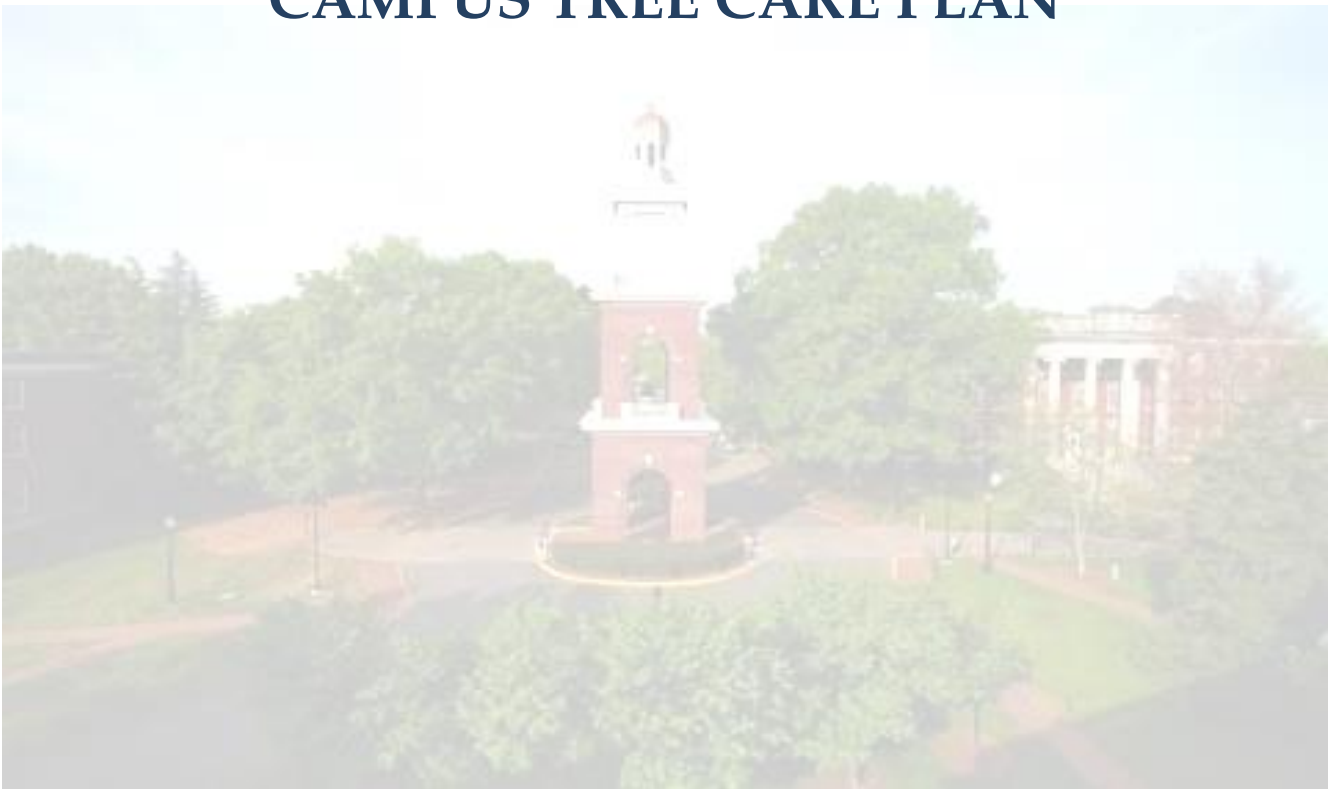


University of Mary Washington

CAMPUS TREE CARE PLAN

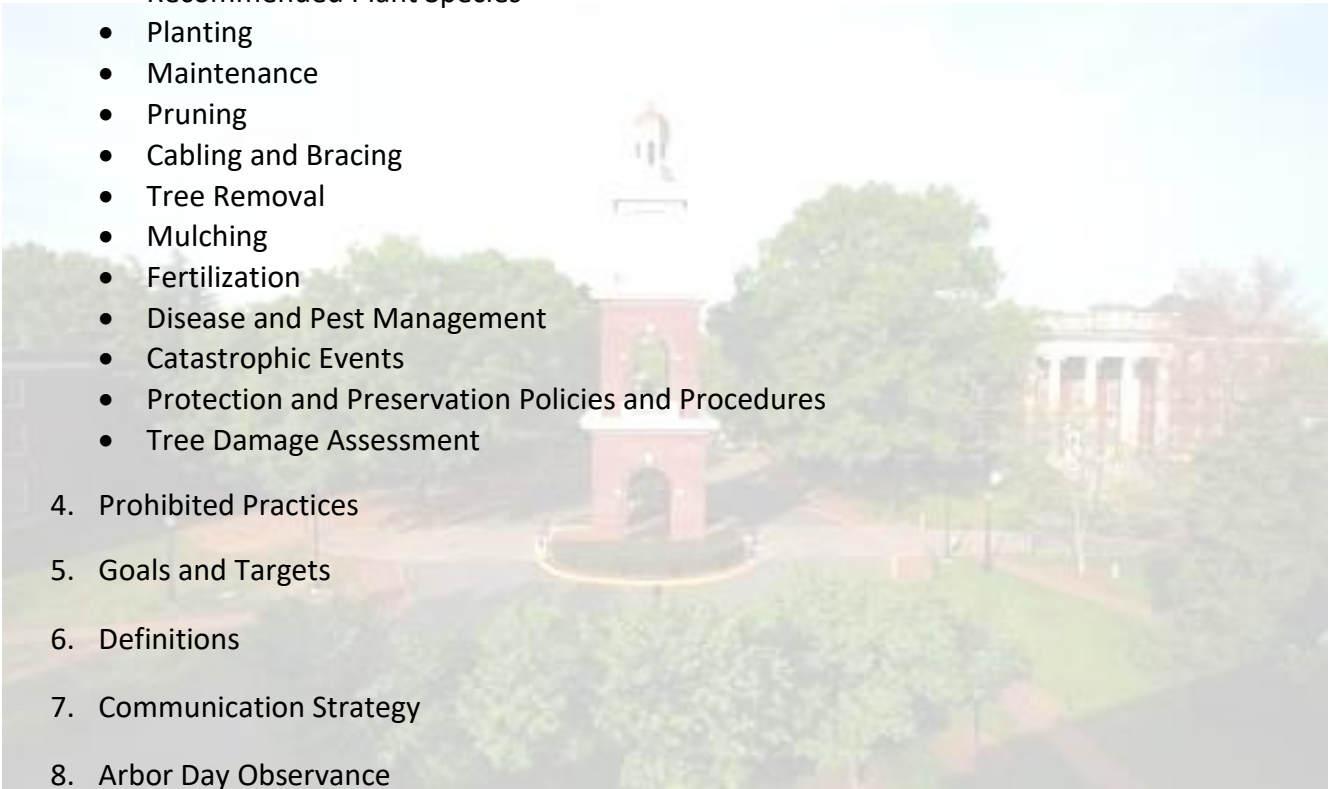


Fredericksburg, Virginia

Updated: 12/20/2022

Table of Contents:

1. Purpose
2. Campus Tree Advisory Committee
3. Tree Care Plan
 - Plant Selection
 - Recommended Plant Species
 - Planting
 - Maintenance
 - Pruning
 - Cabling and Bracing
 - Tree Removal
 - Mulching
 - Fertilization
 - Disease and Pest Management
 - Catastrophic Events
 - Protection and Preservation Policies and Procedures
 - Tree Damage Assessment
4. Prohibited Practices
5. Goals and Targets
6. Definitions
7. Communication Strategy
8. Arbor Day Observance
9. Service Learning Project



Purpose

The specific objective of the University of Mary Washington (UMW) Tree Plan will be:

- To obtain/maintain Tree Campus USA status
- To establish a Campus Tree Advisory Committee
- To establish tree selection and planting guidelines
- To protect and maintain the existing campus urban forest during construction and renovation projects
- To promote tree health and safety by following the International Society of Arboriculture and the ANSI Standards guidelines when maintaining campus trees

Responsible Department

University of Mary Washington Landscape and Grounds Division located within the Facilities Services Department, under the direction of the Executive Director of Facilities Services.

Campus Tree Advisory Committee

The tree advisory committee is formally known as the Arboretum Committee. The committee is established to assist the Director of Landscape and Grounds with decision making; providing guidance for future planning of the campus arboretum, educating the campus community in the benefits of the campus urban forest, annual review of the Tree Care Plan, and sourcing/setting up ways to bring in community members to enjoy and learn about the university arboretum.

Committee members shall consist of the Director of Landscape and Grounds, a student representative, faculty representative, arborist representative, and a community representative. The committee members shall serve for a one or two year term with the option for renewal. The committee shall meet twice annually, more as needed. The charge of the enforcement of the plan will be the responsibility of the Director of Landscape and Grounds, the Landscape and Grounds Department and the Executive Director Facilities Services.

Committee Members:

Holly Chichester-Morby, Director of Landscape and Grounds, ISA Certified Arborist
Sean Morrow, UMW Sustainability Coordinator
Allan Griffith, Biology Faculty
Jason Coiner, ISA Certified Master Arborist
Additional Student Sustainability Interns

Planned campus tree advisory committee meeting dates:

March or April, and September, annually.

Tree Care Plan

Plant Selection

The selection of plants to be installed on the campus shall be approved by the Director of Landscape and Grounds or designee, prior to installation. Diversity, site conditions, pest susceptibility, form, mature height, and longevity will be the factors that determine species selection.

When utilizing a contractor, the landscape plan shall be approved by the Director of Landscape and Grounds (or designee) with regard to plant selection. The Director of Landscape and Grounds reserves the rights to make suggestions, refuse plant species, and request that substitutions be made.

Recommended Plant Species

As an arboretum diversity of tree species is extremely important among our collection of plants on campus. Priority will be given first to native species and then to proven adaptive species, with site conditions being dictating final selection. Known woody plant invasives are consciously avoided in tree planting plans. A 'species list' for campus planting does not exist, but priority will be given to plants on Virginia Department of Conservation and Recreation - Native Plants for Conservation, Restoration and Landscaping for the Piedmont area. This list contains the more common plants that are recommended for use in our university landscape. In obtaining diversification on campus we are not bound to the plants only on this list, use of new cultivars and species that are absent or underrepresented on campus will be considered. If a plant is recommended that is not on this list it must have the approval of the Director of Landscape and Grounds or designee before it is installed. There may be different cultivars of the plants that are listed that may be installed with the approval of the Director of Landscape and Grounds as well.

Below is a partial list of acceptable trees:

Acer rubrum—Red Maple – *limiting use of this tree species in 2016*

Acer saccharum—Sugar Maple

Aesculus flava—Yellow Buckeye

Alnus serrulata – Hazel Alder

Amelanchier arborea—Downy Serviceberry

Amelanchier canadensis—Shadblow Serviceberry

Aronia arbutifolia—Red Chokeberry

Aronia melanocarpa—Black Chokeberry

Asimina triloba—Pawpaw

Betula nigra—River Birch

Betula lenta—Sweet Birch

Carpinus caroliniana—American Hornbeam

Carya cordiformis—Bitternut Hickory

Carya illioinensis—Pecan

Carya ovata–Shagbark Hickory
Carya tomentosa–Mockernut Hickory
Catalpa speciosa–Northern Catalpa
Ceanothus americanus–New Jersey Tea
Celtis occidentalis–Common Hackberry
Cephalanthus occidentalis–Buttonbush
Cercidiphyllum japonicum–Katsuratree
Cercis canadensis–Eastern Redbud
Chionanthus virginicus–White Fringetree
Cornus amomum–Silky Dogwood
Cornus alternifolia–Pagoda Dogwood
Cornus florida–Flowering Dogwood
Cornus mas–Corneliancherry Dogwood
Cotinus coggygria–Smokebush
Crataegus crus-galli inermis–Thornless Cockspur Hawthorn
Crataegus viridis -Green Hawthorn
Crataegus phaenopyrum–Washington Hawthorn
Diospyros virginiana–Common Persimmon
Fagus grandifolia–American Beech
Fagus sylvatica–European Beech
Ginkgo biloba–Ginkgo
Gymnocladus dioicus–Kentucky Coffeetree
Halesia tetraptera–Carolina Silverbell
Hamamelis virginiana–Common Witchhazel
Juglans nigra–Black Walnut
Liquidambar styraciflua–American Sweetgum
Liriodendron tulipifera–Tuliptree
Magnolia virginiana – Sweetbay Magnolia
Metasequoia glyptostroboides–Dawn Redwood
Myrica pensylvanica–Northern Bayberry
Nyssa sylvatica–Black Tupelo
Ostrya virginiana–American Hophornbeam
Phellodendron amurense–Amur Corktree
Platanus occidentalis–Sycamore
Quercus alba–White Oak
Quercus bicolor –Swamp White Oak
Quercus macrocarpa–Bur Oak
Quercus michauxii – Swamp Chestnut Oak
Quercus muehlenbergii–Chinkapin Oak
Quercus nutalli – added 2016
Quercus coccinea–Scarlet Oak
Quercus shumardii–Shumard Oak
Quercus prinus–Chestnut Oak
Quercus phellos –Willow Oak
Quercus palustris – Pin Oak
Quercus rubra–Red Oak

Quercus stellate – Post Oak
Quercus vellutina – Black Oak
Rhus aromatica–Fragrant Sumac
Rhus copallinum – Winged sumac
Rhus glabra – Smooth sumac
Rhus typhina–Staghorn Sumac
Sambucus canadensis–American Elder
Sambucus nigra–Common Elder
Sassafras albidum–Common Sassafras
Taxodium distichum–Common Baldcypress
Thuja occidentalis–Eastern Arborvitae
Tilia americana–Basswood
Tilia cordata–Littleleaf Linden
Tilia tomentosa–Silver Linden
Tsuga canadensis–Eastern Hemlock



Planting

Depending on the size of the project, plantings shall be completed by Landscape and Grounds Department or an approved outside contractor. The following guidelines shall be followed when planting on the UMW campuses:

- When using an outside contractor, the director Landscape and Grounds or designee shall be on site at the time of the plant delivery. UMW reserves the right to refuse any plant that is damaged, has signs of disease or insects, appears to be in poor health, poor form, poor structure, or does not meet the plant selection specifications.
- UMW also reserves the right to refuse a planting due to improper planting techniques at the time of installation if UMW planting guidelines are not followed.
- All plants must be set with the root flare or bud union clearly visible above the soil grade. If the root flare or bud union is not exposed soil shall be carefully removed from the top of the root ball until it is exposed.
- The planting hole shall be no deeper than the height of the root ball when measured from the bottom of the root ball to the bottom of the root flare. The planting hole shall be 2 to 3 times the diameter of the root ball.

Upon placing the plant in the hole, all burlap, twine, ropes, wire baskets shall be removed from the top one third of the root ball. When possible the entire wire basket, twine, and burlap shall be removed. All containers shall be completely removed on containerized plant material.

- The planting hole shall be backfilled with the existing soil. If the existing soil is of poor quality, soil amendments shall be incorporated into the soil. Soil amendments shall be composed of sustainable products not to include peat products. After the completion of the backfill, the root flare or bud union shall be visible and exposed.
- All new plantings shall be mulched with pine bark chips or shredded pine mulch to a depth of 2-4". The mulch shall not touch the trunk of the tree or cover up the root flare or bud union of the plant.
- Newly planted trees shall be watered right after installation and must continue to receive adequate watering weekly during the first growing season up until the ground freezes. Staking of trees at planting will only be done if the tree is unstable and shall be completed according to the most recent ANSI standard.
- All new plantings shall not receive any fertilization during their first year of growth. Broken branches and stubs shall be pruned at the time of planting. Structural pruning shall not take place until the plant has been in the ground for one growing season.
- When contracting out the tree planting, contractors shall provide a one year warranty on all plant material against defective plant material and workmanship.
- All plant material shall be replaced if they are dead or growing poorly at no cost to the University. Replacement plant material shall be of a similar size and shall come with a new one-year warranty beginning at the time the replacement plant goes into the ground.

Maintenance

Maintenance of the plant material will begin the day it is put into the ground and continue until the plant is no longer viable or safe. Maintenance will be performed to provide a safe, functional, and visually appealing environment for the campus and surrounding communities. All trees shall be inspected visually on an annual basis. All maintenance procedures shall be performed by the Landscape and Grounds Department staff when possible. If the Landscape and Grounds Department staff is unable to safely perform or does not have the necessary tools to perform the maintenance tasks, an ISA - certified Arborist approved by the director Landscape and Grounds or designee shall be contracted to perform the tasks.

Pruning

All pruning shall be done according to the current ANSI standards and the International Society of Arboriculture (ISA) guidelines. Preventative maintenance pruning will be done on an as-needed basis as determined by the director Landscape and Grounds or designee. Trees will be inspected annually to determine their pruning needs. Trees will be pruned for safety first, then for tree health, and then for aesthetics. Trees shall be left low-branched and natural in appearance when possible.

Cabling and Bracing

All cabling and bracing shall be performed according to the current ANSI cabling and bracing standards.

Tree Removal

Trees will only be removed when they are determined to be unsafe, dead, in poor health, or detract from the quality of the landscape. Before a tree is removed a thorough investigation will be performed by the director Landscape and Grounds or designee or a Certified Arborist and a decision will be made whether or not to remove the tree. The tree shall then be marked by the director Landscape and Grounds or designee indicating that it is to be removed. This is done so that the wrong tree is not removed. If the tree removal is too large or technical for the Landscape and Grounds Department to handle, it will be contracted out to an approved tree care company. Where possible the remaining stumps will be ground out below the soil level, grindings removed and the hole filled with approved topsoil. The director Landscape and Grounds may direct that the stump grindings will be raked back into the hole once the stump has been ground.

Mulching

Trees and shrubs shall be mulched to a depth of 2-4 inches with mulch approved by UMW. Mulch shall be kept off and away from the trunks of the trees. There shall be no volcano mulching.

As the canopy of the tree expands so shall the mulch ring where it is possible and within reason to expand.

Additional much shall be added on an as-need basis.

Fertilization

Newly installed plant material shall not receive fertilization the first year. A soil test shall be performed prior to fertilizing to determine the specific soil needs and to choose the correct fertilizer for the site. Fertilizers shall be chosen and applied within the standards set by the Nutrient Management Plan, with the protection of the environment first in mind. Fertilizers shall be applied by the Landscape and Grounds staff with supervision from the director Landscape and Grounds or designee or by an approved tree care company.

Disease and Pest Management

Trees and shrubs shall be monitored by the landscape and grounds crew, a professional plant health care technician, or a Certified Arborist on a regular basis to scout for insect and disease problems. An infected plant shall be monitored to determine when the plant has reached the injury level where a biological or chemical treatment is needed. When possible a biological control shall be used over a chemical treatment in order to preserve and lessen the damaging impact on the environment and

beneficial insects that may be present. Integrated Pest Management (IPM) is a pest management strategy in which a combination of means including design choices, cultural practices and chemical controls are used to manage pests in the landscape. A healthy sustainable landscape is dependent upon choosing the right plant for the site. The Landscape and Grounds department strives to use improved cultivars, disease resistant varieties and proven species whenever possible.

Catastrophic Events

In the event of severe weather conditions that may cause harm to the university landscape the following procedures shall be followed:

- The director Landscape and Grounds and designees shall assess the damage and determine the resources that are needed to address the damage and safety concerns. If needed, a professional tree care company shall be called in for assistance.
- Priority will be given to removal of debris that poses a hazard to clean-up crews or emergency responders
- Priority will be given to removal of debris blocking campus thoroughfares that provide emergency access along with emergency exits and entrances to buildings;
- Priority will be given to debris that poses hazardous to the campus community
- Priority will be given to debris that disrupts campus operations
- Once these critical needs are addressed all other areas shall then be cleared in order of importance.
- All removed plant material shall be documented for replacement purposes.
- In the case of a catastrophic event pertaining to an invasive pest, the university shall follow the guidelines that have been set forth by the USDA, Virginia Department of Agriculture, or other government agency that is overseeing the situation.

Implementation of a prioritized recovery plan is implemented during which unsalvageable trees are systematically removed and salvageable trees are pruned to restore their health and structure. As the tree planting budget permits, lost trees are strategically replaced to restore structure and function of the campus urban forest in a reasonable time frame.

Protection and Preservation Policies and Procedures

All construction projects that will have an impact on the campus landscape shall involve the Director of Landscape and Grounds or designee from the beginning of the project to the completion of the project.

The protection and preservation of the plant material needs to begin with the design phase and continues through and after the construction is completed. The Director of Landscape and Grounds, UMW Capital Outlay Project Manager or designee shall be responsible for policing the site and making sure that the Tree Protection and Preservation Policies and Procedures are being followed.

During the design phase--a site survey map shall be completed at that identifies all plants whose branches may be damaged by construction equipment and all root systems (Critical Root Zone Area) that may be impacted by construction, showing cut and fill areas, utilities, walks, roadways, and foundations, staging areas. After the site survey map is completed it shall be determined which trees

will require protection, which trees can be relocated, which trees will require pruning to prevent broken limbs, which trees will require root pruning, and which trees will require removal.

All efforts will be made to avoid involving the CRZ site around priority trees where possible by planning all construction activities including new utility corridors, staging areas, new sidewalks and new roads for minimum clearance 15' away from the CRZ Areas identified. *Greater distances are desirable.*

Tree protection fencing -- All tree protection work, relocating of trees, pruning of remaining trees, root pruning, and removal of trees shall take place before any construction equipment arrives on site. All trees remaining in the construction area or who have a CRZ Area in the construction site or may be impacted by adjacent work must be protected with tree protection fencing following the guidelines stated below before any construction equipment arrives on the jobsite.



Tree protection fencing shall be chain link or bright orange snow fencing. The orange snow fencing shall have a post at every 4 feet along the span of the fence. Tree protection fencing shall be a minimum of four feet in height. The tree protection fencing shall extend a distance from the trunk of 1.50 feet per each inch of trunk diameter at breast height or 6 feet, whichever is greater. The area within the tree protection fencing shall be mulched with wood chips to a depth of 4 inches.

The Director of Landscape and Grounds or designee shall approve the installation of the tree protection area before any equipment is brought on site. The fencing shall remain for the completion of the project and not be removed for any circumstances. The fence shall not be removed until all equipment has left the site and the college has deemed the job complete.

No equipment, vehicles, materials shall be inside the tree protection fencing at any time. No substances shall be poured or disposed of within the tree protection fencing. The contractor will be held liable and be required to pay tree replacement and/or soil compaction remediation costs determined by an outside ISA Certified Consulting Arborist if the contractor is found to have been within the tree protection fencing.

Root pruning shall be performed by an ISA Certified Arborist only.

All tree pruning shall be completed by an ISA Certified Arborist only.

Tree Damage Assessment

Any damage to a campus tree or shrub shall be reported to the Director of Landscape and Grounds. The Director of Landscape and Grounds or designee will then assess the damage and the action that

needs to be taken. If needed, an outside Certified Consulting Arborist may be brought in to provide an assessment of the damages.

The assessment shall determine whether the plant should be removed, pruned, or require treatment. A cost shall be associated with the action that is taken and charged to the person or persons that are responsible for the damage. A copy of the assessment and of the cost that is to be charged to those found responsible shall be submitted to the Director of Landscape and Grounds and University Police.

Prohibited Practices

- No work shall be performed or any plant disturbed on campus without the consent of the Director of Landscape and Grounds or designee.
- No plants shall be planted on the campus without the approval of the Director of Landscape and Grounds.
- No signage other than approved UMW Arboretum identification tags shall be affixed to a tree in any manner.
- No bicycles, mopeds or other objects shall be locked to a tree at *any* time.
- No topping or heading cuts shall be made to any university trees.

Goal and Target Planning

- Accomplish and maintain the Tree Campus USA certification in a manner that supports the ultimate goal of arboretum designation
- Complete tree inventory, expand GIS mapping as feasible
- Build the UMW Arboretum website to create an interactive website for visitors and donors to utilize
- Develop public awareness and draw visitors to the arboretum and campus. This will be an ongoing, cumulative goal for UMW.
- Develop a logo for the arboretum to utilize on documents, signage, etc.
- Launch a publicity campaign, including social media, to increase awareness of the arboretum and Tree Campus USA certification
- Develop a fund raising program including alumni and other opportunities
- Implement an Arbor Day Tree planting ceremony
- Work with the President's Council on Sustainability and the University Events Office to bring speakers and seminars to campus who will speak about topics related to the environment and trees
- Increase student participation in the arboretum and other activities supporting trees
- Develop a self-guided interactive tour of the arboretum that people can access via their smartphone, or tablet
- Develop internship opportunities

Miscellaneous:

- UMW Director of Landscape and Grounds shall approve all plans and written specifications pertaining to and effecting landscaped areas, and natural areas, to include but not limited to:

storm water BMPs, paving, walkways, tree protection, landscape design and installation and all activities effecting installation, irrigation.

- Prior to any facility design, construction planning, construction maintenance, disturbance, or entry into a landscape or natural area, the Director of Landscape and Grounds shall be notified. The Director of Landscape and Grounds shall have the authority to require alternative methods, techniques, and routes for utilities, construction, and planned construction.
- The Director of Landscape and Grounds will have authority to establish appropriate tree and landscape protection measures, including, but not limited to, fencing, logging mats, fabric, mulch, and designation of exclusionary areas.
- The Critical Root Zone will be established for all trees within a construction site and adjacent to the site. Tree protection will be provided for all trees with a CRZ affected by construction including those whose trunk or drip lines are not within the construction site.
- Every inch of CALIPER (DBH) X 1.5 feet = RADIUS OF THE CRITICAL ROOT ZONE TO BE PROTECTED. THIS FORMULA PRESERVES APPROXIMATELY 45%-60% OF A TREE'S TOTAL LIVE ROOT AREA.

Construction Activities

The following information should be considered for all trees affected:

- species
- condition
- measure canopy
- flag and tag for surveyors
- measure height
- approx. Age
- measure caliper
- adjacent
- measure canopy in all directions



Trenching

- When trenching or digging near trees, every effort will be made to avoid damage to the tree's root system.
- If utilities cannot be routed a safe distance from a tree as defined by the drip line, boring will be used to minimize damage and future risk.
- Roots damaged by trenching or digging should be pruned by a certified arborist before the area is

backfilled. Root pruning is a process in which clean cuts are made to allow for the fastest callusing of necessary wounds and healthy re-growth of lost root systems.

Prohibited with in Tree Protection area:



- Parking
- Noxious run off
- Storage
- Dumping

- Compaction
- Vehicular traffic
- Pruning
- Trenching
- Burning
- Attaching anything to trees

SUCCESSFUL PRESERVATION REQUIRES TEAMWORK:

- Owner
- Surveyor
- Planner
- Project arborist
- Sr. Civil engineer
- Landscape architect
- General contractor
- Clearing contractor

Definitions

1. ANSI: American National Standards Institute
2. Beneficial Insect: Insects that are predators or parasites of insects that cause harm to plant material.
3. Biological control: The control or suppression of pests by the action of one or more organisms through natural means or by manipulation of the pest, organism, or environment.
4. Bud union: The junction on a stem, usually swollen, where a graft bud has joined the stock following the process of budding. Usually found at or near soil level.
5. Canopy: Above ground portion of the tree formed by the crown.
6. Certified Arborist: Certified Arborist credential identifies professional arborists who have a minimum of three years full-time experience working in the professional tree care industry and who have passed an extensive examination covering all facets of arboriculture from the International Society of Arboriculture.
7. Critical root zone: Area of a tree's root system that contains the majority of woody and fine roots. The area is determined by allowing 1–1½ feet of root radius for each inch of trunk diameter at breast height.
8. Cultivar: A cultivated variety of a plant. A named plant selection from which identical or near identical plants can be produced, usually by vegetative reproduction or cloning.
9. DBH: Diameter at breast height. Trunk diameter measured at 4 and half feet above ground level.
10. GIS: Geographic Information System.
11. ISA: International Society of Arboriculture
12. Root ball: The containment of the roots and soil of a tree.
13. Root flare: Transitional area connecting the stem tissues and root tissues, usually exhibiting a larger diameter as the stem approaches the root system.

14. Topping: A poor maintenance practice that is often used to control the size of trees. It involves the indiscriminate cutting of branches and stems at right angles leaving long stubs. Also referred to as heading back.
15. Tree protection zone: Area surrounding a tree that is essential to the tree's health and survival
16. USDA: United States Department of Agriculture

Communication Strategy

The Tree Care Plan shall be posted as a link on the Facilities Services page as well as the Arboretum page of the University website. Copies shall be emailed to all who will be affected or need to be made aware of the Tree Care Plan. Any contractor that will be involved with or working a round any part of the university landscape will be provided with a copy of the Tree Care Plan and be made aware of the policies and procedures.



Arbor Day Observance

A twice-annual stand-alone or collaborative April event (in conjunction with annual Earth Day/Week activities), to include university groups, clubs and outside vendors, all promoting arbor-wise efforts and programs or other sustainable practices. Actual tree planting on that day, during Tree Festival or observance of recent tree plantings, dependent upon current campus landscaping projects and funding.

Service Learning Projects:

UMW encourages service from the University's student clubs and community with the goal of participation from individual organizations as well as the Student Government organizations on campus. Groups can currently become involved in several ways:

- a. Participation in a Campus Clean-up or invasive species removal event:
 - *Into the Streets*: 40-60 students participate annually in removal of invasive species growing in and around trees in various locations on the UMW campus. They learned the importance of trees in stormwater management, especially erosion control demonstrated on this slope preserved by an old stand of *Pinus taeda* and along the Woodard stream bank. Students remove unwanted undergrowth including privet, greenbrier, wild grapevine and English ivy.
- b. Campus tree inventory assistance (always in progress). *Examples*:
 - During the inaugural year (2016), Fredericksburg Tree Stewards fostered a project with UMW Biology students to inventory campus trees, wherein they developed skills for team building, tree identification, map and landscape plan reading, measuring canopy, DBH, and making observations of overall health and maintenance needs of trees inventoried.

- Summer 2022, we engaged a GIS student in our Campus Arboretum Tree Walk project (earning experiential learning credits). Adding to the depth and breadth of the original tree inventory, growing the inventory beyond our list of Heritage Trees (trees designated as being significant to the UMW landscape). We now offer an enhanced Tree Walk map, to be enjoyed in phases or all at once. It is currently available on our university website for real time use or download. <https://sustainability.umw.edu/initiatives/tree-campus-higher-education/campus-tree-map/>

c. Student and campus community outreach:



- Planning and implementation of the return of our annual UMW *Tree Festival* (first since the pandemic - September 29, 2022), During this event, Bartlett Tree Experts, our contract partners in our campus arbor care, conducts tree climbing safety demonstrations (at the big willow oak



across from Bushnell Hall), giving students the chance to climb! There are other tree- and ecologically-related vendor booths on site, from woodworking to community and student

environmental advocacy groups such as Tree Fredericksburg and UMW's Eco Club.

- Participation in *Tree Fredericksburg* planting events. (*Tree Fredericksburg* is a non-profit organization committed to invigorating Fredericksburg's urban forest through tree



planting and education on proper tree care. Their mission tethers perfectly with the UMW campus, in the heart of the city. Volunteers, many of whom are UMW students, have planted over 6,000 trees in the past seven years.

<http://treefredericksburg.org>)

Ultimately, trees give students, staff, faculty and visitors a relaxing setting to study, play and create community.

What better way to study or take a break than by being outside in the shade of UMW's many trees?

