Planting Guide
+ Urban Forestry Program
2022

This document and lists of species last revised on June 18, 2021 and approved by the City Park Board on June 7, 2021.

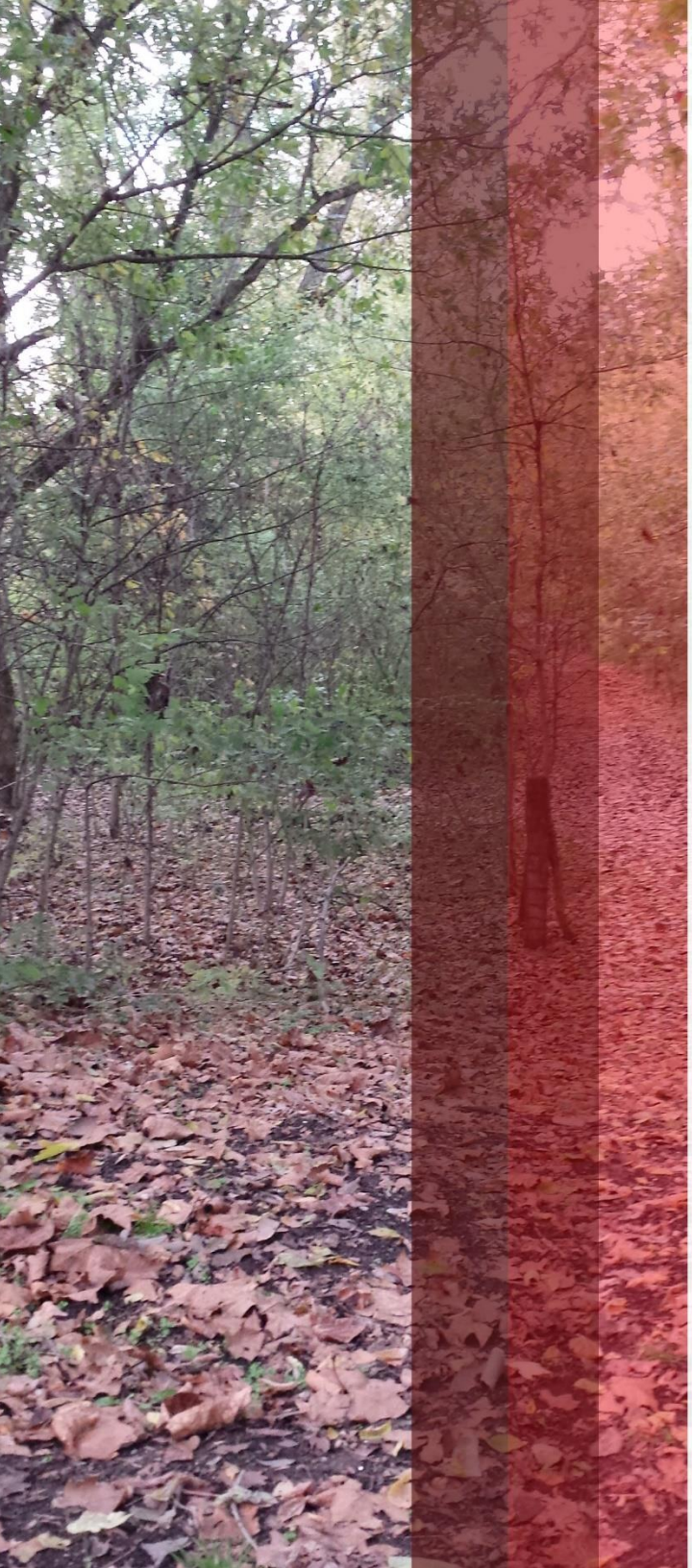
The City of Connersville Parks Board is responsiblefor the creation and ongoing update of this document. This version has been produced through partnership with the Connersville Mayor's Office and City Parks.

For more information about the Parks Advisory Committee, visit www.fishers.in.us/270/Parks-Advisory-Committee

For more information about Fishers Planning & Zoning, visit www.fishers.in.us/96/Planning-Zoning

For more information about Fishers Parks, visit www.playfishers.com

Questions regarding this document and other landscaping requirements may be directed to the Planning & Zoning Department via email to planning@fishers.in.us



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Introduction

Some simple planning before planting a tree or a shrub will greatly increase the likelihood of success for that planting. We hope that you find this guide a valuable resource.

Who is this guide for?

This guide is designed to provide homeowners, business owners, developers, contractors, and other land professionals with some basic information about which plant species to plant in certain situations such as planting in the right-of-way, street plantings, and under or near utility lines.

What will this guide tell me?

General information regarding desired native and non-native species is provided to enhance local flora and promote biodiversity in the area's ecosystem. A general understanding of tree planting and care techniques, as well as special considerations, will be explained.

Where can I find more information?

This guide only provides a small amount of information, so readers are encouraged to do further research and work with their local nursery, arborist, horticulturist, landscape designer, or other experienced professional to determine which specific cultivars will work the best for your location and why. Check with more than one source to get the most updated information. The end of this document contains resources and helpful links for further information.

Urban Forestry Program & Street Tree Regulations

The purpose of these planting regulations is to provide an opportunity for homeowners in the City of Connersville to purchase and plant trees at their residence in the publicright-of-way along city streets and to do so in a manner consistent with the City of Connersville's Urban Forestry Program. To apply for a street tree permit please visit

Sec. 95.32 Tree Selection

A. The Tree Board is the Board of Public Works or its designee,shall provide a list of desirable and undesirable tree, shrub and groundcover species for planting in public spaces. This list should include plant characteristics such as mature height and spread, bloom/foliage color, and various horticultural information along with recommended spacing, and may from time to time beupdated as deemed necessary by the Tree Board.

B. No species other than those included on the Tree Board's list of desirable trees may be planted as street trees without special permission of the Board or its designee. If special permission has not been granted, the cost of removal and replacement of the undesirable tree(s) shall be charged to the individual or firm who planted the tree(s).

C. The minimum size for small trees at installation is one and one-half inches in diameter (measured six inches from the ground), and for medium or large trees is two inches in diameter (measured six inches from the ground).

D. The minimum width for a street tree planting bed is five feet, with eight feet being preferred.

Sec. 95.33 Permits

A. No person shall plant, treat, spray, or prune a street tree or hire someone to care for a street tree unless the Tree Board first grants a proper permit. The permit may be issued to property owners or certified arborists. The purpose of this permit is to insure the planting of desirable trees and the proper location and spacing.

B. No person shall remove a street tree unless the Tree Board has issued the proper permit. Except that, no permit is required in an emergency situation.

C. Each permit issued shall specify the work to be performed and be valid for a period not to exceed 60 days from date of issuance. The Tree Board may extend the work period by 30 days upon written request.

D. An annual permit shall be issued to any public or private utility for trimming trees within public rights-of-way. The permit shall specify trimming schedules and procedures and be reviewed annually with the Tree Board.

Sec. 95.34 Installation and Removal

A. It shall be a violation for any person to plant trees, shrubs, or any other plan material within any public right-of-way, required landscape easement, or municipal property until a permit has been obtained from the Tree Board. The Board is authorized to refuse to grant a permit when the planting is likely to create a public danger or nuisance or to be detrimental to the growth of adjacent trees.

B. The Board may prune, remove, or cause to be pruned or removed any plants that are installed within the

public right-of-way, required landscape easement, or municipal property when it has been determined such pruning or removal is beneficial to the public health, safety, or welfare, or to adjacent.

C. No trees may be planted under or within 15 horizontal feet of any overhead utility line, or within five horizontal feet of any underground utility line.

D. Prior to installation, alteration, or repair of any building or structure, or any other construction activity, the owner thereof shall take all necessary steps to prevent injury to any flora growing in any public property or right-of-way.

E. Any tree removed from the public right-of-way or municipal property must be cut flush with the ground, unless the stump is removed. No brush, limbs or other parts of a removed tree shall be allowed to remain on any city street overnight.

Sec. 95.35 Routine Tree Care:

A. The city shall have the right to routinely inspect, plant, prune, maintain, and remove trees, plants, and shrubs within the boundaries of dedicated rights-of-way and other municipal properties as may be necessary to ensure public safety or to preserve and enhance the symmetry and/or beauty of such public grounds.

B. A utility may remove or cause to be removed any tree or part thereof which is in an unsafe condition, or which by reason of its nature is immediately injurious to sewers, electric lines, gas lines, water lines, or other public improvements, which is affected with any injurious fungus, insect or other pest, or which otherwise poses an identifiable threat to public safety. Except in emergency situations, communications and electric utilities shall notify the city before removing any tree.

C. Public utilities may trim or remove trees, tree roots, and tree branches as necessary for the maintenance of utility service and as is prescribed by state law and as limited below:

Unless approved in advance by the Tree Board for good cause shown, it shall be unlawful for any person to:

1. Top trees within a city right-of-way or on other municipal property;

2. Prune horizontally a branch of more than one-inch in diameter; and/or

3. Cut limbs within a tree's canopy back to stubs.

D. All property owners should be responsible for having all trees, shrubs, vines, or other plants growing under or near utility lines on their property properly trimmed or pruned. The applicable utility shall be contacted by the property owner prior to any pruning or trimming, so that service may be shut off as needed.

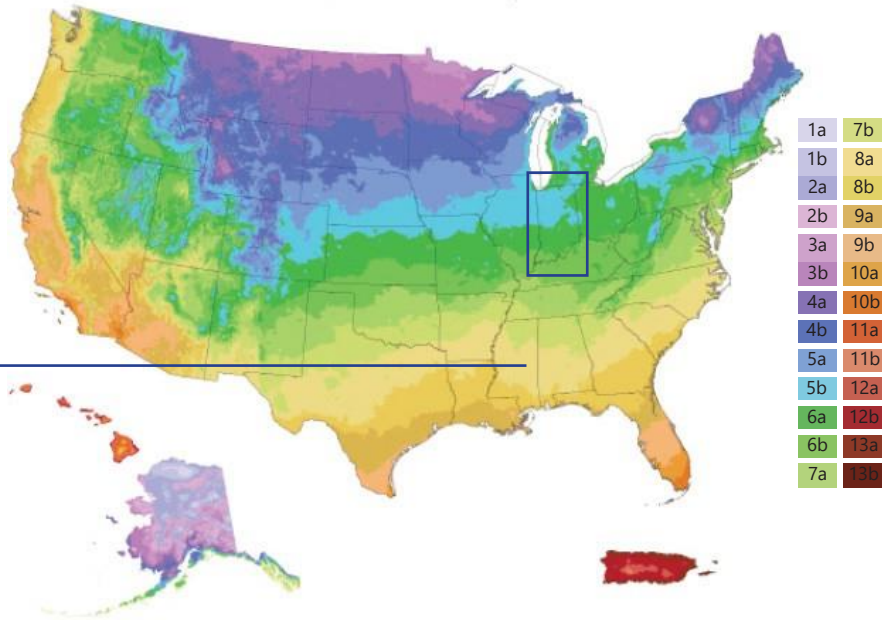
E. All property owners should be responsible for proper routine care of street trees in the right-of- way between the road surface and the sidewalk or remainder of that person's property. This includes monitoring tree health and notifying the city when such trees have major maintenance needs.

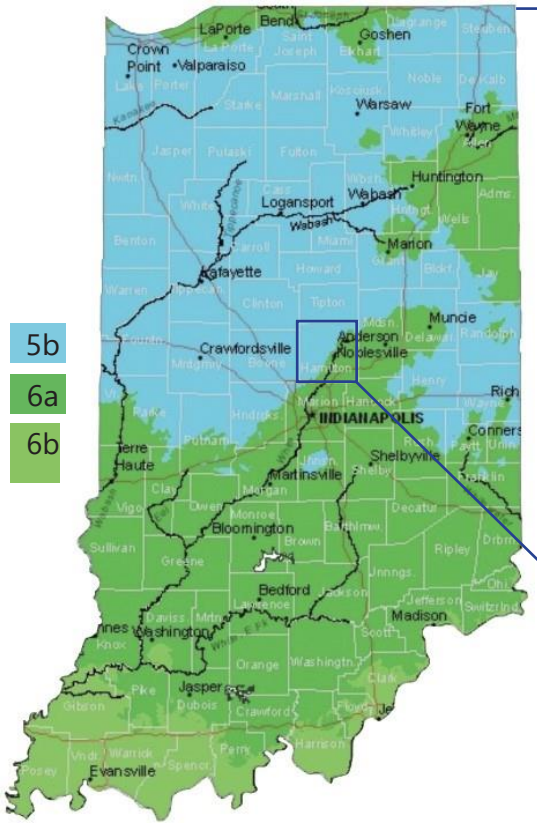
Landscape Considerations

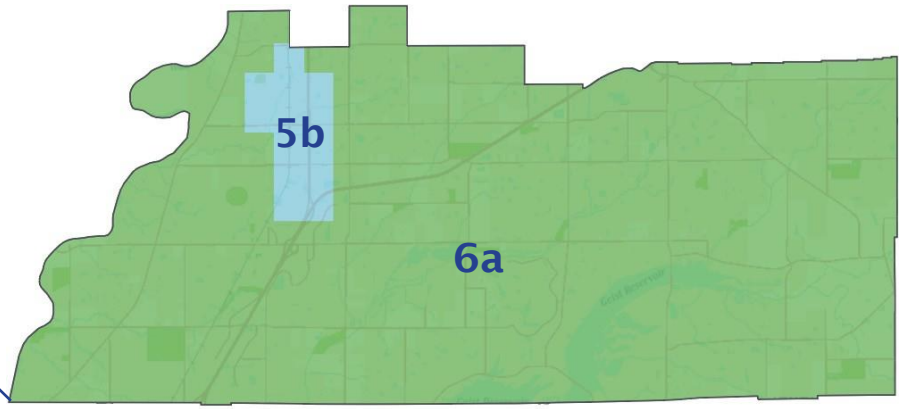
Hardiness Zones

The U.S. Department of Agriculture (USDA) categorizes the country into different plant hardiness zones; these zones are determined by average annual minimum temperatures. Plants available for sale typically indicate the minimum and/or maximum, or ideal, zones in which the plants will survive.

Connersville is located in zones 5b and 6a. All the plant species mentioned in this guide thrive inthese hardiness zones.







Utility Lines

It is important to be mindful of all utilities, both above- and below-ground, when selecting and planting trees and other plants. Safety and maintenance are of top concern. Utilities include (but are not limited to): electric, natural gas, water, sewer, telephone, cable, & fiber optics. Even if you do not have some of these utilities, such as gas or telephone, connected to your building or in service, these utilities may still run through your property.

Above-ground Utilities

Tree branches and above-ground utility lines are not a good combination. Severe weather events bringing thunderstorms, lightning, high winds, and ice can pose serious threats to trees located near utility lines.

Electric utility companies, like Duke Energy, regularly trim tree limbs in close proximity to utility lines to help prevent power outages from occurring in severe weather.

Low-growing trees that mature to a height of less than 25 feet are the best option for planting near above-ground utility lines. Planting low-growing trees near overhead lines will not only help beautify your property but can also help prevent service disruptions in the future.

Underground Utilities

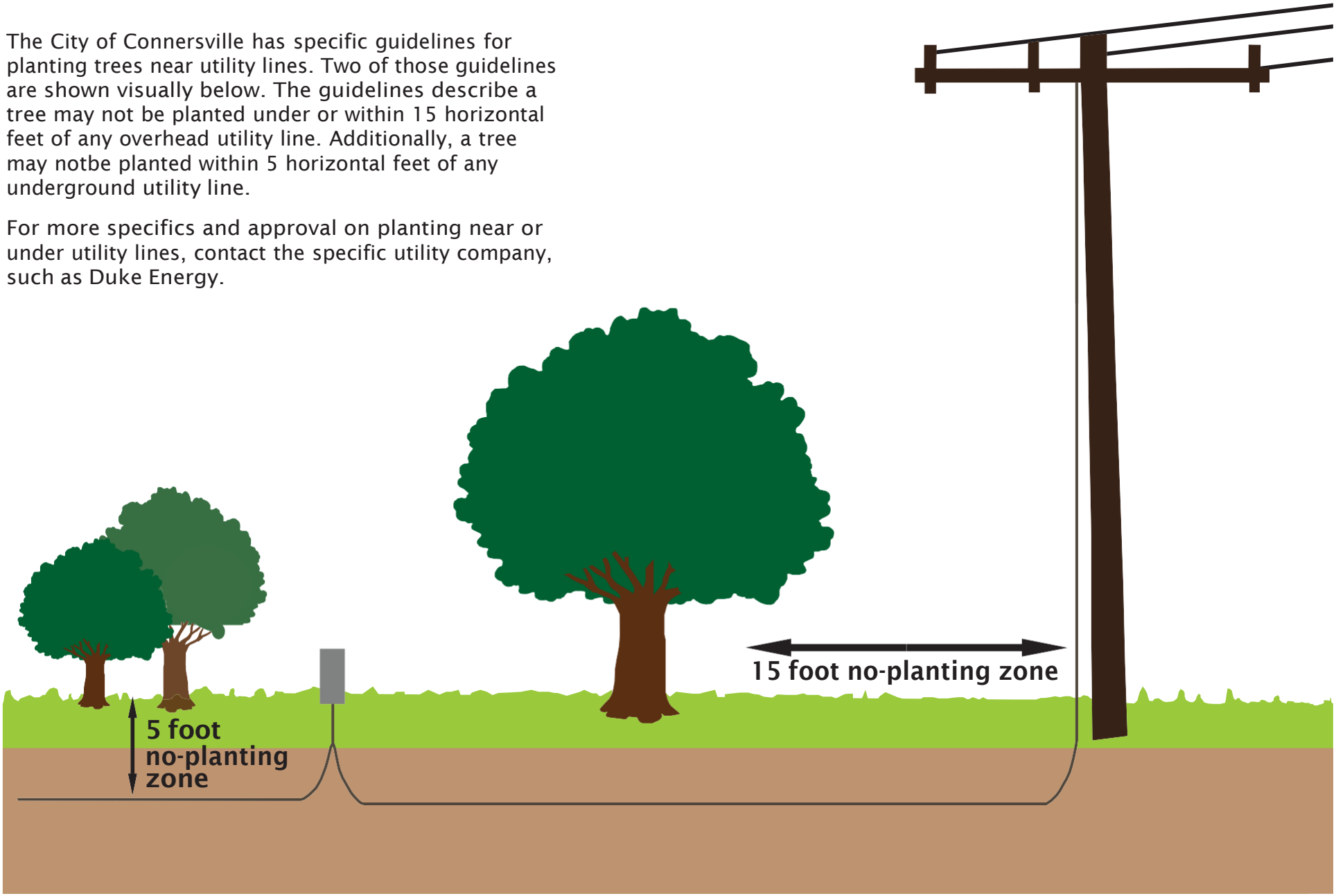
Indiana law requires all property owners to call 811 before digging. This is a free service allowing utility professionals to mark all buried electric, gas, water, sewer, cable, telephone, and fiber lines for your safety.

It is the caller's responsibility to know the location of all privately-owned equipment, including buried LP lines, pet fences, septic lines, and wiring for outdoor lighting. In some situations, homeowners should contact utility providers for additional approvals or considerations.

Long-term maintenance is another consideration. When planting close to underground utilities, you must be mindful of future problems that can arise. Trees with aggressive root systems can damage cables and pipes which will need to be repaired, possibly at the property owner's expense.

The City of Connersville has specific guidelines for planting trees near utility lines. Two of those guidelines are shown visually below. The guidelines describe a tree may not be planted under or within 15 horizontal feet of any overhead utility line. Additionally, a tree may notbe planted within 5 horizontal feet of any underground utility line.

For more specifics and approval on planting near or under utility lines, contact the specific utility company, such as Duke Energy.

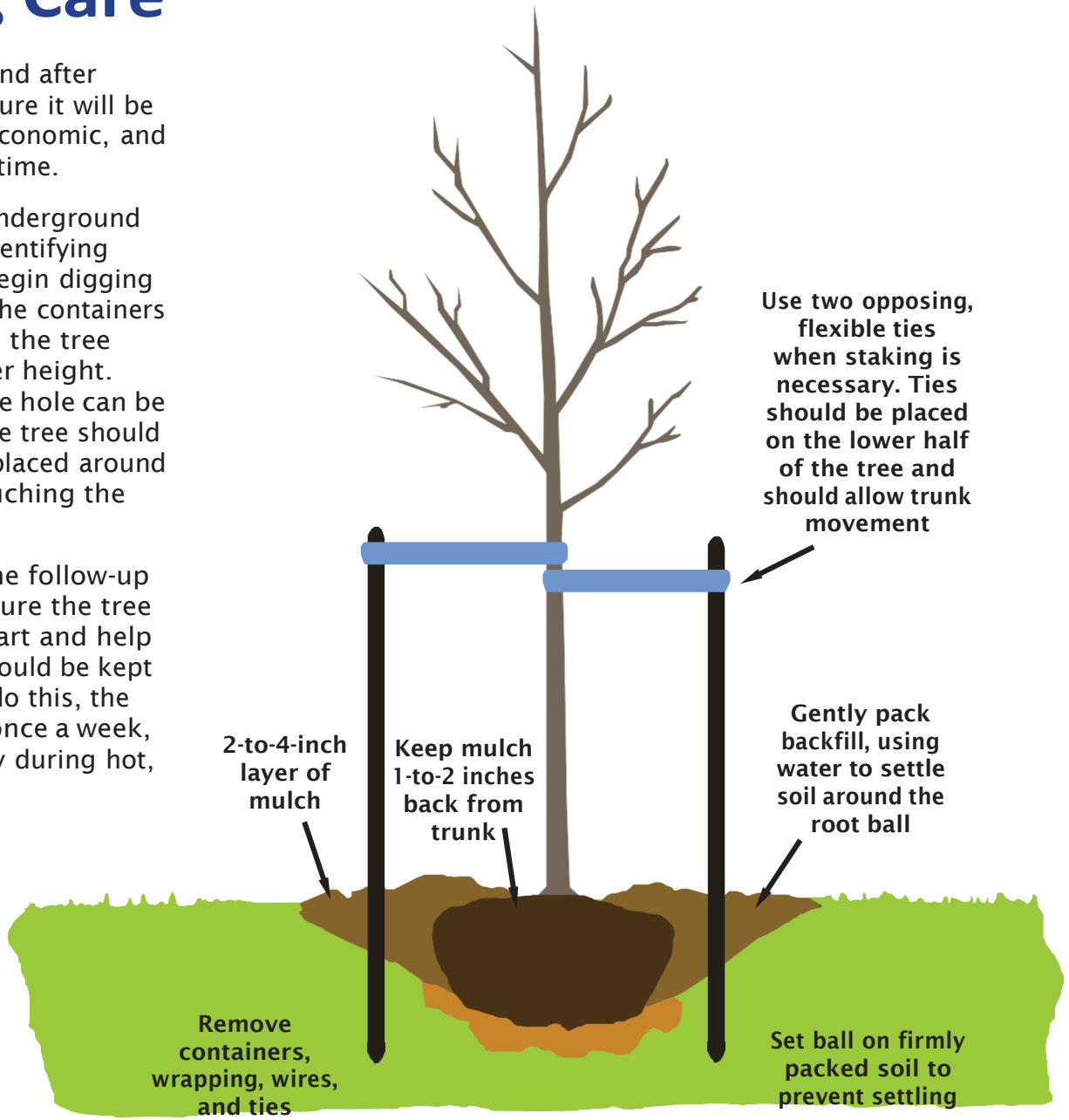


Tree Planting Care

The steps taken before, during, and after planting a tree are all vital to ensure it will be able to provide environmental, economic, and social benefits throughout its lifetime.

To begin you want to locate all underground utilities prior to digging. After identifying what is below ground, you can begin digging a shallow, broad planting hole. The containers should be removed or cut away, the tree placed into the hole at the proper height. Once the tree is straightened, the hole can be filled gently, but firmly. Lastly, the tree should be staked and mulch should be placed around the base of the tree, but not touching the trunk itself.

After a tree has been planted, the follow-up care is an important step to ensure the tree will be able to have a healthy start and help mature to its full size. The soil should be kept moist, but not water-logged. To do this, the tree should be watered at least once a week, barring rain, and more frequently during hot, windy weather.



Names & Cultivars

Importance of Scientific Names

When referring to plantings, it is important to note the scientific name is preferred to be used in comparison to the plantings common name. Scientific names, or Binomial nomenclature, is the official system for giving names to organisms. Scientific names are standardized, meaning each planting has only one scientific name, and each name refers to only one planting. This allows for a great advantage as it ensures precision and correctness while referring to or conducting research on different plantings.

Common names are only common to certain areas. This can create confusion and does not allow for precise naming and identification of plantings. It is important to acknowledge and refer to the plantings scientific name rather than its common name.

About Cultivars

A cultivar is essentially the most basic classification category of cultivated plants. Most cultivars arise in cultivation, but some are from wild plants that have distinctive characteristics.

Cultivars are important because they allow for further precision while identifying and naming plants. Cultivars and variety are two similar aspects that often get confused and it is important to distinguish them to be more accurate.

The first letter of a cultivar is capitalized, and it is never italicized. Cultivars are also surrounded by single quotation marks or preceded by the abbreviation “cv.”

Pictured: *Cercis canadensis*, commonly named the Eastern Redbud

Sustainable Landscape Practices

Well maintained and sustainable landscaping maintenance practices create an appealing environment that is essential to the quality of life in the Fishers community. Sustainable landscape practices are highly encouraged and recommended to be adopted by community members. There are a variety of ways to practice sustainable landscaping, five of which are covered in this section.

Preserve Existing Plants

When creating and maintaining a sustainable landscape, a mistake that is often made is removing the existing plants from the property to start with a clean slate. However, this will often end up doing more harm than good due to disrupting the natural processes already occurring on the property. A sustainable landscape practice in this case would be to assess the existing plant material and preserve native plants. The only situations where it would be appropriate to removethe existing plants is if they are invasive and non-native; In this case, they should be replaced with a more appropriate plant choice.

Conserve Material Resources

Unfortunately, most landscapes will produce high amounts of yard and construction waste. Additionally, most of the materials used are energy intensive. In order to practice sustainable landscape maintenance, yard waste can be reduced by selecting appropriately sized plants and by reusing and recycling construction waste. The materials and resources chosen for landscaping should be carefully considered and selected. Additionally, whenever possible, locally sourced materials should be used.

Treat Water as a Valuable Resource

Water is a resource that is often undervalued and is frequently not used wisely. Wasteful irrigation accounts for over one-third of the residential water usage in the United States. However, by practicing a sustainable landscaping approach of treating water as a valuable resource, the need for irrigation can be greatly reduced or eliminated completely.

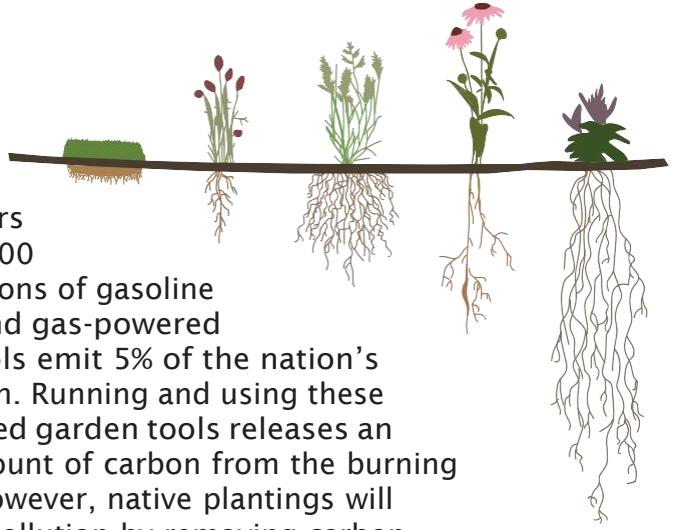
Value the Soil

Ensuring that the planted soil is in the correct condition, is vital to the plant's development. It is important that the soil is not compacted as soil that is compacted can lead to problems such as restricted plant growth, erosion, runoff, and flooding. Additionally, runoff caused by compacted soils is one of the main sources of water pollution.

Create & Maintain Diversity

Creating diversity among plantings provides for key environmental benefits. For one, with a diverse number of plantings in a specific region, the diversity of these plants will help stabilize the ecosystem. Additionally, diversity of plantings is valuable because it balances the ecosystem, protects watersheds, mitigates erosion, moderates the climate, and provides a vast variety of shelter for animals. Lastly, diversity among plantings is important because it encourages more and even new wildlife into the region.

Benefits of Native Species



Although native species are not required, they are strongly encouraged. Non-native species can be used as an alternative, but they do not provide the same benefits as natives. Native plants provide multiple benefits to people and wildlife, while contributing greatly to healthy soil and water in urban and rural areas. Additionally, they are the most ideal because they are adapted to the local soil and climate conditions.

It is beneficial to choose native plants due to the potential of non-natives becoming invasive. Non-native plants often move to the unapproved species list when they become invasive if it is capable of outcompeting native species for resources such as nutrients, light, physical space, water, or food.

Cost Effective

A study conducted by the Applied Ecological Services estimated that over a 20-year period, it cost an extra $17,000 per acre to maintain non-native turf grasses. Additionally, the economic benefits of native plants can be measured against the damage that certain non-native plants cause.

Save on Water Usage

Due to the deep root systems of the majority of native plantings, the soil's capacity to store water is increased. Native plants can significantly reduce water runoff and, consequently, flooding.

Reduce Air Pollution

Incorporating native plantings into landscaping requires a limited amount of maintenance. However, lawns do need to be mowed regularly. Approximately forty million lawnmowers consume 200 million gallons of gasoline per year and gas-powered garden tools emit 5% of the nation's air pollution. Running and using these gas-powered garden tools releases an excess amount of carbon from the burning of fuels. However, native plantings will reduceair pollution by removing carbon from the air.

Provide Shelter and Food for Wildlife & Promote Biodiversity

Native plants attract a variety of wildlife species by providing diverse habitats and an abundance of food sources. Additionally, they reduce the possibility of insect pest outbreaks. Therefore, as more animal species continue to become endangered, native plants create a place of refuge for these vulnerable species to populate.

Less Fertilizer and Pesticide Usage

When vast amounts of fertilizers are applied to lawns, the excess phosphorous and nitrogen will run off into lakes and rivers causing excess algae growth. Ultimately, this will lead to a depletion of oxygen in our waters, harm aquatic life, and interfere with recreational uses. Similarly, pesticides that are applied to lawns can contaminate bodies of water.

Approved Species

Considerations for Selection & Planting

Do Your Research

General information on the following pages represents guidelines for initial assessment only. Before planting, fully assess and research mature height, spread, and overall tree characteristics in relationship to the planting location.

Undesirable Characteristics

Some of the following City-approved species, both native and non-natives, have characteristics that may make them unsuitable for certain situations or locations, such as fruit, seeds, or general growth patterns, among others. Additional research should be done on the particulars of any species before choosing.

Always Identify

Never plant unknown seeds or plants as they are likelyto be undesirable, may be unapproved species, and insome cases may even be illegal!

Keep in Mind

Trees not found on the approved lists are prohibited by the City of Connersville Tree Board or its designee.

Improved cultivars and seedless, thornless varieties ***must*** be used when available. Northern grown tree stock is advised to improve tree survival rate.
While acer maples are included in the approved trees species listing, as of 2014, Connersville recommends a hiatuson planting these trees in an effort to increase diversity and prevent the continued spread of Asian long-horned beetle (ALB); maples are particularly susceptible to theALB.

Planting Area

The planting area column corresponds with the following:

- Small = minimum 3 foot planting area
- Medium = minimum 5 foot planting area
- Large = minimum 8 foot planting area

Minimum Size Requirements

The minimum size for trees as required by the Landscape Ordinance is as follows:

- Single/Two-Family Residential - 1
- Commercial/Multi-Family - 2 $^{1}/_{2}$ inch caliper

Street Tree Permit

Homeowners interested in purchasing and planting treesin front of their homes within the public right-of-way (area between sidewalk and curb) can do so with an approved Street Tree Permit which may be applied for online. No street tree may be planted without a permit.

Street Tree Requirements

Only approved species may be planted. Any tree plantedas a street tree must be single stemmed. No multi- stemmed trees are allowable as a street tree. Small treesused as street trees must be upright/columnar form, not clump form. Many small trees are not suitable for narrowareas due to low branching and obstruction of visibility.

All property owners are responsible for having all utilities marked by calling 811 or submitting an online 811 request.Additionally, homeowners are responsible for receiving permission from their HOA (if applicable)

The street tree planting site must meet the following regulations:

- Minimum planting strip width of 5 feet, with 8 feet preferred
- No tree shall be planted within 20 feet from any other tree
- No tree shall be planted within 20 feet of the curb of an intersection
- No tree shall be planted within 10 feet of a streetlight
- No tree shall be planted within 5 feet of a driveway
- No tree shall be planted within 3 feet of a water or fire hydrant, and at least 10 feet is preferred
- Tree must be planted in the center of the planting strip (this is center from edge of street/curb to edge of sidewalk, not referring to the width of the lot)
- Tree may not be planted under or within 15 horizontal feet of any overhead utility line
- Tree may not be planted within 5 horizontal feet of any underground utility line
- Tree must be a minimum of 1 diameter measured 6 inches from the ground

Trees - Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
Black Maple	*Acer nigrum/saccharum* subsp. *nigrum*	90’	25’	Large	Part Shade	Moist	Yes
Red Maple	*Acer rubrum*	90’	70’	Large	Sun, Part Shade	Moist	Yes
Sugar Maple	*Acer saccharum*	75’	50’	Large	Part Shade	Dry, Moist	Yes
Yellow Buckeye	*Aesculus flava*	75’	50’	Large	Shade	Moist	No
Ohio Buckeye	*Aesculus glabra*	40’	40’	Medium	All	Moist	No
Downy Serviceberry	*Amelanchier arborea*	25’	20’	Small	All	Dry	Yes
Serviceberry	*Amelanchier canadensis*	25’	20’	Small	All	Moist, Wet	No
Allegheny Serviceberry	*Amelanchier laevis*	40’	40’	Medium	All	Dry, Moist	No
Pawpaw	*Asimina triloba*	30’	25’	Small-Medium	All	Moist	No
Yellow Birch	*Betula alleghaniensis*	75’		Large	Part Shade, Shade	Moist, Wet	No
River Birch	*Betula nigra*	70’	60’	Medium - Large	Part Shade	Moist	No
Gray Birch	*Betula populifolia*	40’	20’	Medium	All	All	No
American Hornbeam	*Carpinus caroliniana*	30’	30’	Small - Medium	All	All	Yes
Bitternut Hickory	*Carya cordiformis*	80’	50’	Large	All	Moist	No
Pignut Hickory	*Carya glabra*	80’	40’	Large	All	Dry	No
Pecan	*Carya illinoinensis*	100’	70’	Large	Sun	Moist	No
Shellbark Hickory	*Carya laciniosa*	80’	60’	Large	All	Moist, Wet	No
Red Hickory	*Carya ovalis*	80’		Large	Sun, Part Shade	Moist	No
Shagbark Hickory	*Carya ovata*	90’	70’	Large	All	Dry, Moist	No
Sand Hickory	*Carya pallida*	100’		Large			No

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
Black Hickory	*Carya texana*	50'-100'		Medium - Large	Part Shade	Dry	No
Mockernut Hickory	*Carya tomentosa*	80'	60'	Large	Part Shade	Moist	No
Northern Catalpa	*Catalpa speciosa*	70'	50'	Medium - Large	Part Shade	Moist	No
Sugarberry	*Celtis laevigata*	70'	60'	Medium - Large	Part Shade	Dry	No
Hackberry	*Celtis occidentalis*	80'	60'	Large	All	Dry, Moist	Yes
Eastern Redbud	*Cercis canadensis*	30'	20'	Small	Part Shade, Shade	Moist	Yes
Yellowwood	*Cladrastis kentukea (aka Cladrastis lutea)*	50'	55'	Medium	Part Shade	Moist	No
Pagoda Dogwood	*Cornus alternifolia*	25'	20'	Small	Part Shade, Shade	Moist	No
Flowering Dogwood	*Cornus florida*	30'	35'	Medium	Part Shade, Shade	Dry, Moist	No
Washington Hawthorn	*Crataegus phaenopyrum*	30'	30'	Medium	Sun	Moist	Yes
Dotted Hawthorn	*Crataegus punctata*	25'	25'	Small	All	Dry, Moist	No
Green Hawthorn	*Crataegus virids*	35'	35'	Medium			Yes
Persimmon	*Diospyros virginiana*	60'	35'	Medium	Part Shade	Dry	No
Eastern Wahoo	*Euonymus atropurpurea*	20'	25'	Small	Sun, Part Shade	Moist	No
American Beech	*Fagus grandifolia*	80'	80'	Large	Part Shade, Shade	Moist	No
Thornless Honeylocust	*Gleditsia triancanthos var. inermis*	80'	50'	Large			Yes
Kentucky Coffeetree	*Gymnocladus diocus*	100'	40'	Large	Sun	Dry	Yes

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
Witchhazel	*Hamamelis virginiana*	15’	15’	Small	Part Shade, Shade	Dry, Moist	No
Butternut	*Juglans cinerea*	60’	60’	Medium	Sun	Moist	No
Black Walnut	*Juglans nigra*	100’	100’	Large	Sun, Part Shade	Moist	No
Eastern Red Cedar	*Juniperus virginiana*	65’	25’	Medium	All	Dry	No
Eastern Larch (Tamarack)	*Larix laricina*	80’	30’	Large	Sun, Shade	Moist, Wet	No
Sweetgum	*Liquidambar styraciflua*	60’	40’	Medium	Part Shade	Moist	Yes
Tulip Tree	*Liriodendron tulipifera*	150’	50’	Large	Sun, Part Shade	Dry, Moist	Yes
Cucumber Magnolia	*Magnolia acuminata*	70’	35’	Medium - Large	All	Moist, Wet	No
Umbrella Magnolia	*Magnolia tripetala*	30’	30’	Small - Medium	Part Shade	Moist	No
Saucer Magnolia	*Magnolia x soulgiana*	25’	30’	Small	Sun, Part Shade	Moist	No
Wild Sweet Crabapple	*Malus coronaria*	25’	25’	Small	Part Shade	Moist	Yes
Prairie Crabapple	*Malus ioensis*	30’	35’	Small - Medium	Sun	Moist	No
Red Mulberry	*Morus rubra*	50’	40’	Medium	All	Dry, Moist	No
Black Gum	*Nyssa sylvatica*	50’	30’	Large	All	Moist	No
Hophornbeam	*Ostrya virginiana*	45’	40’	Medium	All	Dry, Moist	Yes
Sourwood	*Oxydendrum arboreum*	50’	25’	Medium	Part Shade	Dry, Moist	No
Jack Pine	*Pinus banksiana*	50’	30’	Medium	Sun	Dry	No
Eastern White Pine	*Pinus strobus*	80’	40’	Large	All	Dry, Moist	No
Virginia Pine/Scrub Pine	*Pinus virginiana*	30’	20’	Small-Medium	Sun	Moist	No
Sycamore	*Platanus occidentalis*	90’	70’	Large	All	Moist	No
Balsam Poplar	*Populus balsamifera*	100’	70’	Large	Sun	Moist	No
Cottonwood	*Populus deltoides*	80’	60’	Large	All	All	No

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
American Plum	*Prunus americana*	25’	20’	Small	All	Moist	No
Pin Cherry/Fire Cherry	*Prunus pensylvanica*	40’	30’	Medium	Sun	Dry	No
Wild Black Cherry	*Prunus serotina*	80’	60’	Large	All	Dry, Moist	No
Hoptree	*Ptelea trifoliata*	25’	15’	Small	All	All	No
White Oak	*Quercus alba*	100’	90’	Large	All	Dry, Moist	Yes
Swamp White Oak	*Quercus bicolor*	90’	70’	Large	Part Shade	Moist	Yes
Scarlet Oak	*Quercus coccinea*	70’	50’	Large	Sun	Moist	No
Northern Pin Oak	*Quercus ellipsoidalis*	70’	60’	Large	Sun	Dry	No
Southern Red Oak	*Quercus falcata*	80’	50’	Large	Part Shade	Dry	No
Shingle Oak	*Quercus imbricaria*	60’	50’	Large	Sun	Moist	Yes
Overcup Oak	*Quercus lyrata*	60’	60’	Large	Part Shade	Dry	No
Bur Oak	*Quercus macrocarpa*	80’	80’	Large	All	All	No
Blackjack Oak	*Quercus marilandica*	35’	25’	Small-Medium	Part Shade	Dry	No
Swamp Chestnut Oak	*Quercus michauxii*	60	50’	Medium	Part Shade	Moist	No
Chinkapin Oak	*Quercus muehlenbergii*	60’	70’	Medium - Large	Sun, Part Shade	Dry	No
Cherrybark Oak	*Quercus pagoda*	110’		Large	Sun, Part Shade	Moist	No
Pin Oak	*Quercus palustris*	70’	60’	Medium - Large	All	Moist, Wet	No
Chestbut Oak	*Quercus prinus*	70’	70’	Medium - Large			No
Northern Red Oak	*Quercus rubra*	70’	60’	Medium - Large	Sun, Part Shade	Dry, Moist	Yes
Shumard Oak	*Quercus shumardii*	60’	40’	Medium	Sun, Part Shade	Dry, Moist	No
Post Oak	*Quercus stellata*	50’	50’	Medium	Part Shade	Dry	No
Black Oak	*Quercus velutina*	60’	60’	Medium	Sun, Part Shade	Dry	No

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
Smooth Sumac	*Rhus glabra*	20’	15’	Small	All	Dry	No
Staghorn Sumac	*Rhus typhina*	25’	30’	Small	All	Dry	No
Peachleaf Willow	*Salix amygdaloides*	70’	60’	Medium - Large	All	Moist, Wet	No
Black Willow	*Salix nigra*	60’	60’	Medium	All	Moist, Wet	No
Silky Willow	*Salix sericea*	12’		Small	All	Moist, Wet	No
Sassafras	*Sassafras albidum*	60’	40’	Small	All	Moist	No
Bald Cyprus	*Taxodium distichum*	70’	45’	Medium - Large	Sun, Part Shade	Moist	No
American Arborvitae	*Thuja occidentalis*	40’	15’	Medium	All	Dry, Moist	No
Basswood	*Tilia americana*	80’	50’	Large	All	Dry, Moist	No
Canadian Hemlock	*Tsuga canadensis*	70’	35’	Medium - Large	Part Shade, Shade	Moist	No
Rock Elm/Cork Elm	*Ulmas thomasii*	90’		Large			No
Winged Elm	*Ulmus alata*	50’	40’	Medium	Part Shade	Dry	No
Slippery Elm	*Ulmus rubra*	60’	50’	Medium	Sun, Part Shade	Moist	No

Small Tree (30’ or less)
Medium Tree (30’-70’)
Large Tree (70’ and above)

Deciduous
Evergreen

Trees - Non-Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
White Fir	*Abies concolor*	70’	30’	Medium - Large	Sun, Part Shade	Dry	No
Paperbark Maple	*Acer griseum*	25’	35’	Small	Sun, Part Shade	Moist	Yes
Miyabe Maple	*Acer miyabei*	40’	35’	Medium			No
Freeman Maple/Hybrid Red Maple	*Acer x freemanii*	60’	40’	Medium	Sun, Part Shade	All	No
Red Horse Chestnut	*Aesculus x carnea*	40’	35’	Medium	Sun, Part Shade	Moist	No
Autumn Brilliance Apple Serviceberry	*Amelanchier x grandiflora* ‘Autumn Brilliance’	25’	25’	Small	Sun, Part Shade	Moist, Wet	No
Common Hornbeam	*Carpinus betulus*	40’	30’	Medium	Part Shade	Dry, Moist	Yes
Fringetree	*Chionanthus virginicus*	20’	15’	Small	Part Shade	Moist	No
Kousa Dogwood	*Cornus kousa*	30’	30’	Medium	Sun, Part Shade	Moist	No
Cornelian Cherry Dogwood	*Cornus mas*	25’	20’	Small	Sun, Part Shade	Dry, Moist	Yes
Smoketree	*Cotinus coggygria*	15’	15’	Small	Sun	Moist	No
Common Beech	*Fagus sylvatica* ‘Tricolor’	30’	30’	Medium	Sun, Part Shade	Moist	No
Ginkgo (male)	*Ginkgo biloba*	80’	40’	Large	Sun	All	Yes
Amur Maackia	*Maackia amurensis*	30’	30’	Small - Medium	Sun	Moist	Yes
Star Magnolia	*Magnolia stellata*	20’	15’	Small	Sun, Part Shade	Moist, Wet	No
Sargent Crabapple	*Malus sargentii*	10’	15’	Small			No
White Spruce	*Picea glauca*	60’	20’	Medium	All	Dry, Moist	No
Serbian Spruce	*Picea omorika*	60’	20’	Medium	Sun, Part Shade	Moist	No

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Expo-sure	Soil Type	Approved Street Tree
Colorado Spruce	*Picea pungens*	60’	20’	Medium	Part Shade	Moist	No
Columbia London Planetree	*Platanus acerifolia*	80’	65’	Large	Sun	Moist, Wet	Yes
Amur Chokecherry	*Prunus maakii*	25’	20’	Small			No
Weeping Higan Cherry	*Prunus pendula*	25’	25’	Small	Sun, Part Shade	Moist	No
Japanese Flowering Cherry	*Prunus serrulata*	25’	25’	Small	Sun, Part Shade	Moist	No
Douglas Fir	*Pseudotsuga menziesii*	80’	20’	Large	Part Shade	Dry	No
Scholar Tree	*Sophora japonica*	75’	75’	Large	Sun, Part Shade	Moist	No
Western Arborvitae	*Thuja plicata*	70’	25’	Medium - Large	Part Shade, Shade	Moist, Wet	No
Littleleaf Linden	*Tilia cordata*	50’	40’	Medium	Sun, Part Shade	Moist	Yes
Silver Linden	*Tilia tomentosa*	50’	40’	Medium	Sun	All	Yes
Princeton, Valley Forge, New Harmony American Elm	*Ulmus americana* ‘Prince-ton’, ‘Valley Forge’, ‘New Harmony’	70’	60’	Medium - Large	Sun, Part Shade	Moist	Yes
Leyland Cypress	*x Cuprocyparis leylandii*	70’	15’	Large	Sun	Moist	No

Small Tree (30’ or less)
Medium Tree (30’-70’)
Large Tree (70’ and above)

Deciduous
Evergreen

Shrubs - Native

Common Name	Scientific Name	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Red Chokecherry	*Aronia arbutifolia*	10’	6’	Medium	Sun	Moist	Tolerates a wide range of soils including wet; Also tolerates erosion and clay; winter interest
Black Chokeberry	*Aronia melanocarpa*	6’	6’	Medium	Part Shade	Moist	Salt and soil compaction tolerant
Goat’s Beard	*Aruncus dioicus*	6’	4’	Medium			Prefers moist to wet soils and part shade; susceptible to leaf spot
American Beautyberry	*Callicarpa americana*	6’	6’	Medium	Part Shade	Moist	
New Jersey Tea	*Ceanothus americanus*	4’	6’	Small	Part Shade, Shade	Dry, Moist	Drought and salt tolerant
Buttonbush	*Cephalanthus occidentalis*	12’	8’	Large	Part Shade, Shade	Moist, Wet	Drought tolerant
Sweet Fern	*Comptonia peregrina*	4’	8’	Small	Part Shade	Dry	Drought and salt tolerant
Silky Dogwood	*Cornus amomum*	10’	10’	Large	Part Shade, Shade	Moist, Wet	
Gray Dogwood	*Cornus racemosa*	15’	15’	Large	All	Moist	
Redosier/Red Stemmed Dogwood	*Cornus sericea*	10’	8’	Large	All	Moist	Great winter interest
American Hazlenut	*Corylus americana*	10’	15’	Large	Part Shade, Shade	Dry, Moist	
Strawberry Bush	*Euonymus americanus*	6’	6’	Medium	Part Shade	Moist	Can be planted near black walnut trees; deer love to eat the leaves
Eastern Wahoo	*Euonymus atropurpureus*	20’	15’	Large	Part Shade	Moist	Substitute for invasive, non-native Burning Bush; can be planted near Black Walnut

Common Name	Scientific Name	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Witchhazel	*Hamamelis virginiana*	15’	15’	Large	Part Shade, Shade	Dry, Moist	Pollution tolerant
Smooth Hydrangea	*Hydrangea aborescens*	5’	5’	Small			Salt tolerant; herbicide sensetive
Inkberry	*Ilex glabra*	12’	12’	Large	Part Shade	Moist, Wet	
Winterberry	*Ilex verticillata*	12’	12’	Large	All	All	Bright red berries provide winter interest through next spring; tolerant of erosion, wet soil, clay soil, and air pollution
Virginia Sweetspire	*Itea virginica*	6’	14’	Medium	Part Shade	Moist	
Common Rush/Soft Rush	*Juncus effusus*	4’	4’	Small	Sun	Moist, Wet	Use at the edge of a pond and con-tainers
Common Juniper	*Juniperus communis*	10’	12’	Large	Sun	Dry	
Andorra Juniper	*Juniperus horizontalis* ‘Plumosa’	18’	5’	Large	Sun, Part Shade	Dry	
Mountain Laurel	*Kalmia latifolia*	10’	10’	Large	Part Shade	Moist	
Spicebush	*Lindera benzoin*	12’	12’	Large	All	All	Salt and soil compaction tolerant
Northern Bayberry	*Myrica pensylvanica*	12’	12’	Large			Drought and salt tolerant; tolerant of all soil types
Ninebark	*Physocarpus opulifolius*	8’	6’	Medium	All	All	
Alder-leaved Buckthorn	*Rhamnus alnifolia*	3’		Small	Part Shade, Shade	Moist, Wet	Full sun; will not tolerate shade
Fragrant Sumac	*Rhus aromatica*	3’	8’	Small	All	Dry, Moist	
Shining Sumac	*Rhus copallinum*	15’	20’	Large	Sun	Dry	Tolerant of drought, erosion and dry soil; can not tolerate poorly draining soils
Smooth Sumac	*Rhus glabra*	15’	15’	Large	All	Dry	
American Elderberry	*Sambucus canadensis (aka Sambucus nigra)*	12’	12’	Large	Part Shade	Wet	Suckers form colonies; susceptible to some diseases and pests
American Red Elderberry	*Sambucus racemosa*	20’		Large	All	Moist, Wet	Berries are possibly toxic when eaten; good wildlife value
Hardstem Bulrush	*Schoenoplectus acutus*	6’		Medium			Rhizomonous; great in standing water

Common Name	Scientific Name	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Common Threesquare	*Schoenoplectus pungens*	4’		Small			Can stand up to 3 ‘ of water; soil stabilization and erosion controls; also great for wildlife habitat
Bladdernut	*Staphylea trifolia*	12’	12’	Large	Shade	Moist	
Snowberry	*Symphoricarpos albus*	6’	6’	Small	All	Dry, Moist	
Wolfberry	*Symphoricarpos occidentalis*	4’	8’	Small	Sun	Dry	
Coralberry	*Symphoricarpos orbiculatus*	5’	8’	Small	Part Shade, Shade	Dry, Moist	
Chenault Coralberry	*Symphoricarpos x chenaultii*	6’	8’	Medium			
Yew	*Taxus x media*	6’	12’	Medium			Resistant to salt and pollution; sensetive to drought and/or soil compaction
Mapleleaf Viburnum	*Viburnum acerifolium*	6’	4’	Small	All	Dry, Moist	
Nannyberry	*Vibrunum lentago*	15’	12’	Large			
Arrowwood Viburnum	*Viburnum dentatum*	15’	15’	Large	All	Moist	
Softleaf Viburnum	*Viburnum molle*	12’	12’	Large			
Possumhaw Viburnum	*Viburnum nudum*	10’	10’	Large	All	Moist, Wet	
Blackhaw Viburnum	*Viburnum prunifolium*	15’	12’	Large	Part Shade	Moist	Can tollerate drought and air pollution
Downy Arrowwood	*Viburnum rafinesquianum*	6’	6’	Small			
Northern Arrowwood	*Viburnum recognitum*	10’	6’	Medium	Shade	Wet	
Rusty Blackhaw Viburnum	*Viburnum rufidulum*	15’	12’	Large	Part Shade	Dry	

Small Shrub (3-6’)

Medium Shrub (6-10’)

Large Shrub (10’ and above)

Deciduous

Evergreen

Herbaceous perennial

***Dioecious plants require male and female plants to flower and produce fruit*

Shrubs - Non-Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Glossy Abelia	*Abelia x grandifolia*	6’	6’	Medium			Sensetive to cold weather
Bottlebrush Buckeye	*Aesculus parviflora*	12’	15’	Large	Part Shade	Moist	
Littleleaf Boxwood	*Buxus microphylla*	4’	4’	Small			
Glencoe or Green Velvet Boxwood	*Buxus spp.*	4’	4’	Small	Part Shade		Tolerates deer and rabbits
Carolina Allspice	*Calycanthus floridus*	12’	12’	Large	Part Shade	Moist	Tolerant of clay soils and deer; naturalization will occur if suckers are not immediately removed
Bluebeard	*Caryopteris x clandonensis*	3’	3’	Small			
Flowering Quince	*Chaenomeles speciosa*	10’	15’	Large			May cause litter
Summersweet Clethra	*Clethra alnifolia*	6’	5’	Medium	All	Moist, Wet	Salt tolerant
Spreading Cotoneaster	*Cotoneaster divaricatus*	6’	8’	Medium			Requires good drainage; somewhat drought tolerant after establishment; some minor pest and disease susceptibility
Daphne Burkwood	*Daphne x burkwoodii*	4’	4’	Small			
Slender Deutzia	*Deutzia gracilis*	3’	4’	Small			
Silverberry	*Elaeagnus commutata*	10’		Large	All	Dry	Highly drought tolerant; medium salt tolerance
Border Forsythia	*Forsythia x intermedia*	10’	15’	Large			
Fothergilla	*Fothergilla gardenii*	3’	4’	Small	Sun, Part Shade	Moist	
Large Fothergilla	*Fothergilla major*	10’	9’	Medium	Sun, Part Shade	Moist	Prefers rich, moist, well-drained soil; shade tolerant; disease resistant;

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Mount Airy Fothergilla	*Fothergilla* 'Mount Airy'	5'	5'	Small			Fall color; needs organic, well-drain-ing soils
Blue Shadow Fothergilla	*Fothergilla x intermedia* 'Blue Shadow'	6'	6'	Medium			Can sucker and form colonies if not maintained
Seven-son Flower	*Heptacodium miconioides*	20'	10'	Large			Can grow in a wide range of soils, has great year-round interest
Oak Leaf Hydrangea	*Hydrangea quercifolia*	10'	8'	Medium	Shade	Moist	
Blue Holly	*Ilex x meserveae*	8'	8'	Medium			
Singleseed Juniper	*Juniperus squamata*	10'	10'	Large			Smaller cutlivars available
Beautybush	*Kolkwitzia amabilis*	10'	10'	Large			Need well drained soils and full sun; can tolerate clay soils and deer
Twinberry	*Lonicera involucrata*	10'	10'	Large	All	Moist	Can tolerate heavy shade; will form colonies over time through seeds
Giant Fleeceflower	*Persicaria polymorpha*	5'	4'	Small			Prefers moist soils; once established can tolerate some drought and some heat/humidity
Flowering Dwarf Almond	*Prunus glandulosa*	5'	4'	Small			
Carolina Rhododendron	*Rhododendron carolinianum*	5'	10'	Small	Shade	Moist	Can cause litter
Catawba Rhododendron	*Rhododendron catawbiense*	10'	20'	Large	Shade	Moist, Wet	
Alpine Currant	*Ribes alpinum*	3'	3'	Small			Adapts well to urban conditions, tolerant of drough and heavy shade; very winter hardy; **dioeceous;
Shrub Rose	*Rosa glauca/rubrifolia*	8'	7'	Medium			Suceptible to a variety of diseases and insects; very good resistance to most diseases
Knockout Roses	*Rosa knockout*	4'	4'	Small			Suceptible to a variety of diseases and insects; has resistance to most common foliage diseases

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Notes
Rosemary Willow	*Salix eleagnos*	10’	8’	Large			Needs full sun and water on occasion; can tolerate clay soil
Buffaloberry	*Shepherdia argentea*	8’	8’	Medium	Sun	Dry, Moist	Salt tolerant
Cutleaf Stephanandra	*Stephanandra incisa*	3’	4’	Small			Quick spreading; can shape in late spring
Miss Kim Lilac	*Syringa patula*	8’	10’	Medium			
Chinese Lilac	*Syringa x chinensis*	15’	15’	Large			
Old Fashioned Weigla	*Weigela florida*	10’	12’	Large			
Yucca	*Yucca filamentosa*	5’	5’	Small	Sun	Dry	Urban tolerant, including salt and drought

Small Shrub (3-6’)	Deciduous
Medium Shrub (6-10’)	Evergreen
Large Shrub (10’ and above)	Herbaceous perennial

***Dioecious plants require male and female plants to flower and produce fruit*

Ornamental Grasses - Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Commercially Available
River Oats (aka Indiana Woodoats)	*Chasmanthium latifolium*	5’	3’	Large	Part Shade, Shade	Moist	
Switch Grass	*Panicum virgatum*	6’	3’	Large	Sun, Part Shade	Dry, Moist	
Blue-Eyed Grass	*Sisyrinchium angustifolium*	2’	1’	Small	Sun, Part Shade	Moist, Wet	
Prairie Cord Grass	*Spartina pectinata*	6’	4’	Large	Sun	Wet	

Small Ornamental Grass (6”-2’)
Medium Ornamental Grass (2’-5’)
Large Ornamental Grass (5’ and above)

Herbaceous Perennial
Semi-Evergreen Grass/Sedge
Evergreen Grass/Sedge
Non-Evergreen Grass/Sedge

Ornamental Grasses - Non-Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Commercially Available
Moor Grass	*Molina caerulea*	7’	4’	Large	Sun, Part Shade	Moist	
Leatherleaf Sedge	*Carex buchananii*	2.5’	3’	Medium	Sun, Part Shade	Moist	
Japanese Sedge Grass	*Carex morrowii*	1.5’	1’	Small	All	Moist, Wet	
Feather Reed Grass	*Clamagrostis x acutiflora*	5’	2’	Large	Sun, Part Shade	Moist, Wet	
Blue Fescue	*Festuca glauca*	1’	1’	Small	Sun	Dry, Moist	
Autumn Moor Grass	*Sesleria autumnalis*	1’	1’	Small	Sun, Part Shade	Dry, Moist	Yes

Small Ornamental Grass (6”-2’)	Herbaceous Perennial
Medium Ornamental Grass (2’-5’)	Semi-Evergreen Grass/Sedge
Large Ornamental Grass (5’ and above)	Evergreen Grass/Sedge
	Non-Evergreen Grass/Sedge

Groundcovers & Vines - Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Commercially Available
Bearberry	*Arctostaphylos uva-ursi*	8”	1’	Small	All	Dry, Moist	
Wild Ginger	*Asarum canadense*	1’	1.5’	Small	Part Shade, Shade	Moist	
Swamp Milkweed	*Asclepias incarnata*	5’	3’	Large	Sun, Part Shade	Moist, Wet	Yes
American Bittersweet	*Celastrus scandens*	20’	6’	Large	All	Dry, Moist	
Crested Dwarf Iris	*Iris cristata*	9”	1’	Small	Part Shade, Shade	Moist	
Prairie Blazing Star	*Liatris pychnostachya*	5’	2’	Large	Sun	Dry, Moist	
Dense Blazing Star	*Liatris spicata*	2.5’	1’	Medium	Sun	Moist	
Cardinal Flower	*Lobelia cardinalis (incl. hybrid cultivars)*	4’	2’	Large	All	Moist, Wet	Yes
Scarlet Honeysuckle/Trumpet Honeysuckle	*Lonicera sempervirens*	15’	6’	Large	Sun, Part Shade	Moist	
Virginia Creeper	*Partenocissus quinquefolia*	50’	Varies	Large	Sun, Part Shade	Moist	
Summer Phlox	*Phlox paniculata*	4’	3’	Medium	Sun	Moist	Yes
Prairie Ironweed	*Vernonia fasciculata*	4’	3’	Large	All	Moist, Wet	Yes
Barren Strawberry	*Waldsteinia fragarioides*	6”	1’	Small	Part Shade	Dry, Moist	

Small Groundcovers and Vines (6”-2’)
Medium Groundcovers and Vines (2’-3’)
Large Groundcovers and Vines (3’ and above)
Sizing in width of mature spread and height

Vine
Evergreen
Herbaceous Perennial

Groundcovers & Vines - Non-Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Sun Exposure	Soil Type	Commercially Available
Wild Ginger	*Asarum europaeum*	6”	1.5’	Small	Part Shade, Shade	Moist	
Cotoneaster Bearberry	*Cotoneaster dammeri*	2’	1’	Small - Medium	Sun, Part Shade	Moist	
Barrenwort (aka Bishop’s Hat)	*Epimedium x rubrum*	2’	4’	Large	Part Shade, Shade	Dry, Moist	
Hellebore	*Helleborus spp.*	1.5’	1.5’	Small	Part Shade, Shade	Moist	Yes

Small Groundcovers and Vines (6”-2’)
Medium Groundcovers and Vines (2’-3’)
Large Groundcovers and Vines (3’ and above)
Sizing in width of mature spread and height

Vine
Evergreen
Herbaceous Perennial

Street Trees - Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Approved Trees Under Utility Lines
Black Maple	*Acer nigrum/saccharum* subsp. *nigrum*	90’	25’	Large	
Red Maple	*Acer rubrum*	90’	70’	Large	
Sugar Maple	*Acer saccharum*	75’	50’	Large	
Downy Serviceberry	*Amelanchier arborea*	25’	20’	Small	Yes
American Hornbeam	*Carpinus caroliniana*	30’	30’	Small - Medium	Yes
Hackberry	*Celtis occidentalis*	80’	60’	Large	
Eastern Redbud	*Cercis canadensis*	30’	20’	Small	Yes
Washington Hawthorn	*Crataegus phaenopyrum*	30’	30’	Medium	
Green Hawthorn	*Crataegus virids*	35’	35’	Medium	
Thornless Honeylocust	*Gleditsia triancanthos var. inermis*	80’	50’	Large	
Kentucky Coffeetree	*Gymnocladus diocus*	100’	40’	Large	
Sweetgum	*Liquidambar styraciflua*	60’	40’	Medium	
Tulip Tree	*Liriodendron tulipfera*	150’	50’	Large	
Hophornbeam	*Ostrya virginiana*	45’	40’	Medium	
White Oak	*Quercus alba*	100’	90’	Large	
Swamp White Oak	*Quercus bicolor*	90’	70’	Large	
Shingle Oak	*Quercus imbricaria*	60’	50’	Large	
Northern Red Oak	*Quercus rubra*	70’	60’	Medium - Large	

Small Tree (30’ or less)
Medium Tree (30’-70’)
Large Tree (70’ and above)

Deciduous
Evergreen

Street Trees - Non-Native

Common Name	*Scientific Name*	Max. Height	Max. Spread	Planting Area	Approved Trees Under Utility Lines
Paperbark Maple	*Acer griseum*	25’	35’	Small	Yes
Common Hornbeam	*Carpinus betulus* ‘Fastigiata’	40’	30’	Medium	
Cornelian Cherry Dogwood	*Cornus mas*	25’	20’	Small	Yes
Ginkgo (male)	*Ginkgo biloba*	80’	40’	Large	
Amur Maackia	*Maackia amurensis*	30’	30’	Small - Medium	
Columbia London Planetree	*Platanus acerifolia*	80’	65’	Large	
Littleleaf Linden	*Tilia cordata*	50’	40’	Medium	
Silver Linden	*Tilia tomentosa*	50’	40’	Medium	
Princeton, Valley Forge, New Harmony American Elm	*Ulmus americana* ‘Princeton’, ‘Valley Forge’, ‘New Harmony’	70’	60’	Medium - Large	

Small Tree (30’ or less)
Medium Tree (30’-70’)
Large Tree (70’ and above)

Deciduous
Evergreen

Unapproved Species

Unapproved Species

Common Name	*Scientific Name*	Undesirable Traits
Hedge Maple	*Acer campestre*	Invasive
Amur Maple	*Acer ginnala*	Invasive
Box Elder	*Acer negundo*	Weak wood; aggressive
Japanese Maple	*Acer palmatum*	Invasive
Norway Maple	*Acer platanoides*	Invasive
Silver Maple	*Acer saccharinum*	Weak wood; aggressive
Tartarian Maple	*Acer tartarium*	Invasive
Japanese Chaff Flower	*Achyranthes japonica*	Invasive; Prohibited Plant Species
Bishop's Weed	*Aeqopodium podagraria*	Invasive
Colonial Bent Grass	*Agrostis capillaris*	Invasive
Redtop	*Agrostis gigantea*	Invasive
Creeping Bent Grass	*Agrostis stolonifera*	Invasive
Tree of Heaven	*Ailanthus altissima*	Invasive; Prohibited Plant Species
Bugleweed	*Ajuda reptans*	Invasive
Chocolate Vine	*Akebia quinata*	Invasive
Mimosa Silk Tree	*Albizia julibrissin*	Invasive
Garlic Mustard	*Alliaria petiolata*	Invasive; Prohibited Plant Species
Black Alder	*Alnus glutinosa*	Invasive; Prohibited Plant Species
Smooth Pigweed	*Amaranthus hybridus*	Invasive; Noxious Weed
Palmer Amaranth	*Amaranthus palmeri*	Noxious Weed
Powell Amaranth	*Amaranthus powelli*	Noxious Weed
Rough Pigweed	*Amaranthus retroflexus*	Inavasive; Noxious Weed
Common Waterhemp	*Amaranthus rudis*	Noxious Weed
Tall Waterhemp	*Amaranthus tuberculatus*	Noxious Weed
Porcelain Berry	*Ampelopsis brevipedunculata*	Invasive
Mugwort	*Artemisia vulgaris*	Invasive; Prohibited Plant Species
Small Carpgrass	*Arthraxon hispidus*	Invasive; Prohibited Plant Species
Giant Reed	*Arundo donax*	Invasive

Common Name	*Scientific Name*	Undesirable Traits
Mosquito Fern	*Azolla pinnata*	Invasive; Prohibited Plant Species
Japanese Barberry	*Berberis thunbergii*	Invasive; Prohibited Plant Species
Common Barberry	*Berberis vulgaris*	Invasive
Smooth Brome	*Bromus inermis*	Invasive
Bald Brome	*Bromus racemosus*	Invasive
Cheat Brome	*Bromus tectorum*	Invasive
Butterfly Bush	*Buddleia davidii*	Invasive
Flowering Rush	*Butomus umbellatus*	Invasive; Prohibited Plant Species
Beautyberry	*Callicarpa dichotoma*	Invasive
Siberian Peashrub	*Caragana arborescens*	
Narrowleaf Bittercress	*Cardamine impatiens*	Invasive
Plumeless Thistle	*Carduus acanthoides*	Invasive; Prohibited Plant Species
Musk Thistle	*Carduus nutans*	Invasive; Prohibited Plant Species
Caulerpa/Meditteranean Killer Algae	*Caulerpa taxifolia*	Invasive; Prohibited Plant Species
Oriental Bittersweet/Asian Bittersweet	*Celastrus orbiculatus*	Invasive; Prohibited Plant Species
Spotted Knapwood	*Centaurea biebersteinii*	Invasive
Diffuse Knapwood	*Centaurea diffusa*	Invasive
Maltese Star Thistle	*Centaurea melitensis*	Invasive
Yellow Star Thistle	*Centaurea solstitialis*	Invasive
Spotted Knapwood	*Centaurea stoebe*	Invasive; Prohibited Plant Species
Ox-eye Daisy	*Chrysanthemum leucanthumum*	Invasive
Camphor Tree	*Cinnamomum camphora*	Invasive
Canada Thistle	*Cirsium arvense*	Invasive; Prohibited Plant Species
Bull Thistle	*Cirsium vulgare*	Invasive; Prohibited Plant Species
Sweet Autumn Virginsbower (Clematis)	*Clematis terniflora*	Invasive
Tropical Spiderwort	*Commelina benghalensis*	Invasive; Prohibited Plant Species
Poison Hemlock	*Conium maculatum*	Invasive; Prohibited Plant Species
Lily of the Valley	*Convallaria majalis*	Invasive
Field Bindweed	*Convolvulus arvensis*	Invasive; Prohibited Plant Species
Marestail	*Conyza xanadensis*	Noxious Weed
Crown vetch	*Coronilla varia/Securigera varia*	Invasive; Prohibited Plant Species
Uruguayan Pompass Grass	*Cortaderia selloana*	Invasive
Kenilworth Ivy	*Cymbalaria muralis*	Invasive

Common Name	*Scientific Name*	Undesirable Traits
Black Swallow-Wort	*Cynanchum louiseae*	Invasive
Pale Swallow-Wort	*Cynanchum rossicum*	Invasive
Wild Carrot/Queen Anne's Lace	*Daucus carota*	Invasive
Foxglove	*Digitalis purpurea*	Invasive
Chinese Yam	*Dioscorea oppositifolia (aka Dioscorea polystachya)*	Invasive; Prohibited Plant Species
Common Teasel	*Dipsacus fullonum*	Invasive; Prohibited Plant Species
Cut-Leaved Teasel	*Dipsacus laciniatus*	Invasive; Prohibited Plant Species
Teasel	*Dipsacus sylvestris*	Invasive
Brazilian Waterweed (Brazilian Elodea)	*Egeria densa*	Invasive; Prohibited Plant Species
Anchored Water Hyacinth	*Eichhornia azurea*	Invasive; Prohibited Plant Species
Russian Olive	*Elaeagnus angustifolia*	Invasive
Autumn Olive	*Elaeagnus umbellata*	Invasive; Prohibited Plant Species
Lyme Grass / Sand Ryegrass	*Elymus arenarius*	Invasive
Quack Grass	*Elymus repens*	Invasive
Burning Bush	*Euonymus alatus*	Invasive
Wintercreeper	*Euonymus fortunei*	Invasive; Prohibited Plant Species
Leafy Spurge	*Euphorbia esula*	Invasive; Prohibited Plant Species
Japanese Knotweed	*Fallopia japonica*	Invasive; Prohibited Plant Species
Tall Fescue	*Festuca arundinacea*	Invasive
Forsythia	*Forsythia intermedia, F suspensa, F viridissima*	Invasive
Glossy Buckthorn	*Frangula alnus*	Invasive; Prohibited Plant Species
Ash	*Fraxinus species*	Do not use due to Emerald Ash borer
Goatsrue	*Galega officinalis*	Invasive; Prohibited Plant Species
Sweet Woodruff	*Galium odoratum*	Invasive
Ginkgo (female only)	*Ginkgo biloba (female only)*	Do not use due to smelly, fleshy, and messy fruit
Creeping Charlie/Ground Ivy	*Glechoma hederacea*	Invasive
English Ivy	*Hedera helix*	Invasive
Common Day Lily	*Hemerocallis fulva*	Invasive
Giant Hogweed	*Heracleum mantegazzianum*	Invasive; Prohibited Plant Species
Dame's Rocket	*Hesperis matronalis*	Invasive; Prohibited Plant Species
Rose-of-Sharon	*Hibiscus syriacus*	Invasive
Japanese Hops	*Humulus japonicus*	Invasive; Prohibited Plant Species

Common Name	*Scientific Name*	Undesirable Traits
Panicled hydrangea	*Hydrangea paniculata*	Invasive
Hydrilla	*Hydrilla verticillata*	Invasive; Prohibited Plant Species
European Frogbit	*Hydrocharis morsus-ranae*	Invasive; Prohibited Plant Species
Indian Swampweed/Miramar Weed	*Hygrophilia polysperma*	Invasive; Prohibited Plant Species
St. John's Wort	*Hypericum perforatum*	Invasive
Japanese Blood Grass	*Imperata cylindrica*	Invasive
Chinese Water Spinach	*Ipomoea aquatic*	Invasive; Prohibited Plant Species
Yellow Iris	*Iris pseudacorus*	Invasive; Prohibited Plant Species
Japanese Kerria	*Kerria japonica*	Invasive
Goldenraintree	*Koelreuteria texana (aka Koelreuteria paniculata)*	Invasive
Korean Lespedeza	*Kummerowia stipulacea*	Invasive
Striate Lespedeza	*Kummerowia striata*	Invasive
Oxygen-weed/African Elodea/ African Waterweed	*Lagarosiphon major*	Invasive; Prohibited Plant Species
Pepperweed	*Lepidium latifolium*	Invasive; Prohibited Plant Species
Bicolor Lespedeza	*Lespedeza bicolor*	Invasive
Sericea lespedeza	*Lespedeza cuneata*	Invasive; Prohibited Plant Species
Korean Lespedeza	*Lespedeza stipulacea*	Invasive
Japanese Lespedeza	*Lespedeza striata*	Invasive
Ox-eye Daisy	*Leucanthemum vulgare*	Invasive
Lyme Grass / Sand Ryegrass	*Leymus arenarius*	Invasive
Amur Privet	*Ligustrum amurense*	Invasive
Blunt Leaved Privet/Border Privet	*Ligustrum obtusifolium*	Invasive; Prohibited Plant Species
California Privet	*Ligustrum ovalifolium*	invasive
Chinese Privet	*Ligustrum sinense*	Invasive
Golden Privet	*Ligustrum vicaryi*	Invasive
Common Privet	*Ligustrum vulgare*	Invasive
Asian Marshweed	*Limnophila sessiliflora*	Invasive; Prohibited Plant Species
Lily Turf/Monkey Grass	*Liriope muscari*	Invasive
Creeping Liriope	*Liriope spicata*	Invasive
Japanese Honeysuckle	*Lonicera japonica*	Invasive; Prohibited Plant Species
Amur Honeysuckle (Asian Bush Honeysuckle)	*Lonicera maackii*	Invasive; Prohibited Plant Species

Common Name	*Scientific Name*	Undesirable Traits
Morrow's Honeysuckle (Asian Bush Honeysuckle)	*Lonicera morrowii*	Invasive; Prohibited Plant Species
Bush Honeysuckle	*Lonicera* - species	Invasive
Tartarian Honeysuckle (Asian Bush Honeysuckle)	*Lonicera tatarica*	Invasive; Prohibited Plant Species
Bella Honeysuckle (Asian Bush Honeysuckle)	*Lonicera x bella*	Invasive; Prohibited Plant Species
Everblooming honeysuckle	*Lonicera x heckrotti*	Invasive
Creeping Jenny/Moneywort	*Lysimachia nummularia*	Invasive
Garden Loosestrife	*Lysimachia vulgaris*	Invasive
Purple Loosestrife	*Lythrum salicaria*	Invasive; Prohibited Plant Species
Osage-Orange	*Maclura pomifera*	Invasive
Japanese Flowering Crabapple	*Malus floribunda*	Invasive
White Sweet Clover	*Melilotus alba*	Invasive
Yellow Sweet Clover	*Melilotus offinalis*	Invasive
Japanese Stiltgrass	*Microstegium vimineum*	Invasive; Prohibited Plant Species
Chinese Maiden Grass/ Chinese Silvergrass	*Miscanthus sinensis*	Invasive
Miscanthus Hybrid	*Miscanthus x gigantea*	Invasive
Monochoria / Arrowleaf / False Pickerelweed	*Monochoria hastata*	Invasive; Prohibited Plant Species
Heartshape / False Pickerelweed	*Monochoria vaginalis*	Invasive; Prohibited Plant Species
White Mulberry	*Morus alba*	Invasive; Prohibited Plant Species
Parrot Feather	*Myriophyllum aquaticum*	Invasive; Prohibited Plant Species
Eurasian Watermilfoil	*Myriophyllum spicatum*	Invasive; Prohibited Plant Species
Brittle Naiad	*Najas Minor*	Invasive; Prohibited Plant Species
Starry Stonewart	*Nitellopsis obtusa*	Invasive; Prohibited Plant Species
Catmint	*Nepeta cataria*	Invasive
Yellow Floating Hearts	*Nymphoides peltata*	Invasive; Prohibited Plant Species
Star-of-Bethlehem	*Ornithogalum umbellatum*	Invasive
Duck Lettuce	*Ottelia alismoides*	Invasive; Prohibited Plant Species
Japanese Pachysandra	*Pachysandra terminalis*	Invasive
Wild Parsnip	*Pastinaca sativa*	Invasive
Princess Tree	*Paulownia tomentosa*	Invasive
Fountain Grass	*Pennisetum alopecuroides*	Invasive

Common Name	*Scientific Name*	Undesirable Traits
Beefsteak Mint	*Perilla frutescens*	Invasive
Mile-A-Minute	*Persicaria perfoliata*	Invasive; Prohibited Plant Species
Reed Canary/Ribbon Grass	*Phalaris arundinacea*	Invasive; Prohibited Plant Species
Amur Cork Tree	*Phellodendron amurense*	Invasive; Prohibited Plant Species
Reed Grass	*Phragmites australis*	Invasive; Prohibited Plant Species
Common Reed	*Phragmites australis ssp australis*	Invasive; Prohibited Plant Species
Norway Spruce	*Picea abies*	Invasive
Scotch Pine	*Pinus sylvestris*	Invasive
Japanese Knotweed	*Polygonum cuspidatum*	Invasive; Prohibited Plant Species
Mile-A-Minute	*Polygonum perfoliatum*	Invasive; Prohibited Plant Species
Curly-Leaved Pondweed	*Potamogeton crispus*	Invasive; Prohibited Plant Species
Purple-Leaf Plum	*Prunus cerasifera*	Invasive
Perfum ed Cherry	*Prunus mahaleb*	Invasive
Douglas Fir	*Pseudotsuga menziesii*	Invasive
Kudzu	*Pueraria lobata (aka Pueraria montana)*	Invasive; Prohibited Plant Species
Callery Pear	*Pyrus calleryana*	Invasive
Ornamental Pear	*Pyrus* - species	Invasive
Sawtooth Oak	*Quecus acutissima*	Invasive
English Oak	*Quercus robur*	Invasive
Lesser Celandine	*Ranunculus ficaria*	Invasive
Japanese Knotweed	*Reynoutria japonica*	Invasive; Prohibited Plant Species
Giant Knotweed	*Reynoutria sachalinensis*	Invasive; Prohibited Plant Species
Bohemian Knotweed	*Reynoutria x bohemica*	Invasive; Prohibited Plant Species
Common Buckthorn	*Rhamnus cathartica*	Invasive; Prohibited Plant Species
Glossy Buckthorn	*Rhamnus frangula*	Invasive; Prohibited Plant Species
Chinese Buckthorn	*Rhamnus utilis*	Invasive
Jetbead	*Rhodotypos scandens*	Invasive
Black Locust	*Robinia pseudoacacia*	Aggressive; sucker groeth; shallow roots
Multiflora Rose	*Rosa multiflora*	Invasive; Prohibited Plant Species
Himalyayan Blackberry	*Rubus armeniacus*	Invasive
Wineberry/Wine Raspberry	*Rubus phoenicolasius*	Invasive
Sheep Sorrel	*Rumex acetosella*	Invasive
Arrowhead	*Sagittaria sagittifolia*	Invasive; Prohibited Plant Species

Common Name	*Scientific Name*	Undesirable Traits
Weeping Willow	*Salix babylonica*	Roots seek out water causing damge to drains & foundations
Wood Sage	*Salvia sylvestris*	Invasive
Giant Salvinia	*Salvinia auriculata/biloba/herzogii*	Invasive; Prohibited Plant Species
Aquarium Watermoss/Giant Salvinia	*Salvinia molesta*	Invasive; Prohibited Plant Species
Bouncing bet/Soapwort	*Saponaria officinalis*	Invasive
Tall Fescue	*Schenodorus arundinacea*	Invasive
Crown Vetch	*Securigera varia*	Invasive
Bur Cucumber	*Sicyos angulatus*	Noxious Weed
Bittersweet Nightshade	*Solanum dulcamara*	Invasive
Perennial Sow Thistle	*Sonchus arvensis*	Invasive
Mountain Ash	*Sorbus spp.*	Do not use due to suceptibility to borers, bacterial fireblight, aphids, sawfly, scale, and scab
Sorghum almum	*Sorghum almum*	Invasive; Prohibited Plant Species
Shattercane	*Sorghum bicolor*	Invasive; Prohibited Plant Species
Johnson Grass	*Sorghum halapense*	Invasive; Prohibited Plant Species
Exotic Bur-reed	*Sparganium erectum*	Invasive; Prohibited Plant Species
Japanese Meadowsweet	*Spiraea japnoica*	Invasive
Spirea	*Spiraea thunbergii*	Invasive
Common Chickweed	*Stellaria media*	Invasive
Water Soldier	*Stratiotes aloides*	Invasive; Prohibited Plant Species
Ivory Silk Japanese Tree Lilac	*Syringa reticulata*	Invasive
Common Lilac	*Syringa vulgaris*	Invasive
Spreading Hedgeparsley	*Torilis arvensis*	Invasive
Japanese Hedgeparsley	*Torilis japonica*	Invasive
Water Chestnut	*Trapa natans*	Invasive; Prohibited Plant Species
White Clover	*Trifolium repens*	Invasive
Coltsfoot	*Tussilago farfara*	Invasive
Narrow-leaved Cattail	*Typha angustifolia*	Invasive; Prohibited Plant Species
Hybird Cattail	*Typha x glauca*	Invasive
American Elm	*Ulmus americana*	Do not use due to Dutch Elm Disease; select resistant cultivar
Chinese Elm	*Ulmus parvifolia*	Invasive
Siberian Elm	*Ulmus pumila*	Invasive

Common Name	*Scientific Name*	Undesirable Traits
Koreanspice Viburnum	*Viburnum carlesii*	Invasive
Wayfaring Tree	*Viburnum lantana*	invasive
European Cranberry-Bush	*Viburnum opulus var. opulus*	Invasive
European Cranberry	*Viburnum opulus*	Invasive
Doublefile Viburnum	*Viburnum plicatum*	Invasive
Siebold Viburnum	*Viburnum sieboldii*	Invasive
Burkwood Viburnum	*Viburnum x burwoodii*	Invasive
Judd Viburnum	*Viburnum x judii*	Invasive
Vetch	*Vicia cracca*	Invasive
Large-leaved Periwinkle	*Vinca Major*	Invasive
Periwinkle	*Vinca Minor*	Invasive
Black Swallow-wort	*Vincetoxicum nigrum*	Invasive; Prohibited Plant Species
Pale Swallow-wort	*Vincetoxicum rossicum*	Invasive; Prohibited Plant Species
Chastetree	*Vitex agnus-castus*	Invasive
Chinese Wisteria	*Wisteria Sinensis*	Invasive
Japanese Zelkova	*Zelkova serrata*	Invasive

References

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of Arboriculture
https://www.treesaregood.org/treeowner

United States
Department of Agriculture
https://www.usda.gov/

Missouri
Botanical Garden
https://www.missouribotanicalgarden.org/

Duke Energy
https://www.duke-energy.com/home

Native Plant Center
http://www.nativeplantcenter.net/

United States
Forest Service
https://www.fs.usda.gov/

Indiana Department of
Natural Resources
https://www.in.gov/dnr/

Plants For A Future
https://pfaf.org/

Purdue Extension
https://extension.purdue.edu/

Glossary

- **Acidic soil** is commonly found in areas with sandy soil, and abundance of organic matter, and heavy rainfall; the pH is below 7.

- **Cultivar** is the most basic classification category of cultivated plants, most arising from cultivation but also naturally from wild plants.

- **Drought** is a prolonged shortage of rainfall which can be very dangerous to some plant species.

- **Dry soil** includes soil particles that don't hold water; dries out quickly.

- **Invasive species** are an introduced organism that negatively alter its new environment.

- **Moist well-drained soil** includes particles that hold some water but also holds oxygen, resulting in adequate drainage.

- **Native species** are ones that originated and developed in its surrounding habitat and has adapted to living in that particular environment.

- **Non-native species** are organisms that do not occur naturally in an area but are introduced as the result of deliberate or accidental human activities.

- **Poor soil** includes soil containing little organic matter content.

- **Rich soil** includes soil containing a high

to protect soil from erosion.

organic matter content.

- **Salt resistant** refers to plants that are resistantto winter salting. Many plant species are sensitive if planted close to sidewalk or streetsthat are salted in the winter.

- **Sandy soil** consists of larger particles and loworganic matter; dries out quickly.

- **Soil compaction** occurs when heavy weight compresses the soil around the plant, causingthe soil to lose pore space.

- **Sustainable landscapes** are ones that conformto the environment surrounding it, requiring only inputs that are naturally available, with little or no additional support.

- **Urban tolerant** is used to describe a plant that does well if planted in urban areas such asbusy sidewalks and streets where exposed to winter salting, noise, traffic, and heat reflection.

- **Water-logging** occurs when roots cannot respire due to excess water in the soil profile.

- **Wet soil** holds water well and dries out slowly.

- **Windbreak** is a plantation usually made up ofone or more rows of trees or shrubs planted insuch a manner as to provide shelter from the wind and

ANSI A300 Part 1- Attachment 1

Contents

Forward

(This foreword is not part of American National Standard A300 Part 1-2001.)

An industry-consensus standard must have the input of the industry that it is intended to affect. The Accredited Standards Committee A300 was approved June 28, 1991. The committee includes representatives from the residential and commercial tree care industry, the utility, municipal, and federal sectors, the landscape and nursery industries, and other interested organizations. Representatives from varied geographic areas with broad knowledge and technical expertise contributed.

The A300 standard can be best placed in proper context if one reads its Scope, Purpose, and Application. This document presents performance standards for the care and maintenance of trees, shrubs, and other woody plants. It is intended as a guide in the drafting of maintenance specifications for federal, state, municipal, and private authorities including property owners, property managers, and utilities.

The A300 standard stipulates that specifications for tree work should be written and administered by a professional possessing the technical competence to provide for, or supervise, the management of woody landscape plants. Users of this standard must first interpret its wording, then apply their knowledge of growth habits of certain plant species in a given environment. In this manner, the user ultimately develops their own specifications for plant maintenance.

ANSI A300 Part 1 - Pruning, should be used in conjunction with the rest of the A300 standard when writing specifications for tree care operations.

Suggestions for improvement of this standard should be fotwarded to: NAA300 Secretary, c/o National Arborist Association, 3 Perimeter Rd. - Unit 1, Manchester, NH 03103, USA or Email: naa@natlarb.com.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Maintenance Operations - Standard Practices, A300. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the A300 committee had the following members:

Tim Johnson, Chair (Artistic Arborist, Inc.)
Bob Rouse, Secretary (National Arborist Association, Inc.)

Organizations Represented	Name of Representative
American Forests	Staff {Observer) Craig
American Nursery and Landscape Association	J. Regelbrugge
American Society of Consulting Arborists	Andrew Graham Donald Blair (Adviser) Beth Palys (Adviser)
American Society of Landscape Architects	Ron Leighton
Asplundh Tree Expert Company	Geoff Kempter
Associated Landscape Contractors of America The	Preston Leyshon Jeff Bourne (Alt.) Joseph
Davey Tree Expert Company	Tommasi Dick Jones (All.) Richard Rathjens (Adviser) Peter
The F.A. Bartlett Tree Expert Company	Becker Dr. Thomas Smiley (Alt.) Ed
International Society of Arboriculture	Brennan Sharon Lilly (Alt.) Ronald Rubin
National Arborist Association	Robert DeFeo
Tom Mugridge (Alt.) National Park Service	Kevin O'Donnell
Professional Grounds Management Society	Andrew Hillman Ed
· Society of Municipal Arborists	Mike Galvin (Alt.) Philip D. Rodbell
U.S. Forest Service Macie_	(All.) Jeffery Smith
Utility Arborist Association	Matt Simons (Alt.)

American National Standard for Tree Care Operations -

Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices

(Pruning)

1 ANSI A300 standards

1.1 Scope

ANSI A300 standards present performance standards for the care and maintenance of trees, shrubs, and other woody plants.

1.2 Purpose

ANSI A300 standards are intended as guides for federal, state, municipal and private authorities including property owners, property managers, and utilities in the drafting of their maintenance specifications.

1.3 Application

ANSI A300 standards shall apply to any person or entity engaged in the business, trade, or performance of repairing, maintaining, or preserving trees, shrubs, or other woody plants.

1.4 Implementation

Specifications for tree maintenance should be written and administered by an arborist.

2 Part 1 - Pruning standards

2.1 Purpose

The purpose of this document is to provide standards for developing specifications for tree pruning.

2.2 Reasons for pruning

The reasons for tree pruning may include, but are not limited to, reducing risk, maintaining or improving tree health and structure, improving aesthetics, or satisfying a specific need. Pruning practices for agricultural, horticultural production, or silvicultural purposes are exempt from this standard.

2.3 Safety

2.3.1 Tree maintenance shall be performed only by arborists or arborist trainees who, through related training or on-the-job experience, or both, are familiar with the practices and hazards of arboriculture and the equipment used in such operations.

2.3.2 This standard shall not take precedence over arboricultural safe work

practices.

2.3.3 Operations shall comply with applicable Occupational Safety and Health Administration (OSHA) standards, ANSI Z133.1, as well as state and local regulations.

3 Normative references

The following standards contain provisions, which, through reference in the text, constitute provisions of this American National Standard. All standards are subject to revision, and parties to agreements based on this American National Standard shall apply the most recent edition of the standards indicated below.

- ANSI Z60.1, Nursery stock
- ANSI Z133.1, Tree care operations - Pruning, trimming, repairing, maintaining, and removing trees, and cutting brush - Safety requirements
- 29 CFR 1910, General industry 1)
- 29 CFR 1910.268, Telecommunications 1)
- 29 CFR 1910.269, Electric power generation, transmission, and distribution 1)
- 29 CFR 1910.331 - 335, Electrical safety-related work practices 1)

4 Definitions

4.1 **anvil-type pruning tool:** A pruning tool that has a sharp straight blade that cuts against a flat metal cutting surface, in contrast to a hook-and-bladetype pruning tool (4.21).

4.2 **apical dominance:** Inhibition of growth of lateral buds by the terminal bud.

4.3 **arboriculture:** The art, science, technology, and business of commercial, public, and utility tree care.

4.4 **arborist:** An individual engaged in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide for or supervise the management of trees and other woody plants.

4.5 **arborist trainee:** An individual undergoing on-the-job training to obtain the experience and the competence required to provide for or supervise the management of trees and other woody plants. Such trainees shall be under the direct supervision of an arborist.

4.6 **branch bark ridge:** The raised area of bark in the branch crotch that marks where the branch and parent meet.

4.7 **branch collar:** The swollen area at the base of a branch.

4.8 **callus:** Undifferentiated tissue formed by the cambium around a wound.

4.9 **cambium:** The dividing layer of cells that forms sapwood (xylem) to the inside and inner bark (phloem) to the outside.

4.10 **cleaning:** Selective pruning to remove one or more of the following parts: dead, diseased, and/ or broken branches (5.6.1).

4.11 **climbing spurs:** Sharp, pointed devices affixed to a climber's boot used to assist in climbing trees. (syn.: gaffs, hooks, spurs, spikes, climbers)

4.12 **closure:** The process of woundwood covering a cut or other tree injury.

4.13 **crown:** The leaves and branches of a tree measured from the lowest branch on the trunk to the top of the tree.

4.14 **decay:** The degradation of woody tissue caused by microorganisms.

4.15 **espalier:** The combination of pruning, supporting, and training branches to orient a plant in one plane (5.7.2).

4.16 **establishment:** The point after planting when a tree's root system has grown sufficiently into the surrounding soil to support shoot growth and anchor the tree.

4.17 **facility:** A structure or equipment used to deliver or provide protection for the delivery of an essential service, such as electricity or communications.

4.18 **final cut:** A cut that completes the removal or reduction of a branch or stub.

4.19 **frond:** A leaf of a palm.

4.20 **heading:** 1. Cutting a currently growing, or a 1-year-old shoot, back to a bud. 2. Cutting an older branch or stem back to a stub in order to meet a defined structural objective. 3. Cutting an older branch or stem back to a lateral branch not large enough to assume apical dominance in order to meet a defined structural objective. Heading may or may not be an acceptable pruning practice, depending on the application.

4.21 **hook-and-blade-type pruning tool:** A pruning tool that has a sharp curved blade that overlaps a supporting hook; in contrast to an anvil-type pruning tool (4.1). (syn.: by-pass pruner)

4.22 **interfering branches:** Crossing, rubbing, or upright branches that have the

potential to damage tree structure and/or health.

4.23 **internodal cut:** A cut located between lateral branches or buds.

4.24 **lateral branch:** A shoot or stem growing from a parent branch or stem.

4.25 **leader:** A dominant or co-dominant, upright stem.

4.26 **limb:** A large, prominent branch.

4.27 **lion's tailing:** The removal of an excessive number of inner, lateral branches from parent branches. Lion's tailing is not an acceptable pruning practice (5.5.7).

4.28 **mechanical pruning:** A utility pruning technique where large-scale power equipment is used to cut back branches (5.9.2.2).

4.29 **parent branch or stem:** A tree trunk, limb, or prominent branch from which shoots or stems grow.

4.30 **peeling:** For palms: The removal of only the dead frond bases at the point they make contact with the trunk without damaging living trunk tissue. (syn.: shaving)

4.31 **petiole:** A stalk of a leaf or frond.

4.32 **phloem:** Inner bark conducting tissues that transport organic substances, primarily carbohydrates, from leaves and stems to other parts of the plant.

4.33 **pollarding:** The maintenance of a tree by making internodal cuts to reduce the size of a young tree, followed by the annual removal of shoot growth at its point of origin (5.7.3).

4.34 **pruning:** The selective removal of plant parts to meet specific goals and objectives.

4.35 **qualified line-clearance arborist:** An individual who, through related training and on-thejob experience, is familiar with the equipment and hazards in line clearance and has demonstrated the ability to perform the special techniques involved. This individual may or may not be currently employed by a line-clearance contractor.

4.36 **qualified line-clearance arborist trainee:**
An individual undergoing line-clearance training and who, in the course of such training, is familiar with the hazards and equipment involved in line clearance and has demonstrated ability in the performance of the special techniques involved.

This individual shall be under the direct supervision of a qualified line-clearance arborist.

4.37 **raising:** Selective pruning to provide vertical clearance (5.6.3).

4.38 **reduction:** Selective pruning to decrease height and/or spread (5.6.4).

4.39 **remote/rural areas:** Locations associated with very little human activity, land improvement, or development.

4.40 **restoration:** Selective pruning to improve the structure, form, and appearance of trees that have been severely headed, vandalized, or damaged (5.7.4).

4.41 **shall:** As used in this standard, denotes a mandatory requirement.

4.42 **should:** As used in this standard, denotes an advisory recommendation.

4.43 **stub:** An undesirable short length of a branch remaining after a break or incorrect pruning cut is made.

4.44 **thinning:** Selective pruning to reduce density of live branches (5.6.2).

4.45 **throwline:** A small, lightweight line with a weighted end used to position a climber's rope in a tree.

4.46 **topping:** The reduction of a tree's size using heading cuts that shorten limbs or branches back to a predetermined crown limit. Topping is not an acceptable pruning practice (5.5.7).

4.47 **tracing:** The removal of loose, damaged tissue from in and around the wound.

4.48 **urban/residential areas:** Locations, such as populated areas including public and private property, that are normally associated with human activity.

4.49 **utility:** An entity that delivers a public service, such as electricity or communications.

4.50 **utility space:** The physical area occupied by a utility's facilities and the additional space required to ensure its operation.

4.51 **vista pruning:** Selective pruning to allow a specific view (5.7.5).

4.52 **watersprouts:** New stems originating from epicormic buds. (syn.: epicormic shoots)

4.53 **wound:** An opening that is created when the bark of a live branch or stem is penetrated, cut, or removed.

4.54 **woundwood:** Partially differentiated tissue responsible for closing wounds. Woundwood develops from callus associated with wounds.

4.55 **xylem:** Wood tissue. Active xylem is sapwood; inactive xylem is heartwood.

4.56 **young tree:** A tree young in age or a newly transplanted tree.

5 Pruning practices

5.1 Tree inspection

5.1.1 An arborist or arborist trainee shall visually inspect each tree before beginning work.

5.1.2 If a condition is observed requiring attention beyond the original scope of the work, the condition should be reported to an immediate supervisor, the owner, or the person responsible for authorizing the work.

5.2 Tools and equipment

5.2.1 Equipment and work practices that damage living tissue and bark beyond the scope of the work should be avoided.

5.2.2 Climbing spurs shall not be used when climbing and pruning trees.
Exceptions:
-when limbs are more than throwline distance apart and there is no other means of climbing the tree;
-when the bark is thick enough to prevent damage to the cambium;
-in remote or rural utility rights-of-way.

5.3 Pruning cuts

5.3.1 Pruning tools used in making pruning cuts shall be sharp.

5.3.2 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

5.3.3 A pruning cut that reduces the length of a branch or parent stem should bisect the angle between its branch bark ridge and an imaginary line perpendicular to the branch or stem (see Figure 5.3.3).

5.3.4 The final cut shall result in a flat sutiace with adjacent bark firmly attached.

5.3.5 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

5.3.6 Tree branches shall be removed in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

5.3.7 A final cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent limb (see Figure 5.3.7).

5.3.8 Severed limbs shall be removed from the crown upon completion of the pruning, at times when the tree would be left unattended, or at the end of the workday.

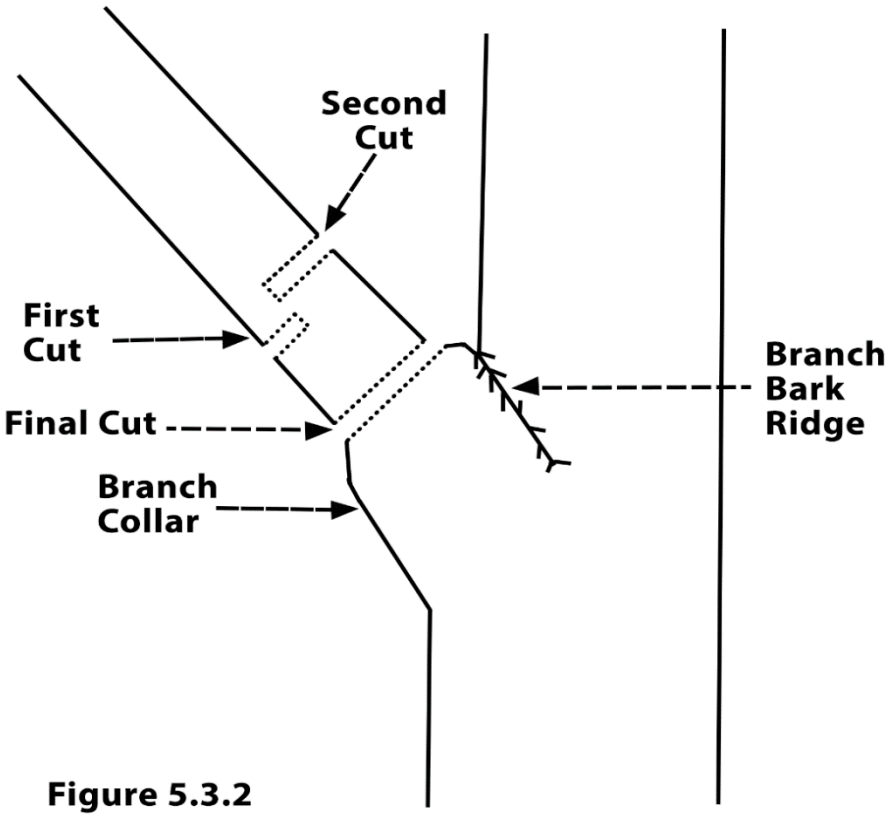

Figure 5.3.2

Figure 5.3.2. - A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark.

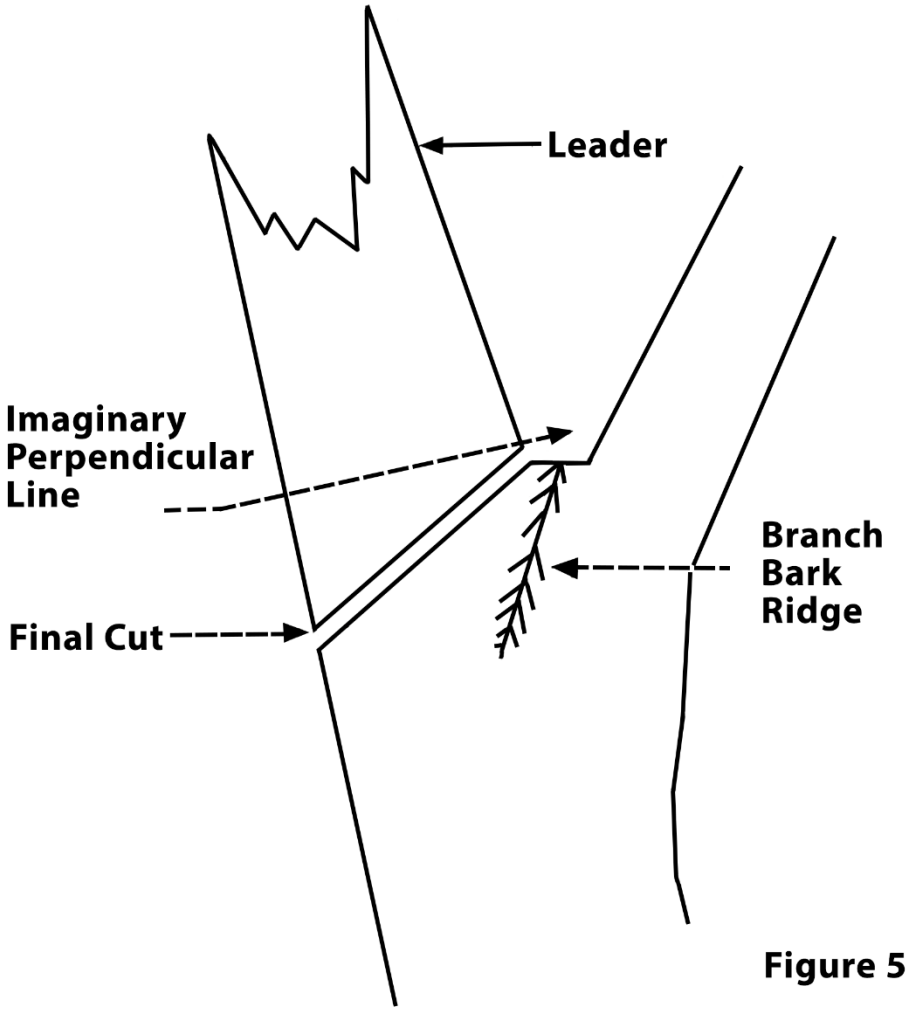

Figure 5.3.3. - A pruning cut that reduces the length of a branch or parent stem should bisect the angle between its branch bark ridge and an imaginary line perpendicular to the branch or stem .

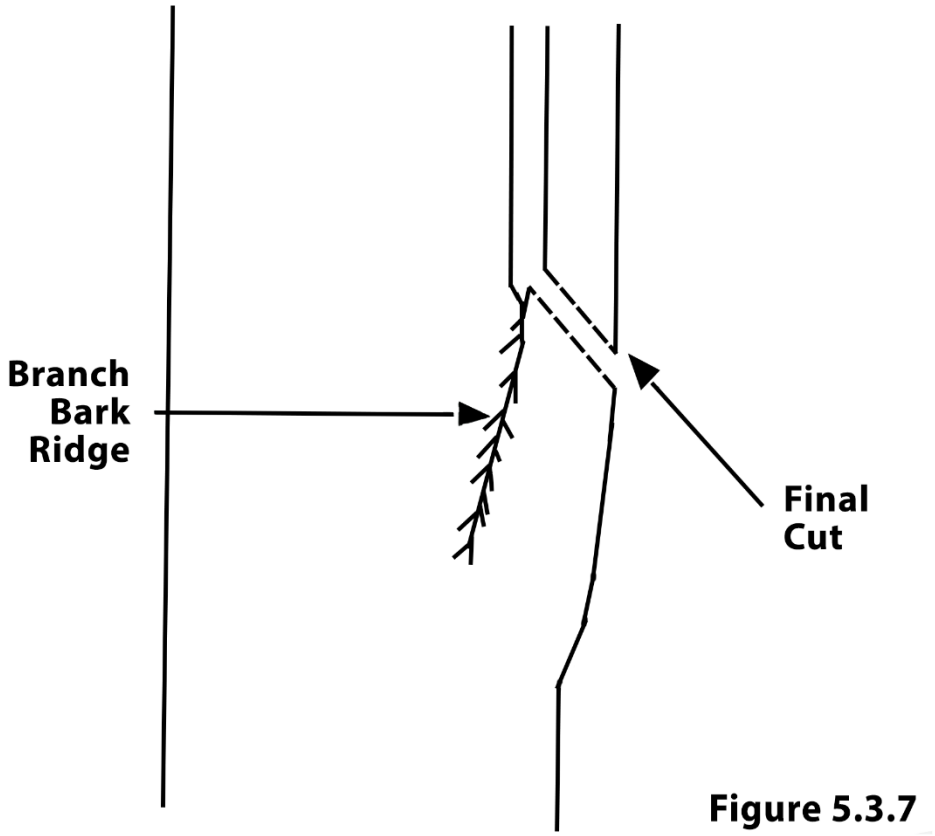

Figure 5.3.7. -A final cut that removes a branch with a narrow angle of attachment should be made from the outside of the branch to prevent damage to the parent limb.

5.4 Wound treatment

5.4.1 Wound treatments should not be used to cover wounds or pruning cuts, except when recommended for disease, insect, mistletoe, or sprout con trol, or for cosmetic reasons.

5.4.2 Wound treatments that are damaging to tree tissues shall not be used.

5.4.3 When tracing wounds, only loose, damaged tissue should be removed.

5.5 Pruning objectives

5.5.1 Pruning objectives shall be established prior to beginning any pruning operation.
To obtain the defined objective, the growth cycles and structure of individual

species and the type of pruning to be performed should be considered.

5.5.3 Not more than 25 percent of the foliage should be removed within an annual growing season. The percentage and distribution of foliage to be removed shall be adjusted according to the plant's species, age, health, and site.

5.5.4 Not more than 25 percent of the foliage of a branch or limb should be removed when it is cut back to a lateral. That lateral should be large enough to assume apical dominance.

5.5.5 Pruning cuts should be made in accordance with 5.3 Pruning cuts.

5.5.6 Heading should be considered an acceptable practice for shrub or specialty pruning when needed to reach a defined objective.

5.5.7 Topping and lion's tailing shall be considered unacceptable pruning practices for trees.

5.6 Pruning types

Specifications for pruning should consist of, but are not limited to, one or more of the following types:

5.6.1 Clean: Cleaning shall consist of selective pruning to remove one or more of the following parts: dead, diseased, and/or broken branches.
5.6.1.1 Location of parts to be removed shall be specified.
5.6.1.2 Size range of parts to be removed shall be specified.

5.6.2 Thin: Thinning shall consist of selective pruning to reduce density of live branches.
5.6.2.1 Thinning should result in an even distribution of branches on individual limbs and throughout the crown.
5.6.2.2 Not more than 25 percent of the crown should be removed within an annual growing season.
5.6.2.3 Location of parts to be removed shall be specified.
5.6.2.4 Percentage of foliage and size range of parts to be removed shall be specified.

5.6.3 Raise: Raising shall consist of selective pruning to provide vertical clearance.
5.6.3.1 Vertical clearance should be specified.
5.6.3.2 Location and size range of parts to be removed should be specified.

5.6.4 Reduce: Reduction shall consist of selective pruning to decrease height and/or spread.

5.6.4.1 Consideration shall be given to the ability of a species to tolerate this type of pruning.
5.6.4.2 Location of parts to be removed and clearance should be specified.
5.6.4.3 Size range of parts should be specified.

5.7 Specialty pruning

Consideration shall be given to the ability of a species to tolerate specialty pruning, using one or more pruning types (5.6).

5.7.1 Young trees

5.7.1.1 The reasons for young tree pruning may include, but are not limited to, reducing risk, maintaining or improving tree health and structure, improving aesthetics, or satisfying a specific need.
5.7.1.2 Young trees that will not tolerate repetitive pruning and have the potential to outgrow their space should be considered for relocation or removal.

5.7.1.3 At planting

5.7.1.3.1 Pruning should be limited to cleaning (5.6.1).
5.7.1.3.2 Branches should be retained on the lower trunk.

5.7.1.4 Once established

5.7.1.4.1 Cleaning should be performed (5.6.1).
5.7.1.4.2 Rubbing and poorly attached branches should be removed.
5.7.1.4.3 A central leader or leader(s) as appropriate should be developed.
5.7.1.4.4 A strong, properly spaced scaffold branch structure should be selected and maintained.
5.7.1.4.5 Interfering branches should be reduced or removed.

5.7.2 Espalier

5.7.2.1 Branches that extend outside the desired plane of growth shall be pruned or tied back.
5.7.2.2 Ties should be replaced as needed to prevent girdling the branches at the attachment site.

5.7.3 Pollarding

5.7.3.1 Consideration shall be given to the ability of the individual tree to respond to pollarding.
5.7.3.2 Management plans shall be made prior to the start of the pollarding process for routine removal of watersprouts.
5.7.3.3 Internodal cuts shall be made at specific locations to start the pollarding process. After the initial cuts are made, no additional internodal cut shall be made.
5.7.3.4 Watersprouts growing from the cut ends of branches (knuckles) should be removed annually during the dormant season.

5.7.4 Restoration

5.7.4.1 Restoration shall consist of selective pruning to improve the structure,

form, and appearance of trees that have been severely headed, vandalized, or damaged.

5.7.4.2 Location in tree, size range of parts, and percentage of watersprouts to be removed should be specified.

5.7.5 Vista pruning

5.7.5.1 Vista pruning shall consist of selective pruning to allow a specific view.

5.7.5.2 Size range of parts, location in tree, and percentage of foliage to be removed should be specified.

5.8 Palm pruning

5.8.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.

5.8.2 Live healthy fronds, initiating at an angle of 45 degrees or greater from horizontal, with frond tips at or below horizontal, should not be removed.

5.8.3 Fronds removed should be severed close to the petiole base without damaging living trunk tissue.

5.8.4 Palm peeling (shaving) should consist of the removal of only the dead frond bases at the point they make contact with the trunk without damaging living trunk tissue.

5.9 Utility pruning

5.9.1 General

5.9.1.1 The purpose of utility pruning is to prevent the loss of service, comply with mandated clearance laws, prevent damage to equipment, avoid access impairment, and uphold the intended usage of the facility/utility space.

5.9.1.2 Only a qualified line clearance arborist or line clearance arborist trainee shall be assigned to line clearance work in accordance with ANSI 2133.1, 29 CFR 1910.331 - 335, 29 CFR 1910.268 or 29 CFR 1910.269.

5.9.1.3 Utility pruning operations are exempt from requirements in 5.1 Tree Inspection:

5.1.1 An arborist or arborist trainee shall visually inspect each tree before beginning work.

5.1.2 If a condition is observed requiring attention beyond the original scope of the work, the condition should be reported to an immediate supervisor, the owner, or the person responsible for authorizing the work.

5.9.1.4 Safety inspections of the work area are required as outlined in ANSI 2133.1 4.1.3, job briefing.

5.9.2 Utility crown reduction pruning

5.9.2.1 Urban/residential environment

5.9.2.1.1 Pruning cuts should be made in accordance with 5.3, Pruning cuts. The following requirements and recommendations of 5.9.2.1.1 are repeated from 5.3 Pruning cuts.

5.9.2.1.1.1 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

5.9.2.1.1.2 A pruning cut that reduces the length of a branch or parent stem should bisect the angle between its branch bark ridge and an imaginary line perpendicular to the branch or stem (see Figure 5.3.3).

5.9.2.1.1.3 The final cut shall result in a flat surface with adjacent bark firmly attached.

5.9.2.1.1.4 When removing a dead branch, the final cut shall be made just outside the collar of living tissue.

5.9.2.1.1.5 Tree branches shall be *removed* in such a manner so as not to cause damage to other parts of the tree or to other plants or property. Branches too large to support with one hand shall be precut to avoid splitting of the wood or tearing of the bark (see Figure 5.3.2). Where necessary, ropes or other equipment shall be used to lower large branches or portions of branches to the ground.

5.9.2.1.1.6 A final cut that removes a branch with a narrow angle of attachment should be made from the bottom of the branch to prevent damage to the parent limb (see Figure 5.3.7).

5.9.2.1.2 A minimum number of pruning cuts should be made to accomplish the purpose of facility/utility pruning. The natural structure of the tree should be considered.

5.9.2.1.3 Trees directly under and growing into facility/utility spaces should be *removed* or pruned. Such pruning should be done by removing entire branches or by removing branches that have laterals growing into (or once pruned, will grow into) the facility/utility space.

5.9.2.1.4 Trees growing next to, and into or toward facility/utility spaces should be pruned by reducing branches to laterals (5.3.3) to direct growth away from the utility space or by removing entire branches. Branches that, when cut, will produce watersprouts that would grow into facilities and/or utility space should be *removed.*

5.9.2.1.5 Branches should be cut to laterals or the parent branch and not at a pre-established clearing limit. If clearance limits are established, pruning cuts should be made at laterals or parent branches outside the specified clearance zone.

5.9.2.2 Rural/remote locations - mechanical pruning

Cuts should be made close to the main stem, outside of the branch bark ridge and branch collar. Precautions should be taken to *avoid* stripping or tearing of bark or excessive wounding.

5.9.3 Emergency service restoration

During a utility-declared emergency, service must be restored as quickly as possible in accordance with ANSI Z133.1, 29 CFR 1910.331 - 335, 29 CFR 1910.268, or 29 CFR 1910.269. At such times it may be necessary, because of safety and the urgency of service restoration, to deviate from the use of proper pruning techniques as defined in this standard. Following the emergency, corrective pruning should be done as necessary.

Annex A (informative)

Reference publications

International Society of Arboriculture (ISA). 1995. Tree Pruning Guidelines . Savoy, IL: International Society of Arboriculture (ISA).