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Arboricultural Specifications Manual

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City of Springfield, Illinois  
Revised, June 2022

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## **INTRODUCTION, PURPOSE, AUTHORITY, POLICY, & SAFETY**

A city's 'green infrastructure,' its trees, plants, and green spaces, are as valuable an asset as its built environment, due to the importance of nature to its residents' well-being and the attractiveness of the city to guests. The benefits of trees and urban forests include: reduction in energy use and in temperatures in neighborhoods with trees; better storm water management; improvement in air quality; increase in property values; shading of homes and buildings; spring and fall color displays; privacy; greater aesthetic appeal and definition of space; softening of a building's lines; and an improvement in residents' mental health and well-being. Because trees are so valuable, they deserve to receive the very best of care. Proper tree care will extend a tree's life span, improve its insect and disease resistance, and allow it to retain its aesthetic attributes.

The City of Springfield's Arboricultural Specifications Manual (ASM) is designed to support the Urban Forestry Ordinance ([Code of Ordinances, Title IX, Chapter 102 – Urban Forestry](#)) that regulates the planting, maintenance, and removal of trees, shrubs and other plants within the City. The objective of the ASM is to provide the best tree planting, maintenance, protection and removal techniques based on proper standards. The guidelines and standards in this manual apply only to public trees in the City of Springfield. All trees located on the public right-of ways shall fall under the jurisdiction of the City and corresponding municipal codes. Any questions concerning the care of public trees shall be directed to the City Arborist.

### **PURPOSE**

The purpose of this manual is to set forth the regulations and requirements, as provided for in the City Code, for persons planting or performing work on any plant material on city-owned property or public right-of-way. It is also intended to serve as a guide for those persons who are required by ordinance to install landscaping or abate a tree-related public nuisance. This manual also provides both the City and its residents with the proper instructions on how to care for our trees.

### **AUTHORITY**

Authority for this manual is granted pursuant to "An Ordinance Approving the Establishment of the Position of City Arborist within the Office of Public Works and a Tree Commission for the City of Springfield", Chapter 102 of the 1988 City Code of Springfield, Illinois, adopted by the City Council of Springfield, Illinois on the December 20, 1988 and approved by the Mayor on December 22, 1988. The City Arborist, having had the advice and assistance of the Springfield Urban Forestry Commission, established in the said Ordinance, hereby promulgates the following as the Arboricultural Specifications and Standards of Practice for the City of Springfield, Illinois, hereinafter called the Arboricultural Specifications Manual. Nothing in this Manual shall supersede, abrogate or nullify any state or federal laws, regulations or statutes.

### **POLICY**

All work on City-owned trees shall comply with the Urban Forestry Ordinance of the City of Springfield, Illinois, and this manual. The Arboricultural Specifications Manual shall be

adhered to at all times, but it may be amended at any time that experience, new research, or laws indicate that improved methods or circumstances make it advisable, and only then with the advice and assistance of the City Arborist and the Springfield Urban Forestry Commission. The policy of the Springfield Urban Forestry Commission, the Office of Public Works Forestry Division, and the City Arborist shall be to collaborate with the public, property owners, other municipal departments, and with not-for-profit organizations for the benefit of the urban forest and the public.

## **SAFETY**

In all operations related to public tree planting, maintenance, and removal, safety of workers, citizens, and the general public shall be of primary importance. Contractors are required to follow the safety requirements for tree care operations as presented in the most current edition of the ANSI Z133 Safety Standard which was developed for the arboriculture industry under the procedures of the American National Standards Institute.

Applicable safety requirements are available online at the International Society of Arboriculture webstore at [www.isa-arbor.com/store/shop](http://www.isa-arbor.com/store/shop).

## **SECTION A GENERAL REQUIREMENTS**

### **1.0 DEFINITIONS**

For the purpose of this Manual, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ARBORIST: The City Arborist of Springfield, Illinois

CALIPER: The American Association of Nurserymen standard for trunk diameter measurement of nursery stock. Caliper is the diameter, or thickness, of a tree, measured six inches above grade for trees up to 4 inches in diameter, and measured 12 inches above grade for trees greater than 4 inches in diameter.

CERTIFIED ARBORIST: An individual who has sufficient experience in the field of Arboriculture, and has been certified by the International Society of Arboriculture as being a Certified Arborist.

CITY: City of Springfield, Illinois

CITY-OWNED PROPERTY: Property within the corporate limits of the City of Springfield, Illinois, and

1. owned by the City in fee simple absolute; or
2. implied or expressly dedicated to the public for present or future use for the purposes of vehicular or pedestrian traffic, or for public easements.

CITY RIGHT-OF-WAY: Land upon which the city has the right to construct a street, sidewalk, bicycle path, use for public utilities, landscape with plants or to carry out any other public purpose.

CITY-OWNED TREE: A tree that has its trunk located entirely or in part on city owned or controlled property including any boundary tree.

COMMISSION: The Urban Forestry Commission, Springfield, Illinois

CRITICAL ROOT ZONE (CRZ): A protected circular area to remain undisturbed around a tree with a radius equal to 1.50 feet per inch of tree diameter at breast height (DBH) measured at 4.5 feet above grade with the tree trunk at the center of the circle. The main structural and functional portion of the root system.

DESTROY: Any intentional or negligent act or lack of protection that will cause a tree to die or become structurally unstable as determined by Urban Forestry staff. Such acts include, but are not limited to: Cut or fill grade changes that affect the Critical Root Zone; severing or exposing roots in the Critical Root Zone; trenching across or otherwise severing the Critical Root Zone; cutting, girdling, or inflicting other mechanical injury to the trunk, roots or other sections of the tree; cambial injury which will result in potential stem failure; removal of the live crown of the tree; damage inflicted upon the root system of a tree by application of toxic substances, including solvents, oils, gasoline and diesel fuel; damage caused by the operation of heavy machinery; damage caused by the storage of materials; and damages from injury or from fire inflicted on trees which result in death or pest infestation.

DIAMETER AT BREAST HEIGHT (DBH): The diameter of the tree trunk measured at 4.5 feet above the soil. Commonly referred to as diameter at breast height, or DBH. DBH is accurately measured with a diameter tape.

DIVISION: The Forestry Division of the City of Springfield's Office of Public Works.

EXCESSIVE PRUNING: The pruning, cutting, or otherwise damaging the natural form of a tree when it meets one (1) or more of the following: a. removes more than twenty-five (25) percent of the crown system of a tree. b. removes, cuts, or covers more than twenty-five (25) per cent of the root system of a tree. c. fails to conform to the pruning methods set forth in the current edition of ANSI A-300 Standards for Tree Care Operations or this manual.

FAIR APPRAISAL VALUE: The value of a tree to be determined by the City Arborist with consideration of the following factors: species, height, and diameter of trunk.

GRADE: The level of the ground surface after the fill process has been completed; the height of the ground on which something stands.

PARK TREES: Trees in cemeteries and all other areas owned by the City or any area to which the public has free access as a park.

PARKWAY: Any area between the street and the sidewalk.

PRIVATE TREE: A tree that has its trunk column located entirely on private property.

PROPERTY OWNER: The record owner or contract purchaser of any parcel of land.

**ROOT FLARE:** The part of the tree near the base that transitions from trunk to root. The area where the trunk expands and tapers outward into the ground. Must be visible at grade for new plantings and avoid covering with mulch, soil or other materials.

**TREE PROTECTION ZONE (TPZ):** The area surrounding a tree in which excavation and other construction- related activities should be avoided.

**TREE RISK:** “Tree Risk” is the potential of a tree or tree part to impact a nearby person or piece of property and cause property damage or personal injury.

**TREES, SHRUBS AND OTHER PLANTS:** All vegetation, woody or otherwise, except lawn grass and flowers less than twenty-four (24) inches in height.

**URBAN FORESTRY:** The management and maintenance of trees for their contribution to the environmental, sociological, and economic well-being of urban society. Includes wooded areas, groups of trees, and individual trees.

**URBAN FORESTRY COMMISSION (UFC):** A group of ten commissioners who advise and consult with the City Arborist on policies, procedures, rules/regulations and other urban forestry matters pursuant to or in accordance with Chapter 102 (Urban Forestry) of the City Code.

**URBAN FORESTRY PLAN:** A five-year or more projection of urban forestry activities approved annually by the city council. Activities may include the office of public works tree planting program, planting or removal of horticulture products, hazard abatement projects and educational horticultural programs affecting property owned by the City of Springfield, Illinois.

## **2.0 PERMIT REQUIRED**

2.1 Before any person or firm, either public or private, begins to prune, fertilize, remove, transplant, cable/brace, install lightning protection, spray or treat with a pesticide, apply a pesticide or a potentially toxic chemical to the root zone, attach or install any metal materials, signs, cables, wires, or other things foreign to the natural structure of the tree, excavate or initiate construction activities or take other action within the drip line of any City-owned tree that might have a detrimental effect on the strength, stability, appearance, health, or longevity of that tree, that person or firm shall apply for and receive from the City Arborist a permit for such activities (Appendix E).

2.2 The permit will describe the location of the tree(s) to be worked on, the nature of work to be performed, and who will be performing said work. The application shall be filed a minimum of ten work days before the tree work will begin. In cases of danger to life or property, this requirement can be waived at the discretion of the City Arborist. Permits are valid for a period of thirty (30) days, unless specified otherwise by the City Arborist.

2.3 Permits may be revoked or suspended by the City Arborist should they find that the work being performed is in violation of the Springfield Tree Ordinance or this Manual.

2.4 Contractors employed by the Department of Public Utility, engaged specifically in electrical line clearance activities, shall be exempt from the requirement for a permit

provided said contractor and utility conform to the Utility Tree Care Section and other appropriate sections of this Manual.

- 2.5 Contractors shall provide the City Arborist with location and extent of work on parkway trees.

### **3.0 OWNER RESPONSIBILITIES**

- 3.1 Property owners shall be financially responsible to the City for the cost of any damage, at its fair appraised value, caused by the actions of themselves personally or any worker or company that they engage in the care or maintenance of a City-owned tree.

### **4.0 ANNUAL TREE SERVICE PROVIDER REGISTRATION**

- 4.1 Any person or company, not the abutting property owner, who performs any maintenance or removal activity upon a City-owned tree, shall obtain a Springfield City Tree Registration before beginning any work on a City-owned tree.

- 4.2 The registration shall be granted upon the fulfillment of the following conditions:

- a. Provide proof of license or certification in forestry by an accredited forestry industry body, e.g., International Society of Arboriculture.
- b. Application made each year to the City Arborist at the Department of Public Works (Appendix F). A registration is valid for one (1) year from the date of issuance.
- c. Provide proof of current Workman's Compensation insurance in the minimum amount of \$500,000, Vehicle liability insurance in the amount of \$1,000,000, General Liability Insurance in the minimum amount of \$500,000/\$1,000,000 for themselves and any sub-contractors that they might employ. The policies shall show an attachment that the Insurance Company(s) will notify the Arborist, in writing, should any of the policies be revoked, reduced below the stated minimum, or allowed to lapse. The Tree Registration will be automatically suspended whenever proper insurance is not provided.
- d. Certify that any pesticide application by or for the company shall be in compliance with all state and federal laws, rules and regulations.
- e. Certify that all work will be in accordance with all safety laws, rules, and regulations of the state and federal government including ANSI Z133 Safety Requirements for Arboricultural Operations.
- f. Certify that all work will be in accordance with ANSI A300 Tree Care Standards.
- g. Agree to hold the City harmless of any liability for any consequence of actions by said registrant while working on City-owned trees.



- h. Agree to display a copy of the registration and any necessary permits for public and private inspection at each job site.
- 4.2 Registrations may be revoked or suspended by the Arborist at any time for failure by the registrant to comply with guidelines, rules, specifications or applicable ordinances.
- 4.3 First suspensions will be for six (6) months, a second suspension within five (5) years will be for eighteen (18) months, and a third suspension within five (5) years will prohibit future registration.
- 4.4 There shall be no charge for this registration.
- 4.5 Any person acting within the scope of his or her employment with a public utility or with the City is exempt from registration.

## **5.0 APPEALS PROCESS**

- 5.1 Any individual or organization, either public or private, shall have the right to appeal a decision of the Arborist to the Urban Forestry Commission.
- 5.2 Appeals must be filed in writing within thirty (30) days of the decision to the Commission (Office of Public Works, Municipal Center West, 300 S. 7<sup>th</sup> Street, Springfield, IL 62701, Attention: Director of Public Works) with a copy to the Executive Assistant to the Mayor in accordance with § 102.30 of the City Code, City of Springfield, Illinois. The appeal must state the specific decision being appealed and the reasons for such an appeal.
- 5.3 Upon receipt of an appeal the Commission shall, within thirty (30) days set a hearing date and mutually agreeable time. At the hearing both the Arborist and appellant shall have the opportunity to present pertinent information on the decision in question.
- 5.4 Within thirty (30) days of the hearing the Commission shall render its opinion in writing. Both the Arborist and appellant shall be provided a copy.
- 5.5 The Arborist and appellant shall have the right to appeal the decision of the Commission to the Executive Assistant to the Mayor within ten (10) working days.
- 5.6 Any person may appeal from any ruling or final decision of the Executive Assistant to the Mayor to the City Council who may review the matter and affirm, modify or repeal said decision. This provision shall not prevent any individual from appealing said decision of the city council to a court of competent jurisdiction (as provided in City Ordinance 102.30).

## **6.0 COOPERATION**

- 6.1 The policy of the Commission and the Arborist shall be to work cooperatively with the public, property owners, other municipal departments, and with appropriate not-for-profit organizations.

- 6.2 It shall be the policy of the Arborist to collaborate with the municipal or Public Utility engineer, and vice versa, in the placement and selection of lighting standards and the development of a system of tree pruning that will give effective street illumination.

## **7.0 PRIVATE TREE HAZARD**

- 7.1 The owner of private property shall not allow trees or shrubs to constitute a hazard to the public by allowing branches or plant parts to interfere with the safe and convenient use of sidewalks or roadways. Private tree hazards may be evaluated by the City Arborist and referred to the City's Housing Department for further action with the property owner.

## **8.0 PUBLIC PROTECTION**

- 8.1 Whenever streets are to be blocked off to public service, the City Traffic Engineer shall be notified of the location and length of time the street will be blocked.
- 8.2 To protect the public from danger, suitable street and sidewalk barriers, highway cones, and signs shall be used when working on a City-owned tree. Signals, flares or flasher lights shall be placed on all barriers or obstructions remaining in the street after dark.

## **9.0 REVENUE**

- 9.1 A "City Tree Care" account will be established under the signature of the City Arborist and the Director of Public Works.
- 9.2 This account will include all monies provided as gifts for tree planting, fines and settlements resulting from the damage to City-owned trees (as provided for in [City Ordinance 102.999](#)), and other types of monies.

## **SECTION B PLANTING**

### **1.0 AREAS OF RESPONSIBILITY**

- 1.1 The planting and maintenance of street trees are the responsibility of the City Forestry Division. Tree planting priority will be given to planting trees along residential streets and along City gateways.

### **2.0 PLANTING STANDARDS**

#### **2.1 Public Projects**

Public projects, i.e. parks, streets, medians, substations, treatment plants, plazas and public buildings, shall provide for the protection of existing trees and planting of street and park trees as part of their development process. The landscape plants for such projects shall be approved by the Arborist and adhere to the standards and specifications set forth in this manual.

#### **2.2 Private Projects**

Private projects shall provide for the protection of existing trees and planting of additional trees as a part of the development process. Street trees shall be located on the public right-of-way and adhere to the design objectives and spacing and location requirements of this manual, for example:

- Large Trees: One (1) shade tree every thirty-five (35) feet of curbing
- Smaller Trees: One (1) shade tree every twenty-five (25) feet

Tree selection shall be from the list of tree species approved for planting on the City right-of-way, or such other tree that has been approved by the Arborist. All trees planted on public rights-of-way shall be approved by the Arborist.

### **3.0 TREE REPLACEMENT**

- 3.1 All removed public or right-of-way trees, including those removed by homeowners or by utility companies due to maintenance or construction, shall be replaced in accordance with Section 7 (§4.0) of this manual, from the list of tree species approved for planting or otherwise approved by the Arborist, within a mutually agreed upon time period with the City Arborist under the guidelines stated in this manual.
- 3.2 Any City-owned trees designated to be saved at a construction site that are then destroyed or removed from a planting site for any reason, including vandalism, from the time the project specifications are let until the project is completed shall be replaced by the contractor on the basis of stem replacement equivalent, as described in the most recent version of the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction. The contractor shall be responsible for any tree that is damaged but not destroyed to the extent of the fair -

appraised value of said damage. (Cross-referenced in Section 6, 3.3, Tree Protection Planning.)

- 3.3 A tree is not considered fully replaced until it has been established. The term “established” refers to the point at which a newly planted tree begins to produce new growth. New growth appears as fresh foliage or new stems.

#### **4.0 PLANTING SITE SELECTION AND CRITERIA**

Site selection is the first, important step to make when planting trees in an urban environment. Quality sites have a higher probability of supporting long-lived and healthy trees, whereas poorly chosen sites produce poorer-quality trees. Urban environments are challenging for tree survival and not all species can thrive in urban conditions. Sites often contain soil contaminants, air pollution, high velocity wind, compacted and poorly aerated soil, higher temperatures, altered soil drainage, and small planting areas.

Considering these challenges, choosing the best site for planting is critical for optimal growth and survival, followed by careful preparation of the site, tree selection, and planting. See 10.0 in this Section for information about planting locations and tree spacing.

##### **4.1 Site Characteristics**

Knowing the characteristics of a planting site will help determine whether the site will support healthy tree growth and development. The list below can be utilized when evaluating site conditions. Some of the important site conditions to consider include:

- Soil characteristics
- Environmental conditions
- Site location
- Soil volume
- Social influences/uses
- Maintenance requirements

##### **4.2 Site criteria to be evaluated in determining tree planting locations include:**

- a. Visibility of site
- b. Probability of long term tree survival
- c. Likelihood of private participation and financing
- d. Overall benefit to the community
- e. Tree species

#### **5.0 TREE SELECTION AND SIZE**

- 5.1 Trees selected for planting in the City shall be healthy and free of insects, diseases, bark bruises, and scrapes on the trunk or limbs, before and after planting. Trees shall be single-stemmed and have a central leader that can be

pruned so the lowest limb is at least 6 feet above ground, with the exception of small growing trees such as crabapples. All trees shall have a balanced crown, and a well-developed root system.

- 5.2 Tree selection shall be from the official street species list (see Appendix A-C). All trees planted on public right-of-ways shall be approved by the Arborist.

5.5 Minimum Sizes for Plant Material

The following are the minimum sizes for plant material. Larger sizes may be required to ensure survival or provide the proper landscape effect. In consultation with the Urban Forestry Commission, smaller sizes may be allowed at the discretion of the Arborist. Caliper size is measured one-half (1/2) foot above soil line.

- a. Shade trees – 1.75 inch – 2.0 inch caliper
- b. Ornamental trees – 1.5 inch caliper
- c. Evergreen trees -- 5 feet height
- d. Shrubs -- 5 gallon container

**6.0 PLANT MATERIAL AND PLANTING SPECIFICATIONS**

- 6.1 All trees shall be grown in a location within similar temperature zones as Springfield, Illinois and, if from a nursery, one licensed by the respective State.
- 6.2 All trees shall conform to the "American Standard for Nursery Stock" as approved by the American National Standards Institute, Inc., and issued as the most current edition of ANSI Z60.1 available online at:  
<https://www.americanhort.org/page/standards>.
- 6.3 Except as listed in Section 5.5 above, trees shall have a minimum trunk diameter of 1.5 inches, as measured 6 inches above the root flare, unless the City Arborist grants written permission to allow smaller trees.
- 6.4 Unless a tree is to be transplanted by mechanized tree spade, all tree roots shall be containerized, or in ball and burlap. Nylon twine shall not be used for balling. Minimum ball size must conform to the most current edition of ANSI Z60.1. Root balls shall be intact at the time of planting. Bare root plantings are discouraged, but may be approved in special cases by the City Arborist.
- 6.5 The root flare of ball and burlap trees shall be at the same level as surrounding soil or slightly above it. (See Figure A below – Tree Planting Detail.)

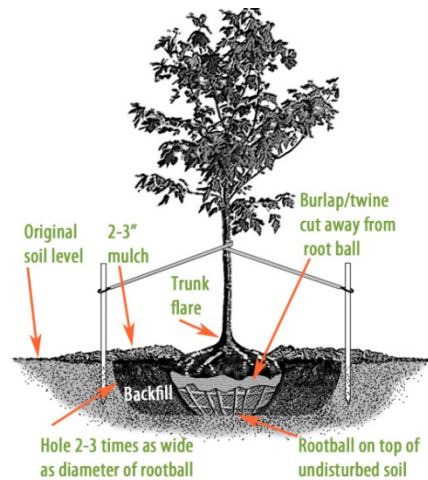


Figure A - Tree Planting Detail

## 7.0 TRANSPORTATION AND HANDLING

- 7.1 Trees shall be covered during transport to the planting site.
- 7.2 Plant material shall be handled in a manner that causes the least amount of damage during the planting process.
- 7.3 Ball and burlap plants shall always be handled by the soil ball. Under no circumstances shall they be dragged, lifted or pulled by the trunk or foliage.
- 7.4 Plants shall be handled, secured, or covered to prevent damage from wind and vibration. Plants shall never be allowed to drop and shall always be lowered in a controlled manner.
- 7.5 Plant material shall be planted the day it is taken to the planting site, or it shall be watered and/or covered, and placed in a shady area to prevent drying out or freezing.
- 7.6 Trees should not be dug, balled and burlapped or moved with a tree spade during the active growth period without the permission of the Arborist.

## 8.0 PLANTING METHODS AND TECHNIQUES

### 8.1 Planting Seasons

The spring planting season shall begin when the ground has sufficiently thawed and end approximately one week before buds begin to break. Spring planting may be extended through the end of May as long as the trees have been dug at the nursery before bud break and stored properly until planting. The fall planting season will begin early to mid-September and end by mid-November or with the onset of prolonged freezing temperatures.

### 8.2 Pre-Digging Utility Check

All sites shall be checked for buried utilities such as telephone, electric, cable television, sewer, water or gas before planting. No plant holes shall be dug or prepared until the location is approved by the Arborist, marked by the JULIE system and non-affiliated utilities, and a permit is received.

### 8.3 Planting Hole

The planting hole shall be a minimum of twice the diameter of the ball (3 times wider in compacted soil), with sides sloping inward toward the bottom of the root ball (see Figure A above). The planting hole shall not be dug to a depth deeper than the depth of the root flare. The root ball must be placed on undisturbed subgrade. The resulting hole shall place the structural roots within the top 3 inches of the soil surface when measured laterally at 4 inches from trunk unless special drainage needs are approved by the City Arborist.

#### 8.3.1 Barricading Planting Holes

Excavated planting holes that are open when work is not in progress pose a hazard to pedestrians or traffic and shall be adequately barricaded with approved warning devices. No planting pit may remain open in excess of 24 hours.

#### 8.3.2 Generally the tree shall be planted so that the root collar is at or slightly (no more than 1 inch) above grade unless structural root depth dictates otherwise. The City Arborist may allow exceptions to this rule if extraordinary drainage needs exist.

#### 8.3.3 The tree shall be placed plumb and in the center of the planting hole.

#### 8.3.4 All ropes, strings, nails, burlap wrapping, root bag material and wire baskets shall be removed from the upper 2/3 the root ball after the tree has been placed in the planting hole. All removed ropes, strings, nails, burlap wrapping, root bag material and wire basket materials shall be removed from hole and properly discarded.

### 8.4 Backfill

In most instances, the backfill around the ball shall be the same soil as that which was removed from the hole; however, in cases where rocks, stones, etc., are encountered, top soil shall be used, and in cases of highly compacted clay soil, existing soil may be amended with 25% compost.

When approximately 2/3 to 3/4 of the planting pit has been backfilled, the hole shall be watered to settle the soil around the roots. After the water has been absorbed, the planting pit shall be filled with the planting soil and tamped lightly to grade. Then it should be watered thoroughly again. Any further settlement shall be brought to grade with additional planting soil.

#### 8.4.1 A shallow soil berm, approximately 3 to 4 inches high, can be formed just inside the edge of the planting hole to serve as a water reservoir if the planting area is located on a slope.

## 8.5 After Planting

After planting, a 2 to 3 inch layer of wood chips or other approved mulch shall be added to the top of the planting hole to within approximately 3 to 4 inches of the trunk. No mulch shall be placed in direct contact with the trunk of the tree.

- 8.5.1 Any excess soil, debris, or trimming shall be removed from the planting site immediately upon completion of planting.
- 8.5.2 The trunk of the tree shall not be wrapped. Any existing trunk wrapping materials shall be removed and disposed of.
- 8.5.3 All tags, wires, and plastic ties shall be removed from each tree unless otherwise specified.
- 8.5.4 Trees shall only be staked if located in loose sandy soils or windy areas. Rubber cords/tubing or flat straps shall be used to avoid girdling the tree. Hose and wire combinations are prohibited. Staking should allow some trunk movement.

## 9.0 **CONTAINER PLANTING**

- 9.1 No container may be placed in a manner which violates the Visibility Triangle, as described in Section 10.8, nor may any container be placed on public property where the container would constitute a visibility hazard.
- 9.2 The planting medium shall be of sufficient volume to support and sustain plant materials, and the design and construction details shall be approved by the Arborist.
- 9.3 Containers, plants and their contents must be maintained in the condition specified by original design at all times. Any planter not serving its designed aesthetical function shall be replanted or removed.

## 10. **PLANTING LOCATIONS AND TREE SPACING**

- 10.1 Planting locations of trees shall be subject to the following regulations:
  - A. Large trees (see Appendix A) shall be planted no closer than 40 feet from any other large parkway tree.
  - B. Medium trees (see Appendix B) shall be planted no closer than 30 feet from any other medium-sized parkway tree.
  - C. Small trees (see Appendix C) shall be planted no closer than 20 feet from any other small parkway tree.
  - D. New tree plantings of all sizes can be as close as 20 feet to existing conifer trees. When planting a new tree next to an existing variety of a different size, minimum spacing shall be calculated by averaging the spacing requirements for the two



size classes. For example, a new medium-sized tree may be planted 35 feet from a large variety, or 25 feet from a small variety.

- 10.2 Trees shall normally be planted on the centerline of the parkways unless, in the opinion of the City Arborist, there is sufficient reason to plant the trees off- center.

- 10.3 Per City Code, Title IX, Chapter 99, Article III, § 99.22:

- (b) *No person shall plant or cause to be planted any tree in any public parkway unless such tree be planted in the center of the parkway an equal distance between the outer and inner boundary lines of such parkway.*
- (c) *No person shall plant or cause to be planted in any public parkway less than 4.5 feet in width any tree which is normally expected to reach 30 feet in height at maturity.*

No trees shall be planted on parkways less than 4.5 feet in width unless, in the opinion of the City Arborist, the planting and the species of the tree approved will not endanger sidewalks, curbs and gutters, sewers, water lines, or other physical property..

- 10.4 Where the distance between the sidewalk and curb is less than 4.5 feet in width or other conditions exist that would reduce the chances of tree survival, or attractiveness, or cause the tree to become a nuisance, legal steps may be taken to obtain easement rights to plant beyond the sidewalk on private property if in the opinion of the Arborist the public interest would be served. The easement shall last for the healthy and safe lifetime of the tree.

Such trees may be planted no more than twenty (20) feet from the sidewalk. No trees shall be planted on private property without the obtainment of easement rights. The City shall retain title to the tree and be responsible for all care and maintenance.

- 10.5 Only small trees or shrubs (Appendix C) shall be planted under overhead power lines. Trees planted to the side of power lines shall be carefully selected relative to crown form to minimize future conflicts.
- 10.6 No tree shall be planted closer than thirty-five (35) feet to a utility pole, fifteen (15) feet to a street illumination light pole, five (5) feet to a fire hydrant or utility box and within five (5) feet of any building or structure.
- 10.7 No tree shall be planted closer than ten (10) feet from any driveway or alley nor shall a tree be planted in such a manner that its eventual growth cannot be reasonably controlled so as to avert interference with or obstruction to any improvements installed for public benefit.

- 10.8 Visibility Triangle

At the intersection of roadways or vehicular access points, no plant material with a mature height greater than thirty (30) inches shall be planted within a sight triangle measuring thirty (30) feet along the boundary of each of the intersecting roadways,

measured from the point of intersecting curb lines, except where engineering standards indicate otherwise.

#### 10.9 Downtown and Parking Lot Tree Planting Locations

Downtown and parking lot tree planting locations are allowed closer spacing due to limited planting space. In downtown and parking lot areas, above ground minimum spacing for small trees is 10 feet, for medium trees is 20 feet, and for large trees is 30 feet.

- 10.9.1 The minimum spacing standards outlined above may be modified by the City Arborist for new plantings in downtown areas, particularly where openings in pavement are required to establish planting sites. In these areas, trees may be planted closer together, recognizing the limited availability of planting spaces, and the advantages of allowing trees greater access to larger volumes of soil through cluster plantings.
- A. In areas where openings in pavement are required to establish planting sites, or where above ground planters are to be used, the most restrictive space limitation is usually associated with the volume of acceptable rooting habitat as opposed to limitations of crown space. For this reason, minimum tree spacing in these areas is determined by available soil volume.
  - B. Soil volume and quality is a critical environmental factor when it comes to trees surviving in very urban settings. Minimum soil volumes are intended to reflect acceptable rooting habitat. This eliminates most urban soils that currently reside under sidewalks, and roads because of the compaction necessary to support pavement, and the absence of oxygen, and moisture exchange. Therefore, in many downtown situations, minimum soil volumes can only be achieved by excavating existing compacted soils, and replacing them with suitable natural or engineered soils. (Engineered soils are mixtures of organic and mineral soils with coarse gravel. The gravel can be compacted to the densities necessary to support pavement, and the soil suitable for root growth fills the large pores between the gravel elements.)
  - C. Minimum Soil Volumes

For single tree planting in pavement cut-outs where no modification is made to soil beyond the planting pit, the following minimum soil volumes are required -

    - 1. Small trees - 200 cubic feet

For example, a 2 foot deep pit must be accompanied by a 10 foot by 10 foot or equivalent opening. The smallest surface dimension must be at least 4 feet.
    - 2. Medium trees - 300 cubic feet

For example, a 2 foot deep pit must be accompanied by a 10 foot by 15 foot or equivalent opening. The smallest surface dimension must be at least 5 feet.

3. Large trees - 400 cubic feet

For example, a 2 foot deep pit must be accompanied by a 10 foot by 20 foot or equivalent opening. The smallest surface dimension must be at least 7 feet.

4. Soil shall be at least 2 feet deep. Soil may be deeper than 3 feet, but 3 feet is the maximum depth that may be used in the calculation of minimum soil volume. For example, a 10 foot by 10 foot opening can yield a maximum of 300 cubic feet of soil volume.

D. Two trees that share soil volume may be planted in a single planting pit without increasing the minimum soil volume required for one tree if above spacing can be achieved. If desired, paving bricks or other permeable surfacing material can be used to cover the central portion of the planting space between the two trees, providing such material allows adequate penetration of air and water.

E. For each additional tree over 2 per planting area, the minimum soil volume requirement increases by 65% of the minimum requirement for one tree. For example, 2 medium-sized trees can be planted in 300 cubic feet of soil. If a third tree were to be added, 65% of the minimum requirement for a single medium size tree (195 cubic feet) would need to be added. The 3 trees would also need to be planted at least 20 feet from each other. Therefore, an excavated planting site 2 feet deep, 5 feet wide, and 50 feet long would accept 3 medium-sized trees.

F. Exceptions to the above soil volume requirements may be made by the City Arborist when trees are being replaced in existing pits and there are no immediate plans or funds available to reconstruct the surrounding sidewalk area.

## **11.0 TREE SPECIES**

The City maintains a list of tree species approved for planting on the City right-of-way. Trees are selected for insect and disease resistance, adaptability to local climate and soils, resistance to ice and wind damage, and sound structure and desirable growth habits.

Please note that any planting on the City right-of-way requires an approved permit (Appendix E).

### **11.1 Desirable Trees**

Lists of allowed tree species and/or their acceptable varieties have been compiled and approved by the City Arborist and the Urban Forestry Commission (See Appendix A, B, and C). Other desirable trees not listed that have good appearance, beauty, and adaptability, and are resistant to injurious insects, diseases or other limitations may be planted on City-owned property with the written consent (Tree Work Permit Application -Appendix E) of the City Arborist.

These lists provide a guide to the most appropriate species for parkways in urban situations. There is no single perfect tree. It is important to match the planting site limitations with the right tree for that spot. Each site must be evaluated and possible restrictions noted. These restrictions include rooting space, soil texture, soil pH, drainage, exposure, overhead wires, and surrounding building surfaces.

To protect City trees from the spread of disease and insect infestations, no single species shall make up more than 6% of the following tree populations:

- 1) Overall street tree population
- 2) Immediate area/s (square block, park, common space)

## 11.2 Undesirable Trees

Undesirable tree species and/or their varieties are covered in Appendix E and shall not be planted on City-owned property.

Per City Code, Title IX, Chapter 99, Article III, § 99.22. "Planting in parkway; certain trees prohibited":

- (a) *No person shall plant or cause to be planted any of the following named trees in any public parkway: American Elm, Moline Elm, Vase and Hollyleaf Elm, Winged Elm, Cottonwood, Mulberry, Weeping Willow, and any class or variety of fruit tree, or any tree listed on the undesirable tree list outlined in the Springfield Arbor-Culture [sic] Specifications Manual (this manual; Appendix D).*
- (b) *No person shall plant or cause to be planted any tree in any public parkway unless such tree be planted in the center of the parkway an equal distance between the outer and inner boundary lines of such parkway.*
- (c) *No person shall plant or cause to be planted in any public parkway less than 4.5 feet in width any tree which is normally expected to reach 30 feet in height at maturity.*
- (d) *No person shall plant or cause to be planted any trees under utility lines that are normally expected to reach 30 feet in height at maturity.*
- (e) *The Director of Public Works and/or the city arborist shall have the power to order the removal of any tree planted in violation of the three preceding divisions on the giving of written notice to the person who planted or caused to be planted such tree. On the failure of such person to remove such tree within a reasonable time after such notice, the Director and/or City Arborist may have such tree removed and such person shall be chargeable with the expense of the removal of the tree. Such expense may be collected by the city by suit or otherwise.*

## **SECTION C EARLY MAINTENANCE**

### **1.0 GENERAL**

Newly-planted trees, shrubs and other plants require special maintenance for the first 3 growing seasons following planting. All maintenance practices shall follow approved arboricultural standards.

### **2.0 STAKING NEWLY PLANTED TREES**

Staking a tree is not recommended except in situations where the tree will not stand on its own, such as in loose sandy soils or windy locations. If staking is used, rubber cords/tubing or flat straps shall be used to avoid girdling the tree.

Hose and wire combinations are prohibited.

All staking should be removed after 1 year so the tree can naturally strengthen with wind movement.

### **3.0 WATERING NEWLY PLANTED TREES**

Correct soil moisture shall be maintained following planting. The amount of water given to newly-planted trees should be carefully measured by slowly applying 1 gallon of water for each diameter inch of trunk every 5 to 7 days when there has been less than ½ inch of rain during that week.

Hot, dry periods (90 plus degrees) or sandy soils may require watering trees every 3 to 5 days to keep soil sufficiently moist. Containerized trees grown in bark mix readily dry out and may require frequent light watering throughout the week during summer months. Adding more than 1 gallon of water per diameter inch is not recommended as this can lead to overwatering, which can drown tender roots. A soil probe can be used to check the moisture in the soil ball and/or backfill.

#### Watering Bags

Utilizing a watering bag drip irrigation system can also be an effective way to protect tree roots from over/under watering. There are two types of watering bags. Pin-hole type watering bags (e.g. Treegator) will release water over several days and should be filled as described above. Emitter type watering bags (e.g., Ooze tube and others) can take several weeks to release water, depending on soil structure. They should be filled after 3/4 of the water has been drained since they never drain entirely.

### **4.0 FERTILIZING NEWLY PLANTED TREES AND SHRUBS**

Fertilization of newly-planted trees and shrubs is not recommended. Adequate quantities of the essential nutrients should be available for new root growth in existing soils. However, proper drainage and adequate moisture of the backfill and

soil ball is essential. To increase vigor of established trees (3 years and older), a pre-approved fertilizer may be applied in the fall or early spring.

## 5.0 MULCHING NEWLY PLANTED TREES

Proper application of mulch is a necessary and cost-effective maintenance activity. Mulch has many benefits, including reducing weed growth in the root zone, protecting the tree trunk and root flare from lawn maintenance equipment, allowing water to move into the soil, reducing evaporation and drought stress, and creating a naturally fertile soil environment. Turf grass typical of parkways competes for water and nutrients, and mulch reduces this competition.



## 6.0 PRUNING NEWLY PLANTED TREES

Pruning of newly-planted trees should be limited to dead or broken limbs for the first 3 years since foliage helps regenerate the root system. Water sprouts should be removed when they reach the diameter of a pencil. Pruning shall be practiced as often thereafter as needed to develop proper branch scaffolding and adequate clearance. Newly-planted trees are to be inspected after 3 years of establishment for corrective pruning.

## 7.0 VINES

Vines or climbing plants (e.g., poison ivy, vinca, etc.) growing into or over any street trees, or any public hydrant, pole, electrolier or sidewalk area are prohibited.

## SECTION D

### TREE PRUNING

#### 1.0 PRUNING - GENERAL

Pruning activities can be generally classified as pruning for hazard reduction, routine maintenance pruning, and horticultural training of small to medium trees. All tree work shall be approved by the City Arborist and be performed in accordance with the latest ANSI A300 (Part 1) pruning standards and ANSI Z133 safety standards. At least one responsible tree worker must be on the ground to coordinate safe operations at each work site during all pruning operations.

##### How Much to Prune

Energy reserves are stored in branches, stems, trunk and roots. Energy reserves shall be preserved by removing the fewest number of live branches necessary to accomplish the desired objective. Species, size, age, condition, and site shall be considered when specifying the location and amount of live branches to be removed. Generally, no more than 10 to 15 percent of a tree's foliage should be removed in one growing season.

##### When to Prune

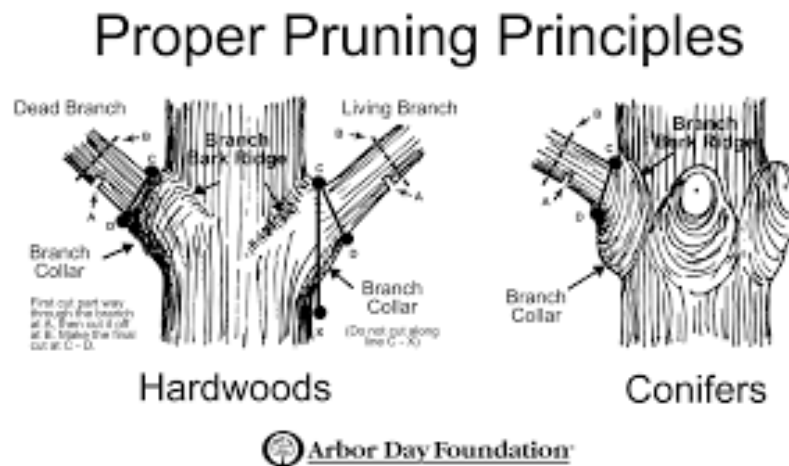
Trees on City-owned property shall be pruned on a 7-year pruning cycle. Removal of dead, dying, diseased, broken, rubbing, and compromised limbs can be accomplished anytime of the season. All other pruning should first be considered to be accomplished during the dormant season if possible and can be scheduled for all other times of the season if necessary with some exceptions. Oak trees located in areas known to have oak wilt and American Elms shall not be pruned after April 1" or before October 1" unless all wounds are treated with proper wound dressing.

- 1.1 All cuts shall be made with a saw or pruner and only at the nodes or just beyond the branch collar. No stubs shall be left.
- 1.2 All large, established trees shall be pruned to adhere to the following clearances to allow free passage of pedestrians and vehicle traffic (also see "Trimming Nuisance" in Section 5-4.0 of this manual):
  - a. Sidewalk clearance for pedestrians and bicycles to a minimum of 10 feet
  - b. Street and alley clearance to a minimum of 15 feet
  - c. Driveway and building clearance to a minimum of 10 feet
  - d. Corrective pruning of trees less than 8 inches in diameter
  - e. Clearance for traffic signage and street lighting
- 1.3 No tree shall be pruned in a manner that impairs its health. The only exception to

this is for emergency relief of an immediate danger to people or property. Any such emergency procedures must be reported promptly to the Arborist with plans for completion or follow-up work submitted for approval.

Any cutting of tree roots shall give due consideration to the future welfare and safety of the tree.

- 1.4 Authority to prune street trees does not include cutting back of sound, healthy tree branches in excess of two (2) inches in diameter (outside bark) unless specifically described and written into the permit by the City Arborist.
- 1.5 When pruning cuts are made to a main branch, the side branch must possess a basal thickness of at least one-third ( $\frac{1}{3}$ ) of the diameter of the main branch. Such cuts shall be considered proper only when the remaining branch is vigorous enough to maintain adequate foliage to produce woody growth capable of healing the cut within a reasonable period of time.



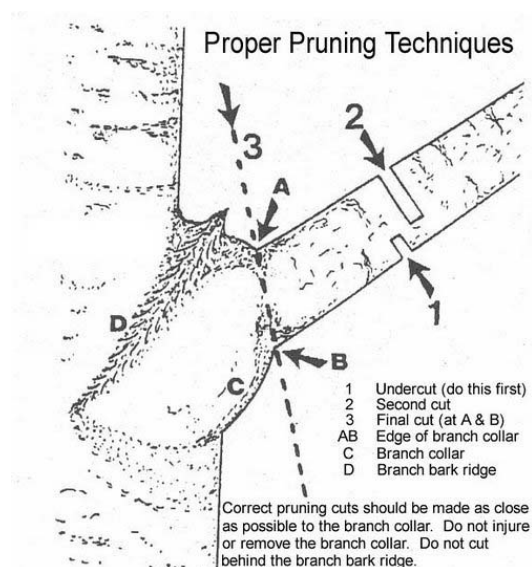
#### 1.6 Final Pruning Cuts

All final pruning cuts shall be made in a manner to favor the least amount of internal decay. Flush cuts which produce large wounds and weaken the tree shall be prohibited. Pruning cuts shall be made just outside the branch collar or above the bark ridge.

#### 1.7 Large Branch Pruning – Jump Cutting

Whenever it is necessary to remove branches too large to hold securely in one hand during the cutting operation, such branches shall be cut in a manner known as a jump cut. The first cut will be from the bottom of the branch upward, one-quarter ( $\frac{1}{4}$ ) to one-third ( $\frac{1}{3}$ ) the way through the branch about eighteen (18) inches beyond the intended final cut. A second cut will be made from the top about two (2) inches beyond the first cut. A third and final cut will be made at the branch collar or bark ridge as described above.





## 2.0 PRUNING TOOLS

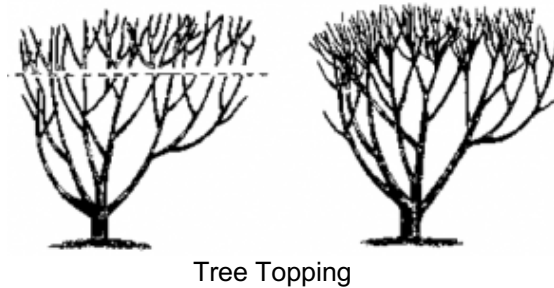
Pruning tools shall be adequate for the size of cuts being made and sharp to make clean cuts without jagged edges or stubs and maintain adjacent bark firmly attached. Equipment and work practices that damage living tissue and bark beyond the scope of work shall be avoided. Climbing spurs are not to be used to climb trees for pruning operations.

All tools used on a tree known to contain an infectious disease shall be properly disinfected immediately before each final cut on a branch and before moving to another tree. Rubbing alcohol, Listerine, Lysol and 10% solution of bleach can be utilized for a disinfectant.

## 3.0 PROHIBITED PRUNING TYPES – POLLARDING AND TOPPING

It shall be unlawful for any person, firm or city department to top, dehorn, tip prune, round over, or pollard any City-owned tree, except by written permission of the Arborist in special circumstances. Proper cabling and bracing shall be substituted for these practices wherever possible

Pollarding is an annual shearing of branches to maintain a specific shape and size. Topping is the cutting of branches/stems to areas between established lateral branches. Both pollarding and topping create stubs, spoils good tree architecture, increase tree maintenance needs and is extremely damaging to shade trees.



## 4.0 PRUNING SYSTEMS AND SPECIFICATIONS

### 4.1 Structural Development Pruning

Structural pruning shall be utilized on young to medium-aged trees to help create a sustainable trunk and branch scaffolding and on large- maturing trees to reduce defects, space main branches along one dominant trunk and subordinate or remove co-dominant stems.

Pruning for structure can take ten to twenty years or more to accomplish.

- A. Clean the canopy by removing dead, broken, diseased, dying and rubbing branches
- B. Prune to develop a dominant leader or leaders in a multi-stemmed tree
- C. Select and establish the lowest permanent scaffold limb (only if tree is mature enough to allow adequate clearance)
- D. Select and establish scaffold limbs by subordinating and or removing competing stems or branches.

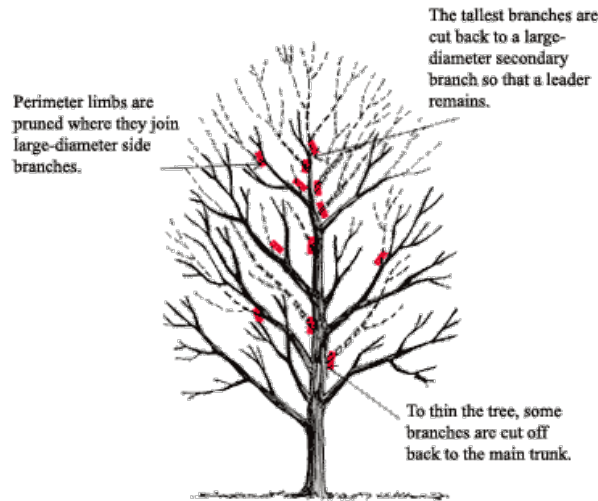
### 4.2 Reduction Pruning

Pruning to Reduce can be utilized when above pruning methods are insufficient for eliminating failure and clearance issues. Reduction pruning is selective removal of branches to minimize risk of failure, reduce tree height or spread for utility line clearance, buildings or other structures.

If the entire crown is to be reduced the reduction shall be accomplished with reduction cuts rather than heading cuts.

When a limb on a mature tree is cut back to a lateral, no more than one-fourth (1/4) of its foliage shall be removed. Reduction pruning of mature trees should target small branches between 1 to 4 inches in diameter.

Not all tree species can tolerate reduction pruning and tree health and species shall be considered by City Arborist before approval of reduction pruning work.



Proper Height Reduction of a Mature Tree

#### 4.3 Pruning to Remove Non-Beneficial Parts

Pruning to remove non-beneficial parts shall be utilized for selective removal of dead, diseased, detached, damaged and broken branches.

- A. Fine Prune for trees 8 inches in diameter or less or any other tree as determined by the City Arborist.
- B. Medium Prune for trees in excess of 8 inches but less than 25 inches or any other tree as determined by the City Arborist.
- C. Coarse Prune for trees in of 25 inches in diameter or any other tree as determined by the City Arborist.

At a minimum all dead branches over two (2) inches in diameter shall be removed.

#### 4.4 Pruning to Reduce the Density of Live Branches

Pruning to reduce the density of live branches shall be utilized for limited purposes for selective removal of small live branches (1/4" to 1" in diameter) to reduce crown density. Larger diameter branches and or branches on the lower two-thirds of a stem shall not be targeted for this type of pruning to avoid large gaps in the crown and adverse effects on the tree from lion tailing. Percentage of removed foliage shall be limited to ten to fifteen percent for any one pruning. Special circumstances can justify removal of up to 25 percent of the foliage with City Arborist approval. Pruning to reduce the density of live branches shall be focused on the outside edge of the crown, retain crown shape and provide an even distribution of foliage throughout the crown. This type of pruning can include sucker removal from the base of the tree and some water sprouts on the interior. Care shall be exercised to not remove all water sprouts as excessive removal of water sprouts often produces more water sprouts.

#### 4.5 Pruning for Clearance

Pruning to raise shall be utilized for selective removal of branches to provide clearance over streets and street signs, sidewalks, driveways, buildings and other. Excessive removal of lower limbs shall be avoided to limit adverse effects to trunk taper, decay and unbalanced weight distribution. Live crown ratio (the ratio of crown length to total tree) should be no less than 66 percent when raising is complete. Special circumstances can justify a crown ratio of between 66 and 50 percent with City Arborist approval. Structural pruning should be considered along with raising the crown.

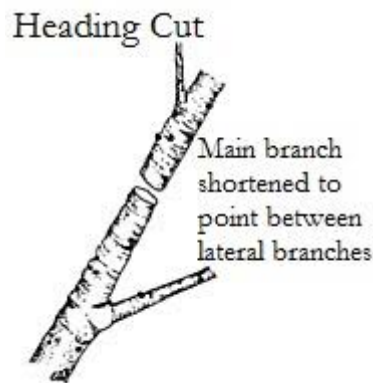
#### 4.6 Restoration Pruning

Pruning to restore shall be utilized for restoration of damaged trees. Pruning shall be the selective removal of branches, sprouts and stubs from trees that have been severely topped, severely headed, vandalized, lion-tailed, broken or otherwise damaged. The goal of restoration is to improve a tree's structure, form or appearance. Selective sprout removal/retention may be used to rebuild the structure of broken or headed branches. Generally no more than 1/3<sup>RD</sup> of the sprouts on damaged limbs are to be removed in any one growing season if the damaged limb is to be preserved.

### 5.0 **PROHIBITED PRUNING CUTS**

#### 5.1 Heading Cut (Topping Cut; Looping Cut)

A heading cut is a cut made between branches. Heading cuts are not allowed on public trees.



#### 5.2 Flush Cut

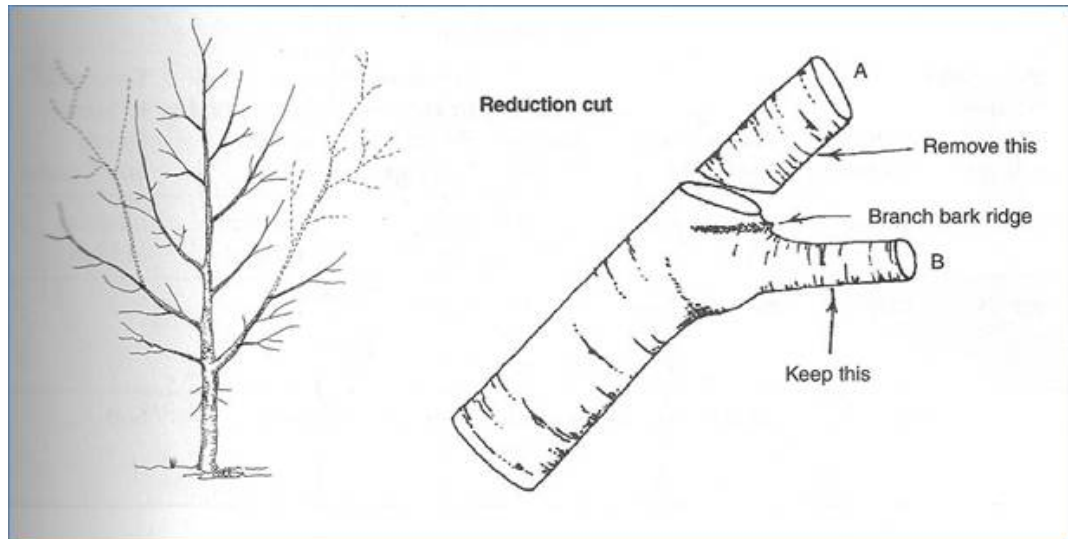
A flush cut is a pruning cut that removes the branch bark ridge and/or branch collar, damaging the trunk or parent branch and is, thus, prohibited on public trees.

### 6.0 **PERMISSIBLE PRUNING CUTS**

The smallest diameter cut that meets the objective should be preferred. The number and size of cuts that expose heartwood should be minimized. Branches shall be precut when necessary to avoid splitting of the wood or tearing of the bark.

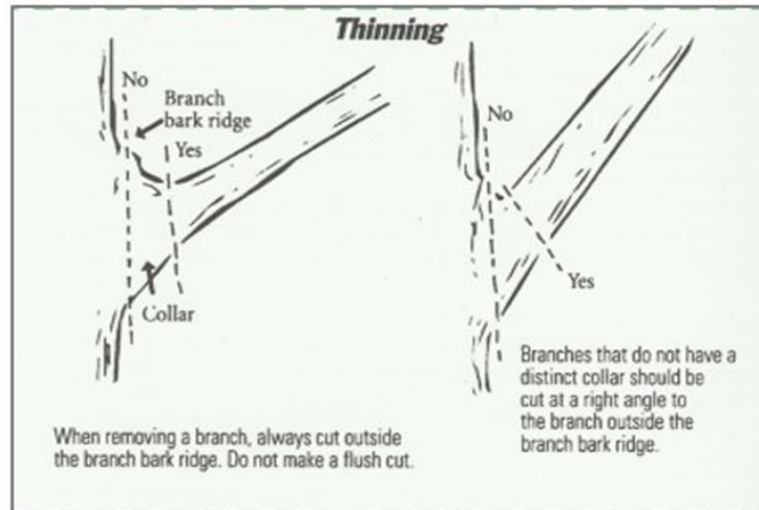
### 6.1 Reduction Cut (cutting to a lateral, lateral cut, Drop-crotch cut)

Is the shortening of limbs or branches back to a lateral branch that is of similar size to one half the diameter of the removed limb. Reduction cuts shall not be made when remaining lateral branches are less than one third the size of the removed limb. Tree species and tree condition should be considered when utilizing reduction cuts. Old and or stressed trees may decline if too much foliage is removed.



### 6.2 Branch Removal Cut (Thinning Cut)

Is the removal of a branch at its point of origin on a trunk, stem or larger branch. Cuts shall be made as close to parent limb or trunk as possible without cutting into branch bark ridge or branch collar and without leaving a stub. Large or heavy branches should be removed using three cuts. The first cut undercuts the limb 1 to 2 feet out from parent limb to reduce the potential for tearing bark as limb is removed. The second cut is a top cut which is to be made slightly farther out from the undercut or on small limbs directly above the undercut. The third and final cut is to remove the remaining stub carefully without tearing the bark below the cut. With dead branches the final cut shall be made just outside the collar of living tissue. Large trees may need to have branches lowered rather than dropped to reduce damage to tree, property, pavement, buildings, signs, landscape and or other objects below.



## 7.0 TREATING WOUNDS

Ensuring a proper pruning job will speed the healing process of the tree. Trees have their own defense mechanisms and will heal the pruning wound on their own so long as the reproductive cells in the ridge and collar are not damaged.

Wound dressing is generally not required or recommended. However in certain circumstances a non-phytotoxic wound dressing may be required to reduce the likelihood of borer infestation and the spread of oak wilt and Dutch elm disease in specific trees. The City Arborist shall determine when wound dressing would be required for covering pruning cuts and for what trees. Wound dressings with sprout inhibitors can also be utilized for deterring sprout production in certain tree species.

## 8.0 PRUNING DEBRIS

It is prohibited to leave any severed or partially cut branches in the upper portion of any tree being worked on.

Clean-up of branches, logs or any other debris resulting from tree pruning or removal shall be promptly and properly accomplished. The work area shall be kept in a safe condition at all times. Under no condition shall the accumulation of brush, branches, logs or other debris be allowed upon public property in such a manner as to create a public hazard.

## 9.0 TREE PRUNING CONTRACTS

For tree pruning contracts issued by the City, bid specifications shall include minimum or maximum diameter branches to be removed. Pruning objectives will also be stated to provide a clear understanding of the results desired by the City of Springfield. Detailed pruning specifications are contained in the current version of the ANSI A300 Tree Care Standards and the most current edition of "Best Management Practices - Tree Pruning" published by the International Society of

Arboriculture. These standards are to be followed in all pruning activities performed on City trees. The above are available online at:

- [www.tcia.org](http://www.tcia.org)
- <http://www.isa-arbor.com/store>

## **SECTION E MATURE TREE MAINTENANCE**

### **1.0 SPRAYING**

- 1.1 All personnel involved with spray application shall have appropriate and current State of Illinois Pesticide Licenses.
- 1.2 The person applying pesticides must know and understand the characteristics of the materials they are applying and follow the recommendations of the manufacturer.
- 1.3 All spray applications shall be made in accordance with the pesticide label or specific recommendations of the Illinois Department of Agriculture (<https://www2.illinois.gov/sites/agr/Pesticides/Pages/Pesticides-Uses-Misuses.aspx>). A copy of the label of each chemical that is being applied shall be kept with the spray equipment for inspection by the Arborist.
- 1.4 Spray equipment shall be kept clean and in proper working order. The Arborist or their representative may inspect same at any time and take samples of spray materials being applied.
- 1.5 Suitable precautions shall be taken to protect and warn the public that spraying is being conducted.
- 1.6 Spraying shall be done only for the control of specific diseases or insects, and be applied at the proper time to obtain control. When spraying, steps shall be taken to ensure that weather (e.g., rain) and irrigation won't increase the risk of water pollution.
- 1.7 Operation with leaking tanks or equipment is prohibited. Washing out or draining of spray equipment on public property or contamination of public sewers or gutters is prohibited.
- 1.8 No spray application shall be carried out when the wind is over five (5) miles per hour or if the application will create a hazard to persons, plants or property.
- 1.9 No spraying shall be conducted when the air temperature is less than forty (40) or over eighty-five (85) degrees Fahrenheit without the approval of the Arborist.

### **2.0 FERTILIZATION**

- 2.1 Fertilization of City-owned trees should be done according to ANSI A300 Soil Management Standard (Part 2). ANSI A300 is the tree care industry's standards for tree maintenance and contains information about soil reaction (pH) adjustment, fertilization practices, and calculations for fertilization area and fertilization applications.

Note: The fertilization section of ANSI A300 recognizes and provides standards for basic fertilization methods including:



- Surface fertilization: The application of dry fertilizer on the soil surface.
- Subsurface dry fertilization: The application of dry fertilizer below the soil surface.
- Subsurface liquid fertilizer injection: The application of liquid fertilizer below the soil surface.
- Alternative fertilization: A number of techniques that may include spraying a liquid directly on the foliage, injecting a liquid directly into the plant, or implanting a solid directly into the plant.

2.2 Methods of application of fertilizers shall be specified by the Arborist.

### **3.0 TREE CAVITIES**

3.1 Extensive cavity work shall be performed only if the trees are of sufficiently high value to justify the cost.

3.2 The Arborist must give approval of the methods used in any cavity work.

### **4.0 TRIMMING NUISANCE**

Per City Code, Title IX, Chapter 99, Article III, § 99.20 "Trimming; nuisance"

- (a) Any limbs and foliage of trees planted on any premises that abuts any street, alley, or sidewalk that is not trimmed at least 10 feet above the ground of a sidewalk and 15 feet above any street or alley, or any similarly planted vegetation that hinders, obstructs, or endangers the passage of persons or vehicles along any street, alley, or sidewalk so as to obstruct the view of any traffic control sign or electronic device or the illumination of any public street light by any person traversing any street, alley, or sidewalk is declared to be a nuisance.*
- (b) Any owner, occupant, or person having control over any premises that abuts any street, alley, or sidewalk that is in the condition described in subsection (a) shall trim the same. Any owner, occupant, or person having control that does not trim may be served with a health violation ticket as provided for in Chapter 95 of this Code.*
- (c) Any person violating the provisions of this subchapter shall be liable to the city and to private persons or entities for any injury or damage arising therefrom.*

Cost When Done By City: Per City Code § 99.21:

*Where the owners, occupants, or persons having control as described in section 99.20 fail to promptly comply with its provisions after being given notice by the city, the city traffic engineer shall cause the required trimming to be done at city expense and the city may recover the cost by bringing suit against that person.*

## **SECTION F TREE PROTECTION**

### **1.0 CABLING AND BRACING**

Tree cabling and bracing is the installation of flexible steel strand cables and braces in trees to reduce stress damage from high winds, the weight of ice or snow and heavy foliage. Cabling and bracing help strengthen weak branches or limbs so that they are better able to withstand severe weather and to improve their longevity and reduce potential risk.

- 1.1 All cabling and bracing practices shall be in accordance with the most recent edition of ANSI A300 Tree Care Standards (Part 3) - Supplemental Support Systems.
- 1.2 City-owned trees shall not be cabled under electrical lines without the permission of the Public Utility Engineer.

### **2.0 LIGHTNING PROTECTION**

- 2.1 The objective of a tree lightning protection system is to provide a preferred path to ground for the electrical charge; protected trees shall not be considered a safe haven from lightning strikes. The only reason for installing a tree lightning protection system is to reduce the risk of damage to trees from lightning strikes.
- 2.2 All lightning protection installation to City-owned trees shall follow the most recent edition of ANSI A300 Tree Care Standards (Part 4) - Lightning Protection Systems standard.
- 2.3 City-owned trees shall not have lightning protection installed in them under electrical lines without the permission of the Public Utility Engineer.

### **3.0 TREE PROTECTION PLANNING**

- 3.1 Site or landscape plans involving public property shall show all existing trees. Every effort shall be made to preserve desirable trees as part of the design process. Trees to be saved or removed shall be clearly marked on both the plan and at the job site.
- 3.2 Curb cuts shall be no closer than ten (10) feet from the trunk of the tree. New sidewalks, paving, or asphaltting must allow adequate breathing space for tree roots. Paving or asphaltting shall be kept out of the drip line and no closer than 6 feet from the existing tree trunk.
- 3.3 Any City-owned trees designated to be saved at a construction site that are then destroyed or removed from a planting site for any reason, including vandalism, from the time the project specifications are let until the project is completed shall be replaced by the contractor on the basis of stem replacement equivalent, as described in the most recent version of the Illinois Department of Transportation's Standard Specifications for Road and Bridge Construction. The contractor shall be responsible for any tree that is damaged but not destroyed to the extent of the fair - appraised value of said damage.

- 3.4 Plans for protection of all City-owned trees, as approved by the Arborist, shall be incorporated into the City's plans and specifications for all new construction, repair or maintenance of public structures or improvements.
- 3.5 The possibility of damage to trees and the anticipated future pruning cost must be included in the decision as to the location of public utilities.
- 3.6 Tree Protection During Private Construction

It shall be the responsibility of the property owner to make sure all public right-of-way trees are protected from soil compaction under the canopy and damage to roots, trunk and branches during private construction.

#### **4.0 TREE PROTECTION IN CONSTRUCTION ZONES**

Because of limited available space, urban trees frequently encounter other elements of the infrastructure such as curbs and sidewalks. Tree roots can sometimes cause damage to existing hardscape. On other occasions, construction of new curbs or sidewalks, or repair to existing curbs or sidewalks, can damage trees. It is important to the City that solutions be developed to minimize these conflicts so that the health of the urban forest is maintained, while providing economically feasible alternatives for maintaining safe roads and sidewalks.

Improper excavation of soil adjacent to trees can result in severe damage to the structural roots that support the tree. Roots that are broken and splintered by power equipment such as backhoes serve as entry ports for decay-producing fungi that further weaken the support of the tree. If the damage from excavation is severe, the tree is in danger of being uprooted in a wind storm.

##### **4.1 Above Ground Tree/Shrub Protection**

The contractor or permit holder shall be responsible for protecting all public trees and shrubs located on the public right-of-way. Existing trees/shrubs subject to construction activity shall be boxed, fenced or otherwise protected before any work is started.

The trees/shrubs to be protected, the method of protection, and the dimensions involved shall follow the guidelines of ANSI A300 (12-18 inches per diameter inch of the tree trunk) or if special conditions warrant adjustment, be determined by the City Arborist in conjunction with the contractor or permit holder.

Once assembled, no boxing, fencing or other protection device shall be removed without prior approval of the City Arborist and there shall be no construction activity or material within the enclosure.

##### **A. Shrubs and Small Trees**

Shrubs and small trees shall be boxed or fenced in such a manner as to encompass the entire drip line area of the tree (Figure 1). In no case shall the enclosure be less than 4 feet from the center line of the tree.

## B. Medium to Large Trees

Medium to large trees shall be boxed or fenced in a manner to encompass as much of the drip line area of the tree as possible as determined by property and right of way boundaries (Figure 2). In no case shall the protective device be closer than 12 feet from the center line of the tree except in those portions bordered by the public sidewalk or curb, in which case the protective device shall be offset 1 foot wherever possible.

### Minimum Fencing Distances

Tree Diameter (DBH)	Distance of Fencing From Tree Trunk*
Up to 4 inches	Min 4 feet
4.1 - 9 inches	Min 6 feet
9.1 - 14 inches	Min 12 feet
14.1 - 19 inches	Min 16 feet
19.1 and greater	Min 20 feet

\*Minimum distances listed are required unless waived by City Arborist. If available space permits greater distances for tree protection a distance of one foot from tree trunk for every one inch in tree diameter is preferred but not required.

### Minimum Fencing Requirements

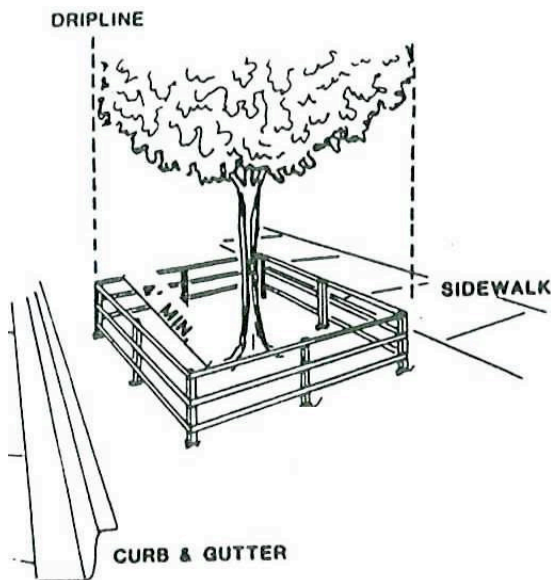


Figure 1. Small Trees

#### 4.2 Critical Root Zone

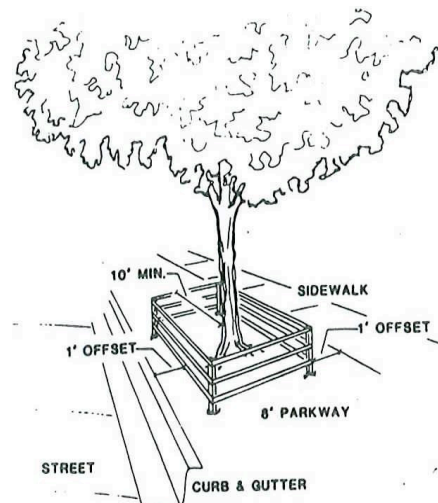
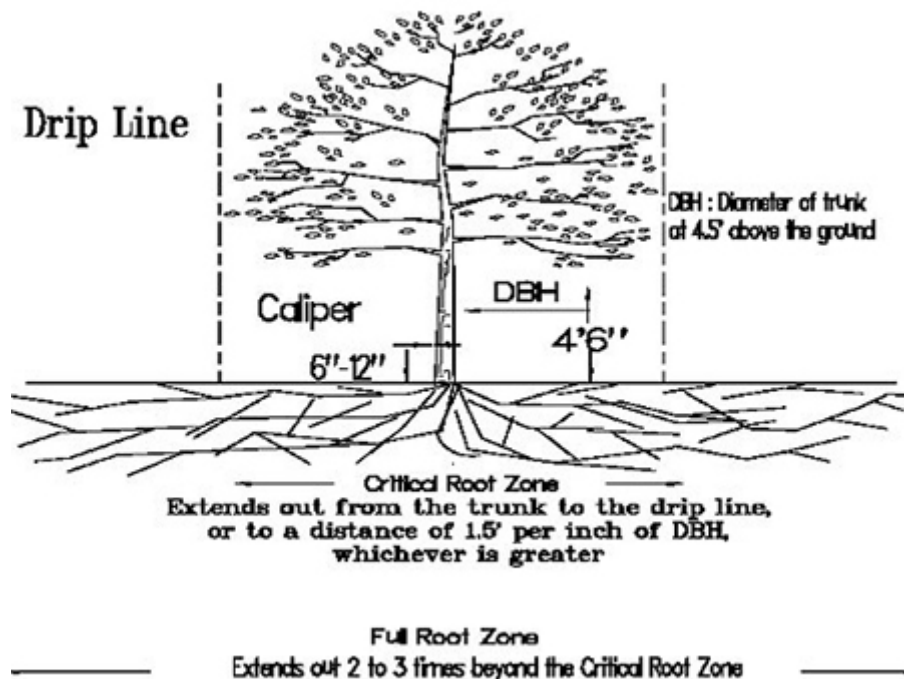


Figure 2. Medium to Large Trees

To prevent unnecessary damage to existing public trees during construction, proper tree protection guidelines must be followed, particularly in the root zone where major support roots securely hold the tree in the soil. This Critical Root Zone

(CRZ) is defined as the entire ground area within the vertical projection of the crown of a tree. This is also commonly referred to as the area within the drip line of a tree or to a distance of 1.5' per inch of DBH, whichever is greater.

Heavy excavating equipment such as backhoes should not be used to excavate soil or dig trenches in the Critical Root Zone. All soil excavation needed within the Critical Root Zone should first be attempted by hand. Exceptions to the above shall include emergency utility repair, exceptionally rocky conditions or open access for tunneling equipment when there are no reasonable alternatives. Other exceptions shall be granted only with written permission from the Director of Public Works or designee.



#### 4.3 Root Pruning

##### 4.3.1 Pre - Construction Root Pruning

During construction activities there may be times when in the opinion of the Director of Public Works or designee, it is not possible to entirely avoid trenching or excavation within the Critical Root Zone. In such instances the Director of Public Works or designee may require the permittee to perform pre-construction root pruning. This shall be accomplished according to the following standards:

- Trenches shall be in line with tree trunk whenever possible
- All sides of trench likely to have bisecting roots shall be targeted for pre-excavation root pruning.
- Roots shall be pruned 3-6 inches closer to the tree than the limits of excavation.
- Depth of pruning shall be at least 18 inches but ideally 24 inches, however, pruning shall be no deeper than the depth of the planned excavation.

- Roots shall be cut off cleanly by hand, or using power equipment specifically designed to cleanly cut roots (shredding or ripping roots damages root tissue and hinders regeneration).
- Roots shall be pruned during the dormant season whenever possible.
- Trenches shall be immediately backfilled to prevent drying out of roots.

#### 4.3.2 Root Pruning During Construction

All tree roots greater than 2 inch in diameter that are encountered in any construction process shall be cut cleanly with an appropriate saw or pruning shear or other tool specifically designed for cutting wood. Axes or other such chopping tools should not be used, nor should shovels or other tools designed for digging.

## 5.0 CURB INSTALLATION

### 5.1 Soil Excavation Inside the Critical Root Zone

The installation of new or replacement curbs requires the excavation of soil. When soil excavation occurs inside the Critical Root Zone of a tree, the following guidelines shall be used:

Excavation shall not disturb the soil beyond 12 inches from the back side of the curb to be installed. This allows sufficient room for a 12-inch bucket to be used on a backhoe, for a back form to be installed, and for curb installation equipment to operate.

- 5.1.1 All tree roots greater than 2 inch in diameter that are encountered in the excavation process shall be cut cleanly as described in Section 4.3 above. Pre-construction root pruning may be required as specified in Section 4.3.1 above.

### 5.2 Curb Forms

Curb replacement adjacent to significant trees, as designated by the City Arborist, may be installed without the use of a typical wood back form. Options may include metal angle irons placed on top of the adjacent undisturbed ground as a back form.

A front form may be another option in those instances when conventional curb installation techniques might cause unacceptable damage to a significant tree's root system.

The Director of Public Works or designee and the Assistant City Engineer shall have the authority to determine the placement and form of new curbs and the need for replacement curbs, while the City Arborist shall provide advice on tree protection during curb replacement.

## 6.0 SIDEWALK AND DRIVEWAY INSTALLATION AND REPLACEMENT

When conflicts arise between tree roots and existing pavement, it is advisable to look for solutions that minimize damage to tree roots while providing a smooth

walking surface for pedestrians. Removal of large support roots should be avoided. Without adequate support from structural roots, trees become increasingly at risk of falling, particularly during heavy winds. Removal of large roots may also severely stress an otherwise healthy tree, increasing the risk of disease or pest infestation. The mitigation of uneven sidewalks in a manner that produces additional hazards in the form of structurally unsound trees is not acceptable.

It may not always be necessary to replace a damaged sidewalk at the same grade or in the same position that the original sidewalk occupied. When possible, replacement sidewalks should be routed further from the root collar of the tree than the original sidewalk. While this may deviate from a straight pathway, the additional space will allow for future root growth without resulting in future pavement heaving.

Occasionally, re-routing sidewalks may require obtaining an easement from the adjacent landowner.

When large roots are present at the surface, it may be possible to raise the grade in the location of the replacement sidewalk. Adding a ramp of soil along the edges of the replacement sidewalk that slopes to the grade of adjacent turf will prevent tripping on or falling off of the new sidewalk.

Other alternatives include using smaller panels of concrete with expansion joints or narrowing the width of the sidewalk pavement in the area of the root crown. However, pavement must be of sufficient width (minimum of 4 feet wide) to accommodate a wheelchair.

Whenever possible, installation of new driveways or widening of existing driveways should not be performed within a tree's Critical Root Zone. If, in the opinion of the Public Works Director or designee, that is not feasible, the pavement should be installed no closer to the tree than the minimum distances shown in Appendix B (Tree Protection Zone) for trees 10 inches in diameter and over. For example, the pavement should be no closer than 15 feet from the center of a 20 inch tree.

Distances less than those shown on the table will be permitted only with written permission of the Director of Public Works or designee. To prevent future damage to the pavement by the tree, in no case shall the minimum distance between a tree and the new pavement be less than 6 feet.

Whenever possible, replacement or installation of pavement that requires cutting of tree roots should be conducted in early spring and concluded by mid-Summer to allow maximum root recovery before dormancy.

## **7.0 CHANGES TO EXISTING GRADE**

Changes to original grade inside the Critical Root Zone shall be avoided when there are reasonable alternatives. If such changes are unavoidable, consideration should be given to installation of retaining walls on cuts or wells in fills. This will minimize root cutting and keep the base of the trunk at the original ground level.

## 8.0 INSTALLATION OR REPAIR OF UNDERGROUND CABLES AND PIPES

All underground installations or repairs of utility or communication cables or pipes, including sprinkler or irrigation systems upon the public right-of-way, and outside of a city/utility license agreement, are subject to approval by the City. Any and all installations or repairs that may affect public trees due to underground conflicts (roots) are specifically subject to the review and approval of the City Arborist before the project starts.

## 9.0 TRENCHING AND TUNNELING

### 9.1 Tunneling

Where there is insufficient space for trenching to bypass the Critical Root Zone of trees, tunneling shall be used in place of trenching. In no case shall the top of the tunnel be less than 2 feet in depth. When the tunneling procedure is required, the distance of the tunnel from the center of the tree is determined by the diameter of the tree 4 1/2 feet above the ground line (DBH). Unless otherwise specified, all dimensions apply as listed below\*.

Tree Diameter (a) (at 4 1/2 feet above ground)	Distance of trenching from tree trunk (b)	Recommended depth of tunnel or trench (c)
Up to 4 inches	Min 4 feet	24 inches
4.1 - 9 inches	Min 6 feet	30 inches
9.1 - 14 inches	Min 12 feet	30 inches
14.1 - 19 inches	Min 16 feet	36 inches
19.1 and greater	Min 20 feet	36 inches

\*Minimum distances listed are required unless waived by the City Arborist. If available space permits greater distances for tree protection, such as to the drip line, are preferred but not required.

### 9.2 Authority to Determine Trenching Necessity

It is recognized there may be situations where utilities must be installed or repaired within a tree's Critical Root Zone, and trenchless excavation is not practical or possible. Examples could include emergency repair, exceptionally rocky conditions or cases where a pit must be excavated within the Critical Root Zone to receive tunneling equipment.

The Director of Public Works or designee shall have the authority to determine whether trenchless excavation is impossible, in which case permission to proceed may be granted under the following conditions:

- A. The Director of Public Works or designee will determine the location and size of the pit or trench.
- B. Pre-construction root pruning may be required as in Section 4.3 above.



- C. Any roots encountered during construction must be cleanly cut as described in Section 4.3 - Root Pruning (above).
- D. All trenches/excavations shall be backfilled as soon as possible to prevent roots from drying out.

### 9.3 Utility Installations (Underground)

All installations of underground utilities upon the public right-of-way are subject to approval by the City. Any and all installations that impact on public trees due to underground conflicts (roots) are specifically subject to the review and approval of the City Arborist before the project starts.

Trenching and Tunneling - Open trenching in the root zone of public trees is prohibited unless it falls outside the drip line of a tree's canopy (Figure 1 below). All trees where there is insufficient space to bypass the drip line by trenching must be tunneled. In no case shall the tunnel be less than 2 feet in depth. When the tunneling procedure is required, the distance of the tunnel from the face of the tree is determined by the diameter of the tree 4 1/2 feet above the ground line. Unless specified otherwise by the City Arborist, all dimensions apply as illustrated in Figure 2 below and in accordance with the Table listed in Section 9.1 above.

Since the cutting of larger roots is unavoidable in a trenching operation, all roots over 2 inches in diameter must be cut cleanly. All trenches should not stay open longer than necessary and must be properly barricaded.

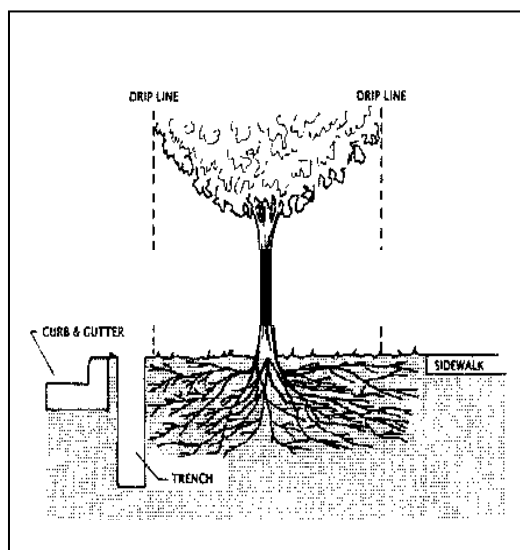


Figure 1  
Small Trees – Trenching Requirements

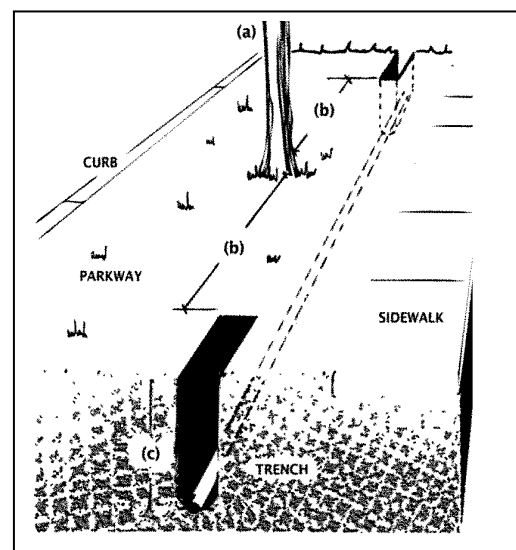


Figure 2  
Medium to Large Trees  
Trenching & Tunneling Requirements

### 9.4 Current Utility License Agreements

Current utility license agreements with the City of Springfield supersede the

Springfield Arboricultural Specifications trenching and tunneling standards.

9.5 Augering

Tree root zones shall be protected by augering in the manner described below. Tree diameter is measured 4 1/2 feet above the ground. The minimum depth of auger within the tree protection zone, as defined above, shall be 24 inches below the soil surface. No trenching within the protection zone of the tree shall be permitted.

Tree Diameter	Augering Instructions
Up to 4 inches	Auger 4 feet from the face of tree in all directions if trench will be located within or intersect this radius.
4.1 - 9 inches	Auger 6 feet from the face of tree in all directions if trench will be located within or intersect this radius.
9.1 - 14 inches	Auger 12 feet from the face of tree in all directions if trench will be located within or intersect this radius.
14.1 - 19 inches	Auger 16 feet from the face of tree in all directions if trench will be located within or intersect this radius.
19.1 or greater	Auger 20 feet from the face of tree in all directions if trench will be located within or intersect this radius.

## **SECTION G TREE REMOVAL**

### **1.0 AUTHORITY FOR REMOVAL OF CITY TREES**

Unless otherwise noted in City Ordinance, the only person who may authorize the planting or removal of a City tree is the City Arborist. Accordingly, a City tree may be considered for removal if it is deemed by the City Arborist to constitute a public nuisance or hazard. In consultation with the Urban Forestry Commission, the City Arborist shall determine whether to grant authority for tree removal.

### **2.0 PUBLIC TREE HAZARD/PUBLIC NUISANCE TREE**

The below constitutes a public tree hazard or public nuisance:

- A. Any dead or dying tree.
- B. Any otherwise healthy tree that harbors insects or diseases that could reasonably be expected to seriously injure or harm any other tree.
- C. Any tree which, by reason of location or condition, constitutes an eminent danger to the health, safety or welfare of the general public. In the category of dangerous or hazardous, high or extreme risk trees are those with observable, critical structural defects that could cause the tree to fail during periods of stress, i.e., wind or ice storms. Included are extensive rot or cavity formations, weak forks or crotches and/or other characteristics that would impose an immediate liability on the City.
- D. In an emergency situation such as a tree impacting a person, vehicle, home, power lines, or other such emergency, the City may perform any actions necessary to abate public hazards so long as they are in compliance with all relevant Arboricultural standards and practices
- E. Per City Code, Title VII, Chapter 72, Article 1, § 72.19. "Authority to limit traffic obstructions by trees and shrubs":

*If any trees, shrubs, bushes, weeds, or plants shall be permitted to grow upon premises adjacent to a street in a manner as to obstruct the view of any traffic-control device or sign or the view of traffic by pedestrians or drivers and endanger traffic conditions, it shall be considered a nuisance and the city traffic engineer may remove or eliminate the obstruction.*

- F. Per City Code, Title V, Chapter 50, Article 1, § 50.23. "Removal of obstructing trees or branches."

*The electric division shall have power to remove or cause to be removed any trees or branches on any street, avenue, or alley in any way obstructing or interfering with the installation of any portion of the system of such department or its proper maintenance and operation. The division shall also have the power to remove any trees or branches in the vicinity of any electrical service if such trees or branches threaten the reliability of any customer service, along those portions of the service lines under the control or owned by the utility.*

2.1 Not included in the definition of a tree as a public nuisance or immediate hazard are the following:

- A. Species of trees currently classified as undesirable and thereby prohibited from being planted on City-owned property, as listed in Appendix D with the following exceptions:
  - 1. Any individual tree listed in Appendix D that is declared a public nuisance by the City Arborist that meets the specification for removal as previously identified.
- B. Individual trees, regardless of species or kind, which pose either an imminent or potential hazard for which corrective action can be taken.
- C. Trees that constitute an inconvenience to the public by virtue of leaf, twig or fruit drop; that act as sources of allergies; that cause root blockage in sanitary or storm tiles; that are subject to diseases or insect problems which cause only minor harm to trees.
- D. Trees that constitute an inconvenience to the public by virtue of their location, except those public trees that pose serious obstruction problems in terms of egress or access to private property or new construction projects or the alteration of established private facilities.

The removal of a public tree for purposes of accommodating private facilities will not be sanctioned unless the following conditions have been satisfied:

- 1. There are no other reasonable design alternatives.
- 2. The value of the tree(s) in question has been determined by the City Arborist.
- 3. The City must be compensated for the loss of the tree(s) by the property owner before removal is approved and undertaken.

### **3.0 AUTHORITY TO REMOVE TREES ON PRIVATE PROPERTY**

- A. When necessary for the immediate preservation of the public health or safety, the City Arborist may cause or order the removal of any tree or part hereof on private ground which is in an unsafe condition, or which by reason of its nature is injurious to sewers or other public improvements, or which is affected with any injurious fungus, insect or other pest which may spread to public or other private property.
- B. The City will notify in writing the owners of such trees (via mail, door drop, etc.). Removal, including the stump, shall be done by said owners, at their own expense, within fifteen (15) days after the date of service of notice. In the event of failure of owners to comply with such provisions, the City shall have the

authority to remove such trees or limbs and charge the cost of the removal to the property owner, and, in the event that such cost of removal remains unpaid for sixty (60) days, the cost of the removal shall be added to the owners next City property tax bill.

- C. In the event of an emergency situation, or in other situations where a tree is found to be in a state which could potentially cause immediate harm to life or property, the City has the right to order the immediate removal of the tree. In such cases, the property owner shall immediately remove the tree. If the property owner is unable or fails to immediately respond, the City has the option to remove the tree and charge the cost of the removal to the property owner, and, in the event that such cost of removal remains unpaid for sixty (60) days, the cost of the removal shall be added to the owners next City property tax bill.
- D. In the event that a tree requiring removal is found to be planted on a property line shared with the City, a determination shall be made by the City as to the percent of ownership for both the City and the private party involved. The City will then remove the tree at its expense and charge a portion to the shared owner based on the percentage as determined above.

#### **4.0 TREE REPLACEMENT REQUIREMENTS**

- A. Each tree removed or destroyed shall be replaced with the minimum number of trees necessary to achieve an equivalent amount of trunk diameter of those removed or destroyed. Replacement shall be at a ratio of 1 to 1, meaning 1" DBH (diameter at breast height) shall be replaced with the same number of inches.
- B. If the City Arborist determines that it would not be consistent with best arboricultural practice to plant replacement trees on the parcel from which trees were removed, then an amount of money equal to the value of the replacement trees shall be deposited into a tree bank replacement fund. This fund may only be used for the planting of trees on public property.

## SECTION H PROPER UTILITY TREE CARE PRACTICES

### 1.0 TREES AND UTILITY SERVICE LINES

Trees and utility service lines are integral components of every community. By necessity, they must co-exist in close proximity, and each in its own way is essential to our high standard of living. The City of Springfield promotes the dual goals of dependable utility service and abundant, healthy trees in the community.

The Department of Public Utilities – Electric reserves the right to trim or remove any tree which creates a line-clearance hazard as defined by the National Electric Safety Code, or if it is deemed to in any way provide a non-safe working condition for the public utility service provider or if it is deemed to in any way provide a potential safety hazard to the general public.

- 1.1 All utility pruning is to be done pursuant to the pruning practices of ANSI A300 standards for Tree Care Operations and the practices set forth by Dr. Alex L. Shigo in his Field Pocket Guide for Qualified Line-Clearance Tree Workers. The utility and its contractor shall have sole responsibility for pruning around electrical conductors as required in ANSI Z133 safety standard. The amount of trimming will depend on the specific species and site conditions. It shall be the responsibility of the utility and the line trimming contractor to properly train the line clearance workers in the trimming methods required by this manual and the ANSI 300 standards before they begin to conduct actual pruning operations.
- 1.2 Tree spikes (hooks, irons, gaffs) shall not be used during pruning operations.
- 1.3 Pruning practices of rounding-over, tip pruning or pollarding are prohibited. Limbs may be cut at the first suitable lateral beyond the clearance limit. Pruning cuts beyond the first suitable lateral shall be approved by the City Arborist or designee. Under no circumstances shall a tree be “topped” except under special circumstances to be determined by the City Arborist.
- 1.4 Trees will be pruned by natural pruning methods in relation to the individual species rate of growth, strength of wood, natural habit, and line voltage.
- 1.5 Trees with trunks located under utility lines and capable of growing to a height which will be well in excess of the conductors shall be “Thru” or “V” trimmed. Sound scaffolding (with wide branch angles and sound wood) must be developed, particularly if the tree has been previously topped, rounded-over, or pollarded. Once proper scaffolding has been developed, subsequent cuts will remove only new growth and not involve major reshaping.
- 1.6 Trees with trunks adjacent to, but not positioned under wires shall be side-trimmed to produce good scaffolding and sound wood and direct future growth away from energized lines. The highest possible bud count shall be maintained above and away from the wires so that a minimum amount of regrowth will develop away from the wires. Branches growing on the side of the tree away from wires shall not be pruned unless there is an obvious and immediate hazard.
- 1.7 Slow-growing tree species not capable of growing to a height greater than the

conductors shall be pruned by drop-crotch trimming. Those branches likely to interfere with conductors within three (3) years will be cut back to a side branch one-third (1/3) or more the diameter of the branch to be removed. The final cut will be made just above and parallel, but not through, the branch bark ridge. The side branch must have a good chance of survival and be left with the highest possible bud count to reduce suckering and ensure survival. The natural shape of the tree is to be retained as much as possible.

- 1.8 No more than 25% of the canopy shall be removed from the tree within an annual growing season. Excessive clearances will not be performed. The City Arborist must be notified and provide approval if trimming will result in more than 25% of a tree's existing canopy being removed in the pruning cycle. There shall be no flush cuts. All cuts will be made at the branch collar or just above the bark ridge.
- 1.9 City-owned trees that appear to be hazardous to life or property shall be reported to the Arborist. If in the opinion of the Arborist the tree should be removed as a safety hazard, action shall be taken as soon as possible.
- 1.10 The utility line trimming contractor shall be financially liable to the City and the Office for damage caused to City-owned trees resulting from failure to follow these standards. Damages shall be appraised at fair market value as determined by the City Arborist. Fines will be deposited in the "City Tree Care" account.

## **SECTION I**

### **CONTRACT WORK, ELECTRIC UTILITY TREE TRIMMING, REMOVAL AND DEBRIS DISPOSAL**

#### **1.0 TECHNICAL REQUIREMENTS**

- 1.1 The current version of the ANSI A300 Tree Care Standards shall apply to all work. All pruning shall be done to promote general health and vigor of the tree. This includes bid work.
- 1.2 The current ANSI Z133.1 Safety Standard as well as OSHA regulation 29 CFR Parts 1910.268, 1910.269, and 1910.333 shall be followed by all contract workers.
- 1.3 The Contractor shall receive maps indicating the designated areas to be trimmed.
- 1.4 All cuts shall be made with a saw or pruner and only at nodes or crotches with the method known as drop crotch pruning. Cuts shall be made without cutting into the branch collar. All cuts shall be made at a forty-five (45) degree angle from the branch bark ridge. Branches too large to be supported by one hand shall be precut for safety and to avoid the splitting or tearing of the bark.
- 1.5 Large limbs shall be lowered safely in a controlled manner with ropes and other equipment. No stubs or “dog ears” shall be left.
- 1.6 Under no circumstances shall a tree be “topped” except under special circumstances to be determined by the City Arborist. Topping is the practice of severely pruning a tree, disregarding nodes and crotches, to drastically reduce the height of a tree.
- 1.7 The use of gaffs, spurs or climbing irons shall be restricted to removals or when necessary for prompt rescue in the event of an injured worker.
- 1.8 The Contractor shall protect sidewalks, streets, curbs, manhole covers, fire hydrants, signs, street lights, surrounding bushes, trees, shrubs, lawns, other plantings and any other structures that are located on the parkway or on private property that may be impacted by falling limbs, branches or logs while performing tree trimming duties.

#### **2.0 REMOVAL OF DEBRIS/CLEAN UP**

- 2.1 After working on any diseased tree, all pruning equipment must be disinfected before working on another tree.
- 2.2 Immediately after trimming/pruning of a tree has been completed, the entire affected area must be raked and thoroughly cleaned up.
- 2.3 The Contractor must remove all debris from the site, right of way or other private property where tree trimming/pruning has occurred by the end of the workday.



Where trimming operations have occurred, no debris may remain on the right-of-way or private property over the weekend (Saturday/Sunday) or holidays.

### **3.0 STANDARDS**

#### **3.1 Circuit clearance trimming will be:**

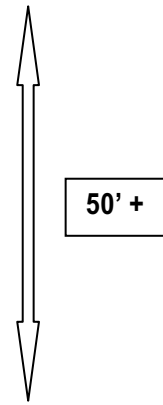
- at least 20 ft. clearance for 138,000kV primary wires,
- at least 10 ft. clearance for 12kV primary wires,
- at least 3 ft. clearance for 600v secondary wires,
- at least 3 ft. for fiber optic cables,
- poles are to be cleared of vegetation and to allow for climbing space,
- 600v service wires trees will only be trimmed to prevent rubbing before next cycle.

## **SECTION J**

### **TREE VIOLATION PENALTIES**

#### **1.0 PENALTIES FOR OFFENSES**

Any person, firm or corporation violating provisions of this manual may be subject to civil penalties, including fines, pursuant to Ch. 102 Urban Forestry/Tree Protection.



## APPENDIX A – LARGE TREES

### LARGE DESIRABLE TREES

Trees native to Northeastern United States

Spacing: 40' minimum Parkway Width: 8' minimum

Larger trees are preferred on street parkways for better clearance adaptability.

They require more living space.

Information
American Beech - <i>Fagus grandifolia</i> (up to 100')
Bald Cypress - <i>Taxodium distichum</i> (65'-130')
Black Cherry – <i>Prunus serotina</i> (up to 80'), small fruit
Black Oak – <i>Quercus velutina</i> (50'-80')
Bur Oak – <i>Quercus macrocarpa</i> (40'-80') acorns to 1 1/8"
Chestnut Oak – <i>Quercus montana</i> (to 60')
Chinkapin Oak – <i>Quercus muehlenbergii</i> (40'-50')
Cucumber Magnolia – <i>Magnolia acuminata</i> (to 80'); oblong fruits up to 3"
Ginkgo (male) native to China – <i>Ginkgo biloba</i> (40'-60')
Hackberry – <i>Celtis occidentalis</i> (to 65')
Kentucky Coffee (male) – <i>Gymnocladus dioica</i> (50'-80') female has 3 -10' legumes
Overcup Oak – <i>Quercus lyrata</i> (up to 80')
Post Oak – <i>Quercus stellata</i> (up to 90')
Red Oak – <i>Quercus rubra</i> (65'-80')
Scarlet Oak – <i>Quercus coccinea</i> (50'-65')
Shingle Oak – <i>Quercus imbricaria</i> (up to 65')
Shumard Oak – <i>Quercus shumardii</i> (up to 120')
Silver Linden S.E. Europe, S.W. Asia – <i>Tilia tomentosa</i>
Single Stem River Birch – <i>Betula nigra</i> (up to 75')
Southern Red Oak – <i>Quercus falcata</i> (up to 100')
Sugarberry (S. Hackberry) – <i>Celtis laevigata</i> (60'-100')
Sugar Maple - <i>Acer saccharum</i> (up to 100')
Swamp Chestnut Oak – <i>Quercus michauxii</i> (60'-115')
Swamp White Oak – <i>Quercus bicolor</i> (40'-50')
Tamarack – <i>Larix laricina</i> (40'-65')
Triumph Elm – <i>Ulmus</i> (Hybrid – very good resistance to Dutch elm)
Tulip Tree – <i>Liriodendron tulipifera</i> (50'-115')
White Oak – <i>Quercus alba</i> (50'-80')
Willow Oak – <i>Quercus phellos</i> (65'-100')

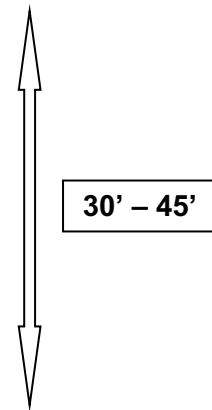


### ACCEPTABLE LARGE TREES\*

Spacing: 40' minimum Parkway Width: 8' minimum

Autumn Blaze Maple (seedless) Hybrid
Crimean Linden native to Ukraine – <i>Tilia euchlora</i>
English Oak native to England – <i>Quercus robur</i>
European Beech native to Europe – <i>Fagus sylvatica</i>
Ginkgo (male) native to China – <i>Ginkgo biloba</i> (40'-60')
Horse Chestnut – native to So. E. Europe – <i>Aesculus hippocastanum</i>
Lacebark Elm native to Eastern Asia – <i>Ulmus parvifolia</i>
Littleleaf Linden native to Europe – <i>Tilia cordata</i>
Red Pointe Maple cultivar
Red Sunset Maple cultivar
Silver Linden S.E. Europe, S.W. Asia – <i>Tilia tomentosa</i>

- Non-native and or species who are disproportionately represented in the tree canopy.



## APPENDIX B - MEDIUM TREES

### DESIRABLE

Trees native to Northeastern United States

**Spacing: 30' minimum Parkway Width: 6' minimum**

Medium trees may be better suited for planting on crowded City parkways than their larger counterparts.

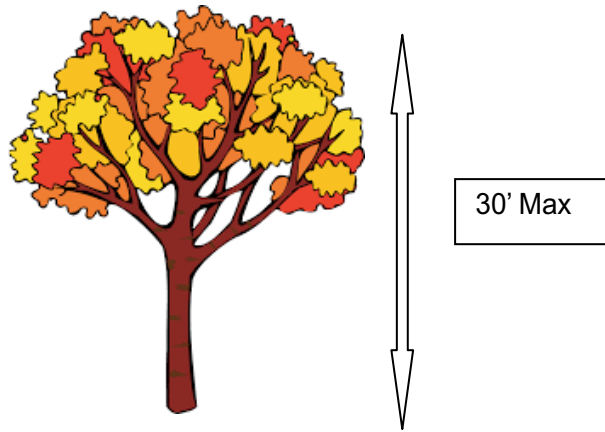
Information
Bigleaf Snowbell – <i>Styrax grandifolius</i> (10'-40')
Black Gum - <i>Nyssa sylvatica</i> (35'-65')
Carolina Silverbell – <i>Halesia tetraptera</i> (35'-80')
Catalpa – <i>Catalpa speciosa</i> (55' tall, 30' wide)
Ironwood – <i>Ostrya virginiana</i> (25'-50')
Jack Pine – <i>Pinus banksiana</i> (35'-50')
Osage Orange (male, thornless) – <i>Maclura pomifera</i> , native to TX
Rubber Tree – <i>Eucommia ulmoides</i>
Sassafras – <i>Sassafras albidum</i> (15'-50')



**ACCEPTABLE MEDIUM TREES\***  
**Spacing: 30' minimum Parkway Width: 6' minimum**

Armstrong maple cultivars
European Hornbeam native to W. Asia & Europe – <i>Carpinus betulus</i>
Goldenrain Tree native to China & Korea – <i>Koelreuteria paniculate</i> (can be invasive)
Hedge Maple native to Europe & Britain – <i>Acer campestre</i>
Katsuratree native to Japan & China – <i>Cercidiphyllum</i>
October Glory Maple cultivar
Osage Orange (male, thornless) – <i>Maclura pomifera</i> , native to TX
Turkish Filbert native to Europe & Asia – <i>Corylus colurna</i> (40'-50')

- Non-native and or species who are disproportionately represented in the tree canopy.



## APPENDIX C – SMALL/ORNAMENTAL TREES

### DESIRABLE

Trees native to Northeastern United States

Spacing: 20' minimum Parkway Width: 4.5' minimum

Small trees are appropriate in parkway locations where larger trees cannot be properly utilized due to space limitations.

Information
American Hornbeam – <i>Carpinus caroliniana</i> (10'-35')
American Smoke Tree – <i>Cotinus obovatus</i> (10'-15')
Autumn Brilliance Serviceberry – <i>Amelanchier x grandiflora</i> (15'-25')
Common Witch-Hazel – <i>Hamamelis virginiana</i> ((12'-25')
Downy Serviceberry – <i>Amelanchier arborea</i> (up to 35')
Dwarf Chinkapin Oak – <i>Quercus prinoides</i> (3'-15')
Flowering Dogwood – <i>Cornus florida</i> (10'-35')
Hawthorn (Thornless) all natives have thorns
Nannyberry (or Blackhaw) <i>Viburnum - Viburnum lentago</i> (10'-25')
Pagoda Dogwood – <i>Cornus alternifolia</i> (12'-25')
Paperbark Maple native to China – <i>Acer griseum</i> (20'-30')
Pawpaw – <i>Asimina triloba</i> (up to 40'). Bears fruit
Prairie Crabapple – <i>Malus ioensis</i> (20'-30')
Red Bud – <i>Cercis canadensis</i> (up to 35')
Red Buckeye – <i>Aesculus pavia</i> (up to 25')
Smooth Blackhaw <i>Viburnum – Viburnum prunifolium</i> (10'-25')
Smooth Serviceberry – <i>Amelanchier laevis</i> (6' to 35')
Southern Flowering Crabapple – <i>Malus augustifolia</i> (
Spicebush – <i>Lindera benzoin</i> (4'-12' shrubby)
Striped Maple – <i>Acer pennsylvanicum</i> (20'-30') native to southeast
Sweetbay Magnolia – <i>Magnolia virginiana</i> (10'- 20')
White Bud - <i>Cercis canadensis var alba</i> (up to 35')
White Fringetree – <i>Chiananthus virginicus</i> (25'-30') native to S.E. U.S.
Wild crabapple – <i>Malus coronaria</i> (15'-25')



**ACCEPTABLE SMALL/ORNAMENTAL TREES\***  
**Spacing: 20' minimum Parkway Width: 4.5' minimum**

Alder – native to Europe – <i>Alnus glutinosa</i> (45')
Carmelian Cherry Dogwood native to Central & S.E. Europe – <i>Cornus mas</i> (10'-25')
Japanese Dogwood native to E. Asia – <i>Cornus kousa</i> (15'-25')
Japanese Lilac native to E. Asia – <i>Syringa reticulata</i> (20'-30')
Japanese Maple native to Japan - <i>Acer palmatum</i> (4'-30')
Paperbark Maple native to China – <i>Acer griseum</i> (20'-30')
Tatarian Maple native to Europe & Asia – <i>Acer tataricum</i> (13'-20')

- Non-native and or species who are disproportionately represented in the tree canopy.



## APPENDIX D TREES WITH SPECIAL CONSIDERATIONS\*

American Elm ( <i>Ulmus americana</i> ) (up to 100') Dutch Elm Disease; resistant varieties are available
Chestnut – <i>Castanea</i> sp. (100') American Chestnut is subject to blight, but resistant hybrids are available; 2" – 3" prickly seed
Bitternut Hickory – <i>Carya cordiformis</i> (50'-80') nuts to 1 1/8"
Butternut – <i>Juglans cinerea</i> ((up to 80'), edible nuts up to 2 1/2" long
Catalpa – <i>Catalpa speciosa</i> (up to 80'), bean-like pods up to 18" long
Eastern White Cedar – <i>Thuja occidentalis</i> (35'-50'); growth form can impede sight
Ginkgo (male) native to China – <i>Ginkgo biloba</i> (40'-60'); fruit from female smells repugnant
Kentucky Coffee-tree – <i>Gymnocladus dioica</i> (50'-80') 4" – 10" seed pods on females
Paw Paw – <i>Asimina triloba</i> (10'-25'); edible berries 1 1/2" – 6" long
Pignut hickory - <i>Carya glabra</i> (50'-65') nuts to 1 1/8"
Persimmon – <i>Diospyras virginiana</i> (to 65'); edible berries 2"-3"
Red Cedar – <i>Juniperus virginiana</i> (to 70'); growth form can impede sight
Red Pine – <i>Pinus resinosa</i> (65'-100'), endangered in Illinois; 2" cones
Shagbark Hickory – <i>Carya ovata</i> (up to 100'); edible nuts up to 2"
Shellbark Hickory – <i>Carya laciniosa</i> ((up to 100'); edible nuts up to 2 1/4"
Walnut – <i>Juglans nigra</i> (to 120'); edible fruit 2" in diameter
White Pine – <i>Pinus strobus</i> (65'-100'); cones up to 8"

\* Trees that may or may not be suitable in a given location. These trees may be planted upon approval from the arborist.



## APPENDIX E - UNDESIRABLE TREES NOT ALLOWED ON CITY RIGHT OF WAY

The following trees are common to our area but are undesirable as street or parkway trees. Their lack of suitability is based on undesirable growth habits, fruiting habits, structure, susceptibility to serious diseases or pests, propensity for storm damage and other limitations. The limitations listed for each tree or species are the more serious problems encountered locally. There are many superior street or parkway trees listed in Appendix A-C.

Information	
American Mountain Ash (Borers, Fire Blight)	Mimosa (Not hardy, Disease Prone)
Amur Maple (Invasive)	Paper Birch (Borers)
Apple tree (Littering Fruit)	Pin Cherry (Borers)
Ash Species (Emerald Ash Borer Disease)	Pin Oak (Iron Chlorosis)
Autumn olive	
Black Locust (Borers)	Plum (Littering Fruit)
Black Locust (Borers, Shallow Roots)	Red Elm (Dutch Elm Disease)
Boxelder Maple (Brittle Wood, Boxelder Bugs)	Rock Elm (Dutch Elm Disease)
Buckthorn (Extremely Aggressive)	Royal Paulownia (Extremely Aggressive)
Butternut (Canker Disease)	Russian-olive (Canker Disease)
Callery Pear (Invasive)	Scotch Pine (Pine Wilt Disease)
Choke Cherry (Black Knot Disease)	Siberian Elm (Brittle wood, Elm Leaf Beetle)
Cottonwood Poplar (Brittle Wood Cottony Seed)	Spruce (Visibility) *
European Bird Cherry (Borers, Black Knot Disease)	Sweet Cherry (Borers)
European Mountainash (Borers, Fire Blight Disease)	Sweet Gum (Littering Fruit)
European White Birch (Borers)	Sycamore (Twig Blight)
Fir (Visibility) *	Tree of Heaven (Brittle wood)
Grey Birch (Borers)	White Mulberry (Fruit)
Horsechestnuts/Buckeyes	White Poplar (Suckers)
Lombardy Poplar (Canker Disease)	Willow (Weak Wood)
Maiden Hair Tree (Malodorous Fruit)	

\*Trees with an asterisk may be used with due caution and with the City Arborists' review/approval prior to planting.

## APPENDIX F – TREE WORK PERMIT APPLICATION

City of Springfield  
Office of Public Works  
Municipal Building, Room 201  
Springfield, IL 62701  
Phone: 217-789-2428

### Springfield Public Property Tree Work Permit Application

Please mail completed application to the address above or email it to the City Arborist ([Jeffrey.Reim@Springfield.il.us](mailto:Jeffrey.Reim@Springfield.il.us)). There is no charge for this permit, but a permit number must be issued before work can begin. This application will be returned to you as approved or denied. Please type or print.

First Name:	Last Name:	Daytime Phone#:	
Street Address:	City:	State: IL	Zip Code:
E-mail address (for permit approval/denial notification; if left blank, notification will be mailed):			Date of Application:

Number of Trees:	Tree Location(s):	Type of Tree(s):
Work To Be Performed:	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Pruning  <input type="checkbox"/> Removal  <input type="checkbox"/> Fertilizing  <input type="checkbox"/> Pesticide/Spraying  <input type="checkbox"/> Construction Under </div> <div style="width: 48%;"> <input type="checkbox"/> Transplanting  <input type="checkbox"/> Lighting Protection Installation  <input type="checkbox"/> Installation of Metal Signs, Cables, Wires, etc.  <input type="checkbox"/> Cabling/Bracing  <input type="checkbox"/> Other (Specify): </div> </div>	
Work Will Be Done By:	<input type="checkbox"/> Self <input type="checkbox"/> Professional Tree Company (Specify): <input type="checkbox"/> Other (Specify):	

If this permit is granted, I hereby agree that the work will be done in accordance with the City of Springfield *Arboricultural Specifications Manual* and directives given within this application.

Signature of Property Owner \_\_\_\_\_

\_\_\_\_\_ Date

Note: Approval of this permit is contingent on the agreement to replace the tree(s) being removed with a tree(s) of appropriate variety, minimum 1-3/4 inch caliper, on public property unless otherwise specified by the Arborist. The tree(s) must be replaced within 6 months after removal.

(A copy of the approved permit must be present at the job site.)

#### For Use by the City Arborist

Date Inspected:		Species:	
Inspected By:		Condition:	

#### Application Status

<input type="checkbox"/> Approved <input type="checkbox"/> Approved with Modifications <input type="checkbox"/> Denied	Permit #:	Permit Expiration Date:
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Arborist Comments:

**APPENDIX G – ANNUAL TREE SERVICE PROVIDER REGISTRATION FORM**

City of Springfield Office of Public Works Municipal Building, Room 201 Springfield, IL 62701 Phone: 217-789-2428		<b>Tree Service Provider Annual Registration Application</b>	
Please mail completed application to the address above or email it to the City Arborist ( <a href="mailto:Jeffrey.Reim@Springfield.il.us">Jeffrey.Reim@Springfield.il.us</a> ). There is no charge for this registration, but approval must be issued before tree service work can begin.			
Owner Name		Owner Phone #	
Company Name		Company Contact Phone #	
Company Mailing Address			
Company Email Address			
I have read and will comply with:	<input type="checkbox"/> City of Springfield Arboricultural Specifications Manual <input type="checkbox"/> ANSI A300 Tree Care Standards <input type="checkbox"/> ANSI Z133 Safety Requirements for Arboricultural Operations		
Checklist of documentation to be provided to the City of Springfield, BY THE INSURANCE COMPANY, to <a href="mailto:Jeffrey.Reim@Springfield.il.us">Jeffrey.Reim@Springfield.il.us</a> or faxed to the Office of Public Works at 217-789-2366:  <input type="checkbox"/> Proof of Current General Liability Insurance <input type="checkbox"/> Proof of Workers Compensation Insurance <input type="checkbox"/> Proof of Vehicle Liability Insurance  Please note that certificates of insurance must list the City of Springfield as a certificate holder.			
I do hereby apply for a registration permit to treat, trim or remove trees or shrubs or perform other arboricultural work for the City of Springfield. I shall indemnify and hold the City of Springfield harmless in case of any accident or any danger arising from the exercising of this registration.			
Signature of Owner		Date	
<b>For Use by the City Arborist</b>			
<input type="checkbox"/> Approved <input type="checkbox"/> Denied	Permit Expiration Date		
Arborist Signature			



This manual is hereby approved by the City of Springfield's Urban Forestry Commission (UFC).



UFC Member	Signature	Role
Susan Allen		Commissioner
Randy Belville		Commissioner
Nate Bottom		Commissioner (Non-Voting)
Scott Marlow		Commissioner
Erskine Route		Commissioner
Ernestine Lawrence		Commissioner
Amy McEuen		Commissioner
Jeffrey Reim		Commissioner (Non-Voting)
Jan Von Qualen		Commissioner
Dan Brill		Commissioner (Non-Voting)

Dated: \_\_\_\_\_

