

City of Arcade

Jackson County

Not located in a MSA.

2003 Population Estimate 1,821; +9.2% change from 2000 Census.

Not a Tree City USA.

No tree board established by ordinance.

ARTICLE 16. Tree Protection and Landscaping

Quad Cities Land Use Management Code

CHAPTER 16 TREE PROTECTION AND LANDSCAPING

First adopted 2004. No revisions.

Addresses public and private property.

Includes buffer and landscape requirements.

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For more information, contact:

Dale R. Hall, RLA, AICP

Director of Planning & Development

706.367.5002 voice / 706.367.5751 fax

dalehall@charter.net

www.cityofjeffersonga.com/depts/PlanningDevelopment/

**CHAPTER 16
TREE PROTECTION AND LANDSCAPING**

CHAPTER 16.1	PURPOSE AND GENERAL PROVISIONS
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**CHAPTER 16.1
PURPOSE AND GENERAL PROVISIONS**

Section 16.1.1.	Purpose and Intent.
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Section 16.1.1. Purpose and Intent.

Trees improve air and water quality, reduce soil erosion, reduce noise and glare, provide habitat for desirable wildlife, moderate the climate, and enhance community image and property values. Therefore, it is the intent of this Article to encourage the protection and provision of trees through sound, responsible land development practices.

Landscaping enhances a community's environmental and visual character and improves the overall quality of life. Vegetation can also improve air and water quality, reduce soil erosion, reduce noise and glare, provide habitat for wildlife, moderate the climate, and enhance property values, thus protecting the health, safety, and welfare of the community.

It is the purpose of this Article to provide trees, environmentally sound landscape amenities, and buffers which promote a positive community image by promoting quality development, enhancing property values, providing for landscape improvements, and promoting aesthetic quality. It is also the intent to promote a healthy, natural environment whenever possible by protecting and enhancing existing vegetation.

Inappropriate landscaping can degrade the quality of the natural environment by requiring excess water and pesticides, or by creating unnecessary conflicts with sewers, sidewalks, and vehicle access. It is important to promote environmentally sound landscaping, including the use of low-maintenance, drought-resistant, and native or non-invasive plants, and to ensure that the right tree is planted in the right place. Environmentally sound landscaping also means restricting the use of invasive and potentially invasive species. Although well-mannered non-native species can be welcomed additions to a landscape, invasive species can cause severe economic and environmental harm (including crop damage and degradation of native habitats) and can engender significant control costs.

This Article also establishes standards for buffers and landscape strips. Buffers between two incompatible uses minimize harmful impacts such as transmission of noise, dust, and glare. Buffers can also lessen visual pollution, establish a greater sense of privacy from visual or physical intrusion, and protect the public health, safety, and welfare of the community.

Section 16.1.2. Exemptions.

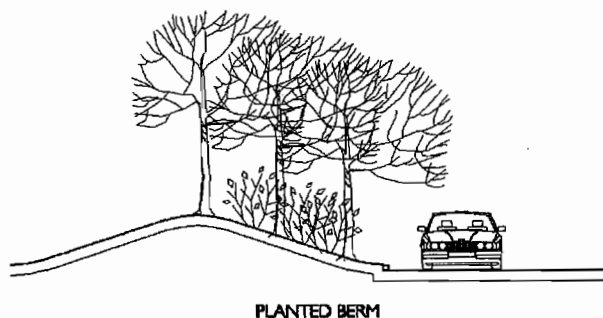
This Article shall not apply to:

- (a) Lots platted for purposes of constructing a detached, single family residence or manufactured home shall be exempt from this Article. This Article does not prevent the cutting of trees on such lots, unless a natural buffer is required in which case it shall be unlawful to disturb the buffer including the cutting of trees.
- (b) The removal of trees from horticultural properties such as farms, nurseries, or orchards. This exception shall not be interpreted to include timber harvesting or the removal of trees incidental to development of the land.
- (c) The removal of trees by a utility company within dedicated utility easements, where necessary to install, remove, repair, or maintain utilities within said easements.
- (d) The removal of trees from detention ponds and drainage easements where necessary for the construction, maintenance, or operation of said ponds or drainage improvements within said drainage easements; provided, however, that such trees within buffers, if removed, are compensated for by planting new trees that provide an approximate equivalent value measured in tree density units.
- (e) The removal of any tree which due to disease or for other reason has become or threatens to become a danger to human life or property, as indicated by a qualified professional such as an Arborist or a Forester.

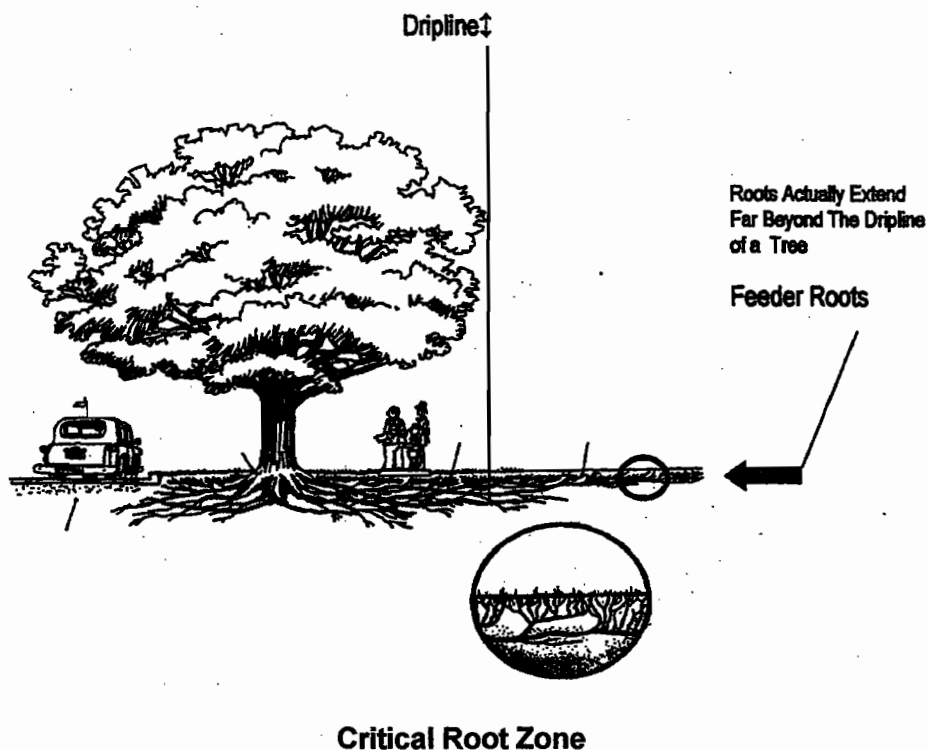
CHAPTER 16.2 DEFINITIONS

Berm: An earthen mound or embankment, usually less than three feet if designed to provide visual interest only, and usually six feet or more in height if intended to screen views or reduce noise.

Caliper: The standard for trunk measurement of nursery stock, as measured at six (6) inches above the ground for trees up to and including four-inch caliper size, and as measured at twelve (12) inches above the ground for larger sizes.



Critical root zone: The minimum area beneath a tree which must be left undisturbed in order to preserve a sufficient root mass to give a tree a reasonable chance of survival. The critical root zone will typically be represented by a concentric circle centering on the tree's trunk with a radius equal in feet to one and one-half (1.5) feet for each inch of trunk diameter (e.g., a critical root zone radius of a twenty (20) inch diameter tree is thirty (30) feet).



Deciduous: A plant with foliage that is shed annually.

Diameter Breast Height (dbh): The standard measure of tree size for those trees existing on a site that are at least four (4) inch caliper at a height of four and one-half (4.5) feet above the ground. If a tree splits into multiple trunks below four and one-half (4.5) feet, then the trunk is measured at its most narrow point beneath the split.

Drip line: An imaginary perpendicular surface from a tree's branch tips down to the ground; The circular area of land surrounding the tree from the trunk to the outermost branches. This area is distinguished from, and not to be confused with critical root zone.

Evergreen: A plant with foliage that persists and remains green year-round.

Ground cover: Living material planted in such a way as to form an eighty (80) percent or more ground cover at the time of planting and a continuous cover over the ground that can be maintained at a height of not more than eighteen (18) inches.

Hedge: A row of closely planted shrubs, bushes, or any kind of plant forming a boundary or fence.

Landscape Plan: A graphic and written document containing criteria, specifications and detailed plans to arrange and modify the effects of natural features. A landscape plan consists of a site plan showing the boundaries of the property and the location of proposed plant materials, in relation to surroundings and improvements, along with a planting schedule and any additional specifications required by the Zoning Administrator.

Landscape Strip: A planted area of specified width.

Landscaping: The modification of the landscape for an aesthetic or functional purpose. The area within the boundaries of an individual lot that includes the preservation of existing vegetation and the continued maintenance thereof, as well as, the installation of trees, shrubs, ground covers, grass, flowers. Landscaping areas may also include decorative rock, bark, mulch and other similar materials in addition to vegetation and live plant material.

Natural area: An area containing natural vegetation that will remain undisturbed when the property is fully developed.

Revegetation: The replacement of trees and landscape plant materials.

Screening: A method of visually shielding or obscuring one abutting or nearby building, structure, or use from another by natural, undisturbed buffers, fencing, walls, berms, densely planted vegetation, or some combination thereof, according to specifications of this Land Use Management Code.

Shrub: A woody plant, smaller than a tree, consisting of several small stems from the ground or small branches near the ground, and generally obtaining a height less than eight (8) feet; a shrub may be deciduous or evergreen.

Species selection list: The recommended species of trees, shrubs, vines, and ground covers in Chapter 16.4 of this Article.

Tree: Any self-supporting, woody perennial plant usually having a single trunk diameter of three (3) inches or more which normally attains a mature height of a minimum of fifteen (15) feet.

Tree, hardwood: Any leaf-bearing (not needle-bearing) tree that is not coniferous (cone bearing). This definition is based on the colloquialism, and does not necessarily reflect any true qualities of the tree.

Tree, overstory: A tree that composes the top layer or canopy of vegetation and will generally reach a mature height of greater than forty (40) feet.

Tree, shade: A tree in a public place, street right-of-way, special easement, or private property, planted to provide canopy that will obscure the sun and heat from the ground.

Tree, softwood: Any coniferous (cone bearing) tree, such as pine, fir, hemlock, cedar, etc. This definition is based on the colloquialism and does not necessarily reflect any true qualities of the tree.

Tree, specimen: Any tree in fair or better condition which qualifies for special consideration for preservation due to size, species, or condition, and which meets the following:

24" dbh - Large hardwoods such as oaks, hickories, yellow poplars, sweetgums, etc.

30" dbh - Large softwoods such as pines, deodar cedars, etc.

4" dbh - Small trees such as dogwoods, redbuds, sourwoods, etc.

Provided, however, that a lesser-size tree can be considered by the Zoning Administrator to be and designated a specimen tree if it is a rare or unusual species, of exceptional or unique quality, or of historical significance.

Tree, understory: Any tree that grows beneath the overstory, and will generally reach a mature height of under forty (40) feet.

Tree density unit: A unit of measure based on diameter breast height of trees.

Tree save area: An area designated for the purpose of saving natural trees, preserving the root system of natural trees and/or preserving natural buffers.

Xeriscaping: Landscaping characterized by the use of vegetation that is drought-tolerant or low water use.

CHAPTER 16.3 TREE PROTECTION

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Section 16.3.1. Applicability.

Unless exempt pursuant to Section 16.1.2 of this Article, no development permit or building permit shall be issued until it is determined that the proposed development or building is in conformance with the provisions of this Chapter.

Section 16.3.2. Tree Save Areas.

All existing trees within buffers that may be required by this Land Use Management Code, or proposed to be protected in a development proposal, or required by the Quad Cities Planning Commission or Zoning Administrator (pursuant to the administration of this Article) shall be delineated on site plans for rezoning and conditional use applications and development plans as tree save areas not to be disturbed. When a tree save area is established pursuant to this Article or a buffer is required pursuant to this Land Use Management Code and the property is to be subdivided, the tree save area or buffer shall be delineated on preliminary and final subdivision plats as tree save areas not to be disturbed.

Section 16.3.3. Tree Survey Required.

Development of properties on lots with five (5) acres or more is likely to significantly reduce forest resources, tree canopy, and natural habitat, unless regulated. Before the commencement of any alteration, defoliation or land disturbing activity or development on land with an area of five (5) acres or more, a tree survey shall be prepared and submitted to the Zoning Administrator, who shall not approve a development permit until said tree survey has been received, reviewed, and considered in the plans of the development. The Zoning Administrator may waive the requirement to submit a tree survey in instances where the proposed development site has already been developed or does not have significant trees that would necessitate a survey.

A tree survey shall not be required for applications for zoning map amendments and conditional uses (see Chapter 21.2). However, if conditions of zoning map amendment or conditional use

approval require that said applications' site plan be followed, and compliance with this Chapter cannot be accomplished as shown on the conditioned site plan, the Zoning Administrator may refer the application to the Quad Cities Planning Commission and Governing Body with jurisdiction to resolve the inconsistency between the site plan and this Article, prior to issuance of a development permit for the subject property. Approval of a site plan during the zoning map amendment or conditional use approval process does not imply a finding that the development is in compliance with this Article, unless a tree survey has been submitted as a part of the zoning map amendment or conditional use approval process and the Zoning Administrator has approved said plan as being in compliance with this Article. For these reasons, applicants for rezoning or conditional use approval are encouraged to submit tree surveys to avoid potential conflicts of the type described in this Section.

Section 16.3.4. Qualifications to Prepare Tree Survey.

The tree survey shall be prepared by an Arborist, Forester, Landscape Architect, or other registered professional qualified to accurately depict existing trees and tree canopies on surveys and plans.

Section 16.3.5. Tree Survey Specifications.

- (a) **Plan and boundary survey.** The tree survey shall be in the form of a to-scale map prepared on or incorporating a boundary survey which has been prepared by a registered land surveyor or registered professional engineer.
- (b) **Specimen trees.** The tree survey shall show the location of all specimen trees plus all other trees or significant tree stands within required buffers. An inventory of all specimen trees by size and species shall be provided as a part of the tree survey.
- (c) **Sampling.** Sampling methods may be used to prepare tree surveys when trees are of such density to make the individual identification of trees impractical; in such cases the tree surveyor shall show dense areas of trees as tree stands and provide a reasonably accurate estimate of trees by size and species based on acceptable sampling methods.
- (d) **Buffers.** If the proposed development site includes required buffers and such buffers are not proposed to be disturbed in any way by the development, then the preparer of the tree survey can note the buffer without further specifying the trees within the buffer.

Section 16.3.6. Review and Approval of Tree Survey.

Within ten (10) working days following the receipt of a tree survey, the Zoning Administrator shall schedule and conduct an inspection of the proposed development site. The applicant or his designee shall be advised as to the date and time of the inspection and given an opportunity to attend and observe the inspection. Following inspection, the Zoning Administrator shall advise the applicant in writing or on the survey of any changes required to the tree survey to comply with the requirements of this Article.

A tree survey may be submitted in advance of or in conjunction with an application for development permit. Tree surveys are also strongly encouraged but not required as a part of applications for zoning map amendment or conditional use approval involving property of five (5) acres or more (see Section 16.3.3).

Section 16.3.7. Tree Retention and Replacement Plan Required.

Before the commencement of any alteration, defoliation or land disturbing activity or development on land with an area of two (2) acres or more, unless exempt from the requirements of this Article, a tree retention and replacement plan shall be prepared and submitted to the Zoning Administrator, who shall not approve a development permit until said plan has been received, reviewed, and approved.

Section 16.3.8. Tree Retention and Replacement Plan Specifications.

- (a) **Inventory.** In cases where a tree survey is not required or provided pursuant to this Chapter, the tree retention and replacement plan shall be based on a reasonable inventory of major trees on the site and an identification of existing specimen trees within portions of the site proposed to be disturbed.
- (b) **Buffers.** If the proposed development site includes required buffers and such buffers are not proposed to be disturbed in any way by the development, then the preparer of the tree retention and replacement plan may designate the undisturbed buffer without further specifying the trees within said undisturbed buffer.
- (c) **Plan and boundary survey.** The tree retention and replacement plan shall be in the form of a to-scale map prepared on or incorporating the site plan for the development which shall be based on a boundary survey.
- (d) **Existing trees and tree-density units retained.** The tree retention and replacement plan shall show the location of all existing trees to be retained and shall include a calculation of the total tree-density units retained on the site as a result of protecting and preserving existing trees. See the Section 16.3.9 on calculating tree density units.
- (e) **Trees and tree-density units to be removed.** A description of trees by size and species that will be removed as a result of the development shall be indicated on the tree retention and replacement plan. The preparer of the plan shall also quantify the total tree density units to be removed as a result of the development. See the Section 16.3.9 on calculating tree density units.
- (f) **Minimum tree density units required.** The plan shall compensate for the net loss of tree-density units (those proposed to be removed) on the site by providing for the installation of replacement trees to be planted in such quantity and size (i.e., tree density units) as to equal the number of total tree density units to be removed. Calculations must be submitted which show the amount of existing trees to be removed and the installation of replacement trees in terms of their tree density units.
- (g) **Maximum tree density units required: sites with trees.** The maximum number of tree-density units required to be maintained on the site shall be the number of tree-density units existing on the site to be developed at the time of development; provided, however, that on heavily wooded sites where a no-net-loss of tree density units would not be practicable, the maximum required replacement tree density shall be 20 tree density units per acre in suburban/urban areas and 30 tree density units per acre in exurban/rural areas.
- (h) **Maximum tree density units required: sites with less than required tree densities.** When a development subject to this Article does have trees on the site equaling or exceeding a tree density of 20 tree density units per acre in suburban/urban areas or 30 tree density units per acre in exurban/rural areas, the replacement plan shall provide for and the developer shall install trees to a tree density of 20 tree density

units per acre in suburban/urban areas or 30 tree density units per acre in exurban/rural areas.

- (i) **Schedule of replacement trees.** Replacement tree planting schedules shall provide the proposed tree species names (botanical and common), quantity, size, spacing and any special planting notes. Invasive trees shall not be allowed under any circumstances. Trees selected must be free from injury, pests, disease, nutritional disorders or root defects, and must be in good vigor in order to assure a reasonable expectation of survivability. It is desirable that replanted trees be ecologically compatible with the site and neighboring sites. Replacement trees should be native species common to adjacent or nearby non-timberland wooded tracts. For a list of acceptable trees, see Section 16.4.7. Also, replanting schedules should not provide all understory trees or all overstory trees to the exclusion of the other; an appropriate combination of understory trees and overstory trees is especially encouraged. All replacement trees shall be maintained properly to ensure their survivability.
- (j) **Alternative locations for tree planting.** Where there is insufficient space on a given development site for the planting of replacement trees required by this Chapter, the Zoning Administrator may approve replanting the required trees on an alternative site (off-site). Public street rights-of-ways and public properties in the municipality with jurisdiction, or private property in the municipality with jurisdiction that has a valid conservation easement granted in favor of tree protection, shall be acceptable alternative sites for tree planting. The Zoning Administrator shall consult with the municipality with jurisdiction as to appropriate locations for tree planting in municipal street rights-of-ways and on public properties, and the Zoning Administrator shall be bound by any plans, policies, or direction and guidance supplied by the Governing Body with jurisdiction or the Quad Cities Planning Commission on the matter of alternative tree planting sites.

Section 16.3.9. Calculating Existing Tree Density Units.

Existing tree density units is determined by converting the diameter breast height (dbh) of individual existing trees proposed to be removed to tree density units based on data provided in Table 16.1. Only existing trees with a dbh of two (2) inches or greater shall be counted in determining tree density units. These units are totaled to determine the existing tree density removed.

**TABLE 16.1
 CONVERTING EXISTING TREE DIAMETERS TO DENSITY UNITS**

DBH Existing Tree	Density Units for Existing Tree	DBH Existing Tree	Density Units for Existing Tree
2"	0.7	16"	5.3
3"	1.0	18"	5.7
4"	1.5	20"	6.0
5"	2.0	22"	6.3
6"	2.4	24"	6.6
8"	3.0	36"	8.4
10"	3.6	42"	9.3
12"	4.2	50" or more	10.5
14"	4.8		

Section 16.3.10. Calculating Required Tree Replacement Units.

Table 16.2 shall be used to calculate the tree replacement units. The value of replacement trees (i.e., tree density units recognized) increases as the size of the tree increases, thereby encouraging the installation of larger replacement trees.

**TABLE 16.2
 CONVERTING REPLACEMENT TREES TO DENSITY UNITS**

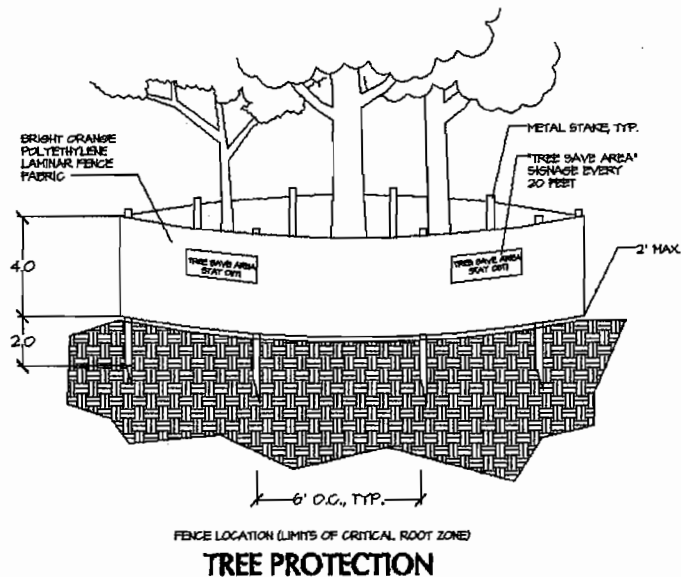
Caliper of Replacement Tree	Density Units for Replacement Tree	Caliper of Replacement Tree	Density Units for Replacement Tree
2"	0.5	6"	2.4
3"	0.5	7"	3.2
4"	1.0	8"	4.0
5"	1.5	9" or more	6.0

A seven (7) gallon container grown pine tree is given replacement credit of 0.3 units. The minimum size for an understory tree is 2". The minimum size for an overstory tree is 3".

Section 16.3.11. Protection of Trees During Construction.

When trees are required or proposed to be retained, as in buffers and tree save areas, developers shall make all reasonable efforts to protect them during the land disturbance and construction processes. Minimum required tree protection measures are as follows:

- (a) Place protective barriers around trees, which may include but are not limited to chain-link fencing, orange laminated plastic fencing supported by posts, rail fencing, or other equivalent restraining material.
- (b) Mark such areas with "tree save area" signs.
- (c) Prohibit grading, excavating, or locating utilities near the critical root zones of trees.



No structure(s), improvement(s), or any activity including solvents, material, construction machinery, portable toilets, construction trailers, or temporary soil deposits shall encroach or be placed within a critical root zone of any tree within a tree save area.

Tree protection devices shall be installed prior to the issuance of a development permit for any clearing and/or grading. Tree protection devices shall remain in functioning condition throughout all phases of development and shall be subject to inspection by the Zoning Administrator. They shall be removed only after permission of the Zoning Administrator is granted.

Section 16.3.12. Tree Damage.

Any tree, designated on a tree retention and replacement plan to be saved, which is damaged during construction or as a result of construction, as determined by the Zoning Administrator, shall be treated according to accepted standards of the National Arborists Association or replaced with a tree or trees equal to the tree density unit value of the tree. However, any specimen tree damaged as described above shall be replaced with trees equal to two (2) times the unit value of the tree removed or damaged. If a damaged specimen tree must be removed, the area occupied by its drip line must remain in a pervious state. A replacement plan for such area must be approved by the Zoning Administrator.

Section 16.3.13. Street Trees.

- (a) **Required.** The requirements of this Section shall be independent of and in addition to all other sections of this Article, and no exemptions provided elsewhere in this Article shall apply. Street tree planting is required along all new public streets and private streets within commercial, industrial, or residential subdivisions in the participating municipalities.
- (b) **Plan Submittal and Approval.** The subdivider, owner of land to be dedicated as a public street, or the developer of a private street shall at the time of preliminary plat approval submit a plan for the provision of street trees along all said roads.
- (c) **Installation.** It is the intent of this Section that the subdivider or developer carefully position street trees on the plan while taking into account sidewalk locations and, if not constructed simultaneously with the construction of the public or private street, future driveways. The subdivider or developer shall install street trees, according to a plan approved by the Planning Commission as a part of preliminary plat approval, prior to dedication or opening of said street. The subdivider or developer shall install said street trees prior to the dedication or opening of the public or private street, unless the Planning Commission accepts an agreement where the responsibility for street tree planting is shifted to the owners or individual builders of the lots to be subdivided. Any such responsibility shall be legally transferred in a form acceptable to the Planning Commission.
- (d) **Location.** Street trees must be planted within the public right-of-way or, if right-of-way width is insufficient to accommodate said street trees, then on private property within a street tree easement dedicated to the city with jurisdiction.
- (e) **Guidelines.** The guidelines below are intended to avoid conflicts with improvements; they are recommendations only and are subject to the approval of the Zoning Administrator, and, in the case of preliminary plat review, the Planning Commission.

Mature Size	Minimum Width Of Tree Lawn	Spacing Between Trees	Overhead Utilities (If Permitted)	Distance From Signs, Utility Poles, Driveways, Fire Hydrants	Distance From Inter-Section	Distance From Under-Ground Utilities
Large 50-70 Feet	8 Feet	60 Feet	Do Not Plant	10 Feet	30 Feet	5 Feet
Medium 30-40 Feet	5 Feet	40 Feet	Okay	10 Feet	30 Feet	5 Feet
Small 15-20 Feet	3 Feet	20 Feet	Okay	10 Feet	30 Feet	5 Feet
Evergreen 40-50 Feet	Yards Only	30 Feet	Do Not Plant	30 Feet	30 Feet	5 Feet

Note: In exurban or rural areas, loose, informal tree groupings are more appropriate than rows and thus may be proposed by the designer and approved by the Zoning Administrator. Also, within exurban or rural areas, a mixture of plant species in this grouping rather than a single (monoculture) species should be provided.

Section 16.3.14. Protection of Street Trees.

- (a) **Right to plant.** The municipality with jurisdiction shall have the right to plant, prune, maintain and remove trees, plants and shrubs within the lines of all streets, alleys, avenues, lanes, squares and public grounds, as may be necessary to insure public safety or to preserve or enhance the symmetry and beauty of such public grounds.
- (b) **Permission required.** No person shall plant, spray, fertilize, prune, or remove, or otherwise disturb any tree on any road right-of-way or property owned by a municipality with jurisdiction without first securing permission from the city with jurisdiction.
- (c) **Pruning and topping.** It shall be unlawful for any person, or firm to top or severely prune any street tree, park tree, or other tree on public property. Topping is defined as the severe cutting back of limbs to stubs larger than three inches in diameter within the tree's crown to such a degree so as to remove the normal canopy and disfigure the tree. Severe pruning seriously affects a tree's food supply, can scald the newly exposed outer bark, make trees vulnerable to insect invasion, stimulate the regrowth of dense, upright branches below the pruning cut, make the tree more vulnerable to wind damage, disfigure the tree aesthetically, and sometimes result in the death of the tree. Where appropriate, crown reduction by a qualified arborist may be substituted. Trees severely damaged by storms or other causes, or certain trees under obstructions such as utility wires where other pruning practices are impractical may be exempted from this Section as determined by the city with jurisdiction.

CHAPTER 16.4 LANDSCAPING

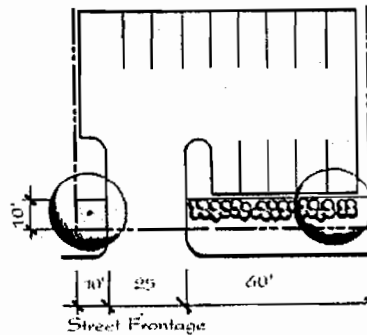
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Section 16.4.1. Optional Planting Specifications for Front Landscape Strips.

Where a front landscape strip is required by this Land Use Management Code, one of the following optional planting specifications shall apply to all landscape strips adjacent to the right-of-way of a public or private street. The landscape requirement shall not apply to vehicle access areas but the landscape strip shall not include any other paved surfaces with the exception of pedestrian sidewalks or trails and areas approved for storm water management.

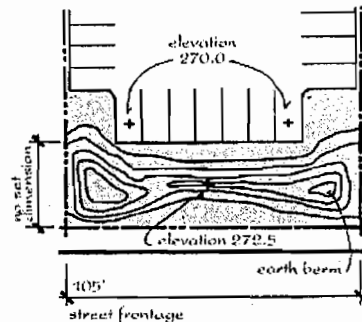
Option 1. The minimum 10-foot wide landscape strip shall be planted with a minimum of one shade tree and 10 shrubs per 35 linear feet of street frontage, excluding driveway openings.

Option 2. An earth berm at least 2.5 feet higher than the finished elevation of the parking lot, with one shade tree and five shrubs for every 35 linear feet of frontage.



minimum 10'-wide landscaped strip -- planted with a minimum of one shade tree and 10 shrubs per 35 linear feet of street frontage.

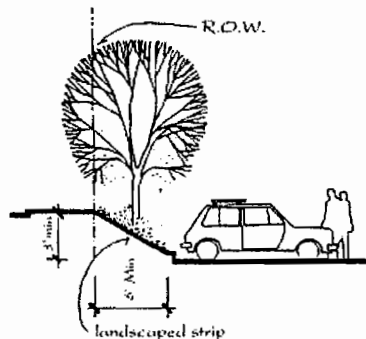
Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.



earth berm planted with a minimum of one shade tree and five shrubs per 35 linear feet.

Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.

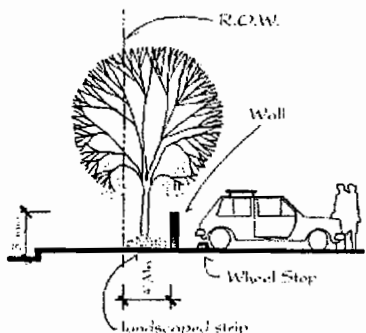
Option 3. A six-foot landscaped strip with a minimum three-foot grade drop from the right-of-way to the parking lot. One shade tree and five shrubs are required for every 35 linear feet.



plant landscaped strip along street frontage with a minimum of one shade tree and five shrubs per 35 linear feet.

Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.

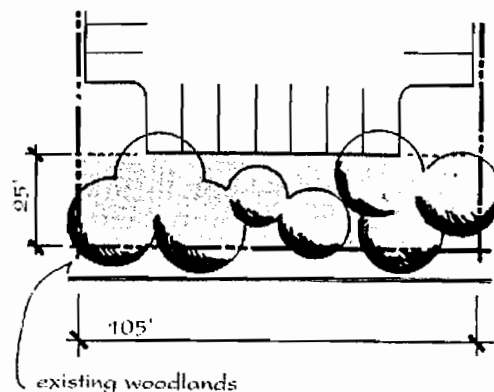
Option 4. A three-foot high fence of brick, stone, or finished concrete wall, with a four-foot buffer strip, planted with a minimum of one shade tree per 35 linear feet of frontage.



plant landscaped strip along street frontage with a minimum of one shade tree per 35 linear feet

Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.

Option 5. If existing woodlands are determined by the Zoning Administrator to be sufficient to meet the intent of the required front landscape strip, the applicant may preserve a 25-foot wide natural buffer strip to satisfy the front landscape strip requirements. This option is strongly encouraged within exurban and rural areas.



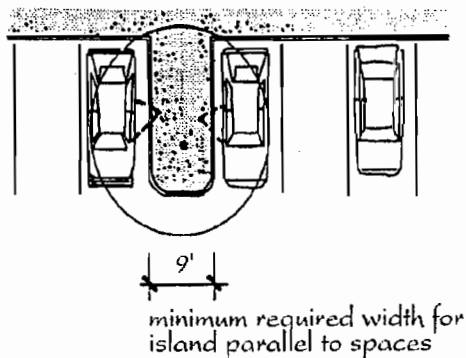
Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.

Section 16.4.2. Planting Specifications for Side Landscape Strips.

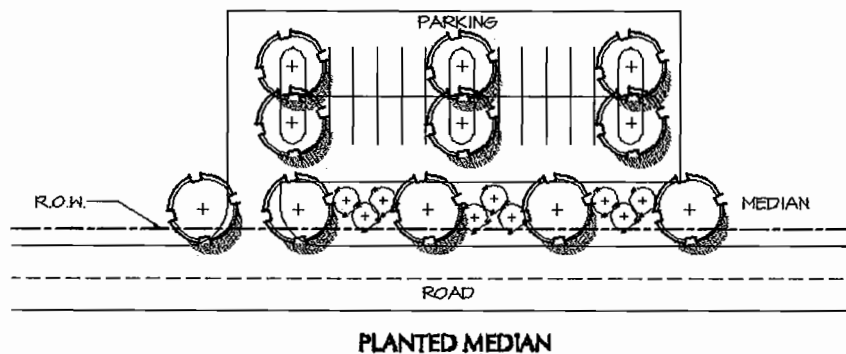
Side landscape strips as may be required by this Land Use Management Code (see dimensional requirements for zoning districts), shall be planted according to the following specification: Within the perimeter landscape strip, the applicant shall install one (1) tree and three (3) shrubs for each 35 linear feet of property boundary along the perimeter to which the side landscape strip applies, unless the Zoning Administrator approves the use of existing woodlands or other vegetation as meeting the intent of this requirement. The requirement for a side landscape strip shall not apply to interparcel access points but shall not include any other paved surfaces with the exception of pedestrian sidewalks or trails and areas approved for stormwater management.

Section 16.4.3. Parking Lot Interior Landscaping.

This Section shall apply to parking lots with ten (10) or more spaces. One interior parking lot landscape island at least nine (9) feet wide and at least 144 square feet in area shall be provided for every ten (10) spaces in each row of parking spaces abutting the perimeter or within the interior of the parking lot. Within each interior parking lot landscape island, at least one tree with a minimum two-inch (2") caliper shall be required to be planted. The surface of the landscape island shall be slightly concave to promote stormwater infiltration.



Source: Martz, Wendelyn A., and Marya Morris. 1990. *Preparing a Landscape Ordinance*. Planning Advisory Service Report Number 431. Chicago: American Planning Association.



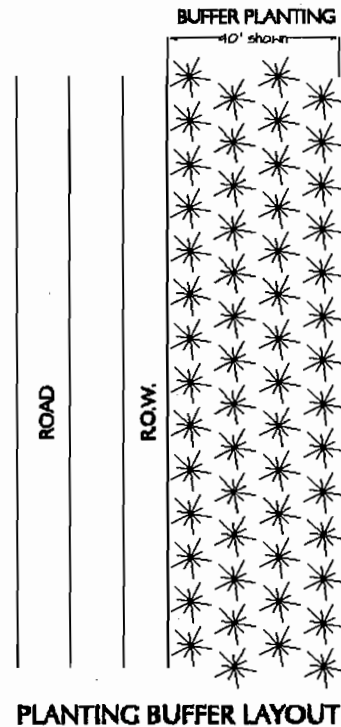
Section 16.4.4. Screening and Buffer Specifications.

Screening shall be established and achieved within all buffers required by this Land Use Management Code along side and rear lot lines. Screening within required buffers shall be of such nature and density to screen activities on the lot from view from the normal level of a first story window on an abutting lot and shall provide year-round maximum opacity from the ground to a height of at least six (6) feet.

Existing vegetation within a required buffer shall remain undisturbed and if it is sufficiently dense to meet the requirements for screening, existing vegetation can suffice to meet the screening requirement as determined by the Zoning Administrator. Where the existing vegetation within a required buffer is sparse and/or does not achieve screening, then additional trees and shrubs shall be installed pursuant to this Section where sparsely vegetated or screening via existing vegetation is insufficient. Trees and shrubs shall be installed to not only provide maximum opacity, but to allow for proper plant growth and maintenance.

The following specifications for natural buffers shall be adhered to, when existing vegetation is insufficient to provide screening as required by this Section.

Width of Required Buffer (Feet)	Planting Specification
10	One row of six-foot-high evergreen screening shrubs planted four (4) feet on center and one row of evergreen trees with branches touching ground planted thirty (30) feet on center.
20	Two stagger-planted rows of evergreen trees with branches touching ground planted thirty (30) feet on center.
30	Three stagger-planted rows of evergreen trees with branches touching ground planted thirty (30) feet on center.
40	Four stagger-planted rows of evergreen trees with branches touching ground planted thirty (30) feet on center.
More than 40	One additional stagger-planted row of evergreen trees with branches touching grant for each 10 additional feet of required buffer width.



PLANTING BUFFER LAYOUT

An applicant may propose and the Zoning Administrator may approve modifications to the specified planting details when the applicant shows that an equivalent amount of screening can

be accomplished by applying alternative planting specifications. This shall not be construed as authorizing an administrative variance by the Zoning Administrator to decrease buffer widths.

An applicant may propose and the Quad Cities Planning Commission may approve a reduction in the required buffer width by no more than 50 percent of the required width, if a screening wall (e.g., six-foot high masonry wall) is provided along the innermost portion of a required buffer (not on the property line).

Also see Sections 10.1.6 and 10.1.7 for buffer requirements in the U.S. Highway 129 overlay district.

Section 16.4.5. General Provisions.

- (a) **Visibility.** Landscaping shall not restrict visibility of motorists or pedestrians (e.g., tall shrubs or low-lying branches of trees).
- (b) **Clearance.** Trees must have a clear trunk at least six (6) feet above finished grade to allow a safe clearance beneath the tree.
- (c) **Curb Stops.** A curb or wheel stop shall be provided along interior parking lot landscape islands, perimeter landscape strips, and landscapes adjacent to street rights-of-ways, to prevent cars from encroaching on trees, shrubs, and landscapes, as approved by the Zoning Administrator.

Section 16.4.6. Landscape Plan Required.

A landscaping plan shall be required to be approved by the Zoning Administrator prior to the issuance of a development or building permit to demonstrate compliance with the provisions of this Chapter. The landscape plan shall be based on an accurate boundary survey of the site or reasonable property description and shall include the following:

- (a) Location and general type of existing vegetation;
- (b) Existing vegetation to be saved;
- (c) Methods and details for protecting existing vegetation during construction;
- (d) Locations and labels for all proposed plants and a plant list or schedule showing the proposed and minimum required quantities;
- (e) Location and description of other landscape improvements, such as earth berms, walls, fences, screens, sculptures, fountains, street furniture, lights, and courts or paved areas;

Section 16.4.7. Landscaping Specifications.

Approval of all landscaping and other materials by the Zoning Administrator shall be required. The following specifications are required.

- (a) The use of native plants as landscaping materials is encouraged wherever possible.
- (b) Invasive or potentially invasive plants are not permitted. However, well-mannered non-native plants are acceptable if they are not considered invasive.
- (c) Existing tree cover and natural vegetation shall be preserved, whenever possible, or replaced with suitable vegetation.
- (d) Ground cover(s) should be used to supplement landscaping in appropriate areas to reduce the need for extensive grass lawns, which would require regular watering in drought conditions.

- (e) Grass areas shall be sodded. However, if grass seed must be used, it shall be a variety suitable to the area that produces complete coverage.
- (f) No artificial plants, trees, or other vegetation shall be installed.
- (g) Table 16.4.1 provides a planting list to facilitate the selection of appropriate landscaping. The Zoning Administrator may disapprove species not on the approved list.

**TABLE 16.4.1
 APPROVED LANDSCAPE PLANTING LIST**

						Wet- Site Suitable	Upper Piedmont
A: Trees: Large Deciduous							
LD	AR	Acer rubrum	Red Maple	3" cal.	B&B	x	x
LD	BN	Betula nigra	River Birch	Multi-stem	B&B	x	x
LD	CG	Carya glabra	Pignut Hickory	Whip	cont.		x
LD	FG	Fagus grandifolia	American Beech	2" caL	B&B		x
LD	FA	Fraxinus americana	Green Ash	3" cal.	B&B		x
LD	LS	Liquidamber styraciflua	Sweetgum	3" cal.	B&B	x	x
LD	LT	Liriodendron tulipifera	Tulip Poplar	3" caL	B&B		x
LD	NS	Nyssa sylvatica	Blackgum	2" caL	B&B	x	x
LD	PO	Platanus occidentalis	Sycamore	3" cal.	B&B		x
LD	QA	Quercus alba	White Oak	3" cal.	B&B		x
LD	QC	Quercus coccinea	Scarlet Oak	3" cal.	B&B		x
LD	QF	Quercus falcata	Southern Red Oak	3" cal.	B&B		x
LD	QL	Quercus laurifolia	Laurel Oak	3" cal.	B&B		
LD	QL	Quercus lyrata	Overcup Oak	3" cal.	B&B		x
LD	QN	Quercus nigra	Water Oak	3" cal.	B&B		x
LD	QP	Quercus phellos	Willow Oak	3" cal.	B&B		x
LD	QR	Quercus rubra	Northern Red Oak	3" cal.	B&B		x
LD	QS	Quercus stellata	Post Oak	3" cal.	B&B		x
LD	TD	Taxodium distichum	Baldcypress	3" cal.	B&B	x	
A: Trees: Small Deciduous							
SD	AL	Acer leucoderme	Chalk Maple	6-8'	B&B		x
SD	AA	Amelanchier arborea	Serviceberry	6-8'	B&B		x
SD	CC	Carpinus caroliniana	Ironwood	2"	B&B	x	x
SD	CN	Cercis canadensis	Redbud	1.5"	B&B		x
SD	CV	Chionanthus virginicus	Fringetree	Multi-stem	B&B		x
SD	CF	Cornus florida	Flowering Dogwood	2" cal.	B&B		x
SD	CP	Crataegus phaenopyrum	Washington Hawthorne	2" cal.	B&B		x
SD	GT	Gleditsia tricanthos	Honeylocust	2" cal.	B&B		x
SD	ID	Ilex decidua	Possumhaw	Multi-stem	cont.	x	
SD	OV	Ostrya virginiana	Hophornbeam	2" cal.	B&B		x
SD	OA	Oxydendrum arboreum	Sourwood	8-Jun	B&B		x
SD	SN	Salix nigra	Black Willow	6-8'	cont.	x	x
SD	SA	Sassafras albidum	Sassafras	4-6'	cont.		x
SD	MV	Magnolia virginiana	Sweetbay Magnolia	8-10'	B&B	x	
A: Trees: Evergreen							
ET	CT	Chamaecyparis thyoides	Atlantic White Cedar	6'	cont.	x	
ET	IO	Ilex opaca	American Holly	8' ht.	B&B		x

ET	JV	Juniperus virginiana	Eastern Red Cedar	8' ht.	B&B		x
ET	MG	Magnolia grandifolia	Southern Magnolia	10'-12'	B&B		x
ET	PT	Pinus taeda	Loblolly Pine	4'	cont.		x
ET	PV	Pinus virginiana	Virginia Pine	4'	cont.		x
ET	TC	Tsuga canadensis	Canadian Hemlock	8-10'	B&B		
ET	PC	Prunus caroliniana	Carolina Cherrylaurel	3 gal.	cont.		x

A: Shrubs: Deciduous

DS	Ap	Aesculus parviflora	Bottlebrush Buckeye	3 gal	cont.		x
DS	As	Aesculus sylvatica	Painted Buckeye	3 gal	cont.		x
DS	Ar	Aronia arbutifolia	Red Chokeberry	3 gal	cont.	x	x
DS	Ca	Callicarpa americana	American Beautyberry	3 gal	cont.		x
DS	Ca	Calycanthus floridus	Sweetshrub	3 gal	cont.		x
DS	Co	Cephalanthus occidentalis	Buttonbush	3 gal	cont.	x	
DS	Cl	Clethra alnifolia	Summersweet	3 gal	cont.	x	
DS	Cm	Cornus amomum	Silky Dogwood	3 gal	cont.	x	x
DS	Cs	Cornus stricta	Swamp Dogwood	3 gal	cont.	x	
DS	Ea	Euonymus americanus	Strawberry Bush	3 gal	cont.		x
DS	Fg	Fothergilla gardenii	DwarfBottlebrush	3 gal	cont.		
DS	Hv	Hamamelis virginiana	Common Witchbazel	3 gal	cont.		x
DS	Ja	Hydrangea arborescens	Hydrangea	3 gal	cont.		x
DS	Hq	Hydrangea quercifolia	Oakleaf Hydrangea	3 gal	cont.		x
DS	Iv	Ilex verticillata	Winterberry	3 gal	cont.	x	x
DS	Ir	Itea virginica	Virginia Sweetspire	3 gal	cont.	x	x
DS	Rc	Rhododendron canascens	Piedmont Azalea	3 gal	cont.		x
DS	Rp	Rhododendron prunifolium	Plumleaf Azalea	3 gal	cont.		x
DS	Ra	Rhus aromatica	Aromatic Sumac	3 gal	cont.		x
DS	Ro	Rhus copallina	Winged Sumac	3 gal	cont.		x
DS	Sc	Sambucus canadensis	Elderberry	3 gal	cont.	x	x
DS	Va	Vaccinium arboreum	Sparkleberry	3 gal	cont.		x
DS	Vc	Viburnum acerifolium	Mapleleaf Viburnum	1 gal.	cont.		x
DS	Vd	Viburnum dentatum	Arrowwood Viburnum	3 gal	cont.		x
DS	Vp	Viburnum prunifolium	Blackhaw Viburnum	3 gal	cont.		x
DS	Vr	Viburnum rufidulum	Rusty Viburnum	3 gal	cont.		x
DS	Xs	Xanthoriza simplicissima	Yellow Root	1 gal.	cont.		x

A: Shrubs: Evergreen

ES	Ao	Agarista populifolia	Leucothoe	3 gal	cont.	x	
ES	Ig	Ilex glabra	Inkberry	3 gal	cont.	x	
ES	Io	Ilex vomitoria	Yaupon Holly	3 gal	cont.	x	
ES	If	Illicium floridanum	Florida Anise	3 gal	cont.	x	
ES	Ip	Illicium parviflorum	Small Anise-tree	3 gal	cont.	x	
ES	Kl	Kalmia latifolia	Mountain Laurel	3 gal	cont.		x
ES	La	Leucothoe axillaris	Doghobble	3 gal	cont.	x	
ES	Mc	Myrica cerifera	Wax Myrtle	3 gal	cont.	x	
ES	Oa	Osmanthus americanus	Devilwood	3 gal	cont.		
ES	Sr	Serenoa repens	Saw Palmetto	3 gal	cont.		x
ES	Yf	Yucca filamentosa	Adam's Needle Yucca	3 gal	cont.		

A: Perennials

P	am	Amsonia tabernaemontana	Bluestar	4"	cont.		
P	at	Arisaema triphyllum	Jack-in-the-pulpit	4"	cont.		x
P	ai	Asclepias incarnata	Swamp Milkweed	4"	cont.	x	x
P	at	Asclepias tuberosa	Butterfly Weed	4"	cont.		x
P	ad	Aster divaricatus	Wood Aster	4"	cont.		x

P	ao	Aster oblongifolius	Aster	4"	cont.		x
P	ah	Aster shortii	Short's Aster	4"	cont.		x
P	ac	Aquilegia canadensis	Columbine	4"	cont.		x
P	bt	Baptisia tinctoria	Baptisia	4"	cont.		
P	bh	Blephilia hirsuta	Woodmint	4"	cont.		
P	cg	Chrysopsis graminifolia	Silk Grass	4"	cont.		x
P	ca	Coreopsis auriculata	Mouse-eared Coreopsis	4"	cont.		x
P	cl	Coreopsis lanceolata	Lance-leaf Coreopsis	4"	cont.		x
P	ec	Eupatorium coelestinum	Hardy Ageratum	4"	cont.		x
P	ef	Eupatorium fistulosum	Joe Pye Weed	4"	cont.	x	x
P	gm	Geranium maculatum	Wild Geranium	4"	cont.		x
P	ha	Helianthus angustifolius	Swamp Sunflower	4"	cont.	x	
P	gm	Heuchera americana	Rock Geranium	4"	cont.		x
P	hc	Hibiscus coccinea	Swamp Hibiscus	4"	cont.	x	
P	iu	Iris fulva	Copper Iris	4"	cont.	x	
P	ii	Iris virginica	Virginia Iris	4"	cont.	x	
P	je	Juncus effusus	Soft Rush	4"	cont.	x	x
P	ls	Liatris spicata	Blazing Star	4"	cont.		x
P	lc	Lobelia cardinalis	Cardinal Flower	4"	cont.		x
P	md	Monarda didyna	Beebalm	4"	cont.		
P	mp	Monarda punctata	Spotted Horsemint	4"	cont.		x
P	os	Oenothera speciosa	Primrose	4"	cont.		x
P	oh	Opuntia humifusa	Prickly Pear	1 gal.	cont.		x
P	ps	Penstemon spp.	Beard Tongue	4"	cont.		x
P	pc	Phlox carolina	Thick-leaf Phlox	4"	cont.		x
P	pd	Phlox divaricata	BJue Phlox	4"	cont.		x
P	ps	Phlox stolonifera	Creeping Phlox	4"	cont.		x
P	pb	Polygonatum biflorum	Soloman's Seal	4"	cont.		x
P	py	Pycnanthemum incanum	Mountain Mint	4"	cont.		x
P	rh	Rudbeckia hirta	Black-eyed Susan	4"	cont.		x
P	sl	Salvia lyrata	Lyre-leaf sage	4"	cont.		x
P	sc	Sanguinaria canadensis	Bloodroot	4"	cont.		x
P	sv	Silene virginica	Fire Pink	4"	cont.		x
P	sa	Smilacina racemosa	False Solomon's Seal	4"	cont.		x
P	ss	Solidago spp.	Goldenrod	4"	cont.		x
P	tc	Tiarella cordifolia	Foam Flower	4"	cont.		x
P	tv	Tradescantia virginiana	Spiderwort	1 gal.	cont.		x
P	vg	Vernonia angustifolia	Ironweed	4"	cont.		x

A: Groundcovers

G	ac	Asarum canadense	Wild Ginger	4"	cont.		x
G	cv	Chrysogonum virginianum	Green-and-Gold	4"	cont.		x
G	mr	Mitchella repans	Partridge Beny	4"	cont.		x
G	ic	Iris cristata	Crested Iris	4"	cont.		x
G	sa	Senecio aureus	Golden Ragwort	4"	cont.	x	x

A: Ferns

F	af	Athyrium filix-femina	Lady Fern	1 gal.	cont.		x
F	dp	Dennstaedtia punctilobula	Hay Scented Fem	1 gal.	cont.		x
F	oc	Osmunda cinnamomea	Cinnamon Fern	1 gal.	cont.		x
F	or	Osmunda regalis	Royal Fern	1 gal.	cont.		x
F	pa	Polystichium acrostichoides	Christmas Fern	1 gal.	cont.		x
F	pu	Pteridium aquilinum	Bracken Fern	1 gal.	cont.		x
F	tk	Thelpteris kuntii	Wood Fern	1 gal.	cont.		
F	tn	Thelpteris noveboracensis	New York Fern	1 gal.	cont.		x

A: Vines

V	bc	Bignonia capreolata	Cross Vine	1 gal.	cont.		x
V	cr	Campsis radicans	Trumpetcreeper	1 gal.	cont.		x
V	db	Decumaria barbara	Climbing Hydrangea	1 gal.	cont.	x	x
V	gs	Gelsemium sempervirens	Carolina Jeessamine	1 gal.	cont.		x
V	lp	Lonicera sempervirens	Trumpet Honeysuckle	1 gal.	cont.		x
V	pq	Parthenocissus quinquefolia	Virginia Creeper	1 gal.	cont.		x
V	ss	Smilax spp.	Greenbriar	1 gal.	cont.		x

A: Grasses

GR	av	Andropogon virginicus	Broomsedge	4"	cont.	x	x
GR	ag	Andropogon gerardii	Big Bluestem	4"	cont.		x
GR	al	Andropogon glomeratus	Bushy Bluestem	4"	cont.		x
GR	at	Andropogon ternarius	Splitbeard bluestem	4"	cont.		x
GR	ct	Chasmanthium latifolium	Upland Sea Oats	4"	cont.		x
GR	en	Elymus canadensis	Canada Wid Rye	4"	cont.		x
GR	je	Juncus effusus	Rush	4"	cont.	x	x
GR	me	Muhlenbergia expansa	Muhly Grass	4"	cont.		
GR	pv	Panicum virgatum	Switchgrass	4"	cont.	x	x
GR	sn	Sorghastrum nutans	Indiangrass	4"	cont.		x
GR	sp	Schizachyrium scoparium	Little Bluestem	4"	cont.		x

Section 16.4.8. Landscape Maintenance and Landscape Bond.

The owner, occupant, tenant, and respective agent of each, if any, shall be jointly and severally responsible for the maintenance and protection of all landscaping required to be installed pursuant to this Chapter. Prior to issuance of a certificate of occupancy, the developer or owner may be required to post a performance bond or cash escrow guaranteeing all landscaping materials and work for a period of two (2) years after approval or acceptance thereof by the city with jurisdiction. The bond if required will be in the amount of 100 percent of the estimated cost of replacing all of the landscaping required by these specifications, unless otherwise specified by the Zoning Administrator. At the end of two years, the Zoning Administrator shall make an inspection and notify the owner or developer and the bond company of any corrections to be made. If no maintenance is required, or if maintenance is provided by said responsible party, the Zoning Administrator shall release the bond.