

**BILL NO. 2693**

**ORDINANCE NO. 2512**

**AN ORDINANCE REPEALING CITY OF CHESTERFIELD ORDINANCE NUMBER 2367 AND REPLACING IT WITH A NEW TREE PRESERVATION AND LANDSCAPE REQUIREMENTS ORDINANCE WHICH AMENDS THE TREE PRESERVATION AND LANDSCAPE REQUIREMENTS WITHIN THE CITY OF CHESTERFIELD [P.Z. 25-2008 CITY OF CHESTERFIELD (TREE PRESERVATION AND LANDSCAPE REQUIREMENTS)]**

**WHEREAS**, the City of Chesterfield seeks to revise the language for Tree Preservation and Landscape Requirements as described in Ordinance 2367; and,

**WHEREAS**, a public hearing was held before the Planning Commission on December 8, 2008; and,

**WHEREAS**, the Planning Commission having considered said request, recommended approval of the ordinance; and,

**WHEREAS**, the City Council, having considered said request, voted to approve the ordinance with amendments to section IV, revising the definition of a Monarch Tree, two amendments to section VIII regarding trees in easements and Tree Preservation Plan requirements, three amendments to section XII, regarding the Landscape Plan Requirements, Landscape Buffers and Landscape Sureties sections, and one amendment to section XV, pertaining to the Requests for Modification section.

**NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CHESTERFIELD, ST. LOUIS COUNTY, MISSOURI, AS FOLLOWS:**

**Section 1.** The City of Chesterfield Ordinance Number 2367 is hereby repealed, and the City of Chesterfield Zoning Ordinance is amended and agrees to make necessary changes thereto, as set out in Attachment "A" which is attached hereto and made a part hereof.

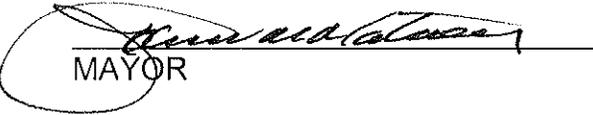
**Section 2.** The City Council, pursuant to the petition filed by the City of Chesterfield in P.Z. 25-2008, requesting the amendment embodied in this ordinance, and pursuant to the recommendations of the City of Chesterfield Planning Commission that said petition be granted and after public hearing, held by the Planning Commission on December 8, 2008, does hereby adopt this ordinance pursuant to the power granted to the City of Chesterfield under Chapter 89 of the Revised Statutes of the State of Missouri authorizing the City Council to exercise legislative power pertaining to planning and zoning.

**Section 3.** This ordinance shall be codified within the Municipal Code of the City of Chesterfield.

**Section 4.** This ordinance shall be in full force and effect from and after its passage and approval.

Passed ~~and approved~~ this 18<sup>th</sup> day of February, 2009.

*Approved this 2nd day of March, 2009*

  
MAYOR

ATTEST:

  
CITY CLERK

FIRST READING HELD: 02/02/2009



City of  
Chesterfield

## TREE PRESERVATION AND LANDSCAPE REQUIREMENTS



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## **TREE PRESERVATION AND LANDSCAPE REQUIREMENTS**

### **I. PURPOSE AND INTENT**

The purpose of this section of the City Code is to provide a detailed guide for the preservation and planting of trees within the City of Chesterfield. Tree preservation and planting in the City of Chesterfield represents an on-going effort to maintain the character and benefits derived from trees. Whether trees exist as a natural occurrence of native tree species or as planted trees around existing developments, their protection can only be assured when tree protection measures are utilized. By selecting the trees that will be preserved before the final stages of development, tree protection design standards can be created and included prior to the early stages of development of the site. Planting of new trees should be used to supplement a site's existing landscaping, not replace it.

### **II. APPLICABILITY**

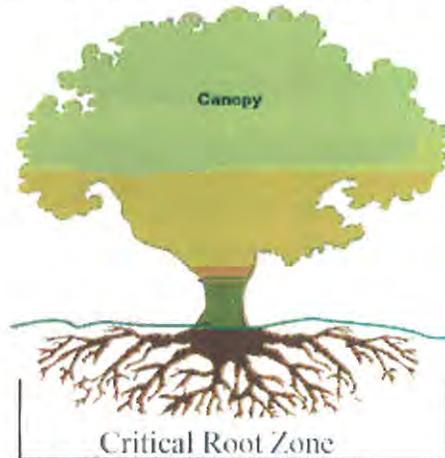
- A. Except where expressly exempted, the terms and provisions of this section of the City Code shall apply to:
  - 1. All vacant and undeveloped land; and
  - 2. All property to be redeveloped including additions and alterations.

### **III. EXCEPTIONS**

- A. Single residential lots of less than one (1) acre that have been subdivided for more than two (2) years, are exempt from the provisions of this section of the City of Chesterfield Code.
- B. Single residential lots of one (1) acre or more are not required to submit a Tree Stand Delineation or Tree Preservation Plan when:
  - 1. Constructing a residential addition or deck less than 1,000 square feet in area; or
  - 2. No Tree Mass, as defined in Section IV of this ordinance, is being disturbed.
- C. Plants that create a public nuisance are not protected by the provisions of this section of the City of Chesterfield Code.

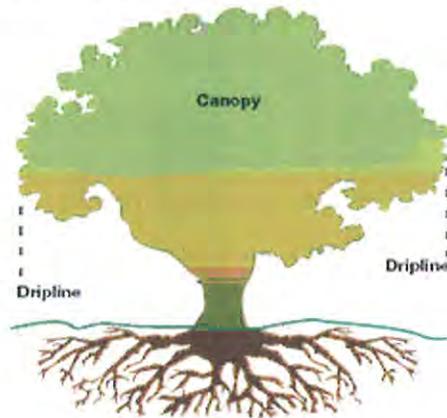
#### IV. DEFINITIONS

1. **Afforestation**: The conversion of open land into forest through tree planting.
2. **Buffer Strip**: A strip of land with natural or planted vegetation intended to separate and partially obstruct the view of two (2) adjacent land uses or properties from one another.
3. **Caliper**: The diameter of the trunk of a young tree less than 4 inches in diameter; measured at six (6) inches above natural grade.
4. **Canopy Tree**: Deciduous trees that have a minimum height of thirty (30) feet at maturity.
5. **City's Tree Specialist**: A Tree Specialist retained by the City to review tree protection and preservation issues at the City's request.
6. **Critical Root Zone (CRZ)**: The area of tree roots within the crown dripline. This zone is generally defined as the area underneath a tree's canopy, extending from the tree's trunk to a point no less than the furthest crown dripline.



7. **Common Open Space**: Common open space means a parcel or area of land or an area of water or a combination of both within the planned unit development (PUD) which is designed and intended for the use or enjoyment of the residents. This area may include stream corridors, agricultural lands, archeological sites or other elements to be protected from development as well as easements for public utilities. It also includes any improvements as are necessary and appropriate for the benefit and enjoyment of the residents or land owners. Common open space does not include any portion of an improved lot, dedicated to buildings or vehicular navigation.

8. **Diameter at Breast Height (DBH):** The diameter of the trunk of a tree, in inches of diameter, measured at “breast height” four and one half (4.5) feet above the original soil or natural grade. If a tree forks or separates into two or more trunks below 4.5 feet, then the trunk is measured at its narrowest point below the fork.
9. **Disturb:** Includes the intentional, unintentional or negligent removal, destruction, or killing of any tree, or causing the loss of the tree canopy coverage or critical root zone of individual trees or group of trees.
10. **Drip Line:** The location on the ground which is just below the outer extent of the tree branches.



11. **Grading:** Clearing, excavation or fill or any combination thereof and shall include the conditions resulting from any excavation or fill.
12. **Greenspace Preservation Area:** An area designated within a proposed development within which all existing healthy trees, vegetation, stream corridors, soil grade and any existing or additional landscape plantings are to be permanently protected and preserved. No structures or paving are permitted in a greenspace preservation area.
13. **Grove:** A group of trees similar in species or size and significant enough to be given special attention. See also Monarch Tree Stands.
14. **Landscape Buffer:** An area of landscaping separating two land uses, or a land use and public right-of-way, and acts to soften or mitigate the effects or impacts of one land use on the other.

15. **Limit of Disturbance:** A line that identifies the location on the ground where fencing will be installed to protect trees from clearing, grading, soil filling, storage of materials, parking of vehicles, utility installation or other construction activity of any kind.
  
16. **Monarch Tree:** Any tree shall be classified as a monarch tree if it meets two or more of the following conditions:
  - a. It is rare or unusual species, or
  - b. It is of exceptional quality, or
  - c. It has historical significance, or
  - d. It will be specifically used as a focal point in a project or landscape.
  - e. Small trees (dogwood, redbud, serviceberry, etc.) measuring at least 12" DBH, or
  - f. Medium/Large trees (Pine, Oak, Maple, etc.) measuring at least 20" DBH.
  
17. **Monarch Tree Stand:** A contiguous grouping of at least eight (8) trees which have been determined to be of high value or comprised of Monarch Trees. Determination is based upon the following:
  - a. A relatively mature even aged stand of trees, or
  - b. A stand of trees with a purity of species composition, or
  - c. A stand of trees which are rare or unusual in nature, or
  - d. A stand of trees with historical significance, or
  - e. A stand of trees with exceptional aesthetic quality or size that is a principle feature of a site.
  
18. **Ornamental Tree:** A small highly visual tree species that can attain a mature height of 20-35 feet.
  
19. **Openspace:** Openspace may include pervious surfaces such as ponds, grass areas, and landscaped areas. Openspace also includes water features or drainage ditches, sidewalks, and pedestrian areas such as plaza areas for seating. Openspace specifically excludes any portion of a site covered by a building, any paved area for vehicular circulation or parking, and any outdoor storage areas.
  
20. **Public Tree:** Any tree located on city owned or controlled property including parks, street right-of-ways, parkways, public facilities, etc.
  
21. **Sight Distance Triangle:** The triangular area of a corner lot bound by the property lines and a line connecting the two (2) points on the

property lines thirty (30) feet from the point of intersection of the projected property lines.

22. **Street Tree**: Any tree that is currently located or proposed for planting as part of the row of trees required along streets or highways.
23. **Tree Canopy**: The upper portion of a tree or trees made up of branches and leaves.
24. **Tree Canopy Coverage**: The area in square feet of a tree's spread. Existing tree canopy is determined by measuring the ground's surface area that is covered by the branch spread of a single tree or clump or grove of trees. When trees are relatively close together, but the branches are not touching the general area covered by this group can be used to determine the area of tree canopy coverage.
25. **Tree Mass**: A grouping of three (3) or more trees whose canopies intertwine or overlap.
26. **Tree Protection Area**: The area above ground necessary to protect the Critical Root Zone including the trunk and scaffold branches of a tree.
27. **Tree Specialist**: A person who meets one of the following criteria:
  - a. **Arborist/Certified Arborist**: A person who is a full-time owner or employee of a commercial tree service with at least five (5) years of field experience or a person who is certified through the International Society of Arboriculture.
  - b. **Forester/Certified Forester**: A person with a degree in forestry and at least five (5) years of field experience or a person certified through the Society of American Foresters.
28. **Tree Topping**: Drastic removal or cutting back of large branches in mature trees.
29. **Ultimate Tree Canopy**: Ultimate tree canopy is determined by assigning the following area values for planted trees, and the tree sizes may be used in combination to attain the necessary density for tree planting.
  - a. Large Tree – 400 sq. ft.
  - b. Medium Tree—300 sq ft.

- c. Small Tree—200 sq. ft.
- 30. **Understory Tree**: Deciduous trees that have a maximum height of less than thirty (30) feet at maturity.
- 31. **Wooded Area**: 5,000 sq. ft. or more of tree canopy coverage and where the tree canopy is primarily comprised of trees equal to or larger than five (5) inches in DBH. The 5,000 sq. ft. may be in a single grouping or comprised of several single trees or groupings of scattered trees in old yards or old fields, as well as land with thick tree cover or forested lands. The 5,000 sq. ft. need not be contiguous.

**V. OVERVIEW OF SUBMITTAL PROCESS**

<b>Development Process</b>	<b>Plan Submittal</b>	<b>Staff Action</b>	<b>Decision Making Authority</b>
Rezoning to a planned district	Tree Stand Delineation (TSD)	Review/Recommendation.	N/A
Site Development Concept Plan	TSD, Tree Preservation Plan (TPP), Conceptual Landscape Plan	Review/Recommendation	Planning Commission.
Site Plan/ Site Development Plan/Site Development Section Plan	TSD, TPP, Landscape Plan	Review/Recommendation	Planning Commission.
Special Conditions Request	Mitigation Plan	Review	Staff
Municipal Zoning Authorization	TSD, TPP (except where specifically exempted)	Review	Staff.
Grading Permit/ Improvement Plan	The Approved TPP	Review	If modification requested is 10% or less: Staff reviews and may approve in part or whole and mitigation may be required. If modification requested is more than 10%: Planning Commission approves.
Bond Release	N/A	Staff reviews site against approved Landscape Plan and TPP	Staff.

## **VI. PROTECTION OF PUBLIC OR PRIVATE TREES**

- A. It is unlawful for any person to attach any sign, advertisement, notice, fence or any other man made object to any tree in the public right-of-way, park or any other City property. Exceptions: temporary devices used for normal installation or maintenance of planted trees or as permitted by the City of Chesterfield.
  
- B. It is unlawful for any person to damage, cut down, destroy, top or injure any tree without first obtaining the necessary approval from the City of Chesterfield. If any tree is damaged, removed, or destroyed without first acquiring approval from the City of Chesterfield this shall constitute a violation of this Tree Manual and a fine shall be assessed based upon the value and number of each tree, shrub or plant which was removed, damaged, or destroyed. Tree values shall be based on procedures in "Guide for Plant Appraisal", latest edition, published by the International Society of Arboriculture. Monies collected from fines will be placed in the Tree Preservation Account according to Section XIII of this Tree Manual.
  - 1. Trees may not be removed from any "Common Open Space" or "Greenspace Preservation Area" area unless authorized by the City of Chesterfield.
  - 2. This provision shall not apply to any ordinary care and maintenance or removal of hazardous trees or tree parts by a governmental entity or its designee authorized to exercise jurisdiction over the right-of-way, park or other infrastructure, public property, or to provide regular road maintenance.
  
- C. The Planning and Development Services Director has the authority to order the removal of trees or shrubs on private property which may endanger life, health, safety, or property of the public.
  - 1. Removal shall be done by owners at their expense within sixty (60) days after the date of notice served.
  - 2. Disposal of trees with communicable diseases shall be performed in a manner which prevents the spread of disease.
  - 3. In the event the owners fail to comply with such provisions, the City shall have the authority to remove such trees and charge the costs of removal as well as any costs for fees to record or release any lien and reasonably administrative costs, as a special assessment represented by a special tax bill against the real property affected, and shall be filed by the City Clerk and deemed a personal debt

against the property owner and shall remain a lien on the property until paid.

- D. The Public Works Director may authorize the removal of street trees for public or private construction projects.
- E. When deemed appropriate due to the nature of the existing vegetation on the site, the City may require the Applicant to provide a landscape or forestry study by an Independent Tree Specialist.

## **VII. TREE STAND DELINEATION (TSD)**

### **A. Purpose**

The purpose of the TSD is to provide a general accounting of existing vegetation so that a conceptual design of the proposed development can be done.

### **B. Applicability**

A TSD is required for submittal as outlined in Section V. Overview of Submittal Process.

### **C. Exceptions**

For Single Family Residential Dwellings, which do not meet the criteria in Section III. "Exceptions", the property owner may be required to submit letter stating the acreage, the work proposed and that no tree mass is being disturbed. If there are trees on site, a partial TSD and partial TPP is acceptable.

### **D. Criteria**

The following items are required on a TSD:

1. Detailed description and location of individual trees and groups of trees including specific size and estimated number of trees within a natural area.
2. Identification of existing roads, building footprints, parking lots, stormwater structures and utilities.
3. Signed by a Tree Specialist.
4. For trees larger than 5" DBH, either BAF-10 study or ocular estimate method may be utilized.

5. As directed by the City of Chesterfield, submit a site plan with TSD overlay. An overlay is defined as a transparent sheet containing the proposed TSD line work which will be superimposed over the proposed site plan.
6. The City's Tree Specialist may, at the City's discretion, be asked to verify any information provided on the TSD.

## **VIII. TREE PRESERVATION PLAN (TPP)**

### **A. Purpose**

A TPP is a plan based upon information provided by a tree specialist that delineates areas where trees are to be saved and details measures to be taken to ensure protection and survivability of trees to be saved, prior to and during construction, and also complies with guidelines which are listed in this Manual.

### **B. Applicability**

A TPP is required for submittal as outlined in Section V. Overview of Submittal Process.

In addition and unless otherwise exempted in this Section of the City Code, the TPP provisions of this Section of the City Code shall also apply to all vacant or undeveloped land and all property to be re-developed including additions and alterations with 5,000 square feet or more of wooded area of any site that contains a monarch tree stand.

### **C. Exceptions**

For Single Family Residential Dwellings, which do not meet the criteria in Section III. "Exceptions", the property owner may be required to submit letter stating the acreage, the work proposed and that no tree mass is being disturbed. If there are trees on site, a partial TSD and partial TPP is acceptable.

### **D. Criteria**

The following items are required on a TPP:

1. A minimum 30% of any wooded area shall be maintained as protected wooded area without disturbing the roots of trees within the protected wooded area.

2. The Applicant shall save tree groupings within wooded areas to maintain the trees' structural integrity and natural aesthetics.
3. The Applicant shall not include any trees or wooded area in building areas, in areas with proposed or existing utilities, or rights-of-way as "preserved" or "protected" to satisfy the canopy coverage requirements.
4. In order to minimize interference with overhead utility lines, all trees located within existing and proposed easements that are anticipated to include overhead utility lines, shall be removed by the applicant, so as to limit the potential for damage to utility distribution facilities. Specific trees and landscaping materials may be retained if, as approved by the Planning and Development Services Director, they will not damage or interfere with the delivery of utility service at normal mature height.

#### E. Plan Requirements

The following is a list of all items and information that must be included in the TPP.

1. Provide detailed description and location of individual and groups of trees to be preserved and the proposed protection measures.
2. Plan must be at the same scale as the site plan or grading plan.
3. Signed and sealed by a Missouri Landscape Architect.
4. Table listing the following:
  - a. The total site area.
  - b. The existing tree canopy coverage, excluding the area in easements and rights-of-way with overhead utility lines as described in section VIII. D.
  - c. The tree canopy coverage proposed for removal.
  - d. The tree canopy coverage provided for preservation.
5. Existing and proposed contours
6. Location of existing tree canopy
7. Locations of all improvements with proposed utilities as shown on the site plan, including building areas, easements, or rights-of-way.
8. Limit of Disturbance Line

9. General or conceptual locations of all sediment control devices and structures
10. The location, type, size, and proposed removal or preservation, of all Monarch Trees as shown on the TSD and the critical root zone for those Monarch trees within fifty feet (50') of the limit of disturbance.
11. Tree protection notes shall include the following language:
  - a. Clearing limits shall be rough staked or marked by the Applicant's surveyor in order to facilitate location for trenching and fencing installation.
  - b. No clearing or grading shall begin in areas where tree treatment, preservation, and protection measures have not yet been completed.
  - c. Protective devices with details (aeration systems, retaining walls, etc.).
  - d. Early maintenance schedule (i.e. pruning, injection fertilizing, etc.).
  - e. Name of tree specialist and company.

#### **IX. CONSTRUCTION STANDARDS FOR FIELD PRACTICE**

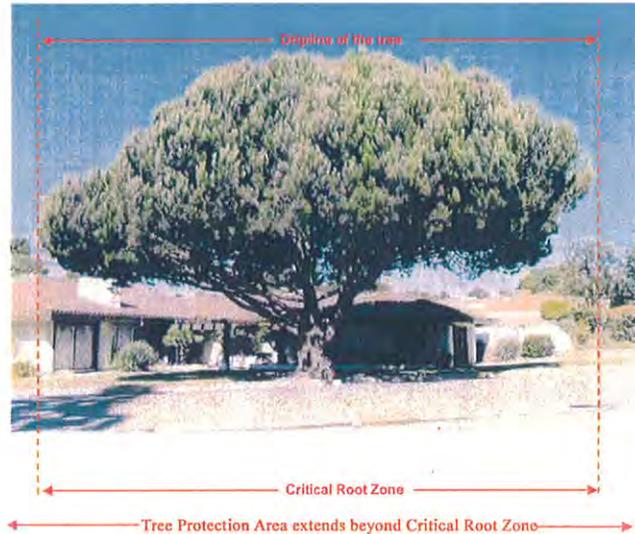
- A. Protective fencing shall be installed along the Limit of Disturbance Line to prevent damage to the roots, trunk, and tops of protected trees. This protective fence shall protect the tree and its roots from clearing, grading, soil filling, storage of materials, parking of vehicles, utility installation or other construction activity of any kind.
- B. Signs designating required Tree Protection Areas, Common Openspace Areas, or Greenspace Preservation Areas, shall be posted along the Limit of Disturbance Line.
- C. Root pruning or trenching shall occur when roots, within the critical root zone of a protected tree, would be damaged as a result of nearby excavation or the addition of fill over the root system.
- D. Trenches are not permitted inside the drip line of a tree's canopy.
- E. Sediment and Erosion Control Structures must be used to keep eroded soil from covering roots of protected trees. Siltation screens, etc., are appropriate.

- F. Tunneling may be required when utilities are to run through a tree's critical root zone. Tunneling is required for permitted work within a tree's canopy coverage. Tunneling must adhere to the requirements set forth in Table 1

<i>Tree Diameter (DBH)</i>	<i>Tunnel Distance from trunk of tree measured in all directions</i>
<b>Less than six inches (6")</b>	<b>3'</b>
<b>6-9"</b>	<b>5'</b>
<b>10-14"</b>	<b>10'</b>
<b>15-19"</b>	<b>12'</b>
<b>Over 19"</b>	<b>15'</b>

**X. PRESERVATION REQUIREMENTS ON CONSTRUCTION SITE**

- A. Tree Protective Measures and Protected
  - 1. No tree shall be removed in a Greenspace Preservation Area, Tree Protection Area, or Common Openspace Area without approval from the City of Chesterfield. The location of Greenspace Preservation Areas, Tree Protection Areas, or Common Openspace Areas shall be determined during the establishment of the site specific ordinance or as established on the approved TPP.
  - 2. The Applicant shall not disturb the Tree Protection Area of any tree to be preserved.



3. No healthy living plant material shall be removed, disturbed, or damaged in a Greenspace Preservation Area. The location of any Greenspace Preservation Area shall be determined during the establishment of the site specific ordinance or during the Site Plan review process.
  4. A Tree Specialist shall be named and employed by the Applicant. Said tree specialist should be available for on-site inspections as directed by the City of Chesterfield.
  5. During the erection, alteration, or repair of any building structure, street, sidewalk, underground pipe or utility, the contractor shall place guards, fences, or barriers to prevent injury to the trees.
  6. During construction or during Improvement Plan review, the City of Chesterfield may determine that certain trees originally marked for preservation may have to be removed due to location of utilities or required improvements. If such determination is made, an amended plan shall be submitted to the Planning and Development Services Director for review and approval.
- B. Prior to the issuance of any occupancy permits, should any preserved tree die or be damaged beyond repair as a result of grading or construction damage the Applicant shall pay a fine to the City equal to the value of the trees that died or are damaged beyond repair as certified and determined by the City's Tree Specialist. Said cost shall include the cost of appraisal incurred by the City of Chesterfield. The City will withhold occupancy permits and/or any other required permits until the fine is paid. Tree values shall be based on procedures in "Guide for Plant Appraisal", latest edition,

published by the International Society of Arboriculture. Monies collected from fines will be placed in the Tree Preservation Account according to Section XIII of this Tree Manual.

- C. Should any tree die, or be damaged beyond repair, as a result of grading or construction within a two (2) year period after cessation of grading or completion of the required improvements which ever is less the Applicant shall be responsible for replacing the tree. Failure to replace shall constitute default and the City of Chesterfield shall be entitled to proceed against the tree protection surety.
- D. Refer to Section XIII for Surety and Escrow Procedures.

## **XI. PLANT SELECTIONS**

- A. All trees shall be selected from the Recommended Tree List in the Appendix of this Tree Manual.
- B. All trees within five (5) feet of existing or proposed rights-of-way or public sidewalks shall be taken from the Street Tree category in the Recommended Tree List in the City of Chesterfield's Tree Manual.
- C. A variety of trees from the Recommended Tree List must be utilized so that there is a mix of tree species, growth rate, and tree size.
- D. A minimum of thirty percent (30%) of the trees must be of a species with a slow or medium growth rate.
- E. For projects in which more than fifty (50) trees will be installed, a variety of tree species within each category of deciduous, evergreen, and ornamental trees must be utilized. Each of the three categories shall provide a minimum of twenty (20%) of the total trees to be planted. No more than 20% of the trees selected shall be from the same species. For projects that require only street trees, no one species shall comprise more than twenty (20%) of the total trees to be planted.

## **XII. LANDSCAPE PROPOSALS**

Landscape plans must be submitted to the Department of Planning and Public Works in conjunction with a proposed development or redevelopment. A Conceptual Landscape Plan must be submitted with the Site Development Concept Plans.

- A. **LANDSCAPE PLAN REQUIREMENTS**  
The information to be submitted as a part of the landscape plan shall include but not be limited to the following:

1. The landscape plan shall be of the same size and scale as the applicable site plan(s) submitted to the City.
2. The landscape plan shall be produced by a Missouri Landscape Architect, whose name and seal are attached.
3. Trees shall be selected from the Recommended Tree List included in Appendix A.
4. All proposed required deciduous trees shall be a minimum caliper of 2.5 inches, and evergreen trees shall be a minimum of 6 feet in height.
5. Tree locations, species, and numbers which shall be identified on the scaled drawing. A Conceptual Landscape Plan only indicates the proposed landscaping along arterial and collector roadways.
6. Trees shall be selected according to Section XI of the Tree and Landscape Guidelines.
7. Elevations and plan views of proposed landscaping shall be provided as requested by the City of Chesterfield.
8. The landscape plan shall include a legend identifying the symbols for the various types of trees.
9. The landscape plan shall show the location of any easements or utilities.
10. Protection measures must be identified around all trees required to be retained.
11. The landscape plan shall list the percentage of openspace in relation to total area of the site.
12. The landscape plan shall include a summary table for all plant materials listing Common and Scientific name and variety, Deciduous, Evergreen or Ornamental, Quantity, Maturity, Height and Caliper.
13. Plant Selection shall comply with all other applicable sections of the City of Chesterfield City Code.

**B. LANDSCAPE BUFFERS, SETBACKS, BERMS, OR WALLS**

1. Landscape buffers are required per the criteria set forth in Table 2 below. Landscape buffers shall contain a combination of deciduous trees, evergreen trees, ornamental and shrubs and should enhance and preserve native vegetation.

<b>TABLE 2: LANDSCAPE BUFFER REQUIREMENTS</b>	
<b>TYPE OF SUBDIVISION *</b>	<b>LANDSCAPE BUFFER REQUIRED</b>
<b>When a Residential Subdivision Abuts a Residential Subdivision</b>	Minimum 20 foot wide buffer strip, 10 feet of which may be satisfied by installing landscaping on the abutting property with property owner consent.
<b>When a Residential Subdivision Abuts a Non-Residential Subdivision</b>	Minimum 30 foot wide buffer strip, 10 feet of which may be satisfied by installing landscaping on the abutting property with property owner consent.
<b>When a Non-Residential Subdivision Abuts a Residential Subdivision</b>	Minimum 30 foot wide buffer strip, 10 feet of which may be satisfied by installing landscaping on the abutting property with property owner consent.
<b>When a Residential Subdivision Abuts a non-subdivision street</b>	Minimum of 30 foot wide buffer strip.
<b>For all property zoned as an "E" District</b>	Minimum of 30 foot wide buffer strip. The buffer strip shall not be counted towards minimum lot size.
<b>Development along collector or arterial roadway</b>	Minimum of 30 foot wide buffer strip.

\*For the purpose of this section, if the abutting property is zoned NU Non-Urban, the Comprehensive Plan is to be consulted to determine if the abutting property should be considered residential or non-residential.

2. Landscaped berms, walls or fences are required to screen automobile headlights from areas zoned residential or non-urban.
3. Flexible landscape buffer requirements may be granted by the Planning and Development Services Director in cases where it can be demonstrated that the proposed landscape buffer encourages a creative design solution to the issue of buffering adjacent land uses.
4. For all districts, landscape buffers must be outside of any right-of-way dedication.
5. For all districts, no plantings are allowed within drainage swales or ditches.
6. For all districts, entrance islands and cul-de-sacs shall be landscaped as directed by the City of Chesterfield.

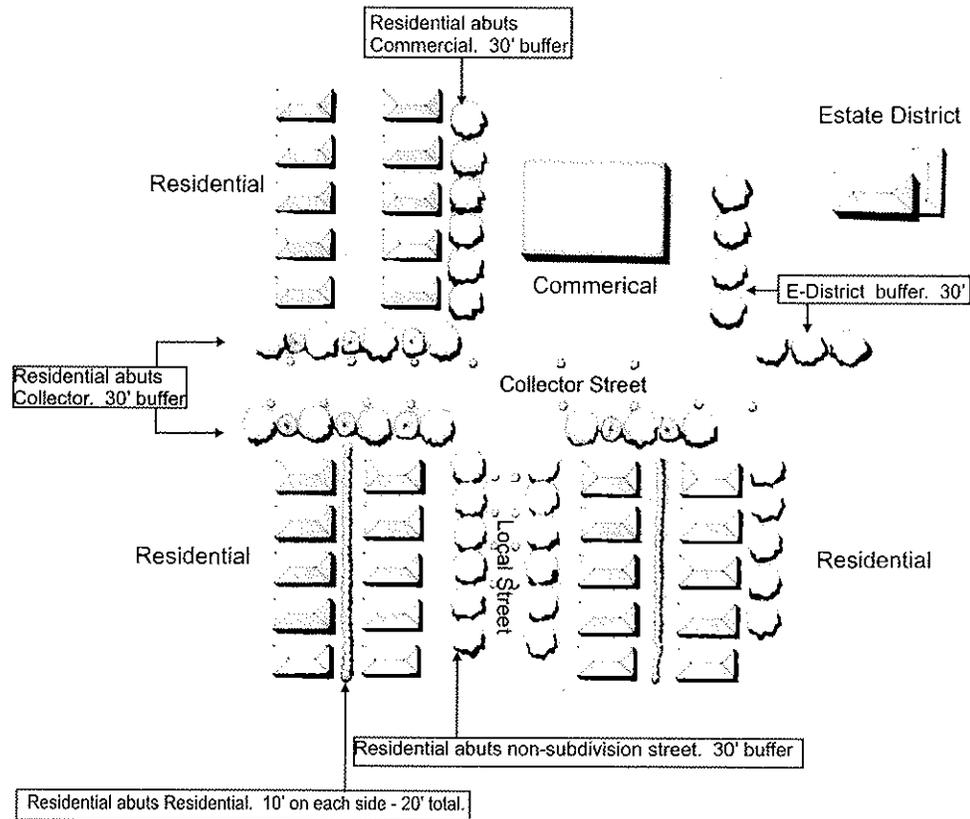


Figure 1: Buffer Requirements

C. LANDSCAPING FOR PARKING LOTS AND TREE ISLANDS

1. Landscaped Islands

- a. Landscaped islands shall be placed at the ends of parking aisles and within aisles.
- b. Landscaped islands shall contain plantings consisting of deciduous trees and ground covers such as shrubs, ivy, flowers, and grasses that do not block required line of sight for vehicles.
- c. All parking aisle and end cap islands shall be at least nine (9) feet wide as measured face to face of curb.
- d. Landscaped islands with trees shall be at least nine (9) feet wide measured face to face of curb, with at least 135 square feet of pervious area per tree.
- e. Interior islands landscaped without trees shall be at least six (6) feet wide as measured face to face of curb.

- f. Landscape Islands shall be landscaped in accordance with Table 3 below:

<b>TABLE 3: LANDSCAPE REQUIREMENTS FOR TREE ISLANDS</b>	
<b>Type of Island</b>	<b>Landscaping Required</b>
<b>Single Island</b>	One deciduous tree required. Minimum landscape width of nine (9) feet with minimum island pervious area of 135 sq ft.
<b>Double Island</b>	Two (2) deciduous trees are required per double landscaped island. Minimum island pervious area of 135 sq ft per tree.
<b>Double Island at end of double row of parking</b>	There shall be a double island of two-hundred-ten (210) square feet placed at the ends of a double row of parking. Two (2) deciduous trees are required that do not block required line of sight for vehicles. Minimum island pervious area of 135 sq ft per tree

2. Parking Lots

- a. No parking space shall be located further than fifty (50) feet from a tree.
- b. Vehicular areas should have minimum fifteen (15) feet landscape setback from existing or proposed rights-of-way lines.
- c. Vehicular areas along a collector or arterial roadway shall have a minimum landscape setback of thirty (30) feet.
- d. Parking islands are not required to have a tree in instances where the adjacent parking spaces are within fifty (50) feet of a tree in other areas of the development.
- e. Trees planted in parking islands at no time shall block the required sight lines for motorist.

D. STREET TREES, SHRUBS AND PLANTINGS

- 1. The use of street trees and shrubs in landscaping for residential and non-residential subdivisions shall adhere to the requirements set forth by Table 4. Acceptable street trees for residential and non-

residential subdivisions are approved by Council policy and are listed in Appendix A.

2. The Planning and Development Services Director may require that street trees be provided for all public streets within and adjacent to any proposed development where insufficient street trees presently exist. Proper approvals and permits must be obtained from the applicable agency. Planting locations will be guided by specifications found herein.

<b>TABLE 4: STREET TREE PLACEMENT FOR RESIDENTIAL AND NON-RESIDENTIAL SUBDIVISIONS</b>	
<b>Frontage Requirement</b>	A minimum of one (1) street tree for every forty (40) feet of lot frontage for single family subdivisions and fifty (50) feet of street frontage for multi-family subdivisions, including common land, and non-residential subdivisions.
<b>Size Requirement</b>	Street trees shall be at least two and one-half (2 ½) inches in caliper.
<b>Species Utilized</b>	A maximum of 20% of one species may be utilized for street trees.
<b>Location to right-of-way</b>	Street trees shall be located within a street right-of-way unless so approved by variance.
<b>Location to curb and sidewalks</b>	Street trees shall not be planted closer than three (3) feet to any curb.
<b>Location to street lights, street signs, and intersections</b>	Street trees shall not be placed within twenty-five (25) feet of street lights, street signs and intersections.
<b>Location to street inlets or manholes.</b>	No trees shall be planted within ten (10) feet of street inlets or manholes.

3. For all districts, landscaped entrance islands shall not block required lines of sight.
4. For all districts, no tree, shrub or planting shall be placed within the sight distance triangle or the area of adjacent right of way bounded by the street pavement and the extension of the sight distance triangle.
5. Shrubs at mature size shall not extend over pavement or sidewalks. Trees shall be placed such that they can be trimmed to provide a minimum clearance of ten (10) feet over City-maintained sidewalks and twelve (12) feet over roadways. Trees shall not obstruct the view of street signage.\*

\*These requirements apply to shrubs and plantings that at mature height exceed three (3) feet above the elevation of the adjacent pavement or sidewalk and trees that at mature height have bottom branches less than seven (7) feet above the adjacent pavement.

#### E. INSTALLATION AND MAINTENANCE

1. Consideration must be given to year round appearance.
2. All landscaped areas, including islands, shall be provided with mechanical, in-ground irrigation system.
3. All landscaped areas should be curbed or protected by parking stops. Consideration should be given to access for mowing equipment.
4. Burlap and twine shall be removed from at least top one third of the root ball, and wire baskets shall be completely removed, prior to backfilling.
5. Mulch may be used instead of grass or in combination with grass. When mulch is used, it shall completely cover the root area with a maximum of 2-4 inches of mulch.

#### F. LANDSCAPE SURETIES

1. Prior to the signing of any mylar for a record plat or approval of any Municipal Zoning Authorization other than for a display house plat, a landscape surety shall be posted.
2. The requirements for landscape installation and landscape maintenance sureties in the City of Chesterfield are as follows:
  - a. Landscape Installation Surety  
When the estimated material's costs for new landscaping shown on the site development plan exceeds one thousand dollars (\$1,000), as determined by a plant nursery, the Applicant shall furnish a two (2) year bond or escrow sufficient in amount to guarantee the installation of said landscaping. Alternatively landscape installation surety may be included in the subdivision escrow, as approved by the Planning and Development Services Director.
  - b. Landscape Maintenance Surety  
Upon release of the Landscape Installation Surety, a two (2) year Landscape Maintenance Surety is required.

### **XIII. TREE PROTECTION SURETY AND ESCROW PROCEDURES**

- A. Prior to the issuance of any grading permit or improvement plan approval, a Tree Protection surety shall be posted to account for trees that die, or are damaged beyond repair, as a result of grading or construction damage. The Tree Protection surety will remain for two (2) years after the issuance of the cessation of grading or completion of the required improvements whichever is later.
- B. The amount of the Tree Protection surety shall be in the amount of \$10,000 per 100 lineal feet, or portion thereof, of wooded canopy perimeter to be preserved adjacent to any proposed clearing, grading, or other disturbance; or \$20,000 per acre to be preserved which ever is less.
- C. The number of replacement trees is determined by matching the total caliper inches of trees to be planted with the total DBH inches of the trees that were lost.
- D. A Landscape Plan shall be developed for the replacement trees according to specifications shown in this Tree Manual.
- E. Failure to replace trees shall constitute default and the City of Chesterfield shall be entitled to proceed against the surety. Monies collected from fines will be placed in the Tree Preservation Account according to Section XIV of this Tree Manual.
- F. A Tree Protection Surety is not required for projects or sites that are exempt from the provisions of this Tree Manual as described in Section III "Exceptions", or for single family residential lots over one (1) acre in size which are not disturbing any monarch tree stand or as determined by the Planning and Development Services Director.

### **XIV. TREE PRESERVATION ACCOUNT**

There is hereby established a "Tree Preservation Account" which shall be held as a separate account from the City's general fund. The monies paid as a result of fines or payments under the mitigation provisions of this ordinance or monies paid into this account pursuant to any other term of this ordinance, shall be used only for tree plantings on public property in the City of Chesterfield.

### **XV. REQUESTS FOR MODIFICATION**

In cases where the strict adherence to this section of the City Code creates practical difficulties or unnecessary hardships in carrying out these provisions due to an irregular shape, topography or other condition as solely determined by

the Planning and Development Services Director; Said modification to the requirements found in this section of the City Code may be approved in whole or in part, provided the modification will not seriously affect the integrity and soundness of the project.

#### A. SPECIAL CONDITIONS

To establish that Special Conditions exist on a site which necessitates a modification to the requirements of this Section of the City Code, information must be submitted which shall include, but not be limited to the following:

1. Explanation of Project Qualification as a Special or Unusual Site. The site to which a modification is being requesting must meet one of the following criteria:
  - a. Property for which:
    - i an ordinance, detailing development requirements, has been in existence as a result either by the City of Chesterfield or St. Louis County (prior to the City's incorporation), and;
    - ii a valid Site Development Concept Plan, Site Development Plan, Site Development Section Plan or a Final Development Plan has been approved prior to the adoption of the original Tree Ordinance Number 1345 enacted on November 17, 1997; or
  - b. Property zoned commercial or industrial which will allow for clearing of the lot for the development of the square footage as previously approved by the current ordinance in place by the City of Chesterfield or the St. Louis County on the date of the adoption of the original Tree Ordinance Number 1345 enacted on November 17, 1997; or
  - c. Property for which a Tree Specialist determines that the Applicant is unable to provide tree preservation in accordance with this Tree Manual due to highly unique and severe circumstance such as extremely poor quality of trees, extreme topography, unusual lot shape, or other similar condition.
2. A Tree Stand Delineation (TSD) with an overlay of the existing conditions when applicable. When seeking a modification to the 30% preservation requirement, a TSD is required.

3. An engineering plan and/or drawings which depicts and describes that development of the structures as proposed or authorized is impracticable because of the unique character or topography of the site which is not generally applicable to other sites.
4. A statement by a tree specialist stating why the development cannot adhere to the requirement.
  - a. When seeking a modification to the 30% preservation requirement, the statement certified by a tree specialist must include that a minimum 30% of the original wooded canopy will be replanted with appropriate tree species on the site. Specific details as to the location, tree type, tree size, etc. must be included. New trees required as part of a mitigation plan may not be used to meet the minimum requirements for landscaping on a site.
  - b. When seeking a modification to the landscape buffer requirement, the statement certified by the tree specialist must include specific details as to the width of the landscape buffer that will be provided, the location, tree type, tree size, etc. must be included. An alternate landscape plan showing this information is required to be submitted for review and approval.

**B. APPROVAL**

1. The Planning and Development Services Director will review information provided by the Applicant requesting consideration that special conditions exist on the site. The Applicant will be notified in writing of the decision of the Planning and Development Services Director.
2. If Special Conditions are identified to exist on the site, projects seeking modification from the 30% preservation requirement shall submit a Mitigation Plan explaining how the Applicant plans to mitigate the loss of trees on the site. This will be reviewed and approved by the Planning and Development Services Director. The Mitigation Plan may be approved in full or in part.
3. Where site constraints or other factors prevent replacement on or off site, the Applicant shall make a cash contribution to the Tree Preservation Account, according to Section XIV of this manual, in an amount equal to the cost of replacing the trees which are not able to be preserved. Said costs shall include labor and plant material.

### C. MITIGATION PLAN

If the Applicant/Owner has shown that a site has special conditions in accordance with Section XV.A, then a Mitigation Plan shall be required and will show at a minimum, the following information and shall be submitted for review and approval by the Planning and Development Services Division.

1. Selective clearing and supplemental planting shall be displayed on an overlay plan.
2. An on site afforestation plan using larger or smaller stock; the number of trees will depend on the species selected and the ultimate tree canopy; based on tree sizes noted in the list of trees in Appendix A of this manual.
  - a. 400 sq. ft. for large trees
  - b. 300 sq. ft. for medium trees
  - c. 200 sq. ft. for small trees
3. Planting must achieve a minimum of 30% of the area of original tree canopy coverage.
4. Applicants submitting mitigation plans must utilize a mix of trees that vary in species, size, growth rate, and life span and consists of no more than 20% of one category.

### XVI. APPEAL

- A. Decisions of the Planning and Development Services Director regarding the application of this ordinance may be appealed to the Board of Adjustment in accordance with applicable procedures as established by the Board of Adjustment.
- B. Decisions of the Public Works Director regarding the application of this ordinance may be appealed to the Public Works Board of Variance in accordance with the applicable procedures as established by the Department of Planning and Public Works.

### XVII. ADMINISTRATION AND ENFORCEMENT

Administration and enforcement of the provisions of this manual shall be in accordance with the Zoning Ordinance of the City of Chesterfield Section 1003.200 which is adopted herein by reference. Subject to the exceptions noted in this manual, any person, firm, organization, society, association or corporation, or any agent or representative thereof who violates any of the conditions in this section of the City Code is subject to the penalties

shown in Section XVIII. The removal of each tree in violation of this ordinance shall constitute a separate punishable offense. Violations occurring in the right of way shall be subject to the penalties as described in Chapter 26 of the City of Chesterfield Municipal Code.

#### **XVIII. PENALTY FOR VIOLATION**

- A. A violation of this section shall be a municipal violation and, in addition to any fines or other requirements of this manual, punishable by a fine of not less than five (\$5) dollars and not more than one thousand dollars (\$1,000) or by imprisonment for a period not to exceed three (3) months or by both fine and imprisonment. Each occurrence, location, and failure to conform to the requirements of this ordinance shall constitute a separate offense, and each and every day that such violation shall continue shall be an additional violation with each violation being punishable by a separate fine and/or imprisonment.
- B. In addition to the penalties herein above and authorized and established, the City Attorney shall take such other actions at law or in equity, as may be required to halt, terminate, remove or otherwise eliminate any violations of this section.
- C. The City of Chesterfield shall withhold occupancy permits until the fine is paid.

Appendix A City of Chesterfield Tree List

Scientific Name	Common Name	Street Tree	Parking Lot or Island	Deciduous	Evergreen	Ornamental	Mature Height Feet	Growth Rate and (Size Class)
<i>Abies concolor</i>	Fir, White (Concolor)		x		x		45+	Slow/Med (Large)
<i>Acer ginnala</i>	Maple, Amur		x	x		x	20-25	Med (Small)
<i>Acer platanoides</i>	Maple, Norway	x		x			45+	Med (Large)
<i>Acer platanoides 'Columnare'</i>	Maple, Norway, Columnar		x	x			45+	Med (Large)
<i>Acer rubrum</i> Varieties	Maple, Red and Varieties	x	x	x			45+	Fast (Large)
<i>Acer saccharinum</i>	Maple, Silver			x			45+	Fast (Large)
<i>Acer saccharum</i> Varieties	Maple, Sugar and Varieties	x	x	x			45+	Slow/Med (Large)
<i>Acer tataricum</i>	Maple, Tatarian		x	x			15-25	Med (Small)
<i>Acer x freemanii 'Jeffersred'</i>	Maple, Hybrid, Autumn Blaze		x	x			45+	Med/Fast (Large)
<i>Acer x freemanii 'Scarsen'</i>	Maple, Scarlet Sentinel		x	x			45+	Fast (Large)
<i>Aesculus glabra</i>	Buckeye, Ohio		x	x		x	25-35	Slow (Medium)
<i>Aesculus hippocastanum</i>	Horsechestnut			x		x	30-45	Med (Medium)
<i>Aesculus pavia</i>	Buckeye, Red		x	x		x	20-30	Slow (Slow)

\*Street tree information included for informational purposes only. Street trees are approved by the Planning and Public Works Committee of City Council and the City Council and can be amended from time to time.

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<i>Alnus glutinosa</i>	Alder, European	x		x			45+	Med/Fast (Large)
<i>Amelanchier arborea</i>	Serviceberry, Downy		x	x		x	25-30	Slow/Med (Medium)
<i>Amelanchier laevis</i> 'Cumulus'	Serviceberry, Cumulus		x	x		x	25-30	Slow/Med (Medium)
<i>Amelanchier x grandiflora</i> 'Robin Hill'	Serviceberry, Robin Hill		x	x		x	25-30	Slow/Med (Medium)
<i>Carpinus betulus</i>	Hornbeam, European	x	x	x			35-40	Slow/Med (Medium)
<i>Carpinus caroliniana</i>	Hornbeam, American	x	x	x		x	20-35	Med (Small)
<i>Carya illinoensis</i>	Pecan			x			45+	Med/Fast (Large)
<i>Carya laciniosa</i>	Hickory, Shellbark			x			45+	Slow/Med (Large)
<i>Carya ovata</i>	Hickory, Shagbark			x			45+	Slow (Large)
<i>Catalpa speciosa</i>	Catalpa, Northern			x			45+	Fast (Large)
<i>Celtis laevigata</i>	Sugarberry	x		x			45+	Fast (Large)
<i>Celtis occidentalis</i> Varieties	Hackberry, and Varieties	x		x			45+	Med/Fast (Large)
<i>Cercidiphyllum japonicum</i>	Katsura		x	x		x	45+	Med/Fast (Large)

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<i>Cercis canadensis</i>	Redbud, Eastern		x	x		x	25-30	Fast (Medium)
<i>Cladrastis kentukea</i>	Yellowwood	x		x			30-50	Slow/Med (Large)
<i>Cornus florida</i>	Dogwood, Flowering		x	x		x	15-25	Slow/Med (Small)
<i>Crataegus crus-galli</i>	Hawthorn, Cockspur		x	x		x	15-20	Med (Small)
<i>Crataegus laevigata</i> 'Superba'	Hawthorn, Crimson Cloud	x	x	x		x	15-20	Med (Small)
<i>Crataegus phaenopyrum</i>	Hawthorn, Washington		x	x		x	20-30	Med (Small)
<i>Crataegus virdis</i>	Hawthorn, Green			x		x	25-30	Med (Small)
<i>Crataegus virdis</i> 'Winter King'	Hawthorn, Winter King		x	x		x	25-30	Med (Small)
<i>Eucommia ulmoides</i>	Rubbertree, Hardy	x	x	x			45+	Med (Large)
<i>Fagus grandifolia</i>	Beech, American	x		x			45+	Slow/Med (Large)
<i>Fagus sylvatica</i>	Beech, European			x			45+	Slow/Med (Large)
<i>Ginkgo biloba-Male</i>	Ginkgo (male)	x	x	x			45+	Slow/Med (Large)

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<i>Gleditsia triacanthos inermis-</i> Thornless, Podless Varieties	Honeylocust- Varieties that are Thornless and Podless	x	x	x			45+	Fast (Large)
<i>Gymnocladus dioicus</i>	Kentucky Coffeetree		x	x			45+	Med/Fast (Large)
<i>Halesia carolina</i>	Silverbell		x	x		x	20-30	Slow (Medium)
<i>Ilex decidua</i>	Holly, Deciduous		x	x		x	45+	Slow (Large)
<i>Ilex opaca</i>	Holly, American				x	x	45+	Slow (Large)
<i>Juniperus virginiana</i>	Redcedar, Eastern		x		x		30-40	Med (Medium)
<i>Juniperus chinensis</i>	Juniper, Chinese		x		x		20-30	Slow/Med (Small)
<i>Koelreuteria paniculata</i>	Goldenrain Tree	x	x	x		x	25-40	Med/Fast (Medium)
<i>Liquidambar styraciflua</i>	Sweetgum			x			45+	Fast (Large)
<i>Liriodendron tulipifera</i>	Tuliptree			x			45+	Fast (Large)
<i>Magnolia acuminata</i>	Cucumbertree		x	x			45+	Slow/Med (Large)
<i>Magnolia grandiflora</i>	Magnolia, Southern			x		x	45+	Med (Large)

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<i>Magnolia virginiana</i>	Magnolia, Sweetbay		x	x		x	15-25	Med (Small)
<i>Magnolia x soulangiana</i>	Magnolia, Saucer		x	x		x	20-30	Slow/Med (Medium)
<i>Ostrya virginiana</i>	Hophornbeam	x	x	x			30-40	Slow/Med (Medium)
<i>Oxydendron arboreum</i>	Sourwood, (Sorrel Tree)		x	x			20-30	Slow/Med (Medium)
<i>Picea glauca</i>	Spruce, White		x		x		30-40	Med (Medium)
<i>Picea pungens</i>	Spruce, Colorado Blue		x		x		30-40	Med (Medium)
<i>Pinus densiflora</i>	Pine, Japanese Red		x		x		45+	Med (Large)
<i>Pinus flexilis</i>	Pine, Limber		x		x		30-40	Med (Large)
<i>Pinus resinosa</i>	Pine, Red				x		45+	Med (Large)
<i>Pinus strobus</i>	Pine, Eastern White		x		x		45+	Fast (Large)
<i>Pinus thunbergiana</i>	Pine, Japanese Black		x		x		45+	Med (Large)
<i>Platanus occidentalis</i>	Sycamore			x			45+	Fast (Large)
<i>Platanus x acerifolia</i>	Planetree, London	x		x			45+	Fast (Large)

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<i>Platycladus orientalis</i>	Arborvitae, Oriental		x		x	x	30-40	Slow (Medium)
<i>Prunus cerasifera</i>	Plum, Purple-leaf		x	x		x	15-25	Med (Small)
<i>Prunus sargentii</i> 'Columnaris'	Cherry, Sargent, Columnar		x	x		x	30-40	Med (Medium)
<i>Prunus serrulata</i>	Cherry, Flowering, Japanese		x	x		x	25-35	Med (Medium)
<i>Pyrus calleryana</i> 'Chanticleer'	Pear, Callery, Chanticleer			x		x	15-25	Med (Small)
<i>Pyrus calleryana</i> 'Redspire'	Pear, Callery, Redspire		x	x		x	35-45	Med (Medium)
<i>Quercus acutissima</i>	Oak, Sawtooth	x		x			45+	Med (Large)
<i>Quercus alba</i>	Oak, White			x			45+	Med (Large)
<i>Quercus bicolor</i>	Oak, Swamp White	x		x			45+	Med (Large)
<i>Quercus coccinea</i>	Oak, Scarlet	x		x			45+	Med/Fast (Large)
<i>Quercus falcata</i> var. <i>pagodafolia</i>	Oak, Cherrybark			x			45+	Med (Large)
<i>Quercus imbricaria</i>	Oak, Shingle	x		x			45+	Med (Large)
<i>Quercus macrocarpa</i>	Oak, Bur			x			45+	Slow/Med (Large)

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<i>Quercus michauxii</i>	Oak, Swamp Chestnut	x		x			45+	Med (Large)
<i>Quercus muehlenbergii</i>	Oak, Chinkapin	x		x			45+	Med (Large)
<i>Quercus robur</i>	Oak, English,	x		x			45+	Med (Large)
<i>Quercus rubra</i>	Oak, Northern Red	x	x	x			45+	Med/Fast (Large)
<i>Quercus stellata</i>	Oak, Post			x			45+	Slow (Large)
<i>Quercus velutina</i>	Oak, Black			x			45+	Med (Large)
<i>Quercus shumardii</i>	Oak, Shumard	x		x			45+	Med/Fast (Large)
<i>Quercus prinus</i>	Oak, Chestnut	x		x			45+	Med (Large)
<i>Salix nigra</i>	Willow, Black			x			30-40	Fast (Medium)
<i>Sassafras albidum</i>	Sassafras			x			30-40	Med (Medium)
<i>Sophora japonica</i>	Pagodatree, Japanese			x		x	45+	Med (Large)
<i>Syringa reticulata</i>	Lilac, Japanese Tree		x	x		x	25-30	Med (Small)
<i>Taxodium distichum</i>	Baldcypress			x			45+	Med (Large)

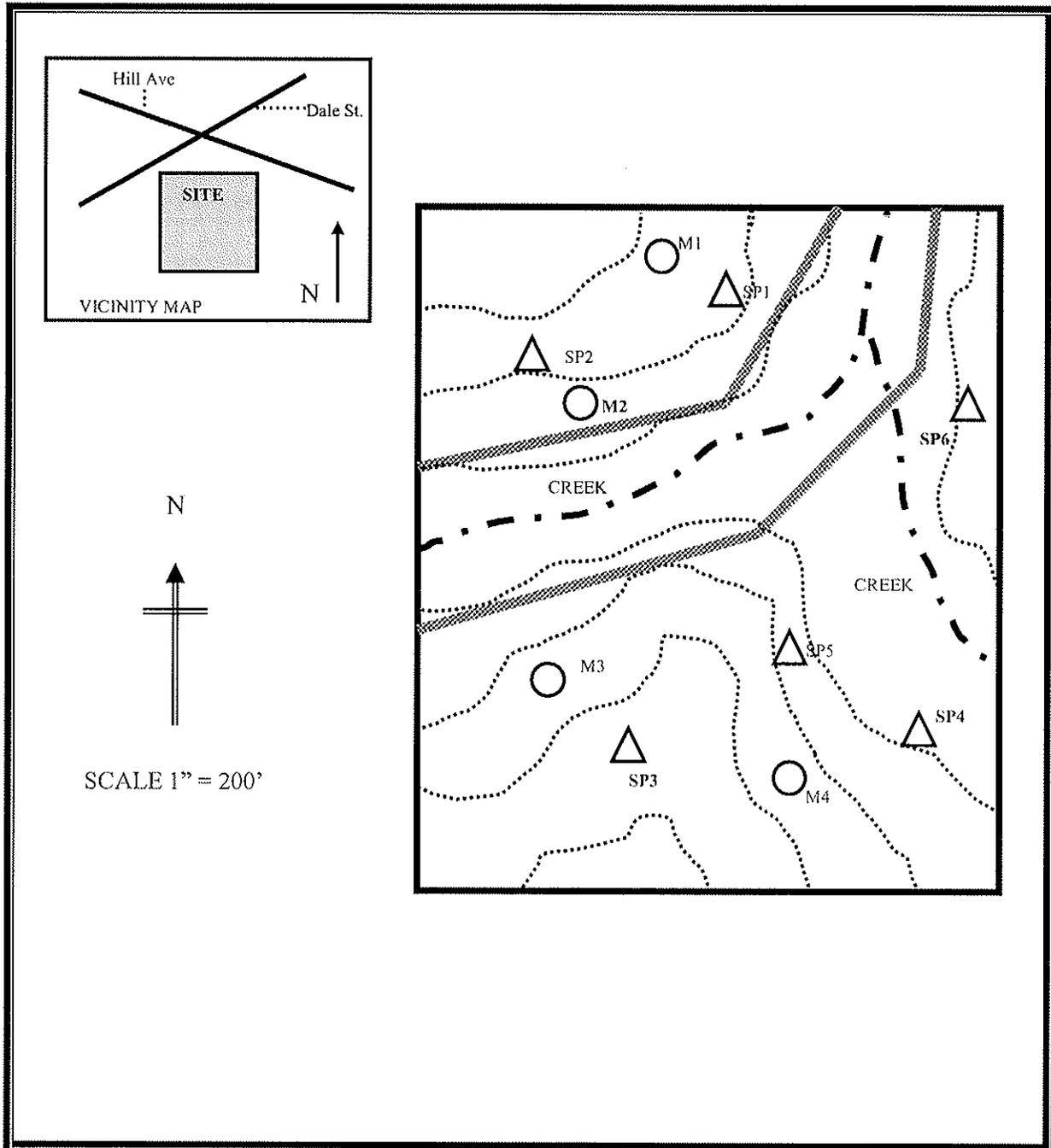
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<i>Tilia americana</i>	Basswood, American (Linden)	x		x			45+	Med/Fast (Large)
<i>Tilia cordata</i> Varieties	Linden, Littleleaf and Varieties	x	x	x			45+	Slow/Med (Large)
<i>Tsuga canadensis</i>	Hemlock, Canadian		x		x		45+	Slow/Med (Large)
<i>Ulmus americana</i> Varieties	Elm, American and Varieties	x		x			60-80	Med/Fast (Large)
<i>Ulmus parvifolia</i>	Elm, Chinese (Lacebark)	x		x			45+	Med/Fast (Large)
<i>Zelkova serrata</i> Varieties	Zelkova and Varieties	x		x			45+	Fast (Large)

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**Aerial Photography/BAF 10 Method**



Ocular Estimate Method

