

Article 12 | Tree Preservation, Landscaping, Screening, Open Space and Outdoor Lighting

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Sec. 12.1 General

12.1.1 Purpose and Intent

The purpose and intent of this article is to provide for tree preservation, landscaping, open space and outdoor lighting for; the general health, safety and welfare of our citizens; to enhance the community by the creation of an attractive environment; to protect property values and to further the urban design and economic development objectives of the Town Plan. To these ends, these regulations are intended to promote the preservation, planting and conservation of resources which provide important aesthetic, social, and economic benefits indispensable to the conservation and management of atmospheric, water, soil, and ecological resources which:

- A. Provide for preservation and planting of trees in the development process to create a specified tree canopy or cover in twenty years pursuant to the authority granted in Section 15.2-961 of the Code of Virginia, 1950, as amended and as more particularly set forth herein.
- B. Provide parking lot landscaping to reduce the harmful effects of heat, noise and glare associated with motor vehicle use.
- C. Provide for the creation of safe, attractively landscaped areas adjacent to public streets by using landscape materials which separate vehicular and pedestrian areas.
- D. Provide for screening and buffering between incompatible land uses.
- E. Provide for shade and enhance the appearance of urban areas.
- F. Provide for the protection of ground water, improve air quality and stormwater management through the mitigating effects of trees.

- G. Provide for useful and attractive open space areas.
- H. Provide for required outdoor lighting.

12.1.2 General Applicability

The provisions of this article shall apply to all land development applications submitted after January 1, 2010, except that site plan waivers and minor subdivisions submitted after November 10, 2009, shall be exempt from the applicability of these provisions. This article does apply to the enlargement of any parking lot, but does not apply to the resurfacing of any existing parking lot. This article shall apply to the construction of any parking lot with greater than five (5) spaces and the construction, extension or widening of any street.

Sec. 12.2 Administration

12.2.1 Landscape Plan Required

A landscape plan meeting the requirements of this article is required for all subdivision plat and site plan applications as described in Division 2 (Subdivision) and Division 3 (Development) of the *Subdivision and Land Development Regulations*.

12.2.2 Review Procedures

The Land Development Official, or designee, shall be responsible for the review of all landscape plans and tree preservation plans.

12.2.3 Contents of Landscape Plan

A landscape architect, landscape designer or landscape contractor shall prepare every landscape plan required by this article. All landscape plans shall contain the following information:

- A. **Scale.** Plans shall be drawn to a scale of not less than 30 feet to the inch on sheets not exceeding 24 by 36 inches;
- B. **Contents.** All plans shall illustrate with sufficient detail the location of all proposed construction including driveways, parking areas, curbs, sidewalks, utility lines, utility easements, structures and landscape areas. Landscape areas shall indicate dimensions, and all proposed trees shall be illustrated at their full canopy spread as listed in Sec. 12.9.6. Landscape material proposed must comply with the Design and Construction Standards Manual planting practices within easements;
- C. **Schedule.** All plans shall be accompanied by a schedule of plants proposed, including the number proposed, their height, caliper or gallon size, common and botanical name, the amount of tree canopy area credit and percent diversity (See Section 12.9.4). The plan shall identify each plant species with a unique symbol. The Plant Schedule Table can be found at <http://www.leesburgva.gov/government/departments/planning-zoning/forms-related-links>; and
- D. **Open Space.** All plans shall include a table calculating the amount of open space and number of plants and trees required by the Zoning Ordinance and the amount of open space and number of plants and trees provided.

12.2.4 Contents of a Tree Preservation Plan

A tree preservation plan shall be prepared for each site that has existing trees intended for preservation. The plan should be prepared by or in consultation with an arborist certified by the Mid-Atlantic Chapter of the International Society of Arboriculture. Methods of protecting the vegetation shall be illustrated or explained on the Erosion and Sediment Control Plan. All tree preservation plans shall contain the following information:

- A. Scale.** Plans shall be drawn to a scale of not less than 30 feet to the inch on sheets not exceeding 24 by 36 inches or an alternate scale agreed to by the Town.
- B. Contents.** All plans shall delineate the edges of predevelopment tree canopy, the proposed limits of disturbance and the location of the tree protection limits.
- C. Worksheet.** All plans shall include 20 year tree canopy calculations in accordance with Section 12.3.1 on a worksheet provided by the Town of Leesburg found at www.leesburgva.gov/government/departments/planning-zoning/forms-related-links.

Tree Management Report. All plans shall include a Tree Management Report (TMR) that will document the health and structural condition of the existing trees to be preserved. A Tree Management Report shall follow the Tree Inventory and Condition Analysis Guide and the Tree Management Report Table found at www.leesburgva.gov/government/departments/planning-zoning/forms-related-links.

12.2.5 Monitoring and Enforcement

- A. Responsibility.** The enforcement of the provisions of this article shall be the responsibility of the Zoning Administrator. Any violation of this article is a civil misdemeanor as described in Sec. 17.3.1.
- B. Occupancy Permits.** No occupancy permit shall be signed until the trees, plants and other screening materials required by this article have been installed to the satisfaction of the Zoning Administrator. In order to better guarantee the success of planted materials required to be installed as part of a site plan, between the months of December – February and June – August only landscape bonds calculated using the Town of Leesburg Landscape Bond Schedule will be accepted for zoning approval on Occupancy Permit certificates supplied by Loudoun County.
- C. Bonds.**
 - 1. Occupancy Permits.** If, between the months of December – February and June – August, or in the opinion of the Zoning Administrator, the weather prohibits the installation of the required trees, plants or screening materials at the time of occupancy, the applicant shall post a cash bond for the installation of the required plants and installation costs. The bond shall be supported by (1) an estimate prepared by a landscape contractor of the cost of installing such landscaping, which

amount must be determined to be sufficient by the Land Development Official, and (2) a letter expressing the intent of the contractor to install the required plants. If the required landscaping is not installed within six (6) months, the bond shall be forfeited to the town to use for the planting of the required materials.

2. **Planned Developments.** No Site Plan or Final Plat within a Planned Development District shall be approved until the subdivider or developer has furnished to the town a cash deposit, corporate surety bond (in a form approved by the Town Attorney), or other guarantees satisfactory to the Town Council to ensure installation of all required landscaping. The bond shall be supported by (1) an estimate prepared by a landscape contractor of the cost of installing and constructing all landscaping shown on the approved subdivision plat or site plan. This amount must be determined to be sufficient by the Land Development Official. The surety shall be conditioned upon and shall guarantee the installation and construction of all landscaping shown on the plans and shall be released upon installation and construction of the landscaping in accordance with the plans. (2) The subdivider or developer shall further guarantee the maintenance and replacement, as necessary, of landscaping for two years after installation and shall furnish a cash deposit, corporate surety bond or other guarantees satisfactory to the Town Council in an amount equal to ten percent (10%) of the costs of installation and construction of landscaping shown on the approved subdivision plat or site plan. This guarantee shall be released upon certification by the Zoning Administrator that the required landscaping has been completed and maintained in accordance with the requirements of the bond.
3. **Bond Amount Determination.** The bond amount required shall be based on the Landscape Bond Schedule as prepared and revised by the Urban Forester.

D. Conservation Easements. For the purpose of conserving and preserving undisturbed natural vegetation, topography, habitat and other natural features now existing on and across the property, a conservation easement may be required at the discretion of the Land Development Official.

Sec. 12.3 Twenty-Year Tree Canopy Requirements

12.3.1 Requirements

All submittals of a final subdivision plats or site plans under Article 13 of the Subdivision and Land Development Regulations shall include a plan for the preservation, planting and/or replacement of trees on the site to the extent that, at maturity of twenty years, minimum tree canopies or covers will be provided in the areas designated in the Town of Leesburg Zoning Ordinance as follows:

- A. Ten percent (10%) tree canopy for a site zoned business, commercial or industrial.
- B. Ten percent (10%) tree canopy for a residential site zoned twenty (20) or more units per acre.

- C. Fifteen percent (15%) tree canopy for a residential site zoned more than ten (10) but less than twenty (20) units per acre.
- D. Twenty percent (20%) tree canopy for a residential site zoned ten (10) units or less per acre.
- E. If the full canopy requirement cannot be achieved on-site, the remaining requirement of canopy shall be calculated with the cost amount listed in Section 12.3.3.B Pro-rata Tree Canopy Cost below and a fee for the total shall be collected and deposited in the Town of Leesburg tree fund.
- F. For the purpose of this section, “site” shall include all of the area within a property boundary, either as proposed on the final subdivision plat or site plan or the existing property (property line to property line). In instances where a small portion of land is not being subdivided out of a larger tract of land and is the subject of a site plan application, the Land Development Official may accept the smaller site area for canopy calculation purposes. For multi-phased or sectioned subdivisions, canopy may be calculated for the overall subdivision.

12.3.2 Calculations and Exceptions

- A. **Trees.** Existing trees preserved on-site may be used in the tree canopy calculation as a sq. ft. coverage, including parking lot landscaping and street plantings required by this article. Any existing trees used to meet the minimum canopy requirements of the ordinance must be identified by type and be at least twelve inch (12”) diameter, in healthy and structurally sound condition and be protected from construction activity. Healthy and structurally sound conditions are defined as any tree rated at 40 percent or greater when the roots, trunk, scaffold branches, small branches and twigs, foliage and buds are evaluated and documented through field observations using the latest edition of the Guide for Plant Appraisal condition rating guide. Such protection procedures shall be illustrated on the Erosion and Sedimentation Control Plan, and the Tree Preservation Plan.
- B. **Tree planting credit.** Street trees shall be counted toward required tree canopy cover. All trees planted on site as well as street trees planted in public right of way shall qualify for the minimum tree canopy calculation provided that:
 - 1. The minimum size planted tree that will qualify for tree cover credit shall meet the minimum height and caliper requirements of Sec. 12.9.2; and
 - 2. The minimum tree canopy calculations for the planted trees shall be based on the projected twenty-year tree cover area for each tree as shown in Sec. 12.9.6 (Tree Selection and Cover Guide).
 - 3. Any tree planted within twenty (20) feet of a light pole shall not be counted toward the minimum canopy coverage requirement.
- C. **Exclusions from minimum tree canopy calculations.** An exclusion from the minimum tree canopy requirement is permitted for areas comprised of the following features which shall be identified and shown on the subdivision plat or site plan:

1. Lakes and retention ponds, based on the normal water surface elevation, and swimming pools. Embankment, dam, or other control devices and easements in conjunction with the facility;
2. Lands under active commercial production or management of agricultural, horticultural or forest crops; landfills and quarries;
3. Major utility distribution easements of twenty-five (25) feet or more in width;
4. Floodplains and preserved wetlands;
5. Farmland or areas devoid of woody material;
6. Dedicated school sites;
7. Playing fields and other non-wooded recreation areas;
8. Dedicated right-of-way-streets; and
9. Law Enforcement Agencies.

12.3.3 Tree Preservation and Tree Canopy Fund

The Land Development Official may allow developers to contribute a pro-rated fee into the Town's Tree Canopy Fund when full canopy requirements cannot be provided on-site. The Town may use this fund directly to plant trees on public property including the right-of-way on public roads or the Town may elect to disburse this fund to community-based organizations exempt from taxation under 501 (c) (3) of the Internal Revenue Code for tree planting projects that benefit the community at large.

- A. Fee Basis.** Fees collected for these purposes shall be based on the cost to establish 20-year canopy cover using two-inch caliper nursery stock tree.
- B. Pro-rata Tree Canopy Cost.** The cost to establish a new tree with a twenty (20) year canopy area starting with a two (2) – inch caliper nursery stock shall be \$990.00. This price covers the cost typically associated with purchasing plant material, cost of installation, and cost associated with proper tree care to ensure the development and survival of a healthy tree.
- C. Five Year Time Limit.** Any fees collected for these purposes must be spent within a five-year period established by the collection date or the fees will be refunded to the original contributor or legal successor.

12.3.4 Credits for Tree Canopy

Existing tree cover within any proposed subdivision plat or site plan shall be retained to the greatest extent possible and taken fully into account in the design of the improvements, grading of the property and calculation of the minimum tree canopy requirement. Such calculation shall be measured in square feet.

Existing tree canopy credit shall be granted if the following steps are taken:

- A.** Trees are listed on a Tree Management Report with a condition rating of 40% or greater;
- B.** Trees are shown on the Tree Preservation Plan with their Critical Root Zone entirely within the delineated tree protection area;
- C.** Tree protection details and narratives are on the Tree Preservation Plan; and

- D. Credit will be given as 1.5 times the full diameter of the tree's drip line for sites with tree canopy requirements of 10% or less. For example, for a 30 feet diameter canopy, credit will be given for a 45 feet diameter save area. Credit will be given at 2 times the full diameter of the tree's drip line for sites with a tree canopy requirement of 15% or greater. For example, for a 30 feet diameter canopy, credit will be given for a 60 feet diameter save area.

12.3.5 Qualifying Canopy Credit

All trees planted to qualify for canopy credits must meet the specifications of the American Association of Nurserymen standard Z60.1 or latest revision.

12.3.6 Damage to Preserved Trees

In the event that existing tree canopy proposed to be preserved for tree canopy credits dies or must be removed because it represents a hazard, the canopy will be replaced by the planting of nursery stock trees. The number of replacement trees will be calculated following the Town's Tree Replacement Formula. The formula can be found on the Town Website at www.leesburgva.gov.

Sec. 12.4 Street Trees

12.4.1 Applicability

Street tree planting is required any time a street is constructed, extended or widened, including any capital improvement projects, and all development applications, including Site Plan Waiver, and for all development and redevelopment within the corporate limits except as specifically modified during the rezoning process. This requirement shall apply to all zoning districts. Street trees shall be located within the required front yard or public rights-of-way based on a recommendation by the Urban Forester. However, if the Land Development Official and the Director of Plan Review determine that unacceptable conflicts with public facilities will result then street trees must be planted within the required front yard.

12.4.2 Species

Tree species shall conform to those identified as street trees on the Tree Selection and Cover Guide of Sec. 12.9.6. Substitutions may be requested in writing prior to installation of the trees to the Land Development Official, or designee. In reviewing plans for street tree plantings the Land Development Official shall consider:

- A. The size, type and condition of existing street trees;
- B. The majority of street trees planted shall be medium or large scale canopy trees to provide shade and visual relief except where overhead utility lines prohibit such trees;
- C. Only trees having a mature height of less than 20 feet shall be located under overhead utility lines;
- D. Understory trees should be planted in groups; and
- E. Only single stem trees shall be planted as street trees.

12.4.3 Number

One (1) medium or large canopy tree shall be provided for every forty (40) feet of street frontage, excluding the width of vehicle entrances. In cases where street trees

are planted under or near overhead utility lines and understory trees are required per Sec. 12.4.2.C, one (1) tree should be provided for every thirty (30) feet of street frontage. In the case of capital improvement projects for public streets, one (1) tree should be provided for every forty (40) feet of street frontage; however, in no case shall there be a net loss in the number of trees in the area improved. In cases where street trees are planted under or near overhead utility lines and understory trees are required per Sec. 12.4.2.C, one (1) tree should be provided for every thirty (30) feet of street frontage.

12.4.4 Location

Street trees shall be located either within the public right-of-way or no further than fifteen (15) feet from the sidewalk or edge of pavement. Nothing in this section shall be construed as to require that tree plantings be planted at even intervals. Minimum recommended spacing between trees should be thirty (30) feet for large and medium canopy trees.

12.4.5 Planting Standards for Trees in Rights-of-Way

The Urban Forester must approve the types of trees to be planted in the public rights-of-way. In addition, trees planted in the public rights-of-way must comply with clear zone requirements pursuant to Appendix B (1) of VDOT's Subdivision Street Design Guide and the Town's typical street tree detail.

- A. Modification/Waiver Provision.** Street tree plantings may be reduced or eliminated at the discretion of the Land Development Official in accordance with the provisions below and provided canopy coverage calculations are submitted with every modification request. Payment to the Tree Canopy Fund is required when the minimum standards found in Section 12.3.1 have not been met. Any such modification issued by the Land Development Official shall be in writing and shall set forth the reasons for granting the modification.

Sec. 12.5 Perimeter Parking Lot Screening

12.5.1 Applicability

All parking areas described below, unless explicitly exempted, must be screened as described in this article. For the purposes of this article, parking lots are defined as any area used for the display or parking of any and all types of vehicles, boats or heavy construction equipment, whether these vehicles are or are not for sale or lease. This definition includes, but is not limited to, parking lots and display areas for automobile dealerships and service stations. The area of the parking lot shall be calculated to include all paved areas used for ingress/egress. The requirements of this section shall apply to the construction or enlargement of any parking lot with five (5) or more parking spaces. No perimeter parking lot screening shall be required if an S-2 or S-3 screen as described in Sec. 12.8.6. is required to be installed where the perimeter parking lot landscaping would otherwise be installed.

12.5.2 Definition

Perimeter parking lot screening shall include all landscape areas outside the perimeter of the paved area of the lot and any landscape area required adjacent to a public street.

12.5.3 Parking Lots Adjacent to Public Streets

- A. Landscape Area.** A continuous landscape area ten (10) feet in width, exclusive of easements, sidewalks, trails or right-of-way, shall be located between the parking lot and the property line. If road improvements are necessary across the frontage of the property, a continuous landscape strip with an average width of ten (10) feet may be provided to meet the requirements of this section. If a parking lot is built adjacent to an existing parking lot which has landscape area narrower than ten (10) feet in width, the width of the existing landscape area may be continued provided that it is at least four (4) feet wide.
- B. Number of Trees.** One (1) tree for at least every forty (40) feet of frontage shall be planted in the landscape strip.
- C. Screening Adjacent to Public Street.** All parking lots adjacent to the public street must be screened along the street frontage except as necessary for driveway entrances/exits and sight distance purposes. Screening shall be accomplished through the planting of shrubs, hedges and/or the creation of berms. No plant material or berm shall obstruct the sight distance of motorists entering or leaving the site. Spacing of shrubs shall be no greater than four (4) feet and shrubs shall have a minimum height of eighteen (18) inches.
- D. Species.** All trees planted to meet the requirements of this section shall be street trees as identified in Sec. 12.9.6 (Tree Selection and Cover Guide).

12.5.4 Other Parking Lots

- A. Landscape Area.** A continuous landscape area at least five (5) feet in width shall be located between the property line and the parking lot.
- B. Number of Trees and Shrubs.** One (1) tree and three (3) shrubs for every fifty (50) feet of frontage shall be planted in the landscape area.
- C. Species.** All trees planted to meet the requirements of this section shall be canopy trees as identified in Sec. 12.9.6 (Tree Selection and Cover Guide).

Sec. 12.6 Interior Parking Lot Landscaping

12.6.1 Applicability

The requirements of this section shall apply to the construction or enlargement of any parking lot with sixteen (16) or more parking spaces. Such landscaping shall be in addition to perimeter parking lot screening, street tree planting and buffering.

- A.** The requirements of this section shall specifically not apply to vehicle sales facilities.
- B.** The Land Development Official shall have the authority to waive or modify interior parking lot landscaping requirements for a public law enforcement facilities when it is determined that such landscaping is in conflict with security measures for that facility. A request for modification, waiver or reduction of interior parking lot landscaping requirements by the Land

Development Official shall be in writing and shall state the reasons for granting the request.

12.6.2 Definition

Interior parking lot landscaping is any landscape area over 145 square feet in the case of single-bay parking and 300 square feet in the case of double-bay parking that is within the perimeter of the paved parking area.

12.6.3 Standards

- A. Minimum Parking Lot Landscape Area.** At least five percent (5%) of the gross area of the parking lot shall be comprised of landscape area. The gross area of the parking lot shall include all paved areas within the lot including areas for ingress/egress. Paved storage areas may be subtracted from this figure for land uses such as lumber yards and warehouses.
- B. Minimum Landscape Area.** No landscape area shall be less than 145 square feet with a minimum width of nine (9) feet.
- C. Number of Trees.** One (1) tree for every sixteen (16) parking spaces.
- D. Number of Shrubs.** Three (3) shrubs for every sixteen (16) parking spaces.
- E. Light Poles.** Light poles should not be placed in landscape islands. If a light pole is located within 20 feet of a required tree, the tree cannot be counted toward the minimum canopy coverage requirement
- F. Species.** Each landscape area with an area of 300 square feet or more shall be planted with one (1) Large Canopy or two (2) Medium Canopy trees. Each 145-square foot landscape area shall be planted with one (1) Medium Canopy tree. (See Sec. 12.9.6).

Sec. 12.7 Modified Parking Lot Screening and Landscaping Standards

Parking Lot Landscaping Standards may be reduced or eliminated at the discretion of the Land Development Official in accordance with the provisions below and provided canopy coverage calculations are submitted with every modification request. Payment to the Tree Canopy Fund is required when the minimum standards found in Section 12.3.1 have not been met. Any such modification issued by the Land Development Official shall be in writing and shall set forth the reasons for granting the modification.

12.7.1 Properties within the H-1 Overlay District

- A. Screening Area Adjacent to a Public Street.** The Land Development Official may waive or reduce the requirement for a perimeter parking lot screen as described in Sec. 12.5 when the required ten (10) foot area would serve no useful purpose, would result in a hardship to the property owner and a suitable screening alternative has been provided where necessary. Alternative screening such as architectural walls may be permitted when approved by the Board of Architectural Review. Any such modification shall be issued by the Land Development Official before an

application may be considered by the Board of Architectural Review on the subject property. The modification shall be in writing and shall set forth the reasons for granting the modification.

- B. Relation of Perimeter Parking Lot Screening and Interior Parking Lot Landscaping.** The Land Development Official may modify the numerical requirements for the amount of landscape space and amount of plant materials as required in Sec. 12.5 and Sec. 12.6. If additional landscape area or plant material is provided that exceeds the requirements of the interior or perimeter parking lot landscaping the Land Development Official may apply this to the alternative perimeter or interior landscaping requirements.
- C. Form of Waiver.** A request for modification, any waiver or reduction of parking lot landscaping requirements by the Land Development Official shall be in writing and shall state the reasons for granting the modification request.

Sec. 12.8 Buffers and Screening

12.8.1 Applicability

The buffer-yard requirements of this section shall apply to all new construction, including Site Plan Waiver and enlargement of existing structures constituting more than fifty percent (50%) of the floor area of the existing structure.

12.8.2 Buffer-Yards

- A. Definition.** Buffer-yards are the combination of buffer plus screening required to physically separate and to obscure the view of adjoining land uses. Buffer-yards shall not be used for the storage of materials, buildings, parking or loading areas for motor vehicles or equipment or signs. Driveway entrances and entrances connecting adjacent parking lots or developments may intersect the required buffer-yard. See Sections 18.1.21 Buffer, 18.1.21.1 Buffer-Yard and 18.1.166 Screening for definitions
- B. Relation to Setbacks.** Buffer-yards may be provided in the area required for setbacks by the zoning district regulations.
- C. Buffer-yards Exceeding Setbacks.** In any instance when the buffer yard required by this article exceeds the setback required by the zoning district regulations the buffer yard required by this article must be provided.
- D. Credit for Existing Buffer.** Any existing buffer-yard proposed to be saved by a subdivision or site plan, which complies with the intention of this article, shall be deemed to meet these buffer-yard requirements. The plant material to be saved must be identified and illustrated to show their size and height and must be in a healthy condition.
- E. Buffer-Yards Adjacent to a Vacant Parcel.** Site plans and subdivisions proposed adjacent to vacant parcels of property shall only be required to provide one-half of the required buffer yard set forth in Sec.12.8.3.
- F. Buffer-Yards Adjacent to a Developed Site**

1. **Existing Development Complying with Buffer-Yard Requirement.**
 Whenever a site plan or subdivision is proposed adjacent to a developed property that has provided one hundred percent (100%) of the required buffer-yard the adjacent proposed development or subdivision must provide at least one half of the width of the buffer-yard required by Sec. 12.8.3. This provision shall apply unless modified by Sec. 12.8.5.
2. **Existing Development Not Complying with Buffer-Yard Requirement.**
 Whenever a site plan or subdivision is proposed adjacent to a developed property that has not provided any or all of the required buffer-yard, the adjacent proposed development or subdivision shall provide the balance of the buffer-yard required by Sec. 12.8.3. This provision shall apply unless modified by Sec. 12.8.5. Properties residentially zoned or used as single-family detached dwellings developed prior to October 22, 1986 shall not be determined to have provided a buffer-yard as defined in this section.

G. Buffer-Yards Adjacent to Certain Public Streets. The purpose of these requirements is to ensure that the rear and/or side of a residential, commercial or industrial use and the lowest story of the rear and/or side exterior wall of that use is screened from the view of all collector and higher classification streets (in its ultimate design), as indicated in the Transportation Section of the Town Plan. The intent of these requirements is to provide a safer and more livable environment for residential uses and provide an attractive view of various residential, commercial and industrial uses from major streets.

1. When the rear and/or side of a residential, commercial, institutional (including playgrounds) or industrial structure abuts a street classified as a collector or a higher classification street (in its ultimate design), as indicated in the Transportation Section of the Town Plan, buffer-yards shall be provided between the residential, commercial or industrial use and the public right-of-way. The buffer- yard shall be provided either on individual lots in a perimeter landscape area or as part of a common open space owned and maintained by a homeowners' association. If a perimeter landscape area is used on individual lots, the area within the perimeter landscape area shall not be included in the calculation of lot size.
2. The width of the buffer and the screening materials required to be planted within the buffer yard shall be as follows:
 - a. **Collector.** A minimum of 35 feet wide with the following plant material per 100 linear feet of right-of way:

Table 12.8.2.A

| | |
|-----------------|----|
| Canopy Trees | 4 |
| Evergreen Trees | 15 |
| Shrubs | 30 |

- b. **Arterial.** A minimum of 50 feet wide with the following plant material per 100 linear feet of right-of –way:

Table 12.8.2.B

| | |
|-----------------|----|
| Canopy Trees | 6 |
| Evergreen Trees | 18 |
| Shrubs | 40 |

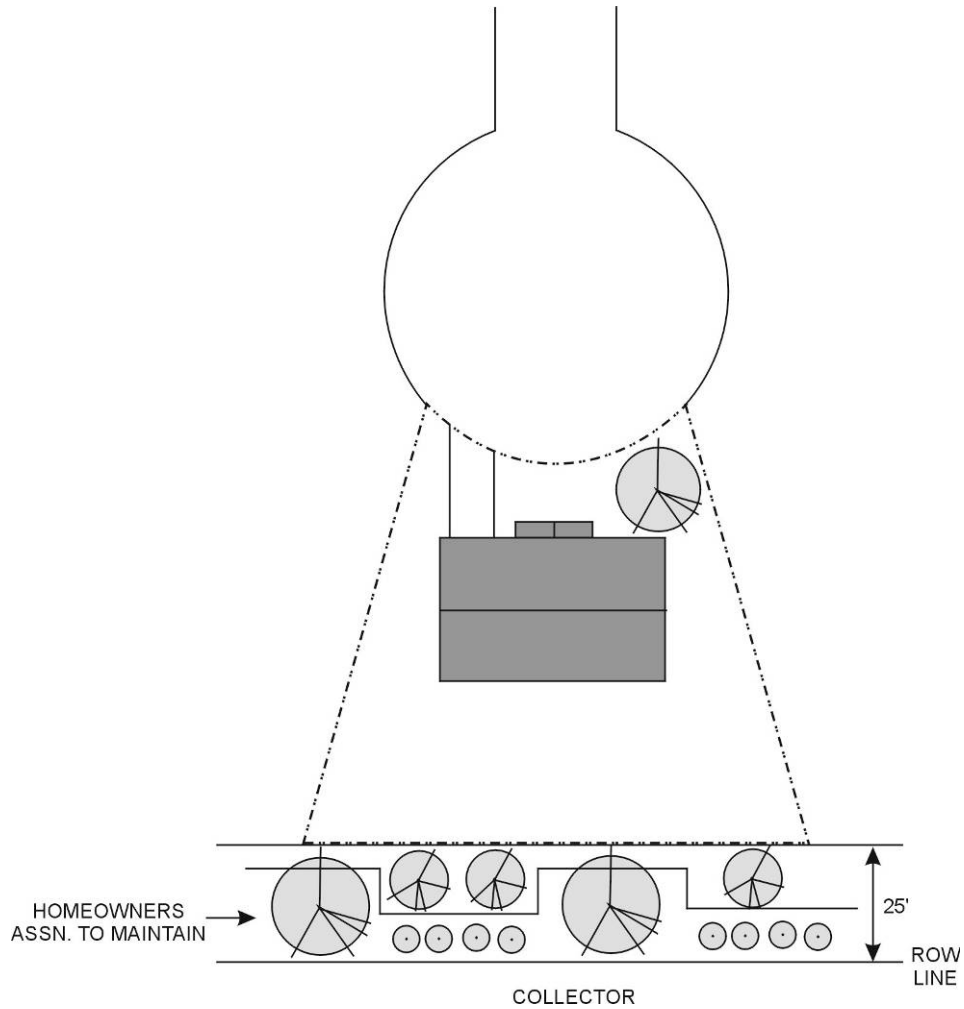
- c. Limited Access Highway.** A minimum of 75 feet wide with the following plant material per 100 linear feet of right-of-way:

Table 12.8.2.C

| | |
|-----------------|----|
| Canopy Trees | 8 |
| Evergreen Trees | 20 |
| Shrubs | 48 |

3. Fences, walls, berms and/or very dense vegetative treatments may also be employed within the required screen to interrupt the view of the rear or side yards. Use of decorative, opaque fence or wall with a minimum height of six (6) feet or berms with a minimum height of four (4) feet with hedges and/or shrubs within the buffer yard can reduce some or most of the requirements screening as determined by the Land Development Official. The design of fences or walls shall avoid long stretches to the point of visual monotony and shall be varied by using changes in height, different material combinations, offset angles, or other types of articulation. An architectural elevation detail of the screening treatment type shall be submitted for review when a fence or wall is utilized and shall demonstrate that attractive visual continuity has been achieved.
4. The Land Development Official may modify any of the aforementioned buffer and screening in rear and side yards adjacent to public streets as deemed appropriate with the purpose and intent of this article. Any request for modification shall be in writing and shall state the reasons for granting such request.

Example of Reduced Buffer and Screening Adjacent to Collector



H. Easements in Buffer-Yards. When proposing easements in a required buffer-yard, see the Design and Construction Standards Manual, Sec. 8-700 Planting Practice Within Easements.

12.8.3 Buffer-Yard Matrix

The buffer-yard matrix describes the requirements for screening and buffer between adjoining land uses. (S = required screen type (1, 2 or 3); number above screen type = minimum width of buffer in feet.)

Table 12.8.3.A

| Proposed Land Use | | Existing Land Use | | | | | | | | | |
|-------------------|----|-------------------|----|----|---------------|----|------------|----|----|------------|-----|
| | | Residential | | | Institutional | | Commercial | | | Industrial | |
| | | Ra | Rb | Rc | Ia | Ic | Ca | Cb | Cc | Ina | Inb |
| Residential | Ra | X | 10 | 50 | 25 | 25 | 25 | 35 | 50 | 75 | 75 |
| | | X | S1 | S3 | S2 | S3 | S3 | S3 | S3 | S3 | S3 |

| | | | | | | | | | | | |
|----------------------|------------|----|----|----|----|----|----|----|----|----|----|
| | Rb | 10 | X | 25 | 25 | 25 | 25 | 35 | 50 | 75 | 75 |
| | | S1 | X | S3 | S2 | S3 | S3 | S3 | S3 | S3 | S3 |
| | Rc | 50 | 25 | 25 | 25 | 25 | 25 | 35 | 50 | 75 | 75 |
| | | S3 | S3 | S1 | S2 | S3 | S3 | S3 | S3 | S3 | S3 |
| Institutional | Ia | 25 | 25 | 25 | X | 25 | X | 25 | 50 | 75 | 75 |
| | | S2 | S2 | S2 | X | S2 | X | S2 | S2 | S2 | S3 |
| | Ic | 25 | 25 | 25 | 25 | X | 10 | 10 | 25 | 50 | 50 |
| | | S3 | S3 | S3 | S2 | X | S2 | S2 | S2 | S2 | S3 |
| Commercial | Ca | 25 | 25 | 25 | 10 | 25 | X | 10 | 10 | 25 | 25 |
| | | S3 | S3 | S3 | S2 | S2 | X | S2 | S2 | S1 | S2 |
| | Cb | 35 | 35 | 35 | 25 | 10 | 10 | 10 | 10 | 25 | 25 |
| | | S3 | S3 | S3 | S2 | S2 | S2 | S2 | S2 | S1 | S2 |
| | Cc | 50 | 50 | 50 | 50 | 25 | 10 | 10 | 10 | 25 | 25 |
| | | S3 | S3 | S3 | S2 | S2 | S2 | S2 | S2 | S1 | S2 |
| Industrial | Ina | 75 | 75 | 75 | 75 | 50 | 25 | 25 | 25 | 10 | 25 |
| | | S3 | S3 | S3 | S2 | S2 | S2 | S2 | S2 | S1 | S1 |
| | Inb | 75 | 75 | 75 | 75 | 50 | 25 | 25 | 25 | 25 | 25 |
| | | S3 | S3 | S3 | S3 | S3 | S2 | S2 | S2 | S1 | S1 |

12.8.4 Land Use Categories

For the purpose of this article, existing and proposed land uses are divided into four major land uses categories: residential, institutional, commercial and industrial. Each category is subdivided to reflect the intensity of the proposed use. For instance, the residential category is divided into single-family detached, single-family attached and multi-family residential. In those instances where a proposed or existing use is not listed below, the Zoning Administrator shall decide which land use category is applicable. If the adjacent property is vacant the property shall be assumed to be the land use recommended in the Land Use Element of the *Town Plan*.

A. Residential

1. Ra - Single-family detached and duplexes
2. Rb - Single-family attached (townhouses)
3. Rc - Multi-family residential

B. Institutional

1. Ia - Low Intensity uses including libraries, post offices, churches and public parking lots, schools, child care centers, active parks and recreation facilities, W&OD Trail.
2. Ic - Emergency Services including hospitals and fire and rescue stations

C. Commercial

1. Ca -Offices and general retail uses under 10,000 square feet gross floor area
2. Cb -Offices and General retail uses over 10,000 square feet gross floor area and minor utilities

3. Cc -Hotels and motels, fast-food restaurants, convenience grocery stores, banks with a drive-through window, vehicle sales and service, monopole and transmission tower telecommunication facilities, and the airport

D. Industrial

1. INa - Industrial uses without outdoor storage
2. INb - Industrial uses with outdoor storage and major utilities

12.8.5 Modification Buffer-Yard Requirements

Buffer-yards may be reduced or eliminated at the discretion of the Land Development Official in accordance with the provisions below and provided canopy coverage calculations are submitted with every modification request. Payment to the Tree Canopy Fund is required when the minimum standards found in Section 12.3.1 have not been met. Any such modification issued by the Land Development Official shall be in writing and shall set forth the reasons for granting the modification.

- A. Properties in the H-1 Overlay, Old and Historic District.** Buffer-yards may be reduced or eliminated at the discretion of the Land Development Official for development plans or subdivisions in the H-1 Overlay, Old and Historic District. An opaque screen accomplished through the construction of architectural features, walls or the planting of vegetative materials may be required as a substitute for all or a portion of the required buffer-yard. The Board of Architectural Review must approve the non-vegetative, architectural screens, if any. Any such modification shall be issued by the Land Development Official before an application may be considered by the Board of Architectural Review on the subject property. The modification shall be in writing and shall set forth the reasons for granting the modification.
- B. Usable Lot Area.** Where the strict provisions of this article would reduce the usable area of a lot due to lot configuration or to a point which would preclude a reasonable use of the lot, buffer-yard requirements may be waived or modified by the Land Development Official where the side of a building, a barrier and/or the land between the building and the property line has been specifically designed to minimize the adverse impact through a combination of architectural and landscaping techniques.
- C. Special Design.** Buffer yard requirements may be waived or modified by the Land Development Official where the side of a building, a barrier and/or the land between that building and the property line has been specifically designed to minimize the adverse impact through a combination of architectural and landscaping techniques.
- D. Construction of Walls.** Buffer-yard requirements may be reduced by up to one-third (1/3) where the developer constructs a six (6) foot high brick or stone wall if the Land Development Official finds the intent of the buffer-yard regulations is better served by inclusion of the wall. The Land Development Official shall set forth in writing the reasons for such determination.

- E. Combined Site Plan.** The Land Development Official may modify or reduce the requirements for buffer-yards when the adjoining land uses are developed under a combined site plan.
- F. Special Exceptions.** All uses allowed by special exception in a given district shall be required to provide buffer yards using the Section 12.8.3. Buffer Yard Matrix and Section 12.8.5.B. Useable Lot Area; C. Special Design; D. Construction of Walls; and applicable sections of the Town Plan as guides. The Town Council, as part of the special exception approval, may modify the buffer-yard except for properties located within the H-1 Overlay, Old and Historic District. Any such modification shall insure that adequate screening and buffering are provided to mitigate potential adverse impacts on adjacent properties associated with the special exception use.

12.8.6 Screening

- A. Definition.** This section establishes three different screens as identified in Sec. 12.8.3. Five separate types of plants are required: large and medium scale canopy shade trees, evergreen trees, understory trees, and shrubs.
- B. Plant Varieties.** Plantings must be identified as suitable screening plants per Sec. 12.9.6. Alternative varieties may be approved by the Land Development Official under Sec. 12.8.6D.
- C. Number of Plants.** Plant materials are required per square foot of buffer area. For example, if the matrix requires a 25-foot buffer along a 100-foot property boundary, then 2,500 square feet of buffer space is required. Screen 1, Alternative A requires one (1) medium and four (4) large scale canopy trees, and 25 shrubs.
- D. Alternative Screens and Modifications.** Alternative planting programs that achieve the objectives of the required screens are permitted to allow flexibility in landscape design. The Land Development Official may approve any of the alternative screens provided below or a combination of the alternatives if the applicant can demonstrate that the objective of the screen has been met. The Land Development Official may reduce or eliminate the requirements for evergreen trees or shrubs if a landscape plan proposes the use of hedges, shrubs, walls, or berms that achieve the objective of the required screen. The Land Development Official shall set forth in writing the reasons for such determination.
 - 1. Screen 1.** An open screen between relatively similar land uses. Open screening shall provide an attractive separation between the land uses. Screen 1 shall consist of one of the three alternative planting programs described below or as otherwise approved as described in Sec. 12.8.6D:

Table 12.8.6.A

| Screen 1 (plant units per square foot of buffer yard) | | | |
|--|----------|----------|----------|
| Type of Plant | A | B | C |
| Large Canopy Trees | 1/1000 | 1/1000 | 1/1000 |
| Medium Canopy Trees | 1/1000 | 1/1000 | 1/1000 |
| Understory Trees | 0 | 1/1000 | 0 |
| Evergreen Trees | 0 | 0 | 1/350 |
| Shrubs | 1/100 | 1/100 | 1/200 |

Note: All figures are per square foot of required buffer-yard.

- 2. Screen 2.** A semi-opaque screen between land uses which are dissimilar in character. Semi-opaque screening should partially block views from the adjoining land uses and create a separation between the adjoining land uses.

Table 12.8.6.B

| Screen 2 (plant units per square foot of buffer-yard) | | | |
|--|----------|----------|----------|
| Type of Plant | A | B | C |
| Large Canopy Trees | 1/1000 | 1/750 | 1/1000 |
| Medium Canopy Trees | 1/1000 | 1/1000 | 1/1000 |
| Understory Trees | 0 | 1/500 | 0 |
| Evergreen Trees | 1/500 | 1/500 | 1/175 |
| Shrubs | 1/100 | 1/100 | 1/200 |

Note: All figures are per square foot of required buffer-yard.

- 3. Screen 3.** An opaque screen between incompatible land uses. Opaque screening should block views between adjoining land uses and create a definite spatial separation.

Table 12.8.6.C

| Screen 3 (plant units per square foot of buffer-yard) | | | |
|--|----------|----------|----------|
| Type of Plant | A | B | C |
| Large Canopy Trees | 1/1000 | 1/1000 | 1/1000 |
| Medium Canopy Trees | 1/1000 | 1/1000 | 1/1000 |
| Understory Trees | 1/500 | 1/250 | 1/500 |
| Evergreen Trees | 1/500 | 1/500 | 1/175 |
| Shrubs | 1/100 | 1/100 | 1/200 |

Note: All figures are per square foot of required buffer-yard.

12.8.7 Screening of Outdoor Storage and Loading Areas.

All outdoor storage and loading areas created after the adoption of this Zoning Ordinance shall be screened from all public streets and adjacent residential properties. An opaque screen at least six (6) feet in height comprised of plants, trees, walls or other opaque materials must be provided.

12.8.8 Dumpster Screening

Trash dumpsters and other waste/recycling containers serving multi-family or nonresidential uses shall be completely screened from view off-site.

- A. Design and Other Specifications.** Dumpsters or other trash receptacles shall be screened from public view on 3 sides by a solid wall at least six (6) feet in height and on the fourth side by a solid gate at least five (5) feet in height. The gate and wall shall be maintained in good working order and shall remain closed except when trash pick-ups occur. The wall and gate shall be architecturally compatible with other buildings and structures on the site.
- B. Setbacks.** All enclosures shall be located a minimum of twenty-five (25) feet from residential zoning districts, provided that the Zoning Administrator shall be authorized to approve reduced setbacks when site size or other conditions prevent compliance with this setback.

Sec. 12.9 Plant Material Specifications

12.9.1 Condition

A. New Plant Material.

All new plants required by this article shall be of specimen quality, exceptionally heavy, symmetrical and outstandingly superior in form, compactness and symmetry. They shall be sound, healthy, vigorous, well branched and densely foliated when in leaf; free of disease and insects, eggs or larvae; and shall have healthy, well-developed root systems. They shall be free from physical damage or other conditions that would prevent vigorous growth. Trees with a damaged or crooked leader, bark abrasions, sun scale, disfiguring knots, insect damage or cuts of limbs over $\frac{3}{4}$ inch in diameter that are not completely closed will be rejected.

B. Existing Trees and Plant Material.

A condition evaluation will be required on all submissions of a Tree Preservation Plan as required in Section 12.2.4. The condition of each tree to be retained with a diameter of six (6) inches or greater will be recorded in the Tree Management Report (TMR). Determining tree condition will be based on field observations using the methodologies as described in the latest edition of the Guide for Plant Appraisal. Any existing tree rated forty percent (40%) or less on a scale of 0 to 100 percent, with 0 representing a dead tree will not receive credits toward meeting the canopy requirements.

12.9.2 Size

All plant material installed to meet the requirements of this Zoning Ordinance shall comply with the minimum size requirements below at the time of planting:

- A. Street Trees:** Caliper: Two inches
- B. Large Canopy Trees:** Caliper: Two inches
- C. Medium Canopy Trees:** Caliper: Two inches
- D. Evergreen Trees:** Height: 6 feet minimum; full branching

- E. Understory Trees: Height: 6 feet minimum
- F. Shrubs: Height: 18 inch minimum
- G. Hedges: Planted and maintained to form a continuous, solid visual screen at least two feet in height within one year after planting

12.9.3 Measurement of Size

Caliper is measured six (6) inches above the ground up to and including four (4) inch caliper size, and twelve (12) inches above the ground for larger sizes. Diameter will be measured at the height of 54 inches from the base of the trunk or as otherwise allowed in the Guide for Plant Appraisal.

12.9.4 Diversity

For each group of plant material (large canopy trees, shrubs, etc.) the plan shall have a diverse mix of species. In those cases where there are twenty-one (21) or more of one plant type (such as large canopy trees) the percentage of one species within each group shall not exceed thirty percent (30%). In smaller projects where twenty (20) or less of any plant type are required, the thirty percent (30%) maximum shall not apply.

12.9.5 Planting Procedures

All trees and shrubs planted shall meet the specifications of the American Association of Nurserymen. All trees planted for tree cover credits shall meet the specifications of the American Association of Nurserymen and shall be planted in accordance with the publication entitled, "Tree and Shrub Planting Guidelines," published by the Virginia Cooperative Extension.

12.9.6 Tree Selection and Cover Guide

Plant material in the following list may be used to satisfy the canopy tree requirements of this article. The list is divided into the following categories: large canopy trees, medium canopy trees, evergreen trees, understory trees, shrubs, and groundcover. Selections must conform to the varieties and functions identified in this list unless alternative varieties are approved by the Urban Forester.

| Table 12.9.6.A | | |
|----------------|-----------------------------------|--------------------------------------|
| Function Codes | | |
| Key | Description | Comments |
| B | Buffer | |
| S | Street Tree | Only single stem trees shall be used |
| U | Utility | Overhead utilities |
| IN | Interior Parking Lot Landscaping | Only single stem trees shall be used |
| PP | Perimeter Parking Lot Landscaping | |
| SB | Street Buffer | |

| Table 12.9.6.B Large Canopy Trees 2 inch caliper Square Footage of Canopy Credit = 260 | | | |
|---|---------------------|------------------|-----------------|
| Botanical Name | Common Name | Function | Height & Spread |
| <i>Acer rubrum</i> | red maple | B, S, IN, PP, SB | 50 x 40 |
| <i>Acer saccharum</i> | sugar maple | B, S, IN, PP, SB | 50 x 35 |
| --Commemoration | | | |
| --Legacy | | | |
| <i>Betula nigra</i> | river birch | B, S, IN, PP, SB | 50 x 50 |
| --Duraheat | | | |
| <i>Celtis occidentalis</i> | hackberry | B, S, IN, PP, SB | 50 x 50 |
| --Prairie Pride | | | |
| <i>Fagus grandifolia</i> | American beech | B, S, IN, PP, SB | 60 x 30 |
| <i>Fagus sylvatica</i> | European beech | B, S, IN, PP, SB | 55 x 40 |
| <i>Ginkgo biloba</i> | ginkgo (male only) | B, S, IN, PP, SB | 50 x 30 |
| <i>Gymnocladus dioicus</i> | Kentucky coffeetree | B, S, IN, PP, SB | 60 x 45 |
| <i>Liquidamber styraciflua</i> | American sweetgum | B, S, IN, PP, SB | 60 x 40 |
| --Moraine | | | |
| --Rotundiloba | | | |
| <i>Liriodendron tulipifera</i> | tulip poplar | B | 80 x 40 |
| <i>Quercus alba</i> | white oak | | 60 x 50 |
| <i>Quercus bicolor</i> | swamp white oak | B, S, IN, PP, SB | 55 x 55 |
| <i>Quercus coccinea</i> | scarlet oak | B, S, IN, PP, SB | 70 x 45 |
| <i>Quercus phellos</i> | willow oak | B, S, IN, PP, SB | 60 x 40 |
| --Hightower | | | |
| <i>Quercus rubra</i> | red oak | B, S, IN, PP, SB | 75 x 75 |
| <i>Quercus shumardii</i> | shumard oak | B, S, IN, PP, SB | 50 x 40 |
| <i>Styphnolobium japonicaum</i> | Japanese pagodatree | B, S, IN, PP, SB | 60 x 40 |
| <i>Taxodium distichum</i> | baldcypress | B, S, IN, PP, SB | 60 x 40 |
| <i>Tilia tomentosa</i> | silver linden | B, S, IN, PP, SB | 60 x 30 |
| <i>Ulmus americana</i> | American elm | B, S, IN, PP, SB | 70 x 40 |
| --Princeton | | | |
| --Jefferson | | | |
| --Valley Forge | | | |
| <i>Ulmus japonica x wilsoniana</i> | accolade elm | B, S, IN, PP, SB | 60 x 35 |
| <i>Ulmus parifolia</i> | lacebark elm | B, S, IN, PP, SB | 50 x 50 |
| <i>Zelkova serrata</i> | Japanese zelkova | B, S, IN, PP, SB | 55 x 35 |
| --Green Vase | | | |
| --Village Green | | | |

| Table 12.9.6.C Medium Canopy Trees 2 inch caliper Square Footage of Canopy Credit = 185 | | | |
|--|-----------------------|------------------|-----------------|
| Botanical Name | Common Name | Function | Height & Spread |
| <i>Acer barbatum</i> | Florida maple | B, S, IN, PP, SB | 30 x 30 |
| <i>Acer campestre</i> | hedge maple | B, S, IN, PP, SB | 30 x 30 |
| <i>Acer rubrum</i> | red maple | B, S, PP, SB | 50 x 15 |
| --Armstrong | | | |
| --Bowhall | | | |
| <i>Acer truncatum</i> | purpleblow maple | B, S, IN, PP, SB | 35 x 25 |
| --Norwegian Sunset | | | |
| <i>Carpinus betulus</i> | European hornbeam | B, S, PP, SB | 35 x 15 |
| --Franz Fontaine | | | |
| <i>Cercidiphyllum japonicum</i> | katsuratree | B, S, IN, PP, SB | 45 x 30 |
| <i>Cladrastis kentukea</i> | yellowwood | B, S, IN, PP, SB | 45 x 45 |
| <i>Corylus colurna</i> | Turkish filbert | B, S, PP, SB | 45 X 25 |
| <i>Ginkgo biloba</i> | ginkgo | B, S, PP, SB | 50 x 25 |
| --Golden Colonnade | | | |
| --Princeton Sentry | | | |
| <i>Gleditsia triacanthos inermis</i> | honeylocust | B, S, IN, PP, SB | 45 x 40 |
| --Skyline | | | |
| --Shademaster | | | |
| <i>Halesia tetraptera</i> | Carolina silverbell | B, S, IN, PP, SB | 35 x 25 |
| <i>Liquidamber styraciflua</i> | American sweetgum | B, S, PP, SB | 30 x 12 |
| --Emerald Sentinel | | | |
| <i>Nyssa sylvatica</i> | black gum | B, S, IN, PP, SB | 45 x 25 |
| <i>Ostrya virginiana</i> | American hophornbeam | B, S, IN, PP, SB | 40 x 25 |
| <i>Parrotia persica</i> | Persian ironwood | B, S, IN, PP, SB | 30 x 25 |
| <i>Phellodendron amurense</i> | cork tree (male only) | B, S, IN, PP, SB | 40 x 35 |
| <i>Pistacia chinensis</i> | Chinese pistache | B, S, IN, PP, SB | 35 x 30 |
| <i>Zelkova serrata</i> | Japanese zelkova | B, S, PP, SB | 45 x 15 |
| --Musashino | | | |

| Table 12.9.6.D Understory Trees 6 feet minimum height Square Footage of Canopy Credit = 110 | | | |
|--|-------------|----------|-----------------|
| Botanical Name | Common Name | Function | Height & Spread |
| <i>Aesculus pavia</i> | red buckeye | B, SB, U | 20 x 25 |
| <i>Acer ginnala</i> | amur maple | B, SB, U | 15 x 15 |

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| | | | |
|--------------------------------|-------------------------|----------|---------|
| <i>Acer griseum</i> | paperbark maple | B, SB | 25 x 25 |
| <i>Amelanchier spp.</i> | serviceberry | B, SB, U | 20 x 15 |
| --Autumn Brilliance | | | |
| --Cole's Select | | | |
| --Trazam | | | |
| <i>Carpinus caroliniana</i> | American hornbeam | B, SB | 25 x 25 |
| <i>Cercis canadensis</i> | redbud | B, SB, U | 25 x 25 |
| <i>Chionanthus virginicus</i> | Fringetree | B, SB, U | 15 x 15 |
| <i>Cornus kousa</i> | Korean dogwood | B, SB | 25 x 25 |
| <i>Cornus mas</i> | corneliancherry dogwood | B, SB, U | 20 x 15 |
| <i>Cotinus coggygria</i> | smoketree | B, SB, U | 15 x 15 |
| <i>Hamamelis virginiana</i> | witchhazel | B, SB | 25 x 20 |
| <i>Koelreuteria paniculata</i> | goldenraintree | B, SB | 30 x 30 |
| <i>Lagerstroemia spp.</i> | crape myrtle | B, SB, U | 20 x 12 |
| <i>Magnolia virginiana</i> | sweetbay magnolia | B, SB, U | 20 x 20 |
| <i>Magnolia spp.</i> | magnolia | B, SB, U | 12 x 10 |
| --Little Girl | | | |
| <i>Malus spp.</i> | crabapple | B, SB | 25 x 20 |
| <i>Oxydendron arboretum</i> | sourwood | B, SB | 30 x 20 |
| <i>Zelkova serrata</i> | Japanese zelkova | B, SB, U | 20 x 30 |
| --Schmidtlow | | | |
| --City Sprite | | | |

| Table 12.9.6.E Large Evergreen Trees 6 feet minimum height Square Footage of Canopy Credit = 175 | | | |
|---|---------------------|----------|-----------------|
| Botanical Name | Common Name | Function | Height & Spread |
| <i>Abies concolor</i> | white fir | B | 50 x 20 |
| <i>Chamaecyparis thyoides</i> | Atlantic whitecedar | B | 45 x 25 |
| <i>Cryptomeria japonica</i> | Japanese cedar | B, SB | 35 x 15 |
| --Yoshino | | | |
| <i>X Cupressocyparis leylandii</i> | leyland cypress | B | 60 x 12 |
| <i>Ilex opaca</i> | American holly | B, SB | 30 x 20 |
| --Satyr Hill | | | |
| <i>Juniperus virginiana</i> | Eastern redcedar | B, SB | 35 x 15 |

| | | | |
|-----------------------------|---------------------|-------|---------|
| <i>Magnolia grandiflora</i> | Southern magnolia | B | 50 x 25 |
| --Bracken's Brown Beauty | | | |
| - D. D. Blanchard | | | |
| <i>Picea abies</i> | Norway spruce | B, SB | 60 x 30 |
| <i>Picea omorika</i> | Serbian spruce | B, SB | 55 x 25 |
| <i>Pinus bungeana</i> | lacebark pine | B, SB | 40 x 30 |
| <i>Pinus echinata</i> | shortleaf pine | B | 70 x 50 |
| <i>Pinus parviflora</i> | Japanese white pine | B, SB | 40 x 40 |
| <i>Pinus strobus</i> | Eastern white pine | B | 70 x 35 |
| <i>Pinus taeda</i> | loblolly pine | B | 60 x 30 |
| <i>Pinus thunbergii</i> | Japanese black pine | B, SB | 30 x 30 |
| <i>Thuja plicata</i> | arborvitae | B, SB | 60 X 25 |
| --Green Giant | | | |

| Table 12.9.6.F Small Evergreen Trees 6 feet minimum height Square Footage of Canopy Credit = 25 | | | |
|--|------------------------|----------|-----------------|
| <i>Botanical Name</i> | Common Name | Function | Height & Spread |
| <i>Chamaecyparis obtuse</i> | hinoki falsecypress | B, SB | 25 x 10 |
| <i>Ilex xattenuate</i> | Foster's holly | B, SB | 25 x 10 |
| <i>Ilex spp.</i> | holly | B, SB, U | 15 x 8 |
| --Red Hybrid Holly | | | |
| <i>Ilex x Nellie Stevens</i> | Nellie Stevens holly | B, SB, U | 20 x 10 |
| <i>Juniperus chinensis</i> | Chinese juniper | B, SB, U | 20 x <10 |
| --Hetzii Columnaris | | | |
| --Keteleeri | | | |
| --Sparten | | | |
| --Spearmint | | | |
| <i>Juniperus scopularum</i> | rocky mountain juniper | B, SB, U | 20 x <10 |
| --Gray Gleam | | | |
| --Moonglow | | | |
| --Whichita blue | | | |
| <i>Juniperus virginiana</i> | Eastern redcedar | B, SB, U | 20 x <10 |
| --Burkii | | | |
| --Hillspire | | | |
| --Idyllwild | | | |
| <i>Thuja occidentalis</i> | arborvitae | B, SB, U | 20 x 5 |
| --dark arborvitae | | | |
| --Techny | | | |

| Table 12.9.6.G Prohibited or Reduced Credit for Trees | | | |
|--|--|--|--|
| <i>Botanical Name</i> Common Name | Prohibited or Reduced Credit for Planting | Full or Reduced Credit for Preservation | Comments |
| <i>Acer negundo</i> box elder | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Acer platanoides</i> Norway maple | X | None | |
| <i>Acer saccharinum</i> Silver maple | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Ailanthus altissima</i> tree of heaven | X | None | |
| <i>Albizia julibrissin</i> mimosa | X | None | |
| <i>Catalpa spp.</i> catalpa | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Cornus florida</i> flowering dogwood | X | X | Full Canopy Credit if preserved within a contiguous save area |
| <i>Cupressocyparis leylandii</i> leyland cypress | X | X | Susceptible to disease, overused Full credit for preservation |
| <i>Elaeagnus umbellate</i> autumn olive | X | None | |
| <i>Elaeagnus angustifolia</i> Russian olive | X | None | |
| <i>Fraxinus spp.</i> ash | X | None | Due to Emerald ash borer |
| <i>Ginkgo biloba</i> ginkgo (female) | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Morus spp.</i> mulberry | X | None | |
| <i>Paulownia tomentosa</i> princess tree | X | None | |
| <i>Phellodendron amurense</i> corktree (female) | X | None | |
| <i>Pinus nigra</i> Austrian pine | X | None | |
| <i>Pinus strobus</i> white pine | X | X | Full Canopy Credit |
| <i>Pinus virginiana</i> Virginia pine | X | | Full Canopy Credit if preserved away from buildings and |

| | | | |
|---|---|------|--|
| | | | infrastructure |
| <i>Populus spp.</i> Poplars | X | X | Full Canopy Credit if preserved away from buildings and infrastructure (cottonwood only) |
| <i>Pyrus calleryana</i> ornamental pear | X | None | |
| <i>Robinia pseudoacacia</i> black locust | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Salix spp.</i> willow | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |
| <i>Tsuga spp.</i> hemlock | X | None | Due to hemlock wooly adelgid |
| <i>Ulmus pumila</i> Siberian elm | X | X | Full Canopy Credit if preserved away from buildings and infrastructure |

| Table 12.9.6.H. Evergreen Shrubs (18 inch minimum height) | | |
|---|-------------------------------|---------------|
| Common Name | Botanical name | Function |
| English Yew | <i>Taxus baccata</i> | B, IP, PP, SB |
| Japanese Yew | <i>Taxus cuspidate</i> | B, IP, PP |
| Azalea | (various species) | B |
| Chinese Holly | <i>Ilex cornuta</i> * | B, IP, PP |
| Japanese holly | <i>Ilex crenata</i> * | B, IP, PP, SB |
| Holly | <i>Ilex spp.</i> | B, PP, SB |
| Spreading Juniper | <i>Juniperus spp.</i> | B, IP, PP, SB |
| Japanese Falsecypress | <i>Chamaecyparis pisifera</i> | B, PP, SB |
| Wintergreen Barberry | <i>Berberis julianae</i> | B, PP |
| Laurel | <i>Prunus lauroceraus</i> | B, IP, PP |

*Use appropriate size cultivars for interior parking lot landscaping. Note that ground covers must be used in slopes 2:1 or greater.

| Table 12.9.6.I. Deciduous and Flowering Shrubs (18 inch minimum height) | | |
|---|----------------------|---------------|
| Common Name | Botanical Name | Function |
| Abelia | (various species)* | B, IP, PP |
| Azalea | (various species)* | B |
| Cotoneaster | (various species)* | B, IP, PP, SB |
| Forsythia | (various species)* | B, PP |
| Viburnum | (various species)* | B, PP, SB |
| Chokeberry | Aronia arbutifolia | B |
| Spirea | (various species)* | B, IP, PP, SB |
| Cinquefoil | Potentilla spp. | B, IP, PP, SB |
| Fothergilla | (various species)* | B |
| Sweetspire | Itea virginica | B, IP, PP, SB |
| Sweetshrub | Calycanthus floridus | B |
| Wiegela | (various species)* | B, PP |

*Use appropriate size cultivars for interior parking lot landscaping. Note that ground covers must be used in slopes 2:1 or greater.

| Table 12.9.6.J. Ground Cover | | |
|---------------------------------|------------------------|----------|
| Common Name | Botanical Name | Function |
| Pachysandra | Pachysandra terminalis | B |
| Ground Juniper | (various species)* | B |
| Dwarf Cotoneaster | (various species)* | B |
| Lirope | (various species)* | B |

*Use appropriate size cultivars for interior parking lot landscaping. Note that ground covers must be used on slopes steeper than 3:1.

12.9.7 Maintenance

- A. Responsibility.** The owner or the owner's agent shall be responsible for the maintenance, repair and replacement of all landscape materials and fences required by this article on privately held property that is not otherwise maintained by a homeowners association.

- B. Condition.** All landscape materials shall be kept in healthy condition free of all disease and infestation. All fences and screens shall be maintained in a safe and attractive condition.
- C. Repair and Replacement.** The owner or agent, upon written notice of the Zoning Administrator, shall repair or replace any landscape materials, screens or fencing not meeting the requirements of this section within thirty (30) days.

12.9.8 Sight Distance

No tree, shrub, hedge or vegetation, whether or not required by this article, shall be planted or maintained in any way that interferes with the sight distance of any persons.

12.9.9 Steep Slopes

Large caliper nursery stock trees shall not be planted on slopes steeper than 3:1. If tree planting must occur on slopes of 3:1 up to 2:1 then smaller tree stock will be permitted. Smaller plant stock will be planted at a density equal to approximately 400 tree seedlings per acre. Canopy credit shall be based on the ground surface area of the area planted in smaller size stock.

Sec. 12.10 Open Space

12.10.1 Purpose

The Open Space regulations of this section require the establishment and maintenance of improved open space to provide adequate light, air and space to residents or occupants of all developments. These regulations require the establishment of a non-profit organization to be responsible for the maintenance of common improvements in all developments and subdivisions, and shall apply to all site plans and subdivision applications submitted after February 25, 2003. The regulations below separately address open space in residential and nonresidential developments.

12.10.2 Minimum Open Space Required

Open space shall be provided in an amount required by the zoning district regulations.

12.10.3 Nonresidential Properties

Open space area in nonresidential zoning districts shall be appropriately landscaped and shall not include streets, drives, off-street parking and loading areas, and areas so located or of such size or shape to have no substantial aesthetic or recreational value. Buffer-yards, areas of parking lot landscaping and yard setbacks may be applied toward the requirements of this section.

A. Maintenance Requirements

1. **Responsibility.** The owner or the owner's agent shall be responsible for the maintenance of all open space areas in a reasonable condition.
2. **Condition.** All open space areas shall be kept in a clean, attractive and safe condition. All open space areas shall be kept open to the residents or occupants this open space is intended to serve.
3. **Repair.** The owner or agent, upon written notice of the Zoning Administrator, shall repair any defective condition of the open space areas that render these spaces unusable or unsafe, within thirty (30) days. If the deficiencies set forth by the Zoning Administrator have not

been rectified within the 30-day period or any extension thereof, the town, in order to preserve property values in the area and to prevent the open space from becoming a public nuisance, may repair the open space to a reasonable condition in accordance with the approved landscape plan. The owner shall be responsible for reimbursing the town for any costs associated with this repair.

12.10.4 Open Space for Residential Properties

A. Applicability. These regulations shall apply to all land in common open space in residential developments whether these lands are proposed to be dedicated for public use or not; all improvements provided for common use and benefit whether or not required by this Zoning Ordinance; and all lands to be dedicated or conveyed for public use.

B. General Requirements

1. Organization. A non-profit organization or other legal entity under the laws of Virginia must be established to provide for the ownership, care and maintenance of all open space areas and improvements.
2. Covenants. All such organizations shall be created by covenants and restrictions recorded among the land records of Loudoun County. All such covenants shall include provisions for the maintenance of common open space.

C. Maintenance Requirements.

1. Responsibility. The organization described in Sec. 12.10.4B shall be responsible for the maintenance of all open space areas and improvements in a reasonable condition.
2. Condition. All open space areas shall be appropriately landscaped and shall be kept in a clean, attractive and safe condition. All open space areas shall be kept open to the residents this open space is intended to serve.
3. Repair. The owner or agent, upon written notice of the Zoning Administrator, shall repair any defective condition of the open space areas that render these spaces unusable or unsafe, within thirty (30) days. If the deficiencies set forth by the Zoning Administrator have not been rectified within the 30-day period or any extension thereof, the town, in order to preserve property values in the area and to prevent the open space from becoming a public nuisance, may repair the open space to a reasonable condition in accordance with the approved landscape plan. The owner shall be responsible for reimbursing the town for any costs associated with this repair.

12.10.5 Submittal Requirements

Prior to the dedication or conveyance of those lands described in Sec. 12.10.4, the following documents shall be submitted to and approved by the town.

- A. Articles of Incorporation.** The articles of incorporation, by-laws or other organizational documentation for the nonprofit organization.
- B. Covenants.** The covenants or restrictions related to the use of common property including the system and amounts of assessments.

- C. Right of Entry.** A document granting the right of entry upon such common property to the town police officers, fire and rescue squad personnel while in pursuit of their duties; and, in the case of private access ways and common driveways, permitting the enforcement of cleared emergency vehicle access.
- D. Deed of Conveyance.** A copy of the Deed of Conveyance and a Title Certificate or, if approved by the Town Manager, a commitment for a policy of title insurance issued by an insurance company authorized to do business in Virginia, assuring unencumbered title for all lands proposed to be conveyed to the town, other appropriate governmental agency, or other organization, including the non-profit organization.

Sec. 12.11 Outdoor Lighting

12.11.1 Purpose and Intent

The purpose of this section is to establish outdoor lighting standards that reduce the impacts of glare, light trespass and overlighting; promote safety and security; and encourage energy conservation.

12.11.2 Applicability

- A.** This section shall apply to the installation of new outdoor lighting fixtures or the replacement of existing outdoor lighting fixtures. Replacement of a fixture shall mean a change of fixture type or change to the mounting height or location of the fixture. Routine lighting maintenance, such as changing lamps or light bulbs, ballast, starter, photo control, housing and other similar components shall not constitute replacement and shall be permitted provided such changes does not result in a higher lumen output.
- B.** Outdoor lighting fixtures, legally installed and existing prior to February 14, 2012, that do not conform to the provisions of this section shall be deemed to be a lawful nonconforming use and may remain. A nonconforming lighting fixture that is changed to or replaced by a conforming lighting fixture shall no longer be deemed nonconforming.

12.11.3 Standards

- A.** Full cut-off lighting fixtures shall be mounted horizontal to the ground and shall be used for all walkway, parking lot, canopy and building/wall mounted lighting and all lighting fixtures located within those portions of open-sided parking structures that are above ground. For purposes of this section, an open-sided parking structure shall be a parking structure which contains exterior walls that are not fully enclosed between the floor and ceiling.
- B.** Lighting used to illuminate flags, statues, signs or any other objects mounted on a pole, pedestal or platform, spotlighting or floodlighting used for architectural or landscape purposes, shall consist of full cu-off or directionally shielded lighting fixtures that are aimed and controlled so that the directed light shall be substantially confined to the object intended to be illuminated. Directional control shields shall be used where

necessary to limit stray light. In addition, such lighting shall be shielded to protect motorists and pedestrians from glare.

- C. All construction site lighting, with the exception of lighting that is used to illuminate the interiors of buildings under construction, shall use full cut-off or directionally shielded fixtures that are aimed and controlled so the directed light shall be substantially confined to the object intended to be illuminated. Directional control shields shall be used where necessary to limit stray light. Frosted light bulbs shall be used to light the ten foot outermost perimeter area of the interiors of the buildings under construction.
- D. High intensity light beams in the form of outdoor search lights, lasers or strobe lights are prohibited.
- E. Light poles in all parking lots areas shall not exceed a maximum height of 25 feet including the base. Light poles shall not be permitted on the top deck of parking structures.
- F. Wherever possible, illumination of outdoor seating areas, building entrances and walkways is accomplished by use of ground mounted fixtures not more than four feet in height.
- G. All exterior lighting fixtures shall be located a minimum of ten feet from a property line.
- H. Wall mounted lights, other than entry lights of 100 watts or less, shall be fully shielded luminaries, such as shoebox or can fixtures, to direct all light downward and to prevent the light source from being visible from any adjacent residential properties and public street right-of-way. Wall pack lights on buildings may be used at entrances to a building to light unsafe areas. Such lights cannot be used to draw attention to the building or provide general building or site lighting. Wall packs on the exterior of the building shall be fully shielded, full cut-off, to direct light vertically downward at an angle that shall limit output to prevent glare onto adjacent properties and be 100 watts or less. Wall pack lights visible from any location off site are prohibited.

12.11.4 Plan Required

A photometric plan shall be provided that indicates all outdoor lighting fixtures exclusive of street lights will not have a source of illumination that is visible beyond the site or cause illumination of adjacent properties in excess of 0.5 foot-candles, as measured at the site boundary. Where lighting is located along a street with existing street lights and/or along a common property line with another commercial parking lot with pre-existing lighting levels exceeding the 0.5 foot-candle maximum, the 0.5 foot-candle requirement may be waived when it can be demonstrated to the satisfaction of the Zoning Administrator that compliance is not possible due to pre-existing non-conforming overlapping light sources, and the proposed lighting does not intensify the non-conforming condition.

12.11.5 Standards for Certain Uses

In addition to section 12.11.4 outdoor lighting fixtures associated with service stations, service station/mini-mart and vehicle sale, rental and ancillary service establishments shall be subject to the following:

- A.** Service station and service station/mini-mart canopy lighting shall not exceed a maintained level of 20 foot-candles under the canopy as measured horizontally at grade at the inside of the outside edge of the canopy. All underside canopy lighting shall consist of full cut-off lighting fixtures.
- B.** Outdoor display area lighting used in conjunction with a vehicle sale, rental and ancillary service establishment shall not exceed a maintained lighting level of 20 foot-candles as measured horizontally at grade. For the purpose of this section, outdoor display areas shall include all display/storage areas for vehicles offered for sale or rent and the associated travel lanes.

12.11.6 Exemptions

The following shall be exempt from the provisions of this section:

- A.** Lighting fixtures and standards required by the Federal Communications Commission, Federal Aviation Administration, Federal and State Occupational Safety and Health Administrations or other federal, state or town agencies, to include street lights within the public right-of-way.
- B.** Outdoor lighting fixtures required by law enforcement, fire and rescue, the Virginia Department of Transportation or other emergency response agencies to perform emergency or construction repair work, or to perform nighttime road construction on major thoroughfares.