City Manager Notes

City Tree Plan, as Proposed by City Manager to Planning Commission on 10/25/2016:

The following Tree Plan, if approved, would revoke and replace any prior Tree Plans for the City of West Branch:

TREE PLAN FOR THE CITY OF WEST BRANCH

The following plan (hereinafter referred to as the “City Tree Plan”) sets forth guidelines and requirements for the care, preservation, pruning, planting, replanting, removal, or disposition of trees and shrubs in parks, along streets, and in other public areas within the City of West Branch. This plan is developed in accordance with City ordinance § 153.09(C) and constitutes the official comprehensive City Tree Plan for the City of West Branch.

In accordance with § 153.09(D), under the City Tree Plan, the City Planning Commission shall serve as the City Tree Board, and shall consider, investigate, make findings, report, and recommend upon any special matter or question coming within the scope of its work as the City Tree Board. The City Tree Plan itself, in accordance with § 153.09(C), shall be developed by the City Manager, or his or her designee, and presented to the City Council for their acceptance/approval.

Planning Commission’s Duties as “City Tree Board”

Pursuant to § 153.09(E), the Planning Commission shall recommend to the City Council a list of “Street Tree Species to be Planted,” as well as a “List of Prohibited Street Trees.” Both lists are required to contain small trees as well as large trees.

City Council’s Role Regarding City Tree Plan

Once the Planning Commission makes its recommendations regarding its lists of “Street Trees Species to be Planted” and its “List of Prohibited Street Trees,” the Planning Commission’s recommendation is shared with the City Council, and the City Council shall determine by resolution the final lists that formally become a part of the official City Tree Plan pursuant to § 153.09(E).

City Manager’s Recommendation to Planning Commission Regarding Tree Lists

Thus far, the City Manager and her designee, GPSCR Coordinator Kelli Collins, have reached out to local tree expert Dave Evergreen of the West Branch Greenhouse to get his expert opinion on which trees would be best to recommend to be planted in the City, and which we be best to prohibit—based on many factors, including hardiness, disease and pest susceptibility, and impact of root structure and canopy on utilities such as power lines and water and sewer pipes. Bearing all of these considerations in mind, as well as the recommendations made in the Consumer’s Energy “Right Tree, Right Place” guidelines, Mr. Evergreen made the following recommendations, which were adopted by the City Manager as her own and were recommended to the City Planning Commission for official consideration:
“Street Tree Species to be Planted”:

*Small:*
Flowering Crabapple
Cornelian Dogwood
Flowering Dogwood
Hawthorn
Japanese Tree Lilac
Tartarlan Maple
Hybrids Serviceberry

*Large:*
American Beech
Eastern Red Cedar
DED Resistant Cultivars Elm spp.
Ginkgo
Littleleaf Linden
Silver Linden
Red Maple
Sugar Maple
Callery Pear
Disease Resistant Elms (Discovery, Prairie Expedition, Cathedral, St Croix, or Princeton)
Brandywine Maples
Sensation Box Elders

“The List of Prohibited Street Trees”:
Nannyberry
Paw Paws
Mugo Pines
Poplars
Willows
Horse Chestnut (nut bearing)
Tree of Heaven
Catalpa

Elms that are not resistant to Disease (i.e., all species except those specifically allowed)

Maples (except Brandywine Maples)

Box Elders (except Sensation Box Elders)

While presenting this proposed Plan to the Planning Commission, the City Manager noted that along with Mr. Evergreen’s expert recommendations, the Consumer’s Energy “Right Tree, Right Place” program guidelines, were highly influential in the development of proposed Tree Plan, as the City regularly utilizes the Consumer’s Energy Tree Grant, which requires grant recipients to comply with the “Right Tree, Right Place” requirements in order to maintain grant funding.

The City Manager also recommended to the Planning Commission that in regards to next year’s Consumer’s Energy Tree Grant process, the Planning Commission should consider being more actively engaged in the process of site plan selection for the placement of tree plantings. It was the general consensus of the Planning Commission to move forward with the idea for next year.

City Manager’s Written Plan for the Care, Preservation, Pruning, Planting, Replanting, Removal, or Disposition of Trees and Shrubs in the Parks, Along Streets, and in Other Public Areas

The City Manager also indicated to the Planning Commission that she had developed a compilation of various expert created publications on the subject, from resources such as the MSU Extension Office, and once the Planning Commission has made its final recommendation regarding the final City Tree Plan lists, the City Manager would combine said lists with the compilation she created and submit the entire proposal as a final package to the City Council for their review and vote. As such, the “Written Plan” heretofore mentioned is attached to this document.

Final Findings of Planning Commission Regarding Proposed Tree Plan

After reviewing the Tree Plan recommended by the City Manager, the Planning Commission voted to recommend that the City Council approve the Tree Plan as presented, with the following changes:

Remove “Sensation Box Elders” from the list of “Street Trees to be Planted”

&

Remove the phrase “(except Sensation Box Elders)” from the “List of Prohibited Street Trees”

--[So as to have the effect of prohibiting ALL box elder trees from the City]

The City Manager is in no way opposed to the findings of the Planning Commission, and agrees with the Planning Commission proposed changes to the originally proposed Tree Plan. As such, the City Manager has amended her originally proposed Tree Plan to align with the Planning Commission’s recommendations to Council.

Consequently, should the City Council agree with the recommendations of the Planning Commission and want to adopt the “City Tree Plan” as recommended, as well as the City Manager’s “Written Plan for the Care, Preservation, Pruning, Planting, Replanting, Removal, or Disposition of Trees and Shrubs in the Parks, Along Streets, and in Other Public Areas,” the City Council should, pursuant to City ordinance § 153.153.09(E), enact a Resolution determining the final lists that formally become a part of the official City Tree Plan. Should Council desire to so act, the following proposed resolution has been prepared:
RESOLUTION 16-18

A resolution to determine the final lists that shall formally become a part of the official “City Tree Plan” pursuant to City Ordinance § 153.09(E), along with the “Written Plan for the Care, Preservation, Pruning, Planting, Replanting, Removal, or Disposition of Trees and Shrubs in the Parks, Along Streets, and in Other Public Areas,” developed by the City Manager and hereby approved by Council pursuant to City Ordinance § 153.09(C).

Whereas, the City of West Branch has enacted an ordinance pertaining to “TREES”, set forth at § 153.09; and

Whereas, pursuant to §153.09 (D)-(E) the Planning Commission shall act as the “City Tree Board” and recommend to the City Council a “list of street tree species either allowed to be or prohibited from being planted[,]” and that “[s]aid list shall contain small trees, large trees and prohibited street trees”; and

Whereas, pursuant to §153.09(C) it “shall be the responsibility of the City Manager or his/her designee from time to time, to study, investigate, counsel and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along streets, and in other public areas; and

Whereas, § 15.09(C) further states that “[s]uch plan will be presented to the City Council and upon their acceptance and approval shall constitute the official comprehensive City tree plan for the City of West Branch[,]” and

Whereas, the City Manager has consulted expertly developed written materials on relevant subjects and developed a written plan, as is contemplated in § 153.09(C), and presented said plan to the City Council; and

Whereas, the written plan contemplated in § 153.09(C), dated 11/04/2016, has been reviewed by the City Council and is hereby approved by the City Council, with a true copy of said written plan to be attached to this resolution and made a part of the minutes; and

Whereas, the City Manager’s designee has consulted area tree experts as well as expertly developed written materials on trees and tree placement to develop recommended tree lists, including a list of “Street Tree Species to be Planted” as well as a “List of Prohibited Street Trees;” and

Whereas, the City of West Branch Planning Commission has reviewed said recommended lists and made their own findings and recommendations; and

Whereas, the West Branch City Council has reviewed and is in agreement with the findings and recommendations of the West Branch Planning Commission, as well as the final recommendations of the City Manager to accept the two lists ultimately recommended by the West Branch Planning Commission; and

Now, Therefore, be it resolved that the West Branch City Council hereby adopts a Written Tree Plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along
streets, and in other public areas dated 11/04/2016 pursuant to City Ordinance § 153.09(C), with this Written Tree Plan revoking and replacing any previously existing Written Tree Plans; and

Now, Therefore, be it further resolved that the West Branch City Council hereby also adopts the following Tree Lists, pursuant to City Ordinance § 153.09(E), with these written Tree Lists revoking and replacing any previously existing Tree Lists:

“Street Tree Species to be Planted”:

Small:
Flowering Crabapple
Cornelian Dogwood
Flowering Dogwood
Hawthorn
Japanese Tree Lilac
Tartarlan Maple
Hybrids Serviceberry

Large:
American Beech
Eastern Red Cedar
DED Resistant Cultivars Elm spp.
Ginkgo
Littleleaf Linden
Silver Linden
Red Maple
Sugar Maple
Callery Pear
Disease Resistant Elms (Discovery, Prairie Expedition, Cathedral, St Croix, or Princeton)
Brandywine Maples

“List of Prohibited Street Trees”:

Nannyberry
Paw Paws
Mugo Pines
Poplars
Willows
Horse Chestnut (nut bearing)
Tree of Heaven
Catalpa
Elms that are not resistant to Disease (i.e., all species except those specifically allowed)
Maples (except Brandywine Maples)
Box Elders

Yes –
No –
Absent –
Motion: □ carried  □ failed

Adopted: November 7, 2016
Pursuant to City Ordinance §153.09(C) it "shall be the responsibility of the City Manager or his/her designee from time to time, to study, investigate, counsel and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along streets, and in other public areas. Section 15.09(C) further states that "[s]uch plan will be presented to the City Council and upon their acceptance and approval shall constitute the official comprehensive City tree plan for the City of West Branch."

Due to this directive, City Manager Heather Grace has consulted various expertly developed written materials on relevant subjects and created a compilation of the most relevant of these and developed said compilation into the written plan that is contemplated in § 153.09(C), with this particular document merely serving as an explanatory "cover letter" or "user guide" of sorts.

On that subject, it should be noted that those looking to select and plant trees within the City of West Branch should begin their endeavor by making list of the following checklist, along with the "compilation"/"tree plan" that is attached to this "use guide" document:

1. Consult all City Ordinances, including § 153.09 [paying especially close attention to the spacing and distance requirements in sections (F)-(H) of §153.09].

2. Consult the City Tree "Lists" of both "Street Tree Species to be Planted" and "Prohibited Street Trees"

3. Consult with the "City Tree Board" [aka, the City of West Branch Planning Commission]

4. Call "MISS DIG" at 811 before digging any holes to plant trees

5. Make sure that you have permission from the owner of the property where you plan to plant the tree, including permission from the City of West Branch if you plan to plant a tree within City owned parks or City road right of ways, etc. [contact City Hall for more information]
Table of Contents for Compilation of Expertly Developed Written Materials:

(A) "Table 1. Percent probability of temperate of 32 degrees F or lower occurring on or after date given;" by Michigan State Climatologist Office

(B) "Protecting trees and shrubs against winter damage;" by Bert T. Swanson and Richard Rideout

(C) "Fertilizing Trees and Shrubs: Some FAQ's;" by Bert Cregg

(D) "Caring for your established shade trees;" by E.R. Hasselkus

(E) "Storm damage to landscape trees: prediction, prevention, treatment;" by Gary R. Johnson and Ben Johnson
Table 1. Percent probability of temperature of 32°F or lower occurring on or after date given.
Source: Michigan State Climatologist Office

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Protecting trees and shrubs against winter damage

Bert T. Swanson and Richard Rideout

Minnesota's harsh climate is often responsible for severe damage to landscape plants. Winter sun, wind, and cold temperatures can bleach and desiccate evergreen foliage, damage bark, and injure or kill branches, flowerbuds, and roots. Snow and ice can break branches and topple entire trees. Salt used for deicing streets, sidewalks, and parking lots is harmful to landscape plantings. Winter food shortages force rodents and deer to feed on bark, twigs, flowerbuds, and foliage, injuring and sometimes killing trees and shrubs. All is not bleak, however, as landscape plants can be protected to minimize some of this injury.

Cold damage

Cold temperatures can damage plants in several ways. Plants that are not hardy in Minnesota will be killed or injured during the winter unless protected in a microclimate. Plants that normally grow in hardiness zone 3 (northern Minnesota) and hardiness zone 4 (southern Minnesota) may also be injured if winter conditions are abnormally severe or if plants have been stressed by the environment. Injury is more prevalent and more severe when low temperatures occur in early fall or late spring, when there is little or no snow cover during the winter or when low temperatures are of prolonged duration. Pronounced fluctuations in temperature can be extremely detrimental to plants throughout the fall, winter, or spring.

Sun scald

Sun scald is characterized by elongated, sunken, dried, or cracked areas of dead bark, usually on the south or southwest side of a tree. On cold winter days, the sun can heat up bark to the point where cambial activity is stimulated. When the sun is blocked by a cloud, hill, or building, bark temperature drops rapidly, killing the active tissue.

Young trees, newly planted trees, and thin-barked trees (cherry, crabapple, honey locust, linden, maple, mountain ash, plum) are most susceptible to sun scald. Trees that have been pruned to raise the lower branches, or transplanted from a shady to a sunny location are also sensitive because the lower trunk is no longer shaded. Older trees are less subject to sun scald because the thicker bark can insulate dormant tissue from the sun's heat ensuring the tissue will remain dormant and cold hardy.

Sun scald can be prevented by wrapping the trunk with a commercial tree wrap, plastic tree guards, or any other light-colored material. The wrap will reflect the sun and keep the bark at a more constant temperature. Put the wrap on in the fall and remove it in the spring after the last frost. Newly planted trees should be wrapped for at least two winters and thin-barked species up to five winters or more.

To repair sun scald damage, cut the dead bark back to live tissue with a sharp knife, following the general shape of the wound, rounding off any sharp corners to facilitate healing (Figure 1).
Wrap the trunk in subsequent winters to prevent further damage. Do not use a wound dressing. Spraying the area with a fungicide may help prevent fungal infection of the wound.

Figure 1. Repairing sun scald damage.

Winter discoloration of evergreens

Browning or bleaching of evergreen foliage during winter occurs for four reasons:

1. Winter sun and wind cause excessive transpiration (foliage water loss) while the roots are in frozen soil and unable to replace lost water. This results in desiccation and browning of the plant tissue.

2. Bright sunny days during the winter also cause warming of the tissue above ambient temperature which in turn initiates cellular activity. Then, when the sun is quickly shaded, foliage temperature drops to injurious levels and the foliage is injured or killed.

3. During bright, cold winter days, chlorophyll in the foliage is destroyed (photo-oxidized) and is not resynthesized when temperatures are below 28°F. This results in a bleaching of the foliage.

4. Cold temperatures early in the fall before plants have hardened off completely or late spring after new growth has occurred can result in injury or death of this nonacclimated tissue.

Foliar damage normally occurs on the south, southwest, and windward sides of the plant, but in severe cases the whole plant may be affected. Yew, arborvitae, and hemlock are most susceptible, but winter browning can affect all evergreens. New transplants or plants with succulent, late season growth are particularly sensitive.

There are several ways to minimize winter injury to evergreens. The first is proper placement of evergreens in the landscape. Yew, hemlock, and arborvitae should not be planted on south or southwest sides of buildings or in highly exposed (windy, sunny) places. A second way to reduce damage is to prop pine boughs or Christmas tree greens against or over evergreens to protect them from wind and sun and to catch more snow for natural protection.

Winter injury can often be prevented by constructing a barrier of burlap or similar material on the south, southwest, and windward sides of evergreens (Figure 2). If a plant has exhibited injury on all sides, surround it with a barrier, but leave the top open to allow for some air and light penetration.
Keeping evergreens properly watered throughout the growing season and into the fall is another way to reduce winter injury. Never stress plants by under- or overwatering. Decrease watering slightly in September to encourage hardening off, then water thoroughly in October until freeze-up. Watering only in late fall does not help reduce injury.

Anti-desiccant and anti-transpirant sprays are often recommended to prevent winter burn. Most studies, however, have shown them to be ineffective.

If an evergreen has suffered winter injury, wait until mid-spring before pruning out injured foliage. Brown foliage is most likely dead and will not green up, but the buds, which are more cold hardy than foliage, will often grow and fill in areas where brown foliage was removed. If the buds have not survived, prune dead branches back to living tissue. Fertilize injured plants in early spring and water them well throughout the season. Provide appropriate protection the following winter.

Dieback

Deciduous trees and shrubs can incur shoot dieback and bud death during the winter. Flower buds are more susceptible to injury than vegetative buds. A good example of this is forsythia, where plant stems and leaf buds are hardy, but flower buds are very susceptible to cold-temperature injury.

Little can be done to protect trees and shrubs from winter dieback. Plants that are marginally hardy should be planted in sheltered locations (microclimates). Plants in a vigorous growing condition late in the fall are most likely to suffer winter dieback, so avoid late summer pruning, fertilizing, and overwatering. Fertilize in the spring on sandy soil or in the fall on heavy soil after the leaves have dropped.

Root injury

Roots do not become dormant in the winter as quickly as stems, branches and buds, and roots are less hardy than stems. Roots of most trees and shrubs that grow in Minnesota are killed at temperatures at or below 0 to +10°F. These plants survive in Minnesota because soil temperatures normally are much higher than air temperatures and because soil cools down much more slowly than air temperature.
Many factors influence soil temperature. Moist soil holds more heat than dry soil, so frost penetration will be deeper and soil temperatures colder for sandy or dry (drought) soils. Snow cover and mulch act as insulators and keep soil temperatures higher. With newly planted trees, cracks in the planting hole backfill will allow cold air to penetrate into the root zone, reducing fall root growth or killing newly formed roots.

To encourage fall root growth and to reduce root injury, mulch new trees and shrubs with 6 to 8 inches of wood chips or straw. If the fall has been dry, water heavily before the ground freezes to reduce frost penetration. Check new plantings for cracks in the soil and fill them with soil.

Frost heaving

Repeated freezing and thawing of soil in fall or spring causes soil to expand and contract, which can damage roots and heave shrubs and new plantings out of the ground. A 4- to 6-inch layer of mulch will prevent heaving by maintaining more constant soil temperatures.

Snow and ice damage

Heavy snow and ice storms cause damage by bending and breaking branches. Multiple leader, upright evergreens, such as arborvitae and juniper, and multiple leader or clump trees, such as birch, are most subject to snow and ice damage. Relatively small trees can be wrapped together or the leaders tied with strips of carpet, strong cloth or nylon stockings two-thirds of the way above the weak crotches (Figure 3). These wrappings must be removed in spring to prevent girdling, and to allow free movement of the stem. Proper pruning, to eliminate multiple leaders and weak branch attachments, will reduce snow and ice damage. For trees with large wide-spreading leaders or large multi-stemmed trees, the main branches should be cabled together by a professional arborist.

![Figure 3. Protecting trees from snow or ice-damage.](image)

Salt damage

Salt used for deicing walks and roads in winter can cause or aggravate winter injury and dieback. Salt runoff can injure roots and be absorbed by the plant, ultimately damaging the foliage. Salt spray from passing autos can also cause severe foliar or stem injury.
To prevent salt damage, do not plant trees and shrubs in highly salted areas. Avoid areas where salty runoff collects or where salt spray is prevalent, or use salt-tolerant species in these areas. Burlap barriers (Figure 2) may provide protection to some plants from salt spray.

Animal damage

Mice, rabbits (rodents), and deer can all cause severe damage to plants in the winter. These animals feed on the tender twigs, bark, and foliage of landscape plants during the winter. They can girdle trees and shrubs and eat shrubs to the ground line. Deer can cause significant injury and breakage by rubbing their antlers on trees during the fall.

Rodents

Trees can be protected from rodent damage by placing a cylinder of ½-inch mesh hardware cloth around the trunk. The cylinder should extend 2 to 3 inches below the ground line for mice and 18 to 24 inches above the anticipated snow line for rabbit protection (Figure 4). Hardware cloth can be left on year-round, but it must be larger than the trunk to allow for growth. For small trees, plastic tree guards are also effective. You can protect shrub beds from rabbits by fencing the beds with chicken wire; however, check such fenced areas frequently to ensure a rabbit has not gained entrance and is trapped inside.

If you have many trees or shrubs to protect, using screens and wraps may be too expensive and time consuming. In such situations, repellents may be the best solution. Remember that a repellent is not a poison; it simply renders plants undesirable through taste or smell.

The most effective repellents for rodents are those containing thiram, a common fungicide. You can either spray or paint repellents on trees and shrubs. Repeat applications are necessary particularly after heavy precipitation.

If these methods are ineffective, commercial baits containing poisoned grain are available. However, baits may be hazardous to humans, pets, and beneficial wildlife. Injury or death can result for animals that eat the bait directly and for animals that consume bait-killed rodents. Shelter or containerize baits so they stay dry and are accessible only to targeted rodents.
Beverage cans laid on their sides work well for this purpose. Trapping and shooting, where legal, will also control rodents.

Deer

Deer feed on and damage terminal and side branches of small trees and shrubs. Repellents containing thiram provide some control if feeding pressure is not extremely heavy. Plants can be sprayed or painted with the repellent; however, the most effective procedure is to hang heavy rags near the plants to be protected that have been dipped in concentrated repellent. Repeated plant applications or dipping of rags is necessary. Deer can also be successfully excluded with fencing. To be effective, fences must be high and constructed properly. If deer are starving, there is little that will prevent feeding. Providing a more palatable forage may help, but it may also attract more deer.

Conclusion

Although plant cold hardiness and winter injury are common concerns associated with Minnesota winters, appropriate plant selection, selecting the proper site, proper cultural practices, and preventive maintenance will significantly reduce or prevent severe injury or loss of landscape plants.

Even though plants respond differently to winter stress and each winter provides a different set of stressful conditions, plants possess a remarkable ability to withstand extremely severe winter conditions. Minnesota winters should not discourage planting of traditional or new plant species.

Learn to take advantage of microclimates to enable interesting or different plants to be grown. Minnesota's list of landscape plant species needs to be expanded, not reduced.

Reviewed by Jeffrey H. Gillman
Fertilizing Trees and Shrubs: Some FAQ’s

Bert Cregg, MSU Horticulture and Forestry

Spring is an excellent time to fertilize trees and shrubs in the landscape. However, there are a number of questions that are frequently raised when it comes to fertilizing landscape plants.

Why should I fertilize my trees and shrubs?
The short answer is to keep trees and shrubs in your landscape healthy. Remember trees are continually removing mineral elements from the soil. In a native forest, elements are recycled as leaves drop down to the forest floor and decompose. In most landscapes we interrupt this process by raking and removing leaves in the fall. Without periodic fertilization, mineral elements, especially nitrogen, will become deficient.

Besides nitrogen, what other elements do trees and shrubs need?
Like all plants, trees and shrubs require 16 essential elements for growth: carbon, hydrogen, oxygen, phosphorus, potassium, nitrogen sulfur, calcium, iron, magnesium, manganese, boron, copper, zinc, molybdenum and chlorine. Carbon, hydrogen and oxygen come from air and water while the rest must be supplied from the soil. Those elements needed from the soil in the largest amounts are termed macronutrients (nitrogen, potassium, phosphorus, calcium, magnesium, and sulfur) while the remainder are needed in relatively small amounts (micronutrients).

Do I need to add all these elements?
Not usually. Most soils are able to supply the majority of nutrients needed for trees and shrubs. The biggest exception is nitrogen. Because nitrogen is taken up in the largest amounts and is also lost from the soil through leaching, periodic additions of nitrogen are needed for optimum tree growth. Also several elements (potassium, magnesium, calcium, manganese) are lost over time through leaching on sandy soils. Iron can also be limiting due to high soil pH. If you suspect a specific deficiency the rule to remember is “test don’t guess”. Contact your local Extension office to get a soil sample analyzed.

When should I fertilize?
Spring is the best time to fertilize since this is the time when nutrients are in greatest demand for new growth. Trees and shrubs may also be fertilized in fall once they have set bud. As a rule of thumb, fall fertilization rates should be about half of the spring application. Many Extension publications promote fall as the best time to fertilize, however any nitrogen that is not taken up will be subject to leaching over the winter.

How much should I fertilize?
One to three pounds of nitrogen per 1,000 sq feet of root zone is adequate in most cases. A tree’s root zone usually extends beyond the drip line of the crown. Most recommendations assume the root spread is about twice that of the crown.
So if the crown spread is about 10 feet from the trunk, the roots spread at least 20 feet. To find the total square feet covered by the roots, use the following formula:

$$3.14 \times \text{(root radius)} \times \text{(root radius)}$$

In this example this would be:

$$3.14 \times 20 \times 20 = 1256 \text{ square feet}$$

So the tree should receive 1.25 to 3.75 lbs of nitrogen.

How do I convert from lbs of nitrogen to lbs of fertilizer?
Fertilizers are labeled with the grade or analysis, which gives the percent nitrogen, phosphorus (as P_2O_5) and potassium (as potash). So if a fertilizer grade is listed as 20-0-10 you would need to add 5 lbs to get 1 lb of N (5 lbs x 20%) and you would also be adding 1/2 lb of potash. If you don’t like calculating fractions and percents, the table below can give you some rules of thumb.

How should I fertilize?
The easiest and most effective method of supplying nutrients to the entire root system of the plant is broadcasting - spreading granular fertilizer evenly over the entire root zone. Be sure to keep fertilizer away from driveways and other paved surfaces, as it can wash into storm drains and lower the water quality of our streams and lakes. Digging or drilling holes throughout the root zone and partially filling them with fertilizer is not effective, as most of the feeder roots of a tree or shrub are in the upper layer of soil, and drilling puts fertilizer below the level of the feeder roots.

Can I fertilize newly planted trees and shrubs?
Yes. Many Extension publications and even the International Society of Arboriculture standards advise against it, and I don’t understand why. The usual explanation for not fertilizing is that it will promote top growth over root growth. But ultimately the energy to promote new roots comes from the leaves so I don’t follow this logic. The important thing here is to avoid potential fertilizer burn: fertilize at a low rate and never, ever, put fertilizer directly into the planting hole. Apply as a surface broadcast only.

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Caring for your established shade trees

E.R. Hasselkus

The loss of one mature shade tree can tarnish the appearance of the landscape around your home for the many years it takes a new tree to grow in its place. You can help to prevent this costly and marring loss by providing the necessary care at planting and with regular maintenance.

If you planted your trees in locations that will meet their needs, you have saved yourself and your trees from inevitable future problems. But, even if you did match your trees to the proper sites, the urban environment still poses problems for even the "sturdiest" of trees.

Gouges from lawn mowers, vandalism, soil compaction, and deicing salt are a few sources of injury a tree normally would not encounter in its natural setting. Of course, storms, insects, and diseases are not confined to the forest and can be just as damaging to trees planted in urban surroundings.

Trees growing in cities also lack many of the natural benefits that the forest provides. For example, decomposing leaves, recycled as nutrients in the forest, are raked from most lawns.

To substitute for nature, the tree owner must provide a program of care and take quick action when problems arise.

This publication outlines the steps you should take to maintain the established trees on your property. It describes how to prune and fertilize them, how to protect them against both winter damage and the stresses of the urban environment, and how to treat injuries once they occur.

Pruning

As a tree grows, its need for pruning will vary at each stage of development. When the tree is young, you should establish its basic structure by eliminating double leaders, weak crotches, and conflicting and inward growing branches.

Older established shade trees require less pruning. At this stage, you should prune only for corrective purposes— to avoid safety hazards and to improve the health and appearance of the tree.

Here are some situations that will require pruning the mature shade tree:

- Branches or limbs are dead or dying.
- Secondary branches are crossing other limbs. Crossing branches rub together and damage the bark, opening pathways for diseases and insects.
- Roots are damaged. The remaining healthy roots can no longer provide the necessary amount of water and nutrients for the existing crown.
- Branches form a narrow-angle crotch. These branches split easily and are vulnerable to storm damage.
- Sprouts are growing at or near the base of the tree trunk.

**How to prune**

Pruning a large tree is both a difficult and dangerous task. For work that requires removing large branches or climbing in tall trees, it's advisable to hire a commercial arborist to do the job.

If you are going to prune your trees, keep these points in mind:

- Always prune back to the main trunk, a side branch, or a good strong bud (figure 1).
- To remove branches that are 3 inches or larger in diameter, follow the 3-cut procedure illustrated in figure 2. Make an undercut at 1; cut off the limb from the top at 2. Then, make a smooth flush cut next to the trunk—from top to bottom. However, avoid cutting off the entire branch “collar,” which would needlessly increase the size of the pruning wound. Don’t take any shortcuts because you risk tearing bark loose from below the cut.
- If you are removing diseased branches, take great care to avoid spreading the disease. Disinfect pruning tools by spraying LysoTm on them between each cut.
- When possible, do your pruning in late winter. Pruning wounds heal most quickly in spring.
- Avoid pruning oak trees from May through August because sap on exposed pruning wounds can attract disease-carrying insects.

Although pruning is necessary for the mature shade tree, it can also be a severe shock to the tree. Be sure you have a reason for every cut you make. Study the inherent characteristics of the tree to help you preserve its natural form. Starting at the top and working down, prune each limb individually and purposefully. Indiscriminate “topping” of mature trees is never justified.

When you are done pruning, fertilize and water, if needed, to give the tree a boost toward recovery.

**Treating wounds**

A wound is a break in the bark that exposes injured wood. Lawn mowers, bikes chained to young trees, pruning, construction work, vandalism, and frost cracks are common causes of trunk wounds. Untreated, trunk wounds pose a serious threat to the health of the tree.

To treat a fresh wound, remove any loose bark with a sharp knife. Make a clean cut back to intact bark and wood. If practical, cover the wound with plastic film for several weeks to keep the exposed cambium from drying out.

Except for oaks, the application of dressings is no longer recommended. On oak trees, prompt application of a wound dressing is necessary during spring and summer to help keep out insects that transmit oak wilt fungus. For other trees, thickly applied dressings may actually enhance wood decay by trapping moisture. A very thin coating of a tree wound dressing may be applied for cosmetic purposes.

**Figure 1.** Removing the branch at the proper spot is a key part of pruning.

**Figure 2.** Use the 3-cut procedure to avoid damaging the bark when pruning larger branches. Make your final cut smooth and close without cutting into the collar.
**Fertilization**

In the forest, the cycle of growth and decay is virtually uninterrupted. Decaying vegetation is broken down into nutrients in the soil where they are taken up by growing plants. In cities, where leaves and grass clippings are raked from lawns, nutrients are not readily available to trees. Fertilization is a necessary substitute for nature.

**Signs to look for**

The mature shade tree is usually fertilized less often than the young tree. Here are some signs that indicate the need for fertilization:

- Sparse foliage.
- Small and poorly colored leaves.
- Short annual twig growth.
- A large amount of dead wood.
- Dieback at the ends of branches.

**When to fertilize**

You can fertilize your shade tree in early spring when the buds begin to swell, or in fall when the leaves start to change color and drop. Don’t apply fertilizer during the summer. Summer fertilization can stimulate heavy growth late in the growing season, making it prone to winter damage.

**How to fertilize**

A shade tree’s feeder roots are mainly located within the top 12 inches of the soil. This network of feeder roots extends from an imaginary circle around the trunk—located at a distance of about twice the trunk diameter away from the trunk itself—to another imaginary circle just beyond the spread of the outermost branches.

The two imaginary circles will be the starting and finishing points when you fertilize. From the starting circle near the trunk, picture a series of concentric circles—2 feet apart—spreading out to the circle just beyond the spread of the branches.

In each of these circles, make holes with a crowbar, soil auger, or probe. These holes should be 2 feet apart and 12 to 15 inches deep (figure 3). Evenly divide the recommended amount of fertilizer among the holes and cover the holes with peat moss, sand, or soil.

If you own young trees that cast little shade over your lawn, you can use a different fertilization method. Simply apply a double rate of recommended slow-release lawn fertilizer over the feeder root area when you are fertilizing your lawn.

If the root zone of your tree is covered with a mulch, you also have an alternative to the hole procedure. Broadcast the fertilizer over the mulched area where the feeder roots are located. Water well to move the fertilizer into the root zone.

**How much fertilizer**

A complete tree fertilizer contains the three major tree nutrients—nitrogen, phosphorous, and potassium.

Different fertilizers contain different amounts of the major nutrients and are numbered accordingly. For example, a 100-pound bag of typical fertilizer, 10-8-6, consists of 10 percent nitrogen (N), 8 percent phosphorous (P₂O₅) and 6 percent potassium (K₂O). If you bought a 50-pound bag of the same fertilizer, the amount of each nutrient would be cut in half.

The best way to determine the nutrient needs of your tree is to have your soil tested. Analysts can tell you the exact proportions of the major nutrients you should apply, and secondary testing can tell you if other nutrients are in short supply in your soil.

*Figure 3. Mapping out a series of concentric circles will help you distribute fertilizer equally over the tree’s root zone.*
In general, however, commercial fertilizers with a high nitrogen content, such as 12-6-4, 16-8-8, and 20-10-5, are usually best. For shade trees, use 1 to 2 pounds (1 to 2 pints) of fertilizer per inch of trunk diameter. Limit flowering trees to 1 pound per inch of trunk diameter. Distribute the total amount of fertilizer evenly over the feeder root area according to the method fertilization used.

Your tree will provide you with signals if you have overfertilized. If the leaves are dark green and twig growth is excessive, reduce or delay application for a year or two.

The frequency of application will also depend upon the tree species and the growth response you desire. A slow-growing tree species, such as a ginkgo, may need fertilization about every three or four years. However, you may want to speed up the growth rate of young trees by applying fertilizer annually.

### Seasonal and urban stresses

The extremes of the weather, damage from animals, salt spread on icy pavement, and soil compaction can take a heavy toll. It is important to recognize the potential sources of injury and to take steps to reduce the chances for tree damage.

#### Sources of winter injury

**Ice and snow**

The accumulation of ice or wet snow may cause malformation, splitting, or breaking of trees. Multi-trunked trees, such as birch, may be protected from damage by tying leaders together with soft twine, strips of cloth webbing or nylon. Tie the leaders about two-thirds of the way above the crotch (figure 4). This method will reduce the exposed surface area of the tree and make it less prone to damage from loads of ice and heavy snow.

To provide more lasting protection for trees with large, spreading branches or large multi-stemmed trees, support the branches with cables installed by a commercial arborist.

**Salt**

Salt spread on icy pavement presents a double threat to trees. Spray from traffic and salt draining into the soil pose different but equally serious problems.

Trees planted within 30 to 50 feet of highways often suffer from salt-spray damage. Salt spray causes bud death and twig dieback. As a result, new growth is concentrated at the bases of branches, creating clusters of twigs known as witches' brooms.

Most soil salt injury also occurs within 30 to 50 feet of pavement where salt is spread. Salt in the soil can kill roots directly or prevent the roots from taking up water. These injuries may not become evident for several years. Symptoms include an initial blue-green cast to the foliage, marginal leaf burn, reduction in leaf, flower and fruit size, early fall coloration and leaf loss, stunting, and a general lack of vigor.

The best way to prevent salt damage is to cut down on the use of deicing salt. Although you can’t control how much salt is used on city streets, here are some things to keep in mind when you spread salt on your pavement:

- Never apply pure salt. Mix it with an abrasive, such as sand, cinders, or ash.
- Limit applications to high-risk locations, such as hills, steps, and walkways.
- Apply salt carefully. Spread it after shoveling or plowing and after the threat of snow has passed.
- Protect plants from salt spray by putting a protective barrier in front of them. Plastic, burlap, plywood, or window screen are commonly used.

For a listing of trees that are tolerant of salt, see Extension publication Salt Injury to Landscape Plants (A2970).
Rodent damage
During winter, rodents and rabbits may feed on and damage the tender bark and twigs of landscape plants. This damage may permanently disfigure the tree, or, if it is completely girdled, the tree will die. Young and thin-barked trees are most vulnerable to animal damage.

For protection against rodents such as mice and rabbits, place a cylinder of ¼-inch mesh hardware cloth around the trunk. The cylinder should extend from 2 to 3 inches below the soil line, to defend against burrowing rodents, and to 18 to 24 inches above the anticipated snow line, to protect against rabbits (figure 5).

You can leave the hardware cloth on year-round but it should be larger than the trunk to allow for growth.

For small trees, spiral plastic tree guards, available at most garden centers, provide effective protection.

If you have many trees, using hardware cloth or tree guards may be too expensive. In this case, repellents may be the best solution to animal problems. Repellents are not poisons; they simply make the plant undesirable through taste or smell.

For rodents, the most effective repellents are those containing thiram.

You can either paint or spray the repellent on the tree trunk but repeated application may be necessary after heavy snow or rain.

Deer damage
Deer damage trees in two ways. They feed on and damage tops and side branches of small trees, and male deer rub their antlers on the trunks of small trees during the autumn rutting season. During rutting, bark and branches are rubbed from the tree.

Applications of repellents, also containing thiram, can help keep deer damage in check. Cloth bags containing human hair have also proved to be an effective deer repellent. Hang the bags around September 1 and remove them in the spring.

Small hotel-sized bars of soap can also be effective repellents. Leave the wrapper on the bar and poke a hole through the soap. Hang the soap on the tree with a short piece of wire.

Another defense is to enclose the area around the tree with a fence. To be effective, the fence must be high and built with posts and heavy wire mesh.

Drought
While newly planted trees require regular watering for the first three years after planting, mature trees are better equipped to withstand dry weather. However, extended periods of drought can be stressful to the mature tree and make it vulnerable to disease and insect injury, particularly borers.

During a drought, an occasional, thorough watering is much more beneficial to the tree than frequent, light waterings. You can use a soaker hose and let it run slowly for several days. Another option is to use a water lance which allows you to inject water into the soil near the feeder roots.

Soil compaction
The tree’s roots are made up of living cells that require oxygen to survive. When the soil is compacted above the roots, the amount of available oxygen is reduced. This lack of oxygen can result in root injury or death.

Heavy pedestrian traffic or construction machinery can pack down the soil. If this happens, you can avoid root damage by aerating the soil. You can do this by making a series of holes with a soil auger throughout the root zone. (See the section on how to fertilizer for a description of the root zone.) Backfill the holes with sand, gravel, or peat moss to permit air to reach the roots.

References to products in this publication are for your convenience and are not an endorsement of one product over other similar products. You are responsible for using chemicals according to the manufacturer’s current label directions. Follow directions exactly to protect the environment and people from chemical exposure. Failure to do so violates the law.
**Benefits of mulching**

A layer of mulch placed over the root zone of young and small trees can help them in several ways. Mulch reduces evaporation, controls weeds, and moderates the extremes of soil temperature in both winter and summer. It also reduces the chance for trunk damage from lawn mowers and may help to prevent soil compaction by discouraging pedestrian traffic.

Wood chips, shredded bark, ground corn cobs, or similar materials make good mulches. Place a 2- to 3-inch-deep layer of one of these materials over the root zone, but not in contact with the trunk. Leave a shallow dished-out area around the trunk to allow for easy watering.

As organic mulches decompose, they utilize nitrogen. To compensate, an annual application of high nitrogen fertilizer is recommended.

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**Additional information**

For more information on tree selection and care, consult the following University of Wisconsin-Extension publications.

- *A Guide to Selecting Landscape Plants for Wisconsin* (A2865)
- *Caring for Deciduous Shrubs* (A1771)
- *Controlling Deer Damage in Wisconsin* (G3083)
- *Evergreens—Planting and Care* (A1730)
- *Landscape Plants that Attract Birds* (G1609)
- *Plants Not Favored by Deer* (A3727)
- *Preserving Trees During Construction* (A3072)
- *Protecting Gardens and Landscape Plantings from Rabbits* (G1654)
- *Salt Injury to Landscape Plants* (A2970)
- *Selecting, Planting, and Caring for Your Shade Trees* (A3067)
- *Tree and Shrub Fertilization* (A2308)

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**Figure 6.** When mulching, leave a saucer-shaped area around the trunk to make watering easier.
Storm Damage to Landscape Trees: Prediction, Prevention, Treatment

Gary R. Johnson, Professor and Extension Forester
Ben Johnson, ISA Board Certified Master Arborist

Contents

- The Damage
- Prediction
- Prevention
- Treatment

The Damage

In the upper Midwest, wind and ice storms are common, and often cause tremendous damage to individual trees and urban forests. These storms can cause weakly attached branches or leaders to separate and rip trees apart.

Trees with stem girdling roots or inadequate root systems may blow over or break off at the ground line.

Whatever the case, these effects can cause both personal and property damage.
Prediction

Predicting tree failure

Figure 6. This branch bark ridge indicates strong branch attachment. Photo by Gary R. Johnson

The key to preventing damage is to predict circumstances that could result in tree damage and take action to correct potential problems before storms strike. Look at the form of the tree, any decay that may be present (and the extent of the decay, if present), maintenance practices involving the tree, the presence of stem girdling roots, and existing site problems. There may be other predictable situations present, but these factors are the most common.
Figure 7. Codominant leader with included bark = poor form and potential hazard.

Photo by Gary R. Johnson

**Form:** Trees may suffer from several natural form imperfections that lead to damage under storm conditions. Inclusion of bark at branch unions is a common weak point in trees. Branch unions should have a rough, protruding branch bark ridge where the branches meet. Without this proper union, branches or leaders have a tendency to separate during storm situations. Trees may also have codominant leaders. This occurs when a tree has two or more branches or stems that are trying to become the centerpoint of the tree. Codominant leaders typically exhibit inclusion at their unions. Some species that are notorious for having included branch unions and codominant leaders are:

- European mountain ash
- Green ash
- Hackberry
- Boxelder
- Willows
- Red maple
- Amur cherry
- Silver maple
- Littleleaf linden

**Decay**

Decay is the natural degradation of tree stem, branch, and root tissue. Degraded tissue has very little strength and is the most common contributor to tree failure (based on University of Minnesota Storm Damage Research). Location of decay within a tree is critical in assessing the tree’s potential for failure. Decay located within a single branch is not always a critical situation since weak branches can easily be removed.
But decay located within the main part of the trunk can be seriously dangerous. Determining the extent of decay within the tree determines the tree’s decay and potential to fail. There is a test for determining the strength loss within a branch or stem: for every 3 inches of branch or stem diameter, solid wood should comprise at least 1 to 1.5 inches. Anything less than that often indicates a branch or stem that is more likely to fail during a storm. Species that commonly have decay problems are:

**Maintenance:** Poor maintenance practices may encourage decay anywhere in the tree. Mechanical damage, including wounds from lawn mowers/grass trimmers, and poor pruning practices, often leads to decay. Piling mulch several inches against the stem may lead to stem girdling roots and other dysfunctional root systems. Incorrect irrigation can oversaturate a soil and can encourage shallow root systems, stem girdling roots, and unstable trees. Improper use of staking equipment (wires around stems) often girdle and weaken stems.

Poor pruning practices that encourage decay or the formation of weak branches include: flush cutting (pruning too close to the lead branch or trunk), leaving long stubs, "topping trees," or stripping bark when pruning. Trees should have between 4'-6' of coarse mulch, none of which is resting against the trunk of the tree. Staking equipment that is not properly installed or is left attached to the tree too long will damage stem tissue and encourage decay. Never attach staking wires or ropes to tree stems. Use wide, padding materials around the tree stem and connect these materials to the tree wires or ropes. There are several types of padding available at many garden centers or hardware stores, but strips of carpeting, old belts, or inner tubes also work well. No staking or guyng materials should be left on a tree for more than 1 year without inspection and adjustment for increased stem growth.
Figure 10. Stem broke at the point of compression from stem girdling roots. Photo by Gary R. Johnson

**Stem Girdling Roots:** Stem girdling roots are roots at or below the soil surface that partially or completely encircle the trunk of the tree. Over time, they begin to stress the health of the tree, including the root system. The girdling roots eventually cause compression of the lower trunk, creating a weak point that is often the point of failure in high wind storms. Many stem girdling root problems can be prevented by root pruning pot bound trees before planting and planting all trees at the correct depth—the first branch roots just below the soil surface. Some trees that seem to have a tendency to form stem girdling roots are:

- Green ash
- Norway maple
- Silver maple
- Poplars
- Littleleaf linden
- Red maple

Figure 11. Blow over as a result of shallow root system. Photo by Gary R. Johnson

**Note:**

Trees that are native to floodplain areas (elms, maples, etc.) have the tendency to form "stem" roots where they are frequently buried by floodplain material. These trees commonly form
encircling roots when planted in the urban environment, particularly when they are planted too deep. The species listed above are those that most often develop stem girdling roots in urban situations.

Site Problems:

Common site problems that may contribute to tree failure are: shallow soils, compacted clay soils, saturated soils, confined rooting areas, and inappropriate species for the location (such as large trees in small boulevard strips). Most of the problems are directly or indirectly related to lack of oxygen reaching the roots of the trees. When oxygen is lacking, root systems decline and tree stability declines. It is important to know your site situation, including soil types and rooting volume, before trees are selected and planted. Don't plant large trees that require well-drained soil on these sites. Use smaller trees and/or trees native to wet sites such as black alder and larches, or correct the soil problem. Plant trees that mature to less than 40' in height if boulevards are less than 10' wide.

Prevention

![Image: Flush cutting, i.e., cutting too far into living tissue, can provide sites of decay. Photo by Gary R. Johnson]

**Inventory:** By keeping track of trees on your property and their condition, predicting storm failure is much easier. Create a list of "key trees and key problems." Key trees would be those that are most important to the property. Key problems would be those that are most likely to damage or weaken those key trees.

**Monitor:** Check key trees regularly. When minor damage occurs, correction (such as pruning or wound "painting" on oaks during oak wilt season) may prevent it from causing extensive damage throughout the tree. If extensive damage has occurred, immediate corrective action should be applied to prevent further damage.
Proper Pruning: Pruning either corrects problems or creates them. If pruning is done improperly, it can create places for decay to enter and the wound will only increase in extent. Done correctly, pruning wounds should close over naturally, keeping decay from starting and expanding in the wound area. A general rule for pruning wounds: the smaller, the better.

Protection From Mechanical Wounding: Mulching, planting trees in landscaped beds, and even staking can give trees the necessary protection from mechanical injury. Wounds caused from lawn mowers and grass trimmers can promote areas of decay in the tree. Cars, snowplows, staples, and any stacked materials that wound stems and branches can cause long-term damage in a short time.

Best Planting Practices:

Planting too deep may be the most common planting mistake that leads to tree failure. Literature is available on proper planting techniques. Most importantly, do not plant the tree too deep. The first set of roots should be just below the soil surface. Figure 15.

Maintain Health: By watering properly and frequently, and by fertilizing when nutrients are deficient, tree health can be maintained at a high level. When trees are stressed, they become more susceptible to problems ranging from aesthetic (leaf scorch), to decay, to severe, uncorrectable damage from diseases or insects.
**Assistance:** City foresters, county Extension offices, and tree care professionals are available to answer questions about tree care problems.

**Treatment**

There are several treatments a homeowner may use to correct the minor damages that storms inflict. Before any of these techniques are attempted, consider hiring an arborist. Except for the cases of pruning small branches, and straightening slightly leaning, small trees, consult an arborist. The following are the most common types of corrective treatments:

**Corrective Pruning:** Small branches that have been damaged extensively should be removed to the next branch, but never cut off the branch collar. Use the proper pruning techniques to safely remove broken branches. If a branch is too heavy to support with one hand, a three-cut method should be used.

![Diagram of correct pruning](image)

*Figure 17. Proper three cut method for pruning limbs. © USDA-Forest Service.*

**Straightening, Staking and Guying:** For minor uprooting of smaller trees (<25-ft.), straightening and/or guying is an option if correction takes place immediately after damage has occurred. When staking an uprooted tree, be sure that the roots remain covered and moist. Stakes should be placed evenly around the tree and attached securely without pulling on the tree. Thin rope or wire should not be used against the trunk of the tree.

![Diagram of proper staking](image)

*Figure 18. Proper staking procedures and methods. Note the slack in the forms of attachment. © Florida Cooperative Extension Service, Circular # 858.*

**Wound Repair:** Torn bark may be removed to reduce entry sites for diseases and insects or for aesthetic purposes. Split, cracked, torn branches should be removed to points of no damage. Bark should not be removed from areas greater than the damage already present. When pruning branches or repairing wounds, it is usually unnecessary to paint the wounds. The exception is during oak wilt season (April, May, June). During this period, wounds made on oaks should be painted immediately with a latex paint or shellac to deter insects carrying the oak wilt disease fungus.
**Cabling and Bracing:** Cabling and bracing are frequently applied treatments following storm damage, but only trained professionals should perform these installations. Most tree care companies will provide this service. Cabling and bracing are most effective as preventative measures, and provide extra support for weakly attached branches or stems.

**Knowing When to Hire an Arborist:** Possibly the most important question to address when evaluating storm damage is whether to hire an arborist to do the work or to attempt it yourself. If you need a chainsaw or ladder to do the pruning, if there are any downed and potentially energized lines in the area of the tree, or if you are wondering if the tree is worth saving, you need an arborist. In any situation where there is the potential for personal or property damage (broken limbs hanging high in the tree or unsupported branches hanging over sidewalks), it is very important to immediately call your city forestry department or a reputable tree care company to remove the potential danger.

The directories Tree Care Companies Providing Emergency Storm Service in Minnesota, and Companies with Certified Arborists in Minnesota are available through the Minnesota Society of Arboriculture.

For a list of University of Minnesota Extension publications on tree selection and care, contact the Extension Office, Forest Resources Department, 116 Green Hall, 1530 Cleveland Ave. N., St. Paul, MN 55108, 612-624-3020.

**Funding for Storm Damage to Landscape Trees was provided by:**

University of Minnesota Extension [the Renewable Resources Extension (RREA) program of the University of Minnesota Extension and the U.S. Department of Agriculture—Cooperative States Research, Education and Extension Service (CSREES)].

College of Natural Resources, University of Minnesota.

**Acknowledgements:**

The authors thank the following individuals for their technical assistance and review of the publication:

Katie Himanga, consulting urban forester, Heartwood Forestry.

Patrick Weicherding, extension horticulturist, University of Minnesota Extension, Anoka County.
Current City Tree Ordinance:

§ 153.09 TREES.

(A) Finding of Fact. The City Council finds and declares that it is in the public interest and public welfare to plan for and regulate trees in the City of West Branch. All street trees, park trees and privately owned trees are valuable assets to the residents of the City. Proper planning and care will help insure that these assets will continue to thrive and benefit the citizens of the City in the future.

(B) Definitions.

(1) LARGE TREES: “Large trees” are those trees attaining a height of forty-five (45) feet or more at maturity.

(2) PARK TREES: “Park trees” are herein defined as trees, shrubs, bushes, and all other woody vegetation in public parks having individual names, and all areas owned by the City, or to which the public has free access as a park.

(3) SMALL TREES: “Small trees” are those trees attaining a height of twenty (20) to thirty (30) feet in height at maturity.

(4) STREET TREES: “Street trees” are herein defined as trees, shrubs, bushes, and all other woody vegetation on land lying between property lines on either side of all streets, avenues, or ways within the City (also referred to as the “street right-of-way”).

(C) Written Plan. It shall be the responsibility of the City Manager or his/her designee from time to time, to study, investigate, counsel and develop and/or update annually, and administer a written plan for the care, preservation, pruning, planting, replanting, removal or disposition of trees and shrubs in parks, along street, and in other public areas. Such plan will be presented to the City Council and upon their acceptance and approval shall constitute the official comprehensive City tree plan for the City of West Branch. The Planning Commission shall consider, investigate, make findings, report and recommend upon any special matter or question coming within the scope of its work.

(D) Operation. The Planning Commission will act as the City Tree Board.

(E) Street Tree Species to be Planted. Upon recommendation by the Planning Commission, the City Council shall determine by resolution from time to time, a list of street tree species either allowed to be or prohibited from being planted. Said list shall contain small trees, large trees and prohibited street trees.

(F) Spacing. The spacing of street trees will be in accordance with the two (2) species size classes listed in §153.09(B) and no trees may be planted closer together than the following: Small trees, thirty (30) feet, and large trees, fifty (50) feet; except in special plantings designed or approved by a landscape professional. Each residential lot in the City of West Branch is entitled to at least one (1) street tree.

(G) Distance from Curb and Sidewalk. The distance trees may be planted from curbs, or curb lines and sidewalks, will be in accordance with the (2) species size classes listed in §153.09(B). As a general standard,
no trees may be planted closer to any curb or sidewalk with the following: Small trees – two (2) feet; and large
trees – four (4) feet. Exceptions to this standard may be approved by the City Manager in those areas where the
distance between the curb and sidewalk is less than eight (8) feet.

(H) **Distance from Street Corners and Fire Hydrants.** No street tree shall be planted closer than thirty-five
(35) feet to any street corner, measured from the point of nearest intersecting curbs or curb lines. No street tree
shall be planted closer than ten (10) feet to any fire hydrant, or eight (8) feet of any driveway.

(I) **Distance from Utility Poles.** No street tree shall be planted closer than ten (10) feet to any utility pole.

(J) **Public Tree Care.** The City shall have the right to plant, prune, maintain and remove trees, plants and
shrubs within the lines of all streets, alleys, avenues, lanes, squares and public grounds, as may be necessary to
insure public safety or to preserve or enhance the symmetry and beauty of such public grounds. Said care shall
conform to the latest American National Standard (ANSI) for Tree Care Operations – “Tree, Shrub and other
Woody Plant Maintenance – Standard Practice.” The City Manager or his/her designee may remove, or cause
or order to be removed, any street tree or park tree, or part thereof, which is in an unsafe condition or which by
reason if its nature is injurious to sewers, electric power lines, gas lines, water lines, or other public
improvements, or is infected with any injurious fungus, insect or other pest. This section does not prohibit the
planting of street trees by adjacent property owners, providing that the selection and location of said trees is in
accordance with §153.09(E) through (I).

(K) **Tree Topping.** It shall be unlawful as a normal practice for any person, firm or City department to top any
street tree, park tree, or other tree on public property. Topping is defined as the severe cutting back of limbs to
stubs larger than three (3) inches in diameter within the tree’s crown to such a degree so as to remove the
normal canopy and disfigure the tree. Trees severely damaged by storms or other causes, or certain trees under
utility wires or other obstructions, where other pruning practices are impractical, may be exempted from the
subsection at the determination of the City Manager.

(L) **Pruning, Clearance.** Every owner of any tree overhanging any street or right-of-way within the City shall
prune the branches so that such branches shall not obstruct the light from any street light or obstruct the view of
any street intersection, and so that there shall be a clear space of at least eight (8) feet above the surface of the
street or sidewalk. Said owners shall remove all dead, diseased or dangerous trees, or broken or decayed limbs,
which constitute a menace to the safety of the public. The City shall have the right to prune any tree or shrub,
or branches and limbs thereof, on private property when it interferes with the proper spread of light along the
street from a street light, interferes with the safe passage of any vehicle, obstructs the visibility of any traffic
control device or sign, or obstructs the safe passage of any public sidewalk.

(M) **Dead or Diseased Tree Removal on Private Property.** The City shall have the right to cause the
removal of any dead or diseased tree(s) on private property within the City, when such tree(s) constitutes a
hazard to life and property, or harbors insects or disease which constitutes a potential threat to other trees within
the City. The City Manager will notify, in writing, the owners of such trees by personal service or first class
mail. Removal shall be done by said owners at their own expense within thirty (30) days after the date of
service or mailing of notice. In the event of failure of owners to comply with such provisions, the City shall
have the authority to remove such trees and charge the cost of removal to the property owners. Failure to pay
any such invoice by the time period specified shall create a right by the City to add the amount of such bill to
the real property tax rolls for said property, to be collected the same as other real property taxes in the City.
(N) **Removal of Stumps.** All stumps of street and park trees shall be removed, within one year of removal, below the surface of the ground so that the top of the stump shall not project above the surface of the ground.

(O) It shall be unlawful for any person to prevent, delay or interfere with the City's agents, while engaging in and about the planting, cultivating, mulching, pruning, spraying, or removing of any street trees, park trees, or trees on private grounds, as authorized in this subsection.

(P) **Tree Permit and Insurance Requirements.** It shall be unlawful for any person or firm to engage in the business or occupation of pruning, treating, or removing street or park trees within the City without first applying for and procuring a tree permit from the City Manager or his/her designee. The person requesting the tree permit must provide proof of his/her skills and qualifications or a state or national arborist license. The tree permit fee shall be determined from time to time by City Council resolution; provided, however, that no tree permit shall be required for any public service company or City employee doing such work in the pursuit of their public service endeavors. Before any tree permit shall be issued, each applicant shall first file evidence of possession of liability insurance in the amounts of one million dollars ($1,000,000) for bodily injury and one million dollars ($1,000,000) for property damage indemnifying the City or any person injured or damaged resulting from the pursuit of such endeavors as herein described.

(Q) **Review by City Council.** The City Council shall have the right to review the conduct, acts and decisions of the Planning Commission or its agents. Any person may appeal any ruling or order of the Planning Commission or its agents to the City Council who may hear the matter and make the final decision.

(Ord. 11-03, passed 4-18-2011)