

ARTICLE 14: LANDSCAPING, BUFFERING, AND SCREENING

14.01: GENERAL STANDARDS AND REQUIREMENTS

- A. Purpose and Intent. The purpose of this Article is to promote and protect the public health, safety, and general welfare by providing for the planting, maintenance, and preservation of vegetation throughout the county. This Article is specifically intended to:
1. Establish an attractive, cohesive, and functional landscape and character for the county that reflects the natural beauty of East Tennessee.
 2. Preserve and protect existing native vegetation and improve air quality throughout the county.
 3. Protect the county's unique topographical and geological features by minimizing soil erosion, preventing slope instability, and encouraging natural stormwater infiltration.
 4. Improve site permeability, reduce the volume and velocity of stormwater runoff, and improve water quality by integrating stormwater management features into landscape design.
 5. Provide effective screening to minimize the impact of intensities of development and the impact of incompatible uses and certain site elements on adjacent uses, creating a logical transition to adjoining lots and developments.
 6. Mitigate the visual impacts of development, including surface parking lots, outdoor storage, service areas, and mechanical equipment, as viewed from the public realm and adjacent properties.
- B. Applicability. Unless otherwise stated, the requirements of this Article shall apply to all new public and private development as follows:
1. All new development in any zoning district except as provided in 14.01.3.
 2. Any townhouse, multiplex, or multi-unit residential development resulting in three or more total dwelling units on a single lot.
 3. Additions to existing structures where the gross floor area (GFA) is increased by 50% or more of its original footprint, or where a use is expanded by 50% or more of its original area on a lot or project site.
 4. Whenever the area of an existing surface parking lot is expanded by 2,000 sq ft or by more than 25% of its existing capacity, whichever is less.
- C. Exemptions. The following are exempt from the requirements of this Article:
1. Single-unit detached and single-unit attached residential on existing lots and new subdivisions.
 2. Structures on their own individual lots, even if they are part of a subdivision.
 3. Two-unit residential structures (stacked or side-by-side configuration).
 4. The repair or maintenance of an existing building or site, provided there is no increase in gross floor area or expansion of the use area's original footprint.
 5. Agricultural uses within the AR Agricultural Rural or RP Rural Preservation districts are exempt. However, non-farm buildings or uses that require a building permit and are not otherwise exempt from this Article must comply with this Article.
 6. Interior renovations or a change in use that does not trigger the applicability thresholds in Section 14.01.B.

14.02: LANDSCAPE PLAN

- A. Landscape Plan Required.

1. To ensure compliance with the standards of this Article, a Landscape Plan shall be submitted as part of any application for a development permit, site plan, or concept plan, as appropriate.
 2. The Landscape Plan shall be prepared by a registered landscape architect or certified nursery professional, and shall be drawn to a verifiable scale (not less than 1" = 40') with sufficient detail to demonstrate compliance with all provisions of this Article.
 3. A Landscape Plan is not required of development included in 14.01.3: Exemptions.
- B. Plan Content. The Landscape Plan shall include the following information:
1. General site data including:
 - a. The project name
 - b. Owner and developer contact information
 - c. North arrow
 - d. Graphic scale
 - e. Date of preparation
 - f. Total site acreage
 - g. The zoning designation of the subject property and all adjacent properties
 2. A description of existing site features including:
 - a. The location of all property lines
 - b. Easements
 - c. Rights-of-way
 - d. Utilities
 - e. Structures
 - f. The topography of the site with contour lines at no greater than two-foot intervals
 - g. Critical topographical features, including prominent ridges, slopes greater than 15%, and karst features such as sinkholes, identified and labeled
 - h. Slope and ridge areas proposed for preservation, disturbance, and reforestation
 - i. Location, size (caliper or DBH), and species of all existing trees with a caliper of six inches or greater, with notation of which trees are to be preserved, used for credit, and which are proposed for removal
 - j. Delineation of existing riparian buffers, streams, wetlands, and the 100-year floodplain
 3. Proposed landscape elements shall include:
 - a. The location and dimensions of all required landscaped areas (street yards, parking lot perimeter and interior islands, and buffer yards)
 - b. A complete planting schedule showing the scientific and common names, quantity, installation size, and spacing of all proposed plant materials
 - c. An indication of how the native plant material requirements of Section 14.03 are being met
 - d. The location and design of all proposed screening elements (fences, walls, berms) with details on height, materials, and opacity
 - e. The location of all proposed structures, vehicular use areas, and pedestrian walkways
 - f. Sight distance triangles at all street and driveway intersections
- C. Review for Compliance. Review for compliance with the standards of this Article shall occur at the time of submittal of a site plan, concept plan. A Certificate of Occupancy shall not be issued for a structure prior to the installation of all required landscape and planting materials, or the posting of a performance bond as specified in Section 14..

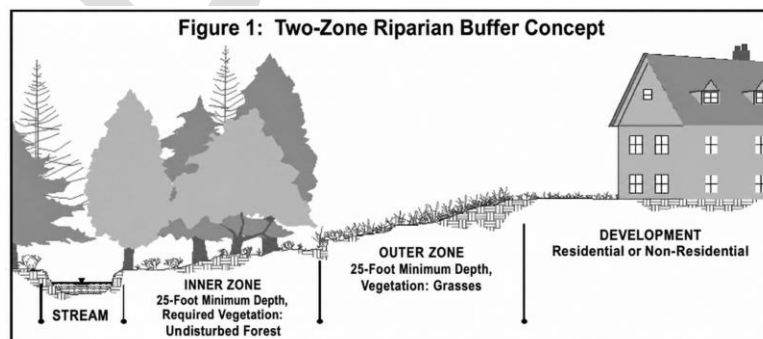
14.03: SITE LANDSCAPE REQUIREMENTS

A. General Requirements.

1. All required landscaped areas shall be designed as an integral part of the overall site plan, enhancing the site's aesthetics and compatibility with its surroundings.
2. Landscaping shall be used to define spaces, articulate building entrances, buffer uses, and create a safe and comfortable pedestrian environment.
3. Required landscaping shall be located on the same parcel as the development it is intended to serve.

B. Topographical Considerations. Given Knox County's distinct topography, landscape design shall be responsive to the natural terrain. The following standards apply to development in areas with significant topographical features:

1. Steep Slopes and Ridges:
 - a. Development on slopes greater than 15% and on designated ridges shall minimize disturbance. Landscape plans for such sites shall prioritize the preservation of existing native vegetation and the stabilization of disturbed areas with deep-rooting native plants to prevent erosion and slope failure.
 - b. Where grading, utility installation, site access, or other approved disturbance occurs on a significant portion of a steep slope or ridge, selective clearing shall not be required where it would destabilize adjacent vegetation or create unsafe or impractical site conditions. In such cases, clear-cutting of the disturbed slope or ridge area may be permitted, provided that the disturbed area is stabilized and reforested.
 - c. Disturbed slopes and ridges shall be revegetated with native trees, shrubs, grasses, and groundcovers planted along natural contours. Reforestation shall occur during the next appropriate planting season unless otherwise approved by the Planning Director or designee. Native trees are defined by the County.
 - d. See Article 16, Section 16.01 for additional steep slopes and ridges requirements
2. Karst Geology: In areas with known karst features, landscape design shall facilitate natural stormwater infiltration and protect groundwater quality. The use of native, deep-rooted vegetation is encouraged to enhance infiltration. The planting of trees directly over known cave systems or sinkhole throats shall be avoided to prevent root intrusion and potential ground disturbance.
3. Riparian Areas: Development adjacent to streams, rivers, and lakes shall incorporate riparian buffer planting as specified in Section 14.05.



C. Native and Adapted Plant Species. To reduce water consumption and maintain the local character of the landscape, a minimum of 40% of the required landscaped area on a site shall consist of native plant

materials and/or xeriscaping. At least 60% of all trees and shrubs used for required screening and buffers shall be native species. All plantings shall be native plants or nursery cultivated forms of native plant species in compliance with TDEC requirements for riparian buffers. Native plant species are defined by the County.

- D. Credits. This section provides opportunities for flexibility in meeting the requirements of this Article through the preservation of existing natural features and the use of off-site mitigation options when on-site compliance is not feasible.
 - 1. Credit for Existing Trees and Woodlands. The preservation of existing healthy, well-formed trees and native woodlands is the primary objective of this Article and is strongly encouraged.
 - a. Existing trees that are preserved and protected during construction in accordance with Section 14.07 may be credited toward the minimum planting requirements of this Article at a 2:1 ratio (i.e., each preserved tree counts as two new trees of the same category).
 - b. The preservation of an existing stand of native woodland may be used to satisfy all or part of the requirements for buffer yards, parking lot landscaping, and on-site tree planting, provided the woodland area meets the minimum width and screening objectives of the required landscaped area. The Director of Engineering and Public Works or designee may approve a reduction in required buffer widths or planting densities in exchange for the preservation of a high-quality woodland area.
 - c. The following existing trees and plants shall not be credited toward the minimum requirements of this Article: plants listed on the Tennessee Invasive Plant Council's invasive species list; Bradford Pear (*Pyrus calleryana* 'Bradford'); and Silver Maple (*Acer saccharinum*) due to its aggressive root system and weak wood.

14.04: PARKING LOT LANDSCAPE REQUIREMENTS

- A. Purpose. This section provides standards for the landscaping of surface parking lots to break up the expanse of impervious surface, provide shade, reduce glare, screen parking areas from public view, and improve the overall aesthetics and environmental function of vehicular use areas.
- B. Applicability.
 - 1. The requirements of this section apply to:
 - a. All new paved off-street surface parking lots with 20,000 square feet or more of impervious surface;
 - b. The expansion of existing parking lots that exceed 20,000 square feet or more of impervious surface or require a stormwater management plan.
 - 2. When a parcel or project site contains multiple separate parking areas connected by drive lanes, the configuration shall be considered a single parking area for the purpose of these regulations.
 - 3. Underground and structured parking garages are exempt from this section.
- C. General Design Criteria.
 - 1. Each parking space shall be located within 100 feet of a trunk of a tree planted in an interior or perimeter landscaped area.
 - 2. Landscaped areas shall be designed to receive and treat stormwater runoff from the parking lot to the maximum extent feasible.

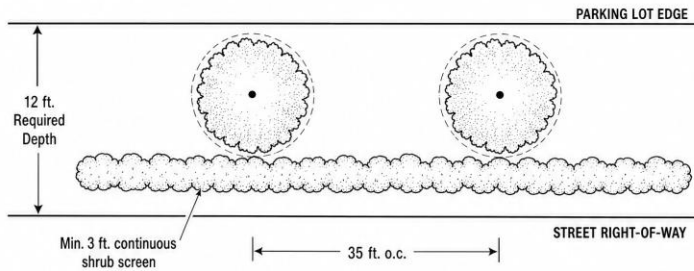
3. All landscape islands and peninsulas shall be protected from vehicle damage by the installation of permanent curbing. Curb cuts are permitted to allow for stormwater flow into landscaped areas.
 4. Sites shall be designed to allow for tree selection of an appropriate size as required. For constrained sites, tree selection shall be sized appropriately for the space available.
- D. Perimeter Parking Lot Landscaping. A landscaped perimeter yard shall be required along the entire boundary of a surface parking lot, except where a perimeter lot line abuts a zero-lot line building or where a driveway or sidewalk provides access. The required depth and planting for this perimeter yard shall be as specified in Table 14.01.

Table 14.01: Perimeter Parking Lot Landscaping Standards

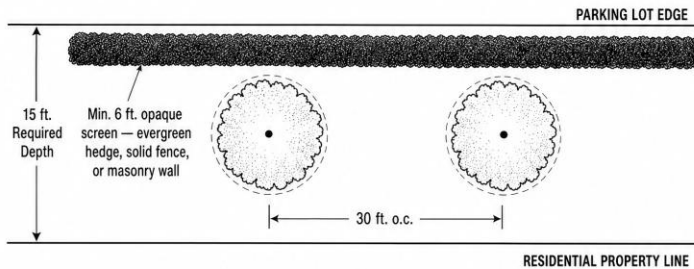
Abutting Condition	Required Depth	Planting and Screening Requirements
Street Right-of-Way	12 feet	One canopy tree per 35 linear feet of frontage, not including areas needed for sight distance. A continuous screen of shrubs, a low wall, or a berm shall be provided to a minimum height of three feet.
Residential District or Use	15 feet	One canopy tree per 30 linear feet and a continuous opaque screen (evergreen hedge, solid fence, or masonry wall) to a minimum height of six feet.
Mixed-use or Non-Residential District or Use	10 feet	One canopy tree per 40 linear feet.

Perimeter Parking Lot Landscaping Standards — Plan Views

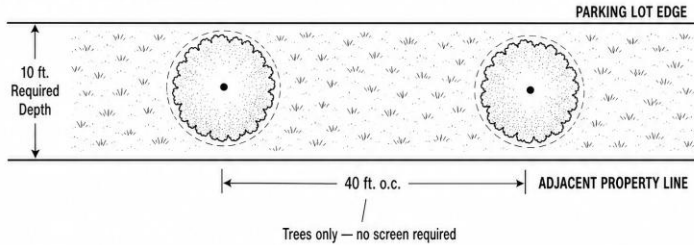
1. STREET RIGHT-OF-WAY



2. RESIDENTIAL DISTRICT OR USE



3. MIXED-USE OR NON-RESIDENTIAL



E. Interior Parking Lot Landscaping. Interior landscaped areas shall be provided within all surface parking lots to provide visual relief, shading, and ecological function. These areas shall be provided in the form of landscape islands or peninsulas. The minimum amount of interior landscaping and the design requirements for landscape islands shall be as specified in Table 14.02.

1. Where overhead power lines are present within a parking lot, two small trees may be substituted for one required canopy tree. A list of suitable small trees can be found in the list of Native Trees for Tennessee, by the University of Tennessee Agricultural Extension Department.
2. All landscape island planting areas shall be stabilized with sod, ground covers, or mulch to prevent soil erosion and allow rainwater infiltration.

Table 14.02: Interior Parking Lot Landscaping Standards

Parking Lot Size	Minimum Interior Landscaped Area	Island/Peninsula Requirements
Less than 20,000 sf of impervious surface	None required	None required
20,000-35,000 sf of impervious surface spaces	5% of the gross square footage of the parking lot (including stalls and drive aisles)	A landscape island or peninsula shall be located at the end of each parking row. No more than 20 contiguous spaces per row without an island/ peninsula. Minimum island/peninsula width: 8 feet Minimum island area: 140 sq. ft. Minimum peninsula area: 70 sq. ft. Each island/peninsula shall contain at least one canopy tree.
Greater than 35,000 sf of impervious surface	10% of the gross square footage of the parking lot	A landscape island or peninsula shall be located at the end of each parking row. No more than 20 contiguous spaces per row without an island/peninsula. Minimum island/peninsula width: 8 feet Minimum island area: 200 sq. ft. Minimum peninsula area: 100 sq. ft. Each island/peninsula shall contain at least one canopy tree. For every 200 square feet of required interior landscaped area, at least one canopy tree and two shrubs shall be provided.

- F. Screening of Loading and Service Areas. Side and front-facing truck delivery stalls and loading bays that are visible from a public right-of-way shall be screened from the right-of-way with a combination of evergreen plantings and/or a solid fence or wall to a minimum height of six feet.
1. HI and AR districts are exempt from this standard unless adjacent to a residential use or zone.
 2. Existing mature trees or other established vegetation located between the public right-of-way and the loading or service area may be used to satisfy this requirement, in whole or in part, where the Planning Director or designee determines that such vegetation provides an equivalent visual screen.

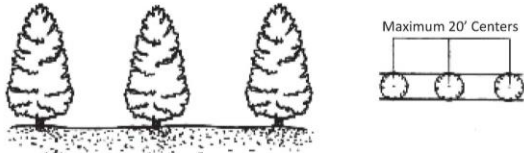
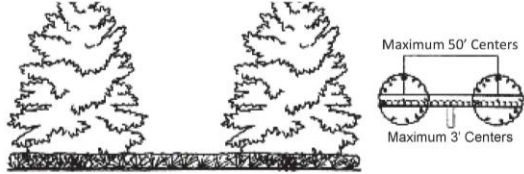
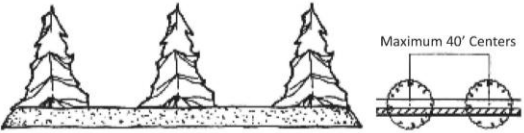
14.05: BUFFERS

- A. Purpose. Buffers are required to mitigate potential adverse impacts between incompatible land uses by requiring a landscape yard of a minimum specified depth along the shared property line.
- B. Applicability. Buffers shall be required for all new non-residential and mixed-use developments on all sides of the property that abut a residential zoning district (i.e., RR, NR1, NR2, MR1, MR2, or TND) or an existing residential use. Buffer yards may be included within the required building setbacks.
- C. Buffer Types and Requirements. Three types of buffers are established to provide flexibility in meeting the screening requirements. The required buffer type shall be determined based on the type of proposed development and the adjoining land uses, as specified in Table 14.03. The specific planting and screening requirements for each buffer type are also detailed in Table 14.03. All landscape buffer strips

should be sown with grass or ground cover for their full depth, allowing for mulch at the base of plantings.

Table 14.03: Buffer Yard Type Standards

Buffer Type	Minimum Depth	Required Location	Planting and Screening Options	Illustrative Example
Type A	15 feet	Commercial or industrial adjoining residential	Option 1 - Two offset rows of canopy trees + 6-ft dense hedge/fence/wall/berm Option 2 - Two offset rows of evergreen trees with branches touching ground	• Two offset rows of deciduous or evergreen canopy trees with a 6 ft. high continuous dense evergreen hedge, fence, wall or earth berm TREE HEIGHT Installed: 8 ft. Mature: 40 ft. SHRUB HEIGHT Installed: 4 ft. Mature: 6 ft. Maximum 16' Centers Maximum 4' Centers • Two offset rows of evergreen trees with branches touching the ground TREE HEIGHT Installed: 8 ft. Mature: 30 ft. Maximum 12' Centers
Type B	12 feet	Parking/loading areas adjoining residential and office districts	Option 1 - Two offset rows of evergreen shrubs Option 2 - Shrubs on 3-ft berm Option 3- 5-ft masonry wall/fence + evergreen trees + shrubs/vines Option 4 - One row of evergreen trees	• Two offset rows of evergreen shrubs SHRUB HEIGHT Installed: 4 ft. Mature: 6 ft. Maximum 4' Centers • A continuous row of evergreen shrubs on a 3 ft. high earth berm SHRUB HEIGHT Installed: 2 ft. Mature: 3 ft. Maximum 3' Centers • A 5 ft. high masonry wall or timber fence with evergreen trees and low shrubs or climbing vines TREE HEIGHT Installed: 8 ft. Mature: 15 ft. Maximum 50' Centers • One row of evergreen trees with branches touching the ground TREE HEIGHT Installed: 8 ft. Mature: 20 ft. Maximum 10' Centers

Type C	8 feet	Between parking lots and public streets; industrial/office boundaries	Option 1 - Row of small evergreen trees Option 2 - Row of broad-leaf evergreen trees + 3-ft wall/hedge Option 3 - Row of evergreen conifers + 3-ft berm or solid fence/wall	• A row of small evergreen trees TREE HEIGHT Installed: 6 ft. Mature: 15 ft.  Maximum 20' Centers • A row of large broad leaf evergreen trees with a 3 ft. high wall or hedge (deciduous species of similar size & form could be used for every second tree) TREE HEIGHT Installed: 8 ft. Mature: 40 ft. SHRUB HEIGHT Installed: 2 ft. Mature: 3 ft.  Maximum 50' Centers Maximum 3' Centers • A row of evergreen conifers with a 3 ft. high earth berm or solid fence or wall TREE HEIGHT Installed: 6 ft. Mature: 15 ft.  Maximum 40' Centers
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- D. Existing Vegetation Credit. Existing healthy, mature vegetation located within a required buffer area may be preserved and credited toward meeting the buffer yard requirements, provided it meets the minimum screening and depth requirements for the applicable buffer type. The Director of Engineering and Public Works or their designee may authorize a reduction in the required width of the planted buffer if the existing vegetation provides a visual screen equivalent to the required plantings, based upon a recommendation from a landscape architect

14.06: FENCING, SCREENING, AND BERMS

- A. General Screening Requirements. Specific uses and site features shall be screened from view from any public right-of-way (excluding alleys) and any adjacent residential district or use. Required screening shall consist of a solid opaque fence, masonry wall, dense evergreen hedge, or a combination thereof, to a minimum height sufficient to fully screen the feature, but not less than six feet. Screening must be opaque year-round. The following uses and site features shall be screened in accordance with Table 14.04.

Table 14.04: Screening Requirements

Use or Feature	Screening Required From	Type of Screening
Outdoor storage areas	Any adjacent property, street, park, trail, or right-of-way	Solid fence or wall; areas shall be located behind any street-facing facade of the principal structure

Loading/unloading areas (open-air docks, bays)	Any adjacent property, street, park, trail, or right-of-way (except in HI or AR zones, unless adjacent to a residential use or zone)	Fences, walls, berms, landscaping, or combination, providing opaque screening year-round
Outdoor trash and recycling (dumpsters)	Any adjacent property, street, park, trail, or right-of-way (except in HI or AR zones, unless adjacent to a residential use or zone)	Minimum 6-foot enclosure on all four sides; must include an access gate; materials may include evergreen plantings, wood, composite, or masonry
Ground-mounted mechanical/utility equipment	Within 50 feet of any adjacent street right-of-way (except in HI or AR zones, unless adjacent to a residential use or zone)	Fences, walls, landscaping, or combination, providing opaque screening year-round
Roof-mounted mechanical/utility equipment	Ground-level view from adjacent property and street right-of-way (except in HI or AR zones, unless adjacent to a residential use or zone)	Opaque parapet wall or architectural screen integrated with building design
Drive-through service lanes	Adjacent residential property, a park, trail, street, or private right-of-way	Fences, walls, landscaping, or combination, providing opaque screening year-round

B. Fencing and Wall Standards. All fences and walls installed as part of required screening or as a general site improvement shall comply with the following standards.

1. **Prohibited Fencing:** Chain-link fencing is prohibited for required screening when abutting a residential district. Barbed wire is prohibited in all Residential and Mixed-Use districts.
2. **Height Limits:** The maximum height for fences and walls shall be as specified in Table 14.05. Height shall be measured from natural grade to the highest point of the fence or wall.

Table 14.05: Fence and Wall Height

Zoning District Classification	Maximum Height in Front or Street-Side Setback
NR1, NR2, MR1, MR2, TND	4 feet
RHB, NMU, MUCC, HC, BC, EC, TC	4 feet (or 6 feet if fence is at least 50% open, such as wrought iron)
LI, HI	6 feet (or 7 feet if open fence such as chain link with no more than 20% opacity)

- a) Fences or walls used to satisfy buffer or screening requirements may exceed these heights as specified in Sections 14.05 and 14.06.B.
- C. Landscape Berm Standards.** Where berms are used for required screening or as part of a buffer yard, they shall meet the following standards:
1. **Design:** Berms shall be designed with an undulating, naturalistic appearance that mimics, as much as is practicable, a natural topographical feature of the site. Berms shall not be used for the display of vehicles or other merchandise.
 2. **Slope and Dimensions:** Berms shall have:
 - a. A slope that does not exceed a 2:1 ratio (horizontal to vertical);
 - b. A minimum height of 18 inches;
 - c. A maximum height of four feet;
 - d. A minimum top crown width of two feet; and
 - e. When combined with plantings, the total height of the screen shall not exceed eight feet, except for trees which may exceed this maximum height.
 3. **Planting:** Berms shall be planted with live plant material, including ground cover, shrubs, and trees, to ensure stability and visual interest. Berms shall not consist solely of turf grass. Berms

shall be fully installed, planted, and stabilized prior to the issuance of a Certificate of Occupancy.

4. Stormwater: Berms shall be designed to prevent standing water and shall not impede the flow of stormwater from adjacent properties.

14.07: LANDSCAPING AND TREE PRESERVATION

- A. On-Site Tree Preservation and Protection. Site plans shall be designed to maximize the preservation of existing trees, particularly those of significant size, located on steep slopes and ridges, or within riparian areas.
 1. Applicability. The standards of this section shall apply to development subject to this Article, including new development, redevelopment, and expansions requiring site plan approval, unless otherwise exempted by this Ordinance, or as determined by the Director of Engineering and Public Works or designee, taking into account public safety, utility conflicts, right-of-way constraints, stormwater requirements, and long-term maintenance responsibilities.
 2. Significant Tree Defined. For purposes of this section, a “significant tree” shall mean an existing healthy tree that is not listed as an invasive species and that meets one or more of the following criteria:
 - a. A deciduous canopy tree measuring 12 inches or greater in diameter at breast height (DBH);
 - b. An evergreen tree measuring 8 inches or greater in DBH;
 - c. A tree located on a steep slope, ridge, or within a riparian area, regardless of size, where preservation would support slope stability, erosion control, water quality, or habitat protection
 3. Preservation Requirement. Significant trees shall be preserved to the maximum extent practicable unless the applicant demonstrates to the satisfaction of the Director of Engineering and Public Works or designee that preservation would prevent the reasonable development of the property consistent with its zoning, conflict with required infrastructure, create unsafe conditions, or be impracticable due to grading, utility, drainage, or access requirements.
 4. Existing Tree Credits. To encourage preservation of mature trees, existing healthy trees that are preserved and protected in accordance with this section may be credited toward required on-site tree planting or canopy requirements, subject to approval by the Director of Engineering and Public Works or designee. Existing tree credits shall be calculated as follows:
 - a. A preserved canopy tree measuring 12 to 23.9 inches DBH may count as two required trees.
 - b. A preserved canopy tree measuring 24 inches DBH or greater may count as three required trees.
 - c. A preserved evergreen tree measuring 8 to 15.9 inches DBH may count as two required trees.
 - d. A preserved evergreen tree measuring 16 inches DBH or greater may count as three required trees.
 - e. Existing tree credits shall not exceed 50% of the total number of required trees unless otherwise approved by the Director of Engineering and Public Works or designee based on exceptional preservation value, site constraints, or consistency with the purpose of this section.

- f. Trees that die or are severely damaged within one year of project completion shall be replaced in accordance with this Article.
 - 5. Tree Protection During Construction. The owner or developer shall be responsible for the erection and maintenance of protective barriers around all trees designated for preservation throughout all phases of demolition and construction.
 - a. Tree protection fencing (e.g., chain-link or orange safety fence) shall be installed at the edge of the critical root zone of each tree to be preserved.
- B. Exceptions for Tree Removal. The removal of a protected tree may be permitted under the following circumstances:
 - a. The tree is determined by a certified arborist to be dead, diseased, or posing an imminent hazard to public safety or property. Any tree removed under this subsection shall be replaced.

14.08: MATERIALS AND INSTALLATION

- A. Applicability. The standards of this section shall apply to all landscaping required by this Article in mixed-use, commercial, and industrial zoning districts, and for nonresidential development in residential districts that allow nonresidential uses (i.e., MR-2 and TND), including required street frontage landscaping, parking lot landscaping, perimeter landscaping, landscape buffers, required tree plantings, and landscaping associated with stormwater facilities. These standards shall also apply to any other development or redevelopment where compliance with this Article is required as part of site plan, development plan, or permit approval.
- B. Plant Materials. All plant materials used to satisfy the requirements of this Article shall be of high quality, healthy, and true to species and variety. Plant materials shall meet the standards of the American Standard for Nursery Stock (ANSI Z60.1). All landscaping materials shall be installed according to accepted planting procedures of the landscape industry.
- C. Minimum Size at Time of Planting. Unless otherwise specified in this Article, all plant materials shall meet the following minimum size requirements at the time of installation:

Table 14.06: Minimum Planting Size

Plant Type	Minimum Size at Installation
Canopy Trees (Deciduous)	2-inch caliper, measured at DBH
Understory/Ornamental Trees (Deciduous)	1.5-inch caliper, or 8-foot height for multi-stem varieties
Evergreen Trees	6-foot height
Shrubs (Evergreen and Deciduous)	18-inch height or 5-gallon container
Ground Cover	6" container

In cases where application of the requirements of this Article results in a fraction in the number of plantings to be provided, the minimum number of plantings shall be rounded up to the next highest whole number.

- D. Non-Living Landscaping Materials. Non-living materials may be used to complement live plantings but shall not exceed 50% of any required street frontage or parking lot perimeter landscaped area. Permitted non-living materials include:
 - 1. Organic mulch (e.g., pine bark, wood chips)

2. Decorative rock or gravel (minimum 2-inch depth)
3. Permeable hardscape materials for walkways and plazas

The use of artificial plants, artificial turf, or exposed plastic sheeting is prohibited in any required landscaped area.

- E. Stormwater Facilities. Stormwater management facilities, including rain gardens, bioretention cells, and vegetated swales, may be located within required landscaped areas, subject to the following conditions:
 1. No crushed stone, concrete, or other impervious materials shall be exposed to view, with the exception of rip-rap or equivalent materials required to create sheet flow or mitigate erosion from run-off or discharge;
 2. Trees and other living organic materials may be planted along the stormwater facility; and,
 3. Variances that meet the needs of Low Impact Development (LID) practices such as curb cuts for bioretention cells may be granted if the appropriateness of these practices for specific sites with approval of the Knox County Stormwater Engineering and Public Works Department.

14.09: LANDSCAPE MAINTENANCE AND ENFORCEMENT

- A. Maintenance Responsibility. All landscaped areas required by this Article shall be continuously maintained in a healthy, neat, and orderly condition by the property owner, their successors, and assignees. Maintenance shall include all actions necessary to keep landscaping materials healthy and attractive, including watering, weeding, pruning, pest control, and the replacement of dead or diseased plant materials or damaged fences and walls. Native landscaping and xeriscaped areas are exempt from irrigation requirements. Survivability shall be ensured for one year after planting.
- B. Replacement of Plant Material. Any plant material that is required by this Article and is found to be dead or severely damaged at any time shall be replaced with a plant of the same species and minimum size as originally required on the approved Landscape Plan. Replacement shall occur during the next appropriate planting season (generally October 1 through April 30), but in no case shall replacement take longer than one calendar year from the time the plant died or was damaged.
- C. Performance Bond. If a Certificate of Occupancy is required for a project and special circumstances prevent the immediate installation of all required plant materials as defined below, the developer or owner may request a temporary extension from the Planning Director or designee.
 1. Circumstances warranting an extension include unusual environmental conditions such as drought or over-saturated soil, unavailability of plant species or acceptable plant size, or circumstances beyond the developer's control such as incomplete utility work scheduled to occur within 30 days after expected site completion. Survivability shall be ensured for one year after planting, and a maintenance bond shall be in place.
 2. If an extension is granted, the developer or owner shall post a performance bond or other form of surety acceptable to Knox County. The amount of the bond shall be equal to 150% of the estimated cost of the uninstalled plant materials and labor, as determined by Knox County based on an approved cost schedule, bid-based contract, or other County-accepted pricing method. The performance bond shall be valid for one calendar year.
 3. The bond shall be called if the required landscaping has not been installed by the end of the one-year period, and the funds applied to complete the landscaping work.
- D. Required Landscape Easements and Maintenance Agreements. All landscaping required by this Article for residential developments except for multifamily developments shall be located within a platted

landscape easement, common area, or other area approved by Knox County for long-term maintenance and enforcement. Required landscape areas shall not be removed, reduced, altered, or encroached upon unless approved by Knox County.

1. When required landscaping is located within a common area, private development, nonresidential development, multi-family development, or other shared-maintenance area, a maintenance agreement shall be recorded with the property and shall identify the party responsible for ongoing maintenance, repair, replacement, and compliance with this Article. The maintenance agreement shall run with the land and shall be binding on all property owners, successors, assigns, homeowners' associations, property owners' associations, or other responsible parties.
2. The location of required landscaping, landscape easements, common areas, and maintenance responsibilities shall be shown on the approved Landscape Plan and, where applicable, on the final plat. Required landscape easements shall be established in a manner similar to other enforceable site easements, including stormwater facility easements, to allow Knox County to inspect, require maintenance, and enforce the provisions of this Article.

E. Enforcement.

1. The provisions of this Article shall be enforced by the Knox County Engineering and Public Works Department. Property owners found to be in violation of this Article may be subject to fines and penalties in accordance with Article 23.
2. Any person or corporation may appeal a decision of a county employee or official in the administration of these provisions to the Knox County Board of Zoning Appeals.