III.D

Memorandum
Department of Public Services

To: Mike Herring, CA
From: Mike Geisel, DPS
Date: 2/18/2014
Re: Community Forest Update

The City's Public Works crews have been trimming street trees for clearance and dead limbs since the early 1990's. While the program began out of necessity to provide clearance over the City streets and sidewalks, it has grown into a popular and active urban forestry program. Currently, the City maintains more than 22,000 trees within our rights-of-ways. As you are aware, the region experienced a major ice storm in 2007 that resulted in significant damage to the trees in the City. This ice storm resulted in a FEMA disaster declaration, required weeks of cleanup and debris removal by the City's maintenance crews. Chesterfield Public Works crews disposed of more than 800 dump truck loads of tree and limb chippings that were collected and run through our shredders. Equally as important to the trees and limbs that fell and were disposed of directly after the storm, was the realization that there remained a large population of damaged, dying, and diseased street trees. As a result of the City's ongoing attention, the City managed tree population is thriving and the City's liabilities are being actively addressed.

Street Tree Population Update

After the ice storm, it became readily apparent that the City required a comprehensive inventory of the City's street trees in order to appropriately address liabilities and to develop an overall maintenance strategy. The extent of the problem had yet to be fully identified. With the assistance of State grant funding, the City initiated a contract for a Street Tree Inventory to identify the location, type, size, health, and maintenance needs of our public street trees. By the end of 2012, the City had implemented all of the maintenance recommendations and had completed removal of all "priority one hazardous" trees. Due to this work, subsequent storm events resulted in less tree damage and fewer losses. We have also decreased our response times to citizen complaints and improved our reporting and record keeping. All along the way, we have updated the inventory to ensure its accuracy as trees were removed and\or added. At some juncture in the future, the inventory will have to be updated to reflect current condition assessments of all street trees.

The main benefit of having the inventory was the ability to use the information to develop a "big picture" of our total population, and use that to more effectively create a maintenance management strategy. We know that our street

tree population mainly consists of only five different species, with Ash species making up the majority at 36% in 2010. In addition, many of these Ash trees are of the same age, and are in a state of decline due to a combination of factors brought on by overpopulation. A healthy, sustainable urban forest should consist of a diverse stand of mixed age and mixed species trees, ideally with no one group making up more than 10% of the total population. In order to address this issue, the City has been identifying and removing declining ash trees and has reduced our ash population to 24%. We should expect to remove a similar quantity of ash trees for the next several years as this aging population continues to decline. Other overpopulated species include Pin Oak, Callery Pear, Red Maple, and American Sweetgum.

Our tree removals were down more than 40% in 2013. This is due to the fact that we have, "caught up" with the damage from the 2007 ice storm, and all of the "priority one" hazard trees that were identified in the Street Tree Inventory. We have also "caught up" in removing the overwhelming dominance of Green Ash trees that made us susceptible to the Ash Borer and serious disease issues. So, the take away here is, we have caught up and are maintaining the status quo with removals. We've reduced our removals by more than 40% over the prior four years.

Major Threat: Emerald Ash Borer

The Emerald Ash Borer is an invasive insect that has been devastating Ash populations throughout the Midwest and has now established populations in areas of Missouri. Although it has not been confirmed in the St. Louis region, we should be prepared for the probability of an infestation. Data from infested communities shows that individual Ash trees can be killed within less than a year of infestation. Entire Ash tree populations within a region can be completely decimated within five years of an infestation. Due to the fact that we have a large population of Ash that is in decline, the threat of an EAB infestation is very real. Currently, there are approximately 7,000 Ash trees on City streets. If an infestation were to occur, we should expect the remainder of our ash trees to require removal within five years at a projected cost of more than three million dollars. Obviously, it is in our best interest to continue to prioritize the removal of declining ash trees to reduce the population should an infestation occur.

Residential Street Tree Planting Program

Since creating the planting program, the City has received very favorable

feedback from participating residents. The purpose of the street tree replacement program is not only to add to the diminishing tree population, it also encourages increased age and species diversity, thus improving the health and reducing the maintenance needs of our community tree population overall. Unfortunately, participation rates remain low. In a typical year, the City plants approximately 200 new street trees. Realizing that we have removed as many as 600 trees in a single year, it is evident that our street tree population is diminishing. Trees provide significant economic and functional benefits to the community by increasing real estate value, reducing storm water runoff, and reducing energy expenses. When properly maintained, trees return overall benefits and value to the community far in excess of the time and money invested in them for planting, pruning, protection, and removal. Using data from the street tree inventory, we can estimate that the combined value of our community trees totals over 31 million dollars.

Nuisance Trees

In accordance with City policies, ***the Department of Public Services removes street trees that are dead, dying, diseased or otherwise hazardous.*** *Under normal circumstances, the Department will not remove a healthy tree.* However, the Department routinely receives complaints about Sweetgum trees due to the nuisance that the seeds create. We are also aware of insurance claims that have originated due to pedestrians slipping, falling, or tripping over the Sweetgum balls. Residents frequently request that the Sweetgum trees in front of their residence be removed.

The City Council has previously encouraged the Department to remove the Sweetgum trees when requested by the adjacent resident. ***In 2013, the Department of Public Works implemented an internal policy that Sweetgum trees would only be removed if the resident agreed to participate in the street tree replacement program, effectively replacing the removed tree with a new tree of an acceptable species.*** In general, that policy has been effective. However, there are individual, concentrated populations of Sweetgum trees where their removal has caused some degree of concern by neighborhood residents. Let me emphasize, no healthy Sweetgum tree has been removed except at the request of the abutting property owner. Complaints have been received by other neighbors in the subdivision that the removal of healthy, mature Sweetgum trees are impacting the overall character of the neighborhood. While this issue is

generic, the concentration of Sweetgum trees is most dramatic in the Greenfield Village subdivision. ***We have not removed a large number of Sweetgum trees overall. Although we have more than 2,000 Sweetgums along City streets throughout the City. We have removed a total of 50 of the Sweet Gums overall, of which, only 14 were in Greenfield Village. We have current requests for eight additional Sweetgum tree removals in the Greenfield Village subdivision.*** What has generated the current concern and need for direction is a single corner lot, where four of a total of five Sweetgum trees were removed at the owner's request. Two of these trees were generally problematic for the owner, and the other two were problematic to the City due to their proximity to the intersection. The owner had specific problems with two trees, one on each side of his driveway. The next two, were right at the intersection, blocked both visibility and were right next to a street light.

While it is clear that our overall street tree maintenance strategy is well received and effective, we seek clarity as to Council's directive relative to the removal of Sweetgum trees as a nuisance. Accordingly, **I request that this update be provided to the Planning and Public Works Committee for review and consideration. At which time we can discuss the overall program and receive direction from the Committee relative to the removal of Sweetgum trees.**

If you need additional information or have any questions please advise

Attachments

2/19/14

cc: Jim Eckrich, Director of Public Works/City Engineer
Mike O'Connor, Superintendent of Maintenance Operations
Melinda Mohrmann, City Arborist

MEMORANDUM

DATE: February 4, 2014

TO: Mike Geisel, Director of Public Services

FROM: Mindy Mohrman, City Arborist/Urban Forester

RE: Street Tree Management Plan

This memo will serve as a review and update of the recommendations in the Street Tree Management Plan that was based on the information obtained in the 2010 Street Tree Inventory.

After the major ice storm in early winter of 2007, City maintenance crews worked 11,370 man-hours cleaning up fallen trees and debris. More than 800 truck loads of chipped tree debris were collected and disposed of by City crews. In the months that followed, trees continued to fail due to damage sustained during the storm. It was impossible to account for the amount of loss, and how these losses affected the street tree population city wide. At the time, the City had no inventory or accounting of the street trees on our public streets, or the condition that these trees were in. Additionally, it was important to have an accurate assessment of how many more trees had sustained damage that might require action.

In 2009, the City sought grant funding to initiate a comprehensive inventory and assessment of the City's street trees. The inventory, which also created a GIS database, provides the City with an accurate account of the current street tree population, and information about each tree including species, size, and condition. With this information, we make better budgeting decisions for maintenance and we are able to schedule pro-active maintenance actions that reduce tree failure. The inventory enables us to see where aging populations of street trees are located so that we can focus tree planting efforts where they are most needed and areas where overpopulation of one species requires extra effort to increase diversity with newly planted trees.

Street Tree Population Update

The Street Tree Inventory completed in 2010 revealed a population of 22,523 street trees. Currently, including all removals and planting done in the past three years, the city's street tree population is estimated at 21,114. After completion of the inventory, removal numbers went up for the next two years as city staff worked to remove a large number of dead and declining trees that were identified as hazards. On average, removals totaled approximately 600 trees in 2010, 2011, and 2012. In 2013, removals were drastically reduced to 374 trees, which reflects a mortality rate of less than 2%. This tells us that street tree management efforts have been effective and we are now working with a healthier overall population. With ongoing efforts to remove declining and overpopulated trees and plant a diverse species mix, this trend should continue.

Status of Management Recommendations

- Perform identified tree removals and high risk pruning: Immediate maintenance recommendations provided by the consultant included removal of 1,344 dead, declining, or hazardous trees which were prioritized into three categories: Priority 1, or immediate hazards, Priority 2, trees which are in declining condition or have defects which indicate structural problems, or Priority 3, trees which are dead or declining but pose very little risk to the public. Additional recommendations included clearance pruning and large tree pruning to remove dead or hanging branches. By the end of 2012, the city had completed performing all relevant maintenance recommendations. Removals are now scheduled on an as-needed and ongoing basis, and pruning is performed during regular scheduled pruning cycles, or as needed in the case of hazardous limbs.
- Reduce populations of overplanted species: Ash species in particular had the highest population of trees overall, as well as the highest population of declining trees. At the completion of the inventory, Ash species totaled 36% of the total population. After performing the removals recommended by our consultant, the city began an "Ash Management Program" to reduce ash species in subdivisions where populations were highest and health was poor and declining. These efforts resulted in an additional 756 removals of declining ash trees, and have reduced this population to 22%. Ideally, the population should be under 10%, and staff is removing Ash trees on an ongoing basis as they continue to decline.
- Increase diversity by planting a greater selection of species: Steps were taken to begin improving diversity by eliminating species that were known to be overplanted from the list of acceptable street trees, and creating the Residential Street Tree Planting Program. A major component of the program includes reviewing each planting location to avoid over-planting one species of tree in one area. However, it is a disturbing trend that even with a healthier population of trees, we are still removing more trees than are being replaced or planted. In 2013, 374 trees were removed, and 139 trees were planted on city streets. Chesterfield has many neighborhoods where older populations of trees are naturally declining. The planting program is optional, and many residents are opting not to replace trees as they are removed.
- Develop a young tree "training" pruning program: Training is a type of pruning that is performed on young trees as they develop, in order to encourage strong structural habits that will reduce tree maintenance issues or hazards in the future. The Street Tree Management Plan recommended that the city develop on ongoing, cyclical program to perform this pruning in a portion of the city each year. While this would be a benefit to overall urban forest health, this requires a large amount of additional staff time and specialized training, and is not part of the city's maintenance activities. Currently, participation in the Residential Street Tree Planting Program requires an agreement that basic tree care, including early pruning (outside of clearance or hazard pruning) will be performed by the homeowner.
- Prepare for exotic invasive pests such as Emerald Ash Borer: As you are aware, we have had several conversations about EAB and what the city is doing to prepare for a possible infestation. Through the Ash Management Program, we continue to prioritize the removal of declining Ash trees, and are making positive steps in this process. Currently, there are approximately 7000 Ash trees on city streets. If an infestation were to occur, we should

expect the remainder of our ash trees to require removal within five years at a projected cost of 3 million dollars. We should continue to reduce the population, and expect to have budget reserves to cover this cost should an infestation occur.

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

cc: Jim Eckrich, Director of Public Works/City Engineer
Mike O'Connor, Superintendent of Maintenance Operations, Public Works

CITY OF CHESTERFIELD
POLICY STATEMENT

PUBLIC WORKS		**NO.**	**51**
SUBJECT	**Street Tree Removal**	**INDEX**	**PW**
DATE		**DATE**	
ISSUED	**6/1/2009**	**REVISED**	

POLICY

The Department of Planning and Public Works is responsible for identifying trees within the right of way which are to be removed. Department personnel shall determine the condition of a street tree by visual inspection. If it is determined that the street tree is dead, diseased, dying, or creates a potential hazard, Staff shall prioritize and schedule the removal of the street trees to the extent that funding permits. Priority for removal shall be given to those street trees that pose an immediate, imminent or potential danger to the safety and welfare of the general public.

RECOMMENDED BY:

Department Head/Council Committee (if applicable) — Date 6/1/09

APPROVED BY:

City Administrator — Date

City Council (if applicable) — Date 6/1/09

City of Chesterfield

City of Chesterfield Residential 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 must meet the following requirements:
  1. The planting area, typically the grass area between the street and the sidewalk, must be a minimum of five (5) feet wide.
  2. Trees shall not be planted closer than three (3) feet to any curb.
  3. Trees shall not be planted within twenty-five (25) feet of street lights.
  4. Trees shall not be planted within ten (10) feet of street inlets or manholes.
  5. Trees shall not be planted within thirty (30) feet of an existing tree.
  6. No trees shall be planted directly underneath overhead utility lines.
  7. No trees shall be planted within the sight triangle at an intersection that at maturity, have bottom branches lower than seven (7) feet above the elevation of the adjacent pavement.

- If the homeowner has a lawn sprinkler system, an underground electronic dog fence, or any other system located within the area where a tree is to be planted, the homeowner is responsible for marking these systems, and relocating the systems at their sole expense, as necessary.

- 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 will review species choices to determine that they are not overplanted in that particular area, and may ask the homeowner to change their choices if necessary.

- The city's contractor will install all trees. When installing the tree, the contractor will stake the tree, water it, and put down a layer of mulch. The tree will have a one-year warranty starting the month it was planted.

- Think in terms of prevention when caring for your tree. A healthy tree has everything it needs to defend itself from natural predators and urban stressors. Watering the tree weekly is the single most important task.

- 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 Street Tree Program 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, new trees should get at least four inches of water per week. 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 lose 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 is available on the website at mdc.mo.gov

Other Useful Sites:

Missouri Department of Conservation-urban forestry site
www.mdc.mo.gov/landwater-care/homeowners/backyard-tree-care

National Arbor Day Foundation — www.arborday.org

Heartland Tree Alliance — www.righttreerightplace.com

Missouri Botanic Garden — www.missouribotanicalgarden.org

KEY:

Soil Moisture:

Dry Soil

Wet Soil

Average Soil

Wide Range

Moist Soil

Growth Rate:

Slow

Medium

Fast

Flower/Spring Color:

Fall Color:

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.'

Columnar European Hornbeam *Carpinus betulus 'fastigiata'*

Columnar European hornbeam is a medium-sized, narrow growing 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. Single trees make excellent specimens with low maintenance. It has attractive smooth gray bark and leaves that turn yellow or orange in fall.

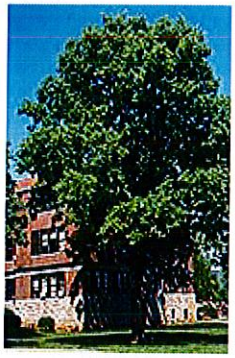
American Hornbeam *Carpinus caroliniana*

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.

Gingko ***Gingko 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 seedless varieties ***Gleditsia triacanthos var. inermis***

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 smali 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.

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.

London Planetree *Platunus 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.

Sawtooth Oak *Quercus accutissima*

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.

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 muelenbergii***

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***

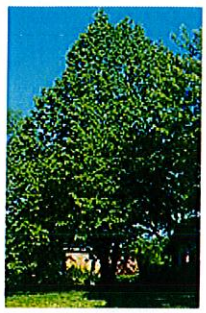
English oak has gained popularity primarily because of the more upright and columnar cultivars that are available. For a tall, narrow screen, these upright selections are more durable choices than upright poplars. The crown of the more typical English oak is pyramidal when young, but becomes rounded 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.

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.

Basswood, American Linden ***Tilia americana***

American basswood, or linden, is a native tree that has a dense, pyramidal crown. It adapts to many soil types and conditions, but without adequate moisture leaves may scorch in summer. Several insects and diseases may attack it if it is in a stressed condition, causing leaves to drop or be eaten. A hybrid cultivar of American basswood called `Redmond' linden is a better selection, which has a pronounced pyramidal form. Summer flowers are attractive and very fragrant, honey made from these flowers is highly prized.



Littleleaf Linden ***Tilia cordata***

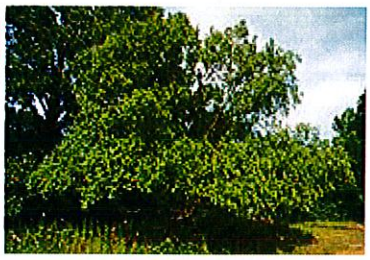
Littleleaf linden's dark green leaves and dense pyramidal growth make it a suitable choice when a formal-looking tree is desired. Lindens may be damaged during a summer of extreme heat and drought. However, they recover well and are suitable for street trees as well as mall parking lots and other difficult 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.

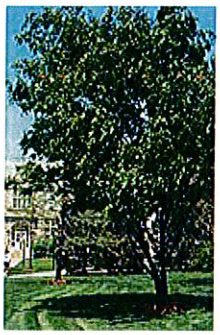
Chinese or Lacebark Elm ***Ulmus parvifolia***

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



City of Chesterfield
Residential Street Tree Program
Policy and Procedures

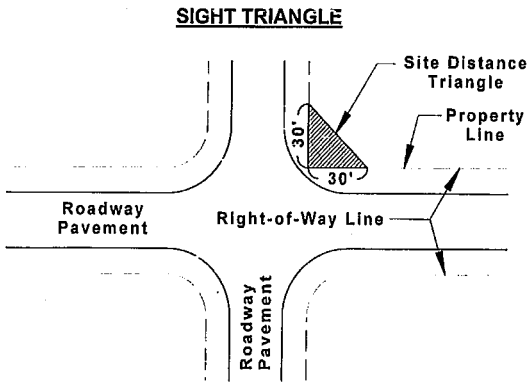
Section I- General

A. The Owner of a residential property that abuts a public street controlled by the City may be eligible for the City of Chesterfield's Residential Street Tree Program. 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 12 feet of the street. The City's Residential Street Tree Program is contingent on continued funding by the City Council, and the City Council is in no way obligated to continue to fund the program.

B. Commercial and industrial (non-residential) properties are not eligible for this program.

C. All trees must be planted in an acceptable space, therefore, the following space requirements must be met:

1. The planting area, typically the grass area between the street and the sidewalk, must be a minimum of five (5) feet wide.
2. Trees shall not be planted closer than three (3) feet to any curb.
3. Trees shall not be planted within twenty-five (25) feet of street lights.
4. Trees shall not be planted within ten (10) feet of street inlets or manholes.
5. Trees shall not be planted within thirty (30) feet of an existing tree.
6. No trees shall be planted directly underneath overhead utility lines.
7. No trees shall be planted within the sight distance triangle at an intersection that have bottom branches lower than seven (7) feet above the elevation of the adjacent pavement (see below).



The identified space shall be approved by City staff before the application will be processed.

D. The Owner shall choose a tree species from the City's list of Recommended Street Trees located in the Tree Guide, which is included with the application packet. In order to prevent over planting of one species in a given area, City staff will review the species chosen by the Owner, and will compare to the existing trees located in the general area. If City staff determines that the species chosen is appropriate, the application will be processed. If City staff determines that the species chosen is not appropriate due to over planting concerns, the Owner will be notified, and given a list of species that are appropriate. Once the Owner chooses a species that has been determined by the City to be appropriate, the application will be processed.

E. Tree size for all species will be 2 ½" caliper.

F. This is a cost-sharing program, the 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, and that the species chosen is appropriate, as outlined in paragraph C. and D. above.

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. The deadline to submit an application is January 31st for the Spring planting (March 1 – April 30), and August 31st for the Fall planting (November 1 – December 31).

Section III- Tree Installation

A. Upon receipt of application, City staff will review the site and the species choice, as outlined in Section I, paragraph C. and D., and will notify the Owner if their application has been accepted or denied. If the application has been denied, payment will be returned. The City is in no way obligated to accept and approve applications.

B. City will submit species list and locations to nursery (annually contracted by city).

C. The contractor will schedule and perform the installations between March 1 and April 30 for the Spring planting, and between November 1 – December 31 for the Fall planting. The contractor will be responsible for obtaining the required utility locates before installation.

D. If the Owner has a lawn sprinkler system, an underground electronic dog fence system, or any other system located within the area where a tree is to be planted, the Owner is responsible for marking these systems, and relocating the systems at their sole expense, 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 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.

RESIDENTIAL STREET TREE PROGRAM APPLICATION

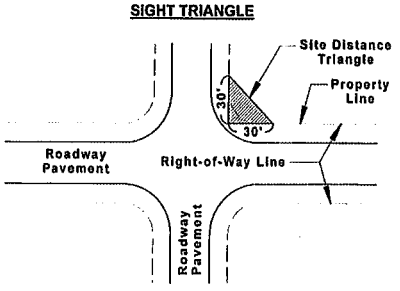
Property Owner		Date	
Address of Property			
Address of Property Owner if different than above			
Email Address			
Daytime Phone		Evening Phone	

Please Note!: If there are existing trees in the right of way that need removal, the owner must call the City at 636-537-4000 to request that the trees be inspected for removal BEFORE filling out this application! Only dead, diseased, or hazardous trees will be considered for removal.

SPACE REQUIREMENTS

The Owner MUST be certain that adequate space exists before submitting an application. All trees must be planted in an acceptable space, therefore, the following space requirements must be met:

1.) The planting area, typically the grass area between the street and the sidewalk, must be a minimum of five (5) feet wide.
2.) Trees shall not be planted closer than three (3) feet to any curb.
3.) Trees shall not be planted within twenty-five (25) feet of street lights.
4.) Trees shall not be planted within ten (10) feet of street inlets or manholes.
5.) Trees shall not be planted within thirty (30) feet of an existing tree.
6.) No trees shall be planted directly underneath overhead utility lines.
7.) No trees shall be planted within the site triangle at an intersection that at maturity, have bottom branches lower than seven (7) feet above the elevation of the adjacent pavement (see below).



Comments: (please make any comments regarding tree location in the space below)

☐ I/we have reviewed the aforementioned space requirements, and have determined that the space is appropriately sized, and understand the City will review and make the final determination.