

Edmond Tree and Landscape Guide (Temporary Version)

Printed guide with visuals will be available soon.

Community Value – Land Owners

From acres of native oaks, to lush, maintained landscapes, Edmond is a community that values trees. The city is in a unique geographic location, exhibiting both native prairie and a large amount of the valuable Cross Timbers ecosystem.

Unique Landscape

The Cross Timbers is a unique ecosystem that we are fortunate to have here in Edmond. This relatively old forest type with prairie spotted throughout grows from Kansas south to north Texas, and from western Arkansas to Interstate Highway 35. The trees are smaller than those in eastern forests, shaped by Oklahoma's climate and soils, but they are resilient and well-adapted to the stressors of the region. Many of these trees grow very slowly, and though their trunks may be small in diameter, some of them have been alive since before Oklahoma became a state.

The gnarled oaks, dense stands of trees, and pockets of prairie exhibit a unique aesthetic that only exists in this region of the country. While some, unaware of their value, refer to these trees as "scrub oaks", these post oaks and blackjack oaks that dominate the tree species palette in the Cross Timbers are the very trees that have witnessed many milestones in Oklahoma's history.

The Benefit of Valuing Trees

The importance of trees goes far beyond historical value and legacy. Trees increase property values. Shoppers are drawn to businesses with more trees and full landscapes, and tend to stay for a longer period of time. When strategically planned around, forested areas and trees can serve as architectural design elements that frame spaces, provide shade, and direct activities. Trees provide a variety of physical and mental health benefits, and areas with more trees also see social improvements.

Forested areas provide a variety of environmental services in the areas of water and air quality, flood mitigation, biodiversity, and more. While individual trees provide many of these benefits on their own, an ecosystem as a whole functions much more efficiently and effectively. Sensitive to disturbance, the Cross Timbers is an established, thriving ecosystem that takes a long time to develop and a long while to restore once disturbed. Once damage has occurred, this ecosystem is at great risk for further disturbance.

Public Interest

Citizens of Edmond have consistently expressed their concerns about loss of natural areas, trees, and habitat, even as long ago as 1998, during "Tomorrow's Edmond: A Community Dialog". Feedback from this community visioning project resulted in identifying key issues that emphasize preservation of green spaces and environmental protection.

As a direct result of these discussions, Edmond took steps to become a Tree City USA and Tree Line USA and established the Edmond Urban Forestry Commission. Through study of the urban forest and advancements in urban forestry programs, the landscape standards in Title 22 have evolved into a

flexible code that seeks to encourage retention of natural areas and existing trees, creating healthy landscapes and contributing to the benefits of trees and landscapes throughout the city. Urban Forestry often hears from residents who express that one of the main reasons they chose to live in Edmond was because of the trees.

Tree Canopy

All of the trees in Edmond, naturally occurring or planted, make up our “Urban Tree Canopy”. Urban Tree Canopy is defined as a measure which, when viewing trees from above, refers to the amount of leaves, limbs and stems that shelter the ground. It is expressed as a percentage of ground area that is covered by tree crowns.

In 2012, Edmond conducted an initial Urban Tree Canopy assessment. The assessment revealed that overall, Edmond has a healthy amount of tree canopy coverage. However, different land uses were also assessed and some concern arose over the relationship between this overall coverage and the canopy coverage of the Undeveloped land use, which makes up nearly half of Edmond’s total land area. The Undeveloped areas currently show one of the highest amounts of Urban Tree Canopy. Tree clearing in these areas with future development would significantly impact Edmond’s ability to maintain this healthy level of tree canopy and the important ecosystem services provided. View edmondok.com/treecanopy for more information about the current status of tree canopy in Edmond.

In response to the results of Urban Tree Canopy assessment, Edmond City Council recently set a Tree Canopy Goal:

“Implement and continue policy and programs that strive to increase tree canopy into the Optimal range (>40%), while preventing tree canopy levels from falling below the Baseline (37-40%) into the Critical range (<37%). Reassess canopy cover every 2-3 years in order to gauge progress”.

There are many ways to support tree canopy in Edmond. Strategically planning a development around forested areas can feature the natural amenity of a property. New landscape designs incorporating appropriately selected trees that are planted properly can encourage healthy landscapes that will thrive into the future. Enhancing Urban Tree Canopy in Edmond requires a community effort that lies on all of our shoulders. Will you help to conserve and enhance Edmond’s landscapes so that we can continue to experience vital benefits from natural ecosystems through future generations?

Planning Ahead – Developers

Taking trees and forested areas into account during the earliest planning stages of a development project is essential to maximizing **economic, environmental, health, and social benefits**. Considering trees and natural areas early on will help to identify natural assets that can reduce the amount of new landscape needed and save time during the site plan process. Some of the actions that can result in direct ordinance benefits are outlined below.

Engage forestry and landscape professionals to maximize the Code benefits. Planning around natural features can result in lower landscape requirements, generous multipliers for preservation credit, and a landscape that effectively meets the code with ease. In certain cases, ordinance does

require an assessment to be performed by a qualified professional. Involving these professionals from the beginning can help meet goals for the development, while embracing benefits that are missed if professionals are not engaged until later.

Use trees or forested areas as buffers. Trees make great natural buffers adjacent to different land uses, between businesses, along the road and when connecting other green spaces. When claiming preservation credit, trees that are within a buffer area can receive extra plant units, on top of the base amount for preservation. Identify these areas before the site layout is delineated in order to maximize tree preservation credit.

Preserve trees native to the Cross Timbers. Similar to buffer areas, Edmond's tree preservation ordinance provides additional plant units for Cross Timbers species. Identify these areas at the beginning of site design and work around them to receive extra credits toward landscaping, reducing the amount of new plant material required for the project.

Preserve forested areas and native plant communities, especially those in excess of 10,000 sq ft and a minimum width of 100 ft. Areas meeting these parameters are eligible for deduction from calculations used to figure the required landscape, which will otherwise include the entire lot area. This deduction can lower landscape area and plant unit requirements by quite a bit.

Identify significant specimen trees and opportunities to highlight them in the project. Existing trees are eligible for preservation credit. Additionally, multipliers for trees in buffer areas or of Cross Timbers species may be applied to them as well. Sometimes a site will include a tree of unusual or outstanding stature. These types of trees make great focal points on a property. Edmond residents see value in retaining the natural character of a site, and it is difficult to replace the unique cultural value of such specimen trees once they are removed or damaged.

Consider how existing trees and forested can be used to contribute benefits such as energy conservation, slope stability, and attractiveness. Large, established trees provide many times more benefits than newly planted trees. A stand of trees on the west side of a building offers savings on cooling costs. Existing trees are ready to contribute this benefit immediately, whereas newly planted trees will take time to reach a size that will cast large amounts of shade. Trees on a slope help to hold the soil in place, reducing the need for erosion control measures. There are many potential ways to work trees into a site as infrastructure, rather than just a beautification element.

Once these amenities are identified on the site then you are ready to move forward with evaluating them, by hiring a qualified professional to perform a Tree Resource Evaluation and/or draft a Tree or Native Area Preservation Plan.

Plan Design – Engineers/Designers

Collaboration is key to enhancing a site through natural amenities. Involving specialized professionals can improve the success of a project in a number of ways, by:

- Minimizing plan review time and demonstrating concern to meet the intent of municipal ordinance

- Identifying valuable natural features and ways they can benefit the project
- Recommending best management practices and standards for properly protecting natural assets, helping to ensure they receive credit through the landscape ordinance.

Ways to Collaborate

Edmond's Title 22 landscape ordinances require collaboration with qualified professionals when certain materials are submitted to the City. Such instances include the preparation and submittal of Tree Resource Evaluations, Tree Preservation Plans, and Landscape Plans, laid out in Title 22.6.1(D)(2).

Tree Resource Evaluations

Tree Resource Evaluations are required for certain site plan applications, and when used voluntarily they can help to identify natural features that may provide value to a project for preservation credit and strategic use. Performing this evaluation early and then planning around the natural elements as soon as they are identified can increase the success of implementing a preservation plan.

Tree Preservation Plan Preparation

Once natural amenities on a site are identified, working with an experienced professional is essential when delineating the preservation area and creating a plan for successfully protecting it, before site preparation creates irreparable disturbance.

Landscape Plan Design

Qualified designers possess a seasoned understanding of good design concepts, potential site constraints, and the growth requirements of many different types of plants that are adapted to the area. Engaging a Landscape Plan Design professional early in the process can help to identify potential issues that may conflict with landscape compliance while they are still easy to correct.

Professionals Tool Kit

Tree Resource Evaluations (22.6.1(D)(4))

Tree Resource Evaluations identify trees and forested areas that should be considered during project planning and design, so that they are incorporated into the site layout. By considering these resources in the early stages of site design, chances of incorporating tree conservation successfully are much greater.

This assessment differs from the tree survey that is performed as a part of a tree preservation plan, in that it provides more general information about the trees existing on a property, relating to Cross Timbers ecosystem, potential remnant forest, significant and unique trees/stands of trees, and forested areas that could serve as buffers or linkages. In some cases, a report based on the evaluation must be provided to the Urban Forestry Department. Specific instances include site plan applications where the site has an existing tree canopy cover of 20% of the total site area or greater, or a parcel containing any amount of potential remnant forest.

Preservation of Natural Amenities

Types of Preservation

Through preservation, a designer can maximize the tree, forest, and other native plant resources existing on a site. The Tree Resource Evaluation will help with guiding this effort by identifying trees or areas that should be preserved. Edmond's landscape ordinance offers several ways to benefit from preservation. To take advantage of these benefits, a preservation plan must be provided to Urban Forestry, and the area must be protected throughout the duration of construction.

Forested Area/Native Plant Community Deductions (22.6.1(D)(5))

Forest or native plant community areas that meet certain requirements are eligible for deduction from calculations used to figure the overall required landscape. Forested areas may include trees of any type, and native plant communities refer to ecosystems such as woodlands or prairie areas with native grasses. Deducted areas must meet the following criteria:

- The stand of trees or native vegetation must be of maturity, density, condition and vigor to maintain the ecosystem's health after development of the site
- Maintenance of the area and its surroundings must not compromise the health of the ecosystem or stand composition
- Plant cover within the area must spread at least 10,000 sq ft without any interruptions, including from easements.
- The area must be at least 100 feet wide from any edge, with no easements running through that area. An easement will be considered as the edge of an area.
- Protection of the area throughout the development process must comply with standards set forth in this guide.

Since deducted areas will be used to reduce landscape requirements, plant material within the deducted area will not be eligible for plant unit credit toward required landscaping. It is the expectation of the Urban Forestry Department that any Forested Area or Native Plant Community deducted will be treated as preservation and maintained in a natural state going forward.

Tree Preservation Claimed For Credit (22.6.1(D)(6))

If a forested area does not meet the criteria for deduction from site landscaping calculations, trees within that area may instead be claimed for plant units toward the site's landscape requirements. Developments can benefit greatly from preserving trees rather than planting new ones, due to the higher plant unit values (especially when factoring in the preservation multipliers).

Tree Surveys

In order to claim plant units for preserved trees, a tree survey must be performed and provided to the Urban Forestry Department alongside the Tree Preservation Plan. Tree surveys include DBH (Diameter at Breast Height or 4.5' above ground level, rounded to the nearest inch), species, quantity, and plant units calculated from the table in Title 22.6.1(D)(6). Trees claimed for credit should be shown and labeled on a plan drawing as well, either individually or with tree preservation areas indicated if many are grouped together.

Preservation areas in excess of 3 acres are considered “stands”, and will not require every tree within the area to be measured. A stand is a term in forestry used to describe a grouping of trees with similar ages, species and site characteristics. When performing a tree survey on a stand of trees, a sampling method known as “fixed plot sampling” should be utilized.

Fixed Plot Sampling

In fixed plot sampling, random points are selected within the stand of trees to be preserved. These points are the centers of 1/10th acre fixed plots, and will be used to determine the sample areas for the tree survey. The number of points located is based on the size of the stand, and locations should be selected on a map or aerial photo before traveling to the site or measuring the plot, to ensure unbiased selection of trees for the sample. One fixed plot should be surveyed for every three acres in the stand of trees.

Once the plot centers are identified, follow these procedures when performing the sample tree survey:

- Mark the plot center with a survey stake and flagging labeled with the plot number.
- Measure 37.24 feet from the plot center, which will serve as the plot radius. Use flagging to mark a nearby tree that represents the outer edge of the plot. Walk around the perimeter of the plot marking the edge trees, 37.24 feet from plot center. Leave flagging in place for Urban Forestry to perform a verification survey.
- Trees with at least half of their trunk diameter within the edge of the plot radius should be surveyed. Measure DBH on all qualifying trees within the plot. Record their species and DBH on a table. Cottonwood and eastern red cedar less than 12” DBH shall not receive credit for preservation.

Determining Plant Unit Value for Fixed Plot Samples

Once trees within all fixed plots have been surveyed, plant units may be determined by extrapolating the representative sample data for the entire stand of trees.

Surveys with One Fixed Plot: If only one sample was taken, multiply the results by ten to determine the number of trees within each species/DBH grouping on one acre, then multiply by the number of acres within the stand to determine the total number of trees in the stand.

Surveys with Multiple Fixed Plots: If multiple plots were surveyed, combine the results for all samples within species/DBH groupings and multiply by ten. Divide by the number of plots surveyed to determine the number of trees within each species/DBH on one acre. Next, multiply by the number of acres in the stand.

Once the number of trees in the sample plots have been extrapolated to represent the entire stand, determine the number of plant units for the preservation area. This may be done by multiplying the quantities of trees within each species/DBH group by the plant unit values shown on the table found in Title 22.6.1(D)(6). The sample must provide an accurate depiction of trees within the preservation areas, so the more points used, the more accurate the results. The table representing sample size shown previously is the minimum allowable. Urban Forestry will perform verification surveys during the Site Plan Review process to confirm accuracy.

Multipliers

An additional 25% multiplier of the base plant units may be claimed for preservation that meets either of the following criteria:

- Tree species native to the Cross Timbers ecosystem
- Preserved trees within a buffer area. A buffer area includes land area between the edge of any past or future construction activities and the property lines of the site.

If trees in a preservation area qualify for both of these criteria, the 25% multiplier may be applied twice, for a total 50% multiplier of the base points.

Preservation Plans for Trees, Forested Area, and Native Plant Communities

Both methods of preservation require a preservation plan prepared by a qualified professional, as laid out in Title 22.6.1(D)(2). The objective of a preservation plan is the successful conservation of tree and native plant resources on a site through planning around the areas, setting adequate protection measures in place throughout the duration of construction, and performing post-construction maintenance.

Plan Elements

Tree preservation plans shall be prepared in accordance with the latest version of ANSI A300 Part 5. All preservation plans should be integrated with the site plan (including grading and demolition plans) that are submitted for Site Plan Review and should include the following:

- Locations of all trees and native plant communities to be retained. If fixed plot sampling was used, the plot centers should be shown as well.
- The location of root protection zones and their barriers. Materials specified for barriers should include t-posts and bright orange, poly-propylene fencing, at a minimum.
- Detail drawings and specifications for preservation methods and devices
- Location and detail of soil erosion controls adjacent to protection zone barriers. Soil erosion control measures are not an acceptable substitution for preservation zone barriers.
- Schedule of implementing preservation practices as it relates to phases of site development.
- If trees within a preservation area are claimed for plant unit credit, data from the tree survey should also be included on the plan. This includes a table with species, DBH, quantity of trees within each species/DBH grouping, and plant units.

Preservation Specifications

Preservation plans should contain direction related to placement of protection zone boundaries, materials used for barriers, signage, and information about prohibited activities within the protection zone (See "Implementing the Preservation Plan" for more detail).

Protection zone boundaries shall be located at the drip line of the edge trees within a preservation area, or at the edge of another type of native plant community, at minimum. The drip line is the point on the ground beneath the furthest extent of a tree's branches.

Post Construction Maintenance Plans

A preservation plan should also include information about post-construction maintenance of the preservation area. See more information about required, ongoing maintenance under “Natural Area Management”.

New Landscape Plans

Any project that goes through Edmond’s Site Plan Review process must submit a detailed landscape plan that meets the standards described in Title 22.6.1(D). The Site Landscaping standards include requirements related to professionals that are approved to design landscape plans for these projects, and the plan elements that must be included on submittals.

Parking Area Landscapes

Title 22.6.1(C)(8) discusses requirements for landscape area and trees within parking areas. See the figures and table below for more information about required interior landscape areas.

Plant Material

Plant unit values for new plant material are based upon types identified in the American Standard for Nursery Stock (ANSI Z60.1).

Species Diversity

A healthy urban forest consists of a broad mixture of tree species, sizes and ages. Title 22 recommends that no single tree species account for more than 33% of the new tree plant units on sites where 150 or more tree plant units are required. By incorporating a varied species palette, landscapes are more resistant to pest and disease epidemics and contribute unique benefits and aesthetic interest to the property and surrounding areas. Consideration of native species in plantings can help to conserve our native Cross Timbers forest type.

Site Calculations

Instructions for calculating required landscaping may be found in Title 22.6.1(D)(3). A landscape calculator may also be downloaded from Urban Forestry’s web site at Edmondok.com/landscape.

Special Districts

In addition to Edmond’s general Site Landscaping standards, Title 22 includes provisions for special districts in later sections of the Chapter 6 Site Design Standards. It is important to always verify whether a project is located within a special district, which may result in additional/different landscape requirements.

Installation – Contractors/Property Managers

The success of a preservation or planting plan depends upon the attentive use of proper techniques for installation and maintenance. Adequate protection measures and post-construction maintenance for a preservation area can result in a healthy ecosystem that continues to grow and regenerate for many years down the road. Attention to detail when installing new plant material can result in less transplant shock and fewer stressors for trees that are growing in an already harsh environment.

Implementing the Preservation Plan

Any tree or native plant area committed to preservation must be buffered from construction activities through the installation of a Protection Zone. These protection measures must be set in place throughout the duration of construction, in accordance with the following standards:

- At a minimum, Protection Zones shall consist of bright orange poly-propylene fencing along the perimeter of the area to be preserved. When protecting trees, the perimeter must be located no closer to the trunk of a tree committed to preservation than the drip line. Fencing must be attached to posts every 6', pulled taut.
- Protection Zones must be in place as soon as access to the area is obtained.
- No activity whatsoever shall take place within a Protection Zone. This includes, but is not limited to: grading, storage of equipment and materials, pedestrian access, vehicular traffic, and waste disposal.

It is the contractor's responsibility to maintain Protection Zones and prevent damage and activity within them throughout the duration of construction, in whatever way necessary. Protection Zones will be subject to inspection by the City at any point in the construction process. Protection materials must be removed from the site at project completion, but only after all construction activities have subsided. Sod should not be placed within 6' of a preserved tree's trunk; however, mulch may be used as a ground cover within this area if needed.

Installing New Landscapes

At times, plan modifications are needed due to extenuating circumstances. In these instances, a revised plan must be submitted to Urban Forestry for approval, prior to installation. Sizes and locations of plant material installed must match what is shown on the plan

Planting Technique

Trees shall be planted in accordance with the latest version of standards in ANSI A300 Part 6 and the International Society of Arboriculture's Best Management Practices, with emphasis on the following specifications. Trees planted in a manner that does not comply with these specifications shall not be considered to meet the requirements of the site plan.

- The root collar shall be at, or not more than 2" above surrounding grade, with no soil backfilled on top of the root ball.
- All root ball supporting materials shall be cut-off from the top third of the root ball and removed from the planting hole prior to backfilling.
- Organic mulch shall be applied to a minimum depth of 3", extending from near, but not touching, the trunk to an area at least twice as wide as the root ball of the tree.
- Planting technique must correspond to this detail.

Landscape Maintenance

- A comprehensive maintenance plan may include the following:
 - Monitor moisture requirements of plant material

- Replace dead plant material
 - Maintain mulch periodically
 - Provide weed control in planting beds and tree wells
 - Keep lawn equipment from damaging tree trunks
 - Remove staking materials one year after planting
- Proper Tree Pruning Practices
 - Hire an ISA Certified Arborist
 - Remove no more than 25% of a tree's crown within an annual growing season
 - Retain branches on at least 50% of the length of the trunk
 - Make proper pruning cuts
 - Reference the International Society of Arboriculture's Best Management Practices in Tree Pruning for additional recommendations
- Natural Area Management
 - Your site may contain areas that are required to be maintained in their natural state. These areas must be actively managed to maintain the health and stand composition of the existing plant material type.
 - Edge Maintenance
 - Edge: An area within 15' of the perimeter of a delineated natural area that is sensitive to disturbance and susceptible to trash accumulation and volunteer plant growth
 - Activities:
 - Trash pickup
 - Removal of potential nuisance plant types such as Johnson grass, eastern red cedar, cottonwood, and Bradford pear
 - Naturally occurring ground cover such as leaf litter, minimal tree debris, and native plants should be retained in this area. When increased amounts of debris result from a catastrophic event, see below.
 - Catastrophic Events
 - In the instance of substantial damage to a natural area due to an event such as a wild fire or storm, additional management of the natural area will likely be necessary.
 - Activities:
 - Clean up
 - Normal amounts of tree debris within a natural area are acceptable; however, when significant tree damage occurs, select debris should be removed in order to minimize buildup.
 - Restoration
 - Extend edge maintenance practices to the areas affected by the catastrophic event
 - Replant naturally occurring species, through methods such as seedling plantings

- Monitor the natural area. Restoration can potentially take several years, and practices outlined above may need to be repeated over time.
- Title 22.6.1 (D)(8)(a) requires that “all landscaping improvements shall be maintained in a live and healthy condition.”
- Urban Forestry will perform a follow up inspection within one year of final landscape inspection approval. The property owner will be required to correct any ordinance violations identified.
- Contact Information – Urban Forestry is available as a resource. Contact us with questions.