C. Bike Locking

Bicycles must be secured to bike racks and never locked or bound to any campus tree. Those that are secured to a tree are subject to removal by the University Police Department at the owner's cost.

D. Memorial Trees

Texas State no longer plants Memorial Trees.

9. COMMUNICATION STRATEGY

Once approved, the Campus Tree Care Plan will be posted to the web on the Grounds Operations web site. It will be available for anyone on campus to read.

Links to Texas State Construction Standards are provided in this Campus Tree Care Plan. Architects and contractors are provided access to the Texas State Construction Standards. This information is open for discussion during design, plan review and/or pre-construction meetings.

10. DEFINITIONS

Arboriculture – The science and art of caring for trees, shrubs, and other woody plants in landscape settings.

Canopy – The more or less continuous layer of foliage formed by the uppermost branches of a tree growing in a given area.

Critical Root Zone (CRZ) – Portion of the root system that is the minimum amount necessary to maintain vitality or stability of the tree. Encroachment or damage to the critical root zone will increase the risk of tree mortality.

Crown – The totality of the plant's aboveground parts, including stems, leaves, and reproductive structures.

Crown Raising – Method of pruning to provide clearance for pedestrians, vehicles, buildings, lines of sight, and vistas by removing lower branches.

Crown Reducing – Method of pruning used to reduce the height of a tree. Branches are cut back to laterals that are at least 33% (one-third) the diameter of the limb being removed.

Crown Thinning – Method of pruning to increase light penetration and air movement through the crown of a tree by selective removal of branches.

Integrated Pest Management (IPM) – System of controlling pests and their damaging effects through mechanical, chemical, biological, cultural, and regulatory techniques.

Nuisance trees – a tree that because of condition, size, fruit or seed drop, and root conflicts would be better removed

Tree Remediation – The action of reversing or stopping damage caused by the presence or growth of a tree.

Trunk – The main structural member of a tree that supports the branches and is supported by and directly attached to the roots.

Appendix A

Request for Immediate Removal

Date:

Insert Picture Here:

Tree Inventory # *(if available)*:

Location *(street & building)*:

Tree Name:

Size *(circle one)*: Sapling Early Growth Mature Beyond Maturity

Problem:

Date Tree Removed:

Cost to Remove:

Appendix A.1
Sample Removal Request

TREE WORK, Request for Immediate REMOVAL

Date: 9-03-10

If available

Tree Inventory #: 2953

Location: Admissions (street + buildings)

Tree Name: Cedar Elm

Size: Mature young mature

Problem: Decay in upper canopy, large limbs fell in consecutive nights, there was no canopy remaining.

OK **Replaced with, where, date scheduled: Will be replaced In November 2010**

Date Replacements planted:

Date Removed: 8-31-10

Cost to remove: In House

Appendix B

Tree Preservation Inspection Checklist

Project:_____

Inspection Maintenance Period:_____

Inspected by:_____ Date_____

Tree Preservation Zone Fencing Inspection:

- ☐ Inspect to ensure it remains intact
- ☐ Inspect for debris from inside fence area
- ☐ Identify fence encroachment / Signage in place

Irrigation general inspection:

Adequate Moisture Levels Yes☐ . No☐

Estimated Date For next Irrigation- _____

Tree Condition:

- ☐ Mulch density/thickness _____
- ☐ Weeds in mulch areas _____
- ☐ Soil moisture/Irrigation efficiency – consistency around root ball etc_____
- ☐ Stress/Vigor _____
- ☐ Leaf Observation: (color fungal etc.) _____
- ☐ Mechanical damage from equipment, etc. _____
- ☐ Dust Levels on Leaves_____
- ☐ Insects: scale, mites borers etc._____

Maintenance Recommendations as a Result of Construction Activity :

Treatments This Inspection Period: (Insert below)

Future Scheduled Maintenance: (Insert below)