

## 2.0 Landscaping

### **Article X - Division 51A-10.120. Landscaping.**

#### **Overview**

The landscaping division of the development code is only a portion of the overall zoning regulations that govern the development and maintenance of a site. The ordinance must be read in conjunction with coinciding regulations for other aspects of the development. This section is written to provide guidance in understanding the zoning regulations of Article X. Provisions for other ordinances will be discussed at the end of this section of the manual.

References to Article X ordinance text will be found in italics throughout the next two sections and Section 6. Additional commentary may be found in the orange boxes.

#### **Applicability (51A-10.121)**

Landscaping requirements under Article X are triggered by work to create a physical enhancement on the property. Adding new parking surfaces, or building a second level on a commercial structure, or doing new construction, or a floor area expansion above a threshold, will require the new landscape standards to the site. Typically, landscaping (by Article X or other) is not applied by other conditions unless it is specified for the use in a modified planned development, SUP, or other city council action.

#### **Single Family and Duplex Construction.**

Landscaping for single family and duplex new construction is enacted under Section 51A-10.125(a) with the building permit for new construction. It must be installed and inspected before the final building inspection and the certificate of completion. There is no landscape requirement for renovations. Additional considerations may sometimes be necessary when the property is in a historic or conservation district.

The maintenance requirements for landscaping in single family and duplex sites is enforced under the general maintenance section (10.108) of the ordinance. Although a property is excepted from the Article X urban forest conservation division (10.130) regulations, the landscape requirements of the ordinance are required to be sustained for all residential sites established after May 29, 1994.

## Shared Access Development

The landscaping for a SAD is applied by Section 51A-10.125(b) to the whole shared access development as one lot. A landscape plan must be completed and approved by the city arborist before a building permit for construction will be issued. The final inspection will be provided when all landscaping has been completed for the development.

It is recommended that the design of the subdivision should be created with the landscaping requirements considered in the initial design concepts and before submitting the design for the preliminary plat. Each shared access development differs by size and design and the amount of open landscape area available. If the space requirements are not addressed along with the other zoning regulations, the permitting process could be delayed while the owner makes costly and time-consuming corrections.

The Article X requirements for the shared access development landscape areas apply only for developments with up to 36 lots. Any additional lots will require a landscape amendment to the planned development ordinance governing the development, or a special exception to the regulations.

## Other Uses

The main provisions of Article X in sections 10.125(b) and 10.126 are applied to non-residential and all other uses and are binding on all current and subsequent owners of the lot or tract.

*The landscape division of the ordinance only becomes applicable to a building site when:*

- 1. The nonpermeable coverage on the lot or tract is **increased by 2,000 square feet** within a 24-month period, excluding portions of PEDESTRIAN PATHWAYS that are between 3 feet and 15 feet in width.*
- 2. An application is made for a building permit for construction work that **increases the number of stories and increases the height of a building** on the lot.*
- 3. An application is made for a building permit for construction work that increases by more than **35% or 10,000 square feet**, whichever is less, the combined floor areas of all buildings on the lot within a 24-month period. The increase in combined floor area is determined by adding the floor area of all buildings on the lot within 24 months prior to application for a building permit, deducting any floor area that has been demolished in that time or will be demolished as part to the building permit, and*

*comparing this figure with the total combined floor area after construction. (10.121(c)).*

**(Example: 5,000 sf building removed = 0 sf. remaining on the lot. New construction permit after demolition will provide 4,000 sf. of new floor area. Compare 4,000 sf. to 0 sf. to determine applicability.)**

## City Council

“(e) The city council shall, as a minimum, impose landscaping requirements that are reasonably consistent with the standards and purposes of this division as a part of any ordinance establishing or amending a planned development district, or granting or amending a specific use permit. (Note: This subsection does not apply to ordinances that merely renew a specific use permit when no substantive changes are made other than to extend the time limit of the permit.) **All landscaping requirements imposed by the city council must be reflected in a landscape plan that complies in form and content with the requirements of Section 51A-10.123 and complies with Division 51A-10.100.**” (Section 51A-10.121(e)).

Plans to be submitted to the City Council, City Plan Commission, Board of Adjustment, or any other committee or task group, should endeavor to comply with the landscape submission and general provisions of Article X when possible. In any case, be certain another party can interpret the information you place on a plan for public viewing, or for permit.

- **Arborist note**

The Article X ordinance is provided throughout sections 2 and 3 in *italics*. Additional text by the editor is provided to emphasize important elements of the ordinance and to provide additional direction in reading the regulatory text. References to other **sections** or to an **appendix** will also be provided to direct the reader for additional direction on a particular subject.

## 2.1 Soil and Planting Area Requirements (10.104)

Also see **Section 5.0** of this manual.

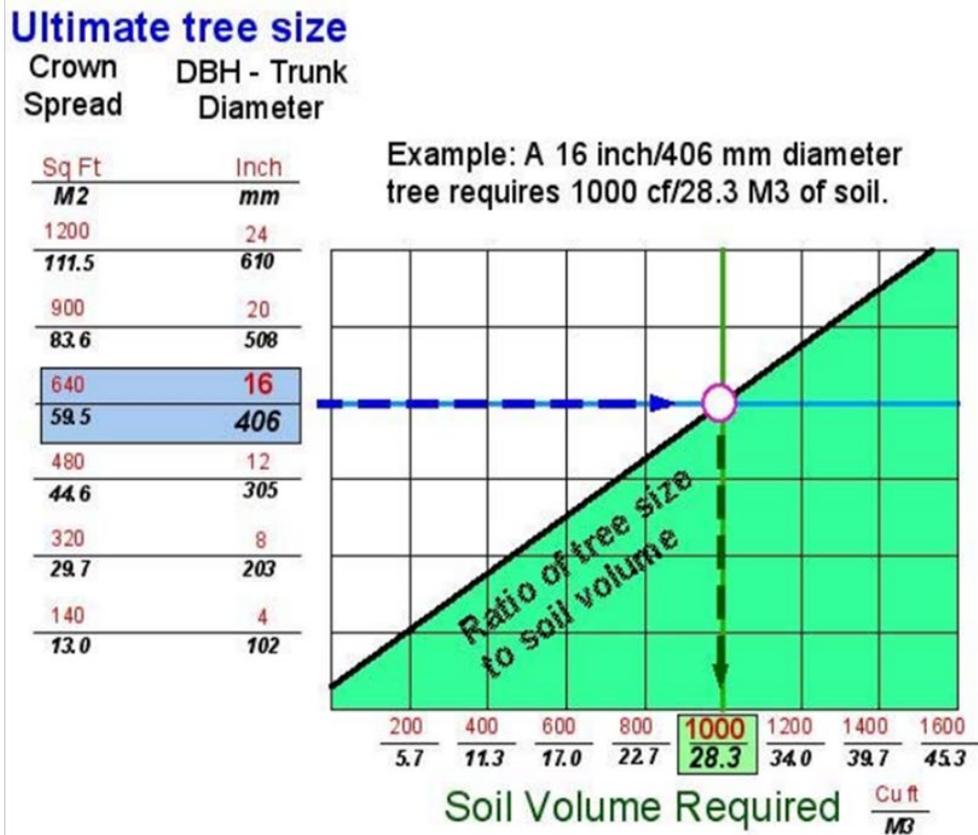


Chart: James Urban, (*Up By Roots*, ISA Press, 2008)

Tree/soil volume requirements

1. *Ultimate tree size graph based on optimum soil conditions.*

The James Urban chart illustrates what has been derived and shown from many years of research about typical conditions with optimum soil quality. The Dallas landscaping ordinance was amended to promote the best conditions possible for planting trees, shrubs, and all other forms of landscaping within the restrictive realities of urban development. If the soil performance is poor, and the area available is minimal, our goals and ability to attain large canopy trees cannot be met. Soil quality must be able to demonstrate functions of cycling nutrients, in making those nutrients available, and for providing a healthy rooting environment for the continual annual growth of trees. As much as the development requires specific stable soil characteristics to

reliably uphold a structure, the nurturing planting environment for trees must be established at the earliest stages of development to be fully successful.

SEC. 51A-10.104. SOIL AND PLANTING AREA REQUIREMENTS.

(a) *In general. Planting areas dedicated to the growth of roots may include **open soil areas, covered soil areas, root paths, and drainage.***

(b) *Soil areas. Except as provided in this section, required landscape areas must include the following:*

(1) **Soil resource plan.** *A soil resource plan is required with the submission of a **landscape plan** or **tree protection plan**. A soil resource plan is used to distinguish landscaping zones from construction zones on the building site and to determine soil protection or soil modification for vegetation, if applicable. Zones that are required to be shown include:*

- (A) *protected zones where existing soil and vegetation will not be disturbed;*
- (B) *zones for soil amendment or treatment with minimal disturbance;*
- (C) *zones where construction traffic and staging will be allowed; and*
- (D) *zones for stockpiling topsoil and imported soil amendments.*

The Soil Resource Plan is merely a soil management plan designed to aid the landscape designer, engineer, builder, and city official in identifying areas of soil disturbance and areas of limited construction activity. If an area is fully excavated of its original soil layers, what are the qualities and factors of the soil replacing it? The identification and management of these zones on the property will define the health and longevity of any landscape materials placed in the medium. It is necessary for all parties to understand the limitations of the soil to sustain life when it has been severely depleted and damaged if a healthy landscape is to endure after construction. Refer to Sections 5.0 and 7.0 of this manual for more information on soil quality and planting conditions on the work site.

Recommended reading:

[Protecting Urban Soil Quality: Examples for Landscape Codes and Specifications](#), Dallas Hanks and Ann Lewandowski, USDA-NRCS, 12-20-03

(2) **Soil resource assessment.** *A soil resource assessment is only required in conjunction with **sustainable development incentive (SDI)** requirements and installation of **legacy trees.***

(A) A soil resource assessment must be provided before submittal of a building permit.

(B) A soil resource assessment may be included in other engineering site assessments for the property.

(C) A soil resource assessment must include information on all proposed landscape planting areas that delineates, quantifies, and characterizes the topsoils and subsoils of a site before these materials are excavated for reuse on site.

(D) The ranges for physical, chemical, and biological indicators of soil quality for urban trees is determined from the **ISA Best Management Practices for Soil Management for Urban Trees**, or in another publication approved by the building official. (Refer to **Section 5.0** for more information on Urban Soils.)

**Soil Analysis Parameters**

Ideal and limiting ranges for key physical, chemical, and biological indicators of soil quality for urban trees.

<u>Indicator</u>	<u>Ideal Range</u>	<u>Limiting Range</u>
Surface	Residues and many organisms present	Evidence of compaction, crusting, erosion, or ponding
Color	Browns, reds, yellows	Grays
Smell	Earthy	Rotten
Texture type	Sandy loam, loam, or silt loam	Clay, sandy clay, silty clay, or sand
Clay (%)	<30	>40
Sand (%)	<70	>80
Structure type	Granular or subangular blocky	Massive, cloddy, platy, or single-grained
Aggregate stability	Most (>50%) aggregates are stable in water	Most (<50%) aggregates dissolve in water
Bulk density (Mg/m <sup>3</sup> )	<1.4 (sandy types) <1.3 (clay types)	>1.7 (sandy types) >1.6 (clay types)
Penetration resistance (MPa)	<2	>3
Volumetric water (%)	10-30	<5 or >40
Infiltration rate (mm/h)	>25	<5
Organic matter (%)	2-5	<1 or >10
Microbial respiration (mg/kg/d)	100-300	<50 or >500
pH (1:1)	6-7	<5 or >8
Electrical conductivity (dS/m)	1-2	>4

Soil Management for Urban Trees (Best Management Practices), ISA (2014).

The soil resource assessment extends the basic purpose of the soil resource plan to also include the results of specific soil tests and assessments. The assessment is used for determining soil characteristics and conditions that may limit tree or shrub development. It is also used for helping to select appropriate plant species for the location and soil condition.

(3) **Additional minimum soil quality requirements.** Soils used in landscape areas for tree planting must be shown on a **landscape plan** or a **tree protection plan** in protected zones where existing soil and vegetation is not disturbed, or in zones modified to correct limiting factors for tree establishment and longevity.

**(c) Planting area requirements.**

Except as provided in this section, planting areas must meet the following requirements:

(1) For each small tree installation, a minimum of 24 inches of soil depth and 25 square feet of open soil area (total of 50 cubic feet) must be provided.

(2) For each large or medium tree installation, a minimum of 36 inches of soil depth and 160 square feet of open soil area (total of 480 cubic feet) must be provided.

(3) Except as provided in this section, trees may share open soil areas.

(4) Except as provided in this section, large trees and medium trees must be planted a minimum of four feet from pavement.

(5) The planting areas must have native soils, prepared soils, or structural soils, and may include permeable pavement, sidewalk support, and soil cells.

(6) Required areas for plant materials must be protected from vehicular traffic through the use of concrete curbs, wheel stops, or other permanent barriers.

(7) Planters may be used to satisfy the requirements of this article provided that the soil requirements in Section 51A-10.104(b) are met.



Casey Trees

1. Soil volume demonstration for large shade tree.

(d) **Legacy tree soil and planting area requirements.**

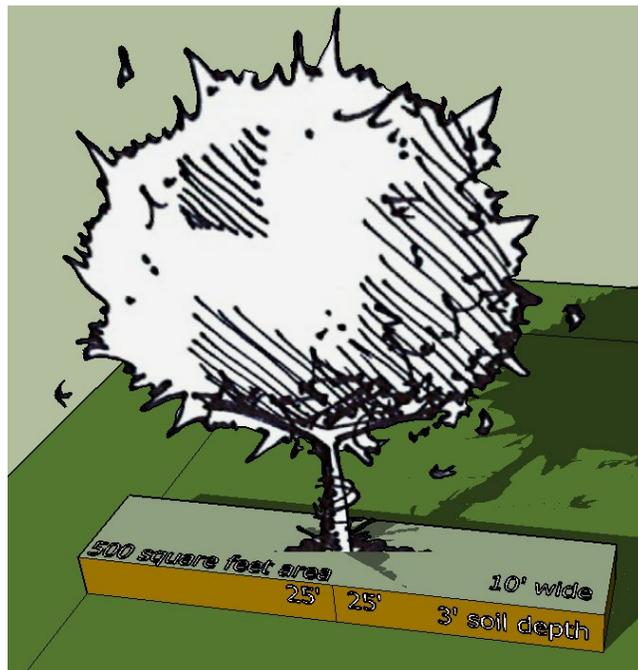
**NOTE: Soil Resource Assessment is required for legacy tree planting.**

(1) Except as provided in this paragraph, **large legacy trees** must be planted in a minimum 500 square foot open soil area with a minimum average soil depth of 36 inches (1500 cubic feet) per tree. For locations with shallow soils of less than 36 inches in average depth, the open soil area must be a minimum 750 square feet.

(2) Except as provided in this paragraph, **medium legacy trees** must be planted in a minimum 400 square foot open soil area with a minimum average soil depth of 36 inches (1200 cubic feet) per tree. For locations with shallow soils of less than 36 inches in average depth, the open soil area must be a minimum 750 square feet.

(3) Legacy trees must be a minimum of 30 feet measured horizontally from the closest point of a building or other structure on the property or an adjacent property at the time of installation.

(4) Legacy trees may not share required minimum open soil areas with large or medium trees.



2. Large legacy tree minimum area.

**(e) Alternative planting area requirements.**

(1) *Planting areas in an urban streetscape or located above underground buildings or structures must have the following open soil area depths and dimensions:*

(A) *For each small tree installation, a minimum of 30 inches of soil depth and 25 square feet of open soil area (total of 62.5 cubic feet).*

(B) *For each large or medium tree installation, a minimum of 36 inches of soil depth and 25 square feet of open soil area and a combination of open soil area, covered soil area, and root paths for a minimum of 240 cubic feet of soil volume. Large or medium trees planted in less than 480 cubic feet of soil volume do not count as replacement trees for purposes of Division 51A-10.1300.*

(2) *Trees may share open soil areas.*

**(f) Waiver.**

*The building official may waive the minimum open soil and planting area requirements if a **landscape architect** certifies that:*

(1) *the proposed alternative soil depths and dimensions are sufficient to support the healthy and vigorous growth of the plant materials affected;*

(2) *the depth to impermeable subsurface prohibits minimum soil depth requirements; or*

(3) *that the proposed structural soils or suspended paving system are sufficient to support the healthy and vigorous growth of the plant materials.*

**(g) Adequate space.**

*All required trees must be planted in adequate space to allow unobstructed growth to maturity.*

(h) **Tree locations.**

(1) In general. All required trees must be located a minimum distance of:

- (A) two feet from side yard and rear yard property boundaries;
- (B) 20 feet from traffic signs and light poles;
- (C) two-and-one-half feet from pavement; and
- (D) five feet from electrical transmission boxes, fire hydrants, in-ground or above-ground utility access, underground local utility lines, and water meters.

(2) Small trees. Small trees must be located a minimum distance of:

- (A) five feet from buildings; and
- (B) 10 feet from all other trees.

(3) Medium trees. Medium trees must be located a minimum distance of:

- (A) 12 feet from buildings;
- (B) 10 feet from small trees;
- (C) 20 feet from other medium trees;
- (D) 20 feet from large trees; and
- (E) 15 feet from the closest point of an overhead electric line.

(4) Large trees. Large trees must be located a minimum distance of:

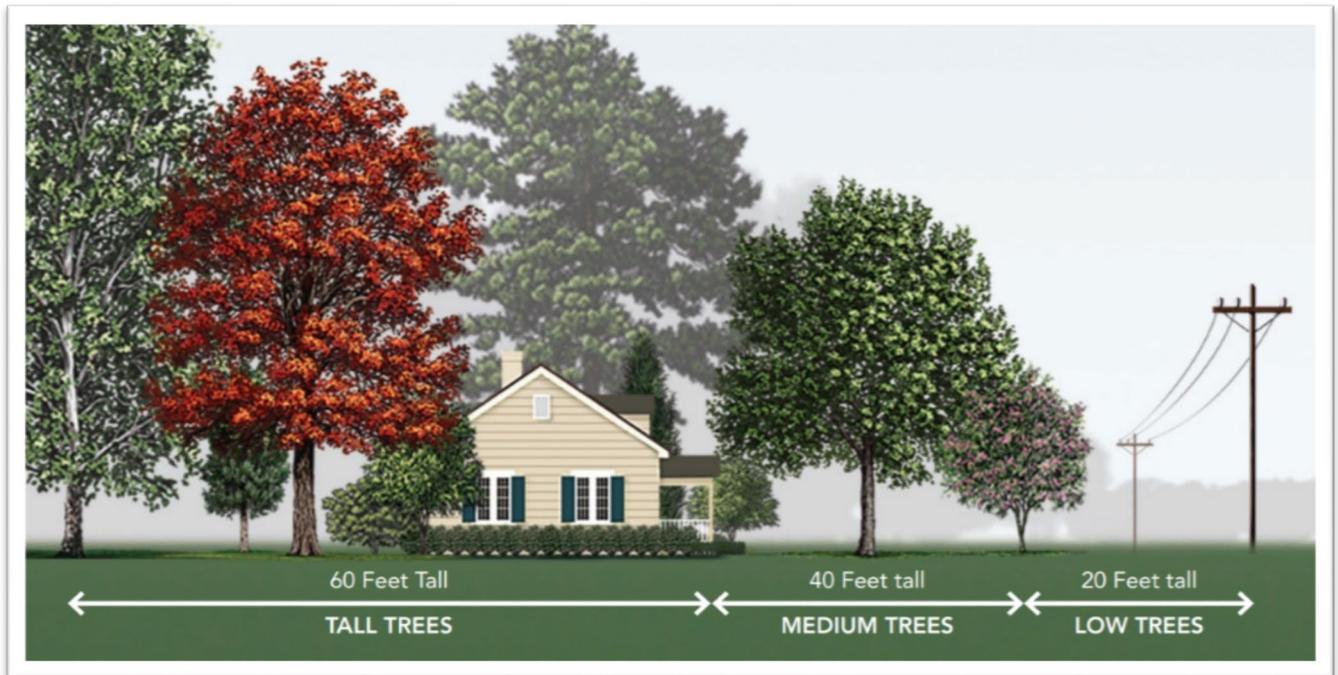
- (A) 15 feet from buildings;
- (B) 10 feet from small trees;
- (C) 20 feet from medium trees;
- (D) 25 feet from other large trees; and
- (E) 20 feet from the closest point of an overhead electric line.



3. Allow a minimum of 10-foot access in front of a transformer and 5 feet around sides and back.

(5) Legacy trees. Legacy trees must be located a minimum distance of 30 feet from the closest point of an overhead electric line.

(6) Measurement. For purposes of this subsection, all distances are measured horizontally from the center of the tree trunk.



4. Use good judgment in tree locations to prevent future conflicts with utilities, neighbors, and foundations.

**SEC. 51A-10.103. ACCEPTABLE PLANT MATERIALS.**

(a) Artificial plant materials, including **synthetic turf**, may not be used to satisfy the requirements of this article.

(b) In satisfying the requirements of this article, the use of high-quality, hardy, and drought-tolerant plant materials is recommended and encouraged.

(c) **For a lot or tract of land two acres in size or greater, no one species of tree may constitute more than 35 percent of the replacement trees planted on the lot or tract of land.**

(d) **Palm trees** may not be used to satisfy the requirements of this article.

(e) **Invasive plants** are prohibited in required landscapes.

(f) The director shall maintain a list of **acceptable plant materials for required landscapes**.