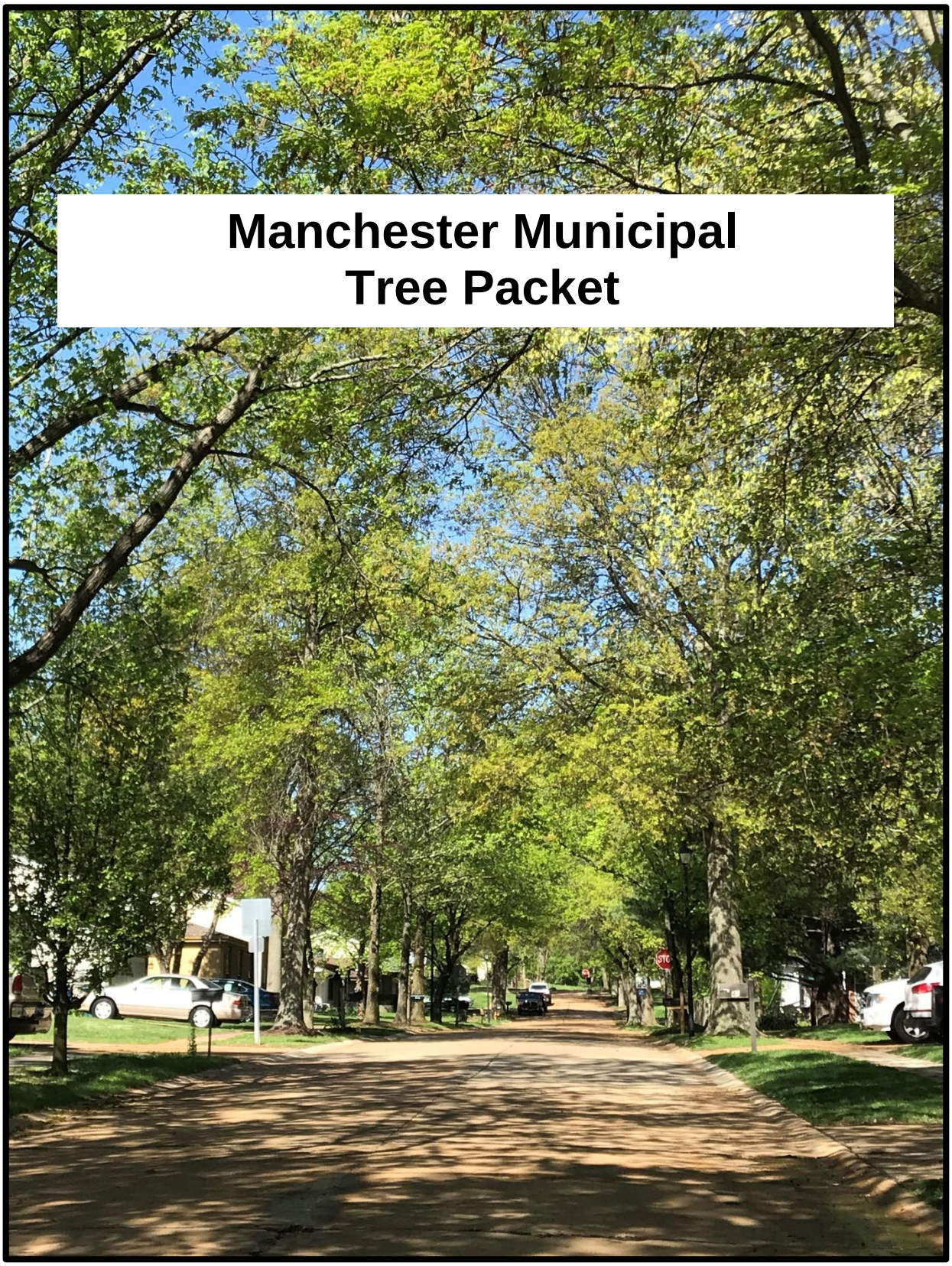
Manchester Municipal Tree Packet



THE CITY OF
MANCHESTER
MISSOURI

THE CITY OF MANCHESTER MISSOURI

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Letter for the Tree Manual

Trees! There are few things in our environment that surpass the value, beauty, or comfort received from trees. Their shade, protective characteristics, and cleansing qualities add so much value to our lives, property, and to this community we call home. I think it would be hard to live where trees were not present. For humans and wildlife, we need the presence of great old oaks and beautiful fall-colored maples.

Manchester is a city of tree-lined streets, an abundance of parks, and common ground woods that feed and protect all kinds of wildlife and birds. Our kids play in these woods; games of imagination and wonder. When I was growing up, our farm included 40+ acres of woods. I knew most every eccentric and "den" tree in our woods. Great memories are still with me, and I'm sure, all of us who were raised with woods as a backyard. My failures with my first bb gun occurred in our woods. The squirrel in the hickory tree had nothing to fear when I hunted with my dad.

I hope you can tell I love trees. And, I care for mine. I water, fertilize, and prune my yard trees. I've started treating my beautiful ash trees to keep them safe from the emerald ash borer, too. Few experiences equal a summer evening in the shade of my massive cottonwood.

In Manchester, we are fortunate to be a city with an abundance of trees. Our city parks are filled with trees that are cherished. Our yards reflect the work of residents that care deeply for their trees and know that healthy, beautiful trees enhance property value. After a summer storm, don't our trees glow with near-neon intensity? We have a tree-rich community and aren't we lucky!

Manchester is a Tree City, USA community! The award is a result of the emphasis that our city government places on tree care. Our Tree Advisory Board brings passion and offers direction, while our Parks and Public Works Staff care as much for the city forest as the rest of us care about our yard and street trees! Our green corridors invite walks, jogging, bicycling, wildlife, and imaginary adventure. It's easy to relax and reflect in our woods.

Please use this city tree manual as a resource to provide care for, and to make good decisions for our trees. Publication topics include answers to the questions of what to plant and where, when to plant, and sometimes when to remove.

Thanks to the Manchester Board of Aldermen, the Tree Advisory Board, and City Staff for cooperatively making us a Tree City USA! For those generations yet to come, let's keep working, growing, and loving our trees and woods.

Thanks to all residents that want trees and want them to thrive. This manual will help us all!

Mike Clement
Mayor, City of Manchester

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Urban Forestry Contact Information

We all take responsibility for tree management in the City of Manchester so we all can enjoy the benefits trees provide us and our community. The following contacts will be able to help you target the appropriate person or Department to direct questions.

Street Trees
Public Works
14318 Manchester Rd.
Manchester, MO 63011
636.227.1385 x168

Park Trees
Parks and Recreation
359 Old Meramec Station Rd.
Manchester, MO 63021
636.391.6326

Commercial/Residential Tree Preservation Requirements
Planning and Zoning
14318 Manchester Rd.
Manchester, MO 63011
636.227.1385 x118

City Tree Advisory Board Contact and Members
Ward 1: Nancy Miller, Secretary
Ward 2: Jane Sharp, Vice Chair
Ward 3: Mike Stemmler, Chair
treeboard@manchestermo.gov

Residential Tree Care Support
Missouri One Call (utility locates) – 1.800.DIG.RITE
MoBOT, Master Gardener Horticulture Answer Service – 314.577.5143
List of ISA Certified Arborist for Hire
- St. Louis Arborist Association – 314.283.7197
- International Society of Arboriculture – 217.355.9411

Missouri Department of Conservation
- Powder Valley Nature Center – 314.301.1500

Tree Owner Management Information – www.treesaregood.org

THE CITY OF MANCHESTER MISSOURI

Manchester Tree Ordinance Summary

In 2018 the City of Manchester passed a citywide Tree Ordinance that codifies the maintenance and management of trees within the city limits. This Tree Packet attempts to provide supporting information to help city staff, residents and developers best adhere to the laws presented in the ordinance.

A link to this ordinance (Chapter 250, Ord. NO. 17-2194) can be found on the City's webpage or on www.ecode360.com. A few key components of note in the Tree Ordinance include:

Establishment of a Tree Advisory Board
Three citizens representing each municipal ward will be appointed by the Mayor and serve in an advisory role to support both City staff and fellow residents. They will meet regularly and welcome direction from the public regarding tree related priorities in the community.

Park Trees
The City will follow best practices as it relates to tree care in parks. ANSI A300 standards for planting, pruning, and removal will be followed.

Tree Care of Public Rights-of-Way
The public right-of-way includes areas designated for public access, typically between the sidewalk and curb along streets, where the City has been granted an easement. The Manchester Tree Ordinance outlines that trees growing in this area shall be maintained by the adjacent property owner.

No permits are required to plant, prune, or remove trees in the right-of-way. However, all tree work must comply with the ANSIA300 standards for tree care (see ISA guidelines in this packet) and no tree topping is allowed. Stumps must be removed or cut below grade and backfilled.

If the City designates a right-of-way tree as a nuisance or public safety concern, the adjoining property owner must remove the tree within the timeframe specified by code enforcement.

Trees on Private Property
Residents must maintain trees so they do not pose a safety risk to public rights-of-way.

Property owners and developers must work through the tree preservation protocols for any proposed new construction that requires a special use permit, site plan review, or planned development. Tree removal permits may be required as part of this process.

THE CITY OF MANCHESTER MISSOURI

Street Tree Planting and Pruning Guidelines

We all take responsibility for tree management in the City of Manchester so we can enjoy the benefits trees provide us and our community. In the city, residents' plant new trees and maintain existing trees between the sidewalk and curb along streets. In addition to the best practice's procedures explained in the publications from the International Society of Arboriculture, city residents and contractors should be aware of the following guidelines.

Street Tree Plantings:
Always call Missouri One Call (1-800-DIG-RITE) to mark existing utilities.
Space trees 20 to 40-feet apart
Do not plant within 35-feet of an intersection.
Do not plant within 10-feet of utility infrastructure (poles, water boxes, etc.).
Do not plant within 15-feet of alleys, driveway apron, hydrant, and mailbox.
Do not plant within 25-feet of a streetlight.

Tree Pruning:
Prune limbs to allow 7-feet overhead clearance and 1-foot side clearance for sidewalks.
Prune limbs to allow 14-feet overhead clearance for streets.
Prune dead limbs that pose danger to people or property.

TREES TO CONSIDER

THE CITY OF MANCHESTER MISSOURI

Common Name	Scientific Name	Street Tree	Parking Lot or Island	Screen or Landscape	Under Power Lines	Mature Height	Size Class	Comment
SMALL TREES								
Crabapple, Centurion	*Malus 'Centzam'*	yes	yes	yes	yes	20-25	S	disease resistant
Crabapple, Harvest Gold	*Malus x 'Harvest Gold'*	yes	yes	yes	yes	20-25	S	disease resistant
Crabapple, Prairiefire	*Malus 'Prairiefire'*	yes	yes	yes	yes	20-25	S	disease resistant
Crabapple, Snowdrift	*Malus 'Snowdrift'*	yes	yes	yes	yes	15-20	S	disease resistant
Crabapple, Sugar Tyme	*Malus 'Sutyzam'*	yes	yes	yes	yes	15-20	S	disease resistant
Hawthorn, Thornless	*Crataegus punctata 'Ohio Pioneer'*	yes	yes	yes	yes	15-20	S	
Hawthorn 'Crimson Cloud'	*Crataegus laevigata 'Superba'*	yes	yes	yes	yes	15-20	S	
Lilac, Japanese tree	*Syringa reticulata*	yes	yes	yes	yes	25-30	S	messy flowers
Magnolia, Saucer	*Magnolia x soulangiana*	no	yes	yes	yes	20-30	S	
Magnolia, Sweetbay	*Magnolia virginiana*	no	yes	yes	yes	15-25	S	
Maple, Amur	*Acer ginnala*	no	yes	yes	yes	20-25	S	
Maple, Shantung	*Acer truncatum*	yes	yes	yes	yes	20-25	S	
Maple, Tatarian	*Acer tataricum*	yes	yes	yes	yes	15-25	S	
MEDIUM TREES								
Cherry, Flowering	*Prunus 'Kwanzan'*	no	yes	yes	yes	25-35	M	
Cherry, Sargent	*Prunus sargentii 'Columnaris'*	no	yes	yes	yes	30-40	M	
Corktree, Amur	*Phellodendron amurense*	yes	yes	yes	no	35-40	M	tolerant of dry sites
Hawthorn 'Winter King'	*Crataegus viridis 'Winter King'*	yes	yes	yes	yes	25-35	M	
Honeylocust, Thornless	*Gleditsia triacanthos 'Impcole' Imperial*	yes	yes	yes	no	30-40	M	
Hophornbeam	*Ostrya virginiana*	yes	yes	yes	yes	30-40	M	tolerant of dry sites
Hornbeam, American	*Carpinus caroliana*	yes	yes	yes	no	20-35	M	
Hornbeam, European	*Carpinus betulus 'Fastigiata'*	yes	yes	yes	no	35-40	M	narrow upright form
Maple, State Street	*Acer miyabei 'Morton' State Street*	yes	yes	yes	no	30-40	M	
Maple, Trident	*Acer buererianum*	yes	yes	yes	yes	20-30	M	
Redbud, Eastern	*Cercis canadensis*	yes	yes	yes	yes	25-30	M	
Serviceberry, Downy	*Amelanchier arborea*	no	yes	yes	yes	25-30	M	
LARGE TREES								
Alder, Black	*Alnus glutinosa*	yes	yes	yes	no	45+	L	
Baldcypress	*Taxodium distichum*	yes	yes	yes	no	45+	L	
Basswood	*Tilia americana*	yes	no	yes	no	45+	L	
Beech, American	*Fagus grandifolia*	yes	no	yes	no	45+	L	
Beech, European	*Fagus sylvatica*	yes	no	yes	no	45+	L	
Birch, River	*Betula nigra 'Heritage' or 'Dura Heat'*	yes	yes	yes	no	45+	L	
Blackgum	*Nyssa sylvatica*	yes	no	yes	no	45+	L	
Elm, Hybrid	*Ulmus 'Frontier', 'Homestead', 'Pioneer'*	yes	yes	yes	no	45+	L	some DED resistance
Elm, Lacebark	*Ulmus parvifolia*	yes	yes	yes	no	45+	L	
Gingko	*Gingko biloba*	yes	yes	yes	no	45+	L	male cultivars only
Hackberry	*Celtis occidentalis 'Prairie Pride'*	yes	yes	yes	no	45+	L	
Hornbeam, European	*Carpinus betulus*	yes	yes	yes	no	45+	L	
Katsuratree	*Cercidiphyllum japonicum*	yes	yes	yes	no	45+	L	
Kentucky coffeetree	*Gymnocladus dioicus*	yes	yes	yes	no	45+	L	
Linden, Littleleaf	*Tilia cordata 'Chancellor', 'Greenspire'*	yes	yes	yes	no	45+	L	upright
Linden, Silver	*Tilia tomentosa 'Green Mountain'*	yes	yes	yes	no	45+	L	
Magnolia, Cucumbertree	*Magnolia acuminata*	yes	no	yes	no	45+	L	
Maple, Autumn Blaze	*Acer x freemanii 'Jeffersred'*	yes	no	yes	no	45+	L	
Maple, Autumn Flame	*Acer rubrum 'Autumn Flame'*	yes	no	yes	no	45+	L	
Maple, Legacy	*Acer saccharum 'Legacy'*	yes	yes	yes	no	45+	L	
Maple, Red	*Acer rubrum*	yes	no	yes	no	45+	L	
Maple, Red Sunset	*Acer rubrum 'Franksred'*	yes	no	yes	no	45+	L	
Maple, Scarlet Sentinel	*Acer x freemanii 'Scarsen'*	yes	no	yes	no	45+	L	
Maple, Sugar	*Acer saccharum*	yes	no	yes	no	45+	L	
Maple, Sugar 'Green Mnt'	*Acer saccharum 'PNI 0285'*	yes	no	yes	no	45+	L	
Oak, English	*Quercus robur 'Fastigiata'*	yes	yes	yes	no	45+	L	narrow upright
Oak, Northern Red	*Quercus rubra*	yes	no	yes	no	45+	L	
Oak, Sawtooth	*Quercus acutissima*	yes	no	yes	no	45+	L	
Oak, Scarlet	*Quercus coccinea*	yes	no	yes	no	45+	L	
Oak, Shumard	*Quercus shumardii*	yes	no	yes	no	45+	L	
Oak, Swamp Chestnut	*Quercus michauxii*	yes	no	yes	no	45+	L	

Oak, Swamp White	*Quercus bicolor*	yes	no	yes	no	45+	L	
Oak, White	*Quercus alba*	yes	no	yes	no	45+	L	
Oak, Willow	*Quercus phellos*	yes	no	yes	no	45+	L	
Pagodatree, Japanese	*Sophora japonica*	yes	yes	yes	no	45+	L	
Planetree, London	*Platanus x acerfolia*	yes	no	yes	no	45+	L	
Rubbertree, Hardy	*Eucommia ulmoides*	yes	no	yes	no	45+	L	
Walnut, Black	*Juglans nigra*	*yes*	no	yes	no	45+	L	
Yellowwood	*Cladrastis kentukea*	yes	no	yes	no	45+	L	
Zelkova, Japanese	*Zelkova serrata*	yes	yes	yes	no	45+	L	

EVERGREEN TREES

Holly, American	*Ilex opaca*	no	yes	yes	no	30-40	M
Pine, Austrian	*Pinus nigra*	no	yes	yes	no	45+	L
Cedar, Eastern red	*Juniperus virginiana*	no	yes	yes	yes	30-40	M
Pine, Eastern White	*Pinus strobus*	no	yes	yes	no	45+	L
Fir, Concolor	*Abies concolor*	no	yes	yes	no	30-40	M
Juniper, Chinese	*Juniperus chinensis*	no	yes	yes	yes	20-30	S
Spruce, Norway	*Picea abies*	no	yes	yes	no	45+	L
Pine, Limber	*Pinus flexilis 'Vanderwolf's Pyramid'*	no	yes	yes	no	30-40	M

NOTE: Tree details and images can be found on Missouri Botanical Garden Plant Finder website.

NOTE: Some of the trees on this list have specific soil and space requirements. If you are uncertain as to whether it will survive on the selected site, please consult with an ISA certified arborist.

NOTE: Always check above and below ground utilities before planting. Contact Missouri One Call system for locations: 1-800-DIG-RITE

UPDATED: July 2019

For more information on the City of Manchester's trees, contact Tree Advisory Board at treeboard@manchestermo.gov

TREES TO AVOID

THE CITY OF MANCHESTER MISSOURI

UNDESIRABLE TREES (restricted use for street tree plantings)	Scientific Name	Comment
Ailanthus (tree of Heaven)	*Ailanthus altissima*	Invasive
Ash - all species	*Fraxinus spp.*	Susceptible to emerald ash borer
Boxelder	*Acer negundo*	Weak wood
Crabapple (not all varieties/cultivars)	*Malus spp.*	Disease prone varieties and cultivars
Elm, American	*Ulmus americana*	Susceptible to dutch elm disease
Fringetree	*Chionanthus virginicus*	Susceptible to emerald ash borer
Ginkgo (female)	*Ginkgo biloba*	Female or any non-cultivar have stinky, messy fruit
Hawthorn, Washington	*Crategus phaenopyrum*	Disease issues
Honeylocust (not all varieties/cultivars)	*Gleditsia triacanthos*	Non-cultivar may have thorns
Maple, Norway	*Acer platanoides*	Weak wood; invasive
Maple, Silver	*Acer saccharinum*	Weak wood
Oak, Pin	*Quercus palustris*	Disease issues
Pear - all cultivars	*Pyrus spp.*	Highly invasive; weak branch unions
Pine, Scotch	*Pinus sylvestris*	Disease issues
Pine, Austrian	*Pinus nigra*	Disease issues
Plum, Cherry	*Prunus cerasifera*	Borers
Spruce, Colorado (Blue)	*Picea pungens*	Disease issues
Sweetgum	*Liquidambar syraciflua*	Messy fruit
Sycamore	*Platanus occidentalis*	Disease issues
Willow	*Salix spp.*	Weak wood

For more information on the City of Manchester's trees, contact Tree Advisory Board at treeboard@manchestermo.gov

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Resident Tree Care Information

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.

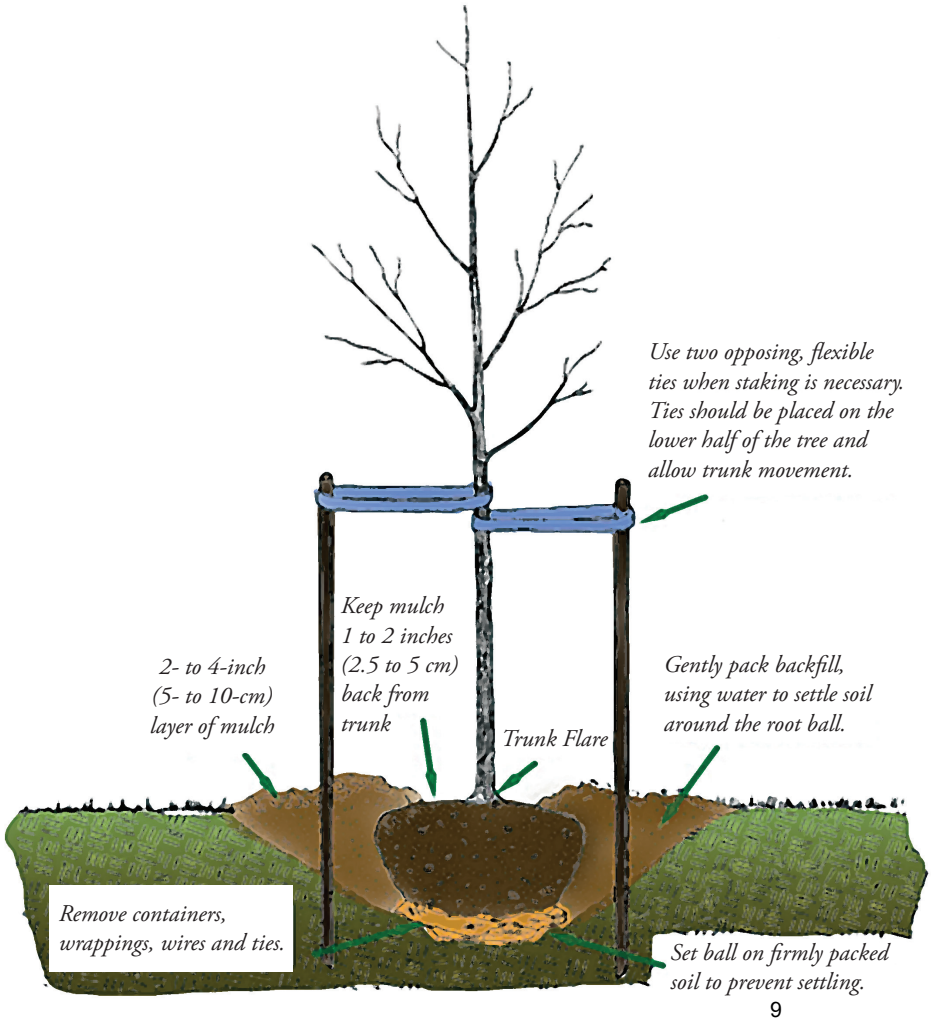
When to Plant

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 Stress

Balled and burlapped trees lose a significant portion of their root system when dug at the nursery. As a result, trees commonly exhibit what is known as "transplant shock." Transplant shock is a state of slowed growth and reduced vitality following transplanting. Container trees may also experience transplant shock, particularly if they have circling 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.

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 support 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-free 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, barring 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

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

Pruning Mature Trees

Understand the pruning needs of mature trees and the proper pruning techniques for their care.

Pruning is the most common tree maintenance procedure. Although forest trees grow quite well with only nature's pruning, landscape trees require a higher level of care to maintain their structural integrity and aesthetics. Pruning must be done with an understanding of tree biology. Improper pruning can create lasting damage or even shorten the tree's life.

Reasons for Pruning

Because each cut has the potential to change the growth of the tree, no branch should be removed without a reason. Common reasons for pruning are to remove dead branches, to improve form, and to reduce risk. Trees may also be pruned to increase light and air penetration to the inside of the tree's crown or to the landscape below. In most cases, mature trees are pruned as corrective or preventive measures.

Routine thinning does not necessarily improve the health of a tree. Trees produce a dense crown of leaves to manufacture the sugar used as energy for growth and development. Removal of foliage through pruning can reduce growth and stored energy reserves. Heavy pruning can be a significant health stress for the tree.

There are many outside considerations, however, that make it necessary to prune trees. Safety, clearance, and compatibility with other components of a landscape are all major concerns. Proper pruning, with an understanding of tree biology, can maintain good tree health and structure while enhancing the aesthetic and economic values of our landscapes.

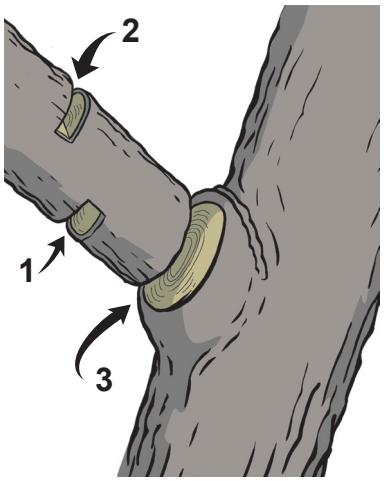
When to Prune

Most routine pruning to remove weak, diseased, or dead limbs can be accomplished at any time during the year with little effect on the tree. As a rule, growth and wound closure are maximized if pruning takes place before the spring growth flush. Some trees, such as maples and birches, tend to "bleed" if pruned early in the spring. It may be unsightly, but it is of little consequence to the tree.

A few tree diseases, such as oak wilt, can be spread when pruning wounds provide access to pathogens (disease-causing agents). Susceptible trees should not be pruned during active transmission periods.

Heavy pruning of live tissue just after the spring growth flush should be avoided, especially on weak trees. At that time, trees have just expended a great deal of energy to produce foliage and early shoot growth. Removal of a large percentage of foliage at that time can stress the tree.

Making Proper Pruning Cuts



Pruning cuts should be made just outside the branch collar. The branch collar contains trunk or parent branch tissue and should not be damaged or removed. If the trunk collar has grown out on a dead limb to be removed, make the cut just beyond the collar. Do not cut the collar.

If a large limb is to be removed, its weight should first be reduced. This is done by making an undercut about 12 to 18 inches (30 to 46 cm) from the limb's point of attachment. Make a second cut from the top, directly above or a few inches farther out on the limb. Doing so removes the limb, leaving the 12- to 18-inch (30- to 46-cm) stub. Remove the stub by cutting back to the branch collar. This technique reduces the possibility of tearing the bark.

Pruning Techniques

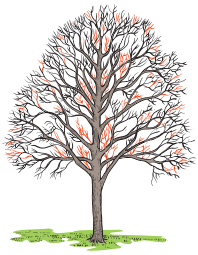
Specific types of pruning may be necessary to maintain a mature tree in a healthy, safe, and attractive condition.

Cleaning is the removal of dead, dying, diseased, weakly attached, and low-vigor branches from the crown of a tree.

Thinning is selective branch removal to improve structure and to increase light penetration and air movement through the crown. Proper thinning opens the foliage of a tree, reduces weight on heavy limbs, and helps retain the tree's natural shape.

Raising removes the lower branches from a tree to provide clearance for buildings, vehicles, pedestrians, and vistas.

Reduction reduces the size of a tree, often for utility line clearance. Reducing a tree's height or spread is best accomplished by pruning back the leaders and branch terminals to secondary branches that are large enough to assume the terminal roles (at least one-third the diameter of the cut stem). Compared to topping, reduction helps maintain the form and structural integrity of the tree.

Before Pruning   After Pruning

How Much Should Be Pruned?

The amount of live tissue that should be removed depends on the tree's size, species, and age, as well as the pruning objectives. Younger trees tolerate the removal of a higher percentage of living tissue better than mature trees do. Generally, no more than 25% of the crown should be removed at once, and less for mature trees.

Removing even a single, large-diameter limb can result in significant canopy loss and can create a wound that the tree may not be able to close. Care should be taken to achieve pruning objectives while minimizing live branch loss and wound size.

Wound Dressings

Research has shown that dressings do not reduce decay or speed wound closure, and rarely prevent insect or disease infestations. Most experts recommend that wound dressings not be used.

Hiring an Arborist

Pruning large trees can be dangerous. If pruning involves working above the ground or using power equipment, it is best to hire a professional arborist. An arborist can determine the type of pruning necessary to improve the health, appearance, and safety of your trees. A professional arborist can also provide the services of a trained crew with the required safety equipment and liability insurance.

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- Avoiding Tree Damage During Construction
- Benefits of Trees
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- Insect and Disease Problems
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- 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

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

Why Hire an Arborist?

Learn about services that arborists provide, criteria for selecting an arborist, and the benefits of hiring an ISA Certified Arborist.

Arborists specialize in the care of individual trees. They are knowledgeable about the needs of trees and are trained and equipped to provide proper care. Hiring an arborist is a decision that should not be taken lightly. Proper tree care is an investment that can lead to substantial returns. Well cared-for trees are attractive and can add considerable value to your property. Poorly maintained trees can be a significant liability. Pruning or removing trees, especially large trees, can be dangerous work. Tree work should be done only by those trained and equipped to work safely in trees.

Services That Arborists Can Provide

Pruning

An arborist can determine the type of pruning necessary to maintain or improve the health, appearance, and safety of trees. Pruning techniques include removing limbs that:

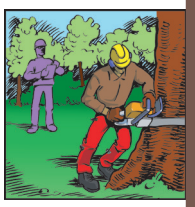
- interfere with utilities or structures
- obstruct streets or sidewalks
- are dead, weak, or decayed and pose unacceptable risk
- are diseased or insect-infested
- have been damaged by storms
- will increase light penetration and reduce wind resistance within the canopy upon removal (thinning)

Other pruning techniques are used to maintain proper structure in young trees, improve tree shape or form, and reduce the likelihood of future damage during storm events.

Tree Removal

Although tree removal is a last resort, there are circumstances when it is necessary. An arborist can help decide whether a tree should be removed. Removal is recommended when the tree is:

- dead or dying
- considered an unacceptable risk
- causing an obstruction that is impossible to correct through pruning
- crowding and causing harm to other, more desirable trees
- to be replaced by a more suitable specimen
- located in an area where new construction requires removal



Emergency Tree Care

Storms may cause limbs or entire trees to fall, often landing on other trees, structures, or cars. The weight of storm-damaged trees is great, and they can be dangerous to remove or trim. An arborist can assist in performing the job in a safe manner, while reducing further risk of damage to property.

Planting

Some arborists plant trees, and most can recommend species that are appropriate for a particular location. The wrong tree in the wrong location will lead to future problems as a result of limited growing space, insects, diseases, or poor growth.

Other Services

Many arborists also provide a variety of other tree care services, including:

- Plant Health Care or preventive maintenance to keep trees in good health while reducing any insect, disease, or site problems
- fertilization and soil modification for improved tree health
- cabling or bracing for added support to branches with weak attachments
- soil aeration to improve root growth
- installation of lightning protection systems
- applications to manage certain insect and disease problems
- consulting and legal expert services relating to trees

Selecting the Right Arborist for the Job

- Check for membership in professional organizations such as the International Society of Arboriculture (ISA), the Tree Care Industry Association (TCIA), or the American Society of Consulting Arborists (ASCA). Such membership demonstrates a willingness on the part of the arborist to stay up-to-date on the latest techniques and information.

- Check for ISA arborist certification. ISA Certified Arborists are experienced professionals who have passed an extensive examination covering all aspects of tree care.
- Ask for proof of insurance and then phone the insurance company if you are not satisfied. A reputable arborist carries personal and property damage insurance as well as workers' compensation insurance.
- Check for necessary permits and licenses. Some governmental agencies require contractors to apply for permits and/or to apply for a license before they are able to work.
- Ask for references to find out where the company has done work similar to what you are requesting. Don't hesitate to check references or visit other work sites where the company or individual has done tree work.
- Get more than one estimate, unless you know and are comfortable with the arborist. You may have to pay for the estimates, and it will take more time, but it will be worth the investment.
- Don't always accept the low bid. You should examine the credentials and the written specifications of the firms that submitted bids and determine the best combination of price, work to be done, skill, and professionalism to protect your substantial investment.
- Be wary of individuals who go door-to-door and offer bargains for performing tree work. Most reputable companies are too busy to solicit work in this manner.
- Keep in mind that good arborists will perform only industry-accepted practices. For example, practices such as topping a tree, removing an excessive amount of live wood, using climbing spikes on trees that are not being removed, and removing or disfiguring living trees without just cause are improper practices and violate industry standards.
- Get it in writing. Most reputable arborists have their clients sign a contract. Be sure to read the contract carefully. Don't be afraid to ask questions, such as:

  — When will the work be started and completed?
  — Who will be responsible for clean-up?
  — Is this the total price?
  — What are the terms of payment?
  — If I would like more to be done, what is your hourly rate?

What Is a Certified Arborist?

An arborist by definition is an individual who is trained in the art and science of planting, caring for, and maintaining individual trees. ISA arborist certification is a nongovernmental, voluntary process by which individuals can document their base of knowledge. It operates without mandate of law and is an internal, self-regulating device administered by the International Society of Arboriculture. Certification provides a measurable assessment of an individual's knowledge and competence required to provide proper tree care.

Certification is not a measure of standards of practice. Certification can attest to the tree knowledge of an individual but cannot guarantee or ensure quality performance.

Certified Arborists are individuals who have achieved a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up-to-date on the latest techniques in arboriculture.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. ISA offers several other brochures in this series, which discuss many of the basic principles of tree care. Your local garden center, extension agent, or city arborists are also excellent sources of information if you should have further questions. They may also be able to refer you to an ISA Certified Arborist in your area.

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Emerald Ash Borer Management Guide for Missouri Homeowners

The emerald ash borer (EAB) is a serious threat to ash trees in Missouri. This invasive pest will eventually kill unprotected ash trees. Many trees can be saved with the careful use of systemic insecticides. However, not all ash trees should be treated, and for many locations the start of treatments should be delayed. This guide will assist you in making decisions about protecting your trees from this invasive pest. Find more information at eab.missouri.edu.

Signs & Symptoms of EAB

EAB adults are generally seen from mid-May through July.

Howard Russell, Bugwood.org

D-shaped exit holes about 1/8" wide

MO Dept. Conservation

Winding, S-shaped tunnels just under the bark

MO Dept. Conservation

New sprouts on the branches and lower trunk

Pennsylvania DCNR, Bugwood.org

Increased woodpecker activity on the tree

Kenneth R. Law, Bugwood.org

Sparse leaves and/or branches dying in the upper part of the tree

David Cappaert, Michigan State University

Use Care When Applying Insecticides

Water Quality

When using insecticides applied to the soil or sprayed on bark, take the following precautions:

- Follow all label directions.
- Avoid applications when heavy rainfall is expected within 48 hours.
- Do not apply when soil is frozen or waterlogged.
- Avoid using within 25 feet of bodies of water or conduits to water such as street curbs and storm drains.
- Sweep up granular products off of sidewalks and driveways.

Imidacloprid and Dinotefuran are toxic to some aquatic invertebrates, but have a low probability of impacting aquatic organisms if applied as directed to clay or loam soils. Water quality concerns are less with trunk-injected insecticides compared to products applied to the soil or sprayed on bark.

Pollinators

Susan Ellis, Bugwood.org

Recent evidence shows that some systemic insecticides may be present in pollen, if plants are treated prior to blooming. **Caution is required when applying insecticides to limit possible impacts on pollinators.**

Ash trees are primarily wind-pollinated, but honey bees occasionally collect ash pollen. Applying insecticides near or after the times indicated in the treatment options tables on page 4 will avoid or limit pollinator exposure to the chemicals.

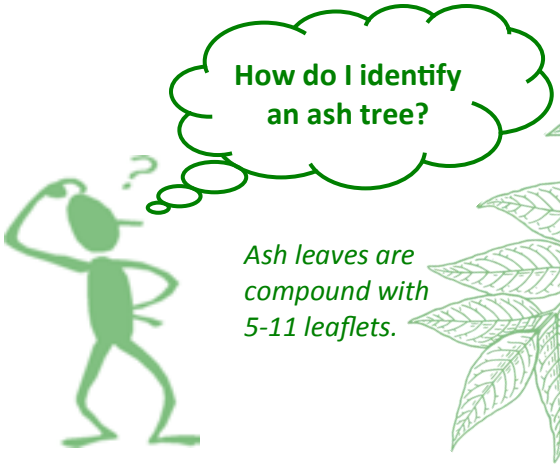
Avoid planting flowering plants adjacent to trees where systemic insecticides will be applied to the soil and may be absorbed by flowering plants. If flowering plants are adjacent, do not apply systemic insecticides to the soil before or during blooming.

More Information: See "Frequently Asked Questions Regarding Potential Side Effects of Systemic Insecticides Used to Control Emerald Ash Borer" at emeraldashborer.info.

Project was funded in whole or in part through a grant awarded by the USDA, Forest Service, Northeastern Area State and Private Forestry.
The USDA is an equal opportunity provider and employer.

Begin with an inventory of your ash trees.

- How many?
- Where are they?



*Visit **eab.missouri.edu** for more information.*

Ash leaves are compound with 5-11 leaflets.

The buds on ash twigs are opposite one another.

Do you want to protect your ash trees from EAB?

No.

Yes!

***Remember,** using insecticides to protect trees from EAB is a long-term commitment that requires periodic treatments over many years.*

Unprotected ash trees will die.

***Save money.** Have unwanted ash trees removed before they die. For professional removals, ask for references and insurance.*

No.

Are your ash trees worth protecting?

Healthy trees can be treated!

Consider treating with insecticides if ash trees are:

- Healthy and vigorously growing with less than 50% dieback (dead branches and missing leaves)
- Showing few outward signs of EAB or other borer infestations
- Valuable to the owner by providing shade, energy savings or aesthetics
- Historically significant

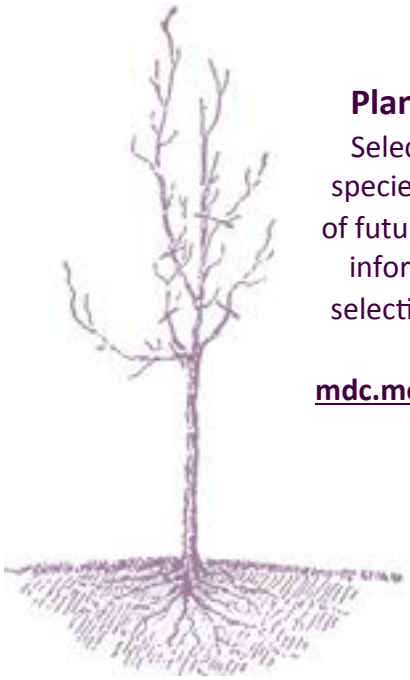
Remove and replace low-value ash trees.

- Unhealthy trees with more than 50% dieback, severe injuries, or many borer attacks are unlikely to recover—even if treated.
- Small trees or trees located in poor sites (too close to utility lines, buildings, or sidewalks) are often not worth the cost of ongoing treatments.
- If you decide to remove your ash tree, dispose of it locally to prevent the accidental spread of EAB.

***Maybe?** Contact a certified arborist to evaluate the health of your trees.*

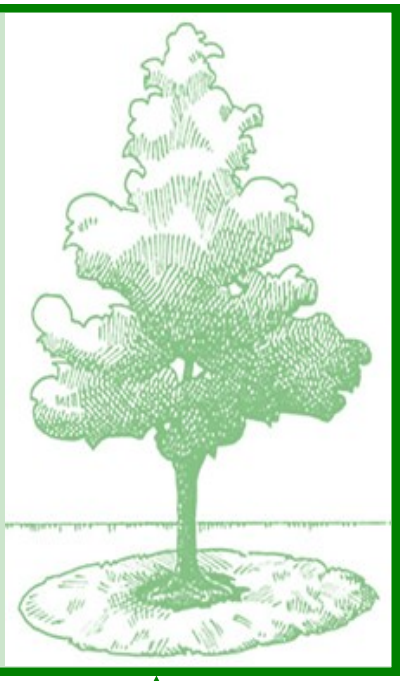
Yes!

Go to "Is EAB nearby?"



Plant new trees!
Select a diversity of species to reduce risks of future new pests. For information on tree selection, planting and care, visit **mdc.mo.gov/node/3321**

You can treat your trees yourself using a soil drench containing **imidacloprid** or granules containing **dinotefuran**. **Treat trees in early spring.** Ensure that drenches or granules are applied to bare soil within 18 inches of the trunk. Always follow all insecticide label directions. **See page 4 for a list of options.**



Yes!

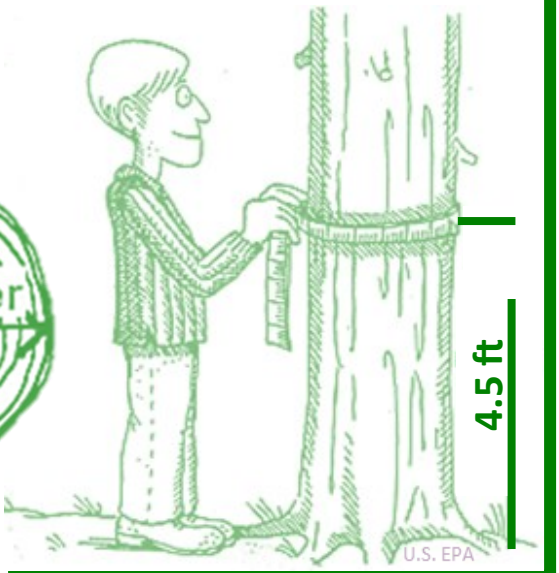
Is the DBH less than 20 inches?

No.

*Insecticides available to homeowners are **not effective** on trees 20 inches DBH and larger. Call a certified arborist to discuss treatment options.*

Contact a certified arborist!
Find a list of arborists in your area at **treesaregood.com**

Visit **eab.missouri.edu** for current news on EAB in Missouri.



Measure your trees.
To determine the diameter at breast height (**DBH**), measure the distance around the trunk at 4.5 feet above the ground. Divide this number by 3.

Yes!

Is EAB nearby?
Visit **eab.missouri.edu** for a map of counties with EAB. Insecticide treatment should be considered when EAB has been found **within 15 miles** or **within your county**.

No.

Insecticide treatments are **not recommended** at this time.

Keep alert for EAB arrival.

Continue here from page 2.

Adapted with permission from "Managing Emerald Ash Borer: Decision Guide," Annemarie M. Nagle & Cliff Sadof, Purdue University.

Insecticide Treatment Options

Insecticides used for EAB management are systemic products that are applied either to the soil or lower trunk and then transported throughout the tree by its vascular system. Drought conditions limit systemic insecticide uptake into and throughout the tree. Irrigating around the base of the tree before an insecticide application will improve uptake.

For trees near public streets and sidewalks, check with your city to determine what actions are allowed, or if treatment or replacement plans already exist.

Following are some commonly used insecticides listed by active ingredients. Multiple brands are available for some active ingredients. The recommended treatment timing is applicable in Missouri.

Products Available to Homeowners

For trees less than 20 inches in diameter, but most effective for trees less than 15 inches in diameter.

Active Ingredient	Application Method	Treatment Frequency	Treatment Timing
Imidacloprid	Liquid drench applied onto bare soil within 18 inches of the trunk.	Annually	Apply in early spring near the time of pear and crabapple bloom, or approx. between late March and mid-April.
Dinotefuran	Granules applied onto bare soil within 18 inches of the trunk.	Annually	Apply in early spring near the time of lilac bloom, or approx. between early and late April.

Products Available to Tree Care Professionals

Be aware of label restrictions on maximum amount of insecticide that can be applied per acre per year.

Active Ingredient	Application Method	Treatment Frequency	Treatment Timing
Emamectin benzoate	Trunk injection	Three-year intervals before EAB population reaches high level. Two-year intervals when EAB population is high.	Optimal: Soon after ash trees have leafed out, or typically late April to mid-May. Alternative: Early summer, due to long effective period of insecticide, especially when making second or subsequent applications to a particular tree.
Azadirachtin	Trunk injection	Two-year intervals before EAB population reaches high level. One or two-year intervals when EAB population is high.	Optimal: Soon after ash trees have leafed out, or typically late April to mid-May. Alternative: Early summer, due to long effective period of insecticide.
Imidacloprid	Trunk injection or soil applications	Annually	Trunk injection: Soon after ash trees have leafed out, or typically late April to mid-May. Soil applications: Near time of pear and crabapple bloom, or approx. between late March and mid-April. Fall applications are possible, but require a higher rate.
Dinotefuran	Bark spray (lower 6 feet of trunk) or soil applications. Trees up to 25" DBH.	Annually	Bark spray: Soon after ash trees have leafed out, or typically late April to mid- May. Soil applications: Near time of lilac bloom, or approx. between early and late April.

Avoiding Tree Damage During Construction

Possible ways in which existing trees may be damaged during a construction project and methods for planning and facilitating the prevention of tree damage.

Homes are often constructed near existing trees to take advantage of their aesthetic and environmental value. Unfortunately, the processes involved with construction can be deadly to nearby trees. Proper planning and care are needed to preserve trees on building sites. An arborist can help you decide which trees can be saved. The arborist can also work with the builder to protect the trees throughout each phase of construction.

How Trees Are Damaged During Construction

Physical Injury to Trunk and Crown. Construction equipment can injure the above-ground portion of a tree by breaking branches, tearing the bark, and wounding the trunk. These injuries are permanent and, if extensive, can be fatal.

Root Cutting. Digging, grading, and trenching associated with construction and underground utility installation can be quite damaging to roots. A tree's root system can extend horizontally a distance 1 to 3 times greater than the height of a tree. It is important to cut as far away from a tree as possible to prevent damage that can compromise tree health and stability. Cutting under a tree's crown can reduce tree vitality. Cutting roots close to the trunk can severely damage a tree and limit its ability to stay upright in storms.

Soil Compaction. An ideal soil for root growth and development contains about 50 percent pore space for water and air movement. Heavy construction equipment can compact soil and dramatically reduce pore space. Compaction inhibits root growth, limits water penetration, and decreases oxygen needed for root survival.

Smothering Roots by Adding Soil. The majority of fine water-and-mineral-absorbing roots are in the upper 6 to 12 inches (15 to 30 cm) of soil where oxygen and moisture levels tend to be best suited for growth. Even a few inches of soil piled over the root system to change the grade can smother fine roots and eventually lead to larger root death.

Exposure to the Elements. Trees in a forest grow as a community, protecting each other from the elements. The trees grow tall with long, straight trunks and high canopies. Removing neighboring trees during construction exposes the remaining trees to increased sunlight and wind which may lead to sunscald or breakage of limbs and stems.

Getting Advice

Not all trees on the building site can or should be preserved. Your arborist can assess the health and structural integrity of trees on your property and suggest measures to preserve and protect them.

When determining which trees to retain, consider the species, size, age, location, and condition of each tree. Your arborist can advise you about which trees are more sensitive to compaction, grade changes, and root damage.

Planning

Your arborist and builder should work together early in the planning phase of construction. Sometimes small changes in the placement or design of your house or driveway can make a great difference in whether a critical tree will survive. Alternative construction methods can be discussed, such as bridging over the roots as a substitute for a conventional walkway, if flexibility in placement is limited. If utilities cannot be re-routed away from trees, less damaging tunneling and trenching installation techniques exist.

Erecting Barriers

Treatment for construction damage is limited, so it is vital that trees be protected from injury. Set up sturdy fencing around each tree that is to remain, as far out from the tree trunk as possible to provide above- and below-ground protection. Place fence approximately one foot (0.3 m) from the trunk for each inch (2.5 cm) of trunk diameter.

Instruct construction personnel to keep fencing intact and the fenced area clear of building materials, waste, and excess soil. No digging, trenching, or other soil disturbance should be allowed in the fenced area.

Limiting Access

If possible, allow only one access route on and off the property. All contractors must be instructed where they are permitted to drive and park their vehicles. Often this same access drive can later serve as the route for utility wires, water lines, or the driveway.

Specify storage areas for equipment, soil, and construction materials. Limit areas for burning (if permitted), cement wash-out pits, and construction work zones. These areas should be located away from protected trees.

Specifications

All measures intended to protect your trees must be written into the construction specifications and should detail exactly what can and cannot be done to and around the trees. It is a good idea to post signs as a reminder.

Fines and penalties for violations should be built into the specifications. The severity of the fines should be proportional to the potential damage to the trees, and should increase for multiple infractions.

Maintaining Good Communication

Communicate your objectives clearly with your arborist, builder, and all subcontractors. Construction damage to trees is often irreversible.

Visit the site at least once a day if possible. Your vigilance will pay off as workers learn to take your wishes seriously. Take photos at every stage of construction. If any infraction of the specifications does occur, it will be important to prove liability.

Final Stages

Careful planning and communicating with landscape designers and contractors is just as important as avoiding tree damage during construction. Irrigation system installation, grading, and planting bed cultivation can damage root systems.

Post-Construction Tree Maintenance

Your trees will require several years to adjust to the injury and environmental changes that occur during construction. Stressed trees are more prone to health problems, such as disease and insect infestations. Talk to your arborist about continued monitoring and maintenance for your trees.

Despite the best intentions and most stringent tree preservation measures, injury to your trees may still occur. Your arborist can suggest remedial treatments to help reduce stress and improve the growing conditions around your trees.

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THE CITY OF
MANCHESTER
MISSOURI

Developer Tree Preservation Requirements

THE CITY OF MANCHESTER MISSOURI

TREE REMOVAL PERMIT

Per the City of Manchester Tree Ordinance No. 17-2194, if trees greater than 8-inches in DBH are to be removed from a development site, a Tree Removal Permit request is required.

Applicant Name:	
Address:	
Phone Number:	
Email:	
Site Address:	
Date of Request:	

Check list of required supporting material.

- ☐ Tree Survey
- ☐ Tree Preservation Plan
- ☐ List of trees to be removed including: species, size, and condition
- ☐ Calculated percent woodland to be removed
- ☐ Proposed mitigation (new tree planting on site)

Site Details	
Total diameter inches of individual trees on site:	
Total diameter inches to be removed:	
Replacement inches required: (diameter inches removed divided by three)	

Replacement Method	
Number of trees planted on site:	
Total Dollars paid at $120/inch:	

THE CITY OF MANCHESTER MISSOURI

TREE REMOVAL PERMIT EXAMPLE

Per the City of Manchester Tree Ordinance No. 17-2194, if trees greater than 8-inches in DBH are to be removed from a development site, a Tree Removal Permit request is required.

Applicant Name:	Forest Treeman
Address:	321 Oak Drive
Phone Number:	314-222-222
Email:	forest.treeman@yahoo.com
Site Address:	123 Sample Road
Date of Request:	January, 1, 2018

Check list of required supporting material.

- ✓ Tree Survey
- ✓ Tree Preservation Plan
- ✓ List of trees to be removed including: species, size, and condition
- ✓ Calculated percent woodland to be removed
- ✓ Proposed mitigation (new tree planting on site)

Site Details	
Total diameter inches of individual trees on site:	408
Total diameter inches to be removed:	69 (does not include removal of 3 hazard trees)
Replacement inches required: (diameter inches removed divided by three)	23
Percent Woodland to be removed:	0

Replacement Method	
Number of trees planted on site:	9 (3” caliper) = 27 caliper inches See Proposed Landscape Plan for details
Total Dollars paid at $120/inch:	0

TREE LIST: 123 Sample Rd.

The data below represents the findings of a site inspection performed on January 1, 2018 by:
Forest Treeman
ISA Certified Arborist (MW-19998A)

Additional tree preservation notes include the following:
1) Locate tree fencing as shown on Tree Study Map. Use 36" green mesh supported with 60" green t-posts spaced and clearly signed "Tree Preservation Area" no less than 8 feet apart.
2) No vehicle traffic, equipment storage, compaction, grade change, or other disturbance shall take place within the tree preservation area.
3) Where root pruning is requried, use root pruning machine (or similar tool) to cut roots clean.
4) If substantial roots are disturbed on protected trees during construction, seek additional consultation from a Certified Arborist.

Diameters highlighted in yellow are included in replacement calculation.

Tree #	Species	Diameter	Stems	Condition Factor	Notes	Tree Protection Recommendations
1	Northern Red Oak	14	1	0	Dead, Hazard	Remove
2	Red Maple	11	1	70	Forked trunk	Remove
3	Red Maple	11	1	60	Forked trunk, included bark	Fence, Root Prune
4	Red Maple	19	4	55	Forked trunk, included bark	Fence, Root Prune
5	Sweetgum	14	1	70		Fence, Root Prune
6	Sweetgum	11	1	70		Fence, Root Prune
7	Sweetgum	11	1	70		Fence, Root Prune
8	Sweetgum	13	1	70		Fence, Root Prune
9	Shingle Oak	33	1	75		Fence
10	Post Oak	15	1	50		Fence
11	Hackberry	19	1	55		Fence
12	Black Cherry	14	1	50		Fence
13	Boxelder	12	1	20	Mostly dead snag, Hazard	Remove
14	B lack Walnut	14	1	80		Remove
15	Black Cherry	15	2	60	Forks 1' from base	Fence, mulch access
16	Hackberry	12	1	60		Remove
17	Boxelder	17	1	40		Fence; mulch access
18	Shingle Oak	39	1	70		Fence; monitor; airspade and root prune.
19	Silver Maple	21	1	45		Fence; monitor
20	White Oak	37	1	50		Fence; monitor; airspade and root prune.
21	Shingle Oak	8	1	40		Remove
22	Northern Red Oak	11	2	45	Large limb cavity; Hazard	Remove
23	Sugarberry	13	1	60		Fence
24	Sweetgum	14	1	70		Remove
25	Shingle Oak	10	1	60	Galls	Remove
Total diameter Inches		**408**				
Total inches to be removed		**69**				
Caliper inches to be replaced		**23**				

INTRODUCED BY ALDERMAN CLEMENT

SUBSTITUTE BILL NO. 17-2308 **ORDINANCE NO. 17-2194**

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF MANCHESTER BY ADDING THERETO A NEW CHAPTER 250 RELATING TO THE CARE AND MAINTENANCE OF TREES WITHIN THE CITY'S RIGHTS-OF-WAY AND PARKS AND, FURTHER, ESTABLISHING REGULATIONS FOR TREES IN BOTH RESIDENTIAL AND COMMERCIAL DEVELOPMENTS, WITHIN THE CITY OF MANCHESTER.

WHEREAS, the City of Manchester has a distinct interest in growing and maintaining a healthy urban forest, in maximizing the benefits trees provide to both people and our environment and in protecting the public's safety and quality of life; and,

WHEREAS, the Board of Aldermen believes it necessary and proper to establish regulations to achieve these goals.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF MANCHESTER, STATE OF MISSOURI, AS FOLLOWS:

Section One: The Code of Ordinances of the City of Manchester is hereby amended by adding thereto a new Chapter 250 which shall, hereafter, read as follows:

CHAPTER 250

Section 250.010. Authority to Enforce.

The City Administrator, or his/her designee, shall have the exclusive authority to enforce this Chapter. No person shall unreasonably interfere with any City official, officer or designee engaged in the execution or enforcement of this Chapter.

Section 250.020. Definitions.

The following terms shall have the following meanings for purposes of this Chapter:

Adjoining Property Owner – A person who has legal possession of a property that connects to City right-of way.

American National Standards Institute (ANSI) – A private nonprofit organization with authority to approve industry standards, including the industry standards for tree care practices and safety (ANSI A300 Standards for Tree Care Operations and ANSI Z133.1 for Tree Care Safety Standards).

Appraised Landscape Value – The dollar value assigned to trees as calculated by using direction from the most current version of the *Guide for Plant Appraisal* authored by the Council of Tree and Landscape Appraisers.

Caliper - The trunk diameter of hardwood nursery stock trees measured six (6) inches above ground. This measurement is not typically used for trees established in a landscape; for measuring landscape trees see definition for DBH.

Certified Arborist - A tree care professional who has achieved the Certified Arborist credential through the International Society of Arboriculture (ISA) and is in good standing with said organization.

Development - The performance of any building activity; **or** the making of any material change to any structure or to the natural surface of land, including activities that disturb the natural surface of the land such as clearing, excavating and filling; **or** any change in the use or appearance of any structure or land; **or** the division of land into two or more parcels. For the purposes of this Chapter, in reference to the need for a Tree Survey and Preservation Plan, the terms "development" or "development projects" shall include, but not be limited to, the construction of new single-family dwellings or new multi-family dwellings and any other new construction that requires a Special Use Permit, Site Plan Review or Planned Development. The applicant is expected to preserve trees during development or apply for a Tree Removal Permit. This definition excludes additions to single-family or multi-family dwellings and the addition of structures such as decks, porches, sheds, garages, fences, and pools.

DBH (Diameter at Breast Height) - The trunk diameter of a tree measured at 4.5 feet above the ground. This is typically used as a measurement for tree size of established landscape trees.

Maintain - To plant, mulch, water, prune as necessary, remove if dead or diseased, and perform any other reasonable arboricultural practice or treatment.

Nuisance Tree - Any tree determined by the City to be dead, diseased, noxious, hazardous, or otherwise unsuitable to people and/or property on the public right-of-way. Trees that drop leaves, fruit, seeds, or branches as part of their natural lifecycle are not considered a nuisance.

Park Tree - Any public trees within parks, green spaces and open space accessible to the public.

Private Tree - Any tree located on private property.

Public Right-of-Way - An area designated for public access along streets where the City has been granted an easement.

Responsible Party – The property owner or an entity or person who, acting as an agent for or in any other legal capacity on behalf of the owner, has authority over property subject to this article or is responsible for the maintenance or management of said property.

Street Tree - Any tree within the public right-of-way along all streets, avenues or ways within the City.

Topping - The drastic removal of large tree branches, leaving stubs. This practice causes immediate injury, promotes further decay and creates possible hazards. Topping is synonymous with hat-racking, tipping, rounding over, and heading.

Tree Fund - An account in the City where payments from tree removal permits, donations, compensatory payments, or other tree-related proceeds are deposited. Tree Fund money may be used to plant and maintain trees in the City.

Tree Packet - A guide that provides technical information necessary to perform the work outlined in this Ordinance and offers residents direction on proper tree care.

Tree Protection Plan - A map-based plan that delineates the location of trees from the Tree Survey that will be preserved and defines the appropriate preservation techniques that will be implemented. This plan also shows the adjusted DBH for trees planned for removal and the proposed mitigation (e.g. new tree planting or payment to Tree Fund). A Tree Protection Plan must be approved by an ISA Certified Arborist.

Tree Removal Permit - A permit is required if any tree 8-inches DBH or greater will be removed during a development project. The Tree Removal Permit application process requires the developer to submit a Tree Survey and Tree Protection Plan to the City. A Tree Removal Permit is not required to remove trees that are dead, considered a nuisance as defined by this Ordinance or posing significant risk to public safety.

Tree Survey - A Tree Survey is a map and list of details showing the existing trees and woodland on a future development site. A Tree Survey must be performed by an ISA Certified Arborist.

Woodland - A tract of land with greater than 10,000 square feet of contiguous tree canopy.

Section 205.030. Urban Forestry Administration.

The City Administrator, or his/her designee, will delegate or contract responsibility for care and oversight of public trees to a professional forester or arborist.

Section 205.040 Tree Advisory Board

A. Creation and Establishment:

1. A Tree Advisory Board (hereafter "Board") is hereby created consisting of three (3) regular resident members who shall be appointed or removed by the Mayor with the approval of the Board of Aldermen. The Director of Public Works or his designee shall serve as staff liaison to the Board and will serve in an ex-officio capacity. To the extent possible, there shall be one (1) member from each ward of the City.
2. The three member Board shall elect a chairman, a vice chairman, and a secretary who shall serve in those positions for twelve (12) months at which time a new election is to be held to determine those position holders.
3. Members shall serve a term of three (3) years each except the terms of the initial members shall be appointed as: 1) one member for a one year term, 2) one member for a two year term, and, 3) one member for a three year term. The Mayor may reappoint members to a regular three (3) year term after their initial term expires subject to Board of Aldermen approval. Vacancies shall be filled for an unexpired term in the same manner as original appointments.
4. The Board shall meet quarterly or as needed. Meetings will be open to the public and are to be publicly advertised at least 72 hours in advance of a meeting date and time. Meeting minutes shall be recorded by the secretary and are to be provided to the City Clerk. A majority of the voting members present (two members) shall constitute a quorum for the transaction of business.

5. All members of the Board shall serve without compensation.

B. Duties and Responsibilities:

1. Advise and assist the Mayor, Board of Aldermen and City staff in the development and dissemination of information for the management, selection, planting, care, cultivation, pruning, and removal of trees and shrubs on both public and private property.
2. When requested, and in coordination with City staff, conduct seminars and public education programs and meet with homeowner associations or resident groups to promote the benefit and management of the urban forestry.
3. Assist with planning and coordinating an annual City Arbor Day observance event.
4. Assist the City in obtaining Tree City USA status with the National Arbor Day Foundation.

Section 205.050. Tree Care And Maintenance On Public Rights-Of-Way.

A. Street trees shall be maintained by the adjoining property owner at his/her sole and exclusive cost and expense. If there is not an adjoining private property, then the street trees shall be managed by the City's Public Works Department.

1. All contractors hired to provide tree work along the public right-of-way shall be appropriately insured;
2. The City is authorized to inspect street trees for public safety concerns and notify adjoining property owner of issues that required action, specifically tree pruning or removal;
3. If the adjoining property owner does not comply with notice for tree maintenance within the designated timeframe, the City's Code Enforcement Officer shall deem the offending limbs or trees a nuisance and to be subject to the nuisance abatement process (Reference Section 215.010 of this Code);
4. A City Tree Packet will suggest appropriate tree species to plant for specific site requirements. The Tree Packet will also include a "Do Not Plant" tree list. Trees on the "Do Not Plant" list shall not be planted in the public right-of-way.
5. The City has the right to plant, prune or remove trees within the public right-of-way easement as needed to improve infrastructure and public safety or to achieve other City priorities.

B. All tree work in the public right-of-way must comply with the American National Standard Institute (ANSI) A300 (Standard Practices for Woody Plant Maintenance) and the Z133 Safety Standards.

    1. The City will offer a Tree Packet with clear expectations for tree management standards, specifications and recommendations.

C. Stumps of trees removed on the public right-of-way shall be cut below grade or mechanically ground out and soil shall be backfilled to existing grade to eliminate a possible trip hazard.

D. Any street tree identified as a nuisance tree may be designated by the City for removal at the adjoining property owner's expense. The City's nuisance abatement process may apply (Reference Section 215.010 of this Code).

E. All tree limbs shall be pruned to allow appropriate clearance for vehicles and pedestrians within the public right-of-way.

    1. Pruning must follow ANSI A300 standards and consider both tree health and aesthetics;
    2. Minimum clearance requirements shall be as provided in the Tree Packet.

F. No trees, branches, or foliage shall obstruct sight distance triangle, as such is defined in Section 405.166 of this Code.

G. The responsible party of property abutting the public right-of-way shall have the duty to maintain trees on the abutting portion of the public right-of-way.

Section 205.060. Private Property Trees Impacting the Public Rights-Of-Way.

A. Property owners adjacent to the public rights-of-way shall prune trees located on their property in such a manner that they will not obstruct the passage of pedestrians on the sidewalk, obstruct vision of traffic signs, block street lights, or obstruct the view of any street or alley intersection.

B. Any and all trees and/or tree limbs on private property that are identified as having a high risk of failure and could potentially harm people or property on the public rights-of-way must be removed.

C. Should any person or persons owning property bordering on any public right-of-way fail to prune or remove trees as herein stated, the Code Enforcement Officer shall deem the offending limbs or trees a nuisance and subject to the City's nuisance abatement process (Reference Section 215.010 of this Code).

SECTION 205.070. Tree Care and Maintenance in Parks

A. Park trees shall be planted and maintained by the Parks, Recreation and Arts Department.
B. All tree planting and maintenance will follow applicable ANSI standards of care and ANSI safety standards.
C. The City shall be responsible for maintaining park trees to maximize the benefit to people and the environment.
D. The Parks, Recreation and Arts Department shall use its best efforts to make every effort to protect park trees from harm, including, but not limited to, damage by deer and construction activity.

Section 205.080. Prohibited Acts For Trees In The Public Rights-Of-Way And Parks.

Because of the community benefits trees provide, and because damage to trees can cause public safety concerns, it shall be unlawful for any person to negatively impact the trees growing in the public parks, open space or public rights-of-way. Negatively impacting trees includes, but is not limited to, the following:

A. Break, injure, mutilate, poison, destroy, or otherwise vandalize trees;

B. Prune trees by topping;

C. Attach rope, wire or nails to any tree trunk;

D. Use spurs or climbing spikes to prune a tree, except for complete removal.

Section 205.090. Tree Preservation During Development.

A. All development projects, as defined in this chapter, require tree preservation.

B. A Tree Survey and a Tree Preservation Plan, prepared by an ISA Certified Arborist, shall be submitted as part of the City's plan review process.

1. A Tree Survey shall be in map form and identify the location of existing individual trees greater than 8 inches in DBH, as well as each tree species, DBH and condition. Woodlands greater than 10,000 square feet of contiguous tree canopy may be delineated as a group and described by forest type and total canopy area;
2. A Tree Preservation Plan shall be in map form and identify proposed actions to protect existing trees (public and private) and woodlands on site. Tree Preservation Plans shall show the proposed development and the location of all trees to be protected, as well as preservation efforts (protection fencing, signage, root pruning, retaining walls, etc.) to be installed to protect the critical root zone of existing trees. A limit of disturbance line shall demonstrate the extent of construction activities from protected woodland;
3. A Tree Survey and Tree Preservation Plan may be combined, provided such is first approved by the City Administrator or his/her designee.

C. A Tree Removal Permit is required if any tree 8-inches DBH or greater will be removed. A Tree Removal Permit is not required to remove trees that are dead, considered to be a nuisance tree as defined by this Ordinance or considered to pose significant risk to public safety (as defined by the City). A Tree Removal Permit Application must be made prior to tree removal and must include:

1. The Tree Survey;
2. Tree Preservation Plan;
3. The location, species, DBH, and condition of each individual tree 8-inches in DBH or greater to be removed;
4. Percent woodland to be removed;
5. A clear demonstration of how the proposed project will accommodate the loss of trees on site based on mitigation options defined in this Chapter.

D. Tree removal is discouraged but may be approved to allow for maximum use of a site. In these cases, required minimum woodland preservation, canopy replacement and approval by the City's Planning and Zoning Commission shall apply.

1. Where contiguous woodland is to be removed, the developer must retain a minimum 30% of existing woodland. Woodland preservation should prioritize riparian corridors, quality species composition and buffer zones.

   (a) Any woodlands kept beyond the required 30% may be counted toward the total caliper of individual trees to be replaced when individual trees are removed.

2. Where individual trees 8-inches in DBH or greater not located in a woodland are to be removed, trees must be replaced with new trees totaling one-third of the number of caliper inches (i.e. 3:1 ratio of DBH removed and caliper inches replaced);
3. When possible, replacement trees shall be replanted on site in addition to the required landscaping. If the site cannot accommodate all required replacement trees, trees may be planted in public parks or public open space, as directed and approved by the City.
4. When no appropriate tree locations are available, a payment of One Hundred Twenty Dollars ($120.00) per replacement caliper inch may be paid to the City's Tree Fund; the amount payable hereunder shall not exceed Ten Thousand Dollars ($10,000.00) per acre;

E. If 30% woodland preservation, or a 3:1 individual tree replacement, is impossible, based on unique conditions or circumstances, a developer may request a variance from the City's Board of Adjustment. No variance will be granted that goes against the spirit and intent of this chapter. Additional mitigation fees and accommodations may be applied.

F. Removal of trees on a development project prior to receiving a Tree Removal Permit will be in violation of this chapter and subject to penalties stated in this Code.

G. Where trees preserved in development die within one (1) year of project completion, the developer shall pay an assessment equal to the appraised value of the tree that died. Appraised value will be calculated based on direction from the most current version of the *Guide for Plant Appraisal* authored by the Council of Tree and Landscape Appraisers.

H. The provisions of Chapters 405 and 415 of this Code, as applicable, must also be adhered to during the course of development.

Section 205.100. Violation And Penalty.

A. Violation of the chapter, excluding violations to tree preservation, shall be subject to the penalty provisions of Section 100.100 of this Code.

B. If a person removes, damages or performs any prohibited act to any public tree without the authority provided by this chapter or City approval, the City Administrator may require compensatory payments based on the appraised landscape value of the tree(s) removed.

C. Violation of Tree Preservation during development shall be fined as specified.

D. Payments shall be made into the City Tree Fund for future forestry efforts in the City. Compensatory payments may be in addition to other penalties.

Section Two: If any section of this Ordinance is found to be invalid or unconstitutional, the remaining sections will maintain validity.

Section Three: This Ordinance shall be in full force and effect from and after its passage and approval as provided by law.

INTRODUCED BY ALDERMAN CLEMENT

SUBSTITUTE BILL NO. 17-2308 **ORDINANCE NO. 17-2194**

PASSED AND APPROVED THIS 18TH DAY OF SEPTEMBER, 2017.

CITY OF MANCHESTER, MISSOURI

By _____
Mayor

ATTEST:

_____
City Clerk

APPROVED AS TO LEGAL FORM:

_____
City Attorney