CITY OF EVANSVILLE

ARBORICULTURAL SPECIFICATIONS MANUAL

Developed by
Evansville Tree Advisory Board
and
City of Evansville
Department of Urban Forestry

In accordance with the City Ordinance
"Ordinance of the City of Evansville, Indiana Concerning Trees"
2.90.010 through 2.90.150
Effective May 1, 2001

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0.0 Definitions

ANSI – American National Standards Institute. The following are ANSI standards for tree planting, care, and removal.

- ANSI Z60.1 - 2014 – American Standard for Nursery Stock
- ANSI Z133.1 - 2006 – Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements
- ANSI A300(Part 1) - 2008 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Pruning)
- ANSI A300 (Part 2) - 2011 – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Soil Modification,Fertilization and Drainage)
- ANSI A300 (Part 3) - 2006 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Support Systems a. Cabling, Bracing, and Guying)
- ANSI A300 (Part 3) - 2005 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Construction Management)
- ANSI A300 (Part 5) - 2012 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Lightning Protection)
- ANSI A300 (Part 6) - 2012 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Planting and Transplanting)
- ANSI A300 (Part 8) - 2013 – Tree Shrub, and Other Woody Plant Maintenance – Standard Practices (Root Management)

Caliper - the diameter measurement of a tree trunk taken six inches above the ground on trees with a diameter of four inches (4") or smaller and twelve inches (12") above the ground on larger planting stock.

Established tree – A tree that has been planted in its current location for longer than a duration of 2 years.

Public tree - A tree located on a street, walkway, sidewalk, park or other property owned by the City of Evansville ("City") or other governmental agency; provided, however, such definition shall exclude both: a tree located on a street, walkway or sidewalk as described in subdivision plat, where such street, walkway or sidewalk has not been yet dedicated, constructed and accepted for repair and maintenance by the City, State of Indiana, or other governmental agency; and a tree located on property owned by the City, State of Indiana or other governmental agency strictly as a utility right-of-way easement.

Shall - Is always mandatory and not merely suggestive.

Should - Denotes an advisory recommendation.

Tree - A perennial plant having a woody supporting main stem or trunk, ordinarily growing to definite heights and usually developing branches at some distance from the ground.

Tree care - the treating, spraying, removal, pruning and any other tree maintenance or cultural work intended for the enhancement or preservation of trees and the removal and prevention of any and all damage to any street trees caused by tree pests, blights, and diseases.

Tree Advisory Board – The Evansville Tree Advisory Board.

Top or Topping - cutting a currently growing or one-year-old stock back to a bud, or cutting an older branch or stump to a stub or lateral branch not sufficiently large enough to assume the terminal role. Other terms that may be used to mean the same as topping are; tipping, heading, cutting back, rounding over, and pollarding.

1.0 Authority. Pursuant to authority granted under "Ordinance of the City of Evansville, Indiana Concerning Trees" Creating a Tree Advisory Board, and approved by the Common Council of the City of Evansville, Indiana, on the 1st day of May, 2001, having had the advice and assistance of the Tree Advisory Board, established in said Ordinance, hereby promulgates the following as the Arboricultural Specifications and Standards of Practice for the City of Evansville, Indiana, hereinafter called the Arboricultural Specifications Manual.

2.0 Policy

2.1 All work on public trees shall comply with the "Ordinance of the City of Evansville, Indiana Concerning Trees" of the City of Evansville, Indiana, and this Arboricultural Specifications Manual.

2.2 The Arboricultural Specifications Manual shall be adhered to at all times, but it may be amended by the Tree Advisory Board at any time that experience, new research, or laws indicate that improved methods or circumstances make it advisable, and only then with the advice and assistance of the Tree Advisory Board, all as provided for in the above said Ordinance.

2.3 Tree Advisory Board shall take into consideration, at all times, input from the public, property owners, other municipal departments, public utilities and with appropriate not-for-profit organizations during all policy making and decision making processes.

2.4 The Evansville City Arborist, as the designated agent of the Tree Advisory Board, shall have the jurisdiction, authority, control, supervision, and direction over all trees planted or growing in or upon public property, and the planting, removal, care, maintenance, and protection thereof.

3.0 General Specifications

3.1 The specifications contained in this document are to serve as a standard for all work performed on or with all public trees, development projects that include tree plantings as required by the Evansville Area Planning Commission, or public projects involving privately owned trees paid for with public funds. These standards will apply whether the work is performed "in-house", contractually by private businesses, or by private individuals.

3.2 All terms used in this manual, which are defined in the "Ordinance of the City of Evansville, Indiana Concerning Trees", shall hold the same definition in this manual.

3.3 A permit shall be obtained from the Tree Advisory Board, through the City Arborist's office, before any person, either for himself or another, prunes, removes, or destroys any public tree.

3.4 All requests for bid specifications for public landscape projects should be reviewed by the City Arborist and/or other qualified members of the Tree Advisory Board before they are sent out to potential bidders. This will allow trained arborists and horticulturists a chance to see whether items in the bid need to be altered for long-term plant survival. Necessary? Restrictive?

3.5 A site meeting shall be conducted between the contractor, the City Arborist, and a representative from the public department responsible for the project before any landscape work is to be performed. During such meeting the City Arborist shall inform the contractor how all work shall be performed including, but not limited to, proper planting techniques, proper irrigation techniques, proper mulching techniques, and proper maintenance techniques. The City Arborist shall also make clear to the contractor their responsibilities outlined in the contract for the landscaping, and the contractor's guarantee/warranty period for all vegetation planted and/or maintained by them.

3.6 The City Arborist shall monitor, and regulate work done by the landscape contractor(s) throughout the contract period. All non-compliance issues of the contract by the contractor shall be reported to the public department responsible for the project, and to the Tree Advisory Board. Follow up work and routine maintenance work needed after the contract has been fulfilled shall be determined by the City Arborist, and reported to the appropriate department.

3.7 It shall be unlawful for any person to engage in the business of cutting, trimming, pruning, or removing any tree within the City of Evansville, for hire, without first procuring a license as required by the "Ordinance of the City of Evansville, Indiana Concerning Trees" codes 2.90.010 through 2.90.150.

3.8 Authorized work on or with public trees neither expresses nor implies a right to violate any local, state, or federal law while in the process of performing such work.

3.9 All such work shall be conducted in a manner as to cause the least possible interference with, or annoyance, to others.

3.10 All personnel utilized for work on or with trees shall be trained to perform the work properly and safely in accordance with these Arboricultural Specifications, and ANSI standards.

3.11 Only a licensed tree pruner shall perform work on trees, except during emergencies. An emergency shall be an instance when a public tree(s) has been severely damaged by storms or other causes or is obstructing utility wires, etc.

The Board of Public Works or public utilities may without permit resort to topping or severe cutting back of limbs of public trees, but should report all such actions to the Tree Advisory Board.

3.12 A licensed tree pruner is recommended, but shall not be required, for trees being pruned or removed as part of a new development on public property, so long as the project has been approved by Area Planning Commission. Tree preservation and any tree pruning work that is required, shall be done in accordance with the standards set forth in this manual.

3.13 Any use of tools and equipment for pruning, trimming, repairing, maintaining and removing trees shall be in accordance with ANSI standards.

3.14 Approved street and sidewalk warning devices shall be in position as required at all times while work on public trees is being performed. Adequate barricades and other warning devices shall be placed and flagmen shall be stationed as necessary for the safety of pedestrians and vehicles. All street restrictions or closures of public rights-of-way shall be approved by the Evansville Safety Board.

3.15 Whenever overhead utility lines, gas lines, water lines, sewer lines, or other improvements upon a public area are jeopardized by any authorized tree pruning or removal activities, the proper authorities of the utilities involved shall be consulted prior to performing any work activity and all requested precautions by any such authority shall be followed. Those performing work shall be responsible for having utilities located prior to planting, stump grinding, or any other type of digging.

3.16 Companies that violate or ignore bid agreements during the installation or maintenance of landscape plantings, or refuse to honor warranties, shall be

deemed a non-responsible bidder, and shall be denied an award on a bid for landscaping for a period of no less than three years from the date of the violation.

3.17 All contracted landscape plantings shall have a minimum of two, or preferred three year warranty, and landscape contracts worded accordingly. Whoever plants landscaping on site shall be responsible for their health. This will promote more conscientious planting practices, and avoid the need to determine blame for tree failure.

3.18 All companies bidding on planting/maintenance must develop a complete post-planting maintenance program. This will include, but not be limited to: irrigation, fertilization, pruning/training, and pest control. Pest control refers to controlling insects, diseases, weeds, and other harmful agents.

4.0 Planting

4.1 Acceptable Tree Species. The Appendices contain lists of tree species or their varieties and cultivars acceptable and approved for planting on public property. No species other than those included in this list may be planted on public property without written permission of the Tree Advisory Board.

4.2 Size. Unless otherwise specified by the Tree Advisory Board, all species and their cultivars or varieties shall conform to ANSI standards.

- Medium and Large trees (listed in Tables II and III) – 2½" caliper;
- Small trees (listed in Table I) – 1½" caliper;
- Medium and large evergreen trees and multi-stem trees – 12' height
- Small evergreen trees and multi-trunk trees – 10' height
- Shrubs – 5-gallon containers or equivalent balled and burlapped.

4.3 Grade. Unless otherwise allowed for specific reasons, all trees shall have comparatively straight trunks (except for those that are selected to be multi-trunk), well developed leaders and tops, and the roots shall not only be characteristic of the species, cultivar or variety, but also shall exhibit evidence of proper nursery pruning practices. They shall have acceptable balance between top and root. At the time of planting, all trees must be free of mechanical injuries, and other objectionable features that tend to affect the future form and health of the plant.

4.4 Location and Spacing.

4.4.1 Pavement and tree spacing for street trees and trees in public areas. The distance that trees may be planted from curbs, curb lines and sidewalks may be no closer than the following: Small trees, two (2) feet; Medium and Large trees, three (3) feet.

4.4.2 Pavement and tree spacing for trees in parking lots. The distance that trees may be planted from curbs, curb lines and sidewalks may be no closer than the following: Small trees, three (3) feet; Medium trees, four (4) feet; and Large trees, five (5) feet.

4.4.3 Driveways, Alleys and Intersections. Trees shall be planted at least fifteen (15) feet from driveways and alleys. No street trees shall be planted at an intersection corner within 25 feet of the curved intersection.

4.4.4 Utilities. No tree, other than those listed as small trees in the appendices of this manual, may be planted within twenty (25) feet of any overhead utility wire. Minimal planting distances from overhead utility wires should be based upon mature tree height and spread (See Figure 1). Species shall be selected for planting under utility wires so that the maximum height of the trees at maturity will not be the same or more as the height of the lowest electrical transmission wire. Trees that have canopy heights exceeding the height of transmission wires shall be spaced from utility poles at least a minimum of one-half (1/2) of their total mature canopy spread plus ten (10) feet.

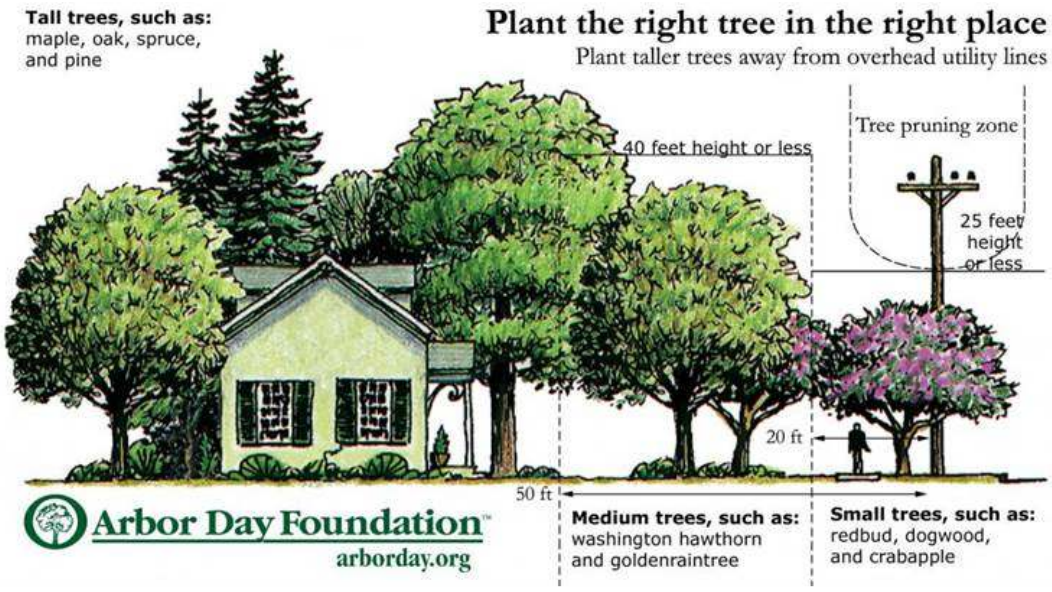


Figure 1: Proper placement of trees near power lines.

4.4.5 Other Utilities. Shade trees shall not be planted closer than fifteen (15) feet from all lampposts and should allow for proper lighting. Trees planted near light posts shall be monitored, and pruned as needed, to prevent obstruction of light.

4.4.6 Spacing Between Trees. As a general recommendation, trees and shrubs should be spaced so that they are separated by a minimum of one-third (1/3) of their total mature canopy spread.

4.4.7 Miscellaneous. All planting on unpaved streets without curbs or sidewalks must have the approval of the Tree Advisory Board, who shall determine the location of the tree, so that it will not be injured or destroyed when the street is curbed and paved, or when sidewalks are constructed. No street tree shall be planted within ten (10) feet of any fire hydrant or stop sign. Where overhead lines or building setback presents a special problem, the selection of planting site and species shall be determined by the Tree Advisory Board.

4.5 Tree Transport and Storage. Trees shall be transported fully covered by tarp(s) to prevent them from drying out and getting wind burn, or if no way to cover trees, then the vehicle shall be driven no faster than twenty five miles per hour (25 mph). During transport storage roots and root balls shall be routinely inspected and watered as necessary to prevent from drying out. If proper moisture content of roots and root balls cannot be maintained on site, they shall be healed in properly until they are planted.

4.6 Tree Inspection. Trees shall be inspected for proper root to shoot ratio before being accepted according to the latest edition of the ANSI Z60.1 standards, and shall be replaced with acceptable root stock when rejected. Trees shall also be rejected if they have defects or have poor structure for that species. Balled and burlapped trees shall have burlap removed from top of root ball to inspect root collar depth to determine if the tree is acceptable. If vendor selling trees claims that doing so will void warranty, then a different vendor shall be selected for purchase of trees.

4.7 Tree Planting Method.

4.7.1 Planting Depth and Width. The hole for tree planting shall be dug to the depth of the measurement of the tree being planted from the root flare to the bottom of the root ball. Care shall be taken to not confuse the tree graft, if one is present, with the root flare (see figure 2). The root flare of trees that are containerized or balled and burlapped shall be exposed to determine this measurement before digging. Holes dug for the planting of trees shall be at least three times wider than the diameter of the roots or root ball. The edges of planting pits shall be scarified to prevent glazing of soil after digging.

4.7.2 Removal of Foreign Objects. Brick, rock, foreign roots, and other debris that is not considered soil shall be removed from planting pits. Burlap, ropes, and wires shall be either entirely removed from balled and burlapped trees, or cut back at least ½ down the sides of the root ball before backfill is used. Soil may be allowed to fall off or removed from roots, so long as roots are not damaged and kept from drying. Containers shall be completely removed from trees before planting containerized trees, and containerized tree roots shall be pruned and/or spread apart as necessary to improve future root growth and prevent root girdling. Roots of the trees shall be kept damp during these processes to prevent drying out.

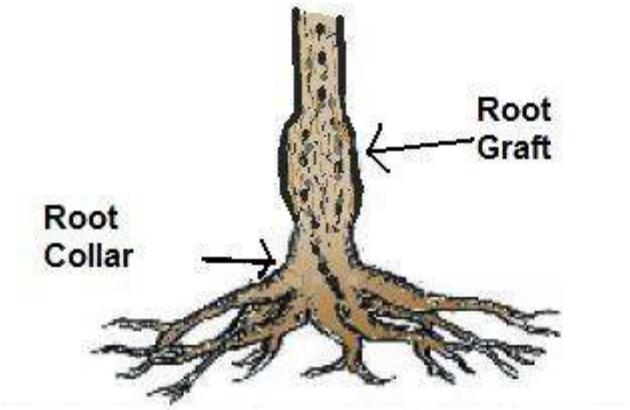


Figure 2. Root Graft Vs. Root Collar (Flare)

4.7.3 Tree Placement. The tree shall be centered in the planting hole with the tree completely upright and with the root collar between zero to one inches above ground level, and absolutely no lower than ground level. If the root collar is not at ground level, soil shall be added or removed from the bottom of the pit until the proper height is achieved. If soil is placed into pit to adjust root collar depth it shall be tamped down before backfilling.

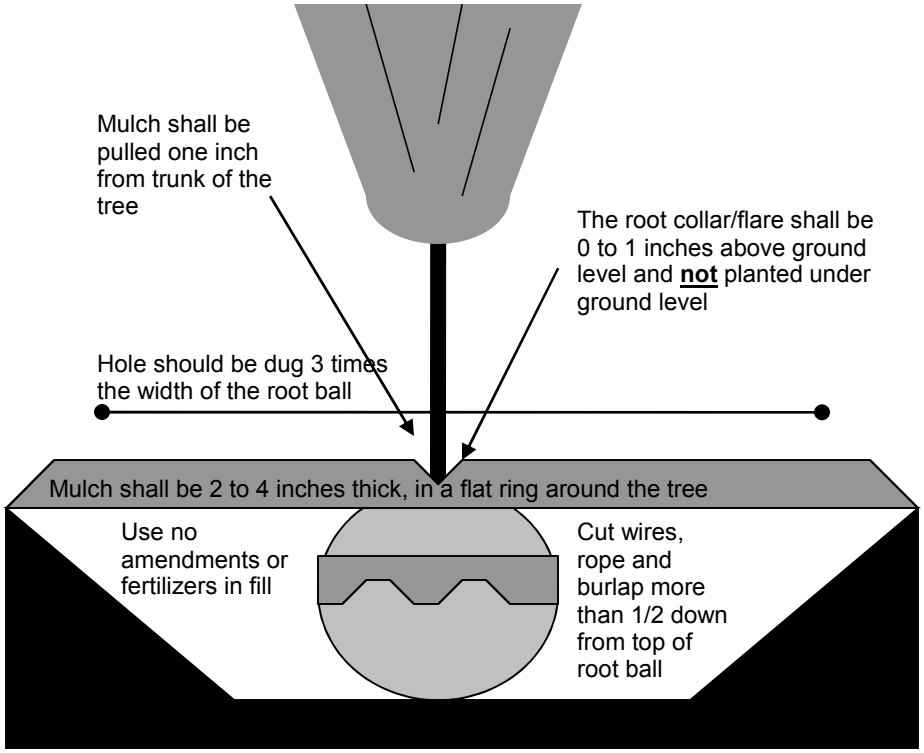


Figure 4: Proper tree planting.

4.7.4 Amendments. Only the original soil removed shall be used as backfill, and no soil amendments shall be used, unless the entire site is being amended with the same amendment material and at the same percentage of amendment uniformly.

4.7.5 Backfilling and Watering. As soil is placed into hole, clumps of soil shall be broken up to a maximum size of ½ inch size clumps. Water shall be used during backfilling intermittently to improve soil settling. When the planting is completed, the entire root area shall be thoroughly saturated with water. Care shall be taken to prevent the tree from becoming off center during this process.

4.7.6 Staking. Tree trunks shall be guyed, or supported in an upright position, according to accepted arboricultural practices. The guys or supports shall be installed so that they will neither girdle or cause serious injury to the tree nor endanger public safety. Tree stakes, guy wires, and supports for trees shall be removed the spring following the first full growing season.

4.7.7 Trunk Protection to Prevent Sun Scald. Tree trunk protectors, if used, shall consist of wire mesh screen, which shall be placed around trunk loosely in a way that it can be slid up and down the trunk, unimpeded, and shall not be tied to the trunk, but shall be attached to itself in the manner of a loose tube around the tree (see figure 3). Trunk protection shall be removed the spring after the first full growing season.

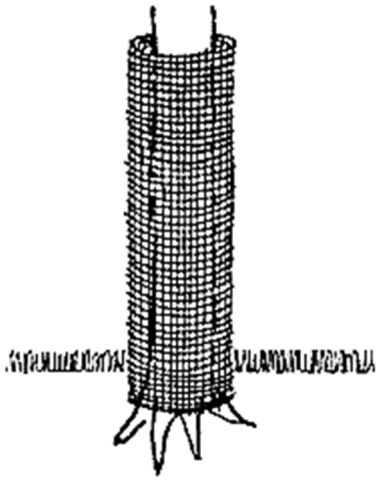


Figure 3: Trunk Protection.

4.7.8 Tree Grates and Mulch. Organic mulch shall be immediately placed around trees to the edge of the planting hole that was dug, or to the edge of pavement, whichever comes first. The mulch layer shall be applied at a minimum height of two inches, to a maximum height of four inches. Excessive mulch will not be piled against the tree trunk, and all mulch shall be pulled away from the trunk one inch (1”). Acceptable mulch materials include wood chips, shredded bark, bark nuggets, and similar products. No other mulch material may be

substituted without authorization from the Tree Advisory Board. Grates shall not be used around trees.

5.0 Newly Planted Tree Care.

5.1 General. Newly planted trees (trees planted within 3 years), shrubs and other plants shall require special maintenance for two or three growing seasons following planting. All maintenance practices shall follow approved arboricultural standards.

5.2 Watering. Trees shall be watered when one inch of rain water has not fallen within 7 days, or within 7 days of last watering. Proper watering of trees shall consist of the equivalent of one inch of rain (1/2 gallon per square foot of soil) for the root zone per tree per week. Gator Bags can be used, but must be completely filled once per week for proper watering. Programmable or manual irrigation systems may also be used, but shall be programmed or run only once per week after lawn is established. To prevent overwatering of trees, irrigation that is required to run more than once per week for other vegetation shall be set separately from the irrigation that is installed for watering trees.

5.3 Fertilization. Fertilization of individual trees should not be performed in the first growing season after planting. The bed the tree is in may be fertilized prior to planting if it is necessary as determined by soil testing done through a certified soil lab. Fertilization of public trees shall follow ANSI standards or other accepted arboricultural standards. Only broadcast fertilization of wet or dry fertilizers over root system of tree shall be accepted unless otherwise approved by the Tree Advisory Board.

5.4 Insect and Disease Control. Tree species and cultivars that are resistant to insects and diseases should be selected for plantings. Frequent and thorough inspections shall be made to determine when measures for the control of insects and diseases shall be taken. Before chemicals are used to resolve pest and disease issues, the specific tree species and pest shall be properly identified to ensure proper control method and alternative controls should be considered in the place of chemicals. If fungicides, herbicides or pesticides are required to be applied for controlling disease, pests or weeds, they must be applied by an Indiana Licensed Pesticide Applicator, or by an employee working under direct supervision of a licensed applicator who is within direct contact of the supervisor, as per the regulations set forth by the Office of the Indiana State Chemist.

5.5 Pruning. Pruning newly planted trees shall consist of removing dead, broken, or injured branches, water sprouts, and the suppression of uneven growth that affects form. Pruning shall be practiced as often thereafter as needed to assure strong branch unions. Newly planted trees need not have lower branches removed until they are well established, or unless the branches visually or

physically obstruct paved right-of-ways and signs. Pruning of public trees shall follow ANSI standards or other accepted arboricultural standards.

6.0 Established Tree Care.

6.1 Pruning and Removal. No topping of trees shall be permitted. All large, established trees shall be pruned to a height of at least eight (8) feet above sidewalks and twelve (12) feet above streets. All cuts shall be made with a saw or pruner and only at the nodes or crotches. No stubs shall be left. No spurs or climbing irons shall be used to climb trees, except when trees are to be removed or during an emergency rescue. All dead branches shall be removed; branches that cross or rub should be pruned to eliminate future problems. The stumps of all removed trees shall be cut to at least six (6) inches below the ground level where feasible. Stump grindings shall be hauled off, and the soil cavity shall be filled with top soil, tamped, leveled and re-seeded. Pruning of public trees shall follow ANSI standards or other accepted arboricultural standards.

6.2 Insect and Disease Control. Before chemicals are used to resolve pest and disease issues, the specific tree species and pest shall be properly identified to ensure proper control method and alternative controls should be considered in the place of chemicals. If fungicides, herbicides or pesticides are required to be applied for controlling disease, pests or weeds, they must be applied by an Indiana Licensed Pesticide Applicator, or by an employee working under direct supervision of a licensed applicator who is within direct contact of the employer, as per the regulations set forth by the Office of the Indiana State Chemist.

6.3 Fertilization. Fertilization of established trees should not be needed for trees unless a nutrient deficiency has been determined through soil testing by a certified soil laboratory. Fertilization of public trees shall follow ANSI standards or other accepted arboricultural standards. Fertilization, if deemed necessary, shall be done according to soil nutrient deficiencies, and current lawn and landscaping fertilization shall be calculated, before fertilization mixes and a rates are calculated. Only broadcast fertilization of wet or dry fertilizers over root system of tree shall be accepted unless otherwise approved by the Tree Advisory Board.

6.4 Cabling and Bracing. As a general rule, cables should be located above the crotch at a point approximately two-thirds (2/3) of the distance between the crotch and tops of the branch ends. Rust-resistant cables, thimbles, and lags should be used. The ends of a cable should be attached to hooks or eyes of lags or bolts inserted near the ends of the branches; thimbles must be used in the eye splice in each end of the cable. In no instance shall cable be wrapped around a branch. All cabling and bracing practices shall follow ANSI standards or other accepted arboricultural standards. Cabling and bracing shall only be performed by a Certified Arborist.

7.0 Tree Protection.

7.1 Protection or Removal. In the circumstances where construction and utility operations underground will affect the health of a tree, a determination will be made considering the overall value of the tree. The criteria for determining a value for a tree will be based on species, size, condition, location, cost of preserving the tree, and urgency of work to be completed. A decision based on this value will be made concerning the protection or removal of the tree in question. This decision shall be made jointly by the Tree Advisory Board and the City Engineer or appropriate city official.

7.2 Construction Zone. Existing trees in or near areas to be developed (construction sites) shall be guarded with temporary fencing. Placement of the fence is to be at a minimum distance of one and a half feet (1.5') for each inch in trunk diameter measured at breast height (4½ feet). All vehicles, construction equipment, building materials, dirt, or other debris shall be kept outside of the barrier.

7.3 Root Pruning. When large roots are to be cut during trenching or grading, pruning of roots must be done with the proper pruning equipment. Clean, flush, smooth cuts shall be made on tree roots.

7.4 Underground Utilities. All installations of underground utilities upon public property, which may conflict with tree roots, are subject to the review and the approval of the Tree Advisory Board before the project starts. All installations through tree drip-line areas should follow approved tunneling methods.

7.5 Preventing Lawn mower and Weed Eater Damage Around Trees. In an effort to minimize damage to the trunks of trees during lawn care operations one of, or a combination of, the following methods shall be used when performing lawn maintenance around trees with a trunk diameter of less than 12 inches, measured 6 inches above ground level. Other methods must be approved by the Tree Advisory Board.

7.5.1 Education of Mowing Personnel. Those contracted or employed by the city to perform lawn maintenance shall be instructed not to damage tree trunks with mowers, weed eaters, or lawn equipment, and shall be shown alternative ways of removing weeds from around trees, rather than using lawn equipment in close proximity to their trunks. Those persons must be advised that when all other methods fail, weeds must be pulled up or cut by hand. No hoeing or digging shall take place within 12 inches of any tree to prevent root and trunk damage.

7.5.2 Mulch. A ring of mulch may be placed around the trunk of the tree extending at least 12 inches out from the base of the trunk. The mulch layer shall be applied at a minimum height of two inches, to a maximum height of four

inches. Excessive mulch will not be piled against the tree trunk (mulch volcano), and all mulch shall be pulled away from the trunk one inch (1”). Acceptable mulch materials include wood chips, shredded bark, bark nuggets, and similar products. No other mulch material may be substituted without authorization from the Tree Advisory Board. Mulch shall be checked once per year and replaced as needed.

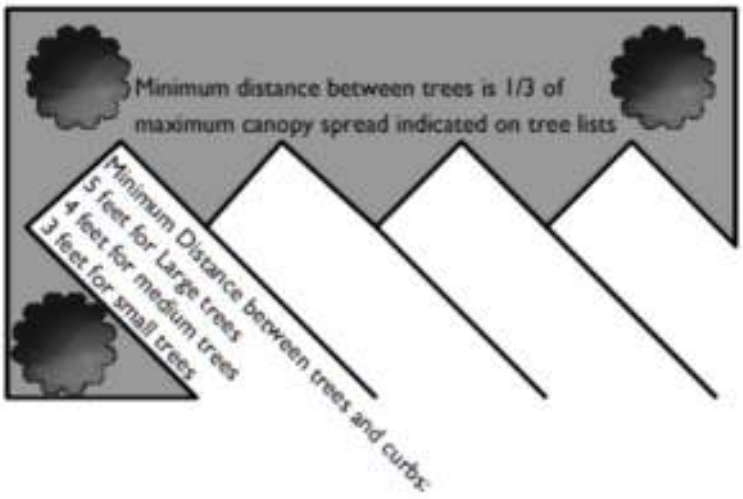
7.5.3 Trunk Protectors. A plastic ring may be placed around the trunk of a tree that has potential to be harmed by mowers or weed eaters, so long as the ring is loose around the trunk, and long enough to extend six to twelve inches from the ground. The ring shall be checked at least once per year to ensure that it is not girdling the tree trunk. Rings shall be removed in the event girdling is taking place, the ring becomes tight around the trunk (touching on all or most sides), or if the trunk caliper reaches 12 inches. Trunk protectors must be removed from trees with care in making sure that the tree trunk is not cut or scraped in doing so, unless the wrap has started to girdle the tree and there is no other way. Tree trunk wrap materials shall not be used around tree trunks.

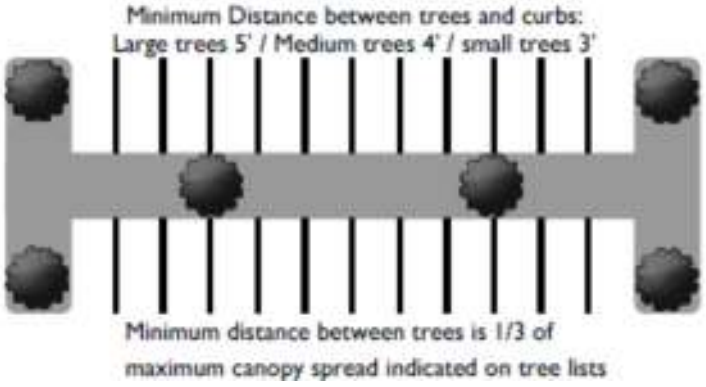
7.5.4 Weed Barrier. Weed barrier material may be used around trees so long as it is checked at least once per year to ensure the barrier is not girdling the tree roots or trunk.

7.5.5 Herbicide. A herbicide containing only the active ingredient of Glyphosate, may be sprayed at least 12 inches from base of trunk to kill any vegetation growing near base of tree. Care shall be taken not to get chemicals on the trunk, nor on sprouts growing on trunk or fresh wounds on trunk.

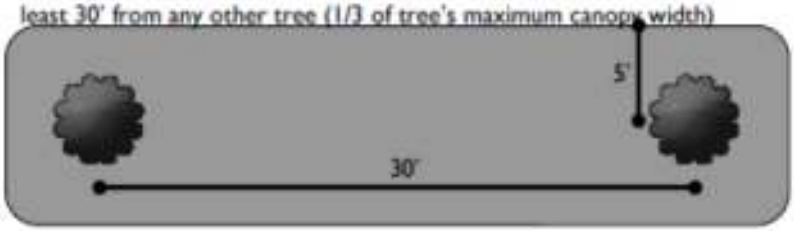
Appendix A

Tree Spacing from Pavement, Curbs and Other Trees in Commercial Landscape Parking Lot Islands





Example: If a tree is selected from the large tree list that has a maximum canopy spread of 90' then a minimum of 5' would be allowed between the tree and the nearest curb, and the tree would need to be spaced at least 30' from any other tree (1/3 of tree's maximum canopy width)



Appendix B

Acceptable Trees for Commercial Landscape Parking Lot islands

Small trees for limited spaces

Species	CommonName	Height	Width	Flowers	Comments
Acer buergeranum	Trident Maple	30	30		
*Amelanchier species**	Serviceberry*	25	15	white	
*Cercis Canadensis**	Redbud*	30	35	pink or white	
*Chionanthus species±**	Fringe Tree±*	15	15	white	
*Cornus florida**	Flowering Dogwood*	30	30	white	Requires partial Shade
Cornus kousa	Kousa Dogwood	30	30	white	
Cotinus coggygria±	Smoketree±	15	15	pink	
*Crataegus spp.**	Hawthorn*	35	35	white	Disease resistant Variety only
*Juniperus species*ǂ*	Juniper species*ǂ	25	10		evergreen
Magnolia x soulangiana	Saucer Magnolia	30	30	pink	
*Malus spp.**	Crabapple*	35	25	variety	Disease resistant Variety only
Salix matsudana	Corkscrew Willow	35	20		
Styrax japonicus	Japanese Snowbell	30	25	white	
*Thuja occidentalis*ǂ*	Arborvitae*ǂ	30	10		evergreen

± Trees selected for areas under power lines that are 20 feet from the ground.
ǂ Evergreen trees – Do not plant where motorists' line of sight will become impaired
*Native trees

Medium trees - for large air space but limited root space – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower
Acer campestre	Hedge Maple	40	40	
*Betula nigra**	River Birch*	50	35	
Carpinus betulus	European Hornbeam	40	30	
*Celtis species**	Sugarberry*	50	40	
*Cladrastis kentukea**	Yellowwood*	50	55	white
Ilex spp.ǂ	Hollyǂ	50	25	
Magnolia virginiana	Sweetbay Magnolia	50	25	white
*Oxydendron arboretum**	Sourwood*	50	35	white
Prunus x yedoensis	Yoshino Cherry	45	45	pink

ǂ Evergreen trees – Do not plant where motorists' line of sight will become impaired
*Native trees

Large trees - for open lawn areas and wide boulevards – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower	Comments
*Acer nigrum**	Black Maple*	60	30		
*Acer rubrum**	Red Maple*	75	70		
*Acer saccarum**	Sugar Maple*	80	70		
Acer x freemanii	Freeman Maple	60	50		
*Alnus species**	Alder*	80	40		
*Catalpa speciosa**	Catalpa*	60	50	white	
Chamaecyparis species‡	False cypress‡	75	20		evergreen
Eucommia ulmoides	Hardy Rubber Tree	60	60		
*Fagus grandifolia**	Beech*	75	80		Requires partial Shade
*Gleditsia triacanthose**	Honey Locust*	80	70		Thornless variety only
*Gymnocladus dioicus**	Kentucky Coffeetree*	75	65		Male trees only
*Liquidambar styraciflua**	Sweetgum*	75	65		'Happy Daze' or 'Rotundiloba'
*Liriodendron tulipifera**	Tulip Poplar*	90	50	yellow	
*Magnolia acuminate**	Cucumbertree*	70	55	yellow	
*Nyssa sylvatica**	Black Tupelo*	70	45		
Pinus strobus‡*	White Pine*‡	80	35		evergreen
Pinus taeda‡	Loblolly Pine‡	80	30		evergreen
*Platanus occidentalis**	Sycamore*	90	70		
Platanus x acerfolium	London Planetree	80	65		
Quercus acutissima	Sawtooth Oak	50	55		
*Quercus alba**	White Oak*	100	80		
*Quercus bicolor**	Swamp White Oak*	80	80		
*Quercus coccinea**	Scarlet Oak*	75	60		
*Quercus falcate**	Southern Red Oak*	80	70		
*Quercus lyrata**	Overcup Oak*	50	50		
*Quercus michauxii**	SwampChestnut Oak*	70	50		
Quercus muehlenbergii	Chinkapin Oak	50	60		
Quercus phellos	Willow Oak	75	60		
Quercus robar	English Oak	80	70		
*Quercus rubra**	Northern Red Oak*	80	65		
*Quercus shumardii**	Shumard Oak*	80	65		
*Sassafras albidum**	Sassafras*	60	40	yellow	
*Taxodium distichum**	Bald Cypress*	80	45		
*Tilia americana**	American Linden*	70	50	yellow	
Tilia cordata	Little Leaf Linden	80	55	yellow	
Tilia tomentosa	Silver Linden	70	55	white	
*Ulmus species**	Elm*	70	40		Disease resistant Variety only
Zelkova serrata	Zelkova	70	60		

‡ Evergreen trees – Do not plant where motorists' line of sight will become impaired
*Native trees

Appendix C

Acceptable Trees for Public plantings <u>Other Than</u> Commercial Landscape Parking Lot islands

<u>Small Trees - for under powerlines ≤20'</u>

Species	CommonName	Height	Width	Flowers	Comments
Acer ginnala	Amur Maple	20	20		
Acer japonicum	Fullmoon Maple	15	10		
Aesculus pavia	Red Buckeye	20	25	red	large nuts
*Chionanthus Species**	Fringe Tree*	15	15	white	
Cornus racemosa	Gray Dogwood	15	12	white	spreading/weeping
Cotinus coggygria	Smoketree	15	15	pink	
Hamamelis mollis	Witch Hazel	20	18	yellow	
Heptacodium miconioides	Seven-Son Flower Tree	15	15	white	
*Ilex decidua**	Possom Haw*	15	15	white	
Magnolia stellata	Star Magnolia	20	15	white	
Prunus triloba	Flowering Almond	15	15	pink	
Rhamnus caroliniana	Carolina Buckthorn	15	15		thorns

*Native trees

<u>Small Trees - for under powerlines 20'-30'</u>

Species	CommonName	Height	Width	Flowers	Comments
Acer buergeranum	Trident Maple	30	30		
Acer palmatum	Japanese Maple	25	25		
Acer tartaricum	Tartarian Maple	25	25		
*Amelanchier species**	Serviceberry*	25	15	white	
*Cercis canadensis**	Redbud*	30	35	pink or white	
*Cornus florida**	Flowering Dogwood*	30	30	white	partial shade only
Cornus kousa	Kousa Dogwood	30	30	white	
*Crataegus spp.**	Hawthorn*	35	35	variety	dwarf cultivars only
Magnolia x soulangiana	Saucer Magnolia	30	30	pink	
*Malus spp.**	Crabapple*	35	25	variety	dwarf cultivars only
Salix matsudana	Corkscrew Willow	35	20		
Syringa reticulata	Lilac Tree	30	20	white	

*Native trees

Medium size trees – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower	Comments
Acer buergeranum	Trident Maple	30	30		
Acer capestre	Hedge Maple	40	40		
Acer Grandidentatum	Bigtooth Maple	35	20		
Acer griseum	Paperbark Maple	35	30		temperamental/delicate
Acer palmatum	Japanese Maple	25	25		
Acer tartaricum	Tartarian Maple	25	25		
*Amelanchier species**	Serviceberry*	30	20	white	
*Betula nigra**	River Birch*	50	35		
Carpinus betulus	European Hornbeam	40	30		
*Carpinus caroliniana**	American Hornbeam*	35	35		temperamental/delicate
Castanea spp.	Chinese Chestnut	40	50	yellow	spiny fruit pods
*Celtis species**	Hackberry*	50	40		
*Cercis canadensis**	Redbud*	30	35	Pink/white	
*Cladrastis kentukea**	Yellowwood*	50	55	white	
*Cornus florida**	Flowering Dogwood*	30	30	white	needs partial shade
Cornus kousa	Kousa Dogwood	30	30	white	
Corylus corlurna	Turkish Filbert	50	35		
*Crataegus spp.**	Hawthorn*	35	35	white	Disease resistant var. only
Evodia danielii	Bebe Tree	30	30	white	
Franklinia alatamaha	Franklin Tree	25	15	white	temperamental/delicate
Halesia carolina	Carolina Silverbell	40	30	white	
Ilex spp.	Holly	50	25		evergreen
*Juniperus species**	Juniper species*	25	10		evergreen
Koelreataria paniculata	Golden Raintree	40	40	yellow	
Magnolia macrophylla	Bigleaf Magnolia	40	25	white	
Magnolia virginiana	Sweetbay Magnolia	50	25	white	
Magnolia x soulangiana	Saucer Magnolia	30	30	pink	
Malus spp.	Crabapple*	35	25	variety	Disease resistant var. only
*Ostrya virginiana**	Amer. Hophornbeam*	40	30		temperamental/delicate
Parrotia persica	Persian Parrotia	40	40	red	
Phellodendron amurense	Amur Corktree	45	40		
Picea pungens	Blue Spruce	50	20		evergreen
*Pinus echinata**	Shortleaf Pine*	50	35		evergreen
Pinus sylvestris	Scotch Pine	50	30		evergreen
*Pinus virginiana**	Virginian Pine*	40	35		evergreen
Prunus cerasifera	Cherry Plum	25	25	white	
Prunus maackii	Amur Chokecherry	40	35	white	
Prunus sargentii	Sargent Cherry	40	18	pink	
Prunus serrulata	Oriental Cherry	35	25	pink	
Prunus subhirtella	Higan Cerry	35	35	pink	
Prunus virginiana	Choke Cherry	30	20	white	
Prunus x yedoensis	Yoshino Cherry	45	45	pink	
Pterostyrax hispida	Epaulette Tree	30	30	white	
Stewartia species	Stewartia species	25	25	white	temperamental/delicate
Styrax japonicus	Japanese Snowbell	30	25	white	
Syringa reticulata	Lilac Tree	30	20	white	
*Thuja occidentalis**	Arborvitae*	30	10		evergreen
Xanthoceras sorbifolium	Yellowhorn	40	40	white	difficult to find

*Native trees

Large size trees – No Dwarf Cultivars

Species	CommonName	Height	Width	Flower	Comment
*Acer nigrum**	Black Maple*	60	30		
Acer pseudoplatanus	Sycamore Maple	70	60		
*Acer rubrum**	Red Maple*	75	70		
*Acer saccarum**	Sugar Maple*	80	70		
Acer x freemanii	Freeman Maple	60	50		
*Aesculus flava**	Yellow Buckeye*	75	35	yellow	large nuts
*Aesculus glabra**	Ohio Buckeye*	70	50	yellow	large nuts
Aesculus hippocastanum	Horsechestnut	70	55	Yellow	large nuts
Alnus glutinosa	Black Alder	80	40		
Calocedrus decurrens	Incense Cedar	60	12		evergreen
*Carya illinoensis**	Pecan*	100	70		large nuts
*Carya spp.**	Hickory*	80	35		large nuts
*Catalpa specioca**	Catalpa*	60	50	white	
Cercidiphyllum japonicum	Katsura Tree	60	60		temperamental/delicate
Chamaecyparis lawsoniana	False cypress	75	20		evergreen
*Diospyros virginiana**	Persimmon*	60	35		large fruit
Eucommia ulmoides	Hardy Rubber Tree	60	60		
*Fagus grandifolia**	Beech*	75	80		prefers partial shade
Ginkgo biloba	Ginkgo	80	80		get male only/fruit is smelly
*Gleditsia triacanthose**	Thornless Honey Locust*	80	70		
*Gymnocladus dioicus**	Kentucky Coffee Tree*	75	65		large fruit pods
*Juglans nigra**	Black Walnut*	80	80		large nuts
*Liquidambar styraciflua**	Sweetgum*	75	65		‘Hapydaze' or 'Rotundiloba'
*Liriodendron tulipifera**	Tulip Poplar*	90	50	yellow	
*Magnolia acuminate**	Cucumbertree*	70	55	yellow	
Magnolia grandiflora	Southern Magnolia	80	40	white	evergreen
Metasequoia glyptostroboides	Dawn Redwood	85	40		
*Nyssa sylvatica**	Black Tupelo*	70	45		
*Oxydendron arboretum**	Sourwood*	60	35	white	
Picea abies	Norway Spruce	100	40		evergreen
Pinus nigra	Austrian Pine	60	35		evergreen
*Pinus strobus**	White Pine*	80	35		evergreen
Pinus taeda	Loblolly Pine	80	30		evergreen
*Platanus occidentalis**	Sycamore*	90	70		
Platanus x acerfolium	London Planetree	80	65		
*Prunus serotina**	Black Cherry*	90	50	white	
Psuedotsuga menziesii	Douglas Fir	60	30		evergreen
Quercus acutissima	Sawtooth Oak	50	55		
*Quercus alba**	White Oak*	100	80		large nuts
*Quercus bicolor**	Swamp White Oak*	80	80		large nuts
*Quercus coccinea**	Scarlet Oak*	75	60		
*Quercus falcate**	Southern Red Oak*	80	70		large nuts
*Quercus lyrata**	Overcup Oak*	50	50		
*Quercus macrocarpa**	Bur Oak*	90	90		large nuts
*Quercus michauxii**	Swamp Chestnut Oak*	70	50		large nuts
Quercus muehlenbergii	Chinkapin Oak	50	60		large nuts
Quercus phellos	Willow Oak	75	60		
Species cont.	**CommonName**	**Height**	**Width**	**Flower**	**Comment**

Quercus robar	English Oak	80	70		large nuts
*Quercus rubra**	Northern Red Oak*	80	65		large nuts
*Quercus shumardii**	Shumard Oak*	80	65		large nuts
Salix alba	Weeping Willow	70	70		
*Sassafras albidum**	Sassafras*	60	40	yellow	
Sophora japonica	Scholartree	70	70	white	
*Taxodium distichum**	Bald Cypress*	80	45		
*Tilia americana**	American Linden*	70	50	yellow	
Tilia cordata	Little Leaf Linden	80	55	yellow	
Tilia tomentosa	Silver Linden	70	55	white	
*Tsuga canadensis**	Canadian Hemlock*	70	35		evergreen
*Ulmus species**	Elm*	70	40		Disease resistant variety only
Zelkova serrata	Zelkova	70	60		

*Native trees

Appendix D

Undesirable Trees for any Public Location or Commercial Landscape Parking Lot Islands

Scientific Name	Common Name	Comments/Reason
Acer negundo	Boxelder	Weak structure & wood
Acer saccharinum	Silver Maple	Weak structure & wood
Ailanthus altissima	Tree of Heaven	Weak wood/non-native/highly invasive
Albizia spp.	Mimosa	Non-native & invasive/dieback problems
Betula platyphylla	White Birch	Does not do well in our climate
Elaeagnus angustifolia	Russian Olive	Non-native/highly invasive
Fraxinus spp.	Ash	Emerald Ash Borer will decimate Ash
Maclura pomifera	Osage Orange	Weak structure and high maintenance
Morus spp.	Mulberry	Weak structure and high maintenance
Populus deltoides	Cottonwood	Undesirable fruit
Populus nigra	Lombardy Poplar	Weak structure & wood
Pyrus calleryana	Bradford Pear	Weak structure & wood
Quercus imbricaria	Shingle Oak	Prone to galls and high Maintenance
Quercus palustris	Pin Oak	Prone to galls and high Maintenance
Robinea pseudoacacia	Black Locust	Prone to disease/invasive/messy
Salix nigra	Black Willow	Weak structure & wood