

# Colorado State University



## Campus Tree Care Plan

2011

Colorado  
State  
University



## About Colorado State University Trees

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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 2,022 acres of land. The majority of the managed urban forest (4,596 trees) is located on the Main Campus within 220 acres of irrigated landscape.

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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).

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## History of trees on trees on the CSU Main Campus

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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.

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*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. Planted originally as an orchard, only 13 trees remain today.*

*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 alley 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.*

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## Purpose of this Plan

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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\\_SM.pdf](http://www.facilities.colostate.edu/files/forms/Campus_Master_PlanWEB_SM.pdf)

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## Responsible Department

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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.

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# Campus Tree Advisory Committee

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Assistant Director Landscaping and Planning- Fred Haberecht, CSFS Fort Collins District Forester- Boyd Lebeda,

CSFS Community Forestry Program Manager- Keith Wood,

CSFS Public and Media Relations Coordinator- Ryan Lockwood,

Undergraduate Student, Forest Management- Luke Finn, CSFS Experiential Learning Coordinator- Jamie Dahl,

Fort Collins City Forester-Tim Buchanan, Campus Arborist- Scott Simonds,

Outdoor Services Manager-Doug Nagel, GIS Specialist- Martha Coleman,

Department of Forest and Rangeland Stewardship, Instructor- Robert Coleman

CSFS Fort Collins Assistant District Forester,- Diana Selby

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## **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.



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## **Campus Tree Care Policies**

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### **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>

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 – Integrated Pest Management

ANSI A300 Best Management Practices – Managing Trees during Construction

ANSI A300 Best Management Practices – Tree and Shrub Fertilization

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## **Landscaping Standards**

Standards for tree planting and protection are contained within the Facilities Management Construction Standards Technical Specification, Section 32 – Exterior Improvements- [http://www.facilities.colostate.edu/files/construction/standards/III-Division-32.Exterior\\_Improvements.04-01-11.pdf](http://www.facilities.colostate.edu/files/construction/standards/III-Division-32.Exterior_Improvements.04-01-11.pdf)

Drawings detailing the standards for tree planting and protection are contained within the Facilities Management Construction Standards Drawing Appendix- <http://www.facilities.colostate.edu/index.asp?url=construction/drawings>



## **Tree Removal Policy**

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 Director of Facilities and the Vice President of Operations. If the determination is made that a tree requires removal, the removal is communicated to the campus community through the building proctors.

## **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. 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 CSU Aesthetic Guidelines: [http://www.facilities.colostate.edu/files/forms/aesthetic\\_guidelines.pdf](http://www.facilities.colostate.edu/files/forms/aesthetic_guidelines.pdf). These guidelines are in draft form, with an expectation that they will be finalized in 2012. This list will be continually updated as needed.

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.

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## **Prohibited Species**

Trees listed in the [National Resources Conservation Service](http://plants.usda.gov/java/noxious?rptType=State&statefips=08) State of Colorado Invasive weed list (<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.

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## **Managing for Catastrophic Events**

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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.

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## Protection and Preservation Policies

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

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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>.
  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 six (6) 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 Appraisers](http://viewer.zmags.com/publication/4d7e29e6#/4d7e29e6/1) ( <http://viewer.zmags.com/publication/4d7e29e6#/4d7e29e6/1>) 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.
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## Goals and Targets

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**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 the i-Tree suite 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.

**Tree replacement:** Implement tree replacement and damage assessment policies as outlined in the Campus Tree Care Plan.

**Increase species representation:** Using the GIS tree inventory as a benchmark, increase the percentage of underrepresented species, especially in the historic areas of campus.

**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:** In 2012, the University will focus on providing 1-2 experiential learning opportunities in urban and community forestry to CSU students and the surrounding community. Students and volunteers will assist with efforts in inventory and tree care.

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## **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

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## Definitions of Terminology

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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/](http://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.

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## Communication Strategy

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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 Today@Colorado State, 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.

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