

2025

UNIVERSITY PARK, TX TREE MANUAL



UNIVERSITY PARK
Texas

Prepared for:

City of University Park
3800 University Blvd
University Park, TX
75205

Prepared by:

Davey Resource
Group, Inc.
295 S. Water Street,
Suite 300
Kent, Ohio 44240
800-828-8312

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Introduction

University Park is considered a sanctuary within a larger metropolitan area partially because of the tree canopy. The tree-lined streets and large, specimen trees provide many environmental benefits and increase the community's quality of life. Sustaining the current canopy cover requires intent, planning, and follow-through because the urban forest is vulnerable to environmental and land use changes.

The intent and purpose of the Tree Manual is to help city staff, residents, and developers best manage public and private trees (the urban forest) through:

- Defining the regulations, policies.
- Providing supporting information on industry approved tree management practices to guide the care and management of trees throughout the community.
- Promoting the City's tree preservation goals.

The Tree Manual builds upon University Park's Municipal Code Articles relating to trees: Article 3.08 TREE PRESERVATION and ARTICLE 1.10 TREES, SHRUBS, WEEDS AND GRASS IN PUBLIC PLACES (presented in Appendix B). Published independently of the Municipal Code, the Manual is meant to be periodically updated by the City Urban Forester, as warranted to stay relevant by industry standards and City policies.

Definitions

ADJUSTED DBH: A tree's DBH multiplied by its condition rating expressed as a percentage.

ADMINISTRATIVE OFFICIAL: The city administrative official or their designee.

AIR EXCAVATION TOOL: Specialized pneumatic instruments that use compressed air to dig through materials precisely with minimal damage to tree roots.

ANSI STANDARDS: The A300 Standards are research-based guidelines useful in writing work specifications for the care and management tasks of trees, woody plants and palms.

APPRAISED VALUE, TREE: The value of a tree as assessed by an ISA Certified Arborist using the Trunk Formula Technique (TFT) as outlined in the *Guide for Plant Appraisal, current edition, Second Printing by the Council of Tree & Landscape Appraisers*.

APPROVED SPECIES LIST: List of trees approved for planting on public property (parkways and parks).

BEST MANAGEMENT PRACTICES (BMPs): International Society of Arboriculture's continually updated guidelines for tree care industry professionals with useful information tree care standards and practice

BUILDABLE AREA: That portion of a building site exclusive of the required yard areas on which a structure or building improvements may be erected and including the actual structure, driveway, parking lot, pool, deck, patio and other construction as shown on the site plan.

CALIPER: The diameter of a nursery tree or newly planted tree, as measured 12 inches above soil level.

CERTIFIED ARBORIST: An individual certified by the International Society of Arboriculture (ISA) as a certified arborist.

CONDITION RATING: The condition of a tree as assessed by an ISA Certified Arborist, expressed as a percentage, defined by three components: 1) health, 2) structure, and 3) form.

CRITICAL ROOT ZONE (CRZ): An area equal to a 1-foot radius from the base of the tree's trunk for each 1 inch of the tree's diameter at 4.5 feet above grade. Example: A tree with a DBH of 12 inches would have a CRZ with a radius of 12.5 feet or a diameter of 25 feet.

DBH (diameter at breast height): Tree diameter measured at 4.5 feet above soil level.

DESIGNATED TREE: A tree or tree trunk and root system that has a DBH of six inches (6") or greater located on the property to be developed or with a CRZ or dripline on the property to be developed, and that is listed in either section 3.08.006 or 3.08.009.

DRIPLINE: The imaginary line on the ground at the furthest edge of a tree's canopy.

GIRDLING ROOT: A root that grows in a circular or spiral pattern around the trunk or at or below the soil line, gradually strangling the trunk.

HERITAGE TREE: A tree otherwise qualifying as a Designated tree but with a DBH of 24" or greater and in fair or better condition and which requires a Tree Removal Permit for removal.

INTEGRATED PEST MANAGEMENT: Using pest and environmental information to determine if pest control actions are warranted. Pest control methods (e.g., biological control, habitat manipulation, cultural control, plant resistance, and chemical control) are chosen based on economic and safety considerations.

MAINTAIN OR MAINTENANCE: When used in reference to parkway trees and shrubs, shall mean and include pruning, trimming, root pruning, removal, spraying, watering, treating for disease, or any similar act which promotes the life, growth, health, or beauty of trees.

MITIGATION: The process of replacing or compensating for trees that are removed during permitted projects.

PUBLIC TREES: Trees, shrubs, bushes, and all other woody vegetation whose trunk is located wholly or partially on public property, including but not limited to boulevard strips, public building grounds, and public easements and rights-of-way.

PARK TREES: Trees, shrubs, bushes, and all other woody vegetation in public parks having individual names, and all areas owned by the City or to which the public has free access as a park.

PARKWAY TREES: Trees and all other woody vegetation which have been or will be planted in a public right-of-way, between the curb and the property line.

PRIVATE TREES: Trees, shrubs, bushes, and all other woody vegetation whose trunk is located wholly or partially on private property, including but not limited to yards, common grounds, side lots, parking lots and green spaces owned by private citizens, businesses, or HOAs located or operating within the City of University Park.

PROTECTED TREE: Either a Designated tree or Heritage tree as defined here that is protected by this article, which requires permission from the permitting agency to remove, damage, prune, or otherwise impact

REPLACEMENT INCHES: The number of Adjusted DBH inches removed from a property and divided by half, expressed as the number of caliper inches of new trees to be planted during mitigation.

TRAQ RISK RATING: A tree risk assessment rating assigned by an ISA Certified Arborist with TRAQ certification using ISA's Best Management Practices for Tree Risk Assessment.

TREE: A large, perennial, woody plant that compartmentalizes wounds, supports branches and leaves, generally has a single, main trunk, and is long lived. Below ground, the tree has a root system that acts as an anchor, absorbs water and nutrients, stores food, and performs respiration.

TREE CANOPY: The upper layer of the aboveground portion of a tree or group of trees, composed of its branches and leaves.

TREE PRESERVATION: The process of protecting trees and other vegetation, including the soil in which the roots are growing, from damage related to development and construction activity as well as planning for their long-term health and stability, in accordance with ISA BMPs for Managing Tree During Site Development and Construction

TREE PRESERVATION PLAN: A tree survey, analysis and guidelines for preservation and reforestation of a property to be developed. Tree protection during construction.

TREE PROTECTION ZONE (TPZ): The area physically blocked off to be untouched by construction activities, as defined by the arborist in the Tree Preservation Plan. The TPZ may change depending on individual tree characteristics (e.g., species, age, and condition of the tree) or proposed construction activities.

TREE REMOVAL: The process of cutting down and removing a tree from its current location.

TREE REMOVAL PERMIT: A permit required to remove a Heritage tree to be issued if an ISA Certified Arborist deems the tree to be hazardous, high risk, dying, or if preservation of the tree presents an undue hardship to the development.

URBAN FORESTER: City employee responsible for public trees, the city urban forester shall be the Director of Parks and Recreation or their designee. This person is tasked to study, investigate, counsel and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal, and special matters brought up by advisory bodies.

URBAN FOREST TREE FUND: A fund maintained by the city for the planting and maintenance of trees in public spaces, parks and rights-of-way.

WEED: Plants that are considered by the general populace to be noxious and are usually not cultivated for landscaping purposes.

Standards and Specifications

Tree Planting and Establishment Care

Tree planting is an important step in sustaining the current level of tree canopy cover throughout the community as well as the resulting environmental benefits. To ensure quality trees are being planted, all newly installed public trees must meet the American Standard for Nursery Stock. The trees must be free from disease, insects, and any other disfigurements.

The City of University Park sponsors two programs to support tree planting and reforestation across the community.

- **Memorial Tree Program**

Community members can sponsor tree plantings in recognition of special occasions or individuals, while providing shade and beauty to all park visitors. In this program, the participant works with the City to determine the type of tree and planting location and the City provides tree planting and continual maintenance services.

- **Trees for University Park Program**

Community members can participate in tree planting in the parkway adjacent to private property or plant trees on private property to promote reforestation and keep the city aesthetically pleasing for future generations. In this program, the participant works with the City to determine the type of tree and planting location and the adjacent property owner provides tree planting and continual maintenance services.

Species Selection

The practice of installing the optimal species for a particular planting site is known as “Right Tree Right Place.” This planning philosophy considers the effects of trees as they grow on existing and planned landscapes, utilities, and other infrastructure. There are three factors to consider:

- Site conditions (e.g. well size, existing infrastructure, exposure, soil type, climate)
- Soil volume
- Species selection (e.g. size at maturity, growth habit)

Refer to Appendix 3: Tree Species Lists includes University Park’s current Approved and Non-Approved Tree Lists.

Once the tree species is selected, choose a healthy tree. Not all nursery trees are healthy, well-structured trees. It is important to assess the tree structure and root strength and try to correct problems when possible. Trees should have:

- Healthy appearance (i.e., no damage or diseases)
- No girdling roots
- Good structure
- Uniform and full canopy
- Have wide branch attachments (preferably >45°)

Preventing Tree-Infrastructure Conflict

Trees can cause damage to both overhead and underground utilities and paved surfaces such as sidewalks and patios. This damage can usually be avoided by proper species selection and placement. Always consider the mature size of a tree before planting and assess whether or not the available growing space can accommodate it.

- For avoiding conflicts with nearby overhead utility, select smaller species. Determine the mature height and width and plant the tree far enough from any utilities so that it will not encroach upon them. For example a bald cypress whose branches may extend 20 feet from the trunk should be centered a minimum of 25 feet from overhead utilities. A redbud that is likely to reach a mature height of 20-30 feet may be planted much closer.
- Never plant trees directly over underground utilities. Before digging, please call 1-800-DIG-TESS to identify the location of any underground utilities. A tree's root system will typically grow at least as wide as its crown spread, so you can use the tree's mature spread to determine how far to plant it from the utilities. For example a live oak can be expected to spread more than 80' and should therefore not be planted that close to utilities.
- Some trees' root systems can be more destructive than others. Red maples, sycamores, pears, sweetgum, and some oak species can be very damaging when planted too close to underground utilities or pavement. If you are planting close to buried utilities or hardscapes select a species with a less invasive root system.

Installing root barriers next to sidewalks and other paved areas has not proven to be effective in the long term for mitigation of tree root conflicts with pavement. Proper species selection is the most effective solution. However, other methods such as installation of structural soil, silva cells, or use of flexible pavement when possible, can also be effective and allow for a wider range of species to be selected from.

Tree Planting Near Recent Construction

When possible, it is ideal to develop landscape plans prior to construction and protect designated areas to be used for future tree plantings. Construction activities involving heavy equipment often cause soil compaction and degradation by stripping away fertile topsoil layers, removing pore space, reducing drainage, and bringing infertile lower soil strata to the surface. As a result, trees planted by new or recently renovated homes often fail to establish root systems. The situation is often aggravated by the installation of sod, which is then heavily irrigated and fertilized, creating a waterlogged and overly fertile environment that is not susceptible to tree root development.

Special care should be taken when selecting and planting trees near newly developed properties. Proper assessment of soil conditions can save wasted time and money. Consider the following measures:

- Get a soil test to determine nutrient profile
- Assess the soil composition (structure and texture)
 - Is the soil rocky, sandy, loamy, etc.?
- Assess compaction
 - Dig a hole one foot wide and deep
 - Fill it with water
 - Time how long it takes to drain
 - 0-15 minutes = ideal drainage
 - 15-60 minutes = do not plant trees that need well-drained soils
 - 1 inch per hour is the minimum requirement for most tree species
 - 6 hours of more = plant only species that are native to the area and adapted to wet environments

Improving soil conditions over large areas is often impractical; a moderate size shade tree's root zone may encompass over 1,000 square feet. Improving small planting site conditions may help early establishment but cause issues when a tree's roots begin to expand into the degraded soils beyond. It is typically more practical and to select species adapted to the soil conditions present and provide proper early maintenance and establishment practices, or relocate plantings to areas with better soil conditions.

If you do wish to improve soil conditions, there are a number of techniques that can be used to alleviate soil damage and compaction. Some techniques can provide fast and effective solutions, but can also be costly and require specialized equipment. These include:

- Compost can be tilled into the upper soil strata if live tree roots are not present.
- An air excavation tool can be used to loosen the soil and top dress with compost if tree roots are present. Air tools can be safely used around tree roots but require specialized training to operate; this technique should be performed by an ISA Certified Arborist.

Simply applying a layer of high quality organic mulch will improve soil conditions over several years. In most cases planting tree species that are tolerant of compaction and following a good long-term soil improvement schedule including mulching, composting, watering, and avoidance of excessive fertilization and chemical treatment is the most practical and cost effective solution.

Tree Installation

Planting is seasonal and ideally occurs between September and March. Whether trees are planted by the City or partners, including private property owners, the process is clearly defined; see the specifications below. Before digging, please call 1-800-DIG-TESS to identify the location of any underground utilities.

Specifications

- Dig a hole twice as wide as and slightly shallower than the root ball. Roughen the sides and bottom of the hole with a pick or shovel so that roots can penetrate the soil.
- With a potted tree, gently remove the tree from the container. Lay the tree on its side with the container end near the planting hole. Hit the bottom and sides of the container until the root ball is loosened. If roots are growing in a circular pattern around the root ball, slice through the roots on a couple of sides of the root ball.
- With trees wrapped in burlap, remove the string or wire that holds the burlap to the root crown. It is unnecessary to completely remove the burlap. Plastic wraps must be completely removed. Gently separate circling roots on the root ball. Shorten exceptionally long roots, and guide the shortened roots downward and outward. Root tips die quickly when exposed to light and air, so don't waste time.
- Place the root ball in the hole. Leave the top of the root ball (where the roots end and the trunk begins) 1/2 inch to 1 inch above the surrounding soil, making sure not to cover it unless roots are exposed.
- For bare root plants, make a mound of soil in the middle of the hole and spread plant roots out evenly over the mound. Do not set trees too deep. As you add soil to fill in around the tree, lightly tamp the soil to collapse air pockets, or add water to help settle the soil. Form a temporary water basin around the base of the tree to encourage water penetration, and water thoroughly after planting. A tree with a dry root ball cannot absorb water; if the root ball is extremely dry, allow water to trickle into the soil by placing the hose at the trunk of the tree.
- Mulch around the tree. A 3-foot-diameter circle of mulch 2-4" deep is common. Do not let any mulch touch the trunk of the tree.
- Depending on the size of the tree and the site conditions, staking may be beneficial. Staking supports the tree until the roots are well established to properly anchor it. Staking should allow for some movement of the tree. After trees are established, remove all support wires. If these are not removed they can girdle the tree, cutting into the trunk and eventually killing the tree. Stakes and supports should be inspected often and moved if necessary to prevent damage and should never remain for more than 2 years.

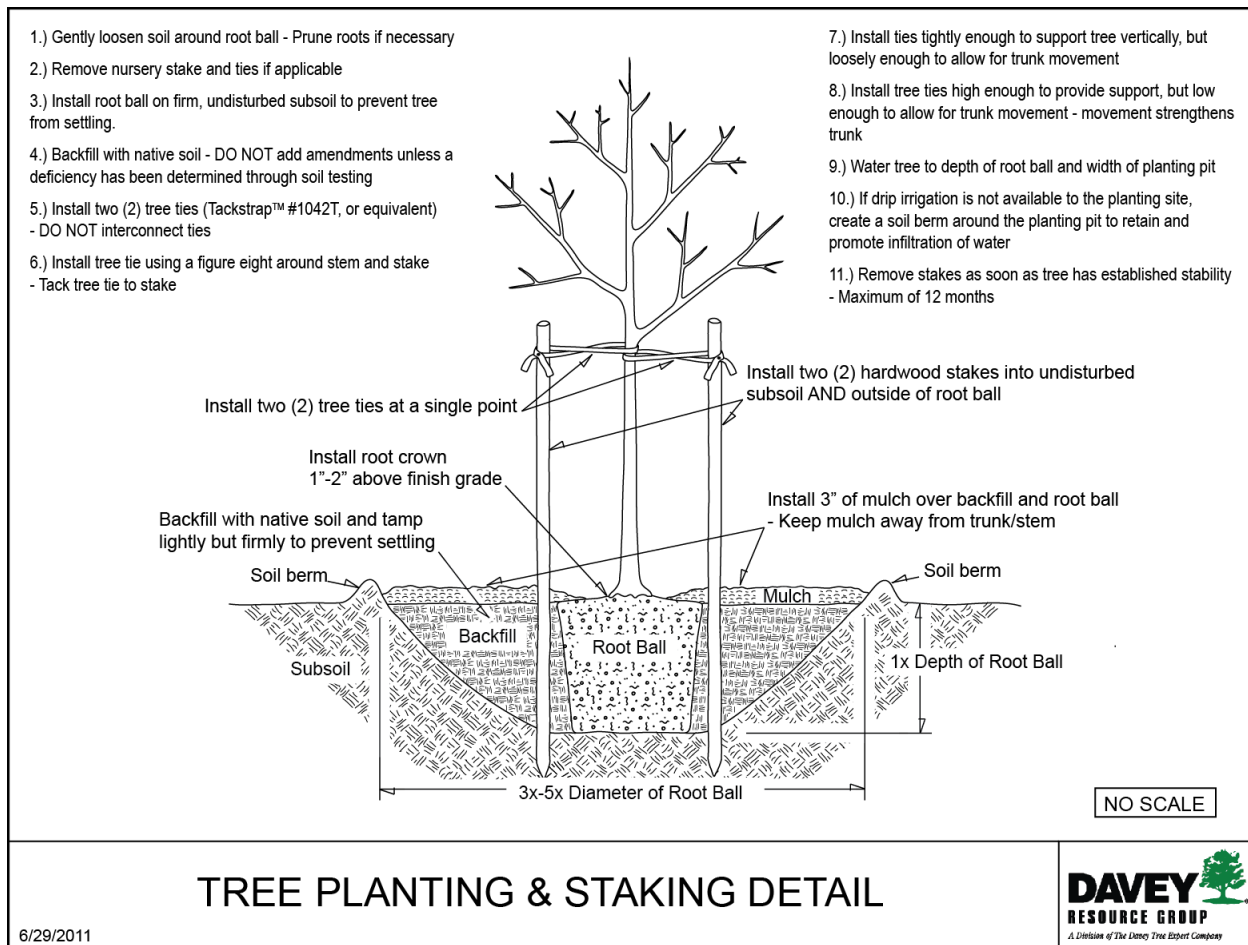


Figure 1: Tree Planting Detail

Early Tree Care

Watering Young Trees

The long-term survival and successful establishment of newly planted street trees requires a commitment to consistent and careful watering over the first several years. Newly planted trees should be prescribed a watering program. During the first year, trees should be visited weekly or bi-weekly. A probe should be used to monitor soil moisture below the surface between waterings. If needed, the tree should receive approximately 10-20 gallons of water one to three times weekly. Deep watering near the tree's drip line (edge of the canopy) is beneficial to maximize available water. Here, fine absorbing roots can access the water. Applying water slowly and steadily allows the water to be absorbed deeply into the soil and reduces the chance of runoff. Watering should occur every other week in the second year. For the third year, trees will be monitored and watered as needed, based on local weather patterns and precipitation.

Young Tree Training

Young tree structural pruning, also known as training pruning, is an important technique employed to ensure the long-term viability of a tree, particularly for large-stature species. The goal is to encourage the development of ideal tree structure (i.e., branch architecture) in young trees through selectively applied pruning techniques. Structural pruning is not a one-time effort. As trees continue to grow, structural pruning should be a primary objective each time a tree is pruned. Therefore, trees should be pruned once they are established, approximately two years after planting, and then pruned on a three-year cycle.

Young tree training pruning can be used to achieve any of the following goals:

- Develop structure
- Minimize injury to the tree
- Lower maintenance costs
- Reduce risk
- Manage size or shape
- Improve aesthetics

All pruning of public trees is to be conducted according to the most current American National Standards Institute (ANSI) A300 and Z133 standards.

Specifications

To structurally prune a young tree:

- Identify the stem that will make the best dominant leader. Although there may be several options, the selected leader should be centered, upright, and free of damage or other defects that could compromise its strength. The leader's identification steers the following pruning decisions, as branches and stems in competition should be removed or subordinated. Competition includes stems similar in height, and stems and branches that are larger than half the diameter of the trunk.
- Visualize which branches will become permanent branches and plan the systematic removal of temporary branches to allow for clearance and provide appropriate branch spacing. The ideal spacing between branches on young trees is 4–6 inches. Branches that are clustered together and growing from the same point on the trunk, or crossing, should be removed as well. Temporary branches may be retained along the trunk of young trees to encourage trunk strength and protect trees from vandalism and sun scald. They should be pruned annually to slow their growth and should be removed once they reach about 2 inches in diameter.
- Trees should be pruned of all dead, diseased, and dying branches in addition to their structural pruning. Suckers and stump sprouts should be removed. Branches that have poor branch angles, including branches with included bark, should be subordinated or removed.

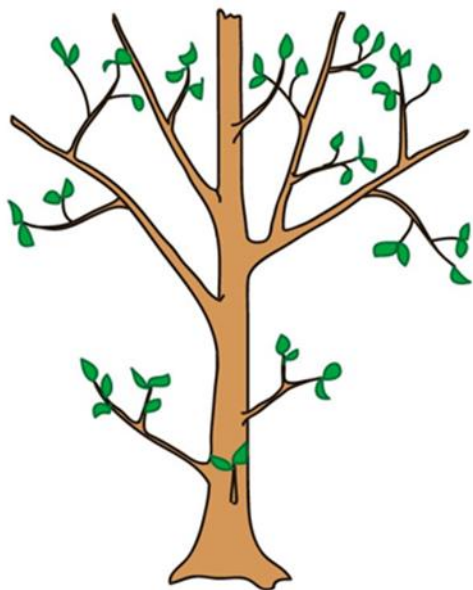
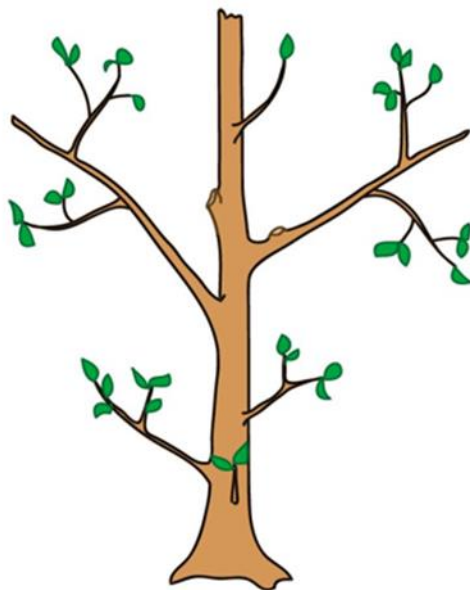


Figure 2: Structural Pruning



Tree Inventory Data Management

The tree inventory houses data on public trees including tree location, species, size, condition, and management needs. Keeping the public tree inventory data precise and current is key to the successful management of the tree resource. Inventories are essential for:

- Locating current and potential planting sites
- Tracking maintenance history
- Identifying and organizing maintenance tasks throughout the community (e.g., tree inspections and pruning)
- Assigning and completing tasks efficiently
- Analyzing inventory metrics over time, including individual tree and population metrics for ecological value, growth, history, changes in condition, age distribution, and species diversity

Tree Maintenance

This section outlines standards of practice that ensure the implementation of appropriate tree care methods and adherence to industry standards and best management practices in the field of arboriculture. Management standards are included for pruning, watering, and pest and disease management.

In accordance with Municipal Code ARTICLE 1.10 TREES, SHRUBS, WEEDS AND GRASS IN PUBLIC PLACES § 1.10.003 *Responsibility of abutting property owner or occupant* and § 1.10.037 *Planting, maintenance or removal by city*, the City and adjacent property owners have responsibilities in the management of public trees (see Appendix B) The City maintains trees in parks and at city facilities whereas private property owners care for parkway trees and trees in the alley adjacent to their property.

Tree Pruning Guidelines

All public tree pruning shall adhere to ANSI A300 Part 1: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning) as disturbed by the American National Standards Institute.

Pruning means the removal of leaves or dead parts of plants, especially branches. It is necessary to identify and clearly establish the pruning objective(s) to inform the appropriate approach to pruning. Pruning should occur on a regular cycle to achieve any of the following goals:

- Manage risk
- Manage health
- Develop structure
- Provide clearance
- Manage size or shape
- Improve aesthetics
- Manage production of fruit, flowers, or other products
- Manage wildlife habitat

Routine Pruning

By adhering to the outlined best management practices, University Park can effectively manage tree health, develop/improve structure, mitigate risk, provide clearance, and improve aesthetics.

Proper Tools and Equipment

- All pruning tools must be kept adequately sharp and in good working condition to insure smooth cuts.
- All tools used on disease-infested trees shall be thoroughly cleaned and disinfected before being used on any other plant material. Tools shall also be disinfected between

pruning infected and unaffected areas in the same tree. Disinfecting can be accomplished by wiping the tools with isopropyl alcohol or 10% bleach to water solution.

- Use appropriate tools for the job to reduce wounding, tearing, stubs, and improper cuts. For example, a handsaw can easily be used to remove a 3-inch limb that will result in a clean, precise cut, versus a chainsaw that is harder to control and may result in a messier cut with bark tearing.
- When removing limbs, pruning should be done in a way to prevent damage to infrastructure, property, persons, or the tree itself. This may require the use of ropes, lines, or other supports.
- Pruning wound paint or sealant should not be used with the exception of oaks in the season when they are vulnerable to oak wilt.

Pruning Specifications

- All tree work is to be performed by an International Society of Arboriculture (ISA) Certified Arborist, Municipal Specialist, Board Certified Master Arborist, or Tree Care Industry Council (TCIA) Accredited Certified Tree Care Specialist.
- A natural pruning system is encouraged, where live branches are removed to maintain the natural form and appearance of the tree.
 - Trees should be pruned to remove all hangers and dead, diseased, broken, and crossing branches that are 2 inches in diameter or larger.
 - Trees shall be pruned to provide clear, unobstructed views of street signs, traffic signs and traffic signals. When street tree limbs are overhanging structures or in conflict with private trees, trees shall be pruned to provide clearance.
 - When raising lower branches for clearance, care should be given to maintain symmetry. Cuts shall not be made that are so large that they prevent normal sap flow. Prune enough to maintain several years of clearance; before smaller secondary and tertiary limbs will be below the required clearance height. The minimum clearance of any overhanging portion of a tree in the parkway or right-of-way must be:
 - 8 feet over sidewalks.
 - 14 feet over the curbline.
- Pruning activities should remove only as much living material as necessary to achieve the tree pruning objectives outlined in these specifications.
 - No more than 20% of the living branches shall be removed within one year from healthy trees—less for aging, stressed, or declining trees.
 - Limbs and branches larger than 4 inches in diameter shall be lowered to the ground using ropes or other mechanical devices.

- To manage infestation or infection, avoid pruning when wood boring insects are flying because they are attracted to fresh pruning cuts. Do not prune oak trees February to July, instead prune in the late fall unless it is an emergency situation.
- All wood pruned/removed from the tree(s) shall be cleaned up and chipped or hauled off the City's right-of-way daily. Each jobsite shall be left in "better than arrival" condition.

Pruning Cuts

All Pruning shall be performed by using the "Three Cut Method". This method is the removal of a limb using a 3-cut process to protect the branch collar. The first two cuts remove the weight of the branch. This prevents the bark from ripped away from the trunk at and below the branch collar.

- **Cut 1** is an undercut about 1/4 through the branch made upward from the bottom of the branch about one or two inches farther out than the collar to prevent tearing.
- **Cut 2** is a downward cut 6 to 12 inches outside the undercut that actually removes the entire branch, eliminating the weight of the branch before making the final natural target cut.
- **Cut 3** is the target cut. The remaining portion of stub is removed with a cut made just outside of the branch collar tissue. This placement allows the branch collar to eventually compartmentalize the wound.

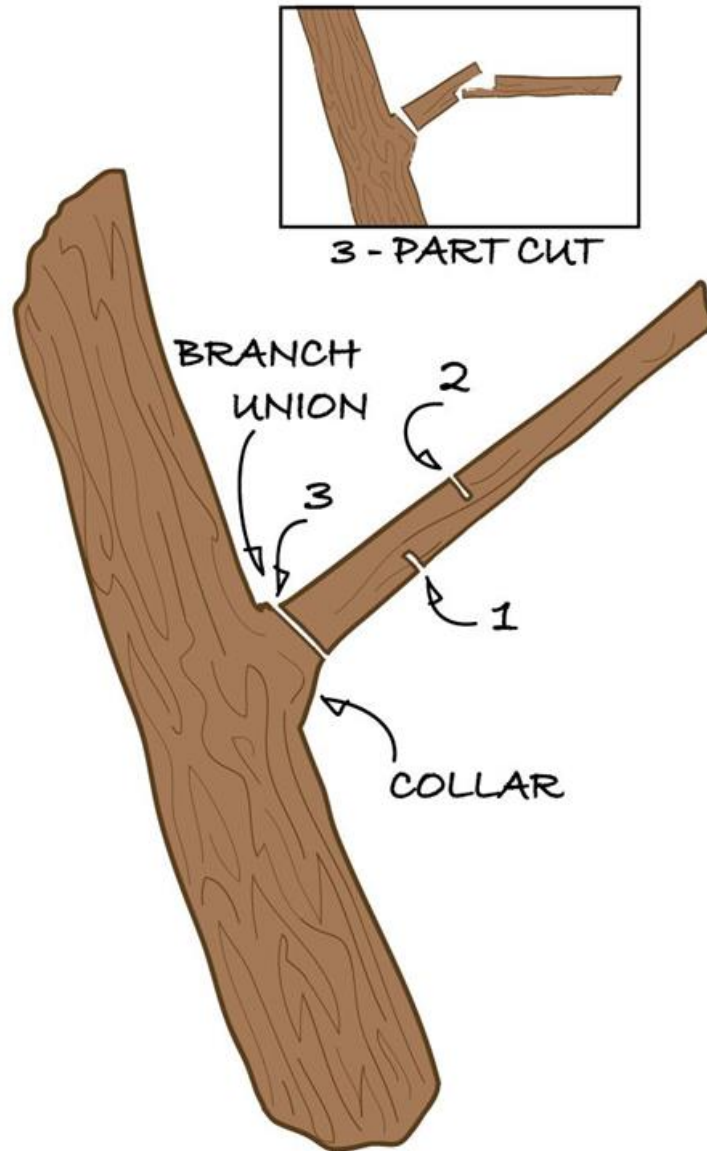


Figure 3: 3 Step Cut

Additional considerations are listed below.

- All branches must be trimmed back to the trunk or scaffold branch or to a leader at least one-third of the size of the branch being cut.
- “Natural” or “drop-crotch” technique shall be used when removing or shortening branches.
- Remove old stubs, leaving the branch collar intact.
- All necessary precautions should be taken to prevent unnecessary damage to the remaining tree.
 - To allow for proper wound closure to occur, all cuts shall be made sufficiently close to the trunk or parent limb without cutting into the branch bark ridge or branch collar or leaving a protruding stub. Clean cuts shall be made at all times.

- Branches shall be pre-cut when necessary to prevent splitting or peeling of the bark.
- To avoid unnecessarily large cuts, do not remove limbs that are greater than one-third ($1/3$) of the diameter of the trunk, unless directed by the City.

Prohibited Pruning Activities

- Absolutely NO TOPPING or heading will be permitted.
- Flush cuts, those made “flush” with the parent stem, removes chemical barriers that counter decay and is not an accepted practice.
- Excessive pruning, lion’s tailing, and rounding-over are also prohibited.
- No spurs, climbing irons, or spike shoes shall be permitted for use on trees, unless the tree is to be removed.

Root Pruning

Root pruning is the practice of selectively severing roots. It may be used during the following situations:

- Transplanting
- Tree preservation during construction
- Disease management (e.g., oak wilt)

Although this practice may be warranted, it may result in a significant reduction in stability and long-term health when roots are cut within the Critical Root Zone (CRZ). Limiting root pruning operations to a distance at least six times the DBH away from the trunk will minimize consequences to both tree health and stability. Any root pruning should be done by certified arborists, following root pruning best management practices.

Prohibited Activities

Prohibited activities within the dripline of designated trees during construction are included in Municipal Code ARTICLE 3.08 TREE PRESERVATION, section § 3.08.007 *Tree protection during construction* (see Appendix B). Prohibited activities include:

- **Materials storage.** No materials intended for use in construction or waste materials accumulated due to excavation or demolition shall be placed within the dripline or CRZ of any designated tree.
- **Equipment cleaning and disposal of liquids.** No equipment may be cleaned or other liquids deposited within the limits of the drip line or CRZ of a designated tree. This includes but is not limited to paint, oil, solvents, asphalt, concrete, mortar or other materials.
- **Attachments to trees.** No signs, wires or other attachments, other than those of a protective nature, shall be attached to any tree.

- **Vehicular or equipment traffic.** No vehicular and construction equipment traffic or parking is allowed within the dripline or CRZ of a designated tree.
- **Soil and root disturbances.** No excavation of trenches, activities that contribute to soil compaction, or severing of tree roots other than root pruning by an ISA Certified Arborist using a sharp saw or pruners shall be permitted unless done as outlined in an approved TPP.

Watering

Established trees require watering, especially during times of drought. The amount of water needed and frequency of application varies throughout the year and by soil type. Mature trees benefit from deep, supplemental water at one-week to two-month intervals. Slowly soak the area throughout the root zone, at least to the dripline, for several hours to reach the roots 12-18 inches below the surface. To deliver water directly to the root zone and minimize water runoff and evaporation, soaker hoses or drip emitters are preferred. Mulch should be used to retain soil moisture and regulate soil temperature.

Pest and Disease Control

The Parks and Recreation Department follows Integrated Pest Management Policy and Procedures with the management of pests and diseases. Following Integrated Pest Management (IPM) protocol and best management practices when preparing for and addressing pests and diseases can help to minimize their economic, health, and environmental consequences. Some management practices include:

- Obtain current information on emergent pests and pathogens.
- Increase understanding of the biology of the pest and pathogen as well as the tree symptoms that indicate infestation/infection.
- Identify procedures and protocols that will be followed in the case of an introduced pest or pathogen.
- Complete training and licensing in the case of pesticide or fungicide use.
- Plant tree species that are resistant or tolerant to identified pest and pathogen threats.
- Choose healthy, vigorous nursery stock.
- Diversify plantings at the genus level, as many pests threaten several species within a genus.
- Prevent the long-distance movement of felled tree materials that may be harboring pests or pathogens such as untreated logs, firewood, and woodchips.

Stressors such as weather-related events (e.g., storms, floods, droughts, and heat waves) and poor site conditions (e.g., compacted soils, small planter spaces) are known to predispose trees to pests and pathogens. Providing quality tree care can reduce the risk of pests and pathogens.

Oak Wilt

Perhaps the most threatening disease to University Park's trees is oak wilt, caused by the fungus *Bretziella fagacearum* (formerly *Ceratocystis fagacearum*). Once a red oak becomes infected with the oak wilt fungus, the tree will die regardless of treatment; white oaks can also be affected but are more resistant and less vulnerable to mortality from the disease. To mitigate oak wilt, the following measures can be taken:

- **Prevention:** Avoid transporting firewood or wood from infected oak trees to limit the movement of the disease. Oak wilt can spread through root grafts between neighboring trees. To prevent root graft transmission, maintain a minimum distance of 50–100 feet between healthy oaks and infected trees or stumps. Avoid pruning or damaging oaks February to July, to minimize the risk of infection through open wounds. If pruning is necessary, it should be done during the dormant season when the disease-causing beetles are not active. Prune oaks in the late fall to reduce the chances of oak wilt infection. If pruning is required at other times of the year, use latex pruning paint to close wounds to infection.
- **Fungicide treatment:** Once an oak wilt infection is confirmed, treatments are available to save surrounding oaks and stop the spread of this disease. Fungicide injections can be used as a preventive measure in high-value oak trees or to manage oak wilt in the early stages. Consult with an ISA Certified Arborist or tree care professional for appropriate fungicide treatment options and timing.
- **Sanitation:** Make sure pruning tools have been thoroughly sanitized before using them on the tree. Infected trees should be removed and destroyed promptly to prevent the spread. Properly dispose of the infected wood by chipping, burying, or burning it to eliminate the fungus.
- **Public awareness and reporting:** Raise awareness about oak wilt and the importance of early detection and reporting to help prevent future spread.

Tree Protection During Construction

This section provides best management practices for tree preservation during all stages of construction: planning, design, and implementation. It explains the steps that can be taken to lessen the impact on trees being preserved so both tree retention and the desired land use can be achieved.

Given that University Park is fully built out and the right-of-way is already allocated, one of the most efficient ways to preserve tree canopy and the charming community feel is by preserving large, mature trees during infill development.

Tree Preservation Plan

A tree preservation plan is a written plan outlining tree protection requirements for specified trees during the construction project. The Plan must be adhered to during all phases of the project. A certified arborist should be involved in every stage of construction, starting in the planning and design phase. Not all trees can or should be preserved and a certified arborist can help determine which trees to preserve and how to protect them.

A Certified Arborist should evaluate the health and structure of any potentially impacted trees, including trees on the property and adjacent properties, to determine their suitability for preservation. The tree evaluation should document:

- Unique identification number keyed to map or site plan
- Species
- DBH (diameter at breast height)
- CRZ (critical root zone)
- Condition Rating (expressed as a percentage)
- Adjusted DBH (DBH x Condition Rating)
- Appraised value (using the Trunk Formula Technique (TFT) as outlined in the Guide for Plant Appraisal, current edition, Second Printing by the Council of Tree & Landscape Appraisers) - might apply only to Heritage Trees
- Risk Rating (if applicable)
- Remove or Preserve
 - If removed, justification for removal
 - If preserved, describe any special preservation measures being taken
 - Removal may be contested during the inspection process
- Heritage trees shall be noted as such

Trees that should be preserved meet the protected tree requirements set forth by University Park and are:

- Structurally stable
- In good or better condition

- Feasibly incorporated into the intended land use

The Tree Preservation Plan should reflect University Park's standards, guidelines, and/or regulations for construction. Once the Tree Preservation Plan is in place, anyone involved in the project must be aware of the plan and understand how to successfully follow it to support the intended tree preservation efforts.

The Tree Preservation Plan should:

- Include a sitemap with the location of the tree, construction area, critical root zone, and tree protection zone.
- Outline acceptable and unacceptable actions that can occur within the tree protection zone.
- Outline tree monitoring procedures so that tree health and condition is tracked and issues are addressed when possible during the development and construction.
 - Monitoring should occur during the following activities: demolition, grading, excavation, construction, trenching or boring, and landscaping.
 - a. TPZ fencing installed according to TPP
 - b. Tree preservation measures performed prior to construction
 - c. TPZs inspected at pre-demolition/construction inspection
 - d. City officials may inspect the project site during work
 - e. Final post construction inspection determines full compliance
 - f. Mitigation plantings after work is completed unless exception is granted

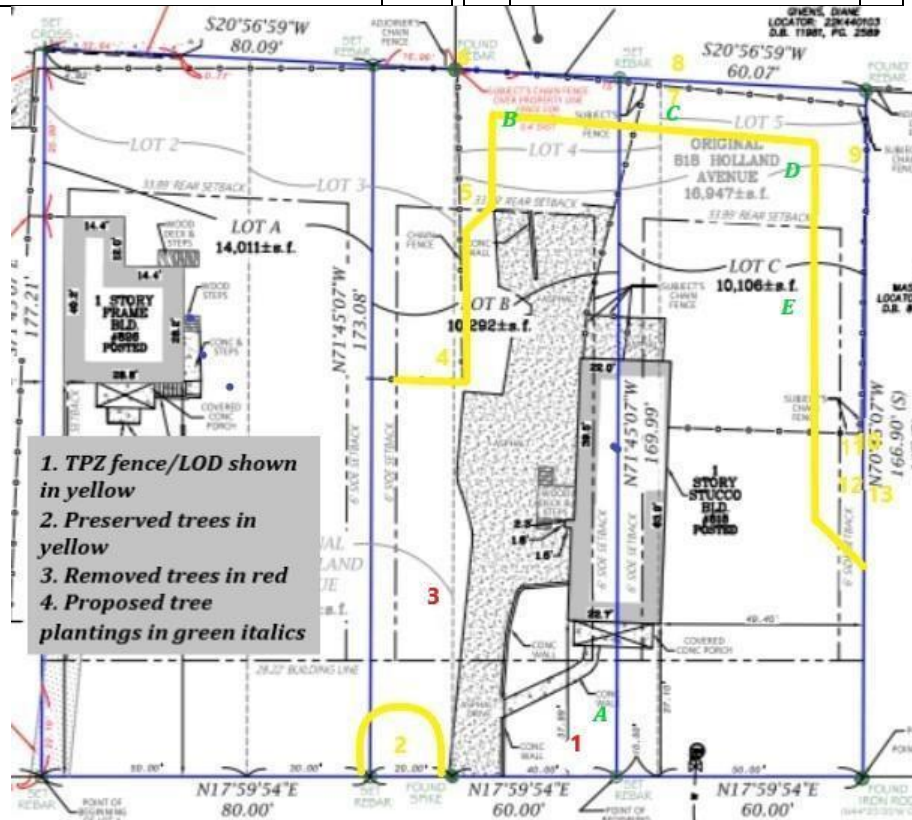
Figure 4: Sample TPP

EXAMPLE

Existing Tree Chart

Tree #	Species	DBH	CRZ (diameter)	Condition	Adj. DBH	Heritage Tree?	Removal	Notes
1	<i>Ulmus crassifolia</i>	24	48'	0.25	6	NO	Yes	Topped, decay in crown, high risk
2	<i>Quercus rubra</i>	28	56'	0.70	19.6	YES	No	Deadwood and crown clean; 10' from asphalt drive
3	<i>Carya illinoensis</i>	18	56'	0.70	12.6	NO	Yes	9' from New foundation, cannot be preserved
4	<i>Juniperus virginiana</i>	14	28'	0.75	10.5	NO	No	16' from prop. Foundation; 9' from asphalt
5	<i>Acer saccharum</i>	35	70'	0.50	17.5	NO	No	Growing into fence
6	<i>Fraxinus spp.</i>	22	44'	0.40	8.8	NO	No	Neighbor tree, growing into fence, 25% deadwood; TREAT OR REMOVE
7	<i>Quercus rubra</i>	20	40'	0.50	10	NO	No	Deadwood
8	<i>Quercus rubra</i>	18	36'	0.50	9	NO	No	Deadwood, neighbor tree
9	<i>Quercus rubra</i>	24	48'	0.60	14.4	NO	No	On fence
10	<i>Quercus rubra</i>	18	36'	0.50	9	NO	No	Borderline; grown into tree 11
11	<i>Fraxinus spp.</i>	18	36'	0.40	7.2	NO	No	TREAT OR REMOVE due to emerald ash borer
12	<i>Fraxinus spp.</i>	12	24'	0.40	4.8	NO	No	TREAT OR REMOVE due to emerald ash borer
13	<i>Unknown tree</i>	9	18'	0.00	0	NO	Yes	DEAD - On fence line, hanging into yard, high risk

Mitigation Calculations		Mitigation Planting - Tree ID, species and caliper		
Total Adjusted Caliper Inches on Property	129.4	A	<i>Quercus rubra</i>	2
Total Adjusted Caliper Inches to be Removed	39.4	B	<i>Cercis canadensis</i>	2
Total Caliper Inches for Replacement (1/2 adjusted diameter)	19.7	C	<i>Cornus florida</i>	2
Total Proposed Replacement Inches (see chart below)	10	D	<i>Cornus florida</i>	2
Remaining Fee $(19.70 - 10 = 9.70) \times \150	\$1,455	E	<i>Quercus rubra</i>	2



Construction Guidelines

The following practices can help to mitigate or eliminate damage to all trees being preserved:

- The tree protection zone should be fully enclosed with tree fencing to prevent any disturbance within the protected area.
 - All activities should occur outside of the tree protection zone unless otherwise indicated (e.g., improvements within the critical root zone).
 - Very few activities should be allowed within the tree protection zone, and can include:
 - Spreading mulch to prevent soil compaction and moisture loss.

- Installing root buffers or retaining pavement in areas cannot be fenced.
 - Plant health care practices such as irrigation, aeration, soil amendments, or other beneficial practices that have been specifically approved as maintenance activities.
 - Provide adequate, but not excessive amounts of water.
- A notice of tree protection area should be attached to any tree protection zone fencing to indicate regulations.
- Preventive measures to reduce soil compaction (restricting access, mulching, laying down plywood sheets or anti-compaction mats) and erosion (mulching, silt fences and silt socks, etc.) should be installed where needed.
- Routes and parking for construction machinery should be identified in the Tree Preservation Plan and followed.
- Areas for material storage, chemical mixing or dumping should be indicated in the Tree Preservation Plan and followed.
- Tree maintenance needs during construction should be indicated in the Tree Preservation Plan and the tree should receive maintenance and protection verification throughout the project.
- The amount of root damage/severing outside of the Tree Protection Zone should be limited and alternative techniques (i.e., tunneling) should be used whenever possible.
- If areas of the tree are wounded during the construction process, use proper pruning techniques to prune damaged branches, pull away damaged bark but do not apply dressings or further cut into the tree.

[Example Detail Sheet for Tree Protection](#)

Improvements within the Critical Root Zone

Design constraints often dictate that designated trees slated for preservation have some encroachment on their critical root zone. The following are the minimum design criteria allowed within the critical root zone of a designated tree. Development exceeding the criteria would put the designated tree at risk, and therefore it will no longer be considered a preserved designated tree. In such a case, replacement trees shall also be required.

- Grade changes. In the event that grade changes must be made around a designated tree or group of designated trees, the following shall be implemented in order to maintain oxygen and water exchange within the designated tree's critical root zone:
 - A minimum of seventy-five percent (75%) of the critical root zone must be preserved at natural grade with natural ground cover or landscaping for the tree to be considered a preserved designated tree.
 - No cut or fill greater than two inches (2") shall be located closer to the tree trunk than one-half (1/2) of the radius of the critical root zone radius distance.

- Decrease grade: Provide retaining walls outside the drip line to mitigate cuts.

Post-Construction Monitoring

Many trees become stressed during the construction process and may receive little care throughout the project. As a result, trees may slowly decline in the years following the construction project. Trees should be monitored and maintained regularly using Plant Health Care practices.

If soil compaction occurred during the construction project, the following techniques can help mitigate the problem:

- Vertical mulching
- Air excavation
- Radial trenching

Your trees may require several years to adjust to the injury and environmental changes that occur during construction. Stressed trees are more prone to health problems, such as disease and insect infestations. Talk to your arborist about continued monitoring and maintenance for your trees. Despite the best intentions and most stringent tree preservation measures, injury to your trees may still occur. Your arborist can suggest remedial treatments to help reduce stress and improve the growing conditions around your trees.

Tree Removal and Debris Management

Tree Removal Policies

Removal of trees in parkways is the responsibility of the abutting property owner as outlined in § 1.10.003. *Responsibility of abutting property owner or occupant of the municipal code.* University Park reserves the right to remove any parkway tree or tree on public property if the trees are infested, defective, or dangerous to traffic or people. Trees and shrubs may also be removed to protect sidewalks, curbs, pavement, sewers, or other utilities. These policies are outlined in § 1.10.004. *Removal or trimming by city; replacement of damaged materials* (see Appendix B).

Debris Management

For private residences, University Park's Sanitation Division offers collection of tree debris and other yard waste; large amounts of debris and logs from tree removals must be removed at the property owner's expense by a contractor. Material generated from this program is transported to a composting facility in northwest Dallas. For municipal crews, debris is dropped off at the City transfer station. Small debris is taken to a landfill. Larger branches or trunks are taken to the transfer center or stockpiled for processing into manageable sizes before being transported to various landfills. Depending on the volume of material, this may occur over several months.

Oak wilt is present in Dallas County, but has not been identified in University Park. The city should explore monitoring debris generated from susceptible species to ensure debris management practices are not exacerbating disease spread.

Appendices

Note: The tree species listed in this manual are based on professional expertise and have been vetted using recommendations from Texas A&M and several other regional sources. This list is not static or comprehensive; it represents species that are currently known to be reliable and readily available. Other unlisted species native or well adapted to northwest Texas may be appropriate.

Appendix A: Tree Species Lists

UNIVERSITY PARK, TEXAS APPROVED SPECIES LIST								
BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	NATIVE?	HARDSCAPE CONFLICT?	MESSY?	STREET TREE?	NOTES
Small Trees - 25 feet and under - safe to plant near overhead utilities								
<i>Acer palmatum</i>	Japanese maple	25	25				X	
<i>Acer truncatum</i>	Shantung Maple	25	35				X	
<i>Carpinus caroliniana</i>	American hornbeam	25	25	X			X	
<i>Cercis canadensis</i>	eastern redbud	25	30	X			X	
<i>Cercis canadensis texensis</i>	Oklahoma redbud	25	25	X			X	
<i>Chionanthus retusus</i>	Chinese fringe tree	20	10				X	
<i>Chionanthus virginicus</i>	fringe tree	20	10	X			X	
<i>Cornus florida</i>	flowering dogwood	25	30	X			X	

UNIVERSITY PARK, TEXAS APPROVED SPECIES LIST

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	NATIVE?	HARDSCAPE CONFLICT?	MESSY?	STREET TREE?	NOTES
<i>Cotinus coggygria</i>	Chinese smoke tree	15	15				X	
<i>Cotinus obovatus</i>	American smoke tree	25	20				X	
<i>Diospyros texana</i>	Texas persimmon	25	15	X		X		
<i>Ilex vomitoria</i>	Yaupon holly	25	25	X			X	
<i>Lagerstroemia indica</i>	Crape myrtle	25	25				X	Overabundant
<i>Prunus americana</i>	Plum	25	20	X		X		
<i>Ungradia speciosa</i>	Mexican buckeye	15	15	X		X		
Medium Trees - 30-50 feet tall								
<i>Acer grandidentatum</i>	Bigtooth maple	45	35	X			X	
<i>Catalpa bignonioides</i>	Catalpa	40	40		X	X		
<i>Celtis leavigata</i>	Western hackberry	35	25	X				
<i>Diospyros virginiana</i>	American persimmon	50	30	X		X		
<i>Ginkgo biloba</i>	Ginkgo	50	35			X		Plant male cultivars

UNIVERSITY PARK, TEXAS APPROVED SPECIES LIST

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	NATIVE?	HARDSCAPE CONFLICT?	MESSY?	STREET TREE?	NOTES
<i>Liriodendron tulipifera</i> 'Emerald City'	Emerald City Tulip Tree	50	25	X			X	
<i>Maclura pomifera</i> 'White Shield', 'Wichita'	White Shield' Osage orange	40	40	X			X	Plant fruitless cultivars
<i>Nyssa sylvatica</i>	Black tupelo	40	20	X			X	
<i>Pistachia chinensis</i>	Chinese pistache	30	30				X	
<i>Quercus buckleyi</i>	Texas red oak	50	50	X			X	
<i>Quercus canbyi</i>	Chisos Oak	50	50	X			X	
<i>Quercus muehlenbergii</i>	Chinkapin Oak	50	60	X	X			
<i>Ulmus parvifolia</i>	Lacebark elm	30	35				X	
Large Trees - over 50 feet tall								
<i>Acer rubrum</i>	Red Maple	65	40	X	X		X	
<i>Acer x freemanii</i>	Freeman maple	60	40		X		X	
<i>Betula nigra</i>	River birch	90	50	X		X		
<i>Carya illinoensis</i>	Pecan	100	70	X	X	X		
<i>Catalpa speciosa</i>	Southern catalpa	60	40		X	X		
<i>Juglans nigra</i>	Black walnut	100	70	X		X		

UNIVERSITY PARK, TEXAS APPROVED SPECIES LIST

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	NATIVE?	HARDSCAPE CONFLICT?	MESSY?	STREET TREE?	NOTES
<i>Liquidambar styraciflua</i> 'Rotundiloba'	Sweetgum	80		X			X	
<i>Liriodendron tulipifera</i>	Tulip Tree	70	40	X	X			
<i>Magnolia grandiflora</i>	Southern magnolia	70	40	X				
<i>Platanus acerifolia</i>	London planetree	80	60		X	X		
<i>Quercus bicolor</i>	Swamp white oak	60	60					
<i>Quercus falcata</i>	Southern Red Oak	80	50	X	X			
<i>Quercus macrocarpa</i>	Bur Oak	70	60	X	X	X		
<i>Quercus michauxii</i>	Swamp Chestnut Oak	60	50	X	X	X		
<i>Quercus nigra</i>	Water Oak	65	40	X	X			
<i>Quercus phellos</i>	Willow Oak	75	50	X	X			
<i>Quercus rubra</i>	Red Oak	80	70		X			
<i>Quercus shumardii</i>	Shumardi Oak	100	60	X	X			Overabundant
<i>Quercus velutina</i>	Black oak	70	50	X	X			

UNIVERSITY PARK, TEXAS APPROVED SPECIES LIST

BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	NATIVE?	HARDSCAPE CONFLICT?	MESSY?	STREET TREE?	NOTES
<i>Quercus virginiana</i>	Live Oak	80	100	X	X			Overabundant
<i>Taxodium distichum</i>	Bald cypress	75	45	X	X			
<i>Ulmus americana</i> 'Princeton'	Princeton elm	100	100	X	X			Dutch elm disease resistant
<i>Ulmus crassifolia</i>	Cedar elm	70	60	X			X	

UNIVERSITY PARK, TEXAS NON-APPROVED SPECIES LIST

BOTANICAL NAME	COMMON NAME	COMMENTS
<i>Thuja spp.</i>	Arborvitae	Intolerant of local climate
<i>Fraxinus spp.</i>	Ash	Emerald ash borer
<i>Pyrus calleryana</i>	Callery pear	Invasive species
<i>Melia azedarach</i>	Chinaberry	Invasive species
<i>Populus spp.</i>	Cottonwood	Messy, invasive root system, weak wooded

<i>Albizia crenata</i>	Mimosa	Invasive species
<i>Morus alba</i>	White mulberry	Invasive species
<i>Salix spp.</i>	Willow	Weak wooded, messy, invasive root system
<i>Ailanthus altissima</i>	Tree of Heaven	Invasive species
<i>Various species and genera</i>	Palms	Most palms are ill-suited for the local climate

Appendix B: Municipal Code of Ordinances

(Insert Articles 1 & 3 when finalized)