

# West Virginia University Campus Tree Care Plan

December 2018

## 1. Purpose

The purpose of the West Virginia University's campus tree care plan is to identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and removing trees on the WVU campus. The overall goal of the plan is to ensure a safe, attractive, and sustainable campus urban forest. The specific objectives of the plan are:

Ensure proper species selection, high-quality nursery stock acquisition, and industry-consensus planting procedures

Promote species diversity and proper age structure in the tree population

Protect high-value 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 appropriately replaced when there is mortality due to weather, pest infestations, injury, or construction displacement

Educate the campus community about the value the campus urban forest and encourage respect for trees in all settings

Note: This plan has been promulgated in partial fulfillment of Arbor Day Foundation's standards for Tree Campus USA designation and does not reflect official university policy on all matters. However, many of these policies, procedures, and practices are currently in place and administered.

## 2. Goals

- Increase and maintain diversity of tree species
  - Develop preferred species list
  - Develop 'do not plant' list
  - Choose some species based on their potential for incorporation into the student curriculum
- Maintain and improve canopy cover in landscaped areas
  - Current canopy is 8% and the target is 10% canopy cover

- Hire an arborist
  - Assist arborist in attaining ISA Certification within one year
- Maintain tree inventory database
  - Use the database to monitor tree health
- Educate the campus community on the importance and value of trees
  - Keep stakeholders from negatively impacting trees
  - Prepare people for when declining tree health necessitates removal of historic trees

### **3. Responsibility**

West Virginia University's Department of Roads and Grounds under the direction of the Assistant Vice President of Facilities Management.

### **4. Campus Tree Advisory Committee**

The Campus Tree Advisory Committee is comprised of representatives from the student body, faculty, Facilities Management and the Morgantown community.

David Blades, student majoring in Forest Resources Management

Dan Brown, former arborist at WVU and Morgantown Tree Board member

Jonathan Cumming, professor of biology, Eberly College of Arts and Sciences

Greg Dahle, associate professor of Forest Resource Management, Davis College of Agriculture, Natural Resources, and Design

Zach Fowler, service assistant professor of biology and director of the WVU Core Arboretum

Traci Knabenshue, director of sustainability, Facilities and Services

Matt Latimer, manager of facilities planning, Planning, Design, Construction, and Scheduling

Keith Lawrence, assistant vice president, Facilities Management

Brian Lemme, stormwater specialist, Environmental Health and Safety

George Longenecker, community member representative and past director of the West Virginia Botanic Garden

Ed Mason, assistant director of Roads and Grounds, Facilities Management

Jim Mirage, assistant director of Roads and Grounds, Facilities Management

Preston Pennington, student member, Society of American Foresters

Byron Smith, director of Roads and Grounds, Facilities Management

Stephanie Toothman, conservation specialist, Facilities and Services

## **5. Tree Care Policies**

### **Planting and Tree Diversity**

As the campus urban forest is used as a teaching lab, increasing the diversity of tree species is extremely important. However, species selection must be dictated by site conditions.

A “recommended species list” is available on WVU Design Guidelines & Construction Standards Division 32 Section 329300. Preferred plant material is based on the following criteria: 1. Disease and insect resistance; 2. Growth rate; 3. Habit; 4. Potential for diversifying campus species 5. Aesthetics. Where appropriate, the best plant shall be selected for a given site.

A “Do not plant list” will be added to the WVU Design Guidelines & Construction Standards Division 32 Section 329300, as there are plants that have a history of problems, including but not limited to poor growth or performance, susceptibility to diseases and insects, and invasiveness.

### **Site Preparation**

The planting hole should be dug no deeper than the root ball when measured from the bottom of the root ball to the trunk flare. If the hole is deeper than the root ball, it often results in the settling of the plant above the trunk flare and structure roots which can result in the root ball being planted too deep. But the width of the hole should be at least 2 to 3 times the diameter of the root ball with sloping sides.

### **Preventative Setting the Plant and Back-Filling the Hole**

Plants must be set with trunk flare 1” - 2” above the existing grade. Once the plant is properly placed, all visible ropes and burlaps should be removed as much as possible.

Once the root ball is stable in the planting hole, remove as much of the wire basket as possible; backfill the planting hole with the existing soil. If the existing soil is of a poor quality, addition of soil amendment as recommended by the soil analysis should be used. The backfill soil may be tamped firm enough to remove large air pockets and stabilize the tree, but not too firm as to remove all fine air spaces needed for a well aerated soil for root development. Complete the backfill by making sure that the trunk flare is completely exposed, spread mulch at 1-3" depth but not touching the trunk, water the root ball and the planting area deeply.

Newly planted trees must receive adequate water weekly during the entire first growing season right up until dormancy in the fall, by irrigation or placement of ooze bag or hand watering

### **Staking**

Staking of trees at planting is not required if the root ball is stable. If staking must be done, it will be done in accordance with ANSI A300 standard and associated Best Management Practices. Wind patterns should also be taken into consideration.

### **Fertilizing and Pest Control**

Newly planted trees should not receive fertilization during the first growing season except in a situation where a soil test recommends its use. Established trees in poor condition should receive deep root fertilization of 5-35-10 plus micro nutrients, with repeat application if necessary. Also, when necessary, we shall use 10-20-10 for evergreen trees and 25-10-10 for general application. Routine tree fertilization is not recommended. Campus trees receive adequate nutrients from routine application of fertilizers to turf, shrubs, and groundcover. If fertilization is needed, the ANSI A300 standards and associated Best Management Practices should be followed.

Trees are treated for pest problems as needed. There is some regular treatment of Hemlocks on campus for Hemlock Woolly Adelgid.

### **Tree Removals**

Live trees are generally removed only when required to protect the public safety or when they are detracting from the quality of the landscape. While trees may need to be removed during construction, attempts should be made to preserve and protect trees including but not limited to moving a tree when it is deemed appropriate.

### **Pruning**

To encourage the development of a structurally sound and healthy tree, all pruning should follow the current ANSI A300 Pruning Standards and the associated Best Management Practices. All pruning should be overseen by International Society of Arboriculture Certified Arborist. The following guidelines shall be followed when pruning:

### *General*

Pruning shall not be conducted without a clear objective or outcome. Prune first for safety, next for health, and finally for aesthetics.

Pruning should be done in the appropriate season for particular tree species.

When removing branches, the pruning cut shall not damage the branch bark ridge and branch collar.

Topping is not an acceptable practice. Internode (heading) cuts should not be used except in storm response and crown restoration procedures.

Branch reduction or thinning should be used to achieve pruning objectives rather than making large (>8" diameter) branch removal cuts.

Favor branches with strong, U- shaped angles of attachment. Remove branches with weak, V-shaped angles of attachment and/or included bark. Ideally, lateral branches should be evenly spaced on the main stem of young trees.

Remove any branches that rub or cross another branch.

Make sure that lateral branches are no more than one-half to three-quarters of the diameter of the main stem to discourage the development of co- dominant stems.

Do not remove more than one-quarter of the living crown of a tree in one growing season. If it is necessary to remove more, do it over successive years.

### *Raising*

Raising shall be performed to provide vertical clearance from thoroughfares, signs, street lights, and structures.

Always maintain live branches on at least two-thirds of a tree's total height. Removing too many lower branches will hinder the development of a strong main stem.

Remove basal sprouts and vigorous epicormic sprouts.

### *Reduction*

Reduction shall be performed to decrease the overall height of a tree or to decrease the length of an individual branch

Use reduction pruning only when necessary. Make the pruning cut at a lateral branch that is a least one-third the diameter of the stem to be removed.

If it is necessary to remove more than half of the foliage from a branch, remove the entire branch.

## 6. Tree Protection

### A. Construction

Tree health and structural stability can be significantly impacted by development, especially the roots and associated soil resources. According to the WVU Design Guidelines & Construction Standards Division 31 Section 311500, tree protection zones shall be established and maintained for all trees to be preserved in a construction site. The preservation of trees in site planning, site development, and construction should follow the ANSI A300 Standards and Best Management Practices. A barrier will be constructed around each tree or grouping to protect the trunk and root systems. This reduces damage from heavy equipment and trucks. Wood, plastic, or chain link fencing no less than 4' tall would be suitable. Install the barrier at least 3' outside the tree's drip-line. No equipment or vehicle shall be parked or construction material stored, or substances poured or disposed of within any tree protection zone at any time during clearing of construction of a construction project.

### B. Damage Assessment

If trees are determined to be damaged, the nature and extent of tree damage will be determined by Roads and Grounds. The contractor will be fined according to the caliper of the damaged tree. Fines and remedies will be proposed to the tree committee for resolution.

### C. Education and Damage Prevention

The tree campus committee will work to educate faculty, staff, and students on tree protection.

## 7. Prohibited Practices

Topping of trees during any arboricultural work is strictly prohibited. In addition, malicious destruction of trees and vandalism compromise tree health and campus safety. Parking vehicles and equipment under trees leads to compacted soils and damages root systems.

## 8. Definitions of terminology

**Balled and Burlapped** - Trees grown in field soil and harvested manually or mechanically; wrapped in burlap with twine and may have wire cage for larger areas.

**Bare Root** - Trees grown in field soil but shaken or rinsed to remove soil when harvested; handled during dormancy.

**Branch Collar** - Wood tissue that forms around the base of a branch between the main stem and the branch.

**Caliper** - The diameter or thickness of the main stem of a young tree or sapling as measured at six (6") inches above ground level. This measurement is used for nursery-grown trees having a diameter of four inches or less.

**Cankers** - A canker is a localized area on the stem or branch of a tree where the bark is sunken or missing. Cankers are caused by wounding or disease.

**Canopy trees** - A tree that will grow to a mature height of at least 40 feet with a spread of at least 30 feet.

**Certified Arborist**- professional arborist who has attained the International Society of Arboriculture Certified Arborist credential.

**Clearing** - The removal of trees or other vegetation of two inches DBH or greater.

**Co-dominant** - Two equally competing terminal branches.

**Critical Root Zone** - The minimum area surrounding a tree that is considered essential to support the viability of the tree and is equal to a radius of one foot per inch of trunk diameter (DBH).

**Crown Reduction** - Reducing the canopy by appropriate pruning techniques.

**Decay** - Deterioration of wood tissue by disease.

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

**Diameter, breast height (DBH)** - The diameter or width of the main stem of a tree as measured 4.5 feet above the natural grade at its base. Whenever a branch, limb, defect or abnormal swelling of the trunk occurs at this height, the DBH shall be measured at the nearest point above or below 4.5 feet at which a normal diameter occurs.

**Drip-line** - The area defined by the outermost circumference of a tree canopy where water drips from and onto the ground.

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

**Hazard Tree** - A tree (or part of a tree) that has a high potential for failure and hitting a nearby target because of dead or dying foliage, branches, roots or trunk.

**Impervious surface** - A solid base underlying a container that is nonporous, unable to absorb hazardous material, free of cracks or gaps and is sufficient to contain leaks, spills and accumulated precipitation until collected material is detected and removed.

**Native tree** - Any tree species which occurs naturally and is indigenous within the region.

**Soil Compaction** - Pressing of the soil that removes pores, eliminating water and air holding capacity.

**Staking** - Using stakes to support newly planted trees.

**Suckers** - Abnormal growth of small branches usually not following the general pattern or normal growth habit of the tree.

**Tree** – A woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground.

**Tree protection zone** - The area surrounding a preserved or planted tree that is essential to the tree’s health and survival, and is protected within the guidelines of these regulations.

## 9. Communication and Outreach Strategy

The communication plan in the first table below is specific to the Tree Care Plan. The second table highlights annual tree-related events.

Medium/Group	Date:
ENEWS daily email announcement: Tree Care Plan Announced to entire campus community when WVU achieves Tree Campus Designation	Spring 2019
Website: Tree Care Plan is posted to the WVU Tree Campus webpage	Spring 2019
In-person training/meetings: Committee members share plan with Facilities and Services directors	Jan 2019
In-person training/meetings: Committee members share plan with roads and grounds department	Jan 2019
In-person training/meetings: Committee members share plan with facilities zone maintenance groups	Feb 2019
In-person training/meetings: Committee members share plan with construction department	Feb 2019
In-person training/meetings: Committee members share plan with procurement department	March 2019
In-person training/meetings: Committee members share plan with academic departments who use campus landscapes as a learning environment	March 2019
Social media posts: Highlights from the plan shared on Twitter and Facebook	March/April 2019
WVU Student Web Portal Website: Highlights from the plan that particularly pertain to students shared	August 2019



Events	Date:
Earth Day	April 22nd
Newton Tree-Apple Watch	Spring
Facilities Management Employee Summit	Summer
Paw Paw Festival and Parties	Fall
WVU Peace Tree Ceremony – assist in social media promotion	Late Sep.
WVU Arbor Day Ceremony	October