**CORNELL UNIVERSITY**

**CAMPUS TREE CARE PLAN**

**2016**

**INTRODUCTION**

The *2008 Cornell Master Plan for the Ithaca Campus* recognizes that “The character of the campus as a whole and the places within it should be distinguished first and foremost by the landscape, both natural and designed.” Our 2009 *Advancing Sustainability Action Plan* elaborates, “In preserving and enhancing the appearance of the campus, trees and the tree canopy play a major role. Further, the presence of trees plays an important environmental role on campus. Strategically located trees reduce air pollution by trapping particle pollutants, absorbing CO2 and other harmful gases, act as a carbon sink to reduce the atmospheric greenhouse effect, reduce storm water runoff and soil erosion and sedimentation, reduce energy use through shading and windbreaks, and reduce the urban heat island effect.”

**1. PURPOSE & GOALS**

*Purpose:*

The purpose of the Cornell University campus tree care plan is to identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and removing trees on the Ithaca campus of Cornell University.

*Goals:*

The overall goal of the plan is to ensure a safe, attractive, and sustainable campus urban forest. The specific objectives of the plan are:

* Protect and maintain the campus urban forest by managing the impact of development and construction on campus trees.
* Promote species diversity and proper age structure in the tree population
* Ensure proper species selection, high-quality nursery stock acquisition, and industry-consensus planting procedures
* 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 infestations, injury, or construction displacement
* Encourage campus community members to respect and value the campus urban forest.

*Targets:*

Specific targets have been adopted by the Campus Tree Advisory Committee:

* Facilitate the achievement of 25% tree canopy on campus as recommended by the Advancing Sustainability Action Plan.
* Maintain a digital tree inventory for the Ithaca campus with major updates every 10 years.
* Enhance a web-based method of sharing and updating the inventory data within the university.
* Develop a green infrastructure campus tour and interpretation program.

**2. RESPONSIBLE DEPARTMENTS**

Primary responsibility for enforcement of the Campus Tree Care Plan on the Ithaca campus lies with the Cornell University Grounds Department under the direction of the Associate Vice President for Facilities Management. Management of the university’s arboretum, botanical gardens and natural areas is the responsibility of Cornell Plantations.

**3. CAMPUS TREE ADVISORY COMMITTEE**

The tree advisory committee is comprised of faculty, students, alumni and staff from facilities and plant related programs throughout the university and the surrounding municipalities (see attachment 1). Appointments are for 1 year, reviewed annually at the start of the calendar year. The committee meets biannually, and provides important input regarding the care and improvement of the campus landscape.

**4. CAMPUS ARBORICULTURE PRACTICES**

 *Planting and Tree Diversity*

* As the campus 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 species list for campus planting does not exist, but tree advisory committee members are consulted regularly to recommend species for specific site conditions. Based on the vernacular of the site, some landscapes will be planted in native species while others may include exotics.
* The Urban Horticulture Institute of Cornell University provides a number of reference materials to assist with appropriate plant selection, including *Recommended Urban Trees: Site Assessment and Tree Selection for Stress Tolerance*.
* The university supports the maintenance of a list of Invasive Plants of Tompkins County, New York (Attachment 2). – that identifies plants that are considered invasive in the Ithaca area. Invasive species are those whose introduction cause or are likely to cause ecological or environmental harm. Any plant species or their varieties or cultivars on the current version of this list shall not be used in any landscape design, planting plan or construction specifications, or planted, seeded or otherwise established on the Ithaca campus of Cornell University. Requests for exceptions must be submitted in writing to the University Landscape Architect where they will be reviewed on a case by case basis in consultation with Plantations, Grounds and the Department of Horticulture.

*Planting and Landscape Standards*

* Procedures, materials and standards for landscape and tree planting on campus are detailed in the Cornell University Design and Construction Standards, including:
	+ Detail 1.2.1 Typical Shrub Bed Planting Detail,
	+ Detail 1.2.2 Typical Tree Planting Detail,
	+ Detail 1.2.3 Typical Shrub Planting Detail
	+ Detail 1.2.4 Tree Staking Detail (<3” cal.)
	+ Detail 1.2.5 Tree Wrapping Detail.

*Tree Maintenance*

* Staffs from the Grounds Department and the Plantations conduct a visual survey of campus trees annually to assess preventive maintenance pruning needs. Preventive maintenance pruning is conducted on an as needed basis at this time.
* Pruning and maintenance requests can be made by campus customers, which are then followed up by an inspection of the trees by the staff arborist. The arborist determines the type of pruning to be performed and whether it can be accomplished by staff or contractor.
* Every attempt will be made to clean up dropped limbs or significant tree debris within the same day, depending on the severity of the storm and the extent of the tree damage.
* Tree mulching- 2”-3” of mulch is renewed every two years for trees up to approximately 6” dbh. Periodically drip lines of larger trees and tree groupings are mulched with waste wood chips.

*Fertilization and Pest Management*

* Cornell utilizes an integrated pest management approach to monitor and control pests in the campus urban forest. Trees are treated for pest problems as needed. Current pests that are new to or getting close to campus are the Hemlock Wooly Adelgid, and the Emerald Ash Borer.
* There is no regular tree fertilization beyond treatment received as a result of fall lawn fertilization. Specimen or high-value trees may receive prescription fertilization when severe nutrient deficiencies are diagnosed.

*Tree Removals*

* Live trees are generally removed only when required to protect the public safety or are detracting from the quality of the landscape.

*Storm Response and Recovery*

* Storm response and recovery are generally accomplished in-house. In a crisis, the first priority is to remove tree debris that blocks campus thoroughfares, disrupts campus operations, or poses hazards to the campus community. Trees requiring specialized equipment not available in-house are addressed by outside contractors. Once these critical needs are addressed, 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 the structure and function of the campus urban forest in a reasonable time frame.

**5. PROTECTION AND PRESERVATION PROCEDURES**

*Preservation During Design Phase*

* Site development guidelines are prepared for all major capital projects by the Campus Planning Office. Significant contextual and campus-wide considerations, including landscape and environmental concerns, are identified early in the project planning phase.
* Tree protection zones shall be established for all trees to be preserved in a construction site. Appropriate protective fencing or other measures shall be required consistent with Cornell University Design and Construction Standards.
* Avoid locating the construction site around existing trees where possible by planning all construction activities including new utility corridors, staging areas, new sidewalks and new roads for a minimum clearance of 15 feet away from the base of trees, and not within the edge of the canopy drip line. Greater distances are desirable.

*Protection During Construction Phase*

* A pre-construction kickoff meeting with the Contractor, Project Manager and Grounds representatives is required for all major capital projects to the required tree protection measures.
* Procedures, materials and standards for landscape and tree protection on campus are detailed in the Cornell University Design and Construction Standards, including:
	+ Section 02480 Landscape Work,
	+ Standard Detail 1.8.3 Heavy Duty Protective Construction Fencing for Trees
	+ Standard Detail 1.8.4 Standard Duty Protective Construction Fencing for Trees

 **6. TREE DAMAGE ASSESSMENT, ENFORCEMENT AND PENALTIES**

Tree damage assessment is generally performed by arborists within the Grounds Department or the Plantations. High profile trees may be assessed by a Plantation’s Arborist or an outside consultant (such as Bartlett Tree Experts). Enforcement of protection measures is performed by project managers and on-site engineers.

**7. PROHIBITED PRACTICES**

The following activities and practices are prohibited on the Ithaca Campus of Cornell University:

* Topping, pollarding or removal of central leader of any tree unless specifically required for emergency situations or an authorized horticultural practice.
* Using tree for support of signs, posters or site furnishings except for plant identification or inventory signage authorized by Grounds, Plantations or the Horticulture Department.
* Climbing of trees with spurs.
* To abuse, destroy or mutilate any tree, plant or shrub, or to attach or place any rope, wire or structure in any part of a tree (other than one used to support a young or broken tree).

**8. DEFINITIONS**

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.

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

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

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).

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.

Impervious surface ‐A solid base underlying a container that is nonporous, unable to absorb hazardous material, free or 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 Finger Lakes Region.

Tree establishment plan ‐A map and supporting documentation which describes, for a particular site where existing trees are to be planted in compliance with the requirements of these regulations, the types of trees and their corresponding trees for reforestations.

Tree protection plan ‐A map and supporting documentation which describes for a particular site where existing trees are to be retained, the types of trees and their corresponding protection methods.

Tree protection zone ‐The area surrounding a preserved or planted tree that is essential to the tree’s health and survival.

**9. COMMUNICATION STRATEGY**

Currently, the tree protection guidelines listed in attachment one are communicated to project managers for inclusion in to project specifications. The tree preservation categorizing process is used by the Campus Planning Department for building siting and campus master planning.

This plan is available on the Campus Planning Department, and Infrastructure, Properties and Planning web sites.

**ATTACHMENT ONE – Campus Tree Advisory Committee 2016**

Nina Bassuk Faculty, Department of Horticulture, Cornell University

Fred Cowett Community Representative, Cayuga Heights

David Cutter University Landscape Architect, Cornell University

Jeanne Grace City Forester, City of Ithaca

Rhoda Mauer Director of Horticulture, Cornell Plantations

Kevin McGraw Grounds Landscape Supervisor, Cornell University

Miles Schwarts Sax Student, CALS Cornell University

Dan Schied Director of Grounds, Cornell University

Mike Smith Environmental Planner, Town of Ithaca

**ATTACHMENT TWO – Invasive Plants of Tompkins County, New York**

# Species name Common name Family

*Acer campestre* hedge maple Aceraceae

*Acer ginnala* Asian maple Aceraceae

*Acer platanoides\** Norway maple Aceraceae

*Aegopodium podagraria* goutweed, bishop’s weed Apiaceae

*Ailanthus altissima\** ailanthus, tree-of-heaven Simaroubaceae

*Alliaria petiolata\** garlic mustard Brassicaceae

*Allium vineale* wild onion, onion-grass Alliaceae

*Artemisia vulgaris\** mugwort Asteraceae

*Berberis thunbergii\** Japanese barberry Berberidaceae

*Berberis vulgaris* European barberry Berberidaceae

*Campanula rapunculoides* creeping bellflower Campanulaceae

*Celastrus orbiculata\** Asian bittersweet Celastraceae

*Centaurea maculosa* spotted knapweed Asteraceae

*Cirsium arvense* creeping thistle Asteraceae

*Convallaria majalis* lily-of-the-valley Convallariaceae

*Coronilla varia\** crownvetch Fabaceae

*Cynanchum rossicum\** (*Vincetoxicum rossicum*) pale swallowwort Asclepiadaceae

*Elaeagnus umbellata\** autumn olive Elaeagnaceae

*Euonymus alata* burning-bush, winged euonymus Celastraceae

*Euphorbia esula* leafy spurge Euphorbiaceae

*Galium mollug*o white bedstraw Rubiaceae

*Hedera helix* English ivy Araliaceae

*Hemerocallis fulva* daylily Hemerocallidaceae

*Heracleum mantegazzianum* giant hogweed Apiaceae

*Hesperis matronalis* rocket Brassicaceae

*Iris pseudacorus* yellow-flag iris Iridaceae

*Ligustrum obtusifolium\** Amur River privet Oleaceae

*Ligustrum vulgare* common privet Oleaceae

*Lonicera japonica* Japanese honeysuckle Caprifoliaceae

*Lonicera maackii* Maack's honeysuckle Caprifoliaceae

*Lonicera morrowii\** and hybrids honeysuckle Caprifoliaceae

*Lonicera tatarica\**  and hybrids Tartarian honeysuckle Caprifoliaceae

*Lonicera xylosteum* honeysuckle Caprifoliaceae

*Lysimachia nummularia* moneywort, creeping jenny Primulaceae

*Lythrum salicaria* purple loosestrife Lythraceae

*Malus baccata* and hybrids Siberian crabapple Rosaceae

*Phragmites australis\** giant reed Poaceae

*Picea abies* Norway spruce Pinaceae

*Polygonum cuspidatum\** (*Fallopia japonica*) Japanese knotweed Polygonaceae

*Ranunculus ficaria* \* lesser celandine Ranunculaceae

*Rhamnus cathartica\** buckthorn Rhamnaceae

*Rhamnus frangula\** alder buckthorn Rhamnaceae

*Robinia pseudo-acacia* black locust Fabaceae

*Rosa multiflora\** multiflora rose Rosaceae

*Rumex acetosella* sheep sorrel Polygonaceae

*Solanum dulcamara* bittersweet nightshade Solanaceae

*Torilis japonica* Japanese hedgeparsley Apiaceae

*Vinca minor* periwinkle Apocynaceae

*Wisteria sinensis* wisteria Fabaceae

\* The most invasive species in this area.

 F. Robert Wesley, February 2007