

Berea College Campus Tree Care Plan

2019



- 1. Purpose:** The purpose of this plan is to further develop tree care on the Berea College campus by becoming the central document used for all aspects of tree decisions made at Berea College. This consistency will ensure the proper steps for selection, planting, pruning, safety, and removal are taken regardless of the party involved. This document was developed with references to the current Berea College Master Plan, and the college's underlining values of sustainability.
- 2. Responsible Department:** The responsible department is the Berea College Facilities Management, specifically the Grounds Team; the Grounds Superintendent, along with the Campus Tree Group as a consulting resource, is responsible for final decisions regarding trees.
- 3. Campus Tree Group:** This advisory team consists of interested and educated individuals from the campus community with representation from the student body. The purpose of this committee is to pool resources to make smart decisions for the development and preservation of trees on the Berea College campus. The responsibilities of this committee will be to act as a resource for removal, planting, and other tree decisions, and to help facilitate campus tree communications. There is no limit to term on the committee; admittance will be based on interest and availability.

Committee members 2018:

Chris Adams- Berea College Assistant Professor of Biology

Rosemarie Adams- Berea College Landscape Specialist; ISA Certified Arborist

Elgin Cottrill- Berea College Landscape Specialist

Glen Dandeneau- Berea College Assistant Forester

Richard Dodd- Berea College Capital Projects Manager

Nancy Gift- Berea College Compton Chair of Sustainability

Sarah Hall- Berea College Assistant Professor of Agriculture and Natural Resources

Jacob Cornwell- Berea College Student Representative

Shane Wilkerson- Director of Facilities

Eric Harshman- Berea College Grounds Superintendent

Clint Patterson- Berea College Forester

Joan Pauley- Berea College Sustainability Coordinator

Jeff Reed- Associate Director of Facilities

Paul Schrader- City of Berea Surveyor

Derrick Singleton- Berea College Vice President of Operations and Sustainability

4. Campus Tree Care Policies:

Plant selection

- The root flare shall be clearly visible at the top of the root ball with the first main root no more than 3" below the surface.
- Container-grown trees should have a good root structure without circling roots. Ball and burlap trees should have a tight ball--natural burlap and twine are preferred.

- Trees should have good branch spacing along at least 2/3 of its height and no co-dominant leaders. There should be no indication of disastrous pruning such as flush cuts or removal of branches more than half the diameter of main stem.
- Trees shall be vigorous.
- A recommended tree list is located later in this document under *Recommended and Prohibited Species* as a general guide for selection; however, exceptions are made for increasing campus diversity and educational interest as determined by the Grounds Coordinator.

Planting

- Dig a shallow, broad planting hole three times the diameter of the root ball and as deep as the root ball. If soil compaction is present break up the soil in a large area around the tree to encourage establishment.



- Identify the root flare. This point should be partially visible after the tree has been planted
- Remove tree container for containerized trees. Inspect the root ball for girdling roots and cut or remove them. Expose the root flare, if necessary.
- Place the tree at the proper height, by placing the root flare just above the grade. It is better to plant the tree 2 to 3 inches above the base of the root flare, than to plant it at or below the original growing level. To avoid damage when setting the tree in the hole, always lift the tree by the root ball and never by the trunk.
- Straighten the tree in the hole before backfilling.
- Fill the hole gently but firmly with original soil. Fill the hole about one-third full and gently but firmly pack the soil around the base of the root ball. As much of the wire basket as possible needs to be removed, at least the top two hoops. Untreated burlap needs to be removed or folded down into the bottom of the hole. Treated burlap must be removed completely.
- After planting, a soil water ring must be constructed around the perimeter of the root ball.
- If the trees will stand up on their own, they should not be staked. In most cases, it's better to go back and stake in house whatever trees need it rather than

requiring this of the contractor. Staking should be done with breathable ties in a manner that allows the tree to move with the wind.

- Plant placement guidelines will follow direction given in the Berea College *Campus Improvements* document, 1997. Highlighted guidelines include:
 - i. The Main Quadrangle and College Green are defined by only canopy trees and lawn. Maintain view lines through these landscapes to major buildings and prominent campus spaces.
 - ii. Locate canopy trees contiguous to walkways, placed at a minimum of 10' from walkway edges.
 - iii. Maximize use of native species, and strive to strengthen existing tree patterns.
 - iv. Locate evergreen trees along natural wooded edges of campus.
 - v. Selectively locate evergreen trees adjacent to and between buildings, keeping plantings minimum 25' from walkway edges.
 - vi. Locate ornamental trees along the perimeter edge of wooded landscapes, as focal plantings near major building entrances, and along select walkways, at a minimum 5' from walkway edges.

Maintenance

- Irrigation: The root balls shall not be allowed to dry out during transportation and storage. Trees will be watered on planting, filling up the water ring and allowing it to drain three times. After that, they should be watered at least twice a week in drought conditions in the first year, less as rainfall permits. Subsequent years generally require less frequency of watering, but trees shall be watered for the first three years after planting.
- Mulch Rings: Mulch rings shall be maintained to prevent mower/trimmer damage to trees.
- Fertilizing: No fertilizer is generally added to a tree, unless the tree is visibly under stress and a plan is developed with fertilizing a component to aid in the tree's recovery. All campus trees benefit from an organic turf fall fertilization and the mulching of leaves around their bases.
- Pruning: To encourage the development of a strong, healthy tree, ANSI A300 guidelines shall be followed when pruning. Highlighted guidelines include:
 - i. Pruning objectives shall be established prior to beginning any pruning operation.
 - ii. Prune first for safety, next for health, and finally for aesthetics.
 - iii. Pruning cuts should be made in accordance with ANSI A300 5.3 *Pruning Cuts*.
 - iv. When removing branches, the pruning cut shall not damage the branch bark ridge and branch collar.

- v. Thinning shall be performed to remove dead, diseased, dying, and defective branches, which reduces hazards, promotes, health, and improves appearance
- vi. No more than 25 percent of the foliage should be removed within an annual growing season. Ideally, much less than 25 percent will be removed each season. The percentage and distribution of foliage to be removed shall be adjusted according to the plant's species, age, health and site.
- vii. No branch greater than 50 percent the diameter of the main stem should be removed except in special circumstances.
- viii. Topping and tipping of trees and branches harm trees and shall not be used. Crown reduction is the preferred method to adjust tree and crown size.
- ix. Always maintain live branches on at least two-thirds of a tree's total height. Removing too many lower branches will hinder the development of a strong main stem, and give the tree an unnatural appearance.
- x. Care should be taken to not remove multiple branches too close together. This can cause undue stress on the tree.

- Removal:

- i. All healthy trees to be removed shall be approved by the Campus Tree Group.
- ii. Immediate safety hazards and/or dead tree removals require no approval
- iii. Trees shall be removed when they constitute an unacceptable safety risk which cannot be satisfactorily mitigated through less drastic measures that leave a viable tree.
- iv. Dead trees shall be removed.
- v. Trees that have poor structure or that detract significantly from the landscape will be considered for removal.
- vi. Persons felling a tree shall have knowledge of basic chainsaw safety, including PPE (Personal Protective Equipment), chainsaw safety features, and the reactive forces of the saw.
- vii. Felling trees shall be undertaken by a job leader and ground support of at least one other person. Hand signals should be agreed upon beforehand.
- viii. Persons felling the tree need to be able to competently assess the potential hazards of the tree, such as hanging limbs, lean, and structural defects that may affect safe felling in the target area.
- ix. The felling area shall be clear of obstructions and effective traffic control shall be in place.
- x. Felling shall only be done by someone with professional-level experience of felling techniques.

Recommended and Prohibited Species

The selection process will favor native trees proven to grow well in our region, but will also consider non-native varieties that enhance campus diversity. Invasive species are prohibited, and are determined with reference to the Kentucky Exotic Pest Plant Council invasive threat plant list. Tree selections and placements will be made by the Campus Tree Group, with reference to the Berea College Master Plan. A list of recommended species is located at the end of this document. At this time the only prohibited tree species for planting or cultivating is *Ailanthus altissima* (Tree-of-Heaven). There is also hesitation for any future plantings of any *Fraxinus* (Ash) species due to the proximity and uncertainty of the Emerald Ash Borer.



Managing for Disasters

In the event of severe weather conditions such as wind, ice, etc. falling trees on college property will be removed and/or managed by the Grounds Team. There will be open lines of communication with campus Public Safety to ensure top priorities are dealt with promptly and safely. Generally, main roads and walks are cleared first, followed by high use public buildings, administration buildings, and dormitories. In preparation for a possible weather event, vehicles, tools, and equipment should be in ready condition, and staff on call.

5. Protection and Preservation policies and procedures

Tree Protection during Construction

The Grounds Superintendent shall be in communication with landscape architects and contractors while project is in the design phase in order to identify trees to be saved, determine protection measures, and determine penalties for violating protection measures, etc. Tree protection zones shall then be included in the surveys, site drawings and taken into consideration with regard to utility work and construction plans. Any exceptions to the tree protection zones must be approved in advance by the Grounds Superintendent. Campus tree protection includes, but is not limited to, these items listed below.

- Tree protection fencing must be installed around all existing trees noted to remain on plans within the fenced staging area. Fencing ideally shall extend a minimum distance from the trunk of 1 foot per each inch of trunk diameter (DBH) or 6", whichever is greater. At times due to project requirements this cannot be met; however, tree protection must be agreed upon and installed before project starts.
- Area within tree protection fencing must be mulched with shredded hardwood or wood chips to depth of 3-4".
- Fencing must be installed prior to any equipment arrival on the site. Work may not begin until fencing is installed.
- For most projects, fencing shall be galvanized chain link, minimum 4' height. All stakes must be metal. Some small projects will allow plastic fencing.
- Fence shall be maintained for the duration of the project, and shall not be removed without Berea College permission.
- No material storage, vehicles or any other activity shall occur at any time within tree protection fencing.
- All equipment washout areas must be located to eliminate impact to the tree protection zones.
- All efforts will be made to establish fines for violation of the set tree protection zones prior to any construction project.

6. Goals:

Our goal for 2018 is to update/maintain our Dedicated Tree inventory with current pictures, locations, and tree condition.

Our goal for 2019 is to complete our GIS tree inventory

7. Tree Damage Assessment:

The Grounds Superintendent or selected Grounds Team member will conduct damage assessments as damage is noticed. Penalties and/or educational opportunities will be determined on a case by case basis.

8. Prohibited Practices:

Any damage to campus trees by a person, vehicle, or equipment is strictly prohibited. Any person caught damaging campus property will be turned over to Public Safety.

Bicycles locked to trees are prohibited, and owners will be given 48 hour notice for removal before being removed by Public Safety.

9. Definitions (select definitions taken from ANSI A300):

Arborist: An individual engaged in the profession of arboriculture who, through experience, education, and related training, possesses the competence to provide for or supervise the management of trees and other woody plants.

Branch Bark Ridge: Protruding bark at the top of the junction, or crotch, between a branch and another branch or tree trunk.

Branch Collar: The swollen area at the base of a branch.

Crown: The leaves and branches of a tree measured from the lowest branch on the trunk to the top of the tree.

Felling: The process of cutting down a standing tree.

Native Tree: any species that is indigenous to the region.

Raising: Selective pruning to provide vertical clearance.

Reduction: Selective pruning to decrease height and/or spread.

Root Ball: The intact soil and root mass that remains with a transplanted tree.

Root Flare: The base of the tree trunk that swells out to become buttress roots entering the soil. Also known as the root collar.

Tipping: The practice of cutting lateral branches between nodes to reduce crown width.

Topping: The reduction of a tree's size using heading cuts that shorten limbs or branches back to a predetermined crown limit. Topping is not an acceptable pruning practice.

Tree Protection Zone: the area surrounding the tree, defined in construction contracts, specifications, and drawings that is considered to be vital to the tree's health and wellbeing and is protected within the guidelines of this document.

10. Communication strategy:

The campus community will be updated on policies and procedures primarily through campus email and internet portal sites. Other sources of communication will include notifications in The Pinnacle, the campus newspaper, and through informational and educational events such as Arbor Day festivities and programs. The Campus Tree Group is updated via open email at least twice a year, with the understanding any questions and/or comments at any time are communicated to the entire group at any time.

Contractors will be notified of campus policies and procedures regarding campus trees early in the development process. The specifications laid out in this document will be used to contribute to construction specifications and documents. Two way communications will be maintained between the Grounds Team, landscape architects, and contractors about procedures and goals as pertaining to projects. All tree protection zones will be clearly marked as stated in the *Protection and Preservation* section of this document.



Recommended Tree List:

Canopy Trees

Botanical Name

Acer rubrum
Acer saccharum
Betula nigra
Carpinus caroliniana
Carya sp
Cladrastis kentukea
Diospyros virginiana
Fagus grandifolia
Ginkgo biloba
Gymnocladus dioicus
Liquidambar styraciflua
Liriodendron tulipifera
Metasequoia glyptostroboides
Nyssa sylvatica
Platanus x acerifolia
Platanus occidentalis
Quercus alba
Quercus bicolor
Quercus coccinea
Quercus lyrata
Quercus macrocarpa
Quercus phellos
Quercus prinus
Quercus rubra
Quercus shumardii
Quercus stellata
Taxodium distichum
Tilia americana
Tsuga canadensis
Ulmus americana
Ulmus parviflora

Common Name

Red Maple
Sugar Maple
River Birch
Ironwood
Hickory
Yellowwood
Persimmon
American Beech
Maidenhair Tree
Kentucky Coffeetree
Sweet Gum
Tulip Poplar
Dawn Redwood
Black Gum
London Planetree
Sycamore
White Oak
Swamp White Oak
Scarlet Oak
Overcup Oak
Bur Oak
Willow Oak
Chestnut Oak
Northern Red Oak
Shumard Oak
Post Oak
Baldcypress
American Linden
Hemlock
American Elm (Selected Varieties)
Chinese Elm

Ornamental Trees

Botanical Name

Amelanchier sp
Cercis sp
Chionanthus virginicus
Cornus florida
Cornus kousa
Cotinus obovatus
Crataegus sp
Halesia carolina
Ilex opaca
Magnolia sp
Malus sp

Common Name

Serviceberry
Redbud
Fringetree
Flowering Dogwood
Japanese Dogwood
American Smoketree
Hawthorn
Carolina Silverbell
American Holly
Magnolia
Flowering Crabapple