

University of Hawaii Campus Tree Care Plan

1. PURPOSE

The purpose of the University of Hawaii Campus Tree Care Plan is to identify the policies, procedures and practices that are used in planting, establishing, protecting, maintaining, removing and memorializing trees on the University of Hawaii Manoa (UHM) Campus. The overall goal is to provide a safe, attractive, educational and sustainable campus urban forest that faculty, staff and students can use as a resource for teaching and learning as well as for respite and recreation. The specifics of the plan are:

- Ensure proper species selection, high quality plant acquisition, and species diversification using industry consensus planting practices and procedures.
- Promote species diversity and proper age distribution in tree population
- Protect campus trees during construction and renovation projects
- Promote tree health and safety by utilizing ISA's best management practices when maintaining campus trees
- Ensure that trees are reasonably replaced when there is mortality due to weather, pest infestation, injury or construction displacement
- Maintain and increase the educational value of our campus urban forest

2. RESPONSIBILITY

UHM Buildings and Grounds Management (BGM) located within the Office of Facilities and Grounds (OFG) under the direction of the Assistant Vice Chancellor of Campus Services.

3. CAMPUS TREE ADVISORY COMMITTEE

The UHM Landscape Advisory Committee (LAC) functions as the Campus Tree Advisory Committee. The LAC is comprised of faculty, staff and students from numerous programs on campus. The committee meets monthly and provides input on the planning, care and improvement of the campus landscape. The Landscape Advisory Committee (established Fall 1996) develops and supports initiatives that sustain the tree canopy and preserves green spaces for a campus environment that is attractive, safe, acceptable to the UH Manoa community, convenient to use, easy to maintain, and that serves as an outdoor teaching laboratory.

4. CAMPUS ARBORICULTURAL PRACTICES

a) *Pruning Schedule*

- i) The pruning maintenance schedule will be dictated by the following priorities; health and safety concerns, target, tree species, age, function and placement. All work request will be prioritized

b) *Pruning Practices*

- i) General
 - A clear objective or outcome shall be established before conducting pruning.
 - The first priority for pruning is safety, then health and finally aesthetics.

- If a branch needs to be removed, the pruning cut should not damage the branch bark ridge or the branch collar
 - Heading cuts should not be used except in response to storm damage or crown restoration.
 - Whenever possible branch reduction or thinning should be used to achieve the pruning objectives rather than making large branch removal cuts.
- ii) Cleaning
- Crown cleaning or cleaning out is the removal of dead, dying, diseased, crowded, weakly attached, and low vigor branches and water sprouts for the tree crown.
- iii) Thinning
- Thinning shall be performed to reduce the density of branches, which increases light penetration, improves visibility, and decreases wind load.
 - Choose branches with strong, U- shaped angles of attachment. Remove branches with weak, V-shaped angles of attachment and/or included bark.
 - Whenever possible lateral branches should be evenly spaced on the main stem of young trees and should be accomplished early on.
 - Remove any branches that rub or cross another branch whenever possible within the pruning objectives.
 - Do not remove more than one-third of the living crown of a tree at one time. If the pruning objective require that you do, try to accomplish this over successive years.
- iv) Raising
- Raising shall be performed to provide vertical clearance from thoroughfares, signs, street lights, and structures
 - Do not lion tail trees; branches should be maintained on at least two-thirds of a total height of the tree.
 - Remove basal sprouts and vigorous epicormic or weakly attached sprouts.
- v) Reduction
- Reduction cuts should be used only when absolutely necessary to protect people or property.
 - The cut should be made at a lateral branch that is a least one-third the diameter of the stem to be removed.
 - If the pruning objective requires removal of ½ of the branch to remain, remove the entire branch.
- c) Cultural Practices
- i) Planting
- Hole of proper size & depth
 - Site shall not conflict with above or below ground utilities, other tree canopies, or be too close to buildings for the mature size of the canopy
- ii) Staking/ guying Approved practices specify double stake for tree with small caliper trunks
- Guy wires contained in protective covering (such as piece of garden hose) so as to avoid girdling. Removal once tree has been deemed established.

- Guy wires checked periodically to assure they are not constricting trunk. The grounding end shall be clearly marked to prevent accidents or lawnmower damage.
- iii) Post-planting irrigation
 - Where not regularly irrigated by automated sprinklers, newly planted trees shall receive periodic deep watering until deemed established (this could be up to 3 years after planting).
- d) *Other Practices*
 - i) Tree identification Unusual or unique trees, memorial trees, exceptional trees shall be identified by appropriate signage
 - ii) Signage
 - Standard metal sign containing common and botanical name, plant family.
 - Memorial trees - standard in-ground plaque
 - Exceptional trees - sign denoting the status as an exceptional tree of the C&C of Honolulu, date of such award, common name, and botanical name.
 - Placement - 8 ft above ground level, secured by 3" wood screws and spring between sign and tree trunk
 - iii) Removal of fruits
 - Certain trees on the campus may produce messy or strongly odorous fruits. Where practicable, these fruits should be removed as early in their development as possible to minimize hazards or offensive odors. This may be done mechanically or chemically. Regular clean-up in pedestrian areas shall be practiced.

5. PROTECTION AND PRESERVATION PROCEDURES

- a) Tree and Shrub Protection
 - i). The root zone of all trees must be protected on all construction projects, as described below. A tree's root zone is defined as 5 X the trunk diameter distance from the base of the trunk, or from the trunk to the tree drip line, whichever is greater. Ten feet beyond the drip line is preferable.
 - ii). All trees to remain on a project shall have protective fencing. A tree protection drawing detailing the protective fencing shall be submitted with the project plans for review. The drawing should include an accurate representation of the existing trees to remain, to be removed, and to be relocated, including species, trunk diameter and canopy diameter.
 - iii) Protective fencing should be chain link or construction fencing on secure footings that will not fall over onto trees.
 - iv) Protective fencing should be placed at 10' beyond the tree drip line wherever possible.
 - v) A staging area shall be specified. Construction materials/equipment/personal vehicles should not be stored, parked or temporarily placed in the root zone of any trees. Nothing should be stored or placed temporarily within protective fencing, to avoid soil compaction under trees.
 - vi) Protect overhanging tree canopies from construction damage.

- vii) There should be no grade change within a minimum of ten feet of the trunk of existing trees, and preferably none within the entire root zone.
 - viii) Care should be taken in cleaning up equipment. No construction liquid materials should be dumped in the tree root zone.
 - ix) There should not be any storage of dumpsters or accumulated debris from demolition on or around the root zones of existing trees and shrubs.
 - x) Existing trees should be monitored weekly and irrigated as needed during the course of construction.
 - xi) No lime or other soil treatment shall be applied without the consent of a University of Hawaii Landscape Manager.
 - xii) All trenching shall conform to the following guidelines.
 - a. Roots larger than 2 inches in diameter should not be severed without calling a University Landscape Manager for cutting or review.
 - b. Digging under roots rather than cutting is preferred.
 - c. Digging within a tree's root zone should be avoided. If it is necessary, hand digging should be used for any trenching within the tree's root zone.
 - d. All roots that must be cut should be cut cleanly, not torn.
 - xiii) The preceding guidelines should be considered minimum requirements. The greater the distance of tree protection provided the greater the instance of tree success in construction areas. Please refer to "Trees and Development: A Technical Guide to Preservation of Trees during Land Development by; Matheny and Clark". This book outlines some of the proper tree protection methods that must be considered while planning for construction projects in the vicinity of any tree.
- b) Construction Staging and Parking
- i) Construction staging and parking shall occupy adjacent paved areas, minimizing use of lawns and damage to tree roots and landscape areas as much as possible.
 - ii) Parking spaces will need to be temporarily removed from the inventory and the parking office will be compensated for the lost revenue by the subject project users who will benefit from the results of the construction activity.
 - iii) Proposed use of grass-covered (lawn) ground for staging by a project requires prior approval of the Assistant Vice-Chancellor for Planning, in consultation with the Landscape Advisory Committee.
 - iv) Proposed projects that include grass-covered ground that will be needed periodically for staging shall identify and protect such areas by properly-installed reinforcing grids over base course, such as was done along the East West Road frontage of the East West Center Student Activities Center. Best Management Practice is to be followed to protect tree roots within the area to be reinforced.
 - v) Landscaped areas and sprinkler systems damaged by construction staging and/ or parking shall be repaired and such repairs shall be paid for by the project or activity that caused said damage.
- c).Campus Tree Canopy and Species Preserved and Extended

- i). All planning, construction, and renovation projects on campus as well as ongoing grounds maintenance should at minimum preserve the existing tree canopy cover and species represented.
- ii). Tree canopy along each city street and major campus road shall be a single species in a line or otherwise grouped at an appropriate scale in relationship to the adjacent use. Tree canopy along major interior walkways should also generally be consistent. Mountain views should be maintained and enhanced.
- iii). Tree canopy, including additional species where appropriate, shall be extended over walkways, roads and surface parking lots where present cover is less than 30%.
- iv). No tree with a trunk six inches or more in diameter three feet above the ground shall be removed without administrative review by the Assistant Vice Chancellor of Campus Services, through the UHM Buildings and Grounds Management (BGM).

6. NEW BUILDINGS or FACILITIES CONSTRUCTION/RENOVATION

Development activities shall be planned in order to preserve and protect trees on the UHM campus. Any trees that must be removed to accommodate development, damage or repairs to utilities must be shown on the site plan and a method and/or plan for compensation shall be included before work commences on site. UHM is a teaching and research university. Our landscape is used in many classes and research programs. It is essential to these programs that each tree species is represented on campus and that we continue to extend the number of species on campus. Many of these species are rare and may require special treatment and/or replacement strategy, including but not limited to, propagation of the original tree.

7. DESIGN REQUIREMENTS

Design of a new development or reconstruction shall include a green space plan in the proposal. This plan should include a tree protection plan, tree relocation and establishment plan and a landscape plan.

8. GOALS AND TARGETS

a) Tree Inventory

A digital tree inventory covering the entire campus will be developed. The data will be placed on a web based server; updates will be performed by BGM. The information can be used for tree management, campus planning, educational purposes, and the general public.

b) Campus Landscape Master Plan - The Campus Landscape Master Plan is being developed.

c) Completion of iTrees Survey

9. TREE DAMAGE ASSESSMENT, ENFORCEMENT AND PENALTIES

All damaged tree will be assessed by a Certified Arborist using the existing tree evaluation form. Results of the assessment will determine whether the tree should be removed, pruned or receive other treatments such as fertilization and/or insect and disease control. Whenever it is determined that a violation has occurred, the UHM

Office of Facilities and Grounds Construction Manager or representative or designee shall immediately issue a written or oral notice to the person or company or department in violation, identifying the nature and location of the violation and specifying that remedial action is necessary to bring that violation into compliance. The person or company or department in violation shall have five (5) working days after receipt of the notice or as specified in the notice, to complete the remediation required to be in compliance.

10. PROHIBITED PRACTICES

Under no condition will a tree be removed or planted on the UHM campus without pre-approval from the Assistant Vice Chancellor of Campus Services or designee, through the UHM Buildings and Grounds Management (BGM).

11. COMMUNICATION STRATEGY

The tree care and management policy shall be included on the Office of Facilities and Grounds website, the Buildings and Grounds Management website and linked to the LAC website, copies filed with appropriate administrative offices and campus security, Housing office, and posted on bulletin boards in the residence halls at the beginning of each school year. It shall also be filed with the Office of Capitol Improvement with a request for inclusion in the contract specifications, with Construction Managers, and made known to all campus facilities personnel.