

PLANTING AND CARE OF YARDS AND BOULEVARD TREES AND SHRUBS

This booklet was created by the Richland Center Tree Board as a tool to assist the private home owner and the commercial property owner in the maintenance of existing trees and the location, selection, maintenance, planting and care of the future trees.

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For further information, contact the Parks/Grounds/Cemetery/Forestry Office at (608) 647-4612.

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STREET TREE REMOVAL

Everyone is concerned about tree removal. The removal of a tree is never a pleasant task. However, tree removal is a very important part of any urban forestry program. There are a number of reasons why a tree may have to be removed. Some of the more common are: excessive decay, cracking, storm damage, dead or dying, thinning to improve growing conditions of adjacent structural deformities, safety hazards, and construction such as driveways, roads, and utilities.

Each September, department personnel canvass the entire city and mark the trees to be removed with red-orange paint. These trees are scheduled for removal over the winter months beginning in December (depending on the weather). A contractor will remove the stumps in the spring; department crews remove the debris, fill holes and reseed stump areas. A replacement tree may be planted, with approval of the homeowner and the forester. Inquiries as to why a tree was marked are welcome. Adjacent property owners may keep the wood from trees fronting their property. Call the office at 647-4612 if you wish to keep the firewood. However, if the tree was diseased, the wood will be properly disposed of by the Forestry Department.

RESOURCES

TREES - Every spring, the city will purchase a set amount of trees to be planted on “city terraces”. The citizens who had trees cut in front of their homes the prior winter, will get first priority. Then anyone with an open area will get trees planted on a first come, first serve bases. Anyone wishing to be put on the list can contact the Forestry Office at 647-4612.

FIRE WOOD - As stated above, the adjacent property owner of any tree that is cut down is welcome to keep the wood. If they choose not to, the wood will be hauled by the city.

WOOD CHIPS - Chips can be picked up at the entrance to the City Landfill.

DID YOU KNOW?

BELOW ARE SOME TOPICS THAT YOU MAY OR MAY NOT KNOW, BUT SHOULD.

DO YOU KNOW?

1. What the definitions of “City Trees & Street Trees” are?
2. That all City and Street Trees are property of the City of Richland Center.
3. That if you plant a tree wrong now, it could die in 20 years.
4. If you do any work on a city or street tree, you must first fill out a permit application from the Forestry Department at City Hall. This includes planting on street boulevards and right of ways. The Forester will evaluate the project, and then either grant or deny the request. This procedure will take approximately two working days.
5. Below is the Richland Center City and Street Policy

The street terrace (area between the curb and the sidewalk, or if not sidewalk exists, four feet from the curb) is a place where utilities are buried, snow is stored, street lights and street signs are installed, curb and sidewalk are located and city trees are planted. The city has ordinances about what is allowed to be planted and how work will be done in the terrace areas. The following needs to be adhered to if you are planning on planting a tree in the terrace areas.

- A permit must be obtained from the City Forester. An application must be filled out at least two working days prior to any planting or other work to be done. The forester then will either grant or deny the permit. Permit applications may be picked up at Richland Center City Hall,
- The City Forester prior to planting must approve trees.
- Trees that most likely will not be approved by the forester include:
Evergreens, cottonwood, box elder, poplar, mulberry, fruit trees and all shrubs.
- Trees, plants, or shrubs planted within a terrace or planting easement without authorization and approval of the City Forester may be removed.
- Any alterations, including: trimming, planting, or removal of trees in the terrace area, whether done by contractors or the owners, **MUST HAVE A PERMIT** and be approved by the City forester prior to any work started. There are strict regulations on trimming of trees in the terrace area.

The City Departments of Public Works and Parks/Recreation/Forestry will trim and remove hazardous trees located in the terrace area as deemed necessary by the City Forester or his designee and as time permits. If a citizen feels a tree in the terrace area may be hazardous or trimming is needed, contact the City Forester.

BENEFITS OF TREES

Trees and shrubs add value to any landscape. Trees provide not only economic benefits, but also aesthetic and environmental benefits as well. Planting trees is beneficial for individuals and the entire community.

Economic Benefits - Installing and maintaining landscaping around your home can increase your property value by approximately 15 percent. A house surrounded by an attractive assortment of trees and shrubs is very appealing to most prospective home buyers.

Trees can also reduce the cost of heating and cooling your home. A dense, well-placed windbreak can protect your home from cold winter winds, thereby reducing your heating bill. The most effective site for windbreak trees is about 100 feet to the north and west of the house.

During the summer, mature shade trees can block the sun's heat and reduce your home cooling costs. Large deciduous trees planted on the west side of the house provide the most effective shade.

Aesthetic Benefits - Of course, one of the best reasons to plant trees is for their unique beauty. Trees come in many sizes and forms, have a wide range of foliage shapes and colors, and have many other ornamental qualities. Many trees have attractive flowers and colorful fruit. Selecting plants with outstanding fall color, interesting bark, and persistent fruit ensures landscape beauty even through the dormant season.

Trees can frame a home or screen a private area. Proper selection and placement of trees and shrubs can complement the style and scale of your house and accentuate special features. Unusual specimen trees can even serve as a living sculpture.

Environmental Benefits - Trees and shrubs play a crucial role in the environmental cycle. Plant roots hold soil in place and help prevent damaging erosion. Trees and shrubs are also critical for cleaner air and water. Landscape plants are essential for providing food and cover for birds and other wildlife, even in urban areas. Trees can reduce air and noise pollution and provide screening from "sight" pollution.

In cities, suburbs, and rural areas, trees are clearly important in many ways. All of their many benefits add up to a more livable world for everyone.

Economic Value of Trees

- 100 million mature trees in U.S. cities (about 1.5 trees per single family home) can reduce annual energy use by 30 million KWh, saving consumers \$2 billion plus avoided investment in new power plants.
- By Planting 500,000 trees in Tucson, it is projected that airborne particulates will be reduced by 6,500 tons per year. This converts to a “particulate matter control” value of \$1.5 per year, or \$4.16 per tree per year.
- The tree canopy in an Ohio community reduces by 7 percent storm water runoff and its associated flood damage and water treatment costs. With only a modest increase in tree cover, the potential reduction is 12 percent.
- The amount of taxes contributed to community coffers throughout the U.S. due to the value added by privately owned trees on residential property is conservatively estimated at over 1.5 billion per year. The contribution of street and nearby park trees to property values would probably double or triple this figure.
- An analysis of 844 single family homes that sold in Athens, Georgia, revealed that houses with an average of five trees (regardless of species) in the front yard sold for 3.5 to 4.5 percent more than comparable houses without trees.
- A developer in Columbia, South Carolina, found that bare house lots sold much faster after he transplanted 2-to-3 inch diameter pines to the lots. He more than paid for his efforts by increasing the selling price by over \$1,500 per acre.
- A researcher showed photos of house lots to both professional appraisers and recent home buyers. By increasing the amount of tree cover in the photos, estimates of values rose 7 to 27 percent.
- In a classic study of 14 variables that might influence the price of suburban houses in Manchester, Connecticut, and Greece, New York, trees ranked sixth in importance in influencing the selling price of homes. They increased sale prices 5 to 15 percent.

How Valuable Are Your Trees

If you could bank the bucks the average 50-year-old tree has contributed to the environment during the course of its lifetime, you’d never have to play the lottery:

\$31,250 in oxygen
 \$62,500 in pollution control
 \$31,250 in soil fertility
 \$33,750 in recycling water as a humidifier

Mean Streets

An oak or maple capable of living 200 to 400 years in a forest survives...

40-80 years in a sheltered corner of a college campus
 25-30 years in healthy used city parks
 12-18 years along suburban street right-of-way
 3-4 years in downtown “planting pits”

Return on Your investment

A U.S. Forest Service study shows that real estate values could increase as much as 20 percent with the addition of well-managed trees. The council of Tree and Landscape Appraisers, in cooperation with the International Society of Arboriculture, roughly places the dollar value of a healthy, mature tree on a well-landscaped lot at:

10-inch diameter: \$1,729
14-inch diameter: \$3,388
18-inch diameter: \$5,588
26-inch diameter: \$11,682
30-inch diameter: \$15,554

6 Ways To Economically Use Trees to Increase Your property Value

1. Protect existing trees during construction.
2. Transplant trees from elsewhere on the property to the front lawn area or other spots where trees are fewer.
3. Plant seedlings on property now that is to be a building site in the future.
4. Strategically place a few large trees from a nursery to enhance aesthetics or increase energy efficiency.
5. Encourage the planting of street trees in newly developed areas and proper pruning in older trees.
6. Prune off any dead or dying branches in yard trees.



Healthy trees mean...

Healthy people

- 100 trees remove 53 tons of carbon dioxide/year
- 100 trees remove 430 pounds of pollutants/year...

Healthy communities

- Tree-filled neighborhoods:
- Lower levels of domestic violence
 - Are safer and more sociable...

Healthy environment

- 100 mature trees catch about 538,000 gallons of rainwater per year...

Homeowner savings

- Up to 20% on annual air-conditioning costs
- 2% on winter heating...

Better business

In tree-lined commercial districts, shoppers report:

- More frequent shopping
- Longer shopping trips
- Willingness to pay more for parking
- Willingness to Spend 12% more for goods...



100 healthy trees
(over 40 years)

	<u>YARD</u>	<u>PUBLIC</u>
BENEFITS	\$364,000	\$380,000
COSTS	\$ 92,000	\$148,000
NET BENEFIT:	\$272,000	\$232,000



1 healthy tree
(in its 20th years after planting)

Per Year

BENEFITS:	\$96
COSTS:	\$36
ANNUAL NET:	\$60

Higher Property Values

Each large front yard tree adds 1% to house sales price
Large specimen trees can add 10% to property values.

Landscape trees provide Benefits that far exceed the costs of planting and care over their lifetime.

Environmental and aesthetic benefits such as energy savings, stormwater runoff reduction, cleaner air, and higher property values are an average of **three times greater** than tree care costs.

The greatest benefits are:

ENERGY SAVINGS and PROPERTY VALUES

TREE SELECTION

Tree selection is one of the most important investment decisions a homeowner makes when landscaping a new home or replacing a tree lost to damage or disease. Considering most trees have the potential to outlive the people who plant them, the impact of this decision is one that can influence a lifetime. Match the tree to the site and both lives will benefit.

The question most frequently asked of tree care professionals is “what tree do you think I should plant?” Before this question can be answered, a number of factors need to be considered. Think about the following questions:

- Why is the tree being planted? Do you want the tree to provide shade, fruit, seasonal color, or act as a windbreak or screen? Maybe more than one of the above?
- What is the size and location of the planting site? Does the space lend itself to a large, medium, or small tree? Are there overhead or below ground wires or utilities in the vicinity? Do you need to consider clearance for sidewalks, patios, or driveways? Are there any other trees in the area?
- What type of soil conditions exists? Is the soil deep, fertile and well drained or is it shallow, compacted and infertile?
- What type of maintenance are you willing to provide? Do you have time to water, fertilize and prune the newly planted tree until it is established or will you be relying on your garden or tree service for assistance?
- Are there city ordinances or permits that need to be considered?

Asking and answering these and other questions prior to beginning the selection process will help you determine the **“right tree for the right place”**.

Tree Function

Trees make our environments more pleasant. Properly placed and cared for, trees increase the value of our real estate. A large shade tree proves relief from summer’s heat and when properly placed, can reduce summer cooling costs. An ornamental tree provides beautiful flowers, leaves, bark and fruit. Evergreens with dense, persistent leaves can be used to provide a windbreak, or a screen for privacy. A tree that drops its leaves in the fall slows the sun to warm a house in the winter. A tree or shrub that produces fruit can provide food for the owner and/or attract birds and wildlife into your home landscape. Street trees reduce the glare from pavement, reduce run off, filter out pollutants and add oxygen to the air we breathe. Street trees also improve the overall appearance and quality of life in a city or neighborhood.

Form and Size

Frank Lloyd Wright, the famous architect, once made the comment, “form follow function”. This is a good rule to remember when selecting a tree. Selecting the right form (shape) to complement the desired function (what you want the tree to do) can significantly reduce maintenance costs and increase the tree’s value in the landscape. When making a selection about form, also consider mature tree size. Trees can vary in height from several inches to several hundred feet. Select a form and size that will fit the planting space provided.

Depending on your site restrictions, there are hundreds of combinations of form and size to choose from. You may choose a small spreading tree in a location with overhead utility lines. You may select a narrow columnar form to provide a screen between two buildings. You may choose large case shaped trees to create an arbor over a driveway or city street. You may even determine that the site doesn’t have enough space for a tree of any kind.

Site Conditions

Selecting a tree that will thrive in a given set of site conditions is the key to long-termed tree survival. The following is a list of the major site conditions to consider before selecting a tree for planting.

- Soil conditions
- Exposure (sun and wind)
- Human activity
- Drainage
- Space Constraints
- Hardiness Zone

Soil Conditions. The amount and quality of soil present in your yard can limit planting success. In urban sites the top soil often has been disturbed and frequently is shallow, compacted, and subject to drought. Under these conditions, trees are continuously under stress. For species that are not able to handle these types of conditions, proper maintenance designed to reduce stress, is necessary to ensure adequate growth and survival. Many garden center will, for a minor charge, arrange to have soil samples taken from your yard. Samples are tested for fertility and ph. The tests will be returned with recommendations on ways to improve poor soil conditions with fertilizers or soil amendments (sand, peat moss, or manure) and will also help your local nursery or garden center recommend tree species that will do well in the soils found on your site.

Exposure. The amount of sunlight available will affect tree and shrub species selection for a particular location. Most woody plants require full sunlight for proper growth and flower bloom. Some do well in light shade, but few tree species perform well in dense shade. Exposure to wind is also a consideration. Wind can dry out soils causing drought conditions, cause damage to branches and leaves during storms, and actually uproot newly planted trees that haven't had an opportunity to establish root systems. Special maintenance may be needed to establish young trees on windy sites such as staking, or more frequent watering.

Human Activity. This aspect of tree selection is often overlooked. The reality of the situation is that people cause the top five statistics related to tree death. Soil compaction, under watering, over watering, vandalism, and the number one cause, planting the wrong tree, and planting it wrong, accounts for more tree deaths than all insect and disease related tree deaths combined.

Drainage. Tree roots require oxygen to develop and thrive. Poor drainage can remove the oxygen available to the roots from the soil and kill the tree. Before planting, dig some test holes 12" wide by 12" deep; in the areas you are considering planting trees. Fill the holes with water and time how long it takes for the water to drain away. If it take more than six hours, you may have a drainage problem. If this is true, ask you city forester for recommendations on how to correct the problem, or choose a different site.

Space Constraints. Many different factors can limit the planting space available to the tree; overhead or underground utilities, pavement, buildings, other trees, visibility. The list goes on and on. Make sure there is adequate room for the tree you select to grow to maturity, both above and below ground.

Hardiness. Hardiness is the plant's ability to survive in the extreme temperatures of the particular geographic region in which you are planning the tree. Plants can be cold hardy and/or for southern regions, heat tolerant. A map of hardiness zone ranges is included in the back of this pamphlet. Before you make your final decision, make sure the plant you have selected is "hardy" in your area.

Pest Problems

Insects and disease organisms affect almost every tree and shrub species. Every plant has its particular pest problems and the severity varies geographically. These may or may not be life threatening to the plant. You should select plants resistant to pest problems for your area. Your local ISA certified arborist, tree consultant, city forester, or extension agent could direct you to information relevant to problem species for your location.

Species Selection

Personal preferences play a major role in the selection process. Now that your homework is done, you are ready to select a species for the planting site you have selected. Make sure you utilize the information you have gathered about your site conditions, and balance them with aesthetic decision you make related to your personal preferences. The species must be suitable for the geographic region (hardy), tolerant to the moisture and drainage conditions of your soil, resistant to pests in your area, and picture of the tree you looked at in the magazine or book, was taken of a tree that is growing vigorously because it was planted in the right place. If your site conditions tell you the species you selected won't do well under those conditions, don't be disappointed when the tree doesn't perform in the same way.

If you are having difficulty answering any of these questions on your own, contact your local ISA certified arborist, tree care professional, city forester, or extension agent for assistance. Their assistance will help you to plant **the "right tree in the right place"**. It is better to get them involved early and make the right decision, to avoid having to call them later to ask them if you made the wrong decision.

AVOIDING TREE AND UTILITY CONFLICTS

Determining where to plant a tree is a decision that should not be taken lightly. Many factors should be considered prior to planting. When planning what type of tree to plant, remember to look up and look down to determine where the tree will be located in relation to overhead and under ground utility lines.

Often, we take our utility services for granted because they have become a part of our daily lives. For us to enjoy the convenience of reliable, uninterrupted service, distribution systems are required to bring utilities into our homes. These services arrive at our homes through overhead or underground lines. Overhead lines can be either electric, telephone, or cable television. Underground lines include these three, plus water, sewer, and natural gas. The location of these lines should have a direct impact on your tree and planting site selection. The ultimate, mature height of a tree to be planted must be within the available overhead growing space. Just as importantly, the soil area must be large enough to accommodate the particular rooting habits and ultimate trunk diameter of the tree. Proper tree and site selection will provide trouble-free beauty and pleasure for years to come.

BUYING HIGH-QUALITY TREES

What Determines Tree Quality?

A High Quality Tree Has:

1. An adequate-sized root ball. If possible, check to ensure there are enough sound roots to support healthy growth.
2. A trunk free of mechanical wounds and wounds from incorrect pruning.
3. A strong form with well-spaced, firmly attached branches.

A Low-Quality Tree Has:

1. Crushed or circling roots in a small root ball or small container.
2. A trunk with wounds from mechanical impacts or incorrect pruning.
3. A weak form where multiple stems squeeze against each other or where branches squeeze against the trunk.

Any of these problems alone or in combination with the others will greatly reduce the tree's chances for a long, attractive, healthy, and productive life.

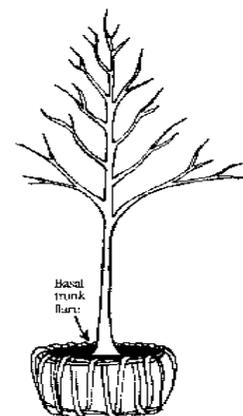
When buying a tree, inspect it carefully to make certain it does not have problems with roots, injuries, or form (remember **"RIF"**--it will help you remember **R**oots-**I**njuries-**F**orm).

Here are some details on potential problems, and some other considerations, that you should be aware of when buying a tree.

ROOTS

Roots on trees for sale fall in four categories:

1. Bare roots-no soil. Usually on small trees.
2. B&B (Ball and Burlap)-Roots are held in place by burlap or some other fabric.
3. Wire baskets
4. Container



Bare Root Stock

Bare roots should not be crushed or torn. The ends of the roots should be clean cut. If a few roots are crushed, re-cut them to remove the injured portions. Use a sharp knife and make straight cuts. Do not paint the ends. The cuts should be made immediately before planting and watering.

Root Balled Stock

You should be able to see the basal trunk flare. The flare is the spreading trunk base that connects with the roots. Root balls should be flat on top. Roots in soil in round bags often have many major woody roots cut or torn during the bagging process. The diameter of the root ball should be at least ten to twelve times the diameter of the trunk as measured 6" above the trunk flare. Roots should not be crushed or torn. After placing the root ball in the planting site, cut the cords and carefully pull away the burlap or other fabric. Examine any roots that protrude from the soil. If many roots are obviously crushed or torn, the tree will have severe growth problems. If only a few roots are injured, cut away only the injured portions. With care, break the soil ball and straighten roots so they can grow straight out from the tree.

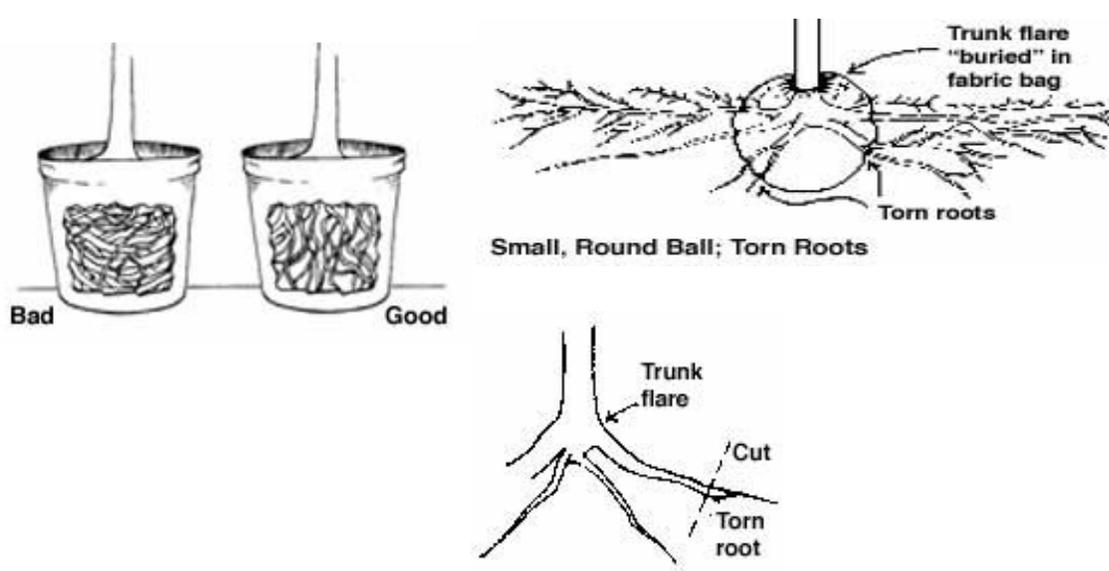
Wire Baskets

Place the basket into the planting site. Cut away all wire except what the ball is sitting on. Carefully, make sure roots are placed so they do not encircle the tree. Inspect exposed roots for injuries. If many roots are injured, the tree may have serious growth problems.

Container Stock

Roots should not twist or circle in the container. Remove the root ball from the container. Inspect the exposed larger roots carefully to see if they are twisting or turning in circles. Circling roots often girdle and kill other roots. If only a few roots are circling, cut them away with a sharp tool.

Trunk flare should be obvious. Be on alert for trees planted too deeply in containers, or tree "buried" in fabric bags. As with root-balled stock, you should be able to see the basal trunk flare with container grown plants.



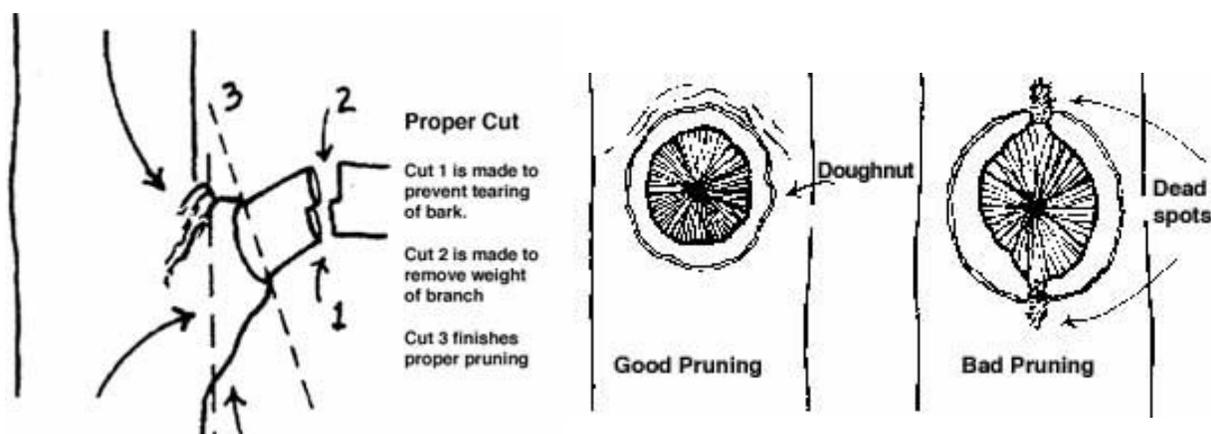
Injuries

Beware of injuries beneath trunk wraps. Trunk wraps may hide wounds, incorrect pruning cuts, and insect injuries. Never buy a tree without thoroughly checking the trunk. If the tree is wrapped, remove the wrap and inspect the trunk. Wrap can be used to protect the trunk during transit, but should be removed after planting.

Incorrect pruning cuts are major problems. Incorrect pruning cuts that remove or injure the swollen collar at the base of branches can start many serious tree problems, such as cankers, decay and cracks.

Incorrect pruning cuts that leave branch and leader stubs also start disease and defect problems. Do not leave stubs.

A correct pruning cut removes the branch just outside of the collar. A ring or “doughnut” of sound tissues then grows around the cut. Do not make cuts flush to the trunk. The closing tissues may form only to the sides of the flush cut. Trunk tissues above and below flush cut branches often die. When the heat of the sun or the cold of frost occur, cracks or long dead streaks may develop above and below the dead spots.



Form

Good, strong form, or architecture, starts with branches evenly spaced along the trunk. The branches will have firm, strong attachments with the trunk.

Squeezed branches signal problems. Weak branch unions occur where the branch and trunk squeeze together. As the squeezing increases during diameter growth, dead spots or cracks often begin to form below where the branch is attached to the trunk. Once this problem starts, the weak branch attachment could lead to branches cracking or breaking during mild to moderate storms.

When several branches are on the same position on the trunk, the likelihood of weak attachments and crack increases greatly. As the branches grow larger and tighter together, the chance for splitting increases.

Avoid trees with two or more stems squeezing together. As stems squeeze together, cracks often form down the trunk. The cracks could start from squeezed multiple leader stems, or where the two trunks come together.

If you desire a tree with multiple trunks, such as a birch clump, make certain the trunks are well separated at the ground line.

Remember, trunks do expand in diameter as they grow. Two trunks maybe slightly separated when small, but as they grow in girth, the trunks will squeeze together.

Look for early signs of vertical trunk cracks. Examine branch unions carefully for small cracks below the unions. Cracks are major starting points for fractures of branches and trunks. The small cracks could be present for many years before a fracture happens. Always keep a close watch for vertical cracks below squeezed branches and squeezed trunks.

If your tree has only a few minor problems, corrective pruning may help. Start corrective pruning one year after planting. Space the pruning over several years. Remove broken or torn branches at the time of planting. After a year, start corrective pruning by removing the branches that died at planting.

Trees Have Dignity Too

Most nurseries produce high-quality trees. When you start with a high-quality tree, you are giving that tree a chance to express its dignity for many years. Remember, **RIF**.

BRANCH ATTACHMENTS



Strong Branch Union



Weak Branch Union

Squeezed

TREE PLANTING INTRODUCTION

The most important aspect of proper tree planting is matching individual tree species to planting site. Major considerations include, overhead utility wires, tree border/boulevard width, and vehicular traffic. Soil type is another factor to be considered. Soils in the Richland Center area vary greatly from one part of town to the other. Clay soils hold moisture very well, which can be a problem during periods of high rainfall since root systems may be damaged. In areas where we know soil remains very wet, we plant tree species, which are more tolerant of the conditions. Areas in sandy soils will need more water and also species, which tolerate draught and dry conditions. Vandalism is also a consideration. In high vandalism areas, trees with stronger trunks and branches are selected.

The tree species list currently used in our planting program has been developed after many years of experience. Species diversity is a goal of the tree planting program. Dutch Elm Disease taught many communities a painful lesson about over-planting a single specie of tree. The American Elm dominated urban tree planting programs in many cities resulting in the majority of their tree population made up of one specie. Dutch Elm Disease has nearly eliminated American Elms from most cities. To prevent this from reoccurring, many cities are planting a variety of tree species with the goal of having a balanced tree population.

Once planting sites and tree species have been selected, the planting process begins. Proper planting techniques set the stage for a tree's overall health throughout its lifecycle.

Most tree health problems are related to the condition of the root system. Planting trees too deep is a very common mistake which can pre-dispose the tree to an early death. Tree trunks were not meant to be buried with soil and/or mulch. When this occurs basal rot, girdling roots, and trunk cankers may develop. The base of the trunk is similar to your neck. It doesn't take much damage to that area to seriously affect the overall health of the tree

NEW TREE PLANTING

Think of the tree you just purchased as a lifetime investment. How well your trees and investment grows depends on the type of tree and location you select for planting, the care you provide when the tree is planted, and follow-up care the tree receives after planting.

Planting the Tree

The ideal time to plant trees and shrubs is during the dormant season-fall after leaf drop or early spring before bud-break. Weather conditions are cool and allow plants to establish roots in the new location before spring rains and summer heat stimulate new top growth. However, trees properly cared for in the nursery or garden center, and given the appropriate care during transporting prevent damage; can be planted throughout the growing season. In either situation, proper handling during planting is essential to ensure a healthy future for new trees and shrubs. *Before you begin planting your tree, be sure you have had all underground utilities located prior to digging.*

If the tree you are planting is balled and burlapped, or bare rooted, it is important to understand that the tree's root system has been reduced by 90-95% of its original size during transplanting. As a result of the trauma caused by the digging process, trees will commonly exhibit what is known as "transplant shock" (TS). TS is indicated by slow growth and reduced vigor following transplanting. Proper site preparation before and during planting, coupled with good follow-up care will reduce the amount of time the plant experiences TS and will allow the tree to quickly establish in its new location. Carefully follow eight simple steps and you can significantly reduce the stress placed on the plant at the time of planting.

"IT'S BETTER TO PUT A \$100 TREE IN A \$200 HOLE THAN PUT A \$200 TREE IN A \$100 HOLE."

Tree Pruning

The Forestry Division is responsible for nearly 4,000 street and boulevard trees within the City of Richland Center. The majority of care we provide to these trees is in the form of pruning on a scheduled cycle. We produce a tree population which creates an anesthetic and climatic impact on our urban environment. Few realize that the value of urban trees extends far beyond their physical attributes. The trees we manage are valued at over 5 million dollars, and can be used as assets by the city. This value helps to justify the level of care we provide to our urban forest. There are three primary reasons associated with pruning trees on a regular basis:

- 1. Maintaining clearance above roadways and sidewalks. City ordinance requires a 14' height above all roads and 10' above the sidewalks.**
- 2. The removal of hazardous branches. These may consist of dead, broken, and otherwise weak branches which may fall, causing personal injury or property damage.**
- 3. Promoting good branch structure throughout trees. Good structural pruning promotes a strong central leader, encourages light penetration into the crown and reduces the trees wind resistance therefore increasing the service life of the tree. In contrast, improperly cared for tree's deteriorate rapidly and cost more to maintain.**

Proper structural pruning is based upon making the correct cut once a branch has been selected for removal. An important principle to remember is that each pruning cut wounds the tree. We use a system that relies on the branch bark ridge and trunk collar to determine where various cuts should be made. This method works with the trees natural defenses to ensure rapid closure of the pruning wound.

Tree pruning is more of an art than a science. An arborist must achieve his/her pruning objectives without sacrificing a tree's natural design.

The true test of an arborist's pruning skills lies in the ability to predict a tree's response to pruning. This ability to "think" like a tree sets the stage for how well the tree will grow until the next pruning cycle.

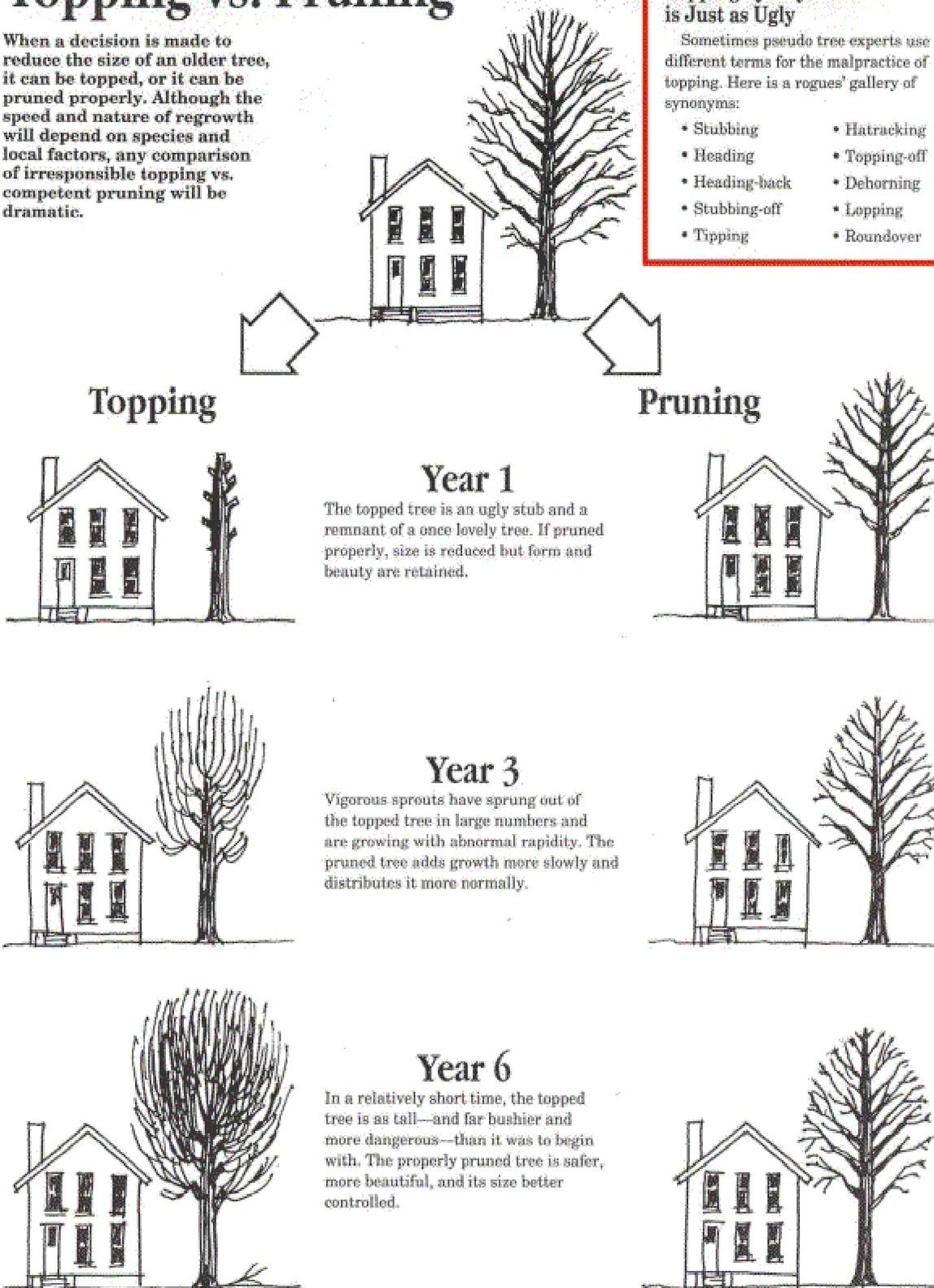
Topping vs. Pruning

When a decision is made to reduce the size of an older tree, it can be topped, or it can be pruned properly. Although the speed and nature of regrowth will depend on species and local factors, any comparison of irresponsible topping vs. competent pruning will be dramatic.

Topping by Any Other Name is Just as Ugly

Sometimes pseudo tree experts use different terms for the malpractice of topping. Here is a rogues' gallery of synonyms:

- Stubbing
- Heading
- Heading-back
- Stubbing-off
- Tipping
- Hatracking
- Topping-off
- Dehorning
- Lopping
- Roundover



DON'T TOP TREES!!!

Topping is perhaps the most harmful tree pruning practice known. Yet, despite more than 25 years of literature and seminars explaining its harmful effects, topping remains a common practice.

WHAT IS TOPPING? Topping is the indiscriminate cutting of tree branches to stubs or lateral branches that are not large enough to assume the terminal role. The most common reason given for topping is to reduce the size of a tree. Homeowners often feel that their trees have become too large for their property. People fear that tall trees may pose a hazard. Topping, however, is not a viable method of height reduction and certainly does not reduce the hazard. In fact, topping will make a tree more hazardous in the long term.

TOPPING STRESSES TREES-Topping often removes 50 to 100 percent of the leaf-bearing crown of a tree. Because leaves are the food factories of a tree, removing them can temporarily starve a tree. The severity of the pruning triggers a sort of survival mechanism. The tree activates latent buds, forcing the rapid growth of multiple shoots below each cut. The tree needs to put out a new crop of leaves as soon as possible. If a tree does not have the stored energy reserves to do so, it will be seriously weakened and may die. A stressed tree is more vulnerable to insect and disease infestations. Large, open pruning wounds expose the sapwood and heartwood to attacks. The tree may lack sufficient energy to chemically defend the wounds against invasion, and some insects are actually attracted to the chemical signals trees release.

TOPPING CAUSES DECAY-The preferred location to make a pruning cut is just beyond the branch collar at the branch's point of attachment. The tree is biologically equipped to close such a wound, provided the tree is healthy enough and the wound is not too large. Cuts made along a limb between lateral branches create stubs with wounds that the tree may not be able to close. The exposed wood tissues begin to decay. Normally, a tree will "wall off" or compartmentalize, the decaying tissues, but few trees can defend the multiple severe wounds caused by topping. The decay organisms are given a free path to move down through the branches.

TOPPING CAN LEAD TO SUNBURN-Branches within a tree's crown produce thousands of leaves to absorb sunlight. When the leaves are removed, the remaining branches and trunk are suddenly exposed to high levels of light and heat. The result may be sunburn of the tissues beneath the bark, which can lead to cankers, bark splitting, and death of some branches.

TOPPING CREATES HAZARDS-The survival mechanism that causes a tree to produce multiple shoots below each topping cut comes at great expense to the tree. These shoots develop from buds near the surface of the old branches. Unlike normal branches that develop in a socket of overlapping wood tissues, these new shoots are anchored only in the outermost layers of the present branches. The new shoots grow quickly, as much as 20 feet in one year, in some species. Unfortunately, the shoots are prone to breaking, especially during windy conditions. The irony is that while the goal was to reduce the tree's height to make it safer, it has been made more hazardous than before.

TOPPING MAKES TREES UGLY-The natural branching structure of a tree is a biological wonder. Trees form a variety of shapes and growth habits, all with the same goal of presenting their leaves to the sun. Topping removes the ends of the branches, often leaving ugly stubs. Topping destroys the natural form of a tree. Without leaves (up to 6 months of the year in temperate climates), a topped tree appears disfigured and mutilated. With leaves, it is a dense ball of foliage, lacking its simple grace. A tree that has been topped can never fully regain its natural form.

TOPPING IS EXPENSIVE-The cost of topping a tree is not limited to what the perpetrator is paid. If the tree survives, it will require pruning again within a few years. It will either need to be reduced again or storm damage will have to be cleaned up. If the tree dies, it will have to be removed. Topping is a high maintenance pruning practice, with some hidden costs. One is the reduction in property value. Healthy, well maintained trees could add 10 to 20 percent to the value of a property. Disfigured, topped trees are considered an impending expense. Another possible cost of topped trees is potential liability. Topped trees are prone to breaking and can be hazardous. Because topping is considered an unacceptable pruning practice, any damage caused by branch failure of a topped tree may lead to a finding of negligence in a court of law.

ALTERNATIVES TO TOPPING-Sometimes a tree must be reduced in height or spread. Providing clearance for utility lines is an example. There are recommended techniques for doing so. If practical, branches should be removed back to their point of origin. If a branch must be shortened, it should be cut back to a lateral that is large enough to assume the terminal role. A one-third the diameter of the limb being removed. This method of branch reduction helps to preserve the natural form of the tree. However, if large cuts are involved, the tree may not be able to close over and compartmentalize the wounds. Sometimes the best solution is to remove the tree and replace it with a species that is more appropriate for the site.

PRUNING YOUNG TREES

PROPER PRUNING IS ESSENTIAL IN DEVELOPING A TREE WITH A STRONG STRUCTURE AND DESIRABLE FORM. TREES THAT RECEIVE THE APPROPRIATE PRUNING MEASURES WHILE THEY ARE YOUNG WILL REQUIRE LITTLE CORRECTIVE PRUNING WHEN THEY MATURE

Keep these few simple principles in mind before pruning a tree:

- Each cut has the potential to change the growth of the tree. Always have a purpose in mind before making a cut
- Proper technique is essential. Poor pruning can cause damage that lasts for the life of the tree. Learn where and how to make the cuts before picking up the pruning shears.
- Trees do not heal the way people do. When a tree is wounded, it must grow over and compartmentalize the wound. As a result, the wound is contained within the tree forever.

Small cuts do less damage to the tree than large cuts. For that reason, proper pruning (training) of young trees is critical. Waiting to prune a tree until it is mature can create the need for large cuts that the tree cannot easily close. The city will do all “training” prunes on trees on the boulevard.

TREE LIST

RECOMMENDED TREES FOR PLANTING AS “CITY TREES” IN THE CITY OF RICHLAND CENTER

Trees can successfully be planted street side, if they are properly chosen for the site. Trees vary widely in physical characteristics, site requirements, and adaptability-always match the species to the site! Street side trees should meet these criteria:

- Tolerant of poor soil conditions such as compaction, poor drainage, droughtiness, poor fertility and temperature extremes (when evaluating soil characteristics, not that in urban/residential areas, soil within the rooting zone is often excavated and backfilled; topsoil can be minimal to nonexistent; undisturbed native soils is uncommon)
- Tolerant of reflected light and heat (off pavement and glass), wind, deicing salts, pollution, and other contaminants
- Relatively long-lived, strong-wooded, low-maintenance and pest free
- Growth and branching characteristics are such that the trees do not block views of stop signs, driveways, etc.
- Free of objectionable features (such as thorns or messy fruits)

Trees also vary widely in potential size. Consider amount of growing space above and below ground. Note restrictions such as overhead and buried utilities, storefront awnings and signs, adjacent trees and buildings, width of planting strip...choose alternatives to trees if the boulevard or tree lawn width is less than 4'. Allow adequate setback from sidewalks and curbs. Low spreading trees, very large trees, and trees with surface-rooting tendencies need wide planting strips.

TREES TO AVOID

Cottonwood (Populus deltoids)
 Box Elder (Acer negundo)
 Osage Orange (Maclura pomifera)
 Siberian Elm (Ulmus pumila)
 Honey Locust, except thorn less varieties (Gleditsia triacanthos)
 Catalpa (Catulpa speciosa)
 Silver Maple (Acer saccharinum)
 Weeping Willow (Salix)
 Black Willow (Salix)
 Evergreens or shrubs

NO fruit or nut bearing trees except for the following varieties:

- Service Berry (Amelanchier)
- Mountain Ash (Sorbus)
- Apple varieties known as ornamental or flowering crab varieties (Malus)
- Oaks (Quereus)
- Hickories (Carya)
- Callery Pears (Pyrus calleryana)
- Cherries (Prunis)
- Hackberry (Celtis occidentalis)

The following shrubs shall not be planted in the Boulevard or Terraces of the City:

- Multiflora Rose (Rosa)
- Buckthorn (Rhamnus cathartica)
- Autumn Olive (Elaeagnus umbellata)
- Purple loose strife

ADDITIONAL INFORMATION ON SELECTING TREES

- Growth Rates
 - Slow-less than one foot height growth per year
 - Medium-one foot to 1.5 foot growth per year
 - Fast-over 1.5 feet growth per year
- The forester can approve species not listed above
- What to consider before selecting a tree
 - Why is the tree being planted? Do you want shade, screening, to frame your house, spring flowers, fall color or simply something green?
 - How large will the tree ultimately become? Will the tree still fit into your yard when mature? Remember, trees grow in width as well as height.
 - Growth form-will the tree form an upright, round or spreading type crown?
 - Will the tree bear objectionable fruit? Or produce large seed or leaf crops that will litter the yard?
 - Is the wood of the tree strong enough to bear loads of ice and wind without breakage?
 - Is the tree relatively free of insects and disease?
 - Will the size of the tree fit with your architectural plans?
 - Will the tree add to the value of your property?
 - Consider your neighbors-Will the tree shade their roses or overhang their property?
- Problems that can be avoided by selecting the proper tree
 - Damage homes and property
 - Personal injury
 - Cause electrical problems
 - Break sidewalks and lift foundations
 - Cause storm damage
 - Damage underground utilities
 - Cause dangerous screening of traffic
- A permit must be filled out to plant any trees classified as “city trees” per city ordinance. All trees planted and classified as “city trees” become the property of the City of Richland Center.

COMMON TREE DISEASES/PESTS

Gypsy Moth Disease

The gypsy moth was brought to the United States in 1869 in a failed attempt to start a silkworm industry. Over the past century, the gypsy moth has become a major pest in the northeastern United States and southeastern Canada.

Damage

Tree damage is caused by the insect larvae, or caterpillars, which emerge from their eggs beginning in early spring and continuing through mid-May. The larvae move to the leaves of trees and begin to eat, mostly at night.

Trees Susceptible

The gypsy moth has a preference for the leaves of deciduous hardwood trees such as maple, elm, and particularly oak. They also can feed on apple, alder, birch, poplar, and willow trees. As it grows it will also attack evergreens like pines and spruces. Gypsy moths appear to dislike ashes, sycamores, butternuts, black walnuts, dogwoods and balsams. However, during heavy infestations, competition for food will drive the caterpillar to attack almost any tree or shrub.

Control

The gypsy moth can be combated at the egg, caterpillar, and adult moth stages. Egg masses, when discovered, should be burned or soaked in water or kerosene. It is also a good idea to wrap your trees with Tree Help Bug Bands, which prevents the caterpillars from reaching the foliage from the ground. Infested trees should also be wrapped to prevent any spreading. If the moths have emerged, use a Gypsy Moth Trap, which will attract and kill the moths.

Dutch Elm Disease

Dutch elm disease is a wilt disease first found in the United States in Ohio in 1930. It has now spread throughout North America and has destroyed over half the elm trees in the northern United States.

Damage

Dutch elm disease is caused by the fungus *Ophiostoma ulmi*, which is transmitted by two species of bark beetles or by root grafting. After the disease is contracted, spores rapidly reproduce and spread toxins throughout the tree. It can kill a tree within a few weeks or it can kill it gradually over a period of years. The fungus blocks the water-conducting or vascular system of the tree preventing water and minerals from reaching the branches and leaves. The leaves wilt and eventually the tree dies.

Trees Susceptible

The fungus *Ophiostoma (Ceratosystis) ulmi* attacks various species of elm.

Control

There is no way to eliminate Dutch elm disease once it begins. Control efforts focus on two areas – prevention and treatment. The spread of Dutch elm disease can be effectively checked with a stringent sanitation program involving surveillance, timely pruning and proper disposal of infected wood. Directly attacking the elm bark beetle population can be done but is less effective because only a small percentage of the beetles are carriers of the disease. Also, you can improve the soil with mycorrhizal fungi and fertilizer, which boosts a tree's strength.

Verticillium Wilt Disease

Verticillium Wilt is common in many soils and affects several hundred herbaceous and woody plant species.

Damage

Verticillium wilt is caused by the soil-borne fungi, *Verticillium albo-atrum* and *Verticillium dahliae*. The fungus first enters the roots through wounds, but if the tree is weak, it can actually penetrate the root. When a plant dies, the fungus enters a resting state, producing structures called “microsclerotia”. These structures can be easily transported from place to place when trees are transplanted. In dry conditions, these microsclerotia can be carried by the wind to infect new areas. Once inside the root, the fungus reproduces and spreads through the tree’s water-conducting tissue. As it spreads, it causes tissue damage and clogs this tissue, preventing water from reaching the outer branches. Without moisture and necessary nutrients, these outer limbs wilt and die.

Trees Susceptible

The fungus affects more than 300 types of plants throughout the world. It affects anything from raspberries and tomatoes, to maples and elms. Although the disease occurs in naturally forested areas, it is found mostly in landscape plantings. These trees are most susceptible to Verticillium: Ash, Azalea, Japanese Barberry, Korean Boxwood, Ohio Buckeye, Catalpa, Kentucky Coffee tree, Cork tree, Dogwood, Elder, Elm, Honeysuckle, Lilac, Linden, Black Locust, Magnolia, Maple, Oak, Plum, Redbud, Rose, Russian Olive, Serviceberry, Smoke tree, Spirea, Sumac, Viburnum, and Wigela.

Control

If Verticillium wilt is diagnosed at a particular site, a tree resistant to the disease should be replanted in the site. A few common examples of plants typically free of this disease include: crabapple, mountain ash, beech, birch, boxwood, dogwood, sweet gum, hawthorn, holly, katsuratree, honeylocust, oak, pear, London planetree and sycamore, rhododendron, willow, and zelkova. Also, just keep your plants as healthy as possible by using proper transplanting practices, proper water management to avoid droughts, a good fertility program, and pruning out dead branches are all good plant health care management practices.

Oak Wilt Disease

Oak wilt has been found in 21 states, with considerable damage occurring in the Midwest states. It was first recognized as an important disease in 1944 in Wisconsin where, over half the oaks have been killed.

Damage

Oak wilt is caused by a fungus, *Ceratocystis fagacearum*. The fungus invades water-conducting vessels and induces the formation of balloon-like projections called tyloses, which also plug the vessels. As water movement within the tree is slowed, the leaves wilt and drop off the tree.

Trees Susceptible

Oaks in the red oak group are susceptible to Oak wilt disease including black oak, northern red, northern pin and others with pointed leaf edges. Oaks in the white oak group including white oak, swamp white, burr, and others with rounded leaf edges are less susceptible.

Control

There is no known way to save an oak tree infected by the oak wilt fungus. The only way to maintain healthy trees is through prevention. Early detection and prompt removal of dead or dying trees and breaking root grafts between diseased and healthy trees are essential. It is also important to destroy the infected trees by being cut down and burned. To slow down or prevent root transmission of the fungus, root connections between diseased and healthy trees should be severed.

Sudden Oak Death

Sudden Oak death was first noticed in 1995. This disease has been confirmed in the coastal areas north and south of San Francisco, and in a relatively remote location in southwestern Oregon.

Damage

Sudden oak death is caused by a pathogen called *Phytophthora ramorum*. The pathogen is not a fungus or a bacterium, but a member of a unique group of organisms called Oomycetes. Oomycetes share some characteristics of fungi but are biologically different.

Trees Susceptible

Sudden oak death is a serious plant disease that attacks many types of plants and trees common to the Pacific Northwest, including azaleas, big leaf maples, huckleberry, California bay laurel, camellia, myrtles, honeysuckle, Pacific madrone, Douglas fir, rhododendrons, and viburnum.

Control

There currently are no known cures or preventatives for Sudden Oak Death. The use of any pesticide to control Sudden Oak Death is experimental at this time. Keep your trees healthy and avoid spreading the disease to uninfested areas.

Emerald Ash Borer (EAB)

In the summer of 2002, scientists detected a new exotic insect in six southeast Michigan counties - Livingston, Macomb, Monroe, Oakland, Washtenaw and Wayne. This pest, known as the Emerald Ash Borer, is an invasive species originally from Asia and previously unknown in North America that attacks ash trees. To date, it has killed or damaged millions of ash trees in Michigan. It has been detected in Ohio, Indiana, Illinois and Windsor, Ontario, Canada.

Damage

The Emerald ash borer feed in the cambium between the bark and wood, producing galleries that eventually girdle and kill branches and entire trees. In its native Asia, EAB attacks and kills ash trees that are already weakened by disease, environmental stress, or mechanical damage. However, in North America, EAB attacks and kills healthy trees as well. This devastation is possible because, unlike Asian ash trees, our native trees have no built-in resistance to EAB. To make matters even worse, many of the predators, parasites, and diseases that keep EAB populations low in Asia are not present in North America.

Trees Susceptible

Emerald ash borers attack all species of North American ash trees. There are an estimated 7.5 billion ash trees in the United States with about 150 million ash trees in Indiana forests. Many more ash trees can be found in Indiana's urban area where ash trees make up to 40% of the urban forest composition. All North American ash trees, from the smallest saplings to giant trees are vulnerable to attack by EAB. Mountain ash is not a true ash tree and is not attacked by EAB.

Control

There are many things you can do now to lessen the likelihood of EAB's becoming established in the United States. Don't move firewood. EAB larvae can survive hidden under the bark of firewood. Also, visually inspect your trees. Early detection is a key factor. If trees display any sign or symptom of EAB infestation, contact your State agriculture agency. Another thing you can do is spread the word about EAB. Talk to your neighbors, friends, and coworkers and get them onboard. Public awareness and education is an ongoing process; support the effort. Make sure you understand the regulations that govern your own State and those States and Provinces you may visit.

There is excellent information about these diseases and pests available.

Some of these include:

1. **World Wide Web** - go to your search engine and type in the pest or disease you are interested in.
2. **Wisconsin DNR website – www.dnr.state.wi.us**
3. **City Forestry Department at 646-4612**
4. **Other sources**
 - a. **USDA**
 - b. **Richland County Extension Office**

RAIN GARDENS

YOUR PERSONAL CONTRIBUTION TO CLEANER WATER

Home owners in many parts of the country are catching on to rain gardens-landscaped areas planted to wildflowers and other native vegetation that soak up rain water, mainly from the roof of a house or other building. The rain garden fills with a few inches of water after a storm and the water slowly filters into the ground rather than running off to a storm drain. Compared to a conventional patch of lawn, a rain garden allows about 30% more water to soak into the ground

Why are rain gardens important? As cities and suburbs grow and replace forests and agricultural land, increased stormwater runoff from impervious surfaces becomes a problem. Stormwater runoff from developed areas increases flooding; carries pollutants from streets, parking lots and even lawns into local streams and lakes; and leads to costly municipal improvements in stormwater treatment structures.

By reducing stormwater runoff, rain gardens can be a valuable part of changing these trends. While an individual rain garden may seem like a small thing, collectively they produce substantial neighborhood and community environmental benefits. Rain gardens work for us in several ways:

- Increase the amount of water that filters into the ground, which recharges local and regional aquifers
- Helping protect communities from flooding and drainage problems
- Helping protect streams and lakes from pollutants carried by urban stormwater-lawn fertilizers and pesticides, oil and other fluids that leak from cars, and numerous harmful substances that wash off roofs and paved area.
- Enhancing the beauty of yards and neighborhoods
- Providing valuable habitat for birds, butterflies and many beneficial insects

A very good manual on Rain Gardens are available at Richland Center City Hall, 450 S. Main, or information can be obtained by calling 647-4612. The City's Parks and Grounds Department will be happy to help you with this very beneficial environmental concept.

TREE CARE BY SEASON

While some may believe that summer is the time to care for trees, year-round attention is necessary to help maintain our leafy friends as healthy assets, season after season.

FALL

Planting: Autumn is an excellent time to plant most trees and shrubs. Planting success is generally high during this time. Roots will continue to grow until the ground freezes, but wait to plant until after the leaves have dropped.

Fertilizer: Contact your local University of Wisconsin-Extension office, and have your soil tested. If a deficiency exists, use a slow release fertilizer in early autumn. Fertilizer absorption by the trees is highest in fall, when soil is warm and moisture is readily available.

WINTER

Pruning: Winter is an ideal time to prune most trees. Deciduous trees (trees that lose their leaves) are easier to prune when the leaves are off, as branch structure is clearly visible and you can better visualize the impact of removing a given branch.

Pruning during the winter is especially important for trees susceptible to insect/disease problems that are active during the growing season. For example, oak trees should not be pruned from bud break until leaves are fully expanded (April 15 to July 1) to reduce spread of oak wilt.

Flowering ornamental or fruit trees that set their flower buds on the current season's growth are also best pruned in the late winter/early spring before shoot growth begins.

Hazard Assessment: Winter is an excellent time to examine large shade trees since the bare tree affords a clear view of the trunk and branch structure. Examine the tree trunk for signs of abnormal growth, cracks or fungal fruiting bodies (mushrooms). Inspect branch junctions for cracking. If in doubt, call a certified arborist or city forester to conduct a thorough tree hazard evaluation.

SPRING

Planting: Early spring (before the trees have leafed out) is also a good time to plant trees. If possible, avoid planting in extremely hot, dry and windy days to reduce water stress on the trees.

Tree Wrap: If the tree was wrapped for winter protection, remove tree wrap. This wrap interferes with photosynthesis, which can occur in the bark of young trees.

Construction Damage Protection-Construction season is on its way. If home construction or additions are on your "to do" list. Protect your trees from soil compaction and grade change before the bulldozer arrives. Fence and mulch out to the drip line to safeguard the tree's sensitive root system.

Insect and Disease Problems-Contact your local UW-Extension office or city forester for diagnosis assistance and treatment recommendations.

SUMMER

Irrigation: It is important to insure that newly planted trees are receiving adequate water (about one inch per week) throughout the summer. If supplemental irrigation is required, it is best to apply water slowly.

Pruning: Summer is a good time to perform light pruning on most shade trees. Low-hanging branches may be thinned or reduced in length to decrease end weight and lift the canopy. Care should be taken not to remove more than one-quarter of the total foliage when pruning live wood from a tree. In summer, dead wood is easy to identify and should be removed from the tree. Removing dead limbs is important, as they can harbor insects and disease-causing pathogens.

Flowering ornamental or fruit trees that flower on shoots produced the previous growing season (crab-apple, magnolia, serviceberry and lilac) should be pruned in summer, immediately after the blossoms have dropped, so that flower display is not reduced.

Storm Damage: If limbs break prune back to the trunk or to a side branch. A clean cut (outside the branch collar) is important to minimize decay.

Wounds should not be treated with tree paint or any other substance. Research indicates it's best to let the wound dry naturally. However, pruning wounds made between April 15 and July 1 to repair storm-damage oaks should be treated immediately with pruning sealer.

If a tree has been struck by lightning, wait at least one month before doing any major repair work. Take care of immediate hazards, and wait to see if the tree will survive before performing other work.

RECYCLING TREE BRANCHES

Branches removed, as part of urban forest maintenance need not end up in the landfill.

Here are some options:

Fuel: sold or made available to residents

Compost: chipped limbs can be added to a compost pile

Mulch: chipped wood makes an excellent mulch

CHIPS FROM DUTCH ELM DISEASED OR OAK WILT INFECTED TREES CAN BE USED AS A MULCH. THE FUNGUS DRIES OUT QUICKLY WHEN THE WOOD IS CHIPPED OR SHREDDED. THERE ARE, HOWEVER, SOME PATHOGENS THAT MAY SURVIVE THE CHIPPING PROCESS, BUT SHOULD NOT BE A HAZARD TO THE NEW TREE. THE DEGREE TO WHICH SOIL PH (ACIDITY IS INFLUENCED BY TYPE OF MULCH IS NEGLIGIBLE). YOU ARE NOT GOING TO LOWER PH SIGNIFICANTLY BY APPLYING PINE BARK OR PINE NEEDLE MULCH.

Keep Your Property Fire Safe



In all regions of the country, homes in wooded areas are destroyed each year by wildfires. Keep your home and neighborhood safe by:

- Breaking up solid areas of evergreens
- Asking nursery professionals about fire-resistant shrubs to use in landscaping
- Keeping trees well-watered, regularly pruned and in healthy condition
- Preventing build-up of leaves and old branches
- Making sure your roads and bridges allow access for heavy fire fighting equipment
- And of course... **THINK** prevent forest fires!

For more information about fire-safe construction in wooded areas, write for a copy of Wildfire Strakes Home (National Fire Protection Assoc. Fire Prevention Div. Batterymarch Park, Quincy, MA 03369)

RECYCLING LEAVES

In a forest, nature's way of leaf disposal is recycling through a slow but essential process on the forest floor. The result is a rich, spongy topsoil. It is home for worms and other organisms that help the process, and it serves the future forest by soaking up water and providing nutrients and a good growing medium for new seedlings.

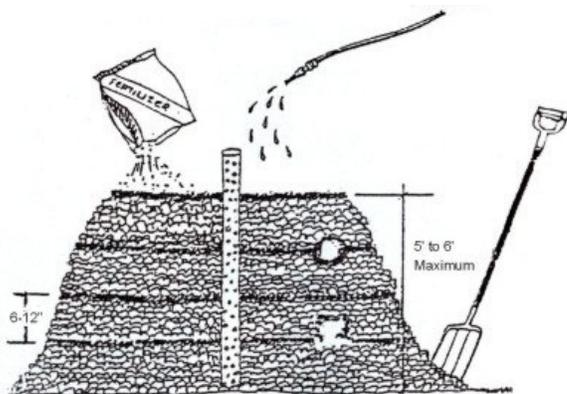
Composting is the same process speeded up. It is simply the biological decomposition of organic wastes under controlled conditions. With a little work and in a space that your yard allows, large quantities of leaves, garden refuse, twigs and grass can be reduced into compost in as short of time as one to three months. You know the compost is ready when your pile becomes a dark, granular mass that resembles peat moss and the individual ingredients are no longer recognizable. Although the end product is not a fertilizer, compost does offer these benefits:

An inexpensive way to dispose of leaves without using landfills or polluting the air

When added to the garden or tree-planting site, compost improves the physical properties of the soil for better root growth by:

- lightening up clays or enhancing soil aggregation in sands.
- decreasing soil crusting or racking.
- improving water infiltration and retention.
- improving aeration.

HOW TO MAKE A COMPOST PILE



1. Place your compost pile on a soil of good drainage characteristics, or a layer of limbs. Boards, chicken wire or other side frames can help hold the pile together if space is limited.
2. Build successive layers of leaves (except walnut leaves) and other green matter. For more rapid decomposition, chop and mix components together.
3. Cover each layer with 1-2 inches of soil (adding manure makes it even better).
4. Sprinkle each layer with a balanced fertilizer (without weed killer) at a rate of $\frac{1}{2}$ pound per 10 square feet. (For garden use, add $\frac{1}{2}$ - 1 pound of lime per 10 square feet.)
5. During dry weather, keep the pile moist. In winter, cover the top with black plastic to insulate and shed excess water.
6. For aeration, place a vertical drainpipe, or a post that can be wiggled occasionally.
7. After the pile is built, turn it with a pitchfork after about 6 weeks. This will aerate and mix the pile, and keep the bacterial processes from overheating

SAMPLE OF PERMIT FORM CITY OF RICHLAND CENTER DIVISION OF PARKS-REC-GROUNDS-FORESTRY

TREE WORK PERMIT APPLICATION (NO CHARGE) REQUIRED FOR ALL WORK ON "CITY TREES"

This permit must be filled out at least two working days prior start of work
Work cannot be started until permit is issued

This permit is subject to all rules and regulations pertaining to Chapter 301,
of the Codified Ordinances of the City of Richland Center, WI.

Application Number _____ Date _____

Applicant Name: _____

Address _____ City _____ State _____ Zip _____

Owner _____ Renter _____ Night Phone _____ Day Phone _____

Person(s) or Company to do the work: _____

Address and phone of the above _____

Request to: Remove _____ Plant _____ Trim or Prune _____ Other (describe below) _____

Briefly describe what work is to be done. If trees are to be planted, list species, variety, and quantity.

I agree that no work will be done until I receive this permit signed by the City Forester or the Assistant Forester

Applicant's signature _____ Date _____

It is the responsibility of the applicant to contact Diggers Hotline. The verification number must be presented to the forester before a permit will be given. _____

FOR CITY USE ONLY

This permit has been: Denied ____ For the following reasons: _____

Accepted ____ With the following conditions _____

Work can start on _____

Signed by Forester _____ Date _____

