



City of  
**Wooster**  
URBAN FORESTRY

# Policy Manual

Public Properties Maintenance Division

Parks/Urban Forestry Subdivision



**TREE CITY USA**  
Since 1976



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Since 1976



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## **City Contact Information**

Wooster City Hall – Phone: 330-263-5200

Public Properties Maintenance Garage – Phone: 330-263-5275 Fax: 330-263-5264

Public Utilities Distribution and Collection – Phone: 330-263-5261

Building and Planning Department – Phone: 330-263-5241

Parks/Urban Forestry Subdivision:

- Supervisor – Joe Avila – Phone: 330-263-5200 ext. 278
- Arborist II – Dan Yarnell – Phone (main): 330-263-5275
- Arborist I – Bryan Fortune – Phone (main): 330-263-5275

Or contact the Urban Forestry Staff via email at [UrbanForestry@woosteroh.com](mailto:UrbanForestry@woosteroh.com)

## **Private Utility Contact Information**

American Electric Power:

Emergency/Dangerous Situation: 1-800-672-2231

Business line: 1-888-710-4237

Dominion East Ohio Gas:

Emergency/Dangerous Situation: 1-877-542-2630

Business line: 1-800-362-7557

Century Link:

Residential Repair: 1-800-788-3600

Massillon Cable Television:

Customer Service: 330-833-4134

Ohio Utility Protection Services (Call before you dig): 1-800-362-2764



## **100 Introduction**

The City of Wooster is known as the “Dogwood City.” Trees beautify the landscape and enhance the quality of life for all residents. Continually, since 1976, The National Arbor Day Foundation has recognized our City as a “Tree City, USA” in honor of the care we provide for our trees. The purpose of the Urban Forestry Policy Manual is to provide guidelines for the preservation and protection of our tree heritage and the Urban Forest of Wooster.

The following pages document guidelines for the planting, pruning, preservation, removal, and mitigation of all trees in city right-of-ways and public property. These specifications are based on national standards for tree care established by the International Society of Arboriculture (ISA), the National Arborists Association and the American National Standards Institute. This Manual incorporates input from the Urban Forestry Commission, Public Properties Maintenance Department staff, as well as other City departments and their staff.

This Manual is a reference for use by City staff, private contractors, volunteer organizations, and citizens when working in and around trees within City jurisdiction.

### **100.01 Who Cares for the Urban and Community Forest?**

The 3,700+ street trees and tens of thousands of park and open space trees throughout Wooster are a community asset valued at an estimate of more than \$263,857 in an evaluation of street trees conducted in 2009. The urban forest provides environmental benefits, adds to property value and provides an enhanced quality of life for all residents.

Unfortunately, Wooster’s trees suffer from the rigors of urban life such as air pollution, limited water, vandalism, compacted soils, limited growing spaces, new and emerging diseases and pests, and the extremes of our Northeastern Ohio climate. In order to reap the benefits of this valuable asset, the care of Wooster’s Urban Forest must be a public/private partnership.

### **100.02 Tree Care Guidelines**

The care and maintenance of City trees is both an investment and a very valuable resource. Trees in an urban environment are subject to many variables that affect their health: air pollution reduces a tree’s ability to make food; compacted soils from road and structure development interfere with the uptake of nutrients and water; and sidewalks, curbs, streets and buildings limit the space for trees to spread their roots and branches. Tree care, such as deep watering, proper pruning and pest control help a tree maintain its health and stability.

The guidelines in this Manual were developed to help reduce the many negative impacts on City trees and to provide for effective management of the urban forest. Following the tree pruning, tree planting and other guidelines in this Manual will result in an increase in the value of our trees and a reduction in the costs to maintain them.

### **100.03 The City Council**

Elected officials who provide leadership, at the request of citizens, ensure that trees are a priority in our community. The City Council oversees the General Fund, which supports the

planting and care of the urban forest. They also make decisions regarding policies and ordinances, which pertain to the care and protection of trees on public property and the development of private property as it pertains to our Urban Forest.

#### **100.04 Urban Forestry Commission**

Annually appointed by the Mayor the Urban Forestry Commission, together with Public Properties Maintenance Division Parks/ Shade Tree staff, discusses issues and visits sites to make recommendations regarding the tree issues in public landscapes.

This Commission shall review the Urban Forestry Policy Manual a minimum of every three years.

#### **100.05 Public Properties Maintenance Division**

The Public Properties Maintenance Division provides planting and maintenance services, and also oversees contracted and permitted tree work on City trees. The Division, under the guidance of the Public Properties Maintenance Manager and Supervisors, employs an experienced Urban Forester who specializes in the management of urban and community forests and provides the daily management and emergency services which sustain our urban forest.

#### **100.06 Funding for the Urban and Community Forest**

The primary source for funding is the General Fund. In an effort to augment limited city resources available for urban forestry, additional funding sources are often sought. Alternatives include public grants, private donations, and the use of volunteer labor for tree plantings.

#### **100.07 Adopt-A-Park Program**

This program enables community groups to sponsor park cleanups. Groups may select a specific park and specific amenities within that park for which to care (i.e. ball fields, ponds, playgrounds, planting beds, etc.)

#### **100.08 Grants**

The staff of the Public Properties Maintenance Department actively researches the availability of grants for community forestry programs. Monies from these grants help to augment and sustain the urban forest.

## **200 Cultural Practices**

Practices such as deep watering, prevention of damage to bark from string trimmers and mowers, the use of mulch or wood chips, and proper pruning and staking, provide preventative care for trees. These practices help keep a tree healthy so it can maintain its own natural defense system.

### **200.01 Pest Control**

Proper planting, pruning and care of trees are the best ways to prevent pest problems. A tree has a natural ability to withstand a certain amount of insects and disease. When a tree suffers from other impacts which deplete its food-making capability (photosynthesis) and uptake of water and nutrients, its natural defenses are weakened.

When insect and/or disease infestations become a detriment to the tree, controls are used. When pest control is recommended, natural or biological substances are considered first, with chemical pesticides used only when warranted.

Pest control is based on the timing and intensity of the infestation. Inspections of trees are made based on the time of year and weather conditions that have favored the development of insect problems in past years. Not all problems are predictable and may not be treatable. If there are requests by residents, for trees within the right of way, an inspection is conducted and recommendations are made based on the timing and effectiveness of the control.

### **200.02 Mulching**

In order to help maintain and further develop the urban forest, it is important to preserve the health and well-being of our established trees. Mulching is a key component of the maintenance of trees, and can provide benefits for; moisture retention, temperature regulation, root zone protection, disease prevention, weed control, and aesthetic value.

### **200.03 Responsibilities**

- a. In the City of Wooster, it is the responsibility of the property owner to mulch around their trees, and ensure that the application of the mulch is done to proper ISA Standards. (Appendix A)
- b. The City of Wooster will, in coordination with its planting contractor, provide mulch for newly planted trees in order to help properly establish the species upon planting. In addition to providing mulch for newly planted trees, the City will also provide mulch for any and all trees on public property facilities, as well as the parks. Trees in the downtown tree wells that are part of the Streetscape Program of downtown beautification, will be considered to be trees on public facility property.
- c. There will be a shared responsibility between the College of Wooster, and the City of Wooster regarding the trees in the Beall Avenue Streetscape.

## **300 Tree Pruning Guidelines**

### **300.01 Need for Pruning**

Trees are pruned principally to preserve their health and appearance and to prevent damage to property and human life. Broken, dead, or diseased branches are pruned to prevent decay from spreading. Live branches are removed to permit penetration of sunlight and air circulation which helps maintain a strong and healthy tree.

All public trees should be completely pruned on a periodic basis based on the needs of the species, and site specific instances. Frequency depends on funding levels.

Additional tree pruning is done on an “as needed” basis. Specific examples where as needed work is authorized are:

1. Pruning tree limbs that interfere with city utility lines.
2. Pruning tree limbs that interfere with street light illumination and are not scheduled for periodic pruning within three (3) years.
3. Pruning tree limbs that interfere with buildings or other private or public facilities.
4. Pruning hazardous limbs, such as large dead limbs greater than two (2) inches in diameter, hangers and structurally unsound limbs.
5. Pruning tree limbs that interfere with safe vehicular or pedestrian traffic.
6. Sucker and Epicormic growth pruning.

### **300.02 Property Owners Ability to Prune Trees**

There are two options available to property owners who would like to have public tree(s) pruned more frequently than the scheduled trim cycle. First, a resident may pay a designated fee (Appendix B) to the City to have a tree trimmed outside the normal grid trim cycle. The City’s contractor will prune the tree within 30 days of the request, weather permitting. Second, a resident may apply for a permit and hire an ISA certified arborist and insured contractor to trim the tree(s) according to City Tree Pruning Guidelines section 300 of this manual.

### **300.03 Tree Pruning Specifications**

Any tree work performed on a City tree must be completed according to the City’s specifications. There are different criteria for pruning depending on the purpose for the pruning.

“Complete pruning specifications” according to ISA standards are used when the entire tree needs to be fully pruned.

“Safety pruning specifications” require less pruning and are used when specific, possibly hazardous (dead/dying) limbs need removal to eliminate all safety concerns. Safety pruning may

be recommended in some circumstances instead of complete pruning. Safety pruning specifications are used for “as needed” pruning and address only safety concerns. Safety pruning includes only the basic requirements to address the problem.

All specifications are based on International Society of Arboriculture, National Arborist Association and American National Standards Institute criteria. This guarantees that Wooster’s city trees receive the best possible care.

The following trimming specifications are for the use of any permitted pruning of city trees.

### **300.04 General Requirements**

- a. **Certified Tree Workers** – All persons performing tree work on City trees should be trained according to tree care standards accepted by the International Society of Arboriculture, Ohio Chapter.
- b. **Certified to Work Around Electric Lines** – All persons performing tree work on City trees in or around primary electrical lines must be trained to do so according to the “Electrical Safety Orders” of the Vegetation Management Reliability Standard FAC-003
- c. **Certified Arborist** – Any City contracted tree company shall employ a full-time, permanent certified arborist, as accredited by the International Society of Arboriculture. This person is responsible for ensuring that the contractor’s crew is performing work according to the City’s specifications. It is also recommended that Wooster residents use a firm that employs a certified arborist for any tree work.
- d. **Contractor Qualifications** – All contractors performing tree planting, pruning, removal, etc. are required to adhere to the specifications provided in the bid documents.

### **300.05 Complete Pruning Specifications**

- a. Trim trees to lighten and balance the trees, according to current International Society of Arboriculture Ohio Chapter standards.
- b. Remove dead wood and cross branches.
- c. Remove suckers, and Epicormic Branches.
- d. Remove diseased branches.
- e. Encourage radial distribution of all branches to provide a sufficient number of scaffold branches to fill the circular spaces as concentrically as possible around the trunk.
- f. Final trimming cuts shall be made without leaving a stub. Cuts shall be made just outside the branch collar area. Extreme flush cuts, which produce large wounds and weaken the tree at the cut, shall not be made.



- g. Trimming shall provide adequate clearance for all traffic control devices obstructed; street sign, streetlight or traffic signal.
- h. Over sidewalks, limbs should be trimmed in a manner. Limbs shall be raised to match the height of the branches retained on the street side. Where sidewalks do not occur or are located on the street side of a tree lawn, limbs may be retained below the minimum elevation, providing they conform to the natural shape of the species.
- i. Over residential streets, limbs shall be raised a minimum of 44 feet and a maximum of 16 feet from grade to wood giving the appearance of an arch rather than an angle.
- j. Over arterial streets, limbs should be raised a minimum of 14 feet and a maximum of 16 feet from grade to wood. A major arterial street may require a higher maximum over central traffic lanes for existing, mature, canopy-forming limbs.
- k. Whether over sidewalk or street, where the lowest limb is attached to a trunk above the desired elevation but extends below that elevation, it shall be cut back to a large lateral near the desired elevation, if possible, rather than removed altogether, in order to avoid giving the trunk a skinned appearance.
- l. Trimming shall not exceed the amount necessary to achieve the specified elevation at the time of raising and to compensate for tree species and trim cycle. No limb over three inches in diameter will be removed without prior City approval.
- m. No lion-tailing. An effect known as "lion-tailing" results from pruning out the inside lateral branches. Lion-tailing, by removing all the inner foliage, displaces the weight to the ends of the branches and may result in sunburned branches, water sprouts, and weakened branch structure and limb breakage.
- n. Topping, stump cutting, hat racking, pollarding etc. **is not acceptable.**

### **300.06 Safety Pruning Specifications**

- a. Proper disposal of all tree debris generated.
- b. Adhere to proper traffic control standards as established by the Manual of Uniform Traffic Control Devices, latest adopted version.
- c. Assure adequate safety of employees and the public in accordance with Ohio OSHA standards.

Safety pruning specifications shall consist of the total removal of those dead or living branches as may menace the future health, strength and attractiveness of trees. Specifically, trees shall be pruned according to the Tree Pruning Specifications as outlined in section 300.03

## 400 Tree Preservation Guidelines

Trees are an essential element of Wooster's image and quality of life. Hardscape elements, such as sidewalks, curbs, gutters and driveways, are also indicative of the City's commitment to maintain its infrastructure. Over the years, broken and damaged sidewalks, curbs, gutters and driveways will have to be replaced throughout the City. As a result, many trees will be involved. Whenever possible curbs, gutters, and sidewalks should be meandered away from the tree thereby providing more growing space for roots. To manage this process and protect existing trees, the following departmental guidelines have been established:

### 1. Root Pruning

- a. Whenever sidewalk, curb, gutter or driveway replacement occurs within four (4) feet of a tree, the Public Properties Maintenance Division, will inspect the site for tree impact assessment. Root pruning may be performed on any tree that the Parks/Urban Forestry subdivision determines can be safely performed without jeopardizing the life of the tree.
  - b. All roots greater than two (2) inches in diameter must be cleanly cut to encourage good callus tissue. It is recommended that roots be pruned back to the next root node.
2. Sidewalk Renovation - Trees that would be seriously impacted by root pruning during sidewalk replacements will be inspected by the Parks/Urban Forestry subdivision in coordination with the Street maintenance subdivision to determine whether:
- a. The permanent repair work can be deferred and a temporary repair used to eliminate any trip hazard until other measures can be reviewed and implemented.
  - b. Remove the tree and replace it with a minimum 1.75"-2.5" caliper replacement tree.

### 3. Curb and Gutter Replacement - Trees that would be seriously impacted by root pruning during curb/gutter replacement will be inspected by the Parks/Urban Forestry subdivision in coordination with the Street maintenance subdivision to determine whether:

- a. The tree can be saved by replacing the curb and gutter with minimal disruption of the roots (alternatives: temporary curb and gutter; use of root barrier fabric; rubberized panels, or by other methods).

### 4. Recovery Period

- a. An exception to this policy may be made if the curb/gutter or sidewalk is relocated away from the tree, or other measures are employed that reduce or eliminate root involvement or it is otherwise determined by the Parks/ Urban Forestry subdivision that root involvement is minimal.

## 500 Tree Removal Guidelines

The Public Properties Maintenance Department is responsible for the maintenance of the entire street tree system. Individual trees can affect the environment of the total community.

The Public Property Maintenance Manager or Designee shall authorize all tree removals, with written Urban Forestry Commission approval and with the authority granted in this policy.

The Public Property Maintenance Manager or Designee shall provide the City Council and the Urban Forestry Commission with a monthly listing of the tree removal requests, including those from Public Properties Maintenance, Distribution and Collection, all citizens, and all other sources, for Commission action. The list shall include the locations of the trees and the staff's recommendations when requested.

The Public Properties Maintenance Manager or the Manager's designee shall reserve the right to remove any hazardous, diseased or declining trees, providing that the removal meets the existing criteria as stated in the policy, without written approval from the Urban Forestry Commission.

### 500.01 Hazard Tree Removal

Hazard tree inspections and the ISA Hazard Tree Evaluation Form shall be completed, including photo documentation of the condition of the tree(s) included in City's Tree Plotter software. (Appendix F) This information can then be added to the Master Urban Forestry Plan. A hazard tree that is one that is dying, dead or structurally weak; a traffic obstruction; or injurious to the health, safety, or welfare of the general public.

When a tree is determined by authorized staff to be a hazard, the tree will be removed and a replacement tree will be planted at the next appropriate planting cycle, unless inadequate tree lawn space exists or the location constitutes a hazard. Where long-term repairs can be made to sewer laterals, sidewalk or curb and gutter without endangering the stability of the tree, the tree will not be removed.

### 500.02 "Inappropriate" Tree Removal

An inappropriate tree possesses undesirable characteristics significant enough to have caused their elimination from future planting of street trees, as determined by the Urban Forestry Commission along with the Public Properties Maintenance – Parks/Urban Forestry staff. Undesirable tree species shall be identified and a list will be published. (Appendix C)

There are three (3) types of inappropriate trees:

1. Class II - Inappropriate - Tree species that cause chronic damage to infrastructure (i.e. curbs, gutters, sidewalks or other structures and trees) which, in the opinion of the Public

Properties Maintenance Parks/Urban Forestry staff, are causing a nuisance to the property owner significant enough to necessitate removal of the tree.

2. Class II - Undesirable - Tree species that meet the general definition of an inappropriate tree, but the undesirable characteristics are not significant enough to necessitate removal of the tree (e.g., heavy fruit drop, susceptibility to wind damage, susceptibility to disease or insect infestation, invasive species potential, etc.).
3. Class III - Non-conforming Trees - These are trees that may be in satisfactory health, but do not provide a benefit to the overall appearance of the community; trees that were started as volunteers and not removed; trees planted by residents/businesses without permits; or trees that may cause extensive damage to surrounding hardscape areas if allowed to mature.

### **500.03 Removals Because of Economic Considerations**

A tree considered for removal must meet Criteria #1 and, two (2) of the remaining three (3) following criteria before a recommendation for removal because of economic considerations is made.

#### **Criteria:**

1. Cost of damage exceeds 1/3 of the value of the tree.

The problems caused by the street tree must exceed at least 1/3 the dollar value of the tree as established by the International Society of Arboriculture's Tree Replacement Book. For example, a tree valued at \$10,000 must have caused at least \$3,333.00 in damages.

2. Damages have caused potential liability issues.
3. A request made for removal that authorized staff concurs to be a legitimate request.

Recurring problems related to the tree within a 10-year period. The tree has lifted or broken the sidewalk more than once within 10 years, has broken the sewer lines more than once (etc.), or other physical damage to hardscape.

4. Comparable problems or concerns in the surrounding area would not lend themselves to removal of all the trees in that area.

**\*These criteria may not apply toward trees that are considered to be historical, landmark, or in a sensitive ecological and/or historical area.**

### **500.04 Removal Process**

1. Tree removal recommendations, except hazards, shall be presented at the Urban Forestry Commission meeting. The Commission meets on the Second Monday of each month unless

no meeting is necessary. Individual property owners and/or occupants shall receive written notification of the Commission meeting.

2. Tree removal appeals will be reviewed by the Urban Forestry Commission. For multiple requests from the same neighborhood each tree will be assessed individually and up to a maximum of 20% can be removed within a three-year period, unless the trees pose a potential safety hazard. The Public Properties Maintenance Division will track removals to protect neighborhoods from excessive removals. Unless hazards exist, additional removals from a neighborhood will not be considered for three years, to establish the replacement trees.
3. Prohibited trees, (Appendix C) will be removed within three years, contingent on funding.
4. Trees approved for removal by the Public Properties Maintenance Manager or Supervisor may be removed by a property owner by obtaining a Tree Removal Permit through one of the following:
  - a. For smaller trees- A payment to the City of Wooster to have the tree removed and replaced, per the approved fee schedule. (Appendix B) If it is determined that the tree was planted in an inappropriate location (i.e. Underground Utility lines, line-of-sight, etc.) the replacement tree may be planted elsewhere on public right of way.
  - b. For Larger Trees- the owner's expense in addition to payment of a fee for the removal and replacement of the tree. The City will coordinate the removal of the tree, through its contractor and forward any and all payments on to the property owner.
5. Prohibited trees (i.e. Pear, Tree of Heaven and Silver Maples) may be removed and replaced, at the property owner's expense and with Public Properties Maintenance Manager or Supervisor approval, provided that the total neighborhood removals do not exceed 20%.

### **500.05 Programmed Tree Removals**

1. Developed by the Public Properties Maintenance Manager or Supervisor based on the severity of overall deficiencies including width of tree lawn, species, conditions of trees, or extent and number of recurrences of chronic structural damage to improvements which shall be approved by the Urban Forestry Commission.
2. This program removal may, wherever practicable, be scheduled on a multiple year schedule and remove alternate/intermittent trees so as not to remove all trees at one time, as determined by the Urban Forestry Commission. Alternatives to this would include situations where a uniform age class is desired for improved aesthetic neighborhood continuity.



### **500.06 Site Restrictions**

1. Trees located so as to prevent an approved improvement to the property.
2. Street improvement plans are subject to the conditional requirements imposed, upon the approval by the Public Properties Maintenance Division and the Engineering Division.
3. The City shall coordinate removals of the tree(s) at owner's expense upon issuance of a permit by the Public Properties Maintenance Division and subject to the conditional requirements imposed upon the approval (e.g., payment of fees for mitigation based on the Asset Value, removal and replacement plantings, per the Fee Schedule [Appendix B]).

### **500.07 Accident/Unauthorized Removals**

1. Trees that are removed due to damage from vehicular accident or other accidental causes or trees removed without legal authorization.
2. Trees removed either due to damage from an accident or unauthorized removal shall be replaced by the City using funds from any insurance settlement or fines assessed, according to the Fee Schedule. (Appendix B)

### **500.08 Specific Removal Policies**

1. Consideration shall be given to retain trees by means of:
  - a. Relocating sidewalk and/or any utilities
  - b. Root pruning trees
  - c. Installation of root barriers where it is deemed appropriate and in the best interest of the tree as determined by the Public Properties Maintenance Division.
2. Trees shall be replaced by the Public Properties Maintenance Division at the next appropriate planting cycle within twelve to eighteen months (12-18), provided funding is available according to the Urban Forestry Manual Planting Guidelines.
3. When street improvements mandate that trees be removed, if the species is adapted to replanting, every reasonable effort shall be made to relocate said trees.
4. Fees are required for replacement trees and are set by the fee schedule. All replacement trees will be a minimum of 1.75" - 2.5" caliper size class.
5. Trees may require relocation and preservation at the discretion of the Public Properties Maintenance Division.
6. One year of maintenance will be required by the contractor for all trees relocated.

## **500.09 Stump Removal/Grinding**

1. Stump grinding will be limited to the immediate area of the stump and all visible surface roots within the City right-of-way. Private property is not to be renovated for the removal of surface roots or sucker growth. With the permission of the property owner, the surface will be removed at the City's expense and grass seeded and mulched.
2. The void created by the grinding operation will be filled with materials slightly higher than grade to allow for settling. Where no replacement tree is designated, the backfill shall contain topsoil and seeded with appropriate grass seed material.

## **501 Street Tree Asset Value**

The Street Tree Asset Value describes the asset value of any public tree. It is the dollar amount assigned to a public tree, as determined by the International Society of Arboriculture. An asset value will be considered for any public tree. This value will be used:

1. When a public tree must be removed because of a construction project that impacts the public right-of-way
2. When the Urban Forestry Commission considers any public tree for removal
3. When any public tree is damaged and must be removed or is illegally removed.

The Diameter at Breast Height (DBH) will be determined for the tree(s). The asset value will be established as \$75 per diameter inch and rounded down to the nearest half-inch.

The asset value is based on the following formula:

A 2.5" Caliper tree at Breast Height is used as the standard size. The cost to purchase and plant a 2.5" DBH tree is based on the current contract price of \$180.00. Therefore, the standard assessed value of any tree will be \$75 per diameter inch at Breast Height (DBH) to cover the costs of planting the minimum size requirement the City of Wooster will allow.

## 600 Master Urban Forest Plan Guidelines

One of the most important aspects of caring for Wooster's trees is to ensure an ongoing heritage of appropriately planted trees for future generations. All trees planted must conform to the Master Urban Forest Plan, which designates the species of City trees to be planted on each street. (Once established based upon an updated inventory of the City)

Tree planting requires planning. The Master Urban Forest Plan Guidelines were designed to provide optimum tree selection in order to reduce future problems and expense. The guidelines are used to facilitate the species selection based on a review of tree size at maturity as well as physical characteristics. Each neighborhood block will be evaluated and designated species have been chosen and approved by the Urban Forestry Commission to ensure that the right tree is planted in the right location.

The Master Urban Forest Plan takes into consideration the full size of a tree at maturity and whether it will fit the growing space. Other characteristics considered are the tree's growth rate, litter from fruit or leaves, insect or disease problems, water needs, temperature hardiness, soil requirements, root zone needs, aesthetics, and design criteria.

Another reason for a plan is to make certain that there are never too many trees of one species in an area of the City or Citywide. Large populations of one tree species may be lost during an insect or disease epidemic.

Many streets in Wooster are designated with more than one species. This will help reduce the spread of insects and disease on a block-by-block basis and decrease the potential for losing entire populations of a specific species in the case of a pest epidemic. Along streets which have mature trees of a single species which provide a closed canopy, such as Oaks or elms, or otherwise provide a special aesthetic quality, the single designated species will be maintained whenever appropriate. The following pages describe the guidelines for determining a designated species for a street.

The following should be considered when designating species for a new City street or for revising the Master Urban Forest Plan:

1. No more than 10% any one species, 20% genus, 30% family of the total street tree inventory shall be planted and maintained by the Public Properties Maintenance Parks/Urban Forestry Subdivision. Trees that currently comprise more than 5% of the total street tree inventory are:

- Flowering Pear (*Pyrus calleryana*) (Invasive)
- Maple Family (with the Norway maple (*Acer platanoides*) being an Invasive)
- Crabapple (*Malus spp.*)

2. General tree characteristics to be encouraged are (not listed by priority):

- Drought tolerance
- Heat tolerance
- Minimal allergy problems (pollen production)
- Native to Ohio
- Minimal root damage potential
- Long life span
- Good branch strength and structure
- No major insect/disease problems
- Good cold tolerance

- Low maintenance
- Large shading potential
- Future wood utilization/recycling potential
- No messy fruit/other plant parts
- Show flowers

## **601 Tree Planting Guidelines**

Replacement tree species shall be selected by the Public Properties Maintenance Division based on site conditions and tree planting guidelines.

The following guidelines have been developed to promote the health and safety of City trees for years to come. These guidelines and specifications are required for any tree planting on City property or within City right-of-ways.

The City has a goal of planting all vacant sites on City property or within City right-of-way, which meet the requirements for an appropriate planting site (See Planting Site Specifications). Tree planting is generally scheduled for the fall season between October and November. The tree planted must be the designated species as per the most current Master Urban Forest Plan.

The City also has a goal of replacing all trees, which are removed, based on the Tree Removal Guidelines that meet the requirements for an appropriate planting site. Whenever a vacant site is considered for planting or whenever a City tree is removed a replacement tree will be planted if the following conditions are met:

1. Adequate spacing (both aboveground and underground) is present to allow healthy growth to maturity.
2. Location is conducive to good management practices and does not overly disrupt maintenance activities or utilities.
3. Future maintenance, i.e., access for young tree training and initial watering
4. Funding is available for planting.

Standard replacement size would be an appropriate 3.0” - 4.0” DBH caliper balled and bur lapped tree in commercial areas and 1.75” - 2.5” DBH caliper balled and bur lapped tree in residential areas, unless limited by a grant for trees of a lesser size.

### **601.01 Property Owner Plantings**

If a property owner wants a tree planted in the public right of way, or tree lawn, sooner than the City schedule can accommodate, the property owner may do one of the following:

1. Obtain a permit allowing the property owner to provide the planting at his or her own expense following the City of Wooster’s planting specifications, and species selection.
2. Request that volunteers be asked to schedule the planting when time is available.
3. Pay the City’s fee to have a tree planted by the City’s contractor, according to the Fee Schedule.

## **601.02 Care of Newly Planted Trees**

Care of young trees must be a partnership between the City and residents. The City monitors newly planted trees for the first three to five years weather permitting. This includes verifying that the tree is properly pruned, and receiving watering by the resident, if possible. Neighborhood trees need the attention of residents who live near them to make sure they grow healthy and strong. If you notice that a newly planted tree needs water, or is otherwise not growing well, please notify the City immediately.

A common cause of death among young trees is damage to the bark by weed eaters and lawn mowers. It is necessary to keep the ground around the trunk bare except for wood chip mulch. Wood chips may be used; however, neither wood chips nor bark should be placed against the tree's trunk. Any weeding or clipping around the base of the tree's trunk should be done by hand tools to prevent injury to the bark.

## **602 Planting Specifications**

### **602.01 Street Tree Planting**

The Parks/Urban Forestry subdivision shall be the responsible authority for determining the appropriate species or variety of trees planted within the public streets rights-of way, or easements.

### **602.02 Public Property Planting**

The Parks/Urban Forestry subdivision shall be the responsible authority for determining the appropriate species or variety of trees, shrubs, and other plant material, to be planted on any public property.

### **602.03 Specific Planting Policies**

1. Street trees shall be planted according to the Master Plan and in accordance with Department Standard Specifications. (Appendix E) The Master Plan may be updated and revised as needed by the Public Properties Maintenance Division, Urban Forestry Subdivision.
2. A minimum of one street tree shall be planted per lot. Property with frontage of 65 feet or more shall have trees planted at an average maximum spacing of 35 feet (tree to tree) on center. The actual number and spacing for planting will be based on the established canopy width of the designated species as approved by the Urban Forestry Commission. To preserve the integrity of the street tree pattern, where site constraints preclude planting of a street tree within the rights-of-way, trees may be planted on private property in those instances where an easement for that purpose has been provided.



3. Property owners may plant street trees at the owner's expense in accordance with Urban Forestry manual standards and subject to prior written approval of the Public Properties Maintenance Division manager or designee.
4. Planting of street trees shall be required at the time the property abutting the right-of-way is developed. The owner of the abutting property shall be responsible for the costs of furnishing, installing and providing a minimum of the first year of maintenance for all street tree plantings. (Ordinance 2018-009, Planning & Zoning Code, Chapter 1123.04 Street Trees)
5. To maximize the square footage of tree canopy and its benefit to the City, all new and redeveloped properties both residential and commercial shall be required to provide funding for public trees. Fees are established per the fee schedule. Alongside the initial building permit, there is a tree planting fee that coincides with the linear foot of the perimeter of the properties tree lawn within the Cities right of way that will be used in determining the number of trees suitable for the properties individual requirements.
6. Tree removal through a permit by other agencies shall be subject to both mitigation and replacement fee, per the Fee Schedule (Appendix B), and shall be replaced by the City's Public Properties Maintenance Division within 12-18 months per planting season requirements.
7. After the initial establishment time of three (3) years, watering of all street trees within the City right-of-way shall be the responsibility of the abutting property owner, except in reverse frontage and median strips that are maintained by the City. The Public Properties Maintenance Division is responsible for all other maintenance of the trees during and after establishment.
8. When the sidewalk is located next to the curb, the trees shall be planted a minimum of one foot from the right-of-way line within the public street right-of-way line. When a tree well in the sidewalk is the only possible solution, a tree will be selected that will not cause or result in long-range curb or sidewalk damage.
9. In the interest of public safety and maintenance, trees shall be planted:
  - a. A minimum distance from the intersection, to provide adequate sight distance. Minimum distance shall be 30 feet from beginning of curve at the curb return, except at secondary and arterial streets where the minimum shall be 50 feet. (numbers to match ordinances)
  - b. Five (5) feet minimum from fire hydrants, service walks, and driveways.
  - c. Ten (10) feet minimum from sewer laterals, other utility services laterals and water meters.
  - d. Twenty (20) feet minimum from street lights.

- e. With consideration given to those varieties of trees that will not create a conflict with existing overhead electric utility lines.
10. All trees shall be a minimum 2.5” DBH Caliper in residential areas and 3.0” DBH Caliper in commercial areas as determined by the American Association of Nurserymen. Smaller/larger sizes may be permitted/required by the Urban Forestry Commission, or the Public Properties Maintenance Division.
11. A larger sized tree may be planted, provided that the property owner pays the difference in cost.
12. All staked trees shall be inspected during the regularly scheduled grid trimming cycle. Stakes are to be adjusted or removed as necessary by Public Property Maintenance Urban Forestry staff or contractor.
13. All trees planted in tree wells shall be installed and irrigated in a manner that promotes deep rooting per Urban Forestry manual standards. This is achieved with proper root macro nutrients as well as beneficial Mycorrhiza Bacteria used to promote root growth. The use of Gator Bags, or similar products, are suggested for use within the initial planting year.

## **700 Tree/Hardscape Conflicts Guidelines**

In keeping with the City’s policy to preserve and protect healthy trees and to provide for the safety of citizens, the following guidelines have been established for correcting hazardous situations that result from tree roots disturbing hardscape in the public right-of-way.

### **700.01 Inspection**

When tree roots are suspected of causing hardscape damage, the Public Properties Maintenance Urban Forestry staff shall inspect the tree and assess the potential damage. The size, species, structure/condition, and (external) environmental factors will be considered before a recommendation is made.

1. Trunk size (DBH) and height
2. Desirability of the species
3. Structure, condition and health of the tree
4. External or environmental factors such as proximity to overhead or underground utilities

### **700.02 Recommendations**

A tree will be recommended for removal or root pruning if it meets the conditions outlined in this Manual.

## **701 Tree/Utility Conflict Guidelines**

### **701.01 Sewer Lines**

In keeping with the City's policy to preserve and protect healthy trees and to provide free flowing sanitary, and storm sewer lines, the following guidelines have been established for addressing situations that may result from tree roots invading sewer laterals.

#### **Responsibility**

Residential sewer lateral lines are the sole responsibility of the property/business owner. Owners are responsible for the lateral line beginning at the property to the point of connection to the City main line. This includes sections of the lateral that may be under the City sidewalks, curbs, or streets.

In the event of blockage in the lateral line, owners are responsible for determining the cause and clearing the blockage of the line between the building and the City's sewer line. The City is not responsible for determining the cause of, or clearing the blockage of a residential/business lateral line.

If the property owner believes a City owned tree has caused the problem, the owner should contact the Public Properties Maintenance Division manager or designee for instructions on dealing with the problem.

#### **Procedure**

It is the property owner's responsibility to provide reasonable evidence that the City-owned tree is in fact the cause of the damage. The Public Properties Maintenance Division will then conduct a site visit to determine if the tree is City-owned, the tree species, location, and report the findings back to the Utilities Division. Following notification of a potential sewer/City-owned tree conflict, the Utilities Division will determine the best course of action to handle the repairs in a timely fashion.

### **701.02 Water Lines**

In keeping with the City's policy to preserve and protect healthy trees and to provide uninterrupted water service, the following guidelines have been established for addressing conflict situations that result from tree roots.

#### **Responsibility**

Residential water service lines are the sole responsibility of the property/business owner. Owners are responsible for the service line beginning at the curb stop. This includes sections of the service that may be under City sidewalks.

In the event of a leak or break in the service line, owners are responsible for determining the cause and repairing the line between the building and the curb stop. The City's Utility Division is not responsible for determining the cause of, or repairing the residential/business service line.

If the property owner believes a City owned tree has caused the problem, the owner should contact the Public Properties Maintenance Division manager or designee, for instructions on dealing with the problem.

## **Procedure**

1. Notification: When notified of potential water service line and City owned tree conflict, the Public Properties Maintenance Division is to take all of the pertinent information and forward that to the Public Utilities Division.
2. Inspection: The Public Utilities Division will assign a contractor to inspect the water line to determine damage and the City's responsibility if any. The Public Properties Maintenance Division will conduct a site visit to determine if there is a public tree, the tree species and its location in relation to the water meter and lateral line and report to Risk Management.
3. Follow Up: The Utilities Division will determine if the water service needs to be repaired.
4. If the service is to be repaired by the City's contractor and if the water line can be rerouted away from the tree, then the Public Properties Maintenance Division will coordinate repairs with the Utilities Division.
5. If pruning the City tree roots can repair the water service line, then the Public Properties Maintenance Division will notify the Public Utilities Department to coordinate pruning with their contractor.
6. If the service line is to be repaired by the City's contractor and if the repairs cannot be made without removing the tree, then the Public Properties Maintenance Division will be notified and the removal will be scheduled.

## **701.03 Electric Lines**

In keeping with the City of Wooster's policy to preserve and protect healthy trees and the need to provide reliable electric service, the following guidelines have been established for addressing conflict situations that result from tree branches and foliage that interfere with electric lines.

### **Responsibility**

American Electric Power owns and maintains all electric lines within the City of Wooster, with the exception of a small area in the northern section. Residential and Commercial Electric Service lines are the sole responsibility of the property/business owner. Owners are responsible for the service line beginning at the power pole to the point of connection to the home or business.

## **Line Clearance Trimming Procedure for Trees in the Public Right-of-Way**

The process of line clearing is done by the electric company's private contractor, independently of the City of Wooster. These practices are carried out by the Public Utilities Commission of Ohio to minimize potential loss of power for customers. It is the City's goal to venture with the utility companies to maintain a mutual understanding of the work being done to the trees in the public right of way. The City of Wooster requires its pruning standards, as outlined in this manual, be upheld and that the agency maintains a certified arborist on staff, to ensure the quality of work is preserved.

## **Line Clearance Removal Procedure for Trees in the Public Right-of-Way**

It is the goal of the City of Wooster to plant the right tree in the right location, with long-term objectives of gradually removing inappropriate trees in the public right-of-way. Inappropriate trees are those that grow too large to be compatible with the wires. They will be removed and replaced where warranted with appropriate species.

The Public Properties Maintenance Division will identify those trees under wires needing removal and establish a long-term removal and replacement program. Removal of trees, grinding of stumps, and planting of new trees will follow the specifications as outlined in this policy manual.

## **Line Clearance for Service lines Between the Utility Pole and the Business/ Residence**

If a tree related issue arises that causes interference to the service or "drop line" to a private business or home residence, the electric company is not liable or responsible to trim the tree or repair the line. It is the business or residence owner to maintain the condition of their own service lines between the electric meter and the utility pole. Any privately owned trees are the homeowners to maintain; however, the City will trim any trees causing interference that are in the public right of way, upon request of the property owner. Any work performed on the interfering trees will follow the proper procedures as outlined in this manual.

## **701.04 Gas Lines**

In keeping with the City of Wooster's policy to preserve and protect healthy trees and the need to provide reliable gas services, the following guidelines have been established for addressing conflict situations that result from tree roots that interfere with gas lines, as well as protecting trees from underground damage.

### **Responsibility**

Residential and Commercial Gas Service lines are the sole responsibility of the property/business owner. Owners are responsible for the service line beginning at the gas main line connection to the point of connection to the home or business, as well as any gas lines inside the structure or home. Dominion East Ohio Gas owns and maintains all gas main lines within the City of Wooster.



In the event of a leak or break in the lateral line, owners are responsible for contacting Dominion East Ohio Gas, to shut off service, in addition to determining the cause and repairing the line between the building and the gas meter. The City does not accept responsibility for making any repairs to gas lines, and determining what caused the break in the service line.

If the property owner believes a City owned tree has caused the problem, the owner should contact a licensed contractor to service the line, and determine if a City tree has broken the line. If there is reliable evidence the homeowner should contact the Public Properties Maintenance Division manager or designee for instructions of reimbursement and any further actions, if any are to apply.

## **Procedure**

The installation and maintenance of all gas lines within the City of Wooster, is handled by the Dominion East Ohio gas company, and their private contractors. The City accepts no liability or responsibility in any of their private operations. However, the City does require its pruning, and maintenance standards, as outlined in this manual, be upheld and that the agency maintains a certified arborist on staff, to ensure the quality of work is preserved. These procedures are mainly concerning any damage done to the underground root systems due to any and all horizontal boring done to install gas lines beneath the drip lines of City owned Trees. Any damage done to the root system is handled in the same manner as crown or trunk damage, and susceptible to the appropriate fee and mitigation, per the fee schedule. (Appendix B).

## Appendix A

# Proper Mulching Techniques

Mulching is one of the most beneficial practices a homeowner can use for better tree health.



Mulches are applied to the soil surface to maintain moisture and improve soil conditions. However, if misapplied, mulch may have little, or even negative, impact on trees.

### Benefits of Proper Mulching

- Reduces soil moisture loss through evaporation.
- Controls weed germination and growth.
- Insulates soil, protecting roots from extreme summer and winter temperatures.
- Improves soil biology, aeration, structure (aggregation of soil particles), and drainage over time.
- Increases soil fertility as certain mulch types decompose.
- Inhibits certain plant diseases.
- Reduces the likelihood of tree damage from string trimmers and lawn mowers.
- Gives planting beds a uniform, cared-for look.

Trees growing in a natural forest environment have their roots anchored in a rich, well aerated soil full of essential nutrients and soil microorganisms. The soil is blanketed by fallen leaves and other organic materials that organisms break down to release nutrients into the soil. This environment is optimal for root growth and mineral uptake.

Urban landscapes and new developments, however, are typically harsher environments with poor-quality soil, reduced organic matter, and large fluctuations in soil temperature and moisture. Many benefits of the natural environment can be replicated, while maintaining a formal appearance, with the application of an organic mulch.

### Types of Mulch

#### Organic Mulch

- Examples include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, compost mixes, and a variety of other products usually derived from plants.
- Decomposes in the landscape at different rates depending on the material, climate, and soil microorganisms present.
- Requires more replenishing depending on how fast it decomposes.

#### Inorganic Mulch

- Examples include various types of stone, lava rock, shredded rubber, and other materials.
- Does not decompose or need to be replenished often.
- Does not improve soil structure or provide nutrients.

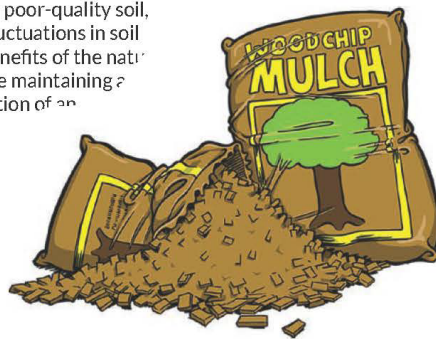
### Not Too Much!

Too much mulch can be harmful. The recommended mulching depth is 2–4 inches (5–10 cm). Unfortunately, many landscapes are falling victim to a plague of over mulching.

“Mulch volcanoes” are excessive piles of mulch materials applied around the base of trees.

While organic mulches must be replenished over time, buildup can occur if reapplication outpaces decomposition or if new material is added simply to refresh color.

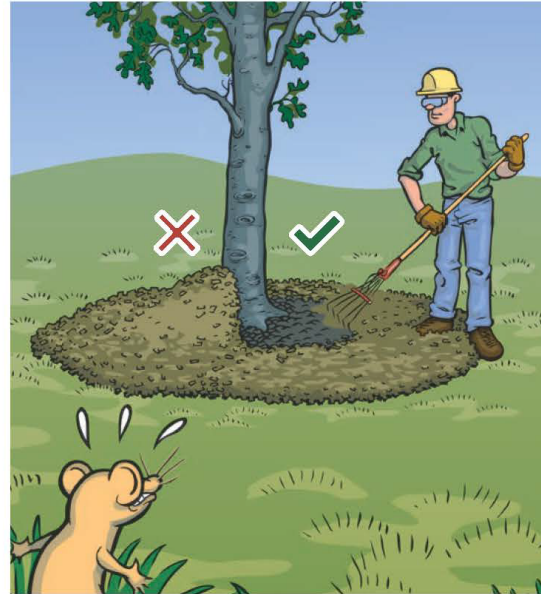
Deep mulch can be effective in suppressing weeds and reducing maintenance, but it often causes additional problems.



## Appendix A (cont.)

### Problems Associated with Improper Mulching

- Applying mulch against the trunk or stems of plants can soften the tissues, making them more susceptible to the development of insects and diseases (see figure top right).
- Mulch against the trunk can also lead to the growth of stem girdling roots. This type of root growth can reduce tree growth or eventually kill the tree.
- Thick blankets of fine mulch can become matted and may reduce the penetration of water and air.
- On wet soils, applying more than 2 inches (5 cm) of organic mulch can reduce soil drying, which can lead to excess moisture in the root zone, which can stress the plant and cause root rot. In these cases, it may be best to leave bare ground exposed or to use a thin layer of inorganic mulch.
- Some mulches, especially those containing fresh grass clippings, can affect soil pH and may eventually lead to nutrient deficiencies or toxic buildups. Anaerobic “sour” mulch may give off pungent odors, and the alcohols and organic acids that build up may be toxic to young plants.



### Guidelines for Applying Mulch

The choice of mulch and the application techniques are important to the health of landscape plants. The following are guidelines for applying mulch:

- For well-drained sites, apply a 2–4 inch (5–10 cm) layer of mulch. Fine mulches, such as composed materials, should be applied in a 2–3 inch layer and coarse mulches, such as arborist wood chips, should be applied in a 3–4 inch layer.
- Apply mulch near, but not touching, the trunk and extend to the drip line, if practical. If it is not practical to apply mulch to the drip line, apply as far out as you can. Generally, a 3 foot (1 meter) radius ring is the minimum for most trees.
- If the species you are mulching has symptoms related to a pH problem, select a mulch that can aid in correcting.
- If mulch is already present, check the depth. If sufficient mulch is present, break up any matted layers and refresh the appearance with a rake. Some landscape maintenance companies spray mulch with a water-soluble, vegetable-based dye to add color to faded material.
- If mulch is piled against the stems or tree trunks, pull it back several inches/centimeters so that the base of the trunk is exposed (see figure top right).
- Fresh arborist wood chips, especially those that contain bark and leaves, are an excellent material to apply around trees and large shrubs.

### What Is a Certified Arborist?

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## **Appendix B**

### **Fee Schedule**

All costs associated to remove and replace healthy trees shall be paid by the property owner making the request. This includes all labor, equipment and materials to perform such work. The tree cost will be based on the City's invoiced amount.

## Appendix C

### City of Wooster list of Prohibited Species

- Tree of Heaven – Human health issues and Invasive
- Callery Pear- '*Bradford*' however most other varieties are over planted
- Ginkgo- Female only
- Silver Maple- Weak Wooded
- Sweet Gum- (Straight Species)
- Kentucky Coffetree- (Straight Species)
- Honey Locust -(Straight Species)
- Black Locust- Disease, Seed Litter
- Box Elder- Disease and Weak wooded
- Horse-chestnut- Seed Litter
- Buckeyes- Litter, Leaf scorch
- Catalpa – Fruit Litter, Subject to breakage
- Mulberry- Fruit Litter
- Apples- Fruit Litter
- Siberian Elm- Disease, Weak wooded
- Moline Elm- Disease, Weak wooded
- Yellow Poplar (Tulip Tree)- Weak wooded
- All Willows- Roots, Weak wooded
- All Poplars- Weak wooded
- All Cottonwoods- Weak wooded, Seed Litter
- Norway Maple- Roots, and overplanted
- Osage Orange- Large, damaging fruit litter

## Appendix D

### City of Wooster Tree Planting List

#### Small Trees (10-20 ft.)

- paperbark maple
- serviceberry
- eastern redbud - '*Forrest Pansy*', '*Alba*', '*spp.*'
- white fringetree
- kousa dogwood
- cornelian cherry dogwood - '*Golden Glory*'
- cockspur hawthorn - '*Crusader*'
- Washington hawthorn - '*Ohio Pioneer*'
- crab apple - '*Prairie Fire*', '*Indian Summer*', '*White Cascade*', '*Coral Burst*', '*Evereste*'

#### Medium Trees (20-40 ft.)

- European hornbeam - '*Columnaris*'
- red cedar
- goldenrain tree
- black gum
- Japanese tree lilac
- eastern hophornbeam
- tatarian maple
- katsura tree
- alternate leaf dogwood (Pagoda)
- ginkgo "**male only**"

#### Large Trees (40+ ft.)

- Freeman maple
- - '*Columnar*', '*Armstrong*'
- sugar maple - '*Legacy*'
- river birch - '*Heritage*'

## Appendix D (cont.)

### Large Trees (40+ ft.) cont.

- American hackberry
- Turkish filbert
- honey locust - 'Skyline', 'Sunburst'
- dawn redwood - 'Ogon'
- Most Oaks Including: (swamp white oak, shingle oak, northern red oak, chinquapin oak, bur oak, scarlet oak, white oak black oak, shumard oak, pin oak - 'Sovereign')
- sassafras
- bald cyprus
- little leaf linden
- Specific Elm Cultivars and Hybrids: 'Valley forge', 'Homestead', 'Princeton'
- lacebark elm
- zelkova
- Kentucky coffeetree - 'Espresso'

### City of Wooster approved list for Tree Wells and Narrow Spaces

- black alder '*Pyramidalis*' 40'x15'
- zelkova '*Musashino*' 45'x15'
- Armstrong Freeman's maple '*Armstrong*' 40'x15'
- bowhall maple '*Bowhall*' 40'x15'
- columnar european beech '*Fastigiata*' 40'x10'
- european upright beech- *Fagus sylvatica* '*Dawyck Purple*' 50'x10'
- ginkgo '*Princeton Sentry*' 60'x20'
- upright english oak '*Fastigiata*' 20'x8'
- spire flowering cherry '*Spire*' 20'x8'
- yellow poplar-Liriodendron tulipifera '*Fastigiata*' 30'x10'
- crimson spire oak '*Crimschmidt*' 45'x15'
- autumn spire red maple '*Autumn Spire*' 45'x25'
- columnar bald cyprus *Taxodium distichum* '*Shawnee Brave*' 60'x15'



## Appendix E

# New Tree Planting

Information on proper practices for planting a tree with a nine-step approach to successful planting and establishment.



Purchasing a tree is an investment, and how well that investment grows depends on the type of tree selected, the location, and the care provided.

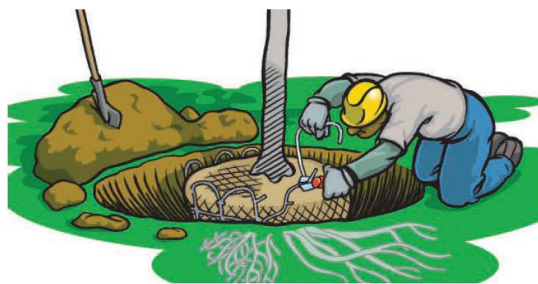
### When to Plant

- Ideally during the dormant season—in the fall after leaf drop or in early spring before bud break.
- Weather conditions are cool and allow plants to establish roots in the new location before spring rains and summer heat stimulate new top growth.
- Healthy balled and burlapped or container trees can be planted throughout the growing season.
- In tropical and subtropical climates where trees grow year round, any time is a good time to plant a tree, provided that sufficient water is available.

### Planting Stress

Balled-and-burlapped trees lose a significant portion of their root system when dug at the nursery. As a result, trees commonly exhibit what is known as “transplant shock.” Transplant shock is a state of slowed growth and reduced vitality following transplanting.

Container trees may also experience transplant shock, particularly if they have circling (girdling) or kinked roots that must be cut. Proper site preparation, careful handling to prevent further root damage, and good follow-up care reduces transplant shock and promotes faster recovery.



### Steps to Plant a Tree

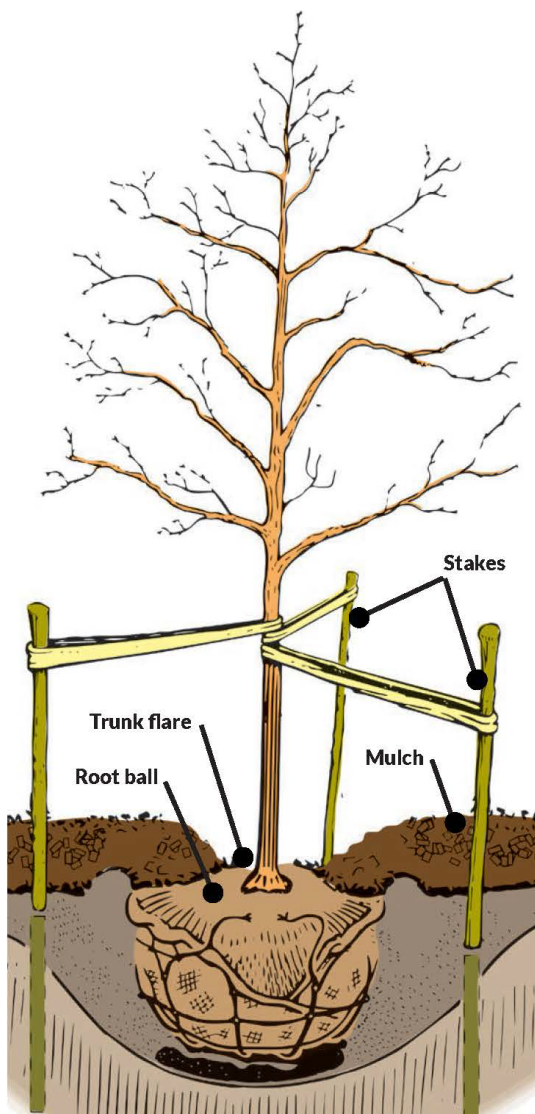
**Note:** Before you begin planting your tree, be sure you have located all underground utilities prior to digging. **811 is the national call-before-you-dig phone number.** Anyone who plans to dig should call 811 or go to their state 811 center's website.

Carefully follow these nine steps to help your tree establish quickly in its new location:

1. The trunk flare is where the trunk expands at the base of the tree. **Ensure trunk flare is partially visible after the tree is planted.** Remove excess soil prior to planting if flare is not visible.
2. Dig a shallow, broad planting hole. **Holes should be 2-3 times wider than the root ball,** but only as deep as the root ball.
3. If wrapped, remove any cover from around the root ball and trunk to facilitate root growth. Remove wire basket or cut one or two rings off so it is low-profile and will not interfere with future root growth. Inspect tree root ball for circling roots and straighten, cut, or remove them. Expose the trunk flare if necessary.
4. Place the tree at the proper height. When placing the tree in the hole, lift by the root ball, not the trunk. The majority of tree's roots develop in the top 12 inches (30 cm) of soil. Planting too deep can be harmful to the tree.
5. Straighten the tree in the hole. Before filling the hole, have someone examine the tree from several angles to confirm it is straight.
6. Fill the hole gently but firmly. Pack soil around the base of the root ball to stabilize it. Fill the hole firmly to eliminate air pockets. Further reduce air pockets by watering periodically while backfilling. Avoid fertilizing at the time of planting.
7. If staking is necessary, three stakes or underground systems provide optimum support. **Studies have shown that trees develop stronger trunks and roots if they are not staked;** however, it may be required when planting bare root stock or on windy sites. Remove stakes after first year of growth.

## Appendix E (cont.)

- Mulch the base of the tree. Place a 2–3 inch (5–7.5 cm) layer of mulch, but be sure not to pile much right against the trunk. A mulch-free area of 1–2 inches (2.5–5 cm) wide at the base of the tree will reduce moist bark and prevent decay.
- Provide follow-up care. Keep the soil moist by watering at least once a week, barring rain, and more frequently during hot, windy weather. Continue until mid-fall, tapering off as lower temperatures require less-frequent watering.



### Other follow-up care to consider:

- Minor pruning of branches damaged during the planting process may be required.
- Prune sparingly after planting. Delay corrective pruning until a full season of growth.
- If trunk wrapping is necessary, use biodegradable materials and wrap from the bottom.

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### Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](http://TreesAreGood.org) to read and download all brochures in this series.



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# Appendix F

## ISA Basic Tree Risk Assessment Form

Client \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Address/Tree location \_\_\_\_\_ Tree no. \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_  
 Tree species \_\_\_\_\_ dbh \_\_\_\_\_ Height \_\_\_\_\_ Crown spread dia. \_\_\_\_\_  
 Assessor(s) \_\_\_\_\_ Time frame \_\_\_\_\_ Tools used \_\_\_\_\_

### Target Assessment

Target number	Target description	Target zone			Occupancy rate 1 - rare 2 - occasional 3 - frequent 4 - constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1							
2							
3							
4							

### Site Factors

History of failures \_\_\_\_\_ Topography Flat  Slope  \_\_\_\_\_ % Aspect \_\_\_\_\_  
 Site changes None  Grade change  Site clearing  Changed soil hydrology  Root cuts  Describe \_\_\_\_\_  
 Soil conditions Limited volume  Saturated  Shallow  Compacted  Pavement over roots  \_\_\_\_\_ % Describe \_\_\_\_\_  
 Prevailing wind direction \_\_\_\_\_ Common weather Strong winds  Ice  Snow  Heavy rain  Describe \_\_\_\_\_

### Tree Health and Species Profile

Vigor Low  Normal  High  Foliage None (seasonal)  None (dead)  Normal \_\_\_\_\_ % Chlorotic \_\_\_\_\_ % Necrotic \_\_\_\_\_ %  
 Pests \_\_\_\_\_ Abiotic \_\_\_\_\_  
 Species failure profile Branches  Trunk  Roots  Describe \_\_\_\_\_

### Load Factors

Wind exposure Protected  Partial  Full  Wind funneling  \_\_\_\_\_ Relative crown size Small  Medium  Large   
 Crown density Sparse  Normal  Dense  Interior branches Few  Normal  Dense  Vines/Mistletoe/Moss  \_\_\_\_\_  
 Recent or planned change in load factors \_\_\_\_\_

### Tree Defects and Conditions Affecting the Likelihood of Failure

#### — Crown and Branches —

Unbalanced crown  LCR \_\_\_\_\_ % Cracks  \_\_\_\_\_ Lightning damage   
 Dead twigs/branches  \_\_\_\_\_ % overall Max. dia. \_\_\_\_\_ Codominant  \_\_\_\_\_ Included bark   
 Broken/Hangers Number \_\_\_\_\_ Max. dia. \_\_\_\_\_ Weak attachments  \_\_\_\_\_ Cavity/Nest hole \_\_\_\_\_ % circ.  
 Over-extended branches  Previous branch failures  \_\_\_\_\_ Similar branches present   
**Pruning history**  
 Crown cleaned  Thinned  Raised  Dead/Missing bark  Cankers/Galls/Burls  Sapwood damage/decay   
 Reduced  Topped  Lion-tailed  Conks  Heartwood decay  \_\_\_\_\_  
 Flush cuts  Other \_\_\_\_\_ Response growth \_\_\_\_\_  
 Main concern(s) \_\_\_\_\_

Load on defect N/A  Minor  Moderate  Significant  \_\_\_\_\_  
 Likelihood of failure Improbable  Possible  Probable  Imminent  \_\_\_\_\_

#### — Trunk —

Dead/Missing bark  Abnormal bark texture/color   
 Codominant stems  Included bark  Cracks   
 Sapwood damage/decay  Cankers/Galls/Burls  Sap ooze   
 Lightning damage  Heartwood decay  Conks/Mushrooms   
 Cavity/Nest hole \_\_\_\_\_ % circ. Depth \_\_\_\_\_ Poor taper   
 Lean \_\_\_\_\_ ° Corrected? \_\_\_\_\_  
 Response growth \_\_\_\_\_  
 Main concern(s) \_\_\_\_\_

Load on defect N/A  Minor  Moderate  Significant  \_\_\_\_\_  
 Likelihood of failure Improbable  Possible  Probable  Imminent  \_\_\_\_\_

#### — Roots and Root Collar —

Collar buried/Not visible  Depth \_\_\_\_\_ Stem girdling   
 Dead  Decay  Conks/Mushrooms   
 Ooze  Cavity  \_\_\_\_\_ % circ.  
 Cracks  Cut/Damaged roots  Distance from trunk \_\_\_\_\_  
 Root plate lifting  Soil weakness

Response growth \_\_\_\_\_  
 Main concern(s) \_\_\_\_\_

Load on defect N/A  Minor  Moderate  Significant  \_\_\_\_\_  
 Likelihood of failure Improbable  Possible  Probable  Imminent  \_\_\_\_\_



# Appendix F (cont.)

## Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood													Risk rating of part (from Matrix 2)			
							Failure				Impact			Failure & Impact (from Matrix 1)			Consequences						
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely	Negligible		Minor	Significant	Severe
1																							
2																							
3																							
4																							

Matrix 1. Likelihood matrix.

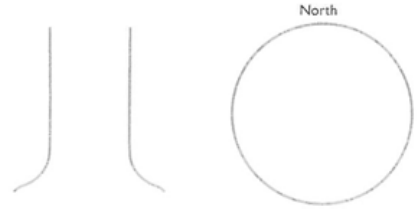
Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low



Notes, explanations, descriptions \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



Mitigation options \_\_\_\_\_ Residual risk \_\_\_\_\_  
 \_\_\_\_\_ Residual risk \_\_\_\_\_  
 \_\_\_\_\_ Residual risk \_\_\_\_\_  
 \_\_\_\_\_ Residual risk \_\_\_\_\_

Overall tree risk rating Low  Moderate  High  Extreme  Work priority 1  2  3  4

Overall residual risk Low  Moderate  High  Extreme  Recommended inspection interval \_\_\_\_\_

Data  Final  Preliminary Advanced assessment needed  No  Yes-Type/Reason \_\_\_\_\_

Inspection limitations  None  Visibility  Access  Vines  Root collar buried Describe \_\_\_\_\_

This datasheet was produced by the International Society of Arboriculture (ISA) and is intended for use by Tree Risk Assessment Qualified (TRAQ) arborists – 2013

# Appendix F (cont.)



## A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas **TREE HAZARD EVALUATION FORM** 2nd Edition

Site/Address: \_\_\_\_\_  
 Map/Location: \_\_\_\_\_  
 Owner: public \_\_\_\_\_ private \_\_\_\_\_ unknown \_\_\_\_\_ other \_\_\_\_\_  
 Date: \_\_\_\_\_ Inspector: \_\_\_\_\_  
 Date of last inspection: \_\_\_\_\_

HAZARD RATING:				
_____	+	_____	+	_____ = _____
Failure Potential		Size of part	Target Rating	Hazard Rating
_____				Immediate action needed
_____				Needs further inspection
_____				Dead tree

### TREE CHARACTERISTICS

Tree #: \_\_\_\_\_ Species: \_\_\_\_\_  
 DBH: \_\_\_\_\_ # of trunks: \_\_\_\_\_ Height: \_\_\_\_\_ Spread: \_\_\_\_\_  
 Form:  generally symmetric  minor asymmetry  major asymmetry  stump sprout  stag-headed  
 Crown class:  dominant  co-dominant  intermediate  suppressed  
 Live crown ratio: \_\_\_\_\_ % Age class:  young  semi-mature  mature  over-mature/senescent  
 Pruning history:  crown cleaned  excessively thinned  topped  crown raised  pollarded  crown reduced  flush cuts  cabled/braced  
 none  multiple pruning events Approx. dates: \_\_\_\_\_  
 Special Value:  specimen  heritage/historic  wildlife  unusual  street tree  screen  shade  indigenous  protected by gov. agency

### TREE HEALTH

Foliage color:  normal  chlorotic  necrotic Epicormics? Y N  
 Foliage density:  normal  sparse Leaf size:  normal  small  
 Annual shoot growth:  excellent  average  poor Twig Dieback? Y N  
 Woundwood development:  excellent  average  poor  none  
 Vigor class:  excellent  average  fair  poor  
 Major pests/diseases: \_\_\_\_\_

### SITE CONDITIONS

Site Character:  residence  commercial  industrial  park  open space  natural  woodland/forest  
 Landscape type:  parkway  raised bed  container  mound  lawn  shrub border  wind break  
 Irrigation:  none  adequate  inadequate  excessive  trunk wetted  
 Recent site disturbance? Y N  construction  soil disturbance  grade change  line clearing  site clearing  
 % dripline paved: 0% 10-25% 25-50% 50-75% 75-100% Pavement lifted? Y N  
 % dripline w/ fill soil: 0% 10-25% 25-50% 50-75% 75-100%  
 % dripline grade lowered: 0% 10-25% 25-50% 50-75% 75-100%  
 Soil problems:  drainage  shallow  compacted  droughty  saline  alkaline  acidic  small volume  disease center  history of fail  
 clay  expansive  slope \_\_\_\_\_° aspect: \_\_\_\_\_  
 Obstructions:  lights  signage  line-of-sight  view  overhead lines  underground utilities  traffic  adjacent veg.  \_\_\_\_\_  
 Exposure to wind:  single tree  below canopy  above canopy  recently exposed  windward, canopy edge  area prone to windthrow  
 Prevailing wind direction: \_\_\_\_\_ Occurrence of snow/ice storms  never  seldom  regularly

### TARGET

Use Under Tree:  building  parking  traffic  pedestrian  recreation  landscape  hardscape  small features  utility lines  
 Can target be moved? Y N Can use be restricted? Y N  
 Occupancy:  occasional use  intermittent use  frequent use  constant use

The International Society of Arboriculture assumes no responsibility for conclusions or recommendations derived from use of this form.

# Appendix F (cont.)

## TREE DEFECTS

### ROOT DEFECTS:

Suspect root rot: Y N Mushroom/conk/bracket present: Y N ID: \_\_\_\_\_

Exposed roots:  severe  moderate  low Undermined:  severe  moderate  low

Root pruned: \_\_\_\_\_ distance from trunk Root area affected: \_\_\_\_\_% Buttress wounded: Y N When: \_\_\_\_\_

Restricted root area:  severe  moderate  low Potential for root failure:  severe  moderate  low

LEAN: \_\_\_\_\_ deg. from vertical  natural  unnatural  self-corrected Soil heaving: Y N

Decay in plane of lean: Y N Roots broken Y N Soil cracking: Y N

Compounding factors: \_\_\_\_\_ Lean severity:  severe  moderate  low

CROWN DEFECTS: Indicate presence of individual defects and rate their severity (s = severe, m = moderate, l = low)

DEFECT	ROOT CROWN	TRUNK	SCAFFOLDS	BRANCHES
Poor taper				
Bow, sweep				
Codominants/forks				
Multiple attachments				
Included bark				
Excessive end weight				
Cracks/splits				
Hangers				
Girdling				
Wounds/seam				
Decay				
Cavity				
Conks/mushrooms/bracket				
Bleeding/sap flow				
Loose/cracked bark				
Nesting hole/bee hive				
Deadwood/stubs				
Borers/termites/ants				
Cankers/galls/burrs				
Previous failure				

### HAZARD RATING

Tree part most likely to fail: \_\_\_\_\_

Failure potential: 1 - low; 2 - medium; 3 - high; 4 - severe

Inspection period: \_\_\_\_\_ annual \_\_\_\_\_ biannual \_\_\_\_\_ other \_\_\_\_\_

Size of part: 1 - <6" (15 cm); 2 - 6-18" (15-45 cm);

3 - 18-30" (45-75 cm); 4 - >30" (75 cm)

Failure Potential + Size of Part + Target Rating = Hazard Rating

Target rating: 1 - occasional use; 2 - intermittent use;

3 - frequent use; 4 - constant use

\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

### HAZARD ABATEMENT

Prune:  remove defective part  reduce end weight  crown clean  thin  raise canopy  crown reduce  restructure  shape

Cable/Brace: \_\_\_\_\_ Inspect further:  root crown  decay  aerial  monitor

Remove tree: Y N Replace? Y N Move target: Y N Other: \_\_\_\_\_

Effect on adjacent trees:  none  evaluate

Notification:  owner  manager  governing agency Date: \_\_\_\_\_

### COMMENTS