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## **Sec. 98-111. - Purpose and intent.**

The terms and provisions of this article are intended to accomplish the following public purposes:

Establish requirements regarding the design, installation and maintenance of landscaping within the city to enhance the visual and physical aesthetics of the city's environment.

Establish special landscape requirements for all parcels along the I-45 highway corridor to preserve and enhance the city's most visible natural forested environment.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

## **Sec. 98-112. - Definitions.**

For the purpose of this article, the following words, terms and phrases, shall have the meaning ascribed to them except where the context clearly indicates a difference in meaning:

**Caliper** shall mean the American Association of Nurserymen standard for trunk measurement (diameter) for nursery stock. Caliper of the trunk shall be measured six inches above the root ball for four-inch caliper size and smaller, and 12 inches above the root ball for larger sizes.

**Canopy area** shall mean the area covered by foliage immediately beneath a tree. Canopy area for each tree shall be determined with the formula:  $\text{Canopy area} = \text{DBH} \times \text{DBH} \times 3.14$ . In the event that the canopy area of two protected trees, replacement trees, new trees or any combination thereof overlap more than 50 percent, canopy area for each of the overlapping trees shall be determined with the formula:  $\text{Canopy Area} = 0.5 \times \text{DBH} \times \text{DBH} \times 3.14$ .

**City** means the City of Shenandoah, Texas, municipal corporation of the State of Texas.

**City Administrator** shall mean the city administrator with authority over the tree protection and preservation ordinance.

**City council** is the final authority on final plats, variance requests, and special exceptions.

**City secretary** means the city official responsible for providing information about the rules, regulations, standards and specifications for the construction, installation, design, location and arrangement of landscape elements approved by the city council.

**Critical root zone** shall mean a circular region measured outward from the tree trunk representing the essential area of the roots that must be maintained or protected for the tree's survival. The critical root zone shall be one foot of radial distance from the base of the trunk for every inch of tree DBH. **Crown** shall mean all portions of a tree, excluding the trunk and roots.

**Diameter-breast-height (DBH)** shall mean the tree trunk diameter measured in inches at a height of 4.5 feet (54 inches) above natural grade or the DBH measurement according to the latest edition of the Guide for Plant Appraisal as published by the Council of Tree and Landscape Appraisers. When the tree trunk branches out at a point lower than 4.5 feet, measure the smallest circumference below the lowest branch. Divide circumference inches by 3.14 to get diameter inches.

**Department of public works and community development** shall mean the city department designated by the city administrator for all permitting and inspecting associated within this article.

**Director of public works and community development** shall mean the designee of the city administrator to help with administration of the landscape ordinance unless otherwise designated by the city administrator.

**Dripline** shall mean the periphery of the area underneath a tree which would be encompassed by perpendicular lines dropped from the farthest edges of the crown of the tree.

**Grow space** shall mean an area capable of supporting tree establishment and growth and shall contain soil that has not been stabilized, or compacted to a point where water infiltration rates fall below 3.0 inches/hour. Stone and paver material that can be constructed without stabilization of subgrade or requiring a concrete base may be used to create additional area provided water infiltration rate is not below 3.0 inches/hour.

**Interior landscaping** shall mean all areas within paved boundaries of a parking lot, as well as planting islands, curbed areas, corner lots, parking spaces and all interior driveways and aisles.

**Landscape area** shall mean any area which is permeable and capable of supporting living organic ornamental or native plant material or waterscape. The landscape ground covers, reasonable color and/or shrubs.

**Landscape plan** is a plat plan which shows the proposed landscape development including all necessary calculations, specification and details necessary for installation.

**Planning and zoning commission** is the appointed authority that makes recommendations to the city council, who has the power to approve, disapprove or grant variances and exceptions for submitted development plans.

**Protected tree** shall mean a tree, that due to its size, species or unique characteristics is protected from arbitrary removal.

**Protected tree removal permit** shall mean written authorization granted by the city administrator or designee, under the provisions of [section 98-157](#), for the removal or transplanting of a protected tree.

**Tree** shall mean any woody plant with one well-defined stem and a more or less definitely formed crown usually attaining a height of at least eight feet in height; however under certain environmental conditions, some tree species may develop multistemmed or a shorter growth form.

**Tree inventory** shall mean an on-site evaluation of protected trees by an urban forester, forester, horticulturalist, or arborist with a minimum of a bachelor of science degree from an accredited university. The inventory does not need to include trees with more than 30 percent canopy dieback, trees obviously in the proposed building area, or trees of undesirable species (Chinese tallow, sugarberry, chinaberry, box elder, or yaupon). Trees located at the edge of a proposed structure, or within 20 feet of the edge of the structure, in proposed parking lot and drive areas shall be included. Trees shall be flagged and numbered in the field. The inventory shall be represented in table format showing tree tag number, species, DBH, canopy/critical root zone area, and condition.

**Tree protection plan** shall mean a plan submitted by the owner in a form or manner specified by the city administrator or designee providing the method of protecting trees during construction that shall include protection details, standards, notes, and construction plans in accordance with generally accepted methods such as those provided in the urban forest technical manual. The plan shall also identify each tree to be protected by surveyed location, tag number, and shall include a table listing the canopy area of each tree to be preserved. Total site area and canopy area calculations shall also be included on the plan.

**Tree replacement plan** shall mean a plan submitted by the owner in a form and manner specified by the city administrator or designee providing the method of replacement for the proposed protected trees to be removed that includes a plan that identifies the location, size, and species of all new trees proposed as replacement for the protected trees being removed and fees in lieu of replacement trees.

**Tree survey** shall mean identifying the physical location of each tree to be protected on a subject site. The tree survey shall be completed with field equipment that provides submeter accuracy.

**Urban forest technical manual** shall mean the standards and specifications based on generally accepted practices developed by the city administrator or designee for sound arboricultural practices, techniques and procedures which shall serve as guidelines for trees regulated by this article, including but not limited to tree selection, planting, alteration, treatment, protection, and removal as approved by the city council, maintained by city secretary and available through the public works director.

**Urban forest consultant** shall mean a private resource consultant with expertise in tree care, maintenance and preservation planning retained by the city and responsible to the director of public works and community development for assistance with technical administrator of the tree protection and preservation ordinance.

**Vegetation barrier** is a visual screen of vegetation which shall be not less than six feet in height. A typical barrier would include trees, evergreens or other native flora.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-113. - Applicability of article provisions.**

The terms and provisions of the article shall apply to real property within the town's corporate limits and extraterritorial jurisdiction as follows:

- All new development, construction or reconstruction requiring a building permit.
- All property with existing development as of the effective dates of the article.
- Any change of land use that results in redevelopment of a residential use to a nonresidential use.
- Any change, conversion, or addition of commercial land use that results in an increase in parking requirements.
- The total or partial demolition of a building with new construction on the same lot.
- Detention ponds that are part of any development including residential subdivision.

Common development that encompasses more than one lot shall be treated as one project for the purposes of application of this section. Split ownership, planning in phases, construction in stages, or multiple building permits for a project shall not prevent it from being considered a common development, provided that a comprehensive site plan is submitted for all portions of the development being considered as a common development.

The terms and provisions of Article IV—Tree Protection and Preservation concerning protected trees shall apply to all landscape development.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-114. - Exemption of landscape requirements.**

This article shall not apply to the following:

Single-family residential properties. Except for any landscaping installed in common areas, which are to be maintained by a homeowner's association or the city and shall comply with the requirements set forth in this article.

Substantial restoration of a building which has been damaged by fire, explosion, flood, riot, or an accident of any kind.

The remodeling of the interior of a building or the facade that does alter the location of the exterior walls.

Infrastructure improvement or replacement projects contained entirely within a city street right-of-way.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-115. - Landscape plans.**

Appropriate plans shall be submitted to the city which show the proposed landscape development, including all necessary calculations to show compliance with this article. A plot plan drawn to a scale of not less than one inch equals 30 feet shall be submitted, which shall include dimensions, distances, north arrow and clearly delineates any existing and proposed landscape development. Such plot plan shall also include detailed drawings of the entire off-street parking area and the location of proposed buildings. Such plot plan shall be incorporated into the preliminary plat submission to the planning and zoning commission. The proposed landscape plan and report must be submitted in triplicate and an electronic file provided with the preliminary plat and sealed by a registered landscape architect, who is currently registered or licensed by the state to practice landscape architecture.

The proposed landscape plan, as well as the final plat approval, must be approved prior to issuance of a building permit.

The landscape plans may be used to meet the requirements of Article IV—Tree Protection and Preservation. Representation of the required tree survey, tree inventory, tree replacement plan and tree protection plan including all required supporting information, calculations, specifications and details may be included on the landscape plans.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-116. - Minimum devotion; vegetation barriers.**

- (a) *Requirements.* Except as set forth in subsection (b), a minimum of ten percent of the developed area of any parcel of property, exclusive of the vegetation buffers, which comes within the provisions of this article shall be devoted to landscape development and comply with the intent and purpose of this chapter in accordance with this article.

- (b) *Vegetation barriers.* The city council has established the following vegetative barriers for all areas where commercial zoning adjoins zoning of any other type:
- (1) Vegetation barriers of 35 feet in width and minimum six feet in height shall be maintained at all times where commercial and multifamily properties abut any single-family residential property or adjacent acreage that may become single-family residential in the future;
  - (2) Vegetation barriers of not less than 15 feet in width and minimum six feet in height will be required for any commercial property that abuts any existing multifamily tract. All multifamily tracts shall leave a vegetation barrier of at least ten feet in width and six feet in height within their property lines on all multifamily projects that abut multifamily or commercial zoning;
  - (3) Vegetation barriers shall be required between one commercial property abutting another commercial property of not less than 15 feet in width and minimum of six feet in height. A single commercial property (property not abutting another developed commercial property) shall have a vegetation barrier of at least ten feet;
  - (4) In addition to the requirements set forth in subsections (1) through (3), all parcels along the I-45 highway corridor (corridor commercial zoning) shall have a minimum 25-foot buffer from the highway right-of-way lines to act as a forest preserve, and at least 15 percent of the site shall be devoted to landscape development and comply with the intent and purpose of this article.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

**Sec. 98-117. - Installation, maintenance; planting criteria.**

All landscape materials shall be installed in a sound workmanship like manner and according to industry standards and accepted installation procedures.

The owner of a building or his designee shall be responsible for the maintenance of all landscape areas, which shall be maintained so as to present a healthy, neat and orderly appearance at all times, and shall be kept free from refuse and debris. Such maintenance shall include the replacement of all dead plant material.

All landscape areas shall be irrigated by an underground automatic system (conventional spray, bubblers, etc.) and include a backflow preventer and rain and freeze sensor shutoff devices. The automatic irrigation system shall be equipped with an electronic controller capable of dual or multiple programming. No irrigation shall be required for undisturbed natural areas or undisturbed existing trees. The irrigation system must be designed and sealed by an irrigator licensed by the State of Texas.

Planting criteria shall be as follows:

*Trees.* Every effort shall be made to protect all preservation trees during construction. In the interest of preservation, it shall be necessary that trees be protected on all land development during the construction process in accordance with Article IV—Tree Protection and Preservation. At the time of planting, trees shall be a minimum of three inches in caliper when measured at six inches above grade.

*Shrubs.* Shrubs shall be a minimum of 30 inches in height when measured immediately after planting.

*Vines.* Vines shall be a minimum of 30 inches in height at planting, and may be used in conjunction with fences, screens or walls to meet screening requirements and specifications.

*Ground cover.* Ground cover, other than grass, shall be planted in a manner so as to present a finished appearance and reasonably complete coverage within one year after planting, typically four-inch minimum pots at 12 inches o.c. maximum.

*Lawn grass.* Grass areas shall be planted in species normally grown as permanent lawns in the county, such as Bermuda and Saint Augustine. Grass areas may be sodded, plugged, sprigged or seeded, except that solid sod shall be used in swales or other areas which are subject to erosion.

*Synthetic or artificial lawns or plants.* Synthetic or artificial lawns or plants shall not be used in lieu of any plant or vegetation requirements.

A current list of accepted landscape materials shall be available in the office of the city secretary.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-118. - Nonresidential requirements.**

- (a) *[Application.]* The standards set forth in this section shall apply to all nonresidential districts. Any area within a planned development district containing landscaping shall be regulated by the more restrictive standards.

The minimum landscaping area for nonresidential districts shall not be less than ten percent of the developed site area, exclusive of the vegetation buffers. Landscape areas shall include the following, as well as the areas detailed in subsections (b) through (e):

Landscaping in the street right-of-ways;

Interior parking lot landscaping;

Corner lot landscaping;

Landscaping/screening for properties adjacent to residential areas.

If the total landscape area as required by subsections (2) through (5) is less than ten percent of the pavement area of the site, additional landscaping shall be provided to meet the ten-percent requirement.

- (b) *[Streetscape requirements.]* All commercial, industrial and other nonresidential uses shall comply with the following streetscape requirements:

Existing trees located in street right-of-way shall be preserved to maintain at least one shade tree for every 500 square feet of permeable area of right of way. If existing trees do not meet the minimum requirement permittee shall plant additional shade trees to meet the minimum requirement. Shade trees planted in the street right of way may be used to meet the minimum canopy coverage requirements for the subject site.

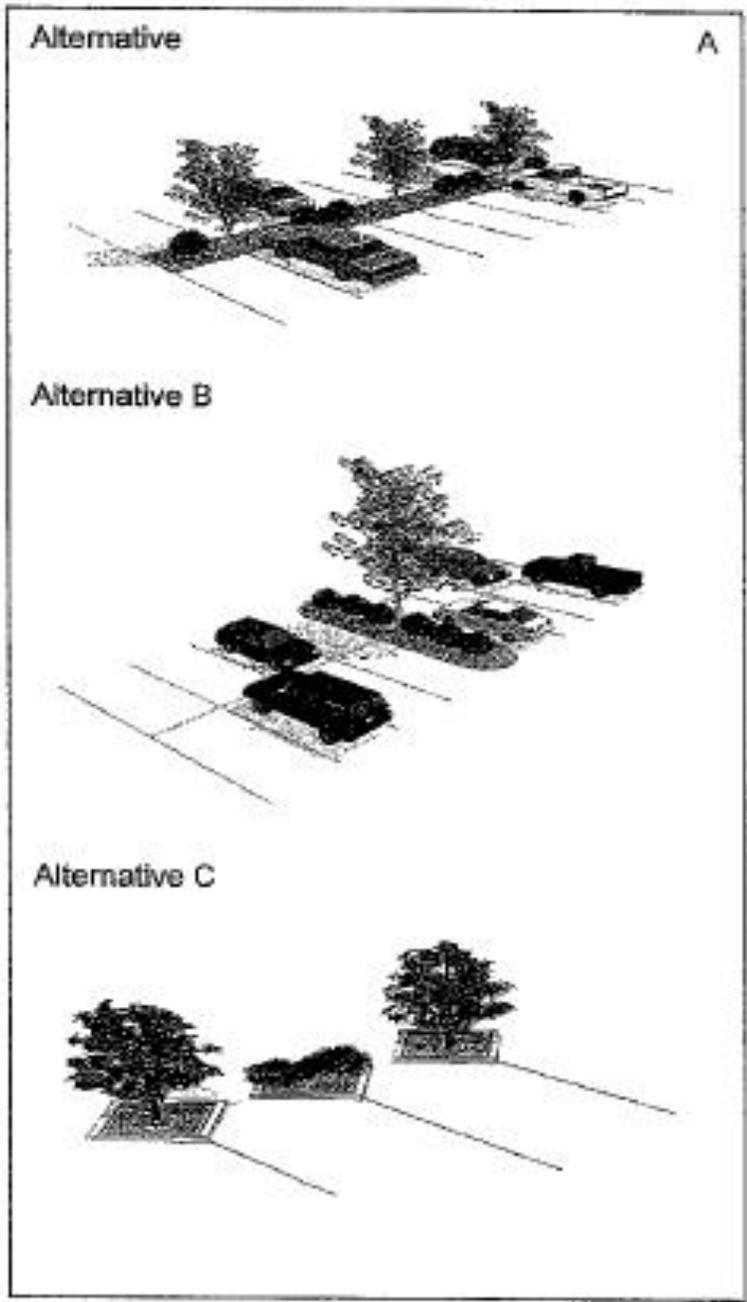
A landscaped edge shall be provided adjacent to all streets. The landscaped edge shall be a minimum width of ten feet (25 feet along I-45), excluding street right-of-way. Developments adjacent to Research Forest Drive shall have a vegetation buffer at least 40 feet wide and six feet in height. Within the landscaped edge, a minimum of one shade tree (three-inch caliper minimum) and one approved ornamental tree shall be planted every 500 square feet of landscaped area.

Where parking lots and drives abut landscaped edge, ten shrubs (three-gallon minimum) shall be planted for every 500 square feet of landscaped edge. The number of required shrubs shall be calculated solely on the area of the required landscape edge. A berm may be placed within the landscaped edge in lieu of the required shrubs, however, a headlight screen must be accommodated, if necessary. The slope of the berm shall not exceed a three to one grade.

If the parking lot is located 50 feet or more from the street right-of-way line, the applicant shall be encouraged to plant a variety of ornamental trees and flowers in addition to the required plantings. Any permeable surface which is not occupied by trees, shrubs, planting beds, signs or other permitted fixtures shall be planted with turf or other living ground cover.

The required width of the landscaped edge may be reduced during plan review when public improvements are necessary.

- (c) *Parking lot landscaping.* Any nonresidential parking area shall provide interior landscaping in addition to the required landscape edge as follows:



- (1) *General.* Parking lot landscaping shall be provided at a ratio of one shade tree (three-inch caliper minimum) for each 12 parking spaces or fraction thereof.
- (2) *Planting island area.* Parking lot landscaping shall be located within parking lot islands or islands in entrance drives and circulation drives. There are three alternative arrangements to meet the requirements for which any one or a combination of the following alternatives may be approved:
  - a. *Alternative A.* The total required minimum square footage of planting island area is 162 square feet for each 12 parking spaces or fraction

thereof. Such planting island may be arranged as a larger continuous island or as linear planting strips provided the landscaping is well dispersed throughout the parking lot. The minimum island planting area shall be 270 square feet or may be distributed in two smaller islands, each containing a minimum of 135 square feet.

- b. *Alternative B.* For each 12 parking spaces or fraction thereof, a landscape island containing at least 162 square feet must be provided within the parking lot. Landscaped islands must be a minimum of 7.5 feet in width, measured from the back of the curb, and must be well dispersed throughout the parking lot. Islands measuring less than 162 square feet may be permitted provided the total required minimum square footage is met.
- c. *Alternative C.* Diamond-shaped islands between abutting parking rows may be used to fulfill the requirement for islands, provided that the total minimum area of landscape islands in the parking lot is 162 square feet per 12 parking spaces. The minimum area of a diamond is 36 square feet.

(3) *Small parking lots.* In small parking lots with 12 or fewer parking spaces, the following alternatives may be approved:

- a. *Alternative A.* The landscaping may be on the perimeter of the parking lot instead of in islands provided there is 162 square feet of permeable area and the required landscaping exceeds that otherwise required.
- b. *Alternative B.* A minimum of one island containing at least 162 square feet of permeable area shall be provided.

(4) *Groundcover and landscape protection.*

- a. All landscape island areas shall be completely landscaped with groundcover or plants not exceeding one foot in height.
- b. Landscape islands shall be protected from vehicle intrusion by vertical curbs.

(d) Corner lots at an intersection of two minor arterials or collectors (80 right-of-way) or greater shall comply with the following landscaping requirements in addition to the required plantings for the landscaped edge and interior parking lot landscaping:

- (1) A minimum 15-foot wide (25-foot along I-45) landscaped edge shall be located along all street right-of-way lines beginning at the corner and extending 175 feet or to the closest driveway.
- (2) Where the city council has determined there is a need for a right-turn lane at a location, the landscaped edge may be reduced to a minimum of 7.5 feet.
- (3) A minimum landscaped area of approximately 900 square feet shall be located at the intersection corner of a lot. Such landscaped area shall be

provided within an area measured a minimum distance of 40 feet from the projected corner of the intersection on both sides of the lot.

- (e) Where a parking area is within 50 feet of residentially zone property and is not screened from view by a screening wall, a continuous screen of shrubs (five-gallon minimum) must be placed adjacent to such parking area. The required landscaping shall comply with the following:
- (1) The required shrubs shall create and maintain a minimum 42-inch high screen at the time of installation.
  - (2) Drought- and freeze-resistant shrubs shall be used, including, but not limited to:  
Burford holly.  
Cleyera.  
Chinese Mahonia.  
Wax myrtles.  
Yaupon holly.  
Other plants may be used with staff approval.
  - (3) All landscape materials must meet the requirements set forth in the latest edition of the American Nursery and Landscape Association "American Standard for Nursery Stock (ANSI Z60.1-2004)".

*(Ord. No. O-08-023, § 1, 10-8-2008; Ord. No. O-09-002, § 16, 1-14-2009)*

### **Sec. 98-119. - Authority of city secretary.**

The city secretary shall be authorized to promulgate, or have promulgated, and file for public record and use rules, regulations, standards and specifications for the construction, installation, design, location and arrangement of landscaped elements, but all such rules, regulations, standards and specifications shall be subject to the approval of the city council. Such rules, regulations, standards and specifications shall not conflict with this article or any other city ordinances. All landscape improvements shall be constructed, installed, designed, located and arranged by the developer in accordance with such rules, regulations, standards and specifications.

*(Ord. No. O-08-023, § 1, 10-8-2008)*

### **Sec. 98-120. - Nonconformity.**

If any commercial establishment fails to conform to any of the provisions of this article, it shall be within the discretion of the city council to allocate funds for the provisions of the vegetation barriers it deems necessary to fulfill the responsibility and obligation of [section 98-116](#), and to charge the expense of such vegetation barriers to the respective property owner in the form of a lien upon such property. Property owners shall be responsible for any costs incurred in connection with such lien, action or judgment.

*(Ord. No. O-08-023, § 1, 10-8-2008)*