

City of Provo – Forestry Division

Arboricultural Standards and Specifications

Appendix to Provo City Ordinance, Chapter 9.20



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ARBORICULTURAL STANDARDS AND SPECIFICATIONS FOR MAINTENANCE AND CARE OF CITY TREES

The trees on public and private property in Provo constitute a valued and significant resource that markedly improves the quality of life for all residents and visitors to our city. In order to protect and preserve this valuable public resource Provo Municipal Council has established the Urban Forestry Ordinance with additional Arboricultural Standards and Specifications. Provo City Ordinance Chapter 9.20.050 Consent Required reads as follows:

It shall be unlawful to fill in any parking strip, plant, remove, move, spray, trim, prune, cut above or below ground, fill in any potential planting strip, disturb or alter any tree or shrub on the city parking strips, parks, or any public property, or to cause such acts to be done by others, without first obtaining the written consent of the City Forester. This section shall not apply to line clearance tree trimming by employees of the Department of Energy following coordination with the City Forester.

- (a) Planting and maintaining Public trees - Any person receiving written consent shall abide by the arboricultural specifications and standards of practice adopted by Provo City Energy Department and/or the specific conditions or methods listed by the City Forester. These specifications include but are not limited to all ANSI A300 and Z133.1 Standards and all International Society of Arboriculture (ISA) Best Management Practices (BMP).

In the spirit of preserving and enhancing our community forest, these standards and specifications have been developed by the Provo City Forestry Division for the following purposes:

- A. To ensure compliance with, through proper arboricultural care, the existing safety codes of the City of Provo and the state of Utah;
- B. To reduce and prevent future potential hazards, liabilities and problems—including sidewalk, curbing and street pavement damage—from tree breakage or failure;
- C. To enhance the beneficial effects of trees in our urban environment such as air purification, oxygen regeneration, carbon sequestration, reduction of greenhouse gases, energy conservation, protection from sun and wind, air cooling, reducing storm water runoff, reducing erosion, improving community water quality, providing wildlife habitat, adding beauty to the landscape, increasing residential and business property values, increasing tax base, attracting visitors, business and new residents to the community, increasing rental of apartments and reducing vacancy rates, encouraging shoppers to linger, deferring maintenance on materials that are degraded by heat such as pavement, reducing stress and fatigue, enhancing mental health, enhancing recuperation rates for patients, reducing psychological precursors to crime, enhancing community pride, and increasing recreational opportunities.
- D. To inform property owners of both new and existing guidelines for dealing with the street and alley rights-of-way associated with their adjacent property.

The following regulations and specifications are intended to support Provo City Ordinance Chapter 9.20. Urban Forestry. These standards serve as the rules for arboricultural services and activities on public property within the city limits of Provo. Private property owners may also use this document as a guide in the care and maintenance of their privately-owned trees. This includes Energy 12.03.120 and corresponding rules and Parkway Landscaping Ordinances 15.20.

SECTION 1 AREAS OF RESPONSIBILITY

Purpose: The purpose of this standard is to inform property owners, city crews, commercial tree care companies, etc. of the different areas of responsibility regarding trees and their unique circumstances.

Introduction: The urban forest is made up of many different types of trees. The responsibility for the trees depends on where the tree is located.

A. Public Trees

All trees located on public property are the responsibility of the Provo City Energy and Parks and Recreation Departments for planting, removal, maintenance, and management. This includes trees in parks, cemeteries, parking strips and natural areas.

B. Trees on Private Property

Trees located on private property are the responsibility of the respective private property owner. If woody vegetation from private property encroaches into the public right-of-way and/or in any way causes unsafe passage, Provo City Forestry Division may address the problem in a manner consistent with Provo City Ordinance 9.20.140 Trees – Dangerous or Hazardous Conditions. An exception would be where private trees are growing into utility lines. See C below.

C. Power Line Clearance

Provo City Energy Department is responsible for providing private and public trees with adequate clearance from city-owned power lines. No other workers or persons are authorized to approach or attempt to clear branches or vegetation from the city owned power system. All pruning near utility lines shall be in accordance with the standards outlined in the following booklets:

1. *Pruning Trees Near Electric Utility Lines* by Dr. Alex L. Shigo.
2. *Best Management Practices – Utility Pruning of Trees, International Society of Arboriculture*.
3. *ANSI Z133.1 Safety Requirements for Arboricultural Operations*.
4. *ANSI A300 Part 1: Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, Pruning*

SECTION 2 GENERAL REQUIREMENTS

Purpose: This standard is intended to guide city crews, private property owners and contractors in the general requirements regarding regulation and maintenance of city owned and managed trees in compliance with Provo City Ordinance 9.20, to provide uniform and consistent management of the resource.

Introduction: These guidelines are to serve as a standard for all plantings and treatments of city owned trees. They will apply whether work is performed contractually, by city personnel, or by private individuals. *Provo City Arboricultural Standards and*

Specifications shall be adhered to at all times, but may be amended by the City Forester at any time that experience, new research, or laws indicate improved methods, or whenever circumstances make it advisable. Exceptions to the Standards and Specifications must be by written approval by the City Forester.

A. Public Requirements

Trees shall be maintained in such a manner as not to endanger, interfere, or otherwise conflict with requirements of safe public use of an area. City tree maintenance crews perform work by schedule and not in response to individual calls (except in emergencies). When a homeowner wishes to prune, spray, cut roots or remove a street tree, written consent must be obtained from the City Forester.

B. Private Requirements

The pruning and planting of city street trees is a service that Provo City provides. All property owners are entitled to that service. Property owners may chose to hire a private party to prune their city trees, but written consent is required and must be obtained from the City Forester before any person, either for himself or another, plants, prunes, removes, or treats any tree, shrub or hedge in or on a public right-of-way, street, or other public place. Coordination with the City Forester shall be required of any public utility, their agents and contractors engaged in activities which affect city owned trees. Private parties are required to follow the same arboricultural practices as city personnel while working with city street trees.

C. General Standards of Conduct

1. Authorization for work on public trees neither express nor imply a right to violate any law of the land while in the process of performing such work.
2. All work on trees shall be performed according to the latest revision of the following national standards:
 - (a) *ANSI A300 Tree Care Operations- Tree, Shrub and Other Woody Plant Maintenance-Standard Practices.*
 - (b) *Tree Care Operations Standard ANSI Z-133.1, Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush - Safety Requirements.*
 - (c) *ISA Best Management Practices*
3. A qualified, ISA Certified Arborist shall be present at all times when work is being performed on any city owned tree. Inadequate or improperly trained personnel shall not be utilized for work on trees beyond their known capacity or ability.
4. Any injury to persons or damages to any improvement, vehicle, tree, shrub, or structure while working with trees or shrubs shall be promptly reported to the City Forester and arrangements made to properly make restitution or repair within a reasonable period of time.

5. All debris generated from any tree maintenance operation shall be removed promptly. The work area shall be kept safe at all times until all clean-up is completed.
6. All work on an arterial or collector street shall not be performed during times of high traffic or rush hour periods. Work on any State Roads must have the necessary permits from the Utah Department of Transportation (UDOT).
7. Use of tools or equipment in unsafe condition or any application of techniques or methods deemed unsafe to life, limb, or property is forbidden.
8. Pedestrian and vehicular traffic shall be allowed to pass through work areas **only** under conditions of safety and with as little inconvenience and delay as possible.
10. Street and sidewalk warning devices shall be used as required by state and city law at all times while work on public trees or shrubs is being performed. Adequate barricades and warning devices shall be placed and flagman shall be stationed as necessary for the safety of pedestrians and vehicles. Provo Streets Division may be consulted for appropriate set up of these warning devices.
11. Utility poles, fire hydrants and other structures shall not be tied to with winch trucks in the process of removing trees, or for the purpose of securing anchorage or leverage while removing trees or portions thereof.
12. Whenever electric, telephone, gas, water, cable or any other lines or improvements are jeopardized by tree or shrub activity, the proper authorities or property owners shall be consulted prior to performing any work.

SECTION 3 STREET TREE SPACING AND LOCATION REQUIREMENTS

Introduction: Improperly placed trees cause significant damage to city sidewalks, streets, curbs and buildings. These trees often become liabilities to the public and require premature removal. This standard is intended to serve as a guide in the correct placement of shade trees in parking strips, parks and other Provo city property.

A. Street Trees

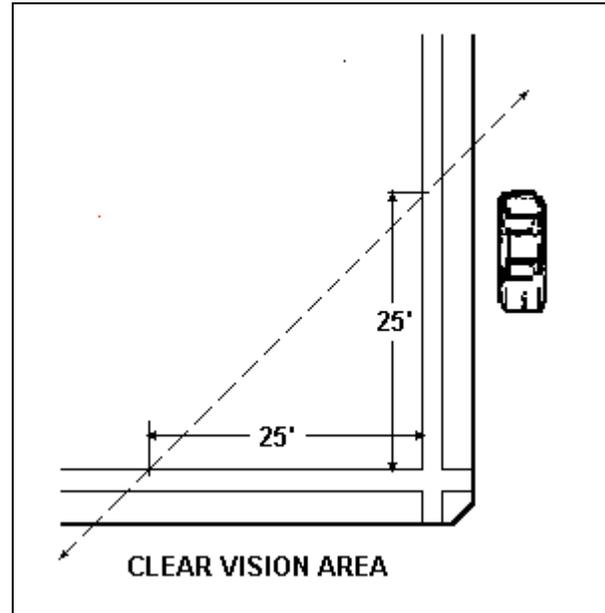
The *City of Provo Tree Selection Guide and Tour* shall serve as the official list of acceptable street trees for planting along city Rights-of-way. The *Tree Selection Guide and Tour* can be accessed through Provo's City Forestry Office or at forestry.provo.org. In the guide, street trees are classified into three different groups depending on their mature size. Small-sized trees may be planted in parking strips with a minimum width of 4 feet and spaced 20 feet apart. Trees classified as medium-sized must be planted in 6 feet wide minimum parking strips and spaced at 25 feet apart. Large trees must only be planted in parking strips with a minimum width of 10 feet and spaced at least 30 feet apart. All newly planted street trees shall be planted in the middle of the parking strip. In parking strips where a space of less than 4 feet in width exists between the curb and the detached sidewalk, no trees or woody plants shall be planted on the public area so involved without the approval of the City Forester.

B. Right-of-Way Clearance

No public or private tree shall be planted in such a manner that eventual growth cannot be reasonably maintained so as to avert interference with, or obstruction to, any improvements installed for the public benefit such as traffic and street signs and lights, fire hydrants, overhead utility wires, street lights, utility poles, etc. Unauthorized plantings or volunteer growth occurring in a planting strip may be ordered removed by the City Forester.

C. Clear Vision Area

City Ordinance 14.34.100. Clear Vision Area - Corner Lots states that at the intersection of roadways, no plant material with a mature height greater than 36 inches shall be planted within a sight triangle measuring 25 feet along the boundary of each of the intersecting curb lines, except where engineering standards indicate otherwise. No tree shall be planted in such a location that it would create a conflict with sight obstacle triangle. The clear vision area is maintained to provide an adequate field of vision for motorists and pedestrians at road intersections. More information regarding the clear vision area can be obtained by calling the Provo City Traffic Engineer.

**D. Additional Location Requirements**

1. 15 feet from a driveway or alley
2. 15 feet from a street light or a utility pole
3. 10 feet from a fire hydrant or street sign
4. When a tree exists near the potential placement of street signs, pedestrian lights etc. the sign location shall be evaluated as to lessen conflict with the growth of the existing tree.
5. Sidewalk concrete planters must have a minimum planting area of at least 16 square feet and larger if possible. Structural soils should be considered for all locations that would be appropriate for such application.

SECTION 4 TREE PLANTING

Introduction: This standard is intended to guide city crews and private contractors in the correct planting of shade trees in parking strips, parks and other Provo city property in compliance with Provo City Ordinance 9.20. Proper tree planting is essential for the future health of the tree and can eliminate future problems such as root rot, etc.

A. Nursery Stock Specifications

1. Newly planted public trees must be a minimum caliper size of 1.5 inches in diameter, measured at the root collar or flare.
2. Plant material shall conform with procurement, transport and installation guidelines established by the International Society of Arboriculture and the latest update of the *American National Standards Institute (ANSI) for Nursery Stock Z60.1*.
3. Plants shall have normal, well-developed branches and vigorous root systems. They shall be healthy, vigorous plants free from defects, decay, sunscald injuries, abrasions of the bark, insect pests and all forms of infestations or objectionable disfigurements.
4. Balled and burlapped plants shall be dug with solid balls of adequate size, the balls securely wrapped with burlap or canvas, tightly bound with rope or twine.
5. The City Forestry Division may inspect and/or reject any tree or shrub before it is planted in a city right-of-way or other city property.

B. General Planting Standards

1. Select tree species for planting from the *City of Provo Tree Selection Guide and Tour*. If another species is desired, consult with the Urban Forestry Division prior to purchase and planting. The guide can be accessed at Provo's Forestry Office or on the World Wide Web at forestry.provo.org.
2. Before choosing the planting location contact Blue Stakes at 1-800-662-4111 for location of underground utilities.
3. Existing public properties shall receive new infill plantings on an ongoing basis as funding permits. All removed trees shall be replaced with one or more new trees when space allows for it.
4. Efforts shall be made to insure that no single tree species makes up more than 15% of the total street tree population. This is to reduce susceptibility to uniform disease and eventual uniform tree decline or death.

C. Planting Standards of Workmanship

1. All planting practices should be in accordance with the *ISA Best Management Practices Tree Planting* booklet.
2. Plant material should be handled to allow the least amount of damage during planting.
3. Balled and burlapped and container grown plants shall always be handled by the soil ball as to minimize root and trunk damage and separation. Under no

circumstances should they be dragged, pulled, or lifted by the trunk or foliage parts in a manner that would loosen the roots in the ball.

4. Tree roots should be handled and secured as to minimize damage from wind and desiccation. If a tree or trees are not to be planted the same day they are set at the site, they should be watered, covered, and stored in the shade to protect them from dehydration. Bare-root stock shall never be left open to air except from the point of uncovering the roots to plant the tree.
5. Any broken limbs caused in the planting operation should be pruned immediately. In cases where trees are prone to damage during planting operations, trees should be properly protected.
6. Excavated plant pits shall not be left open for any extended period of time. When work is not in progress, each hole shall be adequately barricaded with warning devices to prevent injury or public hazard.
7. Appropriate cleanup of soil, branches, twine, rope, wire, or other debris resulting from any tree or shrub planting shall be promptly accomplished. The work area shall be kept safe at all times until the cleanup operation is completed. Under no circumstances shall debris remain as to cause a public hazard.

D. Planting Directions (see diagram on page 9)

1. Layout

Locations shall be checked for underground utilities prior to any excavation. Where below ground obstructions are encountered, the tree planting locations shall be modified accordingly.

2. Planting Holes

Dig a "planting hole" at least one and one-half times the width of the root ball. Avoid digging too deep. The depth of the hole should be no deeper than the depth of the root ball.

3. Removal of Container

To remove a tree from a container gently lay it down. Push on the sides and bottom of the container to break contact between the root ball and container. Hold the trunk near the surface of the soil and push/pull the container away from the root ball. Slide the container off the root ball. Do not pull on the trunk. If the root ball is too large for this process it may be necessary to cut the container off after the tree is placed in the planting site.

4. Removal of Binding Material

After placing the tree in the hole, remove the wire and burlap if stability of the root ball allows. If not, remove only the top one or two rows of wire and an equal amount of burlap. No twine or burlap should remain on or near the surface of the root ball or around the trunk. Cut vertical slits in the burlap that remains. Do not fold burlap into the hole.

5. Back-filling and Watering in

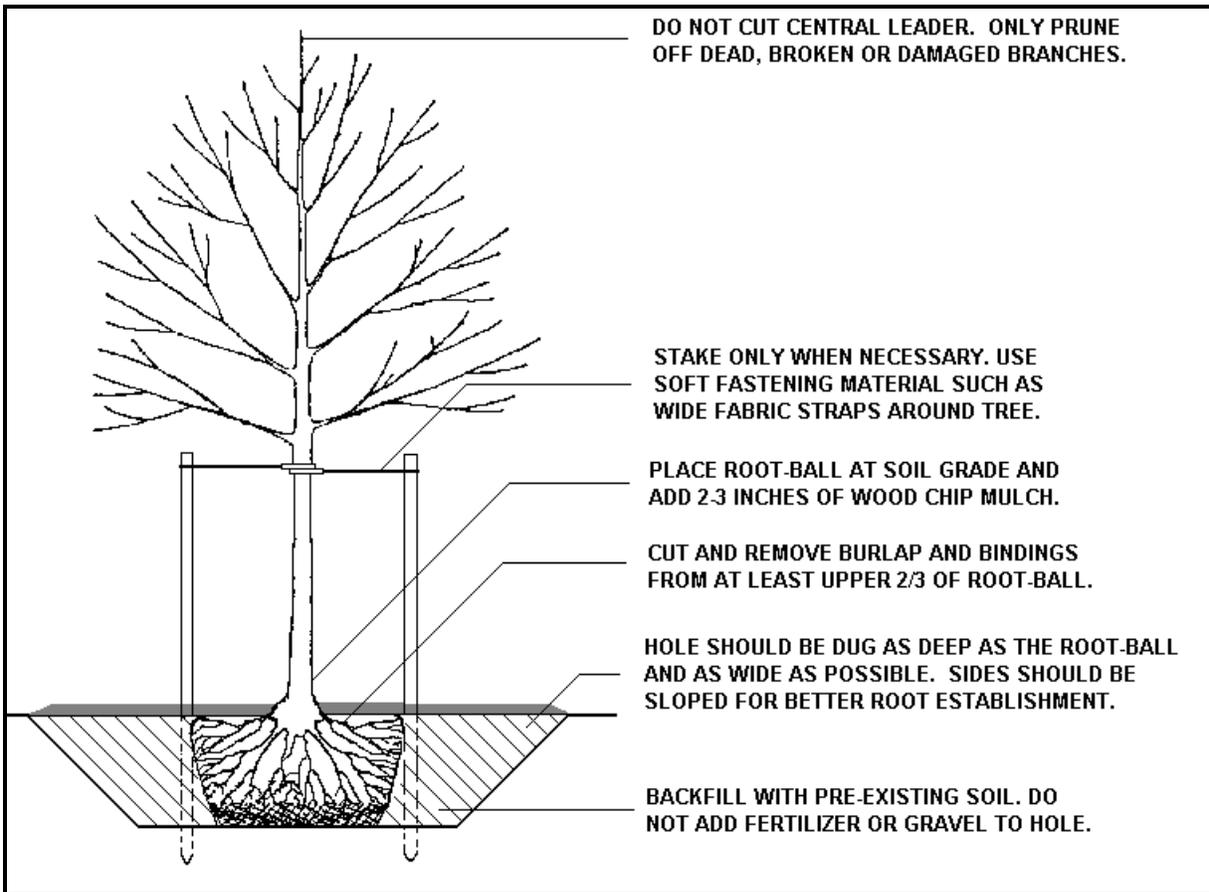
Use the soil removed from the hole to backfill. Minimize air pockets by removing soil clumps, rocks, sod, and folded burlap. Water thoroughly and allow water to soak deeply into the site.

6. Mulching

Place 2 to 4 inches of mulch over the planting site. Avoid direct contact between mulch and the trunk of the tree. This will prevent root rot, diseases, and insect and rodent problems. No flowers or other vegetation should be planted around newly planted trees. Mulch should be re-applied as necessary to maintain a 3 to 4-inch thick layer.

7. Check for Moisture

Check moisture content of the backfill and root ball weekly to determine how much and how often to water. Soil type, drainage, exposure, weather, tree species and size, ground cover, adjoining shelter, and season are a few of the factors that will influence the frequency and amount of water needed.



SECTION 5 TREE PRUNING AND REMOVAL

Purpose: This standard is intended to guide city crews and private contractors in the pruning and removal of city owned trees in parking strips, parks and other Provo city property in compliance with Provo City Ordinance 9.20.

A. General Standards for Tree Pruning

1. All tree maintenance work on public trees shall be performed in accordance with the latest revisions of ANSI A300 and ANSI Z133.1 Standards and as further detailed in the *ISA Best Management Practices Tree Pruning* booklet. Copies of these national standards are available for review at the Urban Forestry Division office.
2. Homeowners or other persons unfamiliar with the standards of tree pruning should review the United States Department of Agriculture's pamphlet *How to Prune Trees*. Available upon request from the Urban Forestry Division office.
3. It is recommended that all public deciduous trees on improved properties should be pruned on a rotational basis of not more than 7 years.
4. Any public tree which because of habit of growth, age, condition or disease becomes a public nuisance or hazard to public safety or obstructs a clear view of streets, signs, signals or intersection, creates a hazard, shall be maintained in a manner that corrects the problem or should be removed as determined by the City Forester.
5. Hanging limb and branch growth shall be maintained 13 feet above streets and 8 feet above sidewalks.
6. Property owners are responsible for pruning their private trees from obstructing public rights-of-way and all signage to the minimum height clearance required by city ordinance and this document. Line clearance around power lines shall be performed only by crews employed by or contracted with Provo City Energy Department.
7. Authority to prune street trees does not include the cutting back of sound, healthy tree branches in excess of 6 inches outside diameter, unless specifically described by the City Forester or if required by accepted arboricultural standards in the course of utility line clearance work and is coordinated with the City Forester.
8. Tree branches shall be removed and controlled in such a manner as not to cause damage to other parts of the tree, other plants, and property.
9. Clean-up of branches, logs or any other debris resulting from a tree pruning or removing shall be promptly and properly accomplished. The work area shall be kept safe at all times until the clean-up operation is completed. Under no condition shall the accumulation of brush, branches, logs, or other debris be allowed upon a public property in such a manner as to cause a public hazard.
10. The use of climbing spurs or gaffs shall be permitted **only** in the case of tree removals or in aerial rescue emergencies.
11. Under no conditions shall it be considered proper to leave severed or partially cut limbs in a tree after the workers leave the scene of operations.

B. Tree Removal Standards

Criteria for the removal of street and park trees:

1. The tree interferes with or creates a public nuisance or hazard to pedestrians or vehicular traffic or is considered a public nuisance by the City Forester.
2. The tree severely interferes with the growth and development of a more desirable tree.
3. The tree's aesthetic value is so low that the site would be enhanced visually by the removal and replacement of the tree.
4. The tree has been topped, thus producing an unsound branching structure conducive to severe storm damage, wind throw, and accelerated death.
5. The tree is not approved for planting in parking strips.

C. Hazard-tree Risk Management Policy

The City of Provo has an active policy to maintain the safety to public lands from potentially hazardous trees. The City will strive to eliminate, in a timely fashion, any tree deemed hazardous. When available fiscal and human resources limit the ability of the city to remove high-risk trees, priority shall be placed on trees deemed to carry the highest risk. The standard for rating the hazards of a tree will be utilizing the latest edition of the *ISA Tree Hazard Evaluation Form* in conjunction with the *Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*. The City Forester will administer this program and have final judgment in all matters concerning the mitigation measures taken for any tree deemed hazardous.

D. Stump Removal Requirements and Standards

1. Persons performing stump removal duties shall have the immediate area investigated for utility lines and blue-staked as necessary and wear all required safety eye and ear protection.
2. All removal of public trees shall be done in a manner so that the remaining stump will be at least 8 inches below ground level unless a special exemption is granted by the City Forester.
3. Excavations resulting from a tree or shrub removal must be promptly filled in to normal ground level with clean soil, the fill properly settled and free of debris.

SECTION 6 TREE PROTECTION AND PRESERVATION

Introduction: This standard is intended to guide city crews and private contractors in the protection of city owned trees near construction, public works or underground utility projects in compliance with Provo City Ordinance 9.20.060. All people that work around trees are responsible to protect them from unnecessary injury that

would decrease their value. Tree roots often spread 2-3 times wider than the drip-line of the canopy and 90% of a tree's roots are found in the top 2 feet of soil. These facts illustrate why it is so important to use care when working near trees.

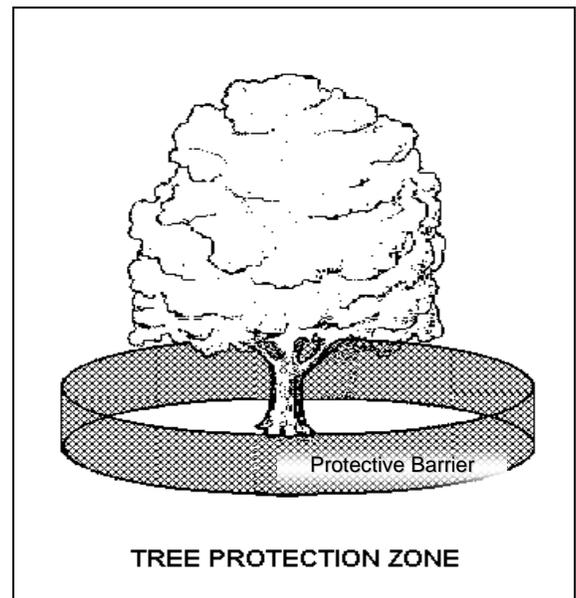
A. Tree Protection Guidelines for Construction Sites

Prior to initiation of construction work that will affect trees on city property, a tree protection plan should be developed which provides for the following information:

1. Site Plan
 - (a) Location of trees to be protected, removed or planted by species and size.
 - (b) Location and width of site ingress and egress for vehicles and equipment.
 - (c) Location and dimension of temporary parking and/or storage areas.
 - (d) Location of existing and proposed changes to street, parking, grade, including irrigation system type, design, and schedule.
 - (e) Location and type of existing and proposed utilities.
2. Narrative
 - (a) Provide construction schedule including time of tree work.
 - (b) Describe tree protection measures to be implemented.
 - (c) Provide species list, caliper size, and specifications for tree planting, including irrigation system type, design, and schedule.
 - (d) Identify arborist, landscape architect, and/or tree care contractor providing tree services.
 - (e) Identify name, mailing address, and telephone number of contact person responsible for overall development, implementation, and performance of tree plan.
3. Tree protection practices may include, but are not limited to: pruning branches and roots, temporarily fencing off area around the rooting zone, wrapping trunks to prevent wounds, spreading wood chips or gravel to reduce soil compaction, ensuring proper tree irrigation is provided throughout the term of the project, and adding well-composted organic matter to the tree's growing location following construction.
4. Tree planting work shall be done in accordance with Utah State University Extension Utah Forest Facts sheet *Planting Landscape Trees*. Tree work shall be done in accordance with latest ISA Best Management Practices (BMP), ISA Trees and Development – a Technical Guide to Preservation of Trees During

Land Development, National Arbor Day Foundation's Trenching and Tunneling Near Trees, ANSI Z133.1, and ANSI A300. Directions provided in authorizing permits shall be followed.

5. Trees to be preserved at all construction activities shall have a Tree Protection Zone (TPZ) which is no less than the width of the drip line of the tree's canopy, clearly marked with a continuous protective fence prior to any demolition, clearing, trenching or tunneling projects commence.
6. Heavy equipment shall not be allowed inside the Tree Protection Zone. All heavy excavations shall be made by equipment from **outside** of this zone.
7. Building material, topsoil, chemicals, or fill shall not be stockpiled in the Tree Protection Zone or in the drip-line of any tree that is scheduled for preservation.
8. Prior to construction on public property, the Tree Protection Zone will be designated by the City Forester following coordination with other city departments. Prior to construction on private property, the Tree Protection Zone will be designated in coordination with the Utility Forester and the property owner. The size and shape of the zone will depend on the tree species' sensitivity to impact, the health and age of the tree, and root and crown conformation and development constraints.
9. Trenching should be performed in accordance with the standards listed above. When large scaffold roots are encountered while trenching hand digging and bridging of the roots shall be done. In situations where a root has been damaged, a clean cut shall be made on the root at the edge of the trench closest to the tree trunk.
10. Tunneling or boring should be done whenever work must be done within the Tree Protection Zone. Tunneling or boring in the Tree Protection Zone must be at least 2 feet deep.
11. Excavation involving root cuts should be done rapidly. Cuts on tree roots shall be smooth and clean. The trench should be backfilled as quickly as possible to prevent the exposed roots from drying out and the tree should be watered immediately. If trees are to remain exposed for more than four to six hours, they must be covered with burlap and kept moist at all times.



- 12. For trees with a trunk diameter in excess of six inches, tunneling or boring should replace trenching according to the following **minimum** distances from the face of the tree trunk in any direction.

Diameter	Minimum Trenching Distance To Access	
	Boring	Tunneling
6 - 9 inches	5 feet	
10 - 14 inches	10 feet	
15 - 19 inches	12 feet	
20 inches or more	15 feet	

- 13. The booklet *Trenching and Tunneling Near Trees* produced by the National Arbor Day Foundation shall be used as a guide for all construction and excavation work around private and city trees. This booklet may be obtained in either the City or Utility Forestry offices.
- 14. Tree care contractor providing services should be currently licensed to do business in Provo, registered with the Utah Division of Commercial Code, insured against personal injury and property damage, and certified as an arborist with the International Society of Arboriculture. Prior to beginning work on city owned tree(s) the tree care contractor shall contact the city’s Urban Forestry Division to receive an authorizing permit.
- 15. Trees shall not be used to support any scaffolding, signs, temporary utility, or any other device. Sidewalks and paving levels should be contoured whenever possible to avoid root cutting. If damage occurs to a protected tree, immediate contact shall be made with the City Forester in order that wounds can be treated.
- 16. No elevation or grade changes can be made around the drip zone of the trees unless written approval is given by the City Forester upon reception of a elevation/grade change plan.
- 17. Exceptions to the above guidelines shall be reviewed and approved by the Provo City Forester prior to implementation.
- 18. Trees shall be watered according to the following guidelines:
 - a. Established trees need deep watering once a week with low pressure to ensure that the ground is soaked to a depth of at least 12 inches.
 - b. Young or newly planted trees need to be watered every 3-4 days.
 - c. To keep water from evaporating from the soil around the tree, apply at least two or more inches of organic mulch (wood chips or mulch) around the base of the trees.

B. Underground Utility Work

- 1. Trenching should be performed in a manner and location least damaging to tree roots.
- 2. Tunneling or boring should be done whenever possible where large scaffold roots are encountered, hand digging and bridging of roots shall be done.

3. Any cutting of tree roots, other than when in the process of tree removal, shall give due consideration to future welfare of the tree. Proper action shall be taken as to protect, preserve, or correct the root problem.
4. *Trenching and Tunneling Near Trees* by the National Arbor Day Foundation shall be used as a guide for all construction and excavation work around city trees. This booklet may be obtained from the City Forester.
5. Excavation involving root cuts should be done rapidly. Cuts on tree roots shall be smooth, and clean. Backfill before the roots have a chance to dry out, and water tree immediately. If tree roots are to remain exposed for any extended period of time, they must be covered with burlap and kept moist at all times.

SECTION 7 TREE APPRAISALS

A. Tree Appraisal Procedures

All tree appraisals should be conducted in accordance with accepted ISA and Council of Tree and Landscape Appraiser procedures as specified in the *Guide for Plant Appraisal, 9th Edition*. Included in the addendum are the tree appraisal worksheets that are often used to calculate tree appraisal value. For more information regarding tree appraisal procedures, please contact the Provo City Forestry Division (801) 852-6920.

B. Factors Determining Tree Value

Four factors determine the value of trees and other plants. Arborists use these factors to determine the appraisal value of a tree.

1. **Tree Size:** Generally, the older and larger the tree, the more valuable it will be.
2. **Tree Species or Classification:** Trees which are hardy, durable, highly adaptable and free from objectionable characteristics are more valuable than trees that are inherently weak, messy, and etc. Generally, the trees that are more desirable are more attractive and require less maintenance.
3. **Tree Condition:** A healthy, well-maintained tree will have a higher value than one in poor condition. Roots, trunk, branches, buds, and etc. will all need to be inspected by a certified arborist trained in tree appraisal to determine the condition of the tree.
4. **Tree Location:** A tree that makes functional or aesthetic contributions to a property will be worth more than one, for example, in a wooded area. A specimen tree, or a tree that stands alone, as opposed to a tree in a group planting, typically has a higher value. Tree values can vary according to your region. Hardiness zones, state conditions, and local conditions can all affect the value of a tree.

C. Suggestions for Homeowners

Homeowners should take certain precautions to insure that they are accurately compensated for the value of their trees should any accident or injury occur. We recommend the following actions:

1. Plan new or additional landscape for both beauty and functional value.
2. Protect and preserve plants to maintain their value.
3. Take photographs on a regular basis as the landscape matures to show the importance of the trees and other landscape plants to the overall property value.
4. Keep receipts for plant material and maintenance of the property.
5. Consult a certified arborist trained in tree appraisal should any casualty strike.
6. When seeking appraisals or the like, make sure the advice and information comes from a credible source.

SECTION 8 SPRAY APPLICATIONS

- A.** Persons applying pesticides on street or park trees must have a current commercial or non-commercial pesticide applicator's license and shall observe all safety requirements pertaining to licensed pesticide applicators including: EPA and the State of Utah regulations for the application of pesticides.
- B.** Ineffectual control, damage, injury, or death of plants, animals, or persons resulting from the use of materials beyond the limitations of the manufacturer's guarantee shall be considered the responsibility of the applicator.
- C.** If a spray machine is not capable of giving proper spray coverage to all portions of the infested or partially infested tree being treated, it shall be considered inadequate to perform such operation.
- D.** Spray equipment shall be kept clean and in good working order.
- E.** Operation with dirty tanks or equipment or unsanitary, unsafe, methods of washing out or draining of same in public sewers and gutters is prohibited.
- F.** No spray application shall be carried out when the temperature is outside the range of 40-88 degrees F. or when the wind velocity is greater than 6 mph.
- G.** All spray machines other than hand-pump sprayers must have agitators capable of maintaining a uniform spray suspension at all times when spray application is in progress.
- H.** Adequate precautions shall be taken in all phases of spray application concerning factors of toxicity, phytotoxicity, chemical reaction, or residual action pertaining to spray material used.

- I. Applicators applying pesticides to trees shall adhere to all state and federal regulations pertaining to pesticides and the safe and unobstructed passage of vehicles and pedestrians.
- J. Applying fertilizers and pesticides for pay is considered as commercial pesticide applications and does require a current license for such from the Utah State Department of Agriculture.
- K. Where applicable, standards outlined in the *ISA Best Management Practices Integrated Pest Management* booklet should be followed.

ADDENDUM UTILTIY FORESTRY RULES

Purpose: Realizing that the utility forest provides many benefits to the citizens of Provo City, the following rules relating to the health and care of the trees, specifically referring to those under Provo City owned power lines on public and private property, have been established in order to protect and promote public health and safety by setting the following standards in relation to the care of these trees. The following rules were adopted to ensure that existing trees are maintained following the proper and accepted industry standards in order to protect, as much as possible, the health and vigor of the forest while preventing tree related power outages.

Definitions: For the purpose of these rules, the following terms, phrases, words, and their derivations shall have the meaning given herein.

"Utility Forest" shall mean all trees and plants growing within Provo City limits on public and private property that have the potential to conflict with the power transmission and distribution lines and related equipment that are owned and maintained by Provo City Power.

"City Owned Utility Trees" shall mean trees that are planted on the parking strips, in the city owned parks, and on other city government properties. The Utility Forestry Program is responsible for the line clearance pruning or removal of all of the trees that have the potential to conflict with the power lines and related equipment and have the ability to disrupt power transmission and distribution.

"Privately Owned Utility Trees" shall mean trees that are planted on private property and have the potential to conflict with the power lines and related equipment and have the ability to disrupt power transmission and distribution. The Utility Forestry Program is responsible for the line clearance pruning or removal of all of these trees.

"Utility Forester" shall mean the Provo City Utility Forester in the Provo City Energy Department and whose specified duties, responsibilities, and authority are hereinafter specified.

"Utility Forestry Program" shall mean the program which is a part of the Provo City Energy Department and in coordination with the Provo City Urban Forester and is responsible for the care and maintenance of the utility forest.

A. Powers and Duties of Utility Forester

The Utility Forester shall be the manager of the Utility Forestry Program of the Provo City Energy Department and shall be responsible for carrying out the duties of this position. The Utility Forester coordinates, manages, and participates in providing over-all stewardship of Provo City utility forest. The Utility Forester shall initiate a Utility Forest Management Plan to be included within the Provo City Urban Forest Management Plan.

B. Utility Forestry Program Rules and Regulations

The Utility Forester may recommend, and the Energy Department may adopt, additional regulations to be known as the Provo City Utility Forestry Standards and Specifications. These regulations shall provide reasonable guidance for maintaining line clearance within the utility forest as outlined in the Utility Forest Management Plan. Such rules and regulations shall not be in conflict with any other law or ordinance. These rules and regulations include:

1. The Utility Forester shall have the right to enter private property in order to conduct the provisions stated in these rules.
2. Prior consultation with, and when possible, written consent from the property owner shall be obtained before any pruning or removal of trees or other vegetation located on private property. In cases where telephone or personal contact is not possible or is otherwise impractical, written notice of action taken shall be left at the affected property. In cases of an emergency, when time is not permitting to gain consent, effort to make both written and oral notification of work performed will be done after the fact.
3. The Utility Forester has the authority to direct Provo Energy Department qualified utility forestry personnel and contract crews to prune and remove all trees and other vegetation located on or growing from public and private property which may interfere and conflict with Provo Power's electric transmission and distribution lines and related equipment or that in the opinion of the Utility Forester constitutes a hazard to the general public.
4. The Utility Forester has the authority to direct the pruning or removal of any trees or other vegetation which interfere with said distribution or transmission lines, or which in the opinion of the Utility Forester annually cause problems which normally would not arise had the proper species of tree(s) been planted. In areas where the utility trees are also city trees removals shall be coordinated with the City Forester.
5. The Utility Forester shall collect and maintain all records and data necessary to objectively evaluate whether progress is being made toward the stated purpose of this ordinance. An annual summary and analysis of the evaluation, and recommendations for action shall be prepared by the Utility Forester.

6. Recommend the matters of policy regarding the planting, maintenance, and removal of trees and other vegetation that has the potential to conflict with the city owned power system.
7. The Utility Forester has the authority and duty to review tree planting and landscaping plans for building and development projects which have been proposed or submitted for plan review. In situations where the City owned power system will be affected by such plantings the Utility Forester has authority to modify a landscape plan as a condition of approval as provided in the Zoning Ordinance.
8. Recommend policies for the review and approval of capital projects where trees or other vegetation will be planted or removed on city or private property and could pose a threat to the city owned power system.
9. Develop programs, educational materials and campaigns to assist and encourage property owners to plant trees in locations on their property that do not interfere with the city owned power system.
10. Develop programs, educational materials and campaigns to encourage property owners to install landscapes that conserve energy and water.
11. Assist the city forester, when requested, to encourage the improvement of the urban forest through planning and policy development with all related departments.
12. Review those portions of the department budget allocated for the utility forestry program and advise on the appropriateness of the funding levels.
13. In all instances, serve as an advocate of the city's utility forest with emphasis on the reliable delivery of power to our customers.

C. Utility Forest Line Clearance Maintenance

1. No person except authorized city certified line clearance tree trimmers and qualified contractors hired by Provo City may perform any of the following acts unless previous written consent has been received from the Utility Forester:
 - (a) Prune or remove any tree on public or private property that is conflicting with or damaging Provo City's power system and related equipment.
 - (b) Plant any tree under or adjacent to power lines that are owned by Provo City Power that do not meet the requirements as listed by the Utility Forester.
2. Qualified Private Tree Trimming Contractors may not prune or remove any trees or vegetation on public or private property that has the potential to conflict with and damage the Provo City Power system and equipment unless the following requirements are met:

- (a) Contractor, upon request, must provide documentation that the arborist doing the work is a certified arborist by the International Society of Arboriculture.
 - (b) Contractor, upon request, must provide proof of liability insurance including bodily injury, death and/or property damage.
 - (c) Contractor shall be solely responsible for any and all damage to the city owned power system and equipment, private property, and for any bodily injury and/or death caused by the contractors actions.
3. It shall be unlawful as a normal practice of pruning for any person, firm, contractor, or city department to top or round-over any tree under or near any distribution or transmission line. Only in cases when trees have been severely damaged by storms or other causes, or for the removal of the conflicting tree, may such pruning methods be used. These decisions are made at the determination and discretion of the Utility Forester. In all other instances proper pruning methods for utility line clearance as stated in the Utility Forestry Program Standards and Specifications must be used.
4. Any damage that is caused to Provo city's power system and any other public or private property due to the property owner refusing trimming that necessary to insure proper line clearance will be the responsibility of said property owner. The property owner will be required to pay all monetary and legal damage and repair costs incurred.

ADDENDUM STREET LIGHT WIRE CLEARANCE POLICY

Provo City Energy Department Street Light Wire Clearance Policy

Purpose: The purpose of this policy is to outline Provo City Energy Department requirements and standards for the maintenance of trees and vegetation that conflict with street light wires within the corporate limits of Provo City.

A. Private Property

All street lights and street light wires on private property will be maintained by the line clearance tree trimming crews in the Energy Department.

B. Public Property

All street lights and street light wires on public property will be pruned according to the following guidelines:

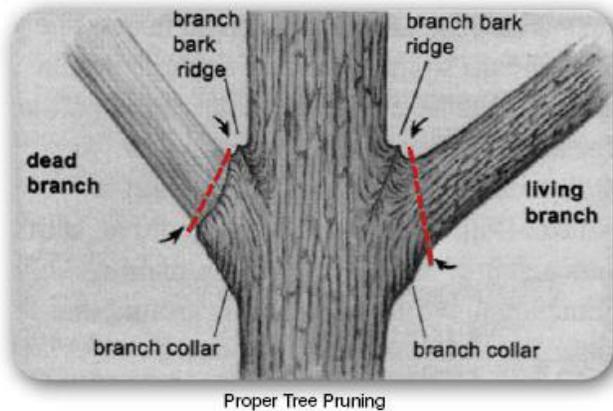
C. Pruning Guidelines

- 1. Series Lighting (Arc Circuit): In an emergency and/or in situations where only a few branches are conflicting with the series lighting street light system, work will be conducted by an Energy Department line clearance tree trimming crew. In situations where an entire street lined with city trees needs to be trimmed the arc circuit will be disabled and the Parks and Recreation Department's urban forestry

crew will perform the clearance. At the end of the day the arc circuit will be re-connected.

2. Multiple (Parallel) Street Lighting: All secondary street lighting will be maintained by the Energy Department line clearance tree trimming crews. In circumstances where just minor pruning is required to protect the street light wire pruning will be done. In circumstances where more than minor pruning is required to protect the street light wire tree guards will be used.
3. Street Light Head Pruning: Street light head clearance will be maintained upon request.
 - (a) All street and park trees interfering with the street light head shall be pruned by the Parks and Recreation Department urban forestry crew.
 - (b) All trees interfering with street light heads on private property shall be pruned by the Energy Department line clearance crews.

ADDENDUM HOW TO PRUNE TREES

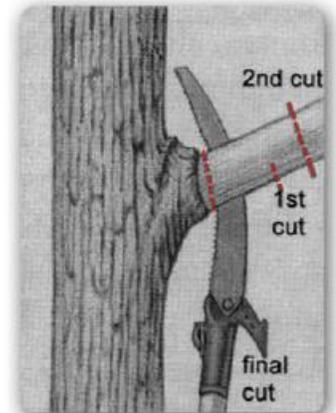


Proper pruning is an important part of caring for and protecting the health of trees. In fact, many tree care professionals recommend that homeowners start early and continue proper pruning throughout the life of a tree. Proper pruning can remove excessive growth, shape a tree, and eliminate structural problems.

of the tree. Third, trees may be pruned to heighten the aesthetic look of the tree. It is important to always prune a tree for the right reason.

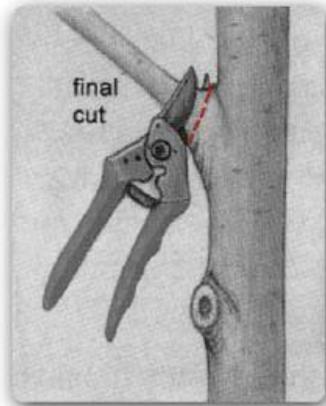
There are three main reasons to prune a tree. First, trees may be pruned to increase the safety of people and property. Second, trees may be pruned to increase the health

When pruning a tree, it is critical to make the pruning cuts properly. Cutting too close to the trunk can cause long term problems that can affect the structural strength of the tree. However, pruning too far from the trunk, leaving a stub, prevents the tree from sealing off the wound. This provides an area for decay, insects, disease, and etc. to enter the tree. See the diagrams on this page showing how to properly make a pruning cut on an ornamental tree.



Pruning a Larger Branch

Tree topping is the drastic removal, or cutting back, of large branches in mature trees, leaving large, open wounds which subject the tree to disease and decay. Topping causes immediate injury to the tree and ultimately results in early failure or death of the tree. Never cut main branches back to stubs. Many people mistakenly “top” trees because they interfere with views or sunlight, or simply grow so large that they worry the landowner. Unfortunately, the topping process is often self-defeating. Ugly, bushy, weakly attached limbs usually grow back higher than the original branches. In short, topping is the worst thing to do for the health of a tree.



Pruning a Smaller Branch

Be safe when pruning trees. When trimming or pruning trees, make sure to check for power lines in or near the tree's branches. Never try to remove branches that are tangled in a power line. This is very dangerous and should only be done by a certified professional. If one of your trees has branches tangled in power lines, call Provo City Power (801) 852-6000. They will be happy to take care of them for you. Remember the 10 Foot Rule: keep yourself and anything you are handling at least 10 feet away from overhead power lines.

For more information regarding proper pruning practices, please review the United States Department of Agriculture's pamphlet *How to Prune Trees*. To request a pamphlet contact the Provo City Forestry Division (801) 852-6920.

ADDENDUM TREE APPRAISAL WORKSHEETS

Trunk Formula Method

Case # _____ Property _____ Date _____
Appraiser _____

Field Observations

- 1. Species _____
- 2. Condition _____ %
- 3. Trunk Circumference _____ in or Diameter _____ in
- 4. Location % = [Site _____ % + Contribution _____ % + Placement _____ %]

Regional Plant Appraisal Committee and/or Appraiser-Developed or-Modified Information

- 5. Species Rating* _____ %
- 6. Replacement Tree Size (diameter) _____ 2.5 in
- 7. Replacement Tree Cost _____
(See regional information to use Cost selected) \$285.00
- 8. Installation Cost _____ \$135.00
- 9. Installed Tree Cost (Line 7. + Line 8.) _____ \$420.00***
- 10. Unit Tree Cost _____
(See regional information to use Cost selected) \$58.00 / in²****
- 11. Appraised Trunk Area _____
(TAA or ATAA: use Tables 4.4-4.7****), or c² (Line 3.) _____ x 0.08,
or c² (Line 3.) _____ x 0.08, or d² (Line 3.) _____ x 0.785 = _____ in²
- 12. Appraised Tree Trunk Increase (TA_{TNCR}) _____
(TA_s or ATA_s _____ in² (Line 11.) - TA_R 4.90625 in² (Line 6.) = _____ in²
- 13. Basic Tree Cost _____
(TA_{TNCR}) (Line 12.) _____ in² x Unit Tree Cost (Line 10.) _____
\$58.00 per in² + Installed Tree Cost (Line 9.) _____ \$420.00 = \$ _____
- 14. Appraised Value _____
Basic Tree Cost (Line 13.) \$ _____ x Species Rating (Line 5.) _____ %
x Condition (Line 2.) _____ % x Location (Line 4.) = _____ % \$ _____
- 15. If the Appraised Value is \$5,000 or more, round to the nearest \$100; if it is less, round to the nearest \$10.
- 16. Appraised Value (Line 14.) \$ _____

*According to UCFC ratings for Utah
 **4.90625 is the square inches of a 2.5" replacement deciduous tree
 ***For the Utah area = \$420.00
 ****For the Utah Area = \$58.00 in²
 *****DBH (Diameter at Breast Height)² x 0.785 (Limits on value over 30" DBH)

Comments:

Factor 1: Root*	<i>No apparent problems</i>	4
(A root collar inspection may be warranted.)	<i>Minor problems</i>	3
Root anchorage	<i>Major problems</i>	2
Collar / flare soundness	<i>Extreme problems</i>	1
Mechanical injury		
Girdling /kinked roots		
Compaction /waterlogged roots		
Toxic gases /chemical symptoms		
Presence of insects or disease	Structure + Health = Subtotal	
Mushrooms (may need in interview owner)	(1-4) (1-4) (2-8)	
<hr/>		
Factor 2: Trunk*		
(Core sampling or climbing may be needed and /or warranted to inspect the trunk.)		
Sound bark and wood		
Cavities		
Mechanical or fire injury		
Cracks (frost or other)		
Swollen or sunken areas		
Presence of insects or disease	Structure + Health = Subtotal	
Conks	(1-4) (1-4) (2-8)	
<hr/>		
Factor 3: Scaffold Branches*		
(Climbing the tree may be warranted to inspect the branches)		
Strong attachments		
Smaller diameter than trunk where attached		
Vertical branch distribution		
Free of included bark		
Free of decay and cavities		
Well pruned		
Well-proportioned /proper taper		
Wound closure		
Deadwood or fire injury	Structure + Health = Subtotal	
Insects or disease	(1-4) (1-4) (2-8)	
<hr/>		
Factor 4: Small Branches and Twigs		
Vigor of current shoots (compare previous growth)		
Well distributed through canopy		
Appearance of buds (color, shape, size for the species)		
Presence of insects or disease		Health Subtotal
Presence of weak or dead twigs		(1-4)
<hr/>		
Factor 5: Foliage and /or Buds		
Size of foliage /buds		
Coloration of foliage		
Nutrient status		
Herbicide, chemical, pollution injury		
Wilted or dead leaves		
Dry buds		Health Subtotal
Presence of insects or disease		(1-4)
<hr/>		
Total subtotal pints assessed for the five Factors		(8-32)
Divide subtotal points by 32 (total points possible)		
And multiply by 100 to obtain the Condition Rating		(25-100)
<hr/>		
*As explained in the text, both structure and health items are to be rated for the roots, the trunk, and the scaffold branches. Rating roots, trunk, and scaffold branches for both structure and health gives them the necessary importance in the Condition rating. Small branches and twigs, and foliage and /or buds, are rated only for health.		