



Portland State University Campus Tree Care Plan



1. Purpose

Portland State University (PSU) resides in a densely populated urban setting in downtown Portland, Oregon. With green space in short supply, maintaining a healthy and abundant tree canopy is essential for preserving wildlife habitat, providing shade for buildings and pedestrians, and creating restorative spaces and a sense of place for students, staff, and faculty. Trees contribute to campus identity while playing an important role in both meeting our carbon reduction goals and preparing our campus for the inevitable impacts of climate change. Trees offset carbon emissions through sequestration and are a fundamental strategy for reducing urban heat island effects that will only increase in the coming years. To that end, PSU seeks to create guidance for protecting our urban tree canopy with this Campus Tree Care Plan.

Our urban forest consists of a diverse set of species, both native and ornamental, in landscaped areas as well as along city streets. Campus trees vary greatly in age, size and function. The purpose of the Campus Tree Care Plan is to establish a strategy for long-term management of campus trees. The following objectives aim to ensure a safe, attractive and sustainable urban forest by protecting a canopy of trees to be enjoyed by our campus community.

- Enhance and maintain a healthy tree canopy on campus
- Protect trees during construction and renovation
- Replace trees lost to campus development, disease, or old age
- Promote species diversity and plant appropriate, high quality trees
- Manage invasive plants throughout campus
- Encourage campus community to discover, identify, and value trees on campus

2. Authority/Responsible Department

The Building Maintenance & Landscape Supervisor and Grounds Maintenance personnel within the Facilities & Property Management department are responsible for the care of campus trees and enforcing the Tree Care Plan. Grounds Maintenance will work with Capital Projects & Construction during large capital projects and renovations. When required, permits will be obtained from Portland Parks & Recreation (PPR). PSU partners with PPR to maintain the park blocks, though PPR is ultimately responsible for all trees on the park blocks as well as all street trees. The Tree Care Advisory Team will advise on yearly plans, events, and specific projects.

3. Campus Tree Advisory Committee

The Tree Care Advisory Team was established in July 2014 and is comprised of faculty, staff, students and representatives of public organizations in Portland. The team originally formed as the Campus Garden Coordinators group which continues to meet monthly around that topic. On a quarterly basis, we'll devote the meeting to tree care topics and an additional member representing the City of Portland's tree canopy program will join us for that discussion. The committee provides important input into the care and improvement of the campus landscape.

4. Campus Tree Care Policies

Planting

Tree planting may occur to enhance the campus landscape, compliment new construction, or replace removed trees. Planting may be performed by landscape contractors, facilities personnel, and student, staff, or faculty volunteers (under the direction of Grounds Maintenance personnel).

Tree Selection: Selection of planting locations as well as tree (and arborescent shrub) species should align with the City of Portland Plant List (appendix A) and Tree Location Requirements (appendix B). Plants listed as nuisance species in the Portland Plant Lists are prohibited. The goals of these planting lists are to encourage diversity, prevent infrastructure conflicts, and maximize benefits of the urban canopy. To the greatest extent possible, PSU strives to plant native and drought tolerant species to ensure a healthy and resilient campus canopy. Native trees (section 3 of Plant List) will be prioritized where appropriate and possible based on site factors. Desirable street tree species are listed in the Portland Parks & Recreation Approved Street Trees (appendix C).

PSU Prohibited Trees: Norway Maples (*Acer platanoides*)*, Silver Birch (*Betula pendula*), Poplars, Female Ginkgos, Pin Oaks (*Quercus palustris*), Black Locusts (*Robinia pseudoacacia*).

** Maples are currently over represented (especially as street trees) in the City of Portland, creating a significant risk that pests affecting maples will catastrophically reduce the city's tree canopy. Decreasing the dependence of Portland's urban forest on maples and increasing its diversity will help protect the forest from significant future risks.*

Site Considerations: Choosing a tree species that is appropriate for the selected site is critical to ensuring the long term health of the tree. Alternatively, if the campus is charged with planting a specific type of tree, an appropriate site should be identified. With every planting, the following should be considered: height of tree, canopy size, form (columnar, round, etc.), habitat requirements (sun, soil, moisture), and impacts of leaf and fruit drop.

In an effort to support wildlife, encourage human interaction with our natural landscape, and increase food security on campus, edible landscaping is encouraged where appropriate. Preferably, fruit and nut bearing trees will be planted in areas large enough to accommodate fruit drop and prevent hazards and maintenance concerns on sidewalks.

Prohibited locations include close proximity to buildings if the tree is large, and the middle of paved play areas or interior courtyards. Trees producing large leaves are discouraged from being placed in campus parking lots.

Planting Protocol: ANSI (American National Standards Institute) A300 Standard Practices are to be used for planting. When planting trees in locations managed by PPR, the city's standards must be used. General planting guidelines for campus trees include:

- Trees positioned with top of root flare planted at same level of soil, and compost or mulch must be four inches back from the trunk
- Planting hole to be 1.5 to 2 times the size of the root ball and 3 times the size of the root ball where practicable, 3' mulch
- Consider structural soil for street, parking lot and under permeable surfaces
- 1.5"-2.5" caliper, balled and burlaped preferred
- Stake trees for security and protection or as needed to support tree during establishment
- Tree planting will generally occur October through December, and March through May
- When possible, soil volume to be based on the mature size of the canopy (700-1200 ft³/per planting)
- Pruning is not done at planting except to remove broken or dead branches

Maintenance

Pruning Practices: Grounds maintenance workers are responsible for trimming and pruning in accordance with ANSI (American National Standards Institute) A300 Standard Practices. Pruning schedules are determined by tree species, age, and location. Pruning may occur to ensure safety, maintain tree health, and to improve aesthetics.

- Trees less than 7 years old should receive structural pruning on an annual or biennial basis
- Trees 7-20 years old should receive structural pruning every two to five years
- Trees 20 years old and older receive maintenance pruning every five to seven years to clean dead, diseased, dying, and defective branches from the crown
- Trees are inspected daily during routine campus rounds. Trees adjacent to roadways, walkways, signs, and street lights are annually inspected for safety and clearance issues
- Pruning generally occurs between October 15th and March 15th

Cleaning and Thinning: Thinning will occur as needed to remove dead or diseased branches. This ensures safety and tree health while maintaining appearance. Thinning shall also be performed to reduce the density of branches, which increases light penetration.

Crown Raising: Crown raising will occur as needed to remove lower branches to provide clearance for buildings, streets, sidewalks, signs or for security reasons. Avoid excessive removal of lower branches as it may affect taper and structure.

Reduction Pruning: Crown reduction may be used to reduce the size of a tree, by cutting back limbs to the trunk or to lateral branches that can sustain the remaining limb and assume apical dominance. No more than one fourth of the limb's foliage should be removed. The ability of the particular species to sustain this type of pruning must be considered. An arborist's opinion may be needed to determine if reduction pruning is an appropriate strategy.

Pest Management: Portland State is committed to reducing the prevalence of toxins in the environment and the negative ecological impacts associated with pesticide use. Trees are treated for pest problems as needed using approved pest management products and techniques outlined in PSU's Integrated Pest Management Plan for the Outdoor Environment adopted in 2012 (appendix D).

Protection and Preservation

Tree Protection During Construction: During construction, it is important to protect the tree crown, branches, and trunk as well as preserve the roots and prevent soil compaction and disturbance.

Root Protection Zone: When possible, establish a root protection zone and isolate this zone from construction activities. Measure the DBH of the tree and for every inch of diameter measure a foot away from the base of the tree. The root protection zone is a circle of this radius around the tree. Surround the protection zone with chain link construction fencing, a minimum of 6 feet high secured with 8-foot metal posts before construction activities begin including clearing and grading. Install signage designating the root protection zone and keep the fence in place until final inspection. Construction activities may encroach on no more than 25% of the root protection zone area. The encroachment may not be closer than one half of the root protection zone radius.

Prohibited activities within the root protection zone:

- ground disturbance
- activity involving vehicle or equipment access (unless the access is on an existing street or driveway)
- storage of equipment or materials (including soil)

- temporary or permanent stockpiling
- proposed buildings
- impervious surfaces
- underground utilities
- excavation or fill
- trenching
- other work activities

Root Cutting: Cutting a large percentage of tree roots can be dangerous as most large roots are structural roots. If large roots are injured or removed, the tree may fall, decline, or die. If root cutting is unavoidable, a certified arborist must approve and oversee the process. Roots over 4 inches in diameter should not be cut. Sharp tools should be used to make clean cuts to ensure healthy wound repair and prevent decay.

Alternative Method / Exception: In some cases, when it is not possible to establish a root protection zone to the specifications listed above, alternative measures may be implemented to modify the root protection zone. However, the following standards must be met:

- The alternative protection zone area must be prepared by an arborist who has examined the tree's size, location, and extent of root cover, evaluated the tree's tolerance based on species and health, and identified existing vulnerabilities within the root zone
- The arborist must prepare an alternate protection plan including a description of how the plan provides an adequate level of protection. The plan should be signed by the arborist and include their contact information
- After the arborist prepares the protection plan, surround the root protection zone with fencing and post signage including contact information for the arborist
- If possible, the arborist should be on site during construction, and a signed contract should be in place for those services. The contract should include a final report from the arborist documenting all inspections and verifying the viability of the trees after the construction phase
- Alternative construction techniques may be required in response to the revised protection method. In this case, an explanation of the techniques used should be included in the protection plan

For more information on tree protection during construction, see Appendix F, Tree Protection on Construction and Development Sites produced by Oregon State Universities' Extension Office

Tree Removal & Replacement: Live trees are removed only when required to protect the public safety or in some cases, as dictated by campus development and construction. In the case of new construction, depending on the age, species, and health of the tree, relocation of the tree will be favored over removal.

Trees may only be removed after consultation with the Tree Care Committee where the committee reaches a majority consensus.

When a tree is removed, a new tree of equal function (canopy size, etc.) will be planted elsewhere on campus as determined by the Tree Care Committee resulting in a net zero loss of trees on campus.

Catastrophic Event Response and Recovery: In the case of a catastrophic event, tree debris blocking campus pathways, posing hazards to the campus community or generally disrupting campus operations will be removed immediately. Those trees that are damaged beyond repair (as determined by the Grounds Maintenance Manager) will also be removed. In a case such as this, approval from the Tree Care Team is not required, but the team will be notified of removal decisions. Remaining trees will be pruned as needed to maintain health and ensure public safety. Lost trees will be replaced to restore the campus canopy within a reasonable time frame. In the case of trees managed by PP&R, they will need to be involved in response decisions.

Tree Damage Assessment: Grounds Department Personnel will assess damage to trees on campus and may in some cases hire a certified arborist for further assessment. Damage to trees resulting from vandalism will be reported to the Campus Public Safety Office who will pursue responsible parties and enforce penalties.

Prohibited Practices

Bicycle Locking: Locking bicycles to trees is strictly prohibited. Bicycles locked to a tree or other landscaping features will be confiscated by Transportation and Parking Services.

Advertising on Trees: Posting promotional items of any kind (flyers, banners, posters, etc.) is strictly prohibited. Violations of this policy will result in removal of promotional items and may result in a fine to responsible parties covering costs associated with the damage of the tree.

Topping of Trees: Topping trees is a harmful practice and is prohibited on campus. It increases risk, tree stress, and leads to decay and damage. If reduction in height is desired, alternative approaches must be employed. See Appendix E, Why Topping Hurts, for more information.

5. Goals & Targets

Inventory

PSU will establish a reliable campus tree inventory by the end of Summer 2015 to be used for campus planning, tree management, and education. The inventory will be maintained by the Campus Sustainability Office on PSU's GIS data base and will be updated as trees are removed and replaced.

Tree Canopy Target

Once a baseline is established through the tree inventory, PSU will, at a minimum, maintain the baseline canopy regardless of development over time with an aspirational target of increasing the canopy. Tree removal and planting will be tracked on the tree inventory.

Arbor Day Event

Portland State will hold an annual Arbor Day event to celebrate and promote the function and value of our urban canopy. The Campus Sustainability Office will plan and lead implementation efforts in conjunction with the city Arbor Day Celebration at the Portland Farmers Market on PSU's campus.

6. Communication Strategy

The Tree Care Plan will be hosted on both the Campus Sustainability Office as well as the Facilities & Property Management websites. The plan will also be added as an appendix to the university Technical Design Standards, which guide the practices of all contractors, subcontractors, and campus staff working in facilities maintenance and construction.

Upon initial adoption of the plan, the Campus Sustainability Manager will promote the plan and the goals of the plan

through a variety of means including multiple newsletters as well as departmental, student group, and class presentations. The goals of the plan will also be presented and promoted via annual sustainable practices surveys that the university participates in (AASHE STARS survey). The plan will be reviewed and updated on a biennial basis.

7. Definitions:

ANSI: The American National Standards Institute (ANSI) is a private non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. This includes tree-care operations for trees, shrub and other woody plant maintenance.

8. Resources:

Appendix A

Portland Plant List: <https://www.portlandoregon.gov/auditor/34460?a=322280>

Appendix B

Portland Parks and Recreation Street Tree Planting and Establishment Guidelines: <https://www.portlandoregon.gov/parks/article/164329>

Appendix C

City of Portland Approved Street Tree Planting List: <https://www.portlandoregon.gov/parks/49305>

Appendix D

Integrated Pest Management Plan for the Outdoor Environment: http://www.pdx.edu/planning-sustainability/sites/www.pdx.edu.planning-sustainability/files/PSU_2012_IPM_Plan.pdf

Appendix E

Why Topping Hurts: <http://www.treesaregood.com/treecare/resources/WhyToppingHurts.pdf>

Appendix F

Tree Protection on Construction and Development Sites: <http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/13729/EM8994.pdf;jsessionid=8C207E1AA3C6712F7F68BB01908854EC?sequence=1>

