

V.B.



DATE: June 30, 2008

TO: Mike Herring, CA

FROM: Brian McGownd, PWD\CE

SUBJECT: Residential Street Tree Program

As directed by the Planning & Public Works Committee, the Public Works Division, along with City Arborist/Urban Forester Mindy Mohrman, developed a Residential Street Tree Program for the Committee's consideration. The program packet which includes the application, hold harmless agreement, policy/procedures and tree guide is attached.

This program provides for the planting of trees within City right of way along public residential streets. Only trees from our approved street tree list would be planted, and would only be planted if an appropriate space was available within the right of way. Staff would contract with a nursery to furnish and plant the trees. All trees would be planted during the Fall planting season which is November 1 – December 31, and each tree would be guaranteed for one year.

This would be a cost-sharing program. The property owner would be required to submit \$100 for each tree applied for, with the City contributing the remaining amount needed to plant the tree. By having to contribute to the cost of the tree, the owner will be more inclined to properly care for the tree.

It is estimated that the cost to plant a 2-2 1/2" caliper tree from our approved list would be between \$150 to \$250, depending on the species and variety chosen. We anticipate receiving applications to plant 200 to 300 trees per year. Any more than that may be difficult to manage from a staffing standpoint. Therefore, if the program is approved and adopted by City Council, we would recommend including approximately \$75,000 in the 2009 budget for the program.

It is also important to note that due to the age of the existing right of way trees we are seeing an increase in the amount of trees that need to be removed. Some are either dead/diseased/dying, or have simply outgrown the available space. Since the first of the year we have removed 141 trees. Council had the foresight to budget an additional \$50,000 in 2008 for tree removals. We would recommend increasing this amount to \$100,000 for 2009.

If you need additional information or have any questions please advise.

attachments

cc: Mike Geisel, Director of Planning & Public Works
Mindy Mohrman, City Arborist/Urban Forester

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7/2/08

→ Add to next
P/PW Committee
Agenda - TY!



RESIDENTIAL STREET TREE PROGRAM APPLICATION

Property Owner		Date	
Address of Property			
Address of Property Owner if different than above			
Daytime Phone		Evening Phone	

Space Requirements

An acceptable space should be 30' away from a stop sign, intersection, light pole, storm sewer inlet, or another tree. The right of way must be no less than 5' wide. The property owner **MUST** be certain that adequate space exists before submitting an application.

The space has been measured and determined to be appropriately sized

Tree Choices

The City can not guarantee the availability of a particular tree species. All street trees must be chosen from the Tree Guide included in the application packet. Please use the accompanying materials and consider site/soil conditions when making your top three choices.

1.	
2.	
3.	

I/we have read, and fully understand, the City of Chesterfield Residential Street Tree Program Policy and Procedures, and I agree to provide proper tree care as detailed in the accompanying materials.

Signature(s):		Date	

INSTRUCTIONS:

1. Complete this form and the attached Hold Harmless Agreement.
2. Submit a payment to the City of Chesterfield for \$100 per tree. If it is determined that a tree cannot be planted in the available space, the payment will be returned to you.
3. Mail completed form, completed Hold Harmless Agreement, and payment before August 1st to:

City of Chesterfield
Street Tree Program
690 Chesterfield Parkway West
Chesterfield, MO 63017

DEPARTMENT OF PLANNING AND PUBLIC WORKS
PHONE: 636-537-4762 FAX: 636-537-4798/4798

**City of Chesterfield
Residential Street Tree Program
Policy and Procedures**

Section I- General

- A. The Owner of a residential property that abuts a public street controlled by the city is eligible for the City of Chesterfield's Residential Street Tree Program, provided they meet the requirements stated in this document. The program provides for the planting of trees within City right of way, which is typically the grass area between the street and sidewalk, or if no sidewalk, an area within ten feet of the street.
- B. Commercial and industrial (non-residential) properties are not eligible for this program.
- C. An acceptable space shall be 30' away from a stop sign, intersection, light pole, storm sewer inlet, or another tree. The right of way must be a minimum of 5' wide. All sites will be reviewed by City staff before approval.
- D. The property owner shall choose a tree species off the city's list of Recommended Street Trees, listed in the Tree Guide included with the application packet. All species choices will be reviewed by city staff before approval.
- E. Tree size for all species will be 2-2 ½" caliper.
- F. This is a cost-sharing program, the property owner must submit a payment of \$100.00 per tree. A property owner may apply for multiple trees, provided there is adequate space for each tree.

Section II- Application By Property Owner

- A. The Owner, not the tenant, must submit the application for participation in the program. The application packet can be found on the City of Chesterfield's website, www.chesterfield.mo.us, or can be obtained at City hall located at 690 Chesterfield Parkway West, between the hours of 8:30 AM and 5:00 PM, Monday through Friday.
- B. The Owner shall submit the \$100 per tree payment along with the application. If it is determined that a tree can not be planted in the available space, the payment will be returned.
- C. By signing and submitting an application, the Owner agrees to properly care for the tree(s) as described in the Tree Guide.
- D. A Hold Harmless Agreement is required to be submitted along with the application. The agreement is contained in the application packet.

- E. The deadline to submit an application is August 1st. Trees will be planted between November 1 – December 31.

Section III- Tree Installation

- A. Upon receipt of application, City staff will review the site and the species choice and will notify the Owner if their application has been accepted or denied. If the application has been denied, payment will be returned.
- B. City will submit species list and locations to nursery (annually contracted by city).
- C. The contractor will schedule and perform the installations between November 1 – December 31. The contractor will be responsible for obtaining the required utility locates before installation.
- D. If the Owner has a lawn sprinkler system located within the area where a tree is to be planted, the Owner is responsible for marking the system, and relocating the system, as necessary.
- E. As part of the tree installation, the contractor will mulch the base of the tree with a standard hard wood mulch, and will also stake the tree. The Owner will be responsible for removing the stakes as outlined in the Tree Guide.
- F. City staff will review each site after installation.

Section IV- One Year Warranty

- A. The city will require the contractor to provide a one year warranty on all trees, starting from the month of planting. The warranty is only in affect if the Owner provides proper care as outlined in the Tree Guide, and excludes vandalism or extraordinary acts of God.
- B. The property owner must contact the City if they believe they should receive a replacement within the warranty period.
- C. City staff will inspect tree and approve replacements, the tree must still be standing at the time of the inspection in order for a property owner to receive a replacement. The City will schedule a replacement with the contractor at the most appropriate planting time.



City of Chesterfield Street Tree Program Tree Guide



- The purpose of this guide is to assist the homeowner in finding the right tree for their right of way space– the space between the sidewalk and the street.
- An acceptable space should be 30’ from a stop sign, intersection, light pole, storm sewer inlet, or another tree. The right of way should be a minimum of 5’ wide. Please measure your right of way area and be sure that you have an acceptable space before applying for a street tree.
- When choosing a tree, make note of the tree species growing in your area. Many plant problems are a result of overpopulation of one species. Try to choose a tree that has not been overplanted in your area.
- The city’s contractor will install all trees. When installing the tree, the contractor will stake the tree and put down a layer of mulch. **Please be sure to give the tree a thorough watering on the day it is planted.** The tree will have a one-year warranty starting the month it was planted.
- Think in terms of prevention when caring for you tree. A healthy tree has everything it needs to defend itself from natural predators and urban stressors.
- In order to participate in the City of Chesterfield Street Tree Planting Program, a homeowner must agree to properly care for their tree as outlined in the following section. Please read the following “Caring For Your Tree” section thoroughly before you sign the tree care agreement on the Tree Replacement Application. Any trees that die due to lack of care or improper care will not be replaced under the one year warranty.

Caring For Your Tree

Please read this section in its entirety before signing the Street Tree Application. Homeowners must provide proper care for their street trees in order to qualify for the program.

Watering: The single most important thing a newly transplanted tree needs is water. Generally, trees should get at least one inch of water per week, including rain water. Water should be administered slowly in order to allow it to penetrate the soil deeply. Afterwards, the soil should be allowed to dry somewhat before the next watering. This encourages a deep root system.

Mulching: The tree will be mulched by the city's contractor when it is installed. If you choose to re-mulch later, spread an even layer of mulch underneath the tree's canopy. This layer should be no deeper than 4 inches, and if you like to add fresh mulch every year try not to exceed a 2" layer each year. Piling mulch up against the trunk of the tree, creating a "volcano" effect, is a very common mistake and is actually detrimental to tree health. Mulch should never touch the trunk of the tree because it can hold moisture against the trunk and cause decay and rot.

Staking: The tree will be staked by the city's contractor when it is installed. Be sure that the staking materials do not cut into the wood of the tree, and that they stay loose enough to allow the tree some movement. Stakes that are too tight hold the tree in a rigid position and prevent it from developing adequate trunk strength. The stakes should be taken off after one year, or sooner if possible.

Pruning: City crews are trained in proper pruning methods, however they prune trees for clearance only. This means they will trim branches that are hanging into the road or over a sidewalk.

Pruning a tree when it is young is called "structural pruning," and homeowners should feel free to do whatever extra trimming they feel is appropriate on their right of way trees. The goal of structural pruning is to establish a strong trunk that has evenly spaced branches. This ensures that your tree will be stronger in future years, and less susceptible to damage during storms. See the "resources" section below for a great document about structural pruning.

Avoid pruning in the first year that the tree has been planted unless you see broken or diseased branches. These should always be removed right away.

Fertilizing: For the most part, fertilizer is not necessary. If you choose to use it there are many types available at your local garden center. Tree fertilizer spikes work great and are easy to use. When using fertilizer, always follow the directions on the package. Too much fertilizer can cause much more damage than not using any at all.











Resources For More Information

The information in this booklet was obtained from the Missouri Department of Conservation Urban Trees booklet, which can be viewed online in its entirety at www.mdc.mo.gov/forest/urban/urbantree

Other Useful Sites:

Missouri Department of Conservation-urban forestry site Structural Pruning Document	www.mdc.mo.gov/forest/urban/ www.mdc.mo.gov/forest/urban/ UrbanAndCommunityForestry/treepruning/
National Arbor Day Foundation	www.arborday.org
Heartland Tree Alliance	www.righttreerightplace.com

KEY:

Soil Moisture:		Growth Rate:	Flower/Spring Color:
 Dry Soil	 Wet Soil	 Slow	
 Average Soil	 Wide Range	 Medium	Fall Color:
 Moist Soil		 Fast	

Norway Maple

Acer platanoides



Norway maple forms a round canopy of dark green, dense foliage that produces heavy shade. The combination of shade and a shallow root system will not allow good turfgrass to grow beneath it. Norway maple is extremely pollution tolerant. This tree is easy to transplant and tolerates many soil types and conditions. There are many cultivars of this plant, but only a few are commonly available. These should be preferred since selections with better heat tolerance are often more attractive. 'Summershade,' 'Emerald Queen' and 'Cleveland' are good choices. The best known maroon-leaf cultivar is called 'Crimson King.' Red-leafed cultivars are slow growing and not as well adapted as those with green leaves.

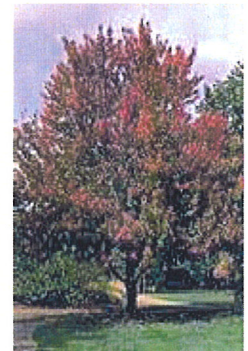


Red Maple

Acer rubrum



Red maple is most often planted for its spectacular orange and red fall color. Many cultivars of red maple are available in the nursery trade. Tree shape is oval when young, but becomes wider spreading with age. Red maple is easy to transplant and tolerant of many soil conditions. This is a tree suitable for poorly-drained sites as well as drier soil conditions. Leaf scorch may be a problem without irrigation during hot, dry summers. Red maple has a tolerance to urban pollutants such as ozone and sulfur dioxide. The small, early spring red flowers are not highly showy, but are a welcoming sign of spring. The bark of the tree is a smooth gray-brown. 'Red Sunset,' 'Autumn Flame' and 'October Glory' are some popular cultivars developed for fall color. 'Autumn Blaze' is a red-silver maple hybrid with red-orange fall foliage.



Sugar Maple

Acer saccharum



Sugar maple becomes a very large shade tree that is well-known for fall colors ranging from yellow to orange to shades of red. It is less pollution tolerant than red maple, especially to de-icing salts along roadways. Sugar maple thrives in deep, rich soils. It tolerates poor sites with good drainage, but grows slowly. In shallow soils and other poor sites, leaf scorch may develop during dry periods. Its dense shade and shallow roots prevent a good lawn from growing beneath it. Sugar maple is tolerant of shade and can be used near taller trees or buildings. Many cultivars exist to provide a variety of shapes, fall color and drought tolerance. These should be selected when available. Some are 'Green Mountain,' 'Legacy,' 'Bonfire,' and 'Caddo.'



European Alder

Alnus glutinosa



The European alder is a fast-growing tree when young. It usually develops a single trunk with an oval-headed crown. The summer foliage is dark, glossy green and tolerates partial shade. This tree may be planted in wet sites or along waterways, but it also is suitable for drier areas. Alder is a good selection for poor soils since it is able to fix atmospheric nitrogen and tolerates both acid or slightly alkaline conditions. The fruiting structure is a small cone, which adds ornamental value when the tree is dormant. Varieties exist with yellow leaves, cut leaves and columnar growth, but they are not readily available.



European Hornbeam

Carpinus betulus



European hornbeam is a medium-sized tree that often is overlooked for use in stressful climates and urban sites. Besides being very adaptable to different soils and environmental conditions, it is essentially pest free. Leaves are dark green and develop a good yellow fall color. Although several cultivars exist, the most available and most often used is an upright growing form called 'Fastigiata'. It has a dense growth that makes it useful for a tall screen. Small trees planted close together may be used to form a tall hedge since this plant tolerates shearing. Single trees make excellent specimens with low maintenance. It has attractive smooth gray bark and leaves that turn yellow or orange in fall.



American Hornbeam

Carpinus caroliniana



American hornbeam is a slow-growing, deciduous, small to medium-sized understory tree with an attractive globular form. It is native to Missouri where it is typically found in rich moist woods, valleys, ravine bottoms and rocky slopes along streams throughout the eastern and Ozark regions of the State (Steyermark). Typically grows 20-35' tall. The smooth, gray trunk and larger branches of a mature tree exhibit a distinctive muscle-like fluting that has given rise to another common name of musclewood for this tree. Flowers appear in spring in separate male and female catkins, with the female catkins giving way to distinctive clusters of winged nutlets. Serrated, elliptic-oval, dark green leaves often produce respectable shades of yellow, orange and red in fall.



Sugarberry, Sugar Hackberry

Celtis laevigata



Sugarberry is basically a southern version of common or northern hackberry (see *C. occidentalis*). Sugarberry differs from common hackberry by (1) fruits are juicier and sweeter, (2) bark is less corky, (3) leaves are narrower with mostly smooth margins, (4) better resistance to witches' broom and (5) less winter hardiness. Sugarberry is a medium to large sized deciduous tree that typically grows 60-80' tall with upright-arching branching and a rounded spreading crown. Mature gray bark develops a warty texture. Insignificant greenish flowers appear in spring (April - May), with male flowers in clusters and female flowers solitary. Female flowers give way to an often abundant fruit crop of round fleshy berries maturing to deep purple. Fruits are attractive to a variety of wildlife. Birds consume the fruits and disperse the seeds.

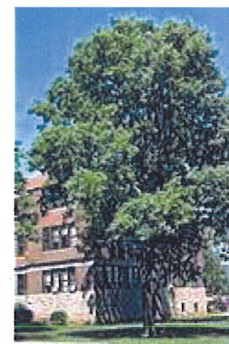


Hackberry

Celtis occidentalis



Common hackberry is extremely tolerant of adverse conditions. The bark is grayish and corky. Red-orange fruits are produced in fall, but are not long-lasting since birds eat them quickly. Its durability makes it a worthy selection for difficult sites. It is easily transplanted and tolerates clay, rocky or sandy soils. Unlike many trees, it also tolerates persistent winds. A cultivar with more compact growth and glossy green foliage is called 'Prairie Pride.'



Yellowwood

Cladrastis kentuckea



Yellowwood is a medium-sized shade tree native to southwest Missouri. The white, pealike flowers hang in long panicles similar to a wisteria bloom. It does not have serious pest or disease problems. It should be planted in full sun where there is adequate moisture. Leaves will scorch or drop under drought conditions. Yellowwood grows well in many soil types and appears able to tolerate low fertility soils. The bark is an unusual, smooth light gray that is distinctive in all seasons.



Hawthorn, Crimson Cloud 'Superba'

Crateagus laevigata



Crimson Cloud hawthorn is a small, low-branching, deciduous tree that is noted for its profuse spring bloom. It typically grows 15-20' tall with a rounded crown. Straight to zigzag, thorny stems are clad with 3 to 5-lobed, dark green leaves (to 2 1/2" long). No fall color. Five-petaled flowers in clusters bloom in mid spring. Flowers are followed by red fruits in fall. Many cultivars of English hawthorn, some featuring double flowers, are available in commerce today with flower colors including pink, rose, red and white.



American Beech

Fagus grandiflora



American beech is a large-growing tree native to forests of the eastern United States and to the Crowley's Ridge portion of southeast Missouri. It is more heat tolerant than the European beech on areas where soils are sandy and internally well-drained. It is not adapted to clay soils. Open grown trees become very dense with noticeable surface roots. The glossy leaves and smooth gray bark are outstanding landscape qualities. Fall color is often a golden yellow.



White Ash

Fraxinus americana



White ash has many characteristics of green ash, but trees tend to develop into an oval rather than round shape. Growth is not quite as rapid as green ash. Trees are easy to establish, and adapt to a wide range of conditions. White ash has a distinctive purple to maroon fall color. White ash varieties are selected primarily for fall color and are among the first trees to turn, lasting two to three weeks. Among the most popular cultivars are 'Autumn Purple' and 'Rosehill.' White ash is susceptible to the same pests as green ash, ash flower gall, caused by a mite, attacks male flowers, resulting in abnormal growth. Ash borers can also be a problem. Unattractive galls persist, making the tree less ornamental. Green Ash is overplanted in Chesterfield, and has been taken off the tree list. Do not plant white ash if Green Ash is overpopulated in your area.



Ginkgo

Ginkgo biloba



Ginkgo is an outstanding city tree because of its pollution and salt tolerance. It has open branching which allows enough sunlight to penetrate to maintain a lawn. Young trees usually have a pyramidal shape, but old trees can be very wide-spreading. It is tolerant of many soil conditions, although best growth occurs in well-drained soils with adequate moisture. Only Male Cultivars are acceptable in the Right of Way.



Honeylocust

Gleditsia triacanthos



Honeylocust has long been a commonly used tree for urban planting. The open, spreading crown with very small leaflets creates filtered sunlight. The light shade it produces allows a lawn to be grown beneath it. It is very tolerant of many soil conditions, and has salt tolerance for use near highways. Only cultivars that are thornless are commercially available and acceptable in the right of way. 'Moraine' has been one of the most popular cultivars, and has no thorns or seed pods. Other cultivars include 'Imperial,' 'Shademaster' and 'Skyline'.

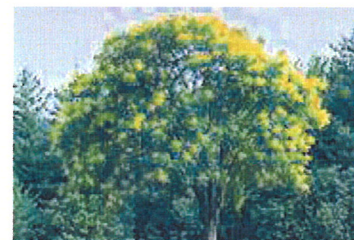


Goldenraintree

Koelreuteria paniculata



Goldenrain tree is an excellent choice for summer flowers. It grows fast to form a round-headed, wide-spreading medium sized tree. The showy large clusters of small yellow flowers are produced when few other landscape trees or shrubs are flowering. Falling flowers inspired its common name. This tree adapts to many climatic conditions, is tolerant of many soil types and endures air pollutants in urban sites. For fall and winter interest, the seed structures are large and showy. These are inflated capsules that turn from green to chartreuse, and finally to brown. Goldenrain tree is pest free and requires little care. This tree develops best in a sunny location although it tolerates light shade. Fall leaf color is not outstanding; usually it's dull yellow. Seeds of goldenrain tree germinate readily. It can invade surrounding areas and has the potential to become a pest.



London Planetree

Platanus x. acerifolia



London planetree is a hybrid cross between American sycamore (*P. occidentalis*) and Oriental planetree (*P. orientalis*). Like its American parent, it typically grows as a single-trunk tree to 75-100' tall with horizontal branching and a rounded habit. The signature ornamental feature of this tree is its brown bark which exfoliates in irregular pieces to reveal creamy white inner bark. The large 3-5 lobed medium to dark green leaves (4-9" wide) have coarse marginal teeth. In fall, foliage typically turns an undistinguished yellow-brown. Small, non-showy flowers appear in small rounded clusters in April. Male flowers are yellowish and female flowers are reddish. Female flowers give way to fuzzy, long-stalked, spherical fruiting balls (to 1 3/8" diameter) that ripen to brown in October and persist into early winter. Fruiting balls appear in pairs.

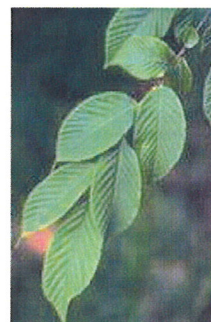


Hophornbeam

Ostrya virginiana



The hophornbeam, also known as ironwood, is well-suited to urban conditions. It grows as a medium-sized tree tolerant of dry, rocky soils. The fruit is papery, white and resembles hops, which is the reason for its name. These are showy against the dark green leaves in summer. It is free of any major pests and tolerates some shade. Hophornbeam is a slow growing tree, suited to almost any area.

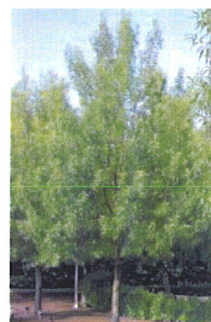


Sawtooth Oak

Quercus acutissima



Sawtooth Oak is a medium sized oak that typically grows between 40-60' tall. Bark develops corky ridging with age and the leaves are glossy and dark green. This tree is tolerant of heat and humidity, but young trees might need extra care during especially cold winters. Fall color is variable, and can be a very attractive golden brown. Acorn production can be abundant, making this a good tree for attracting wildlife.



Swamp White Oak

Quercus bicolor



The swamp white oak is a native tree that becomes quite large and spreading. Most oaks within the white oak group are difficult to transplant, but swamp white oak is one of the least difficult. As the name implies, it is well adapted to low, moist conditions and bottomlands. In spite of this quality, this tree is able to endure drought conditions once it's well established. Leaves are dark green above and soft gray on the underside. It grows best in deep soils, but is adapted to many soil types and conditions including dense urban clay soils. Fall color is a weak yellow and not outstanding.



Scarlet Oak

Quercus coccinea



Although scarlet oak has been relatively uncommon for landscape planting, it is gaining popularity and is more available. It is pyramidal to oval when young and the canopy broadens with maturity. The main reason for planting this oak is its spectacular scarlet fall color. It is somewhat slower to establish than pin oak and red oak. It is tolerant of many conditions but is not as pollution tolerant as red oak. As an older tree, the branch structure becomes open as smaller branches are shaded out, sometimes giving a twiggy character to the inner trunk. Scarlet oak has no serious pest problems, but it is subject to many of the same pests that attack other oaks. While it grows most rapidly on deep, moist soils, it is also very tolerant of dry conditions.



Shingle Oak

Quercus imbricaria



Shingle oak is a native tree once used to make shingles, and is common in many parts of Missouri. It is less used in home landscapes and, like pin oak, it has a tendency to droop its lower branches. Foliage is dark, glossy green, but without dramatic fall color. Leaves usually turn brown late in fall and many hang on the tree through the winter. With this quality, it is a tree that can provide winter screening and windbreak. Many people object to the brown winter look for a shade tree. Winter leaf retention requires leaf clean up in spring as new growth is about to start. Shingle oak is a durable and adaptable tree that could be used more frequently for large landscapes.



Chestnut Oak and Swamp Chestnut Oak

Quercus prinus
Quercus michauxii



These two oaks are very similar, but chestnut oak does better as an ornamental tree because it adapts well to many soil types and upland conditions. Swamp chestnut oak grows larger and should be selected for landscapes in low, wet areas. Leaf color is light green. Trees develop oval to rounded canopies. Fall color is usually yellow to yellow-brown. These oaks are very useful for attracting wildlife that are fond of acorns.



Chinkapin Oak

Quercus muhlenbergii



Chinkapin oak is most suitable for planting in central and southern Missouri. Like many oaks in the white oak group, transplanting it is difficult. It is more tolerant of alkaline soil conditions than most oaks, but also grows well in acid soils. It is seldom available for sale, but should be preserved on developed sites. Fall color is generally yellow.



English Oak

Quercus robur



English oak has gained popularity primarily because of the more upright and columnar cultivars that are available. For a tall, narrow screen, these upright selections are more durable choices than upright poplars. The crown of the more typical English oak is pyramidal when young, but becomes rounded with age. Leaves are dark green with rounded lobes somewhat like our native white oak. English oak is easy to transplant, and adapts to many soil conditions, but must have good drainage. Fall foliage is not colorful. Brown leaves are often held through the winter.

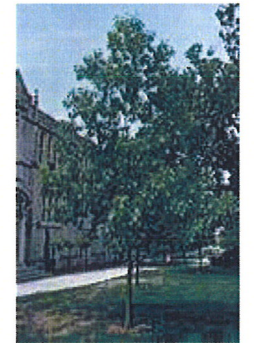


Red Oak

Quercus rubra



An outstanding oak for landscape use is the northern red oak. It becomes a large tree with a rounded, wide-spreading crown. As a mature tree it is among the most majestic of the oaks. Since it grows large, it needs plenty of space. Northern red oak is easy to get established and it is tolerant of urban pollution. Unlike pin oak, which is more widely planted, it is not as sensitive to soil conditions and is less likely to suffer leaf yellowing and poor growth. It is fast growing and ideal for parks, golf courses and other large areas. Leaf galls or leaf feeding insects may attack it, but most pests are not serious. In fall northern red oak produces leaf colors in shades of red, scarlet and wine.



Shumard Oak

Quercus shumardii



Shumard oak is one of the least common of the oaks used in landscape plantings. It becomes a large tree with similarities to pin, scarlet and red oak, and like them is most useful in large open areas. Growth when young is like pin oak, but mature structure is more like scarlet oak. The leaves are variable and might be confused with pin, red or scarlet oak. Fall color is shades of red and scarlet. It is tolerant of many soils and environmental conditions. Because of good drought tolerance, it is well-suited to the low maintenance landscape where irrigation of any type is not possible during drought periods. It has no serious pest problems, but is subject to general pests of the other oaks.



Littleleaf Linden

Tilia cordata



Littleleaf linden's dark green leaves and dense pyramidal growth make it a suitable choice when a formal-looking tree is desired. Lindens may be damaged during a summer of extreme heat and drought. However, they recover well and are suitable for street trees as well as mall parking lots and other difficult sites. Growth is slow when they are planted in such areas, and watering during stress periods is important. Summer flowers are attractive and fragrant. Many good cultivars exist. 'Greenspire' is one of the most popular and best.



American Elm

Ulmus americana

Dutch Elm Disease Resistant Varieties



Dutch Elm Disease is a fatal fungal disease that attacks American Elm trees. A number of hybrid varieties have been developed that are resistant to the disease, and this tree is once again becoming a viable option for planting. American Elm is tolerant of urban conditions, it prefers moist soils but can adapt to a wide range of soil conditions. It is a large deciduous tree, with a vase shaped crown.



Chinese or Lacebark Elm

Ulmus parvifolia



Chinese or lacebark elm is often confused with the undesirable Siberian elm. Chinese elm forms a graceful round crown with mottled gray, green, orange and brown bark. It tolerates a wide range of soil conditions and is suited for urban situations. Chinese elm is resistant (but not immune) to Dutch elm disease and is not as seriously affected by elm leaf beetles and similar problems as the other elms.



Zelkova

Zelkova serrata



Since the American elm first succumbed to Dutch elm disease, there has been a search for a replacement. Zelkova is not a perfect replacement, but is a relative with a vase-shaped form resembling American elm. Leaves are dark green and held late into the fall, essentially without fall color. Zelkova's angular branching allows its use along walks, streets or other areas where low branching is undesirable. It has good pollution, wind and drought tolerance. Although it is closely related to elms, it appears to be fairly resistant to Dutch elm disease. Because many gardeners are unfamiliar with zelkova, it has been used very little, but it is gaining popularity and becoming more available. Several cultivars have been developed, but are not widely distributed. One outstanding cultivar is 'Green Vase', which features vigorous growth and bronzy-red fall foliage

