



Urban Forestry Policy Manual
Public Properties Maintenance Division
Parks/Shade Tree Subdivision

TABLE OF CONTENTS

Contact Information.....	4
100 Introduction	5
100.01 Who Cares For The Urban And Community Forest?	5
100.02 Tree Care Guidelines	5
100.03 The City Council.....	6
100.04 Shade Tree Commission.....	6
100.05 Public Properties Maintenance Division.....	6
100.06 Funding For the Urban and Community Forest	6
100.07 Adopt-A-Park Program.....	6
100.08 Grants.....	6
200 Cultural Practices.....	7
200.01 Pest Control.....	7
200.02 Mulching.....	7
200.03 Responsibilities.....	7
300 Tree Pruning Guidelines	8
300.01 Need for Pruning	8
300.02 Property Owners Ability to Prune Trees.....	8
300.03 Tree Pruning Specifications	9
300.04 General Requirements.....	9
300.05 Complete Pruning Specifications.....	9
300.06 Safety Pruning Specifications	11
400 Tree Preservation Guidelines	11
500 Tree Removal Guidelines.....	13
500.01 Hazard Tree Removal.....	13
500.02 Inappropriate Tree Removal.....	14
500.03 Removals Because of Economic Consideration.....	15
500.04 Tree Removal Process.....	16
500.05 Programmed Tree Removals.....	17
500.06 Site Restrictions.....	17
500.07 Accident/ Unauthorized Removals.....	17
500.08 Specific Removal Policies.....	18
500.09 Stump Removal/Grinding.....	18
501 Street Tree Asset Value	19
600 Master Urban Forest Plan Guidelines.....	20
601 Tree Planting Guidelines	21
601.01 Property Owner Plantings.....	22
601.02 Care of Newly Planted Trees.....	22
602 Planting Specifications	22
602.01 Street Tree Planting.....	22
602.02 Public Property Planting.....	22
602.03 Specific Planting Policies.....	23
700 Tree/Hardscape Conflicts Guidelines	25
700.01 Inspections.....	25
700.02 Recommendations.....	25
701 Tree/Utility Conflicts Guidelines	26
701.01 Sewer Lines	26
701.02 Water Lines.....	27
701.03 Electric Lines.....	28
701.04 Gas Lines.....	29
Appendix A.....	Proper Mulching Techniques
Appendix B.....	Fee Schedule
Appendix C.....	Prohibited Species
Appendix D.....	Approved Tree Species
Appendix E.....	Planting Specifications
Appendix F.....	Hazard Tree Evaluation Form

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- 330-263-5241

Parks/Shade Tree Subdivision:

Supervisor- Andrew Guidetti- Office 330-263-5200 (ext. 382)

Tradesperson-Dan Yarnell- Office Phone: 330-263-5275

Or contact the Parks/Shade Tree department via email at
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): 1-800-362-276

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 Shade Tree 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 Shade Tree Commission

Annually appointed by the Mayor the Shade Tree 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, 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 tree-scape 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 a licensed 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” 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 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 any obstructed street sign, streetlight or other approved standard.
- h. Over sidewalks, 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 treelawn, 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 14 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 tree pruning 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/Shade Tree 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/Shade Tree subdivision in coordination with the Street maintenance subdivision to determine whether:
 - a. The repair work can be deferred and a temporary patch used to eliminate any hazard until other steps can be reviewed and implemented.
 - b. To remove the tree and replace it with a minimum 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/Shade Tree 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/ Shade Tree subdivision that root involvement is minimal.

500 Tree Removal Guidelines

The Public Properties Maintenance Department is responsible for the maintenance of the 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 Shade Tree Commission approval and with the authority granted in this policy.

The Public Property Maintenance Manager or Designee shall provide the City Council and the Shade Tree 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.

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 Shade Tree 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). (Appendix F)
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 treelawn 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 Shade Tree Commission along with the Public Properties Maintenance 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 I -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 Department 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 Shade Tree Commission meeting. The Commission meets on the Second Monday of each month. Individual property owners and/or occupants shall receive written notification of the Commission meeting.
2. Tree removal appeals will be reviewed by the Shade Tree 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. Inappropriate trees, (Appendix C) will be removed within three years, contingent on funding.
4. Trees approved for removal by the Commission may be removed by a property owner 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. If it is determined that a replacement tree is inappropriate, the replacement tree may be planted elsewhere on public right of way.
 - b. For Larger Trees- A property owner may obtain a Removal Permit from the Public Properties Maintenance Department for removal at 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. Class II Inappropriate trees, i.e., Tree of Heaven and Silver Maples, may be removed and replaced, at the property owner's expense and with Commission 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 his Designee based on the severity of overall deficiencies including width of treelawn, species, conditions of trees, or extent and number of recurrences of chronic structural damage to improvements which shall be approved by the 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 Shade Tree 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 a legal 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 C]).

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 Department.
2. Trees shall be replaced by the Public Properties Maintenance Department at the next appropriate planting cycle within twelve to eighteen months (12-18), provided funding is available according to the Department 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 2.5" caliper size class.
5. Trees may require relocation and preservation at the discretion of the Public Properties Maintenance Department.
6. One year of maintenance will be required by the contractor for all trees relocated.
7. The Shade Tree Commission must approve any request for the removal of five (5) or more trees in a quarter mile square.

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.
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 approximately 60% soil and overseeded 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 Shade Tree 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 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 Shade Tree 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 5% of the total trees in Wooster will be any one species. Trees that currently comprise more than 5% of Wooster's public trees are:
 - Flowering Pear (*Pyrus calleryana*)
 - Red Maple (*Acer rubrum*)
 - Crabapple (*Malus spp.*)
 - Norway Maple (*Acer platanoides*)
 - Sugar Maple (*Acer sacharum*)

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 Department 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" DBH caliper balled and bur lapped tree in commercial areas and 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/ Shade Tree 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/ Shade Tree 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 Department, Shade Tree Division.
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 Shade Tree 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 Shade Tree Division standards and subject to prior written approval of the Division.
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. (See zoning division planting Ordinance)
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 Department 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 Department 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. Ten (10) feet minimum from lamp standards.
 - 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 Shade Tree Commission, or the Public Properties Maintenance Department.
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.
13. All trees planted in tree wells shall be installed and irrigated in a manner that promotes deep rooting per Department 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 Department 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 Conflicts 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 Department, Shade Tree Division 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 Department 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 Public Utilities Department. Following notification of a potential sewer/City-owned tree conflict, the Public Utilities Department 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 Department, Shade Tree Division, 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 Department is to take all of the pertinent information and forward that to the Public Utilities Department.
2. Inspection: The Public Utilities Department will assign a contractor to inspect the water line to determine damage and the City's responsibility if any. The Public Properties Maintenance Department 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 Public Utilities Department 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 Department will coordinate repairs with the Public Utilities Department.
5. If pruning the City tree roots can repair the water service line, then the Public Properties Maintenance Department 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 Department 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

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 via federal mandates as outlined in this policy manual. 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 Department 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 Department, Shade Tree Division, 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 materials placed over the soil surface to maintain moisture and improve soil conditions. Mulching is one of the most beneficial acts a homeowner can do for the health of a tree. However, improper mulching materials and practices may have little, or even negative, impact on the trees in your landscape.



Benefits of Proper Mulching

- Helps reduce soil moisture loss through evaporation
- Helps control weed germination and growth
- Insulates soil, protecting roots from extreme summer and winter temperatures
- Can improve soil biology, aeration, structure (aggregation of soil particles), and drainage over time
- Can improve soil fertility as certain mulch types decompose
- Inhibits certain plant diseases
- Reduces the likelihood of tree damage from “weed whackers” or the dreaded “lawn mower blight”
- Gives planting beds a uniform, well-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 leaves, organic materials, and living organisms that replenish and recycle nutrients. This environment is optimal for root growth and mineral uptake. Urban landscapes and new developments, however, are typically harsher environments with poor quality soils, reduced organic matter, and large fluctuations in soil temperature and moisture. Applying a 2- to 4-inch (5- to 10-cm) layer of organic mulch can mimic a more natural environment and improve plant health.

Types of Mulch

Mulches are available in many forms. The two major types of mulch are inorganic and organic. Inorganic mulches include various types of stone, lava rock, pulverized rubber, geotextile fabrics, and other materials. Inorganic mulches do not decompose and do not need to be replenished often. On the other hand, they do not improve soil structure, add organic materials, or provide nutrients. For these reasons, most horticulturists and arborists prefer organic mulches.

Organic mulches include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, compost mixes, and a variety of other products usually derived from plants. Organic mulches decompose in the landscape at different rates depending on the material, climate, and soil microorganisms present. Those that decompose faster must be replenished more often. Because the decomposition process improves soil quality and fertility, many arborists and other landscape professionals consider that characteristic a positive one, despite the added maintenance.



Not Too Much!

As beneficial as mulch is, too much can be harmful. The generally recommended mulching depth is 2 to 4 inches (5 to 10 cm). Unfortunately, many landscapes are falling victim to a plague of overmulching. “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.

Problems Associated with Improper Mulching

- On wet soils, deep mulch can lead to excess moisture in the root zone, which can stress the plant and cause root rot.
- Piling mulch against the trunk or stems of plants can stress stem tissues and may lead to the development of insect and disease problems or stem girdling roots.

Appendix A (cont.)



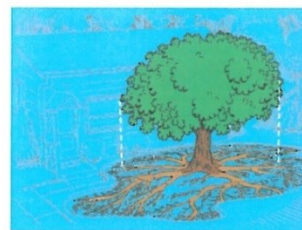
- Some mulches, especially those containing fresh grass clippings, can affect soil pH and may eventually lead to nutrient deficiencies or toxic buildups.
- Mulch piled high against the trunks of young trees may create habitats for rodents that chew the bark and can girdle the trees.
- Thick blankets of fine mulch can become matted and may reduce the penetration of water and air.
- Anaerobic "sour" mulch may give off pungent odors, and the alcohols and organic acids that build up may be toxic to young plants.



Proper Mulching

The choice of mulch and the method of application can be important to the health of landscape plants. The following are some guidelines to use when applying mulch:

- Determine whether soil drainage is adequate and if there are plants that may be affected by the choice of mulch. Most commonly available mulches work well in most landscapes. Some plants may benefit from the use of slightly acidifying mulch, such as pine bark.
- For well-drained sites, apply a 2- to 4-inch (5- to 10-cm) layer of mulch (less if poorly drained). Coarse mulches can be applied slightly deeper without harm. Place mulch out to the edge of a tree's crown or beyond. Remember, if a tree had a say in the matter, its entire root system (which usually extends well beyond the drip line) would be mulched.
- 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. Composted wood chips can make good mulch, especially when they include some bark and leaves. Fresh wood chips also may be used around established trees and shrubs. Avoid using fine, non-composted wood chips, as soil nitrogen may be taken up by the roots as the wood chips decompose.



This brochure is one in a series published by the International Society of Arboriculture as part of its Consumer Information Program. You may have additional interest in the following titles currently in the series:

Avoiding Tree and Utility Conflicts
Avoiding Tree Damage During Construction
Benefits of Trees
Buying High-Quality Trees
Insect and Disease Problems

Mature Tree Care
New Tree Planting
Plant Health Care
Proper Mulching Techniques
Palms

Pruning Mature Trees
Pruning Young Trees
Recognizing Tree Risk
Treatment of Trees Damaged by Construction
Tree Selection and Placement

Trees and Turf
Tree Values
Why Hire an Arborist
Why Topping Hurts Trees

E-mail inquiries: isa@isa-arbor.com

©2011 (1998, 2004) International Society of Arboriculture.

Developed by the International Society of Arboriculture (ISA), a non-profit organization supporting tree care research around the world and dedicated to the care and preservation of shade and ornamental trees. For further information, contact: ISA, P.O. Box 3129, Champaign, IL 61826-3129, USA.

E-mail inquiries: isa@isa-arbor.com



www.isa-arbor.com • www.treesaregood.org

Appendix B

Fee Schedule- not established for 2015

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 a lifelong investment. How well this investment grows depends on the type of tree selected and the planting location, the care provided during planting, and the follow-up care after planting.

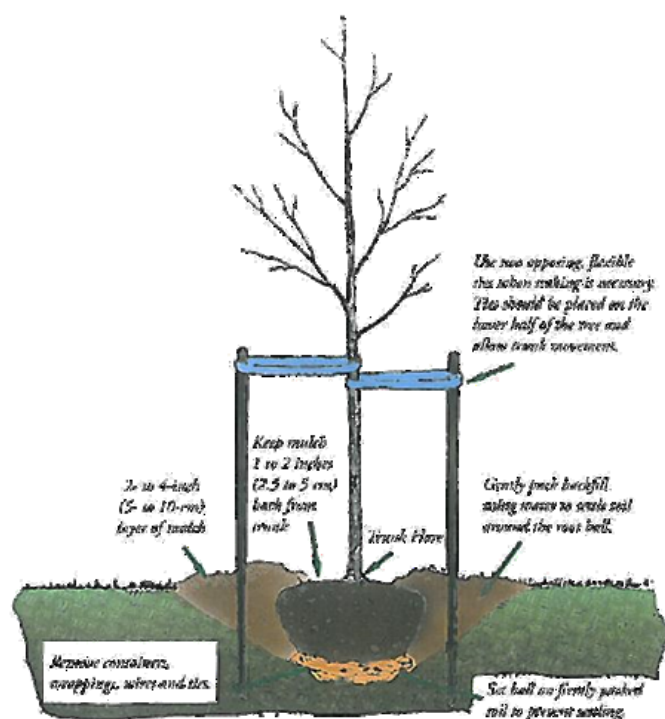
When to Plant

Ideally, trees are planted during the dormant season — in the fall after leaf drop or in early spring before budbreak. 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, however, can be planted throughout the growing season if given appropriate care. 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 Stresses

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 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.

Carefully follow the nine simple steps below to help your tree establish quickly in its new location. **Note:** Before you begin planting your tree, be sure you have located all underground utilities prior to digging.



1. **Identify the trunk flare.** The trunk flare is where the trunk expands at the base of the tree. This point should be partially visible after the tree has been planted (see diagram). Remove excess soil from the top of the root ball prior to planting if the root flare is not visible.
2. **Dig a shallow, broad planting hole.** Holes should be 2 to 3 times wider than the root ball, but only as deep as the root ball. Digging a broad planting pit breaks up the surrounding soil and provides newly emerging tree roots room to expand.
3. **Remove the containers or cut away the wire basket.** Inspect container tree root balls for circling roots. Straighten, cut, or remove them. Expose the trunk flare, if necessary.
4. **Place the tree at the proper height.** Take care to dig the hole to the proper depth — and no more. The majority of a tree's roots develop in the top 12 inches (30 cm) of soil. If the tree is planted too deep, new roots will have difficulty developing because of a lack of oxygen. In poorly drained or heavily clayed soils, trees can be planted with the base of the trunk flare 2 to 3 inches (5 to 7.5 cm) above grade. When placing the tree in the hole, lift it by the root ball, not the trunk.

Appendix E (cont.)

5. **Straighten the tree in the hole.** Before backfilling, have someone view the tree from several directions to confirm it is straight. Once planted, it is difficult to reposition the tree.

6. **Fill the hole gently, but firmly.** Pack soil around the base of the root ball to stabilize it. If the root ball is wrapped, carefully cut



and remove any fabric, plastic, string, and/or wire from around the trunk and root ball to prevent girdling and to facilitate root growth (see diagram). Fill the remainder of the hole, firmly packing the soil to eliminate air pockets that may dry out roots. Further reduce air pockets by watering periodically while backfilling. Avoid fertilization at the time of planting.

7. **Stake the tree, if necessary.** Studies have shown that trees establish more quickly and develop stronger trunk and root systems if they are not staked at the time of planting. Staking may be required, however, when planting bare root stock or planting on windy sites. Stakes may also offer protection against lawn mower

damage and vandalism. One or two stakes used in conjunction with a wide, flexible tie material on the lower half of the tree will hold the tree upright and minimize injury to the trunk (see diagram), yet still allow movement. Remove supports staking and ties after the first year of growth.

8. **Mulch the base of the tree.** Mulch is organic matter spread around the base of a tree to hold moisture, moderate soil temperature extremes, and reduce grass and weed competition. Common mulches include leaf litter, pine straw, shredded bark, peat moss, or composted wood chips. A 2- to 4-inch (5- to 10-cm) layer is ideal. More than 4 inches (10 cm) may cause a problem with oxygen and moisture levels. Piling mulch right up against the trunk of a tree may cause decay of the living bark. A mulch-face area, 1 to 2 inches (2.5 to 5 cm) wide at the base of the tree, reduces moist bark conditions and prevents decay.

9. **Provide follow-up care.** Keep the soil moist, but not waterlogged. Water trees at least once a week during rain, and more frequently during hot, windy weather. When the soil is dry below the surface of the mulch, it is time to water. Continue until mid-fall, tapering off as lower temperatures require less-frequent watering.

Other follow-up care may include minor pruning of branches damaged during the planting process. Prune sparingly after planting and delay necessary corrective pruning until a full season of growth in the new location has occurred.

Completing these nine simple steps will maximize the likelihood that your new tree will grow and thrive in its new home. When questions arise regarding your tree, be sure to consult your local ISA Certified Arborist or a tree care or garden center professional for assistance.

This brochure is one in a series published by the International Society of Arboriculture as part of its Consumer Information Program. You may have additional interest in the following titles currently in the series:

Avoiding Tree and Utility Conflicts

Avoiding Tree Damage During Construction

Benefits of Trees

Buying High-Quality Trees

Insect and Disease Problems

Mature Tree Care

New Tree Planting

Plant Health Care

Proper Mulching Techniques

Palms

Pruning Mature Trees

Pruning Young Trees

Recognizing Tree Risk

Treatment of Trees Damaged by Construction

Tree Selection and Placement

Trees and Turf

Tree Values

Why Hire an Arborist

Why Topping Hurts Trees

E-mail inquiries: isa@isa-arbor.com

©2011 (1978, 2004) International Society of Arboriculture

Developed by the International Society of Arboriculture (ISA), a non-profit organization supporting tree care research around the world and dedicated to the care and preservation of shade and ornamental trees. For further information, contact: ISA, P.O. Box 3129, Champaign, IL 61826-3129, USA.

E-mail inquiries: isa@isa-arbor.com



www.isa-arbor.com • www.treesaregood.org

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																												

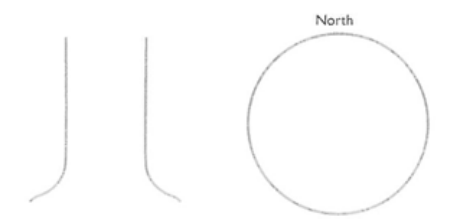
Matrix 1. Likelihood matrix.

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
 Overall residual risk Low Moderate High Extreme
 Work priority 1 2 3 4
 Recommended inspection interval _____
 Data Final Preliminary Advanced assessment needed No Yes-Type/Reason _____
 Inspection limitations None Visibility Access Vines Root collar buried Describe _____

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