UNIVERSITY OF
SOUTH DAKOTA

Campus Tree Care Plan

Purpose
The purpose of the University of South Dakota (USD) Campus Tree Care Plan is to identify the procedures and practices that are required in establishing a safe, healthy, diverse, and aesthetically pleasing campus tree community.

Mission
It is the mission of USD and overall goal of this plan to ensure that the selection, planting, protection, maintenance, and removal of campus trees be accomplished in a safe, cost-effective and sustainable manner.

The specific objectives of the plan are to:

- Ensure proper species selection, high-quality nursery stock acquisition, and research-based planting procedures.
- Promote species diversity including representation of trees native to South Dakota.
- Protect high-value campus trees during construction and renovation projects.
- Promote tree health and safety by utilizing International Society of Arboriculture (ISA) best management practices when maintaining campus trees.
- Ensure that trees are reasonably replaced when there is mortality due to weather, pest infestations, injury, or construction displacement.
- Encourage campus and community members to respect and value the urban forest on the USD campus.
- Verify yearly and ongoing plan, budget and volunteer commitments that the University is willing to invest in campus tree resources.

Responsibility
The responsibility for implementation of the Campus Tree Care Plan rests with USD Facilities Management.

Communication Strategy
The Campus Tree Care Plan should be communicated to designers, contractors and other members of the USD community by:

- Ensuring that all designers and contractors have direct access to the plan for incorporation into contract documents and maintenance plans/procedures
- Integrating the Plan into General Conditions of USD's Design, Construction Guide, and Landscaping/Lawn Care protocol.

Tree Advisory Committee

USD's Tree Advisory Committee was originally established in March of 2017. Tree Advisory Committee meetings are scheduled quarterly and on an as-needed basis.

Representatives include:
Nate Steele (Chair), Grounds Manager, nate.steele@usd.edu
Bob Oehler, Assistant Vice President of Facilities Management, bob.oehler@usd.edu
Blaine Schoellerman, Groundskeeper, blaine.schoellerman@usd.edu
Mark Dixon, USD Biology Professor, mark.dixon@usd.edu
Travis Taggart, City of Vermillion Parks and Rec, irishweis@gmail.com
Clarence Pederson, Vermillion Community Member, clarence.pederson@gmail.com
And current Student Representative (enrolled during the academic year August – May)

Representatives are expected to:

- Provide guidance for future tree selection and use in proposed landscape improvements, especially as it pertains to tree appropriateness and maintaining the benefit of campus trees to academic programs.
- Review and make recommendations to the Plan, including the lists of Recommended and Prohibited Trees.
- Aid in the identification of goals pertaining to species diversity which will enhance forest health as well as benefit academic programs dependent on landscape-based campus teaching resources.
- Aid in the identification of opportunities to enhance community appreciation for and stewardship of campus and community trees.
- Enhance the relationship between FM and the USD campus and neighborhood communities, improving the University's reputation as a tree steward.
- Assist in the planning, coordination, and execution of annual Arbor Day Observances and Service Learning Projects.
- Attend to other tree related issues as necessary or requested.

Representatives serve for two years with a renewal option at the end of their term. Terms correspond to the calendar year except for faculty and student terms, which correspond to the academic year with optional participation from May to August. Succeeding representatives shall be chosen to maintain the diversity of the committee, which shall always include, but not be limited to: AVP of FM, Grounds Manager, Faculty representative, Community representative, and Student representative.

Design and Installation

Design Criteria

- All proposed tree plantings and landscape designs incorporating tree plantings shall be reviewed by the Tree Advisory Committee to ensure compliance with the Tree Care Plan.
- Tree species and/or cultivars included in the List of Recommended Trees shall be hardy to a minimum of USDA Hardiness Zone 4 (see map) and be pest and disease resistant to minimize pesticide use and maintenance inputs. Species proposed for addition or deletion from the List will require discussion and approval by the Tree Advisory Committee.
- See Appendix for the lists of Recommended Trees.
- Species and/or cultivars not on the list of Recommended Trees shall be approved on a case by case basis by the Manger of Landscape and Grounds in consultation with the Tree Advisory Committee before planting.
- Once specified, no species/cultivar or form (single vs. multi-stem) substitutions shall be made without permission of the Grounds Manager.
- Snow removal and lawn mowing practices shall be considered when citing trees near buildings, walkways, parking lots, and other paved surfaces to avoid conflict between proper tree care practices and efficient snow removal or lawn maintenance.
- Evergreen trees shall not be sited on the south side of paved areas or buildings where the shade cast by the tree will slow snow and ice melt or reduce warming of buildings in winter.
- All proposed tree planting plans will specify the mature spread and height of each tree species and stipulate tree locations to ensure that all trees are planted to minimally accommodate 75% of the full height and spread of the tree canopy.

Security Considerations

- Maintain clearance under shade trees at eight feet over walkways and14 feet over vehicular pathways. Small ornamental trees should be maintained at a height appropriate for the species. Evergreen trees should be limbed for clearance of up to two feet and not allow branches to touch the ground.
- Tree canopies should be maintained to prevent diminishing light from fixtures that are intended for security or safety purposes.
- Maintain all plants to keep automobile and security camera sight lines, as well as physical access to emergency phones clear.

Selection and Planting

- All selected trees for campus installation shall conform to the requirements of *ANSI Z60.1, American Standard for Nursery Stock, American Nursery and Landscape Association*. Information for online access to the complete standard, which specifies nursery stock caliper sizes, root ball dimensions, criteria for tree sizing, etc. can be accessed online here.
- Campus trees shall be planted according to the specifications documented in *ANSI A300 Transplanting Standard Part 6*, which is located in Grounds Shop Manager's Office. For a summary of criteria, reference *The Science of Planting Trees, CMG Garden Notes #633, Colorado State University Extension*, This document can be accessed online here.
- After the location of new trees has been selected, all underground utilities shall be identified, located and verified by facility operators prior to excavation (http://www.sdonecall.com) and any conflicts reported to the Grounds Manager before planting.
- Selection of healthy, quality nursery stock shall be guided by the document *Selecting Quality Trees from the Nursery, University of Florida publication ENH-1060*. This document can be accessed online here.
- All trees to be planted on campus shall be selected by a USD representative at the nursery and tagged.
- Trees shall be delivered to the site with the root ball and all its protection (container, burlap, wire basket, twine, etc.) intact and without damage to any part of the tree.
- Before digging the planting pit, the root flare shall be exposed, removing excess soil from the top of the root ball if necessary.
- The planting pit shall be dug such that the root ball sits on undisturbed soil and the root flare is at or less than two inches above the adjacent finish grade. The width of the pit should be at least twice the diameter of the root ball and have sloping sides.
- Once the tree is set plumb in the planting hole and the root ball is stabilized, ALL materials (burlap, twine,

wire cage, etc.) shall be removed from the root ball without compromising its integrity, if possible.

- Soil that was removed from the planting pit shall be used to backfill the pit from which it was dug. No amendments shall be added. Soil shall be backfilled around the set root ball in layers, watering thoroughly after the addition of each layer to settle the soil and eliminate large air pockets. No backfilled soil shall be placed above the height of the root flare. Once backfilling is complete the tree shall again be thoroughly watered.
- Newly planted trees shall be mulched with three inches of cedar mulch. Landscape fabric and/or rock (of any size) is not to be used. The mulch shall not be piled against the tree, but should be placed with minimal contact against the trunk, and three inches deep extending to the drip line of the tree. If planted in turf, the sod surrounding the planting area should be removed to accommodate an area of mulch that corresponds to the drip line.
- Staking of trees shall be minimized to the greatest extent possible to enhance initial tree growth and trunk strength. Trees that may be prone to shifting from high winds, including Balled and Burlap (B&B) and containerized trees with dense canopies or high height/root ball dimension ratios, or bare root trees shall be staked at the discretion of the Grounds Manager.
- Staking will conform to the staking information outlined in the document *Staking and Guying Landscape Trees, K-State Research and Extension publication MF1120,* this document can be accessed online here. Caliper size of tree determines when staking will be removed: 1 inch caliper size (trunk is 1 inch across) means staking will be removed after one growing season, 2 inch caliper size (trunk is 2 inches across) means staking will be removed after two growing seasons, and so forth.
- Trees shall not be pruned upon planting except to remove broken, dead, rubbing, or damaged branches.
- To improve establishment, newly planted trees should receive one inch supplemental water per week, in the absence of one or more inches rainfall, for the first two years through the automatic sprinkler system, tree watering bags or by hand via hose. Since water delivery to the root ball at the depth required for root growth can be inconsistent with overhead irrigation, supplemental hand watering shall be available for the first three months of establishment where overhead irrigation is not delivering one inch of supplemental water per week.

Care and Maintenance

General

- In an effort to improve establishment of trees in non-irrigated areas, these trees should receive supplemental water when conditions are unusually dry or when sprinklers are shut off during construction. This water should occur once signs of stress are noticed and at the discretion of the Grounds Manager. Some species will exhibit drought stress more readily than others.
- At a minimum, a six foot diameter mulched area shall be maintained around all trees. USD has specified that Red Cedar mulch is the campus standard thus Red Cedar mulch is to be used. Mulch rings shall be maintained at a depth of one to three inches. Landscape fabric and/or rock (of any size) is not to be used within the drip line.
- In areas where landscape bed design, maintenance requirements and campus aesthetics allow for additional expanses of mulch, trees will significantly benefit - ensuring that the mulched areas extend as close to the drip line as possible when planted in turf areas.
- Weeds shall be removed by hand or chemically using care as to not allowing drift or direct contact of herbicide to ANY part (trunk, exposed roots, suckers, etc.) of the tree.
- Power string trimmers are not to be used to remove weeds from drip lines.
- Power bed edger/lawn edger are NOT to be used within the drip line of trees.
- Since water delivery to a newly planted root ball at the depth required for healthy root establishment can be inconsistent with overhead irrigation or drip irrigation, supplemental hand watering shall be available for the first three months of establishment where automatic irrigation is not delivering an appropriate amount of water to the root zone.

Pruning

General Considerations

- Research has found the whole tree is stunted by pruning of living tissues (live wood). The stunting effect is developed by fewer shoots, fewer roots, less carbohydrate supply, less storage, and less nitrogen uptake. Dead wood pruning does not share the same concerns.
- Pruning shall not be conducted without a clear objective or outcome. Prune first for safety, next for health, and finally for aesthetics.
- When removing branches, the pruning cut shall not damage the branch bark ridge and branch collar.
- Branch reduction or thinning should be used to achieve pruning objectives rather than making large (>8" diameter) branch removal cuts.
- Internode (heading) cuts should not be used except in storm response and crown restoration procedures.
- Significant crown pruning slows and can decline root growth, which may compromise tree health. Topping leads to tremendous root problems. Timing of pruning for minimizing root impacts should be dormant season and mid-summer, if pests can be minimized.

Specific Considerations

- For five years following planting, trees shall be pruned only to remove dead, broken, crossing, or rubbing branches. Following the five year establishment period, trees shall be pruned to develop sound structure and branching that is appropriate for the species and site.
- Hybrid elms may be considered for structural pruning prior to the five-year guideline if fast growth has created structural issues that need addressing within five years of planting.
- All trees shall be evaluated as often as is practical for pruning needs and pests, with a goal of assessing each tree annually and within 72 hours of any major or damaging weather event. A certified arborist using ANSI A300 Part 9 on Tree Risk Assessment and Tree Structure Assessment shall do evaluations.
- A certified arborist or Groundskeeper working under their direct supervision shall only do pruning.
- Pruning trees to provide clearance for mower operators, avoid conflict with, or repair damage from construction activities with the Arborist's approval and or oversight.
- Pruning of established trees shall be done as needed to develop or maintain structural integrity and maintain appropriate clearance over vehicular and pedestrian pathways, around buildings, light fixtures, security cameras and emergency phones.

Cultural Practices

- All treatment of disease and insect problems associated with campus trees shall follow standard Plant Health Care management (PHC) guidelines. The five steps of PHC include know your plants, determine key problems, study your landscape ecosystem, promote plant health, consider a variety of strategies to manage pests through an integrated pest management (IPM) approach. More information about IPM and PHC can be found online here.
- Refer to the document *IPM easy as ABC, Integrated Pest Management in Sensitive Environments, A How to Guide, UNL Extension publication* that can be found here. For a summary of criteria, reference *IPM for Trees and Shrubs on School Grounds,* for online access click here.
- Pesticide treatments shall meet current state and federal standards for chemicals and applications. Follow all pesticide labels as required by law.

Removal and Replanting Management for Catastrophic events

- All effort shall be made to minimize damage in the event of severe weather or other catastrophe by planting trees from the list of Recommended Trees, pruning trees to maintain health and structural integrity, and minimizing damage to trees, especially during construction.
- Within 24 hours of a damaging weather event, a certified arborist or Grounds Manager shall begin assessing all trees on campus for damage. The assessment shall be completed within 72 hours.
- Within 24 hours of a damaging weather event, cleanup shall be initiated by FM Grounds. The initial effort shall include removal and disposal of downed trees and hanging and broken branches with priority given to debris that has fallen onto property (buildings, cars, fixtures, etc.) or is blocking pedestrian or vehicular pathways.
- During the initial cleanup all Groundskeepers shall prune storm damaged trees. Groundskeepers shall leave enough of a stub, when possible, for the final cut to be made by a certified arborist.
- Damage to trees that requires materials, equipment, or skills not possessed by USD's Grounds department (such as pruning or removing large trees) shall be contracted to a professional tree service company with employees under the direct supervision of a certified arborist.
- If damage to a tree is such that the tree cannot be made structurally sound or maintained as such through practical means, the Grounds Manager (in consultation with a certified arborist) shall recommend removal of the tree. The tree shall be removed immediately upon approval from the Grounds Manager and the AVP of Facilities Management. Pictures should be taken and catalogued for record of any tree removed from campus.

Construction Considerations

Protection and Preservation

Preservation during Design Phase

- On the site survey map, identify all trees whose root systems are likely to be impacted by construction equipment, cut and fill activities, utility corridors, proposed walks and roads, and potential construction staging areas; and whose branches may be damaged by construction equipment. NOTE: if trees are grouped in a forest or woodlot, then only the location of the woodlot and any trees greater than 24 inches diameter at 4.5 feet above the ground or Diameter at Breast Height (DBH) need to be identified
- Not salvageable
    - All trees that are within the footprint or in close proximity to the footprint of a proposed building. (Note: alternative footprints to save large, valuable trees should be considered, provided that the alternatives maintain the desired features and costs of the proposed building)
    - Trees of undesirable species or in very poor health. Examples include, but are not limited to species that have low landscape and educational value, and heavily diseased or damaged trees that have little chance of recovering desirable form and function, even if protected from construction damage.
- Low priority for protecting
    - Small trees (less than 10 inches DBH) that fall outside of the building footprint, but are likely to be impacted by construction activities.
    - Larger trees outside of the building footprint with relatively low landscape value. Examples include but are not limited to, trees with poor form, species of relatively low landscape and educational value, or trees with inadequate space to accommodate current or future growth even if the site is improved.
- High priority for protecting
    - Medium (> 10 inches DBH) to large (> 24 inches DBH) trees of desirable species with good form, good health, and room to continue to grow. Avoid locating the general construction site around low and high priority trees where possible by: Planning all construction activities including new utility corridors, staging areas, new sidewalks and new roads for a minimum clearance of 15 feet away from the base of trees, and not within the edge of the canopy drip line. Greater distances are desirable. High priority trees should receive more consideration than low priority trees in planning corridors, staging areas, walks, and roads.

When excavation must occur on campus, consideration should be given to minimizing adverse impact to established trees, especially on valuable large trees which are impossible to replace in a short period of time. The guidelines given herein describe the procedures which should be employed during the completion of excavation work in the vicinity of campus trees. These procedures are applicable to all excavation work, whether completed by USD personnel or by outside contractors.

Installation of Underground Utilities

Consider boring first when placing utility lines under trees larger than 6” in diameter.

- When trenching must occur, locate trench beyond the drip line of the tree.
- Soil removed during trenching and tunneling should be used as backfill material and should be replaced in the same density of compactness as before removed.
- All tree protection measures are to be observed throughout the term of the project. If tree protection inhibits construction of the project, the contractor shall coordinate access around the tree with USD Grounds.

Compensation for Removed Trees in Construction Zones

Development activities shall be planned to the extent possible in order to preserve and protect trees on the USD Campus. Any tree on campus that must be removed to accommodate development, damage during storm events, disease and water/sewer repairs must be shown on the site plan and a method of compensation shall apply as listed below:

- A <4" diameter tree shall be compensated with an equivalent monetary value, including but not limited to the cost of planting and establishment (labor, equipment, materials and maintenance) and removal and cleanup costs of the removed/damaged tree.
- Compensation for trees <4" diameter which are commercially available in appropriate sizes, replacement trees shall comply with the current edition of *The American Standard for Nursery Stock* (ANSI Z60.1) and shall meet the following minimum sizes:
    - Medium and Large Deciduous trees – 2" caliper, balled & burlapped
      Ornamental and Small Deciduous trees – 1.5" caliper, balled & burlapped
      Multi-Stem Deciduous tree – 6' height, 3 or more main stems
      Evergreen trees – 6' height, balled & burlapped
- A >4" diameter tree shall be compensated with an equivalent monetary value by using the following formula (based on DBH), including but not limited to the cost of planting and establishment (labor, equipment, materials and maintenance) and removal and cleanup costs of the removed/damaged tree.
    - Less than 4" DBH – 1 tree
      >4"-9" DBH – 2 trees
      >9"-18" DBH – 3 trees
      >18"-27" DBH – 4 trees
      >27"-36" DBH – 5 trees
      >36"-48" DBH – 6 trees
      >48" DBH – 7 trees
- An account shall be created to receive and manage the tree replacement program. This will allow for the flexibility of planting time or the issue of not having ready site or if the site has insufficient space for tree planting and payment shall be made to the tree planting and replacement account. The tree replacement or planting account shall be a separate account so that the funds can be used from year to year for the purpose of tree planting and replacement only.

Tree damage in Construction Zones

- The Arborist shall conduct site visits during construction and shall notify the Project Manager of any violation of the Plan. The Project Manager shall then contact the construction foreman or superintendent who shall immediately stop and correct the action that led to the violation. Likewise, the construction foreman or superintendent shall immediately contact the Project Manager if protected trees are knowingly compromised in violation of the Plan.
- Any damage to existing trees that occurs from or by action of the Contractor shall be repaired by the Contractor at the Contractor's expense. The repair shall be made in full agreement with the University for both methods and results. Contractors shall never prune or repair damaged trees.

Prohibited Practices

Prohibited practices include, but are not limited to:

- cutting, breaking, skinning, and abrasion of roots, branches, and bark
- nailing, bolting, or drilling into trees
- using trees as a support in any way or to secure items, including using trees to anchor cables, ropes, chains, etc. to or around any part of the tree (including the use of hammocks and tension cables/lines by students)
- filling, grading, excavating, trenching or auguring within root protection zones
- storing construction equipment, materials, vehicles, waste, or excavated material; vehicular and/or excessive foot traffic; fires or burning; excess site runoff; and rinsate from construction materials and processes within root protection zones
- disposing of liquid wastes or contaminants within or near root protection zones
- damaging, breaching, or removing protective fencing prior to project completion
- pruning, removing, or relocating/transplanting protected trees without the required permissions

Goals and Objectives

The following items are goals of the USD Tree Care Plan for the immediate future (by 2022):

- Complete an inventory of the campus canopy. Create GIS mapping of all trees on campus as well as a database of tree size, record of maintenance, and valuation.
- Create plan to counter the attack of the Emerald Ash Borer pest threat. USD's campus features many ash species of trees that will be susceptible to the pest once it arrives to South Dakota. To avoid massive, catastrophic loss of trees and costly expenditures to campus, document a plan to treat or remove trees to counter the pest.
- Increase planting of native tree specimens across campus. These shall include trees native to South Dakota and the surrounding regions.
- Increase diversity of tree planting by adding new deciduous and conifer tree species not currently planted on our campus.

Long term goals and objectives (by 2037):

- Establish all or a portion of USD's landscape as an arboretum. Showcase trees and woody ornamentals that thrive in the local Vermillion climate. Create labels for specimen trees and plantings and ensure they are preserved by establishing a funding source for the arboretum. Conduct small research projects and trials of new plants and trees. Register the campus with the Morton Arboretum and become an accredited arboretum.

Definitions

- Caliper: Balled and burlapped (B&B) trees are measured by their caliper. The caliper of a tree is measured by the thickness of the trunk, so a 2" caliper tree means that the trunk is 2 inches across. Tree caliper up to 4 ½" is measured at 6" from the root flare; greater than 4 ½", it should be measured at 12" from the root flare. The height ranges depending on the tree.
- Certified arborist: a member of the FM Grounds staff who has passed the South Dakota Arborists Association or International Society of Arboriculture certification exam. Any outside contractor or vendor who can provide documentation that they are a Certified Arborist by ISA or their State Arborists Association.
- Cultivar: a tree produced by breeding that varies from its species in one or more specific traits, the designation for which follows the species name, is not italicized, and is bound by single quotation marks
- Desirable tree: a tree that is structurally sound, free of serious pests, and not included in the list of prohibited Trees
- DBH: Diameter at Breast Height, or 4.5 feet above the ground
- Established trees: trees that have been planted for five or more years
- Evergreen: trees that retain leaves year-round
- Finish grades: the final elevation of the ground surface at the end of construction
- Pest: an insect, fungus, or other pathogen that causes damage to a tree
- Pesticide: a chemical substance used to control pests
- Protected tree: a tree located within the limit of work of a construction zone that has been deemed valuable and for which protective measures have been put in place
- Protective fencing: a barrier constructed around a tree in order to protect it from construction activities

- Prune: remove part of a tree
- Root flare: an area of widening where roots spread from the base of the main stem or trunk
- Root ball: the ball of earth containing the roots and the soil in which a tree was grown
- Root protection zone: area around a tree containing the majority of the tree's root mass which is to be protected from construction activity or other disturbance; estimated at one foot per inch of trunk diameter
- Species: a biological classification containing individuals that are naturally occurring, genetically alike, similar in appearance, and capable of interbreeding
- Species diversity: the number and frequency of species within a tree population
- Steward/stewardship: act to protect, conserve, and maintain
- Stub: a short part of a branch, stem, or root that remains after the main part has been removed
- USD campus: all university-owned or controlled property.
- USDA hardiness zone: a geographic area defined by its average minimum temperature

Appendix: List of Recommended Trees

Common Name	Botanical Name	Native to SD	Native to US
Paperbark Maple	*Acer griseum*		
Black Maple	*Acer nigrum*		**X**
Norway Maple	*Acer platanoides*		
Sugar Maple	*Acer saccharum*		**X**
Shantung maple	Acer truncatum		
Ohio Buckeye	*Aesculus glabra*		**X**
Horsechestnut	*Aesculus hippocastanum*		
Downy Serviceberry	*Amelanchier arborea*		**X**
Apple Serviceberry	*Amelanchier x grandiflora*		
River Birch	*Betula nigra*		**X**
Whitespire birch	*Betula platyphylla* 'Whitespire'		
American hornbeam	*Carpinus caroliniana*		**X**
Shagbark Hickory	*Carya ovata*		**X**
Bitternut Hickory	*Carya cordiformis*		**X**
Flowering Dogwood	*Cornus florida*		**X**
Cornelian Cherry Dogwood	*Cornus mas*		
American Smoketree	*Cotinus obovatus*		**X**
Common Persimmon	*Diospyros viriginiana*		**X**
Thornless Honeylocust	*Gleditsia triacanthos* var. *inermis*	**X**	**X**
Kentucky Coffeetree	*Gymnocladus dioicus*	**X**	**X**
Ginkgo	*Ginkgo biloba*		
Goldenraintree	*Koelreuteria paniculata*		
Tuliptree	*Liriodendron tulipfera*		**X**
Saucer Magnolia	*Magnolia x soulangiana*		
Crabapple	*Malus spp.*		
Eastern Hophornbeam	*Ostrya virginiana*	**X**	**X**
American Sycamore	*Platanus occidentalis*		**X**
London Planetree	*Platanus x acerifolia*		
Eastern Cottonwood	*Populus deltoides*	**X**	**X**
Amur Chokeberry	*Prunus maackii*		
Black Cherry	*Prunus serotina*		**X**
Bur Oak	*Quercus macrocarpa*	**X**	**X**
White Oak	*Quercus alba*		**X**
Swamp White Oak	*Quercus bicolor*		**X**
Northern Red Oak	*Quercus rubra*		**X**
Black Oak	*Quercus velutina*		
English Oak	*Quercus robur*		
Heritage Oak	*Quercus x macdanielii 'Clemons'*		
Prairie Stature Oak	*Quercus x bimundorum 'Midwest'*		
Japanese Tree Lilac	*Syringa reticulate*		
American Linden	*Tillia americana*	**X**	**X**
Littleleaf European Linden	*Tillia cordata*		
American elm (disease resistant cultivars)	*Ulmus americana*	**X**	**X**
Chinese Elm	*Ulmus parvifolia*		
Hybrid elm (disease resistant cultivars)	*Ulmus* spp		
White Fir	*Abies concolor*		**X**
Balsam Fir	*Abies balsamea*		**X**
Rocky Mountain Juniper	*Juniperus scopulorum*		**X**

European Larch	*Larix decidua*		
Colorado Spruce	*Picea pungens*		**X**
Black Hills Spruce	*Picea glauca* var. *densata*	**X**	**X**
Norway Spruce	*Picea abies*		
Jack Pine	*Pinus banksiana*		
Limber Pine	*Pinus flexilis*		**X**
Ponderosa Pine	*Pinus ponderosa*	**X**	**X**
Eastern White Pine	*Pinus strobus*		**X**
Douglas Fir	*Pseudotsuga menziesii*		**X**
Bald Cypress	*Taxodium distichum*		**X**
Eastern Arborvitae	*Thuja occidentalis*		**X**

Appendix B: List of Prohibited Trees

Common Name	**Botanical Name**	**Reasoning**
Box Elder	*Acer negundo*	Brittle
Tree of Heaven	*Ailanthus altissima*	brittle/opportunistic
Paper Birch	*Betula papyrifera*	borer susceptibility
American Chestnut	*Castanea dentata*	Chestnut Blight
Russian Olive	*Elaeagnus angustifolia*	Invasive
White Ash	*Fraxinus americana*	Emerald Ash borer
Green Ash	*Fraxinus pennsylvanica*	Emerald Ash borer
Red Mulberry	*Morus rubra*	messy/opportunistic
White Mulberry	*Morus alba* var. *tatarica*	messy/opportunistic
Pin Oak	*Quercus palustris*	chlorosis
Siberian elm	*Ulmus pumila*	brittle/opportunistic