

BILL NO. 2313

ORDINANCE NO. 2138

AN ORDINANCE AMENDING THE CITY OF CHESTERFIELD TREE MANUAL AND TREE ORDINANCE TO ESTABLISH NEW REGULATIONS AND TO CODIFY THE CITY OF CHESTERFIELD'S GUIDELINES/REGULATIONS RELATIVE TO LANDSCAPING AND TREES INTO ONE UNIFIED TREE MANUAL (P.Z. 18-2004 CITY OF CHESTERFIELD/TREE MANUAL)

WHEREAS, there has been increased interest in establishing new regulations for tree preservations; and,

WHEREAS, the City of Chesterfield seeks to codify all regulations in regards to tree preservation, tree removal, and landscaping into one tree manual; and,

WHEREAS, the Planning Commission Landscape Review Committee has recommended tree preservation and tree removal requirements; and,

WHEREAS, the Planning Commission concurred with the recommendation of the Landscape Review Committee and voted to recommend the proposed tree manual by a vote of 9-0.

WHEREAS, after consideration of an amendment, the City Council approved the request with an amendment to clarification of the language regarding to the exemption of single residential lots, clarification to the language in the chart in Section X, amending the language pertaining to mitigation plans, amending the list of recommended trees and street trees, and amending the landscaping requirement for landscape islands at the end of a single row of parking.

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 Zoning Ordinance is hereby 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. 18-2004, 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 August 9, 2004, 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.

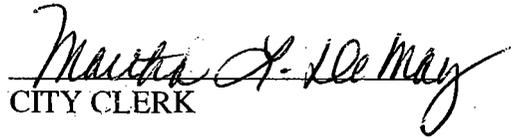
Section 3. This ordinance shall be codified within the Municipal Code of the City of Chesterfield.

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

Passed and approved this 1st day of NOVEMBER, 2004


MAYOR

ATTEST:


CITY CLERK



DEPARTMENT OF PLANNING

TREE MANUAL



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I. INTRODUCTION.

The purpose of this section 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 ongoing 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 older developments, their protection can only be assured when developers utilize tree protection measures. By selecting the trees that will be preserved before the final stages of planned 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 landscaping, not replace it.

II. APPLICABILITY.

- A. The terms and provisions of the City of Chesterfield Tree Manual shall apply to all vacant or undeveloped land and all property to be redeveloped including additions and alterations.

- B. Exemptions for Single Residential Lots of less than one (1) acre that will be removing less than 10,000 square footage of tree canopy coverage are exempt from the provisions of this Tree Manual provided that all the requirements set forth in Sections IV and X are met.

III. DEFINITIONS.

The following list of definitions has been developed to clarify the usage of specific terminology.

- 1. **Afforestation.** The conversion of open land into forest through tree planting.

- 2. **Caliper.** A measurement of a trunk of a tree equal to the diameter of its trunk measurement at six (6) inches above natural grade, primarily used for measurement of new trees for planting.

- 3. **Co-Dominant Trees.** The trees that have branches almost as high as the tallest trees and are growing over or shading out other trees.

- 4. **Critical Root Zone (CRZ).** The area under a tree which represents the spread of the root system.

- 5. **Diameter at Breast Height. (DBH)** The size 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.

- 6. **Disturb.** Shall include 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.

7. **Dominant Trees.** The trees which have the highest branches and are growing over or shading out other trees.
8. **Do Not Disturb Zone.** An area within which all existing vegetation shall be preserved for the purpose of retaining the natural character of the area and providing screening and protective fencing from adjacent uses on public or private street.
9. **Drip line.** The location on the ground which is just below the outer reach of the tree branches where rainwater will drip from the branches.
10. **Grading.** The removal or addition of soil around trees, in accordance with approved City standards.
11. **Greenspace.** Greenspace is determined by a fraction: the numerator of which is all green area plus all non-paved surfaces, the denominator of which is the total area of the site minus the area of the pedestrian access ways as approved by the City of Chesterfield.
12. **Grove.** A group of trees similar in species or size and significant enough to be given special attention. See also Monarch Tree Stands.
13. **Limit of Disturbance.** A line that identifies the location on the ground where fencing will be installed to protect the trees from clearing, grading, soil filling, storage of materials, parking of vehicles, utility installation or other construction activity of any kind.
14. **Monarch Tree.** A tree in fair or better condition, with a life expectancy of more than 15 years, which is to be given special attention during development, and equals or exceeds the following diameter sizes:
 - 1) For Hardwoods (oak, hickory, maple, ash, etc.) - 24 " DBH
 - 2) Softwoods (pine, spruce, fir, bald cypress, etc)-20" DBH
 A lesser-sized tree can be considered a Monarch Tree if:
 - 1) It is a rare or unusual species, or
 - 2) It is of exceptional quality, or
 - 3) It has historical significance, or
 - 4) It will be specifically used by the developer as a focal point in a project or landscape
15. **Monarch Tree Stand.** A contiguous grouping of at least eight trees which has been determined to be of high value or comprised of Monarch Trees. Determination is based on the following criteria:
 - 1) A relatively mature even aged stand of trees, or
 - 2) A stand of trees with a purity of species composition, or
 - 3) A stand of trees which are rare or unusual in nature, or
 - 4) A stand of trees with historical significance, or
 - 5) A stand of trees with exceptional aesthetic quality or size that is a principle feature of a site.
16. **Overstory.** Trees forming the highest or tallest tree cover, consisting of dominant and co-dominant trees.

17. **Public Tree.** Any tree located on city owned or controlled property including parks, street right-of-ways, parkways, etc.
18. **Street Tree.** A tree that is currently located or proposed for planting along streets and highways on city owned or controlled right-of-way.
19. **Tree Canopy.** The upper portion of a tree or trees made up of branches and leaves high enough for a person to walk under.
20. **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.
21. **Tree Specialist.** A person who meets one of the following criteria:
 - 1) 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.
 - 2) Certified Arborist – a person certified through the International Society of Arboriculture with at least five (5) years of field experience
 - 3) Forester – a person with a degree in forestry and at least five years of field experience.
 - 4) Certified Forester – a person certified through the Society of American Foresters with at least five (5) years of field experience.

If a person reviewing a submittal does not meet the five (5) years experience criteria, then a certified supervisor, with at least five (5) years experience, shall sign off on the work completed by their employee.

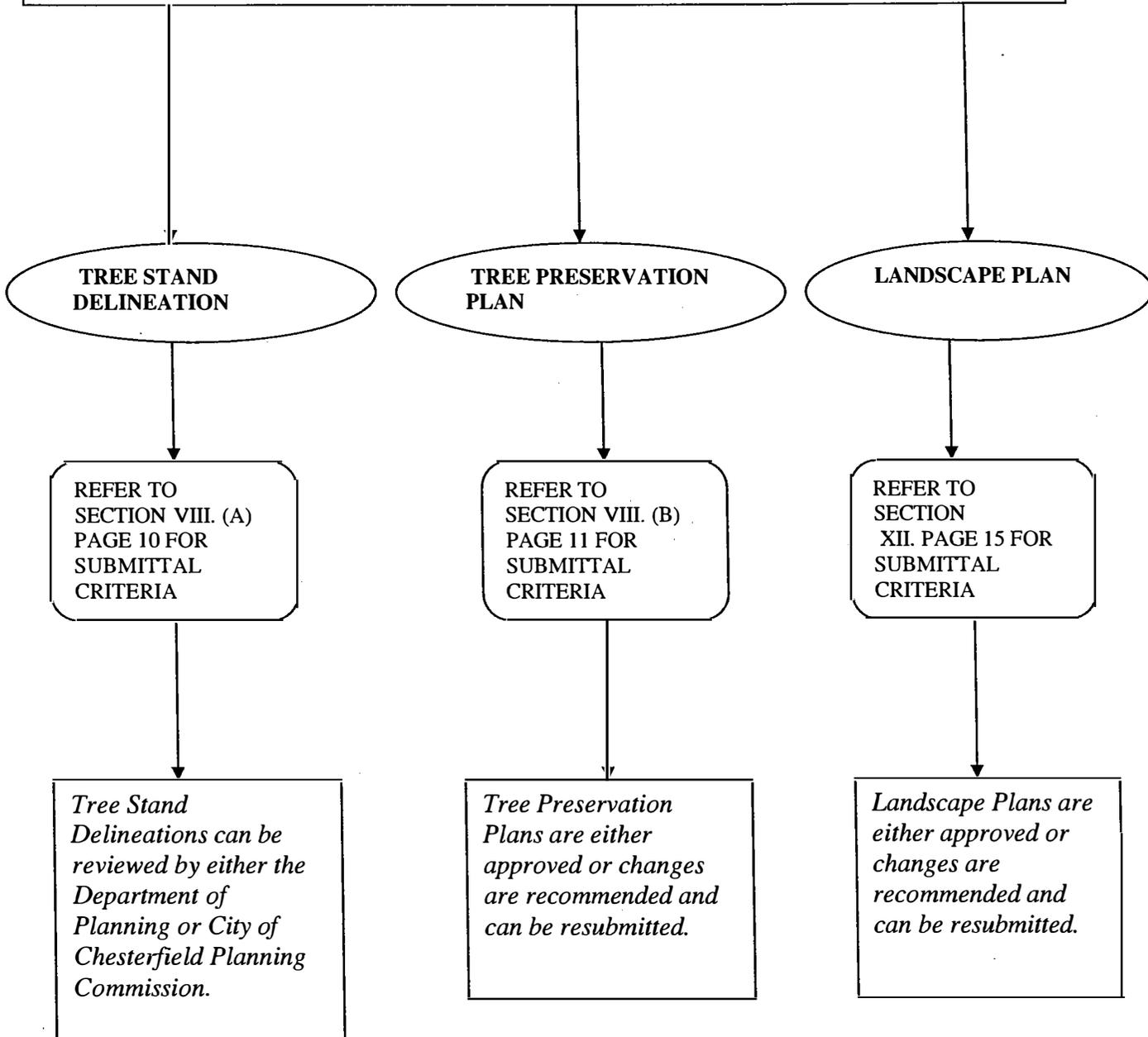
22. **Ultimate Tree Canopy.** Ultimate tree canopy is determined by assigning the following area values for planted trees, and the tree sizes may be used in combination to attain the necessary density for tree planting.
 - Large shade tree or major street tree - 400 sq. ft.
 - Medium sized street tree - 300 sq. ft.
 - Small ornamental or flowering trees - 200 sq. ft.
23. **Understory.** Small trees, ground cover, bushes, wildflowers, weeds, or other vegetation growing closer to the ground and under taller trees.
24. **Wooded Area.** Any parcel of land having more than 5,000 sq.ft. of tree canopy coverage and where the tree canopy is primarily comprised of trees equal to or larger than 5 (five) 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.

IV. OVERVIEW OF TREE PRESERVATION PROCESS

APPLICANTS FOR ANY REZONING, PRELIMINARY PLAN, SITE DEVELOPMENT PLAN, SITE DEVELOPMENT CONCEPT PLAN, SITE DEVELOPMENT SECTION PLAN, SUBDIVISION PLAN, AND BUILDING PERMIT APPROVAL MUST SUBMIT THE FOLLOWING TO THE DEPARTMENT OF PLANNING.

**Single residential lots of less than 1 acre that will be removing less than 10,000 square footage of tree canopy coverage are not required to submit any of the following items.*

****Tree removal permit process is a separate and distinct process and is outlined on page 12 of this Manual**



V. PROTECTION OF 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. Exception: Guy wires, stakes, trunk wrap, or protective devices used for normal installation or maintenance of planted trees.
- B. It is unlawful for any person to damage, cut down, destroy, top or injure any tree, shrub or plant. 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 Director of Planning has the authority to order the removal of trees or shrubs on private or public property which endanger the life, health, safety, property or other trees of the public.
 - 1. Removal shall be done by said owners at their own expense within sixty (60) days after the date of service of notice.
 - 2. In the event of failure of owners 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 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 Director of Public Works may authorize the removal of street trees for public or private construction projects.

VI. PLANT SELECTIONS

- A. All trees shall be selected from the Recommended Tree List in the City of Chesterfield's Tree Manual.
- B. All trees within five (5) feet of existing or proposed rights-of-way shall be taken from the Recommended Street 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 where more than fifty (50) trees will be installed, a variety of tree species must be utilized. One species shall not provide more than twenty (20%) of the large deciduous trees or, not more than twenty percent (20%) of the ornamental trees or, not more than twenty percent (20%) of the evergreen trees.

VII. PRESERVATION REQUIREMENTS ON CONSTRUCTION SITE.

A. TREE PRESERVATION CRITERIA.

1. A minimum 30% of any wooded area shall be maintained as wooded area without disturbing the roots of trees in the protected wooded area.
2. A maximum 70% of any wooded area may be cleared or developed.
3. The developer shall not include any trees or wooded area in easements, building areas, or rights-of-way as "preserved" or "protected" to satisfy the canopy coverage requirements.

B. TREE PROTECTIVE MEASURES AND PROTECTED AREAS.

1. No plant material shall be removed or planted in a Do Not Disturb Zone without approval from the City of Chesterfield. The location of Do Not Disturb Zones shall be as determined during the establishment of the site specific ordinance or as established on the approved record plat.
2. The developer shall not disturb the critical root zone area of any tree to be preserved to satisfy the canopy coverage requirements.
3. A tree specialist shall be named and employed by the developer and be available for on-site inspections as directed by the Director of Planning.
4. The tree specialist shall check to ensure compliance with the tree protective measures and tree protection plan developed for the site.
5. During the erection, altering, or repairing of any building structure, street, sidewalk, underground pipe or utility, the contractor shall place guards, fences, or barriers to prevent injury to the trees.

- C. Prior to the issuance of any occupancy permits, should any preserved tree die as a result of grading or construction damage, or be disturbed that will render the tree damaged beyond repair, the developer will pay a fine to the City equal to the value of the trees that die or are damaged beyond repair as certified and determined by the City of Chesterfield Tree Specialist. Said cost shall include the cost of appraisal incurred by the City of Chesterfield. The City will withhold occupancy permits until the fine is paid. Tree values shall be based on procedures in "Guide for Plan Appraisal", latest edition, published by the International Society of Arboriculture.

- D. Should any tree die, or be damaged beyond repair, as a result of grading or construction, within a two year period after the last occupancy permit is issued the developer 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 surety or the cash escrow.

E. Refer to Section IX.D for surety bond and escrow procedures.

VIII. CONSTRUCTION STANDARDS FOR FIELD PRACTICE.

- A. Protective fencing shall be installed along the outer edge of, and completely surrounding the critical root zones at the drip lines of, all trees to be protected to prevent damage to the roots, trunk, and tops of protected trees.
- B. Signs shall be used to designate tree protection areas.
- C. Root Pruning shall occur when roots within the critical root zone of a tree to be protected will be damaged by nearby excavation or by adding fill over the root system.
- D. Tunneling may be required when utilities are to run through a tree's critical root zone. Tunneling shall occur under the tree's drip line. Tunneling must adhere to the requirements set forth in Table 1:

TABLE 1: TUNNELING STANDARDS	
<i>Tree Diameter (DBH)</i>	<i>Tunnel Distance From Tree measured in all directions</i>
Less than six inches (6")	3'
6-9"	5'
10-14"	10'
15-19"	12'
Over 19"	15'

- F. Trenches should approach no closer than the drip line of the tree.
- G. Sediment and Erosion Control Structures must be used to keep eroded soil from covering roots of protected trees. Siltation screens, etc., are appropriate.

IX. TREE STAND DELINEATION AND TREE PRESERVATION PLANS REQUIRED.

The applicant for any rezoning, preliminary plan, site development plan, site development concept plan, site development section plan, subdivision plan, or building permit approval must submit with the application a Tree Stand Delineation with overlay and Tree Protection Plan prepared by a Tree Specialist to the Department of Planning. Tree Stand Delineations and Tree Protection Plans shall adhere to all guidelines set forth in this manual and shall be approved by the Director of Planning or designee.

A. TREE STAND DELINEATION (TSD) CRITERIA.

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

1. Detailed description and location of individual and groups of trees.
2. Identification of existing roads, building footprints, parking lots, stormwater structures and utilities.
3. Either BAF-10 study or ocular estimate method may be utilized.
4. When under review by Planning Commission, submit a site plan with a tree stand delineation overlay. An overlay is defined as a transparent sheet containing graphic matter to be superimposed on another sheet.

B. TREE PRESERVATION PLAN CRITERIA (TPP).

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

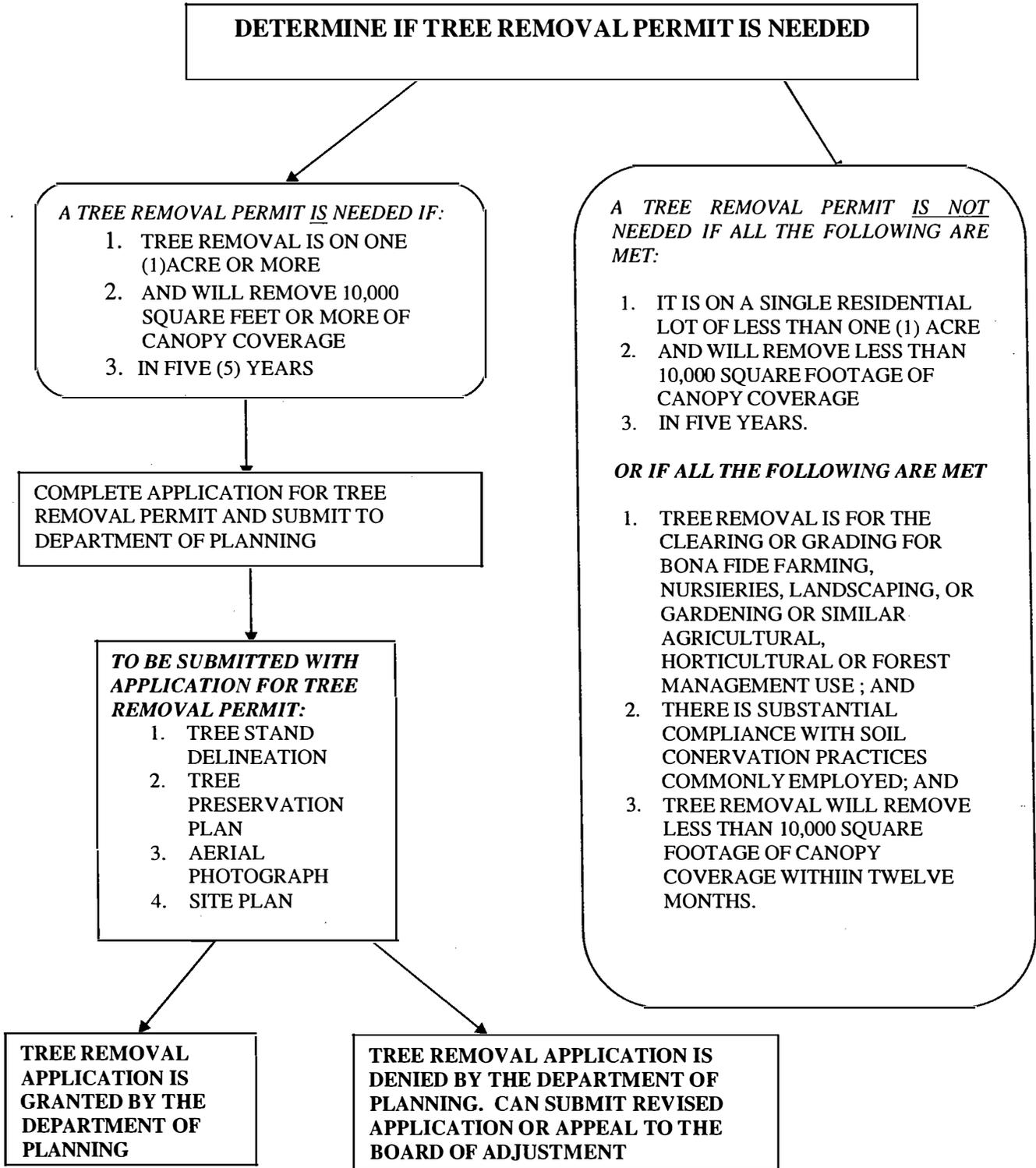
1. Provide detailed description and location of individual and groups of trees to be preserved and the protection measures;
2. Plan must be at the same scale as the site development plan or grading plan;
3. Table listing the:
 - a. total site area;
 - b. square footage of existing tree canopy;
 - c. square footage of tree canopy coverage proposed for removal;
 - d. square footage of tree canopy coverage provided for preservation;
4. Existing and proposed contours;
5. Locations of all improvements with proposed utilities as shown on the site development plan;
6. General or conceptual locations of all sediment control devices and structures;

7. The location, type and size of any monarch trees as shown on the Tree Stand Delineation and the critical root zone for those trees within fifty feet (50') of the limit of disturbance.
8. Tree protection notes shall include the following language:
 - a. Clearing limits shall be rough staked or marked by the tree specialist in order to facilitate location for trenching and fencing installation;
 - b. No clearing or grading shall begin in areas where tree treatment and preservation measures have not been completed;
9. Tree protection notes shall also include the following information regarding:
 - a. Protective devices with details (aeration systems, retaining walls, etc.);
 - b. Early maintenance schedule (i.e. pruning, injection fertilizing, etc.).
10. Name of tree specialist and company.

C. Exemptions.

Single residential lots of less than one (1) acre that will be removing less than 10,000 square footage of tree canopy coverage are not required to provide tree stand delineation, tree preservation plan, or landscape plan when submitting an application for a building permit.

X. OVERVIEW OF TREE REMOVAL PROCESS



XI. PERMIT PROCESS FOR TREE REMOVAL.

A. APPLICABILITY.

A Tree Removal Permit is required for:

1. All tree removal that occurs in a wooded area;
2. Parcels of one (1) acre or more and;
3. The removal of a total of 10,000 square feet of tree canopy coverage or more within a five-year period.

B. EXEMPTIONS.

A Tree Removal Permit is not required when the parcel of land either meets all the conditions set forth in item 1 below or meets the criteria in item 2.

1. A Tree Removal Permit is not required when all of the following are met:
 - a. It pertains to the clearing or grading of land that does not remove or destroy more than ten thousand (10,000) sq. ft. of tree canopy coverage during one (1) continuous twelve-month period or less, and;
 - b. It pertains to the clearing or grading that is for bona fide farming, nurseries, landscaping, or gardening or similar agricultural, horticultural or forest management use, and;
 - c. There is substantial compliance with soil conservation practices commonly employed.
2. Single residential lots of less than 1 (one) acre do not require a tree removal permit.
3. These exemptions shall not include or exempt from the permit requirement any tree canopy coverage loss in anticipation of or in preparation for construction of buildings or any construction or development that would require rezoning or subdivision of the land regardless of the size of subdivided lots.

C. TREE REMOVAL APPLICATION PROCEDURE.

1. A completed application consisting of a tree preservation plan, tree stand delineation, an aerial photograph and a site plan in accordance with this Manual shall be submitted to the Director of Planning.
2. The Director of Planning may issue the Tree Removal Permit for all or part of the tree or wooded areas requested, or require that certain conditions be met to satisfy the intent of this manual.
3. If the Tree Removal Permit is granted, a grading permit is required before actual tree removal may begin. Grading permits are reviewed and approved by the Department of Public Works.

D. SURETY BOND AND ESCROW.

1. Prior to the issuance of a Tree Removal Permit, the developer shall post a surety or cash escrow to account for trees that die, or are damaged beyond repair, as a result of grading or construction damage. The surety or cash escrow will remain for:
 - a. a two (2) year period after the issuance of occupancy permits for individual developments not within a subdivision or;
 - b. two (2) years after the issuance of the last occupancy permit in developments of two structures or more.

The amount of the surety or cash escrow shall be in the amount of \$20,000 for each acre contained in the tree preservation area. The amount may be pro-rated for any tree preservation area larger than one (1) acre.

2. The number of replacement trees is determined by matching the total caliper inches of trees to be planted with the total DBH inches of trees that were lost.
3. A planting plan shall be developed for the replacement trees according to specifications shown in this Manual.
4. Failure to replace trees shall constitute default and the City of Chesterfield shall be entitled to proceed against the surety or cash escrow.

XII. SPECIAL CONDITIONS.

The Department of Planning, upon written application by the applicant/owner for consideration of special conditions, may consider granting special conditions modifying the requirements of the Tree Manual with the procedures and limitations as set forth below. Modifications will require that a minimum 30% of the wooded portion of the lot must be preserved or be replanted with acceptable tree species. Special conditions may be granted in whole, or in modified form with conditions or denied by the Department of Planning, after consideration of the requisites presented.

A. QUALIFYING PROJECTS.

1. Property for which:
 - a. 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;
 - b. 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.
2. 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; or

3. Property for which a tree specialist determines that the applicant is unable to provide tree preservation in accordance with this manual due to highly unique and severe circumstance such as extremely poor quality of trees, extreme topography, unusual lot shape, or other similar condition.

B. APPLICATION FOR SPECIAL CONDITIONS.

The information to be submitted as a part of the application for special condition shall include but not be limited to the following:

1. A tree stand delineation with overlay of the existing conditions;
2. An engineering plan and/or drawings which shows and describes that development of the structures as proposed or authorized is impossible because of the unique character of the site which is not generally applicable to other sites;
3. A statement certified by a tree specialist that development cannot preserve the existing trees because of species or condition, but a minimum 30% of the original wooded area will be replanted to permanent tree cover;
4. Each applicant seeking mitigation or a variance from the terms and conditions of this Tree manual shall pay as a fee to offset the cost of administration an amount equal to the ornamental value of each tree that is removed from the required minimum 30% tree preservation area. The value of each tree is to be determined by the tree specialist;
5. A reforestation bond shall be posted to cover mitigation cost.

XIII. MITIGATION PLAN.

The purpose of a Mitigation Application is to deter removal of trees. If the applicant/owner has established special conditions in accordance with Section X, then mitigation in accordance with an approved mitigation plan as authorized by the Department of Planning shall include the following:

- A. Selective clearing and supplemental planting shall be displayed on an overlay plan.
- B. 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.
 1. 400 sq.ft. for large trees,

2. 300 sq.ft. for medium trees,

3. 200 sq.ft. for small trees,

Planting must achieve the dedication of a minimum 30% of the area of the original tree canopy coverage.

C. Applicants submitting mitigation plans must utilize a mix of trees that vary in species, size, growth rate, and life span.

D. Where site constraints or other factors prevent replacement on or off site, the developer shall make a cash contribution to the Chesterfield Tree Preservation Account 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.

XIV. LANDSCAPE PROPOSALS.

Landscape plans must be submitted to the Director of Planning in conjunction with a proposed development or redevelopment. A Conceptual Landscape Plan shall be submitted with the Site Development Concept Plans. A conceptual landscape plan indicates the proposed landscaping along arterial and collector roadways. The City of Chesterfield encourages the use of a mix of trees that vary in species, size, growth rate, and life span to promote the enhancement of the community.

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. A map prepared to a scale no greater than one (1) inch equals one hundred (100) feet, and;
2. A plan produced by a Missouri Landscape Architect, whose name and seal are attached, and;
3. Trees shall be selected from the recommended tree list included in Appendix A, and;
4. Tree locations, species, and numbers which shall be identified on the scaled drawing, and;
5. Elevations and plan views of proposed landscaping as required, and;
6. A map legend to identify the symbols for the various types of trees, and;
7. List the percent of greenspace in relation to total area, and;
8. A summary table for all plant materials listing Common and Scientific name and variety, Deciduous or Evergreen, Quantity, Maturity, Height and Caliper, and;

9. Potential problems with selected tree species such as odor, weak wood, fruit, difficulty to care for, etc., must be denoted in the tree notes.

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, and shrubs and should enhance and preserve the natural vegetation.

TABLE 2: LANDSCAPE BUFFER REQUIREMENTS	
TYPE OF SUBDIVISION	LANDSCAPE BUFFER REQUIRED
When a Residential Subdivision Abuts a Residential Subdivision	Minimum 20 feet wide buffer strip, 10 feet of which may be satisfied by landscaping on the abutting property if provided.
When a Residential Subdivision Abuts a Non-Residential Subdivision	Minimum 30 foot wide buffer strip.
When a Non-Residential Subdivisions Abuts a Residential Subdivision	Minimum landscaped buffer strip twenty (20) feet in width. Up to ten (10) feet may be satisfied by landscaping on the abutting property.
When a Residential Subdivision Abuts a non-subdivision street	Minimum of 30 foot wide buffer strip.
For all property zoned as an "E" District	Minimum of 30 foot wide buffer strip. The buffer strip shall not be counted towards minimum lot size.
Development along collector or arterial roadway	Minimum of 30 foot wide buffer strip.

2. Landscaped berms, walls or fences are required to screen automobile headlights from areas zoned residential or non-urban.
3. Landscaped setbacks shall adhere to the setbacks set forth in Table 3. There are no landscape setback requirements for residential property due to the buffer requirements established in Table 2.
4. For all districts, landscape buffers must be outside of the right-of-way dedication.

TABLE 3: LANDSCAPE SETBACK REQUIREMENTS	
TYPE OF PROPERTY	REQUIRED LANDSCAPE SETBACK
Site abuts undeveloped commercial property.	A minimum of five (5) feet
Site abuts developed commercial property.	A minimum of ten (10) feet
Site abuts undeveloped commercial property.	A minimum of five (5) feet
Site abuts developed or undeveloped industrial property.	A minimum of five (5) feet
Site abuts a "NU" Non-Urban District.	A minimum of five (5) feet

C. LANDSCAPING FOR PARKING LOTS AND TREE ISLANDS.

1. For Islands:

- a. Landscaped islands shall be placed at the ends of parking aisles and within aisles.
- b. Islands shall have plantings consisting of ground covers such as shrubs, ivy, flowers, and grasses.
- c. Tree Islands shall be landscaped in accordance with Table 4 below:

TABLE 4: LANDSCAPE REQUIREMENTS FOR TREE ISLANDS	
Type of Island	Landscaping Required
Single Island	One deciduous tree required. Minimum landscape width of six (6) feet.
Single Island at end of single row of parking	A minimum area of one-hundred (100) square feet placed at the ends of a single row of parking. Two (2) deciduous trees are required that do not block sight distance triangle.
Double Island	Two (2) deciduous trees are required per double landscaped island.
Double Island at end of double row of parking	There shall be a double island of two-hundred-ten (210) square feet placed at the ends of a double row of parking. Three (3) deciduous trees are required.

2. For Parking Lots:

- a. No parking space shall be further than fifty (50) feet from a tree.
- b. All vehicular areas should have minimum fifteen (15) feet landscape setback from existing or proposed rights-of-way lines.
- c. 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.

D. STREET TREES.

- 1. The use of street trees in landscaping for residential and non-residential subdivisions shall adhere to the requirements set forth by Table 5. Acceptable street trees for residential and non-residential subdivisions are listed in Appendix B.

TABLE 5: STREET TREES FOR RESIDENTIAL AND NON-RESIDENTIAL SUBDIVISIONS		
	RESIDENTIAL	NON-RESIDENTIAL
Tree Frontage Requirement	A minimum of one (1) tree for every forty (40) feet of frontage for single family subdivisions and fifty (50) feet of street frontage for multi-family subdivisions (including common land).	There shall be a minimum of one (1) tree for every fifty (50) feet of frontage.
Tree Size	At least two and one-half (2 ½) inches in caliper.	There is no minimum requirement.
Tree Species Utilized	A maximum of forty (40) percent of one species may be utilized.	There is no requirement.
Location of tree to right-of-way	Trees shall be located within a street right-of-way unless so approved by variance.	Trees shall be located within a street right-of-way unless so approved by variance.
Location of tree to curb	Street trees shall not be planted closer than three (3) feet to any curb.	Street trees shall not be planted closer than three (3) feet to any curb.
Location of tree to street lights	Street trees shall not be placed within twenty-five (25) feet of street lights.	Street trees shall not be placed within twenty-five (25) feet of street lights.
Location of tree at intersections	No street tree shall be placed within the triangular area bounded by the pavement lines on a line connecting the two (2) points of the edge of the street pavement fifty-four (54) feet from the point of intersection of the projected lines of the street pavements. No street tree shall be placed within 20 feet of an intersection.	No street tree shall be placed within the triangular area bounded by the pavement lines an a line connecting the two (2) points of the edge of the street pavement fifty-four (54) feet from the point of intersection of the projected lines of the street pavements. No street tree shall be placed within 20 feet of an intersection.
Location of tree to street inlets or manholes.	Street trees shall not be planted within ten (10) feet of street inlets or manholes.	Street trees shall not be planted within ten (10) feet of street inlets or manholes.
Entrance monuments, permanent ground mounted signs, entrance islands, and cul-de-sacs.	All entrance monuments, permanent ground mounted signs, entrance islands, and cul-de-sacs are required to be landscaped.	All entrance monuments, permanent ground mounted signs, entrance islands, and cul-de-sacs are required to be landscaped.

2. The Director of Planning may require that street trees are to be provided for all public streets within and adjacent to any proposed development where insufficient street trees presently exist. Planting locations will be guided by specifications found in this Tree Manual.

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. Cul-de-sacs shall be required to have sleeves for future irrigation.
4. All landscaped areas should be curbed or protected by parking stops. Consideration should be given to access for mowing equipment.
5. Burlap shall be removed from at least top half of the root ball before backfilling.
6. Mulch may be used instead of grass or in combination with grass. When mulch is used, it shall completely cover the root ball with at least three (3) inches of mulch.

F. LANDSCAPE BONDS.

The requirements for landscape installation and landscape maintenance bonds in the City of Chesterfield are set forth in Table 6.

TABLE 6. LANDSCAPE BOND REQUIREMENTS	
Type of Landscape Bond	Requirements
Landscape Installation Bond	When the estimated materials costs for new landscaping shown on the site development plan exceeds one thousand (\$1,000) dollars, as determined by a plant nursery, the petitioner shall furnish a two (2) year bond or escrow sufficient in amount to guarantee the installation of said landscaping.
Landscape Maintenance Bond	Upon release of the Landscape Installation Bond, a two (2) year Landscape Maintenance Bond is required.

G. SPECIAL STUDIES.

When deemed appropriate due to the nature of the existing vegetation on the site, the Planning Commission may require the developer to provide a landscape or forestry study by an Independent Urban Forester or a Missouri Landscape Architect.

XV. 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.

XVI. APPEAL.

Decisions of the Director of Planning 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.

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 removes over ten-thousand (10,000) square feet of tree canopy coverage within a five (5) year period on tracts over one acre without a tree removal permit is subject to the penalties shown in Section XVI. The removal of each tree in violation of this ordinance shall constitute a separate punishable offense.

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 more than five-hundred dollars (\$500) per each day of violation 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 shall withhold occupancy permits until the fine is paid.

APPENDIX A

City of Chesterfield Recommended Tree List

<i>Common Name</i>	<i>Scientific Name</i>	<i>Street Tree</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Alder, European	<i>Alnus glutinosa</i>	x		x		45+	L	Med/Fast
Arborvitae, Oriental	<i>Platycladus orientalis</i>		x		x	30-40	M	Slow
Ash, Green, Marshall Seedless	<i>Fraxinus pennsylvanica</i> 'Marshall Seedless'	x		x		45+	L	Fast
Ash, Green, Summitt	<i>Fraxinus pennsylvanica</i> 'Summit'	x		x		45+	L	Fast
Ash, Green, Patmore	<i>Fraxinus pennsylvanica</i> 'Patmore'	x	x	x		45+	L	Fast
Ash, Green, Urbanite	<i>Fraxinus pennsylvanica</i> 'Urbanite'	x	x	x		45+	L	Fast
Ash, White	<i>Fraxinus Americana</i>	x	x			45+	L	Med/Fast
Ash, White, Autumn Applause	<i>Fraxinus americana</i> 'Autumn Applause'	x	x			45+	L	Med/Fast
Basswood, American (Linden)	<i>Tilia Americana</i>	x		x		45+	L	Med/Fast
Baldcypress	<i>Taxodium distichum</i>	x		x		45+	L	Med
Beech, American	<i>Fagus grandifolia</i>	x		x		45+	L	Slow/Med
Beech, European	<i>Fagus sylvatica</i>	x		x		45+	L	Slow/Med
Birch, Paper	<i>Betula papyrifera</i>			x		30-45	M	Med/Fast
Birch, River	<i>Betula nigra</i>		x	x		45+	L	Med/Fast
Blackgum (Sourgum)	<i>Nyssa sylvatica</i>			x		45+	L	Slow/Med
Buckeye, Ohio	<i>Aesculus glabra</i>		x	x		25-35	M	Slow
Buckeye, Red	<i>Aesculus pavia</i>		x			20-30	S	Slow
Catalpa, Northern	<i>Catalpa speciosa</i>	x		x		45+	L	Fast
Cherry, Flowering, Japanese	<i>Prunus serrulata</i>		x			25-35	M	Med

<i>Common Name</i>	<i>Scientific Name</i>	<i>Street Tree</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Cherry, Sargent, Columnar	<i>Prunus sargentii</i> 'Columnaris'		x			30-40	M	Med
Coffeetree, Kentucky	<i>Gymnocladus dioicus</i>	x				45+	L	Med
Corktree, Amur	<i>Phellodendron amurense</i>	x		x		35-40	M	Med/Fast
Crabapple, Spring Snow	<i>Malus</i> 'Spring Snow'		x	x		25-30	M	Med
Crabapple, Sugar Tyme	<i>Malus</i> 'Sutyzam'		x	x		25-30	M	Med
Cucumbertree	<i>Magnolia acuminata</i>	x				45+	L	Slow/Med
Dogwood, Flowering	<i>Cornus florida</i>		x			15-25	S	Slow/Med
Douglas-fir	<i>Pseudotsuga menziessi</i>	x			x	45+	L	Slow/Med
Elm, Chinese (Lacebark)	<i>Ulmus parvifolia</i>	x		x		45+	L	Med/Fast
Fir, White (Concolor)	<i>Abies concolor</i>		x		x	45+	L	Slow/Med
Fringetree	<i>Chionanthus virginicus</i>		x			25-30	S	Med
Ginkgo (male only)	<i>Ginkgo biloba</i>	x	x			45+	L	Slow/Med
Goldenrain Tree	<i>Koelreuteria paniculata</i>	x	x			25-40	M	Med/Fast
Hackberry, Prairie Pride	<i>Celtis occidentalis</i> 'Prairie Pride'	x		x		45+	L	Med/Fast
Hackberry, All Seasons	<i>Celtis laevigata</i> 'All Seasons'	x	x	x		45+	L	Med/Fast
Hawthorn, Cockspur	<i>Crataegus crus-galli</i>		x			15-20	S	Med
Hawthorn, Crimson Cloud	<i>Crataegus laevigata</i> 'Superba'		x	x		15-20	S	Med
Hawthorn, Green	<i>Crataegus viridis</i>			x		25-30	M	Med
Hawthorn, Washington	<i>Crataegus phaenopyrum</i>		x			20-30	S	Med
Hawthorn, Winter King	<i>Crataegus viridis</i> 'Winter King'		x	x		25-30	M	Med
Hemlock, Canadian	<i>Tsuga canadensis</i>		x	x	x	45+	L	Slow/Med
Hickory, Shagbark	<i>Carya ovata</i>	x		x		45+	L	Slow
Hickory, Shellbark	<i>Carya laciniosa</i>	x		x		45+	L	Slow/Med
Holly, American	<i>Ilex opaca</i>	x		x		30-40	M	Slow
Holly, Deciduous	<i>Ilex decidua</i>		x	x	x	30-40	M	Slow
Honeylocust, Shademaster	<i>Gleditsia triacanthos</i> 'PNI 2835'	x	x	x		45+	L	Fast
Honeylocust, Skyline	<i>Gleditsia triacanthos</i> 'Skycole'	x	x	x		45+	L	Fast
Hophornbeam	<i>Ostrya virginiana</i>	x	x			30-40	M	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Street Tree</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Hornbeam, European	<i>Carpinus betulus</i>	x	x			45+	L	Slow/Med
Hornbeam, Fastigiate European	<i>Carpinus betulus</i> 'Fastigiata'	x	x	x		35-40	M	Slow/Med
Hornbeam, American	<i>Carpinus caroliniana</i>	x	x			20-35	S	Slow
Horsechestnut	<i>Aesculus hippocastanum</i>			x		30-45	M	Med
Juniper, Chinese	<i>Juniperus chinensis</i>		x		x	20-30	S	Med
Katsura	<i>Cercidiphyllum japonicum</i>		x			45+	L	Med/Fast
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	x				45+	L	Med/Fast
Lilac, Japanese Tree	<i>Syringa reticulata</i>	x	x			25-30	S	Med
Linden, Littleleaf	<i>Tilia cordata</i>	x	x			45+	L	Slow/Med
Magnolia, Saucer	<i>Magnolia x soulangiana</i>		x	x		20-30	S	Slow/Med
Magnolia, Southern	<i>Magnolia grandiflora</i>	x		x		45+	L	Med
Magnolia, Sweetbay	<i>Magnolia virginiana</i>		x	x		15-25	S	Med
Maple, Amur	<i>Acer ginnala</i>		x			20-25	S	Med
Maple, Hybrid, Autumn Blaze	<i>Acer x freemanii</i> 'Jeffersred'	x	x	x		45+	L	Med/Fast
Maple, Scarlet Sentinel	<i>Acer x freemanii</i> 'Scarsen'	x	x	x		45+	L	Fast
Maple, Norway	<i>Acer platanoides</i>	x		x		45+	L	Med
Maple, Norway, Columnar	<i>Acer platanoides</i> 'Columnare'		x	x		45+	L	Med
Maple, Red	<i>Acer rubrum</i>	x	x	x		45+	L	Fast
Maple, Red, Red Sunset	<i>Acer rubrum</i> 'Franksred'	x	x	x		45+	L	Fast
Maple, Red, Autumn Flame	<i>Acer rubrum</i> 'Autumn Flame'	x	x	x		45+	L	Fast
Maple, Silver	<i>Acer saccharinum</i>	x		x		45+	L	Fast
Maple, Sugar	<i>Acer saccharum</i>	x	x			45+	L	Slow/Med
Maple, Sugar, Legacy	<i>Acer saccharum</i> 'Legacy'	x	x			45+	L	Slow/Med
Maple, Sugar, Green Mountain	<i>Acer saccharum</i> 'PNI 0285'	x	x			45+	L	Slow/Med
Maple, Tatarian	<i>Acer tataricum</i>		x	x		15-25	S	Med
Oak, Black	<i>Quercus velutina</i>			x		45+	L	Med

<i>Common Name</i>	<i>Scientific Name</i>	<i>Street Tree</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Oak, Bur	Quercus macrocarpa	x				45+	L	Slow/Med
Oak, Cherrybark	Quercus falcata var.pagodafolia	x		x		45+	L	Med
Oak, Chestnut	Quercus prinus	x		x		45+	L	Med
Oak, Chinkapin	Quercus muehlenbergii	x				45+	L	Med
Oak, English, Fastigiata	Quercus robur 'Fastigiata'	x				45+	L	Med
Oak, Northern Red	Quercus rubra	x	x			45+	L	Med/Fast
Oak, Pin	Quercus palustris	x		x		45+	L	Med/Fast
Oak, Post	Quercus stellata			x		45+	L	Slow
Oak, Sawtooth	Quercus acutissima	x				45+	L	Med
Oak, Scarlet	Quercus coccinea	x				45+	L	Med/Fast
Oak, Shingle	Quercus imbricaria	x				45+	L	Med
Oak, Shumard	Quercus shumardii	x				45+	L	Med/Fast
Oak, Swamp Chestnut	Quercus michauxii	x		x		45+	L	Med
Oak, Swamp White	Quercus bicolor	x		x		45+	L	Med
Oak, White	Quercus alba	x		x		45+	L	Med
Oak, Willow	Quercus phellos	x				45+	L	Med
Pagodatree, Japanese	Sophora japonica	x		x		45+	L	Med
Pawpaw	Asimina triloba	x	x			45+	L	Med/Fast
Pear, Callery, Chanticleer	Pyrus calleryana 'Chanticleer'			x		15-25	S	Med
Pear, Callery, Aristocrat	Pyrus calleryana 'Aristocrat'	x	x			35-40	M	Med
Pear, Callery, Redspire	Pyrus calleryana 'Redspire'	x	x			35-45	M	Med
Pecan	Carya illinoensis	x		x		45+	L	Med/Fast
Pine, Eastern White	Pinus strobus	x	x	x	x	45+	L	Fast
Pine, Japanese Black	Pinus thunbergiana		x	x	x	45+	L	Med
Pine, Japanese Red	Pinus densiflora		x		x	45+	L	Med
Pine, Limber	Pinus flexilis		x		x	30-40	M	Med
Pine, Red	Pinus resinosa	x		x	x	45+	L	Med
Planetree, London	Platanus x acerifolia	x		x		45+	L	Fast
Plum, Purple-leaf	Prunus cerasifera		x			15-25	S	Med

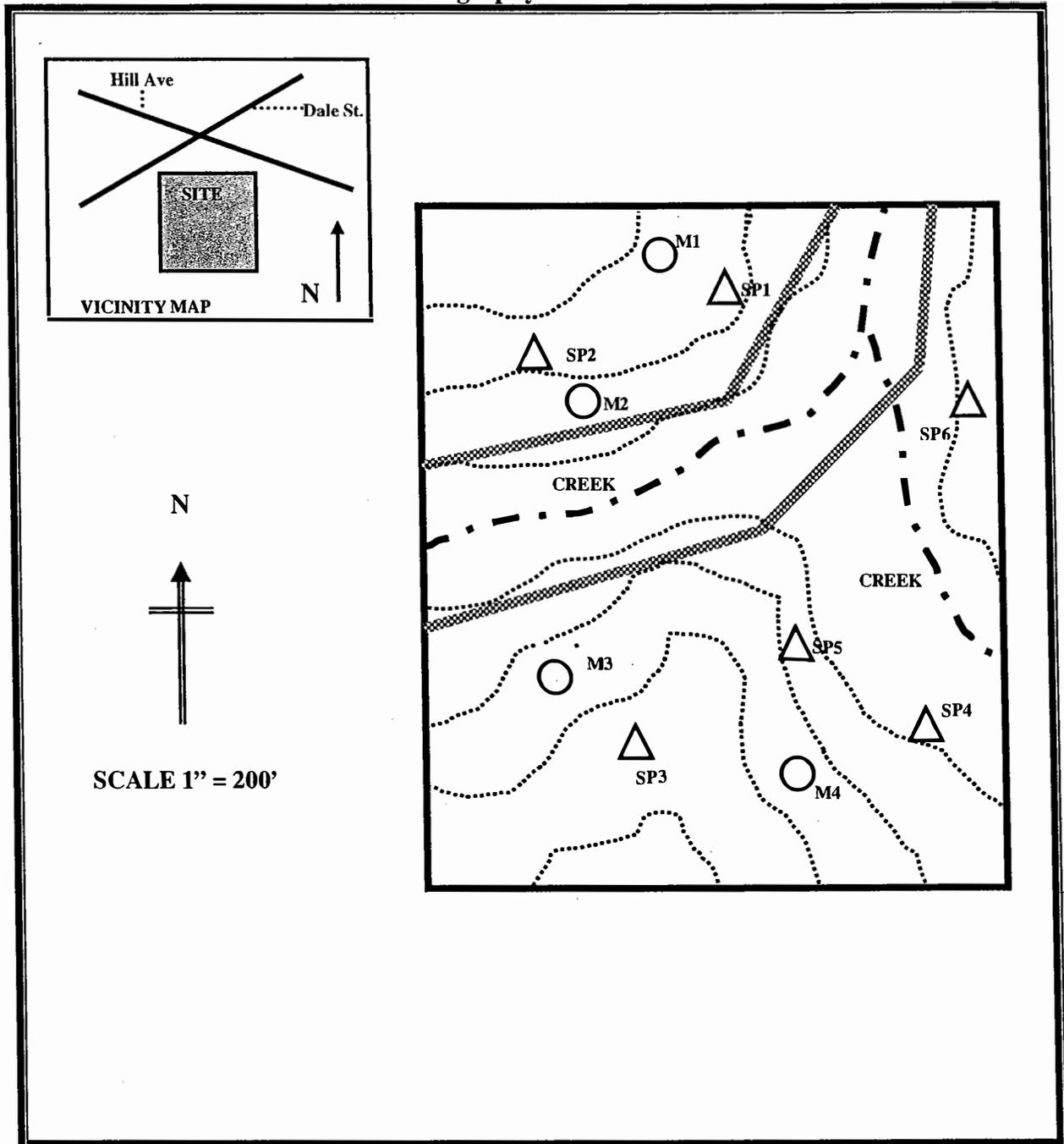
<i>Common Name</i>	<i>Scientific Name</i>	<i>Street Tree</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Redbud, Eastern	<i>Cercis canadensis</i>		x	x		25-30	M	Fast
Redcedar, Eastern	<i>Juniiperus virginiana</i>		x	x	x	30-40	M	Med
Rubbertree, Hardy	<i>Eucommia ulmoides</i>	x				45+	L	Med
Sassafras	<i>Sassafras albidum</i>			x		30-40	M	Med
Serviceberry, Robin Hill	<i>Amelanchier x grandiflora</i> 'Robin Hill'		x			25-30	M	Slow/Med
Serviceberry, Downy	<i>Amelanchier arborea</i>		x			25-30	M	Slow/Med
Serviceberry, Cumulus	<i>Amelanchier laevis</i> 'Cumulus'		x			25-30	M	Slow/Med
Silverbell	<i>Halesia carolina</i>		x	x		20-30	S	Slow
Sourwood, (Sorrel Tree)	<i>Oxydendron arboreum</i>		x	x		20-30	M	Slow/Med
Spruce, Colorado Blue	<i>Picea pungens</i>		x	x	x	30-40	M	Med
Spruce, Norway	<i>Picea abies</i>			x	x	45+	L	Med
Spruce, White	<i>Picea glauca</i>		x	x	x	30-40	M	Med
Sugarberry	<i>Celtis laevigata</i>	x		x		45+	L	Fast
Sweetgum	<i>Liquidambar styraciflua</i>			x		45+	L	Fast
Sycamore	<i>Platanus occidentalis</i>	x		x		45+	L	Fast
Tuliptree	<i>Liriodendron tulipifera</i>	x		x		45+	L	Fast
Willow, Black	<i>Salix nigra</i>			x		30-40	M	Fast
Yellowwood	<i>Cladrastis kentukea</i>	x				45+	L	Med
Zelkova, Green Vase	<i>Zelkova serrata</i> 'Green Vase'	x		x		45+	L	Med/Fast
Zelkova, Japanese	<i>Zelkova serrata</i>	x		x		45+	L	Fast
Zelkova, Village Green	<i>Zelkova serrata</i> 'Village Green'	x		x		45+	L	Fast

APPENDIX B

*Acceptable Species for Street Tree List within
Right of Way or Easement*

<i>Common Name</i>	<i>Scientific Name</i>	<i>Parking Lot or Island</i>	<i>Valley Sites</i>	<i>Evergreen</i>	<i>Mature Height feet</i>	<i>Size Class</i>	<i>Growth Rate</i>
Ash, Green, Marshall Seedless	Fraxinus pennsylvanica 'Marshall Seedless'		x		45+	L	Fast
Ash, Green, Summitt	Fraxinus pennsylvanica 'Summit'		x		45+	L	Fast
Ash, White	Fraxinus americana	x			45+	L	Med/Fast
Ginkgo (male only)	Ginkgo biloba	x			45+	L	Slow/Med
Goldenrain Tree	Koelreuteria paniculata	x			25-40	M	Med/Fast
Hackberry, Prairie Pride	Celtis occidentalis 'Prairie Pride'		x		45+	L	Med/Fast
Hackberry, All Seasons	Celtis laevigata 'All Seasons'	x	x		45+	L	Med/Fast
Hawthorn, Crimson Cloud	Crataegus laevigata 'Superba'	x	x		15-20	S	Med
Honeylocust, Shademaster	Gleditsia triacanthos 'PNI 2835'	x	x		45+	L	Fast
Honeylocust, Skyline	Gleditsia triacanthos 'Skycole'	x	x		45+	L	Fast
Hornbeam, Fastigate European	Carpinus betulus 'Fastigiata'	x	x		35-40	M	Slow
Linden, Littleleaf	Tilia cordata	x			45+	L	Slow/Med
Maple, Red	Acer rubrum	x	x		45+	L	Fast
Maple, Red, Red Sunset	Acer rubrum 'Franksred'	x	x		45+	L	Fast
Maple, Red, Autumn Flame	Acer rubrum 'Autumn Flame'	x	x		45+	L	Fast
Pear, Callery, Redspire	Pyrus calleryana 'Redspire'	x			35-45	M	Med
Pear, Callery, Chanticleer	Pyrus calleryana 'Chanticleer'		x		15-25	S	Med
Pear, Callery, Aristocrat	Pyrus calleryana 'Aristocrat'	x			35-40	M	Med
Planetree, London	Platanus x acerifolia		x		45+	L	Fast
Zelkova, Green Vase	Zelkova serrata 'Green Vase'		x		45+	L	Med/Fast
Zelkova, Japanese	Zelkova serrata		x		45+	L	Fast
Zelkova, Village Green	Zelkova serrata 'Village Green'		x		45+	L	Fast

SAMPLE TREE STAND DELINEATION MAP
Aerial Photography/BAF 10 Method



SAMPLE TREE STAND DELINEATION MAP
Ocular Estimate Method

RATING CHART

