About Colorado State University Trees

Colorado State University in Fort Collins, Colorado, manages an urban forest of almost 7,000 trees distributed over three campuses (Main, South and West) comprising 2,400 acres of land. The majority of the managed urban forest (5,000 trees) is located on the Main Campus within 220 acres of irrigated landscape.

The Main Campus urban forest is diverse in terms of age, class, and species. The 2011 inventory indicates 109 species ranging in age from newly planted to 130 years old. The largest trees have up to a 66” diameter at breast height (DBH), with an average trunk diameter of 11.6 inches. The most common Main Campus tree is green ash (12.53 percent), followed by blue spruce (10.80 percent) and honeylocust (10.09 percent).

History of trees on the CSU Main Campus

The following history of trees on campus is from a 1994 Tree Management Plan prepared by Kathleen Alexander for Colorado State University Facilities Management. Alexander is currently the City Forester for the City of Boulder, Colorado.

Originally a treeless prairie, the Colorado State University campus has since had a rich and interesting tree history. Much research has been done on the people, buildings and CSU campus itself, but up to now the trees have been omitted. This omission is ironic when one considers that to most alumni the most cherished memory of the campus is the Oval.

The trees growing in the older section of campus are a product of three major tree planting projects. In 1877 the local grange undertook the beautification of the Agricultural Colleges campus. Black walnut cuttings were set out and grew into the large trees at the present site of Danforth Chapel. (These trees stood until 2015, when they succumbed to 1000 canker disease. The wood was then harvested for use in campus buildings.)

The second and most important tree planting occurred in 1881, when 3,000 trees were planted on the campus. The three hackberry to the east of Spruce Hall and the green ash and American elm trees in the open field to the east of the Old Main site are remnants of this planting. Most of the trees were planted as street trees, however, lining the road system that existed in 1881. This was a mixed planting consisting of American elm, green ash, cottonwood, and possibly silver maple. Remnants of this original street tree planting are scattered throughout the older section of campus today, but the most obvious examples are the alley trees in the Oval. Although hard to believe, the alle trees have been in the ground for 113 years.

The perimeter trees were not planted until 40 years later, and were part of the third tree planting. In 1922, the west perimeter was planted with 1-inch caliper American elms and the east perimeter followed two years later. The green ash along the west perimeter was a volunteer growing along an
irrigation ditch that fed the Oval area and was a mature tree at the time of the third planting. The American elms around the Administration Building were planted in the spring of 1925 and the street trees lining both East and West drives followed in the spring of 1927.

Several separate tree plantings have also occurred. The rock elms were planted in 1892, while the American elms growing on city property along S. College Ave. to the east of the gym were planted in 1920. The trees growing in Sherwood Forest were planted in the late 1940s and the Ohio buckeyes on the Student Center/Morgan Library plaza were planted in 1961 and 1964, respectively. Most other trees planted on the campus were in association with the construction or expansion of buildings. (Of the original elm planting on the Oval, 72 trees remain.)

**Purpose of this Plan**

The purpose of the CSU Campus Tree Care Plan is to set guidelines for the protection and maintenance of the campus’ urban forest, promote best management practices in tree care, reduce risks to public safety related to hazardous trees, and ensure a sustainable campus urban forest through species diversity and compliance with the Campus Master Plan framework. The Master Plan is available online at [http://www.facilities.colostate.edu/files/forms/Campus_Master_PlanWEB_Smith.pdf](http://www.facilities.colostate.edu/files/forms/Campus_Master_PlanWEB_Smith.pdf)

**Responsible Department**

The responsibility for enforcing the Campus Tree Care Plan rests with the Facilities Management Department, under the direction of the Vice President for University Operations. Ongoing tree care activities, both in-house and by outside contractors are overseen by the Campus Arborist within the Outdoor Services Group.

The Campus Landscape Architect has the primary role within Facilities Management in species selection, tree placement, and the enforcement of tree protection during construction.

**Campus Tree Advisory Committee**

Assistant Director Landscaping and Planning - Fred Haberecht  
Campus Landscape Architect – David Hansen  
CSFS Fort Collins District Forester - Boyd Lebeda  
CSFS Community Forestry Program Manager - Keith Wood  
CSFS Public and Media Relations Coordinator - Ryan Lockwood  
Undergraduate Student, WCNR - Nick Sullivan  
Fort Collins City Forester - Tim Buchanan  
Campus Arborist - Scott Simonds  
Outdoor Services Manager - Rodney Gillespie  
GIS Specialist - Martha Coleman  
Department of Forest and Rangeland Stewardship Instructor - Robert Coleman  
CSFS Fort Collins Assistant District Forester - Greg Zausen  
Landscape Horticulturist and Professor - Jim Klett  
Nursery Manager, CSFS - Joshua Stolz  
Program Manager, Facilities Management - Becca Wren

**Role of the Representatives**

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The committee members will provide recommendations and support for overall tree care, while contributing to maintain a comprehensive Campus Tree Care Plan. The committee also will affirm the benefits of the campus trees and our community forests to students, staff and the general public through service learning opportunities and Arbor Day observance events. Committee members will serve for two years with an option for renewal. The student representative also will serve two years, and then serve one more year as a mentor to a new student representative. Several committee members will represent the Colorado State Forest Service (CSFS), a service and outreach agency of the Warner College of Natural Resources at CSU.

**Campus Tree Care Policies**

**Tree Planting and Maintenance Best Practices**

Colorado State University Facilities Management employees and tree care companies contracted to do work on CSU campuses shall be supervised in their work efforts by an International Society of Arboriculture (ISA) Certified Arborist, or by an individual holding a current arborist license issued by the City of Fort Collins Forestry Division. The work shall be performed in accordance with American National Standards Institute (ANSI) A300 Standards for Tree Care Operations. Best Management Practices for Tree Care Operations on the CSU campuses are defined in the following publications, available from the International Society of Arboriculture. These publications can be accessed online at [http://isa-arbor.com/home.aspx](http://isa-arbor.com/home.aspx)

- ANSI A300 Best Management Practices – Tree Pruning
- ANSI A300 Best Management Practices – Utility Pruning of Trees
- ANSI A300 Best Management Practices – Tree Support Systems
- ANSI A300 Best Management Practices – Tree Lightning Protection Systems
- ANSI A300 Best Management Practices – Tree Planting
- ANSI A300 Best Management Practices – Managing Trees during Construction
- ANSI A300 Best Management Practices – Tree and Shrub Fertilization

**Landscaping Standards**


Drawings detailing the standards for tree planting and protection are contained within the Facilities Management Construction Standards Drawing Appendix - [https://www.fm.colostate.edu/drawings](https://www.fm.colostate.edu/drawings)

**Tree Removal Policy**

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Trees with a potential of being removed as part of construction or utility projects are evaluated on a tree-by-tree basis. The process for removal, transplanting or protection is detailed in the Protection and Preservation section of this document.

Trees potentially requiring removal because of disease or safety risks posed to the campus community undergo a risk assessment by the Campus Arborist, City Arborist and Campus Landscape Architect. Based on this assessment, a recommendation is made to the Associate Vice President for Facilities Management and the Vice President for University Operations. If the determination is made that a tree requires removal, the removal is communicated to the campus community through the building proctors.

Trees that require removal as part of major campus development projects must be approved for removal as part of the development review process. The Master Plan Committee reviews all tree removal proposals and recommends further action as necessary.

**Wood Utilization Policy**

Facilities Management at CSU is dedicated to the responsible management of all wood waste associated with tree care operations, including dead, broken, or low-value wood as caused by heavy snowfall or strong winds. All wood waste from tree care operations is chipped on campus. The chipped wood is then used as high-quality mulch on landscaping projects across campus. Removed wood material is also milled with the intention for use within the interior millwork of on-campus construction and remodel projects. No wood or material is sent to the landfill, except that which is suspected as being infected by disease.

**Recommended Species**

Trees recommended for planting on the CSU campuses are listed in the Front Range Tree Recommendation List - [http://www.coloradotrees.org/PDFs/TreeRecommendationList.pdf](http://www.coloradotrees.org/PDFs/TreeRecommendationList.pdf). The Larimer County CSU campuses vary in soil characteristics, exposure and temperature extremes. The recommended list is intended as a reference for design consultants doing work on the CSU campuses; however, all tree plantings require the approval of the Campus Landscape Architect. Building projects require planting plans, which specify both species and size of proposed trees, and these plans also require the approval of the Campus Landscape Architect.

**Prohibited Species**

Trees listed in the National Resources Conservation Service State of Colorado Invasive weed list ([http://plants.usda.gov/java/noxious?rptType=State&statefips=08](http://plants.usda.gov/java/noxious?rptType=State&statefips=08)) are prohibited from plantings on campus. As of 2007 there has been a moratorium on any new plantings of green or American ash because of a concern about emerald ash borer, and due to an overrepresentation (on a percentage basis) of green ash on the CSU campuses.

**Managing for Catastrophic Events**

Catastrophic events are managed by the CSU Emergency Management Team. This team includes
members from Facilities Management, the CSU Police Department and Environmental Health. The CSU campuses frequently experience early and late season snowstorms (three major events in the last 10 years). Each of these events caused significant damage to trees on the campuses, especially in the historic Oval area. The first priority of the Emergency Management Team is the safety of the campus community.

Areas of campus which are assessed at high risk for either branch or total tree failure by the Outdoor Service Group are closed to vehicle and pedestrian traffic during major events, and individual trees that are assessed as high risk are cordoned off. Arborists from the Outdoor Services Group and external tree care companies are called in immediately to remove limbs and trees that pose the highest risk.

Work continues by both the internal and external work forces until risks are removed and trees damaged in the event have been pruned for safety and long-term structural health. Trees destroyed in catastrophic events are replaced on a tree-for-tree basis.

**Protection and Preservation Policies**

Colorado State University recognizes the environmental, economic, and aesthetic value of the campus urban forest and focuses efforts to be good stewards of trees on campus with specific concerns for both significant individual trees and significant collections.

Trees that have potential for damage from development activities on campus are subject to the following process:

1. The Campus Landscape Architect works with a design team starting in the conceptual design phase to determine if there are alternatives to building, utility and pavement layouts which will allow for existing trees to remain in the project.

2. An existing conditions drawing, based on a topographic survey and detailing the location and size of each existing tree, is submitted as part of schematic design submittal. Based on this submittal, the design consultant, working with the Campus Landscape Architect and Campus Arborist, makes a determination as to which trees are to be removed, transplanted or protected. Trees up to 10” DBH are considered of transplantable size, and are moved per criteria at the following webpage: [http://www.sustland.umn.edu/implement/treespade.htm](http://www.sustland.umn.edu/implement/treespade.htm).

3. Trees to be removed are replaced based on the standards described as follows (these standards mirror the replacement process required of development projects in the City of Fort Collins). A tree that is removed shall be replaced on the CSU campus from which it was removed with not less than one (1) or more than two (2) replacement trees sufficient to mitigate the loss of value of the removed tree. The applicant shall select either the Campus Landscape Architect or a qualified landscape appraiser to determine such loss based upon an appraisal of the tree to be removed by using the most recent published methods established by the Council of Tree and Landscape

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Replacement trees shall meet the following minimum size requirements: (a) Canopy Shade Trees - 3.0" caliper balled and burlap or equivalent, (b) Ornamental Trees - 2.5" caliper balled and burlap or equivalent, (c) Evergreen Trees – 8' height balled and burlap or equivalent.

4. All development projects require a Tree Protection Plan as part of Contract Documents. The Tree Protection Plan is enforced through the life of the project by the CSU Project Manager assigned to the project and the Campus Landscape Architect. The contractor is required to follow ANSI A300 Best Management Practices – Managing Trees during construction. This requirement is reinforced with the contractor throughout the project, starting with the CSU-mandated pre-construction meeting, in which specific tree protection for the project is discussed on a tree-by-tree basis with the site superintendent.

Goals and Targets

Inventory: A comprehensive GIS inventory of all campus trees has been developed within Facilities Management. Using this inventory, goals are to complete a campus-wide tree canopy analysis and set a canopy percentage goal to be achieved through strategic tree planting. The use of available software such as i-Tree to complete an environmental services inventory of trees on campus will help meet goals of the campus-wide Sustainability Tracking Assessment and Rating System (STARS) program. In 2013, students in the HORT 466, Urban and Community Forestry Class, began this i-Tree inventory.

Tree replacement: Implement tree replacement and damage assessment policies as outlined in the Campus Tree Care Plan. Since 2012, CSU has implemented Arbor Day observance planting projects with students on campus each year.

Increase species representation: Using the GIS tree inventory as a benchmark, increase the percentage of underrepresented species, especially in the historic areas of campus. Recent planting projects include considerations toward increased species diversity.

Shorten pruning cycle in overly mature trees: Obtain resources to increase the frequency of pruning in the historic pre-1922 American elm Oval area.

Experiential Learning and Outreach: The University will focus on providing 1-2 experiential learning opportunities per semester in urban and community forestry to CSU students and the surrounding community. Students and volunteers will assist with efforts in inventory and tree care. An Urban and Community Forestry Course (HORT 466) was offered in fall of 2013; and fall of 2015.

Emerald Ash Borer (EAB): The University anticipates that up to three quarters of the ash on campus justify treatments based on their condition and contribution to the campus environment. Funding is in place to remove and replace the remaining untreated ash trees. Base funding will be allocated over a decade, which we will use for treating trees if and when EAB is confirmed in or near
Fort Collins, as well as to address the ongoing cost of removal and replacement dollars. (See plan for treatment of trees below)

**Oval Preservation:** Facilities Management maintains routine pruning of the historic trees on the Oval to help prevent damage and keep the trees healthy, an investment of $125,000 or more each time the trees are pruned. Costs are supported through university funds. The Oval Tree Preservation Endowment was created in 2011 to devote resources specifically to preserving the elms, and contributes a fraction of the costs until it reaches a sustainable level.

**Tree Stocking:** The campus goal is to establish and maintain optimal tree stocking, and optimal age and species diversity of the campus urban forest. We are moving towards these goals through the current construction projects. A minimum of two trees are being replaced for every one tree removed as a result of the current era of construction - an era of construction which is unprecedented since the 1960’s. Our tree planting efforts are resulting in a 10% increase in the total number of trees in our main campus urban forest. At the same time as we are increasing the urban forest in absolute numbers, we are also increasing species diversity.

**Emerald Ash Borer - Plan for Treatment of Trees**

CSU will be developing treatment recommendations appropriate for the Front Range and Colorado. Until then, refer to this publication for treatment options.

Prior to treatment the following should be considered. Trees to be treated should be of significant value and depend upon:

1. Proximity to known infestations
   - CSU should consider treatment of desirable ash when within 5 miles of a confirmed EAB infestation.
   - Follow all pesticide label directions correctly
2. Health of tree
   - If there is less than 40% canopy dieback, treatment may be effective.
   - If there is more than 40% canopy dieback, treatment is likely to be ineffective.
3. Age and size of tree
   - Trees of a significant size (8” – 12” DBH) are the best candidates for treatment
   - Very mature and declining trees are not the best candidates for treatment.
4. Tree benefit to the public and CSU
   - Trees that provide significant environmental, social or economic value are candidates for treatment.

Action of communities outside of the quarantine area:
1. Monitor and investigate declining ash
2. Promote landscape diversity.
   - The Front Range Tree Recommendation List is an excellent resource for recommended tree species; developed by CSU Extension, CTC, CNGA and
ASLA. A copy of this list is available on the CNGA website - http://coloradonga.org/articles/Tree_Recommendation_List.pdf

If a new detection of EAB is suspected, contact:
1. Colorado Department of Agriculture
   • 888-248-5535
   • http://www.eabcolorado.com

2. USDA/APHIS/PPQ
   • 303-371-3355
   • Updated information regarding EAB in Colorado and the delimitation survey is located at http://www.eabcolorado.com

**Tree Damage Assessment**

Trees damaged during construction, which are either noted for protection or preservation in the project Contract Documents, or are outside the development limits of work, shall require monetary compensation from responsible parties.

The damage will be assessed by the Campus Landscape Architect or a qualified landscape appraiser based upon an appraisal of the damaged tree using the most recent published methods established by the Council of Tree and Landscape Appraisers. The amount of monetary compensation shall be the full value of the tree.

**Prohibited Practices**

Practices not consistent with the Best Management Practices referenced in this Tree Care Plan are prohibited. In addition, the following practices are regulated by CSU Facilities Management and CSU Police Department, and prohibited on the CSU campuses:

- Locking of bikes to campus trees
- Attachment of slack lines to campus trees
- Attachment of swings and ropes to campus trees

**Definitions of Terminology**

Unless defined below, definitions of terminology are to be those defined in the International Society of Arboriculture online dictionary at www.isa-arbor.com/Dictionary/

**American National Standards Institute A300 standards (commonly referred to as the ANSI A300)** - Industry developed, national consensus safety standards of practice for tree care in the U.S.

**National Standards Institute Z133.1 standards (commonly referred to as the ANSI Z133.1)** - Industry-developed, national consensus safety standards of practice for tree care in the U.S.

**Best management practice** - Best available, industry-recognized course of action, in consideration of the benefits and limitations, based on scientific research and current knowledge.
Campus Arborist - The Colorado State University Facilities Management Arborist or duly designated representative.

Campus Landscape Architect - The Colorado State University Facilities Management Landscape Architect or duly designated representative.

Canopy tree - A tree that will grow to a mature height of at least 35 feet with a spread of at least 25 feet.

City Forester - The City Forester of Fort Collins or a duly designated representative.

Development - The act, process or state of erecting buildings or structures, or making improvements to a parcel or tract of land.

Green Space - Any area retained as permeable unpaved ground and dedicated on the site plan to supporting vegetation.

Irrigation Plan - A construction drawing, approved by the Campus Landscape Architect, detailing the layout of mainline and lateral irrigation, valves, sprinkler heads and control wiring.

Job briefing - The communication of at least the following subjects for arboricultural operations: work specifications, hazards associated with the job, work procedures involved, special precautions, electrical hazards, job assignments, and personal protective equipment.

Landscape Plan - A construction drawing, approved by the Campus Landscape Architect, detailing the layout of plant material, as well as the species, sizes of the plant materials and the method of installation.

Replacement tree – A tree indicated on the Landscape Plan which replaces a tree removed as part of campus development.

Tree Protection Plan – A drawing included in the Contract Documents showing the location and means and methods of protection of each tree to be preserved on development sites.

Communication Strategy

Following official acceptance of the Campus Tree Care Plan and Policies by the Campus Tree Advisory Committee, as well as approval from Colorado State University Administration, the university will take several steps to garner attention for the program. To increase awareness of the program among the university’s internal audience (students, faculty and staff), the Department of Public Relations will publish an article on CSU’s participation in the Tree Campus USA program in SOURCE, a news email sent twice weekly to students and staff. A feature story will also be created to run in CSU Life, a monthly newsletter designed specifically for faculty and staff.

CSU’s participation in the program will additionally be featured on university websites, including the CSU Facilities Management site. The Department of Public Relations will send a news release about the program to local media outlets, including the Rocky Mountain Collegian, the daily student newspaper; KCSU, the student radio station; and CTV, the student television news station. The news will also be shared through CSU’s main social media accounts on Facebook, Twitter, and Google+.
Ongoing service learning opportunities generated by CSU’s acceptance as a Tree Campus USA will provide further opportunities to communicate information about the importance of protecting and maintaining trees on campus and in the surrounding Fort Collins community.