

Article 9 | Landscaping and Buffering

Sec. 9.1 General

9.1.1 Purpose

The standards of this section provide for the preservation of existing vegetation and for the installation and maintenance of new vegetation and other landscape architectural features. The purpose of these standards is to:

- A. Improve property and community appearance without compromising community safety, including minimization of the offsite visual impact of extensive land disturbance;
- B. Allow for the ecological benefits provided by plant materials, including protection of land from unnecessary erosion and watercourse sedimentation, reduction of stormwater runoff, improvement of air quality, and provision of wildlife habitat;
- C. Reduce the urban heat island effect;
- D. Enhance the beauty of the built environment; and
- E. Enhance the privacy and welfare of citizens by separating incompatible land uses.

9.1.2 Applicability

- A. The landscaping and buffering standards of this section shall apply to all proposed development for which a site plan or preliminary plat is required.
- B. Land used toward achieving the requirements of the section need not hold the same zoning designation as the use to which the landscaping and buffer applies, unless the property is zoned with a development plan showing all requirements met onsite. If the landscaping or buffer is not on site, the landscaping shall either be on the same lot or on contiguous property under the same permanent possession or control as the lot on which the use is located.

9.1.3 Variations

- A. The approving authority may modify the buffer and landscape standards of this Article where:
 - 1. There are special considerations of site design and/or topography.
 - 2. The plantings or planting area would conflict with utilities, easements, or overhead power lines, or encroach upon City trees, as recommended by the Urban Forester.
 - 3. Proposed street widening not provided by the developer will consume the landscaping area.
- B. The approving authority may require alternative buffers or landscaping, including locations other than those typically required, when a modification to the requirements of this section is warranted in order to meet the intent of the specified standards.

Sec. 9.2 Landscape Design

9.2.1 Design Guidelines

The following guidelines are intended to ensure that the safety of residents and visitors is not compromised through poor landscape design. These guidelines shall be balanced against other objectives of landscaping, such as sheltering, buffering and screening purposes in the review of landscape plans.

- A. Landscaping should contribute to the livability of the environment.
- B. A “water-wise” approach to landscape materials (including mulch), design and installations is encouraged. The amount of irrigation and maintenance required for landscaping should be minimized.
- C. Landscaping should be selected, installed and maintained in compliance with Crime Prevention Through Environmental Design (CPTED) principles so that it allows unobstructed views of vulnerable doors and windows from the street and other properties and avoids blind spots and hiding spaces.
- D. Landscaping in the Rural and Suburban Tiers should be clustered to provide a natural feeling. Landscaping in the Urban, Compact and Downtown Tiers may be arrayed more formally.
- E. Landscape materials should be selected and arranged to add variety and visual interest.
- F. Site landscaping and streetscapes should be compatible and complement one another.
- G. Site landscaping should not conflict with utility placement.
- H. Landscaping should be used to define property lines and private areas with planting areas, pavement treatments, or walls and fences.
- I. Landscaping, fences, walls and paving treatments should be designed to guide visitors to desired entrances and away from private areas.
- J. Plant placement in buffers may include clustering; however, such clustering should be reflected in plant placement that provides the maximum protection of neighboring properties.
- K. Landscaping should be used to divide parking areas into smaller lots.

9.2.2 Basic Plant Types

There are five basic plant types referred to in this section, and all shall require the use of locally-adapted plants. They include canopy trees, evergreen trees, deciduous understory trees, evergreen understory trees and shrubs, defined as follows:

A. Canopy Trees

Large deciduous shade trees with a mature height of 30 feet or greater and a mature spread of 30 feet or greater in the Suburban or Rural Tiers or, in the Urban, Compact and Downtown Tiers, a mature height of 20 feet or greater.

B. Evergreen Trees

Trees at least 20 feet tall at maturity that usually have green foliage throughout all seasons of the year.

C. Deciduous Understory Trees

Small deciduous trees or large deciduous shrubs with a mature height of 10 to 30 feet, except under overhead utilities, where lower heights at maturity may be required.

D. Evergreen Understory Trees

Trees or large shrubs at least 10 feet tall at maturity that usually have green foliage throughout all seasons of the year.

E. Shrubs (Deciduous and Evergreen)

Prostrate or upright woody plants, either evergreen or deciduous, with a mature height usually less than 10 feet. Evergreen shrubs usually have green foliage throughout all seasons of the year.

9.2.3 Plant Material Requirements

Unless specified elsewhere in this Ordinance, plant material shall meet the minimum requirements listed below. When determining the quantity of plant material required, the quantity shall always be rounded up to the nearest whole number.

A. Plant Materials, General

All plant material shall meet or exceed size and shape relationships specified in the latest edition of The American Standard for Nursery Stock published by the American Association of Nurserymen.

B. Trees

1. Canopy Trees

- a. Canopy trees shall have a minimum size of two-inch caliper at time of planting.
- b. Canopy trees shall be planted at least 18 feet apart.

2. Evergreen Trees

Evergreen trees shall have a minimum height of eight feet at the time of planting.

3. Deciduous Understory Trees

- a. Deciduous understory trees with single stems shall have at a minimum size of one-inch caliper and a minimum height of eight feet at the time of planting.
- b. Multi-stemmed deciduous understory trees shall have a minimum height of eight feet at the time of planting.
- c. Deciduous understory trees shall be planted at least 12 feet apart.

4. Evergreen Understory Trees

Evergreen understory trees shall have a minimum height of six feet at the time of planting.

5. Mixing of Tree Species

When more than 20 trees are required to be planted on a site to meet these regulations, a mix of species shall be provided. The following table indicates the

maximum percentage of trees of the same genus and species that may be planted.

Total Trees Planted on Site	Minimum Number of Species Required	Maximum Percentage of Any Species
20 trees or less	1	not applicable
21 to 50 trees	2	70%
51 to 100 trees	3	50%
101 to 200 trees	4	40%
201 to 300 trees	5	30%
301 to 500 trees	6	25%
Over 500 trees	7	20%

C. Shrubs

1. Deciduous and Evergreen Shrubs

- a. All shrubs shall be cold hardy and heat tolerant.
- b. Upright shrubs shall be a minimum of 15 inches in height at the time of planting.
- c. Shrubs shall not be planted closer than three feet on center. Shrubs shall not be planted closer than three feet to planted trees, nor within six feet of existing protected trees; however, no more than 25% of the root protection zone of an existing tree may be disturbed with new plantings.
- d. When planted as a hedge, the maximum spacing for 24-inch high deciduous shrubs shall be 36 inches on center. Spacing for other size shrubs shall be determined by the Planning Director or designee based on the proposed species.

2. Mixing of Shrub Species

When more than 20 shrubs are required to be planted on a site to meet these regulations, a mix of species shall be provided. The following table indicates the maximum percentage of shrubs of the same genus and species that may be planted.

Total Shrubs Planted on Site	Minimum Number of Species Required	Maximum Percentage of Any Species
21 to 100 shrubs	4	30%
101 to 200 shrubs	5	25%
201 to 300 shrubs	6	20%
301 to 400 shrubs	7	20%
401 to 500 shrubs	8	20%
501 to 600 shrubs	9	20%
Over 601 shrubs	10	20%

D. Plant Variations

The Planning Director, or designee, shall have the authority to allow variations in the mix of plants required, up to a maximum of 20% of the total required plant type, in order to encourage creativity in landscape design, to more effectively create a buffer

or screen, to handle unique site issues such as existing tree species or topography, or to allow for more efficient irrigation or water use practices.

E. Preferred Species

The Planning Director, or designee, shall maintain a list of plants by type and their preferred location or use on sites developed under this Article. The list shall include drought tolerant species.

F. Prohibited Plants

The Planning Director, or designee, shall maintain a list of plants that are not permitted for any use due to their invasive tendencies. Such species shall not be planted as landscaping for any purpose.

G. Plants Not Allowed for Credit

The Planning Director, or designee, shall maintain a list of plants that have invasive tendencies, but are not so invasive that they should be prohibited. No credit towards required landscaping using these plants shall be permitted.

9.2.4 Landscape Plans

Landscaping plans shall be prepared by certified landscape architects or other professionals with a proficiency in preparing landscaping plans.

9.2.5 Installation

A. Easements

1. Trees may be planted in access or utility easements, including stormwater BMP facilities, provided that they are a species adapted for the nature of the easement and, in all easements other than overhead utilities, the entity responsible for the easement approves the location of the trees proposed for planting.
2. Existing trees may remain in dry detention ponds provided that the natural grade is undisturbed to the tree line, they are a species adapted to seasonal flooding and the pond can be adequately maintained.
3. Shrubs shall be installed at least five feet away from the flow line of a swale.
4. Shrubs may be planted in a public utility easement provided they are planted only within the outer three feet of the easement and are approved by the utility provider.

B. Tree Grates

Tree grates for required trees shall not be permitted in the Rural Tier. When used, such grates shall be sized and maintained to ensure continued health of any required tree and installed so as not to create any pedestrian hazard.

C. Groundcovers and Mulch

1. Groundcovers may be planted around trees, provided they are located outside of the planting hole.
2. Mulch shall be used in all areas where no other ground cover or grass is used to avoid bare spots and promote “water-wise” landscaping.

D. Certification

The Planning Director, or designee, may authorize licensed landscape architects to certify that landscape plantings have been installed in conformance with the approved landscaping plan including planting sizes, species, and installation techniques in lieu of inspection by the Planning Department

Sec. 9.3 Existing Vegetation Credits for Required Landscaping

9.3.1 Existing Vegetation

- A. Healthy vegetation that is retained may be credited toward landscaping requirements.
- B. Vegetation to be saved shall meet all requirements of Sec. 8.3.2, Protection of Existing Vegetation.

9.3.2 Existing Trees

- A. Healthy canopy trees may be retained and credited toward landscaping requirements if each tree proposed for credit has a caliper of at least two and one-half inches and all requirements of Sec. 8.3.2, Protection of Existing Vegetation, are satisfied. Credit given for existing, healthy, protected trees shall be a number equal to the value of the dbh of each protected tree divided by two inches, but no fraction thereof.
- B. Credit shall be allocated on a one-for-one basis for healthy evergreen trees, deciduous understory trees, evergreen understory trees or shrubs. The size of material shall not be taken into account, except where such material is below the required minimum planting size, in which case no credit shall be granted.
- C. In order to receive credit for any retained trees, at least 80% of the root protection zone shall remain undisturbed. Trees whose root protection zones fall outside the protected area but are within larger groups of trees, shall not count toward any landscaping requirements but shall be left in place unless they are diseased or otherwise hazardous to the integrity of the buffer or the development

9.3.3 Sampling

- A. All trees, shrubs and groundcover within a minimum 20 foot by 20 foot area for each unique stand of vegetation proposed to be retained shall be inventoried and identified on the landscape plan. Photographs may be used to supplement the sample but shall not replace it. For purposes of determining preserved tree coverage, shrubs and groundcover need not be included in the sampling.
- B. The Planning Director, or designee, may require additional sample areas as needed to ensure a representative sample of the existing vegetation.

Sec. 9.4 Project Boundary Buffers

9.4.1 Applicability

- A.** Project boundary buffers shall be required in the Rural, Suburban, and Urban Tiers, considering the proposed use and zoning district and the adjoining uses and zoning districts.
- B.** No project boundary buffers shall be required for property in the Compact Neighborhood Tier, unless the proposed project is adjacent to residential development or property with a residential designation in the Suburban or Urban Tiers, in which case, project boundary buffers shall be required only on the side of the project adjacent to such property in the other Tier.
- C.** No project boundary buffers shall be required for property in the DD District, unless the proposed project is adjacent to a residential district or use in the Urban Tier. Where required, project boundary buffers in the DD District shall be provided at 0.2 opacity in accordance with Sec. 9.4.5C, Urban and Compact Neighborhood Tiers. No buffers shall be required along rights-of-way regardless of their width.

9.4.2 Location

- A.** Required project boundary buffers shall be provided along the perimeter of any lot or development except adjoining street or railroad rights-of-way that are greater than 60 feet in width.
- B.** Project boundary buffers shall be designated and dimensioned on all site plans and preliminary plats.

9.4.3 Standards

- A. Opacity**
 - 1.** The buffer standards in the table below address the opacity of the buffer that is required on the property boundary between zoning districts, and in some instances within a zoning district.
 - 2.** An opacity of 0.1 screens 10%, and an opacity of 1.0 would fully screen the use from adjacent properties during summer months no more than five years after planting.

B. Project Boundary Buffer Table

		ZONING DISTRICT OF ADJACENT PROPERTY								
		RR and PDR at Rural Density	RS-20, RS-10, RS-8 and PDR at Suburban Density	RU and PDR at Urban Density	RS-M, RU-M	RC	CN	OI, SRP, MU, UC	CG, CC, IL, IP	I
ZONING DISTRICT OF SUBJECT PROPERTY	RR and PDR at Rural Density	0/0	0/.2	.2/.6	.2/.8	.2/.8	.2/.6	.2/.6	.2/.8	.2/1.0
	RS-20, RS-10, RS-8 and PDR at Suburban Density	.2/.2	0/0	.2/.4	.2/.6	.2/.6	.2/.6	.2/.6	.2/.8	.2/1.0
	RU and PDR at Urban Density	.4/.6	.2/.4	0/0	.2/.6	.2/.6	.2/.6	.2/.6	.2/.8	.2/1.0
	RS-M, RU-M	.6/.8	.4/.6	.4/.6	.2/.4	.2/.4	.2/.6	.2/.6	.2/.8	.2/1.0
	RC	.6/.8	.4/.6	.4/.6	.2/.4	0/0	0/0	.2/.6	.2/.6	.2/1.0
	CN	.4/.6	.4/.6	.4/.6	.4/.6	0/0	0/0	0/0	.2/.6	.2/1.0
	OI, SRP, MU, UC	.4/.6	.4/.6	.4/.6	.4/.6	.4/.6	0/0	0/0	.2/.6	.2/1.0
	CG, CC, IL, IP	.6/.8	.6/.8	.6/.8	.6/.8	.4/.6	.4/.6	.4/.6	.2/.4	.2/1.0
	I	.8/1.0	.8/1.0	.8/1.0	.8/1.0	.8/1.0	.8/1.0	.8/1.0	.8/1.0	.2/.4

Commentary: The second number represents the Total Buffer, which normally occurs across the property line, with unequal responsibility for buffering on both sides of the line based on intensity of the use or district.

Commentary: .2/.4 requires a 20% opaque buffer for property adjacent to vacant land or a 40% opaque buffer when adjacent to existing development without a buffer. A zero means no project boundary buffer is required.

Example: A new development in the CG District abutting a developed RS District without a buffer would be required to provide a buffer with a total opacity of .8 (80% opaque). If the adjacent RS property were vacant, the requirement would be reduced to .6 (60% opaque), and the developer of the RS property would provide the remaining .2 (20%) at the time of development of the residential property.

1. Multiplex and apartment development proposed in any district to be adjacent to single-family districts or single-family developments on other properties shall provide buffers in accordance with the provisions for RS-M or RU-M districts.

2. Non-residential development proposed in a residential district to be adjacent to residential districts or residential developments (except for upper story residential or with any intervening street or railroad right-of-way) on other properties, that would not otherwise require a buffer, shall provide buffers in accordance with the provisions of the CN District in determining buffer requirements. Principal uses listed in Sec. 5.2.4F, Parks and Open Areas, except playgrounds and zoos, are exempt from this requirement.
3. Nonresidential uses proposed next to property used for residential purposes, although nonresidentially zoned, shall provide a buffer along the side of the property adjoining the property used residentially equivalent to one-half of the buffer width that would have been required for property with a residential zoning designation within that Tier.
4. Some uses may require additional buffering, as set forth in the specific use standards of Sec. 5.3, Limited Use Standards.

9.4.4 Natural Buffers

A. Natural Buffer Required

1. Existing healthy, natural forest cover and other vegetation shall be used to meet buffer requirements in the Rural and Suburban Tiers in the following instance:
 - a. Where a buffer with an opacity of 0.8 or greater is required; and
 - b. Where the existing tree cover exceeds 15 feet in height; and
 - c. Where the existing tree canopy covers 75% or more of the required buffer area.
2. The minimum width of a required natural buffer shall be 50 feet.

B. Natural Buffer as an Option

In the Urban Tier and in projects in the Rural and Suburban Tiers that do not require use of a natural buffer, a natural buffer may be employed. A minimum natural buffer width of 25 feet or the width required to satisfy Sec. 9.4.5, Constructed Buffer, whichever is greater, shall be required in these instances.

C. Tree Protection in Natural Buffers

In addition to the requirements of Sec. 8.3.2, Protection of Existing Vegetation, trees within natural buffers shall be protected as follows:

1. For the trees with a dbh of 30 inches or less, 75% of the root protection zone shall be undisturbed; and
2. For trees over 30 inches dbh, at least 90% of the root protection zone shall be undisturbed.

D. Additional Planting

The Planning Director, or designee, may require additional planting in a natural buffer if it does not meet the opacity standards required by Sec. 9.4.5, Constructed Buffer. Sampling of existing vegetation within a natural buffer pursuant to Sec. 9.3.3, Sampling, shall be required to determine if it meets this standard.

9.4.5 Constructed Buffer

A. Plant Units

The plant units listed below shall be considered comparable, and therefore interchangeable, as set forth below.

1. The following plant unit alternatives may be used to satisfy the project boundary buffer requirements:
 - a. Alternative 1: Mixed Evergreen
 - b. Alternative 2: Deciduous
 - c. Alternative 3: Evergreen
 - d. Alternative 4: Overhead Utility
2. Alternative 2, Deciduous, shall not be permitted adjacent to residential districts or uses unless employed with a wall pursuant to Sec. 9.4.8, Walls, Berms and Fences in Buffers.
3. Alternative 4, Overhead Utility, shall be permitted only where overhead utilities make larger tree planting impractical.
4. All shrubs used to meet plant unit requirements shall be upright shrubs.

B. Rural and Suburban Tier

1. The buffer width and planting requirements in the table below shall be used to meet the opacity standards established in Sec. 9.4.3B, Project Boundary Buffer Table. Use of the interactive buffer model established pursuant to Sec. 9.4.7, Interactive Buffer Model, shall not be permitted, except where the slope of the buffer is at least 15%, in which case the requirements of Sec. 9.4.5D, Existing Slope Impacts, shall be applied.

RURAL AND SUBURBAN TIERS

Opacity	Min. Width	Alternative 1 Mixed Evergreen	Alternative 2 Deciduous	Alternative 3 Evergreen	Alternative 4 Overhead Utility
Plant Material Required Per 100 Linear Feet					
0.2	10 feet	1 Canopy Tree 0 Evergreen Tree 1 Deciduous Understory 2 Evergreen Understory 13 Shrubs	2 Canopy Trees 0 Evergreen Tree 2 Deciduous Understory 0 Evergreen Understory 12 Shrubs	0 Canopy Tree 2 Evergreen Trees 0 Deciduous Understory 3 Evergreen Understory 13 Shrubs	0 Canopy Tree 0 Evergreen Tree 3 Deciduous Understory 2 Evergreen Understory 10 Shrubs
0.4	20 feet	3 Canopy Trees 1 Evergreen Tree 2 Deciduous Understory 5 Evergreen Understory 40 Shrubs	4 Canopy Trees 0 Evergreen Tree 6 Deciduous Understory 0 Evergreen Understory 38 Shrubs	0 Canopy Tree 4 Evergreen Trees 0 Deciduous Understory 9 Evergreen Understory 38 Shrubs	0 Canopy Tree 0 Evergreen Tree 7 Deciduous Understory 5 Evergreen Understory 30 Shrubs
0.6	30 feet	6 Canopy Trees 1 Evergreen Tree 4 Deciduous Understory 9 Evergreen Understory 70 Shrubs	7 Canopy Trees 0 Evergreen Tree 10 Deciduous Understory 0 Evergreen Understory 67 Shrubs	0 Canopy Tree 7 Evergreen Trees 0 Deciduous Understory 16 Evergreen Understory 68 Shrubs	0 Canopy Tree 0 Evergreen Tree 12 Deciduous Understory 9 Evergreen Understory 53 Shrubs
0.8	50 feet	6 Canopy Trees 1 Evergreen Tree 4 Deciduous Understory 10 Evergreen Understory 77 Shrubs	8 Canopy Trees 0 Evergreen Tree 11 Deciduous Understory 0 Evergreen Understory 73 Shrubs	0 Canopy Tree 8 Evergreen Trees 0 Deciduous Understory 17 Evergreen Understory 74 Shrubs	0 Canopy Tree 0 Evergreen Tree 13 Deciduous Understory 10 Evergreen Understory 58 Shrubs

RURAL AND SUBURBAN TIERS

Opacity	Min. Width	Alternative 1 Mixed Evergreen	Alternative 2 Deciduous	Alternative 3 Evergreen	Alternative 4 Overhead Utility
Plant Material Required Per 100 Linear Feet					
1.0	80 feet	7 Canopy Trees 1 Evergreen Tree 5 Deciduous Understory 12 Evergreen Understory 85 Shrubs	10 Canopy Trees 0 Evergreen Tree 13 Deciduous Understory 0 Evergreen Understory 80 Shrubs	0 Canopy Tree 10 Evergreen Trees 0 Deciduous Understory 20 Evergreen Understory 83 Shrubs	0 Canopy Tree 0 Evergreen Tree 16 Deciduous Understory 12 Evergreen Understory 65 Shrubs

2. When proposed residential units adjoin an active agricultural use, the minimum buffer width shall be 50 feet, with a minimum opacity of 0.2.
3. Buffer widths may be reduced by up to 25% through the incorporation of a wall or berm pursuant to Sec. 9.4.8, Walls, Berms and Fences in Buffers. Application of this reduction in width shall provide a corresponding reduction in the number of required shrubs.

C. Urban, Compact Neighborhood, and Downtown Tiers

The buffer width and planting requirements in the table below shall be used to meet the opacity standards established in Sec. 9.4.3B, Project Boundary Buffer Table for the Urban Tier and those areas of the Compact Neighborhood Tier that adjoin development in the Urban or Suburban Tiers and the opacity standards established in Sec. 9.4.1C for the DD District. The interactive buffer model established pursuant to Sec. 9.4.7, Interactive Buffer Model, may be used to calculate acceptable reductions in buffer width or variable mixes of plant units. The model may also be used when the slope of the buffer is at least 15%, as set forth in Sec. 9.4.5D, Existing Slope Impacts.

URBAN, COMPACT, AND DOWNTOWN TIERS

Opacity	Min. Width	Alt. 1 Mixed Evergreen	Alt. 2 Deciduous	Alt. 3 Evergreen	Alt. 4 Overhead Utility	Alt. 5 Intense
Plant Material Required Per 100 Linear Feet Of Buffer						
0.2	10 feet	1 Canopy Tree 1 Evergreen Tree 1 Decid. Understory 1 Evergr. Understory 3 Shrub	1 Canopy Tree 0 Evergreen Tree 1 Decid. Understory 0 Evergr. Understory 4 Shrub	0 Canopy Tree 1 Evergreen Tree 0 Decid. Understory 2 Evergr. Understory 4 Shrub	0 Canopy Tree 0 Evergreen Tree 2 Decid. Understory 1 Evergr. Understory 1 Shrub	
0.4	15 feet	2 Canopy Tree 1 Evergreen Tree 2 Decid. Understory 3 Evergr. Understory 9 Shrub	4 Canopy Tree 0 Evergreen Tree 3 Decid. Understory 0 Evergr. Understory 14 Shrub	0 Canopy Tree 3 Evergreen Tree 0 Decid. Understory 5 Evergr. Understory 12 Shrub	0 Canopy Tree 0 Evergreen Tree 5 Decid. Understory 3 Evergr. Understory 3 Shrub	
0.6	20 feet ¹	4 Canopy Tree 1 Evergreen Tree 3 Decid. Understory 5 Evergr. Understory 18 Shrub	7 Canopy Tree 0 Evergreen Tree 5 Decid. Understory 0 Evergr. Understory 27 Shrub	0 Canopy Tree 6 Evergreen Tree 0 Decid. Understory 9 Evergr. Understory 24 Shrub	0 Canopy Tree 0 Evergreen Tree 9 Decid. Understory 5 Evergr. Understory 5 Shrub	2 Canopy Tree 4 Evergreen Tree 2 Decid. Understory 0 Evergr. Understory 19 Shrub 6-Foot Wall ²
0.8	22.5 feet				0 Canopy Tree 0 Evergreen Tree 13 Decid. Understory 7 Evergr. Understory 7 Shrub 6-Foot Wall ²	3 Canopy Tree 5 Evergreen Tree 3 Decid. Understory 0 Evergr. Understory 28 Shrub 6-Foot Wall ²

URBAN, COMPACT, AND DOWNTOWN TIERS

Opacity	Min. Width	Alt. 1 Mixed Evergreen	Alt. 2 Deciduous	Alt. 3 Evergreen	Alt. 4 Overhead Utility	Alt. 5 Intense
Plant Material Required Per 100 Linear Feet Of Buffer						
1.0	37.5 feet				0 Canopy Tree 0 Evergreen Tree 13 Decid. Understory 7 Evergr. Understory 7 Shrub 6-Foot Wall ²	4 Canopy Tree 6 Evergreen Tree 4 Decid. Understory 0 Evergr. Understory 31 Shrub 6-Foot Wall ²

¹ Use of the Intense Buffer will permit reduction of buffer width up to 25%.

² A solid hedge composed of a minimum of 40 evergreen understory trees per 100 linear feet may be substituted for a 6-foot wall.

D. Existing Slope Impacts

Commentary: Proposed projects may require more than one type of buffer. For example, a project site might include a modest slope along the southern property line (requiring a flat land buffer) and a 20% hill on the northern property line (requiring an Upslope Buffer).

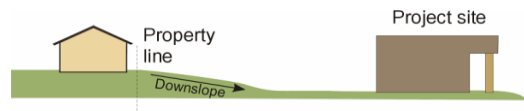
1. Buffers with at Least 15% Slope

a. General

- (1) Buffer design changes depending on the degree of slope and whether the property being developed is up or down slope from the property being protected.
- (2) On slopes of at least 15% but less than 25%, for each 100 feet of buffer section length, an upslope or downslope buffer shall be required.
- (3) On slopes of least 25% for each 100 feet of buffer section length, a steep slope buffer shall be required.
- (4) Sloped buffer areas less than 100 feet in length, as measured parallel to the property line, and with less than five feet of difference in elevation between the project site and the adjacent property shall be considered flat lands and be exempt from providing slope buffers.

b. Downslope Buffer

- (1) Where the area containing the buffer slopes down from the adjacent property line toward the interior



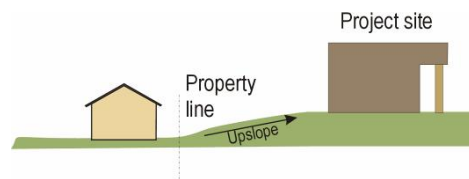
of the project site at a slope of at least 15% but less than 25%, the buffer may be less effective because roof areas may be exposed (the adjacent property looks down onto the proposed site). The developer may choose to use a steep slope buffer and retain the forest cover or

- (2) If a constructed buffer is to be provided, 60% of the buffer width (starting at the property line) shall be graded to a slope of less than 15% with the adjacent land. The fill shall return to grade at a slope not to exceed 1:3 (33%). This may require a wider buffer to accommodate the fill. The interactive buffer model established

pursuant to Sec. 9.4.7, Interactive Buffer Model, shall be used to determine whether the buffer achieves the required opacity.

c. Upslope Buffers

- (1) Where the area containing the buffer slopes up from the adjacent property line toward the interior



of the project site at a slope of at least 15% but less than 25%, the buffer may be more effective due to the masking potential of the slope. In such cases, the developer may choose to provide a standard project boundary buffer, a steep slope buffer, or apply the interactive buffer model established pursuant to Sec. 9.4.7, Interactive Buffer Model.

2. Steep Slope Buffer (Slope at least 25%)

a. Tree Covered Slopes

If a buffer area has a slope of at least 25% and tree coverage meeting the standards of Sec. 8.3.1D, Preserved Tree Coverage, exists on the site, the slope area shall be assumed to meet the requirements of a natural buffer with no healthy trees or shrubs removed and no grading or clearing permitted.

b. Slopes with Minimal Tree Coverage

If a buffer area has a slope of at least 25% but lacks the tree cover as specified above, then tree replacement pursuant to Sec. 8.3.1E, Replacement Tree Coverage, shall be required, except that:

- (1) No trees greater than two inches caliper shall be planted; and
- (2) A minimum of ten understory trees shall be provided per acre.

E. Specimen Trees Retained

Existing specimen trees, as defined in Sec. 8.3.3, Tree Survey, that are located within a required project boundary buffer shall be retained, except where the approving authority determines that the removal of such trees is required to provide safe and reasonable access to the property.

F. Variations in Buffer Width

Buffer width shall normally be calculated as perpendicular to the property line, however, design variations may be allowed and shall be calculated based on the average width of the buffer per 100 feet or portion thereof. In no case shall the minimum width of the buffer be less than one-half the required width. The maximum width, for the purposes of installing required landscaping or receiving credit for existing vegetation, shall not be more than one and one-half times the required buffer width.

9.4.6 Off-Site Vegetation

- A. Existing plant material on adjacent property may be credited toward buffer requirements, provided that such material is in a permanently protected area such as a conservation easement or similarly preserved area.
- B. Plant material, existing or proposed, on an adjacent property may be credited toward buffer requirements through use of a landscape easement.

9.4.7 Interactive Buffer Model

A. Alternative Buffers Permitted

- 1. To allow flexibility in buffer design, developers may use the interactive buffer model, maintained by the Planning Director or designee, to create a buffer meeting or exceeding the opacity standards using a variety of widths, plant material, walls or berms.
- 2. In the Downtown, Compact, and Urban Tiers, the interactive buffer model may be used; however, no alternative buffer shall be permitted to be less than one-half the minimum width shown in the tables in Sec. 9.4.5C, Urban, Compact, and Downtown Tiers, above.
- 3. In the Rural and Suburban Tiers, the interactive buffer model shall not be used, except where the slope of the buffer exceeds 15%. Buffer width shall not be reduced through use of the model.

B. Settings of the Model

Settings for the interactive buffer model are maintained at the offices of the Planning Department. Model settings may be obtained upon request at the Planning Department during normal business hours.

9.4.8 Walls, Berms and Fences in Buffers

Where walls, berms or fences are built within any required project boundary buffer, they shall meet the following requirements.

A. Walls

- 1. Walls located within a buffer may be used to permit a reduction the buffer width pursuant to Sec. 9.4.5, Constructed Buffers.
- 2. All walls, when located within a buffer, shall have planted on the side facing the adjacent property with at least one upright shrub for every six feet of wall length. These shrubs may be counted towards meeting the opacity requirement for the buffer.
- 3. Where shrubs are planted adjacent to a wall, the minimum distance between the wall and the property line shall be four feet.
- 4. The applicant shall be required to demonstrate provision for access and maintenance of landscaping and the wall structure at the time of landscape plan approval.

B. Berms

- 1. Berms located within a buffer may be used to permit a reduction in buffer width in the Suburban and Rural Tiers.

2. Berms shall have side slopes of not less than three feet horizontal for each one foot vertical and a minimum crown width of two feet. Prior to issuance of the first certificate of compliance, berms shall be planted to ensure coverage by live plant material within three to five years.

C. Fences

1. No reduction in buffer width shall be provided based on the provision of a fence.
2. Fences shall be maintained in a structurally safe and attractive condition and with finished faces and plantings located towards the adjacent property with at least one upright shrub for every six linear feet of fence length.

9.4.9 Separate Parcels for Stormwater Management

Where a separate legal parcel is permitted for stormwater management, buffers consistent with those required for the remainder of the project shall be required, except that if the stormwater parcel adjoins a street or railroad right-of-way 50 feet or less in width, a buffer with a minimum opacity of 0.2 shall be required and planted in accordance with the Public Works Department's *Reference Guide for Development*.

9.4.10 Permitted Activity Within Project Boundary Buffers

- A. Driveways or walkways may cross a project boundary buffer, provided they cross at as near a perpendicular angle as practical.
- B. Stormwater impoundments and utilities may be located in a buffer provided that an upland area that meets or exceeds the opacity requirements of Sec. 9.4.3B, Project Boundary Buffer Table, is provided.

Sec. 9.5 Land Disturbance Buffers and Revegetation

9.5.1 Land Disturbance Buffers

A. Applicability

1. Land disturbing activity of four acres or more in the Rural, Suburban and Urban Tiers where no other site improvements are proposed shall require perimeter buffers at all exterior lot lines pursuant to this section.
2. Buffers required by this section shall no longer be required upon approval of a site plan for other site improvements (other than preliminary plat) although buffers may be required by other provisions of this Ordinance. If such a site plan or a final plat is approved, the required land disturbance buffer shall be retained until a project boundary buffer pursuant to Sec. 9.4, Project Boundary Buffers, is installed.

Commentary: A site plan for buildings, not just utilities, must be approved to be relieved of the requirements of this section.

B. Buffer Standards

1. General

No grading shall be allowed within land disturbance buffers except to provide reasonable access and for utility installation.

2. Adjoining Other Properties

- a. Perimeter land disturbance buffers adjoining other properties (along exterior property lines), a minimum of 32 feet in width, measured perpendicular to the boundary of the site, shall be in place prior to any land disturbing activity, unless the adjoining property is undeveloped and has had no applications for development filed, in which case no perimeter land disturbance buffers shall be required on those sides of the site proposed for disturbance.
- b. Such buffers, when required, shall consist of existing vegetation with supplemental vegetation added, when necessary, that meets or exceeds an opacity of 0.6 on average every 100 feet as determined through use of the interactive buffer model pursuant to Sec. 9.4.7, Interactive Buffer Model, or use of the appropriate table in Sec. 9.4.5, Constructed Buffer.

3. Adjoining Public Rights-of-Way

- a. Land disturbance buffers along public right-of-way at least 50 feet in width measured perpendicular to the boundary of the site shall be in place prior to any land disturbing activity.
- b. Such buffers shall consist of preserved vegetation with supplemental vegetation added, when necessary, that meets or exceeds an opacity of 0.8 on average every 100 feet, as determined through use of the interactive buffer model pursuant to Sec. 9.4.7, Interactive Buffer Model, exclusive of areas for reasonable access or for utility installation.

9.5.2 Exemptions

Forestry activities conducted in conformance with a Forest Management Plan that uses the current best management practices set out in “North Carolina Forestry Best Management Practices Manual To Protect Water Quality,” as amended, as adopted by the North Carolina Department of Environment and Natural Resources shall not require a land disturbance buffer; however, if required buffers are not provided consistent with the requirements of Sec. 8.3.4, Clear Cutting, development of the site shall be prohibited for a period of five years (in the City) or three years (in the County) from the date of forestry activities.

9.5.3 Revegetation

Commentary: *Revegetation is required only where land disturbing activity has taken place, and no site plan for improvements has been approved within two years.*

A. Applicability

1. An owner shall have two years from the date that a site plan is approved for land disturbing activity subject to this section where no other tract improvements are proposed either to secure site plan approval for development of the tract or to revegetate the site.
2. Revegetation required by this section shall not be required upon approval of a site plan for site improvements (other than a preliminary plat) for that portion of the development tract with such improvements proposed. The remainder of the development tract shall continue to require revegetation until a site plan showing other site improvements (other than a preliminary plat) is approved.

B. Revegetation Standards

1. So long as the required land disturbance buffers pursuant to this section have been provided and maintained, revegetation of a tract that with a ground cover sufficient to restrain erosion shall satisfy the requirement for revegetation.
2. If the required land disturbance buffers were not provided and maintained, revegetation of a tract shall create a biological community composed of a mixed and variable assemblage of native vegetation which is appropriate for the existing site conditions with at least three different species of trees native to Durham County and a tree density of at least 200 living trees per acre, with at least 50% of those trees having the potential of attaining a two and one-half inch or greater dbh within seven years.

Sec. 9.6 Street Trees

9.6.1 Applicability

- A. All development shall be conducted in accordance with this section except that additions to existing residential buildings on single-family residential lots of record recorded prior to June 28, 1999, shall be exempt from the provisions of this section.
- B. Residential development utilizing the RR District shall be exempt from the provisions of this section.

9.6.2 Required Street Trees

- A. In all developments outside the DD District except residential development exempted pursuant to Sec. 9.6.1, Applicability, the developer shall either retain or plant trees such that there is an average of at least one street tree for every 40 feet of street frontage along the sides of all existing and proposed rights-of-way (except alleys), and private street easements. Street trees shall be located within 30 feet of the right-of-way or street easement and in a street yard unless the City Public Works Director or the NCDOT, or designees as appropriate authorize their location in a right-of-way and, if the trees are existing trees, the root protection zone outside of the right-of-way is protected, except where the location of the street trees in the right-of-way will conflict with public utilities. If a conflict exists with public utilities, street trees shall be located in the required street yard.
- B. The location of street trees may be varied, as long as there is a minimum of one tree every 100 feet of street frontage, unless the Planning Director or designee approves an alternate pattern to allow design flexibility for location of access points, sight clearance, or other similar factors.
- C. Street trees shall be of a species included on the Planning Director's list of acceptable street tree species.
- D. **Street Trees in the DD District**
 - 1. Street trees shall be required at a rate of one street for every 40 feet of street frontage along existing and proposed rights-of-way (not including alleys) and private street easements.
 - 2. Street trees shall be located in the right-of-way or street easement unless the Public Works Director or NCDOT, as appropriate, requires an alternate location.

Commentary: Street trees in the right-of-way require separate approval from the City Public Works Director or NCDOT.

3. Alternative Street Tree Requirement

- a. If the prescribed street tree location is in conflict with any public utility or traffic control device, an alternative may be provided in lieu of the street tree requirement with the approval of the Planning Director or designee.
- b. Where development incorporates existing buildings and the distance from the back-of-curb to the building face is less than 10 feet, an alternative may be provided in lieu of the street tree requirement with the approval of the Planning Director or designee.

- c. Street tree alternatives, when provided, shall meet the following standards:

Alternative	Standards
Public Art	Shall provide a minimum of 100 square feet of public art along the street frontage in-lieu of each required street tree
Green screen or wall	Shall be a minimum of 100 square feet along the street frontage in-lieu of each required street tree and shall be a minimum of 50% evergreen.
Awnings	Shall be a minimum of 10 linear feet along the street frontage in-lieu of each required street tree and shall be a minimum of 5 feet in depth.
Landscape Planters	Shall provide a minimum of 2 landscape planters with a planting area of 5 square feet or greater in-lieu of each required street tree.

9.6.3 Credit for Existing Trees

- A. Developers may use existing trees to meet the requirements of this section, as long as existing trees are protected in accordance with the standards of Sec. 8.3.2, Protection of Existing Vegetation.
- B. Trees preserved to meet other requirements of this Ordinance may be used to meet the requirements of this section as well, provided they meet the minimum size and location requirements of this section.

Commentary: *Trees that would be located in a side yard behind the front building line (where a fence could be built) or located behind any portion of a building cannot be used for credit.*

9.6.4 Street Tree Installation

- A. Required street trees shall be clearly noted on any site plan, preliminary plat, or final plat.
- B. Street trees shall be at least two and one-half inch caliper, unless an alternate size which addresses unique site characteristics is approved by the Planning Director, or designee.
- C. In the Suburban and Rural Tiers street trees shall not be located in, or within four feet of, any street right-of-way without prior approval from the City Public Works Director or the NCDOT, or designees as appropriate.
- D. In the Suburban and Rural Tiers, at least 250 square feet of contiguous growing area without encroachments shall be provided for each tree. The Public Works Director, or designee, shall have the authority to approve a street tree growing area of smaller size where special features are utilized in the site design to provide for adequate growth of street trees.
- E. In the Urban and Compact Neighborhood Tiers, at least 200 square feet of contiguous growing area, without encroachments other than sidewalks, shall be

provided for each tree. The Public Works Director, or designee, shall have the authority to approve a street tree growing area of a smaller size where special features are utilized in the site design to provide for adequate growth of street trees.

- F.** In the DD District at least 200 square feet of contiguous growing area, without encroachments other than sidewalks, shall be provided for each tree. If the critical root path system is utilized, as detailed in the Durham Landscape Guidelines, each tree shall be provided 150 square feet of continuous growth area. The Planning Director or designee, with a recommendation from the Urban Forester, shall have the authority to approve a smaller street tree growing area where other special features are utilized to provide for adequate growth.
- G.** Planting location shall take into consideration any roadway widening identified on approved thoroughfare plans but not provided by the development.
- H.** Required street trees shall be planted before a Certificate of Compliance is issued, unless the planting has been postponed to the appropriate season in accordance with the requirements of Sec. 9.11.2, Extensions for All Other Development.
- I.** In the DD-C sub-district, the floating sidewalk system over street tree planting pits shall be utilized to maximize useable sidewalk area.

Sec. 9.7 Screening

9.7.1 Applicability

- A.** This section shall apply to the following:
 - 1.** Air handlers and similar mechanical equipment in multifamily or nonresidential development;
 - 2.** Class B outdoor storage;
 - 3.** Loading areas;
 - 4.** Trash handling facilities, including dumpsters and recycling; and
 - 5.** Uses requiring screening pursuant to Sec. 5.3, Limited Use Standards.
- B.** The features and uses listed above need not be screened from similar features and uses on adjacent lots and within the I District, except where project boundary buffers would be required pursuant to Sec. 9.4, Project Boundary Buffers.
- C.** All rooftop equipment shall be screened or setback so that it is not visible from any adjacent right-of-way, except that solar panels shall be exempt from screening requirements.

9.7.2 Standards

Features and uses specified above, shall provide a visual obstruction from adjacent properties and as otherwise required under Sec. 7.6.3, Screening, and Sec. 10.7.7, Landscaping and Screening Requirements in conformance with the following standards:

- A.** Except as otherwise required under Sec. 7.6.3, Screening, the screen may be composed of view-obscuring vegetation used individually, or in combination with a wall, semi-opaque fence, or berm. The screen height shall be eight feet from the ground, except that utilities and trash handling facilities shall be screened to the height of the facilities plus six inches.
- B.** When vegetation is the primary source of screening, the interactive buffer model described in Sec. 9.4.7, Interactive Buffer Model, may be used to design this screen. A minimum opacity of at least 0.8 that obscures views from the ground to the height of the object being screened shall be attained.
- C.** Plant materials shall be at least two feet tall at the time of installation and reach the desired height within three to five years of planting.
- D.** Except for screening around roof-top equipment, one upright shrub of an evergreen species shall be installed per four linear feet of any wall or fence that faces off-site.

9.7.3 Credit for Other Landscaping

Plant material in project boundary buffers may be counted towards the requirements of this section when located to serve both functions.

Sec. 9.8 Vehicular Use Area Landscaping

9.8.1 General

A. Defined

For the purposes of this section, areas used for vehicle service, parking (including structured parking), parking lot drive aisles, and business transactions such as areas adjacent to gasoline pumps (even if under a canopy) and areas for drive-up service, shall be considered vehicular use. Driveways that are perpendicular or nearly perpendicular to the street and serve as an entrance to the site shall not be considered vehicular use areas for purposes of this section.

B. Applicability

The following areas shall meet the requirements of this section.

1. Any new off-street parking area containing four or more spaces, or vehicular use area of 1,500 square feet or more (except for parking associated with single-family or two-family development on single lots).
2. Any expansion of an existing off-street vehicular use area consistent with the dimensions identified above.
3. Sites where a building is torn down and reconstructed, regardless of whether or not the new building is larger than the original building if the vehicular use area associated with the new building meets the standards listed above.
4. Only the regulations in Sec. 9.8.4, Vehicular Use Area Landscaping in the DD District, shall apply to vehicular use areas in the DD District.

C. Standards

1. No canopy trees used for vehicular use area landscaping credits shall be planted farther than 10 feet from the edge of the vehicular use area. No understory trees or shrubs shall be planted farther than 15 feet from the edge of the vehicular use area. All shrubs and trees shall be located at least three feet from either the back of curb of the vehicular use area or back of wheel stops.
2. Plant materials shall be located to facilitate safe sight distances within parking lots. Plants located at the end of parking lot islands, within the sight distance triangles, or in medians shall be a species with a maximum mature height of 30 inches.
3. Tree planting and site lighting shall be coordinated to reduce conflicts between mature trees and light standards.

9.8.2 Vehicular Use Area Perimeter Landscaping

A. Vehicular Use Areas Visible From Streets

1. Applicability

Any vehicular use area subject to this section that has exposure to a public or private street (except an alley), and is located within 50 feet of a right-of-way or access easement shall provide a landscaped area, adjacent to and outside of the street right-of-way or access easement, equal to six square feet for each linear foot of street frontage, less driveways, which may cross required landscape

areas if constructed at angles perpendicular or nearly perpendicular to property lines.

2. Standards

a. Any landscaped area used for credit shall be a minimum of three feet and a maximum of 30 feet in width in all Tiers except Compact Neighborhood, where the maximum width shall be 10 feet.

b. Canopy Trees

- (1) Canopy trees (except under overhead power lines, where understory trees shall be used) shall be planted at the rate of one 2½-inch caliper tree per 40 linear feet of vehicular use area along the street, less driveway widths.
- (2) Areas with canopy trees shall be at least 10 feet deep from right-of-way to back of curb or pavement edge, and shall provide 250 square feet of contiguous growing area for each tree not encroached upon by impervious pavement in the Suburban and Rural Tiers. In the Urban and Compact Neighborhood Tiers, the minimum contiguous growing area shall be 200 square feet and sidewalks may be permitted to encroach in that growing area.
- (3) Project boundary buffer canopy trees pursuant to Sec. 9.4, Project Boundary Buffers, (to the extent such trees are located to serve the function of this section) and street trees pursuant to Sec. 9.6, Street Trees, may be credited for purposes of this section.

c. Shrubs

- (1) Shrubs shall be planted at the rate of one 15-inch high shrub per three linear feet of property line abutting public streets less driveways. The spacing may be varied based upon size of installed plant materials.
- (2) Except within sight distance triangles, such shrubs shall be of a species expected to reach a minimum height of 30 inches and a minimum spread of 30 inches within three to five years of planting.
- (3) At least 60% of shrubs shall be evergreen.
- (4) A wall consistent with the requirements of Sec. 9.9, Fences and Walls, at least 30 inches tall may be substituted for the required shrubs.

B. Vehicular Use Areas Visible from Adjacent Property

1. Applicability

Any vehicular use area subject to this section on projects not required to provide a project boundary buffer pursuant to Sec. 9.4, Project Boundary Buffers, shall provide a landscaped area between the edges of the pavement and the perimeter property lines not required to provide landscaping pursuant to paragraph A, Vehicle Use Areas Visible from Streets, unless the property lines fall within a vehicular use area in common use.

2. Standards

- a. The minimum width of the landscaped area shall be large enough to accommodate the plant materials required in Sec. 9.8.2B.2.b below, but shall not be less than six feet per linear foot of vehicular use area edge facing off site, unless wheel stops are provided, in which case the minimum width may be reduced to four feet.
- b. Required landscaping shall consist of the following materials:
 - (1) Evergreen or deciduous canopy trees, at the rate of one per 25 linear feet of vehicular use area, to be planted within an area with a minimum dimension of 10 feet in the vicinity of the tree, and with a contiguous growing area of 250 square feet in the Suburban and Rural Tiers or 200 square feet in the Urban and Compact Neighborhood Tiers.
 - (2) Understory trees, at the rate of one per 18 feet, with a contiguous growing area of 125 square feet and a minimum dimension of seven and one half feet.
 - (3) Evergreen shrubs, 15-inch minimum height, at the rate of one per four linear feet of required planting area.
- c. When adjoining properties are already developed with parking lots adjacent to the proposed site and have landscaping installed to satisfy the requirements of this section only, 50% of the required plant materials shall be required.

9.8.3 Landscaping within Vehicular Use Areas

A. Applicability

- 1. Development with vehicular use areas exceeding 3,000 square feet (including accessory drives and aisles but excluding areas under canopies and within structured parking) shall provide and maintain landscaped areas based upon the surfaced vehicular use area.

B. Standards

1. General

- a. Areas used for landscaping shall be provided in the amount equivalent to at least 15% of the vehicular use area, and shall be used for planting trees and shrubs according to the credits below.
- b. Minimum curb radii of three feet shall be required on the corners of all tree islands and medians to allow for free movement of motor vehicles around planting materials. All islands or medians shall have raised edging or other devices (such as wheel stops) around them to protect plants from being damaged by motor vehicles.

2. Trees

- a. Tree planting areas shall be located such that no parking space is farther than 50 feet from a canopy tree trunk.
- b. Trees shall be planted at a rate of one two-inch caliper canopy tree per 2,000 square feet of vehicular use area.
- c. Landscaped areas surrounded by impervious surfaces shall have a minimum width of 10 feet when they include canopy or understory trees, and shall contain at least 200 square feet of growing area per tree. Larger growing areas may be required, depending on the species of tree planted.
- d. Alternate planting designs may be approved by the Planning Director, or designee, provided the design demonstrates that at least 35% of the vehicular use area shall be shaded during the summer months within 15 years of planting.

3. Shrubs

- a. One shrub shall be required per 250 square feet of vehicular use area.
- b. This rate may be varied by the Planning Director or designee considering alternate shrub heights, ground covers, or other factors in accordance with the Planning Department's landscape standards.

C. Maintenance

All canopy trees located within vehicular use areas shall be limbed up to a height of six feet to allow for clear views under them.

9.8.4 Vehicular Use Area Landscaping in the DD District

A. Applicability

- 1. This section applies to any vehicular use area located in the DD District that is not located within a parking structure, including parking lots where no building permit is required.
- 2. For parking structures the architectural standards set forth in Sec. 6.12.3E.6, Parking Structure Frontage Type Standards, shall apply. No vehicular use area landscaping shall be required.

B. Standards

1. General

a. Vehicular Use Area Perimeter Landscaping

A landscaped area equal to 6 square feet for each linear foot of street frontage shall be provided adjacent to and outside of the right-of-way. This area shall be provided along the entire street frontage, less driveways.

b. Landscaping within Vehicular Use Areas

- (1) Vehicular use areas completely internal to the block and not adjacent to a street shall be exempt from providing landscaping.

(2) Surface parking areas with 65 feet of street frontage or greater shall be required to meet the standards of Sec. 9.8.3, Landscaping within Vehicular Use Areas.

- c. Alternate designs may be approved by the Planning Director or designee, subject to review by the DDRT, provided the design demonstrates survivability for landscaping or appropriate standards for hardscaping and that all frontage contains landscape, hardscape, or a fence or wall.

2. Trees

- a. Canopy trees shall be planted at a rate of one 2 ½-inch caliper tree per 30 linear feet of vehicular use area street frontage. Street trees may be used to meet this requirement.
- b. Areas with canopy trees shall provide 150 square feet of contiguous growing area. Sidewalks may be permitted to encroach in that growing area if the critical root path system is used, in conformance with the Durham Landscape Guidelines, and required clear zones, as per Sec. 6.12.3F.1, Sidewalks, are maintained.

3. Shrubs

- a. Shrubs shall be required at a rate of one per four linear feet of required landscape area.
- b. Shrubs shall be of a species expected to reach a minimum height of 30 inches and a minimum spread of 30 inches within five years of planting. Lower shrubs may be required in sight distance triangles.
- c. At least 60% of required shrubs shall be evergreen.

4. Amenities

Streetscape amenities may be located in the vehicular use area landscaping area, adjacent to the street.

Sec. 9.9 Fences and Walls

9.9.1 Height

- A.** The maximum height of a fence or wall shall be as shown in the table below, unless a higher fence or wall is required by other provisions of this Ordinance or if the fence is associated with a recreational facility, such as a tennis court, or an electrical substation.

Height	Rural	Suburban	Urban	Compact	Downtown
Street Frontage*					
By Right	8	4	4	4	4
No Street Frontage	8	8	8	8	8

***Note:** Fences and walls located between the front of a structure and the right-of-way shall meet this standard, unless the fence or wall is more than 50 feet from the right-of-way, in which case the “No Street Frontage” standards shall apply.

- B.** Fences or walls within required street yards shall comply with the street frontage height standard except for fences or walls in street yards that are located to the rear of a primary structure. Fences in these locations may be built to the height limit of fences and walls not in street yards, so long as such fences are not within sight distance triangles.
- C.** Adjustments to the height limits may be permitted by the Planning Director, or designee, due to field conditions or in order to accommodate decorative features on the fence or wall.
- D.** The Board of Adjustment may issue a use permit to allow fences or walls up to eight feet in height where all of the following findings are made:
1. That the fence or wall does not impede the natural light from reaching the subject or surrounding properties to their detriment;
 2. That normal circulation of air is not unreasonably impeded by the fence or wall for the subject or surrounding properties;
 3. That the fence or wall will not hinder access to the subject or surrounding properties for emergency services;
 4. That the fence or wall shall be reasonably compatible with the surrounding properties in that it will not adversely affect property values; and
 5. That vision clearances for pedestrian and vehicular traffic will not be impeded. Conditions may be specified to protect the welfare of the neighborhood and adjacent properties.

9.9.2 Fences

- A.** A finished side of all fences shall face off site. If support posts are located or visible on one side only, that side shall be deemed the unfinished side.
- B.** Razor wire, concertina wire, barbed wire, and similar fencing materials shall be prohibited in all residential districts except in the Rural Tier.

9.9.3 Walls

- A. Walls shall be constructed of one or a combination of the following materials: stucco over concrete block, exposed aggregate concrete, brick, stone, or architectural block in a structurally safe and attractive condition. Alternative walls may be permitted with the approval of the Planning Director, or designee, if such alternative walls provide a similar level of opacity to that of the listed materials and are in keeping with the architecture of the development. No walls of exposed, plain or painted-only concrete cinder block shall be permitted.
- B. No wall shall be located within any required drainage, utility or similar easement.
- C. Pedestrian connections through walls that connect to adjacent neighborhoods or other uses shall be encouraged. In addition, barbed wire may be used for additional protection of electrical substation in conjunction with other fencing materials in any residential district.

9.9.4 Retaining Walls

- A. Retaining walls may be located within required yards.
- B. Retaining walls built to support a grade eight feet or more higher than the grade at the interior edge of the buffer shall also be set back 10 feet from the interior edge of the buffer.

9.9.5 DD District Additional Standards

- A. Fences and walls shall incorporate materials, elements, or details of the architecture.
- B. Retaining walls over four feet high shall be terraced when located along the street frontage or within the street yard.
- C. Fences and walls shall incorporate changes in plane, height, texture, material, finish, or significant landscape massing to minimize visual monotony.

Commentary: *Interest and variety can be provided through the use of offsets, pilasters, columns, and insets, as well as through the artful combination of architectural materials.*

- D. Uncoated chain link fences (with or without any type of inserts) shall not be permitted. Coated chain link fencing shall only be permitted for use at recreational facilities.

Sec. 9.10 Installation and Maintenance

9.10.1 Responsibility

Unless otherwise stated, the owner of any property where landscaping or buffering is required shall be responsible for the maintenance of all required plant material (including street trees located off-site), fences and walls. Maintenance responsibilities shall include the clearing and replacement of required material that is dead and/or dying.

9.10.2 Pruning

A. General

Trees and shrubs shall be kept trimmed back from doors, windows, and walkways.

B. Standards

Necessary pruning and trimming shall be in accordance with the American National Standards for Tree Care Operations: Tree Shrub and Other Woody Plant Maintenance – Standards Practices (Pruning), and shall not be interpreted to include topping of trees through removal of crown material or the central leader, or any other similarly severe procedures such as lollipoping, meatballing, or hatracking that cause irreparable harm to the natural form of the tree, except where such procedures are necessary to maintain public overhead utilities. Any such activity shall be a violation of this Ordinance and additional plant material may be required by the Planning Director or designee to replace or supplement the damaged plant material.

Sec. 9.11 Extensions

9.11.1 General Request for Extension of Compliance

It is recognized that land development occurs continuously and that vegetation used in landscaping or screening should be planted at certain times to ensure the best chance of survival.

9.11.2 Extensions for All Other Development

- A.** In order to ensure compliance and to reduce the potential expense of replacing landscaping or screening materials which were installed at an inappropriate time or under unfavorable conditions, a letter of request for extension of compliance with landscaping requirements may be filed with the Planning Director, or designee, which states the reasons why the request is being made., This letter shall acknowledge that the applicant is aware of all landscaping and screening requirements, and will comply with those requirements within 90 days, or discontinue use of the property.
- B.** The Planning Director, or designee, shall grant the extension on requests for planting extensions for single-family development submitted between May 15 and September 15 of each year and may grant the extensions for other uses and at other times if there are unfavorable conditions for planting.
- C.** If the initial letter of request for extension of compliance with landscaping requirements has expired and conditions are still deemed unsuitable for planting, an applicant may request one additional extension of up to 90 days. During periods of extreme drought, as evidenced by the official declaration of Stage 3 or greater mandatory water conservation requirements, the Planning Director, or designee, may authorize additional 90-day extensions beyond the one extension typically allowed. These extensions may be continued throughout the period in which the extreme drought conditions remain.
- D.** The applicant shall also acknowledge that while a Conditional Certificate of Compliance may be issued, no Final Certificate of Compliance shall be issued while there is an active (pending) letter of request for extension of compliance with landscaping requirements unless a performance guarantee (such as a letter of credit or performance bond) sufficient to cover 150% of the installed landscaping costs has been posted with the Inspections or Planning Department.

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