Lakeside Facilities Operations
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Loyola University Chicago Campus Tree Care Plan

PURPOSE:

The purpose of the Loyola University Chicago (LUC) campus Tree Care Plan is to identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and caring for trees on the LUC campus. This will be an important step in prioritizing the trees as an integral component of our campus. This plan will 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 reasonably replaced when there is mortality due to weather, pest infestations or disease
- Maximize the ecosystem services that benefit the community and those who live in it.
- Encourage campus community members to appreciate the value of the trees on campus and further their knowledge of the role trees play in their community.
- Encourage campus community members to respect and value the campus urban forest

RESPONSIBLE DEPARTMENT:

The LUC Grounds Department within the Facilities Services Division under the direction of the Associate Vice President for Facilities is responsible for implementation of the Campus Tree Care Plan.

CAMPUS TREE ADVISORY TEAM:

The Loyola University Chicago Tree Advisory committee is tasked with providing important input into the care and improvement of the campus landscape with a primary focus on the health and maintenance of the campus tree population. The Tree Advisory Committee is a sub-committee of the CampuScape Committee.

The team members will voluntarily serve for a period of one academic year with a renewal option. Members are expected to actively participate and contribute in guideline and policy related issues along with research and information collection that

would aid in the campus tree care plan. The LUC Tree Advisory Team will meet bi-annually to review current maintenance practices including but not limited to pruning, fertilization, installation/replacement, removal and protection.

Members include:

Facility Management
William Curtin, Director of Environmental Services, wcurtin@luc.edu
Randolph Varhalla, Grounds Supervisor, rvarhal@luc.edu

Staff and Faculty
Aaron Durnbaugh, Director of Sustainability, adurnbaugh@luc.edu
Kevin Erikson, Urban Agriculture Coordinator, kerikson2@luc.edu
Bree Sines, Professor of the Department of Biological Sciences, bsurges@luc.edu
Kelly Garbach, Assistant Professor in Environmental Science, kgarbach@luc.edu
Joseph Milanovich, Assistant Professor of the Department of Biological Sciences, jmilanovich@luc.edu
Reuben Keller, Assistant Professor in Environmental Science, rkeller1@luc.edu
Roberta Lammers-Campbell, Director of Academic Programs and Ecological Restoration at Loyola's Retreat and Ecology Campus (LUREC), rlammer@luc.edu
Stephen Mitten, Ecology Faculty and Spirituality Director, smittensj@luc.edu
David Treering, Geographic Information Systems Specialist, dgoldb2@luc.edu
Jennifer Clark, Associate VP of Campus and Community Planning, jclark7@luc.edu
Daniel Amick, Associate Professor of the Department of Anthropology, damick@luc.edu
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Students
Christie Kochis, ckochis@luc.edu
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Community
Andrew Hart, Natural Resource Specialist - Chicago Region, US Forest Service, his_email@email.com

CAMPUS ARBORICULTURE PRACTICES:

Installation Practices:

Plant Selection

Tree species used on LUC campus will come from a list of acceptable species as developed by the LUC Tree Advisory Team and the campus landscape architect. Trees must also comply with the City of Chicago's Urban Tree Planting List (see attachment A). This list will contain both native and non-native species that have been thoroughly screened for adaptability and serviceability to the physical conditions based on site orientation, drainage, soil, etc. Consider the restrictions of the planting site, the purpose for the tree, and each tree's unique growing requirements before selecting the type of tree to be purchased. Whenever possible and landscape plans allow, native species will be the preferred choice for both new installation and replacement

The season for planting shall be as follows:

Deciduous Trees & Shrubs	Fall	October 1st – determined by weather and temperatures
	Spring	April 1st - determined by weather and ground temperature

Nursery Stock

Nursery stock used on the LUC campus shall conform to the most current American Standard for Nursery Stock, ANSI Z60 .l.

Planting

Stake out location for all plants and outlines for planting areas on the ground and obtain approval before an excavation is made. Make adjustments in locations and outlines as directed.

Remove underground debris or other obstructions encountered; loosen subgrade and check for drainage.

Tree planting shall conform to the most current ANSI A.300 Part 6: Tree, Shrub and Other Woody Plant Maintenance -Standard Practices (Transplanting). The planting process will conform to these standards and to the most current Best Management Practices (BMP) for Tree Planting published by the International Society of Arboriculture.

Establishment maintenance shall be provided consisting of a minimum of supplemental irrigation during dry periods, mulch, corrective pruning and staking or guying for a period of 24 months after planting or as determined by the Grounds Services Department. Staking or guying is not normally required or recommended unless a tree is unable to stand without supplemental support. Where staking or guying is required the BMP for Tree Planting shall be followed. The BMP for Tree Planting shall be referenced for the best practices concerning establishment maintenance practices.

Maintenance Schedule

Pruning

No tree shall be pruned without first establishing clearly defined objectives. The maintenance pruning schedule shall be dictated by the tree species, age, function and placement. SLU practices the following guidelines for tree pruning in accordance with the most current ANSI A300 (Part 1) Pruning Standard:

1. All trees less than 5 years old shall receive structural pruning as required on an annual rotation.
2. All trees 6 -20 years old shall receive structural pruning as required every two to five years.
3. All trees 20 years old and older shall receive maintenance pruning every five to seven years as required to crown clean (thin) high and low, raise the crown, reduce the crown and crown restoration.
4. Trees that are adjacent to pedestrian walkways, parking lots, and lights are inspected at least annually to address any clearance or safety issues.

Timing

1. Spring flowering trees that bloom on last season's growth (Crabapple, etc.) should be pruned just after bloom because new flower buds are set on subsequent summer growth.
2. Summer flowering trees that bloom should be pruned directly after they flower or in late winter or early spring.
3. Medium and mature shade trees should be pruned during the dormant season typically November 15 - March 15.

Pruning Methods (Types) –in accordance with ANSI A300 pruning standard s:

1. Pruning to clean -the selective removal of cracked, broken, diseased, detached and dead branches.

a. To reduce hazards, and improve health and aesthetic of the tree.
b. This is the preferred pruning type for mature trees since minimal live branches are removed.
c. The size range and locations of limbs to be removed should be specified.

2. Pruning to thin -the selective removal of small live branches to reduce crown density.
    a. Proper thinning retains crown shape and size and should provide an even distribution of foliage throughout the crown.
    b. Thinning should not exceed twenty (20%) percent of the crown foliage.
    c. The size range and locations of limbs to be removed should be specified.
3. Pruning to Raise (Elevate, Lift) -the selective removal of branches to provide vertical clearance.
    a. Proper raising shortens or removes lower branches of a tree to provide clearance for building, signs, pedestrians, etc.
    b. The Live Crown Ratio should be no less than fifty (50%) upon completion.
    c. The size range and locations of limbs to be removed should be specified.
4. Pruning to Reduce (Shape, Drop Crotch) - the selective removal of branches and stems to decrease the height and/or spread of a tree.
    a. Reduction minimizes risk of failure, clears vegetation from buildings or other structures or to improve appearance.
    b. Crown reduction should be achieved with reduction cuts, not heading cuts.
    c. Reduction should be done on smaller diameter (l"-4") branches.
5. Structural Pruning - the removal of live branches to influence the orientation, spacing, growth rate, strength and ultimate size of branches.
    a. Structural pruning is used on young and medium aged trees to help engineer a sustainable trunk and branch arrangement.
    b. Structural pruning reduces certain defects and spaces main branches along one dominant trunk.
    c. The maximum diameter of the reduction cuts used with this pruning type should be specified.
6. Pruning to Restore -the selective removal of branches, sprouts and stubs from trees that have been topped, severely headed, vandalized broken in a storm or otherwise sustained damage.
    a. The goal is to improve the tree structure, form or appearance.
    b. Restoration may require a variety of types of cuts including heading cuts.

Fertilization:

Trees shall be fertilized to meet specific objectives. Common objectives of fertilization as found in the BMP for Tree Fertilization published by the International Society of Arboriculture are: correct a visible nutrient deficiency, collect a nutrient deficiency not readily visible but detected through soil or foliar analysis, increase vegetative growth, flowering or increase the vitality of the plant. The Grounds Services Department shall make a determination on which trees will be fertilized based on need. The Grounds Services Department will also determine the best fertilization method.

1. Fertilization shall conform to the most current ANSI A300 (Part 2) Fertilization and the BMP for Tree Fertilization published by the International Society of Arboriculture.
2. No trees shall be fertilized from May 15 - October 15.

Assessment and removal:

No tree shall be removed until a complete assessment has been completed by the Grounds Department's contracted Arborist. The removal of a tree from the parkway requires a permit from the City of Chicago. Tree Risk Assessment will be used to determine and prioritize trees requiring removal for safety needs and shall conform to ANSI A300 (Pa119) Tree Risk Assessment and the best management practices (BMP) Tree Risk Assessment published by the International Society of Arboriculture.

1. The removal assessment shall include the following information:
    a. Species
    b. Location
    c. Condition
    d. Size (caliper)

e. Reason for removal

Managing for catastrophic events:

In the event of tree damage because of weather conditions such as high winds, thunderstorms, heavy snow, etc. Grounds or an approved contractor shall remove debris on the following priority:

1. Streets and roadways
2. Pedestrian walkways
3. Critical building entrances
4. Parking lots

NOTE: Grounds has discretion to modify the priority order as needed based on overall campus conditions.

Protection and Preservation:

The objective of tree management is to conserve trees and shrubs during site planning, construction and post- construction maintenance phases of development.

Tree protection zones shall be established and approved by Grounds Services for all construction sites where existing trees are to remain. The tree protection zones will be maintained throughout the duration of the project under the direction of the Grounds Services Department. Tree health shall be monitored throughout the duration of the construction/demolition project under the direction of the Grounds Services Department.

Trees identified for protection shall have a barrier that encompasses the entire drip line of the tree. The fence shall be a minimum of 4' in height and constructed of plastic or chain link fencing material. The barrier shall be installed at l ' for every inch diameter of the tree's diameter breast height (DBH) with the minimum protection zone to be not less than 3' diameter.

Prohibited practices in tree protection zones include:

1. Parking of vehicles, equipment, trailers, etc. in the zone
2. No placement or storage of construction materials or debris in the zone
3. No substances poured, disposed of or drain through the zone.

Goals and Targets:

Develop an integrated tree replacement plan to restore the tree population to match the tree inventory completed in July 2015. In our first year as a Tree Campus USA college, we will strive to increase the number of native trees and the overall diversity on our Lakeshore campus. Trees have an important role to provide environmental benefit including carbon sequestration, localized cooling and habitat and forage for native biodiversity. We will focus on the upcoming Winthrop "woonerf" (shared road) construction project. To assess our progress we will create a Simpson Diversity Index of trees to measure the current diversity and aim to exceed current index with each new project. The Tree Campus Advisory Team will help develop a multi-year approach to allow for proper planning cycles thereby reducing the impact on the fiscal year budget. New installations are paid through the Grounds department operating budget or when construction is taking place through the approved capital project account.

Tree Damage Assessment, Enforcement and Penalties:

Grounds Services performs routine assessment on campus trees and call an outside consultant to confirm any observed issues and agree on a treatment plan or removal and replacement. The results will determine whether a tree is removed, pruned and/or receives correctional treatments such as fertilization and insect/disease control applications.

Grounds Services tracks all tree removals and will update the tree inventory annually with IES staff. Damage to trees whether intentional or unintentional should be reported to Grounds Services immediately for inspection and assessment.

Prohibited Practices:

- Do not the vandalize trees. The attachment of signs, bicycles, and objects are prohibited.
- Do not plant or remove plants or trees without authorization from Facilities Services Division
- Do not prune or remove sections of the tree unless prior approval from the Facilities Services Division

Facilities Services Division of Loyola University Chicago exempt from the prohibition of the addition, removal, and pruning of the trees. Details can be found in the Protection and Preservation section and the maintenance schedule extend to all trees on University owned property.

Definitions:

ANSI - American National Standards Institute
Caliper -Tree trunk diameter measured 6 inches off the ground Drip Line
Diameter, breast height (DBH) - Diameter around a tree's trunk
Guying - three or four wires attached to newly planted trees and anchored into the ground for stability
Live Crown - The top part of the tree with live green leaves
Non-Native - plants not indigenous or native to a particular place

Communication Strategy:

The campus should make every effort to communicate this plan to all members of the campus community who might be impacted by or have an impact on not only the campus landscape but also specifically trees. This includes students, faculty, staff, visitors and the surrounding community.

The plan should be communicated to target groups in the following ways:

1. Students and Faculty
   The tree care plan should be placed on the website of the LUC Institute of Environmental Sustainability, Facilities Services Division and other appropriate campus offices and departments. Doing so will allow students and faculty to easily access the plan at all times. Data from the tree inventory will also be placed online in order to be available to students. Environmentally-focused student groups, such as the Student Environmental Alliance should also be made aware of the plan.

2. Staff
   Facilities Services should keep copies of the plan in its offices for consultation by employees, contractors and visitors and place a copy on their website.

3. Contractors

Any company contracted to perform work that may directly or indirectly affect campus trees should be given a copy of the plan, either as a hard copy or in electronic format. Contractors will need to be especially aware of the plan concerning tree preservation and damage assessment.

4. Community and Visitors

The community will be made aware of the plan through a press release that coincides with LUC's announcement of Tree Campus USA certification. The announcement will make it clear where members of the community can find a copy of the Plan. It will also include information how they can become involved in management of the campus landscape through service projects and other activities.

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Loyola University Chicago Service Learning Projects

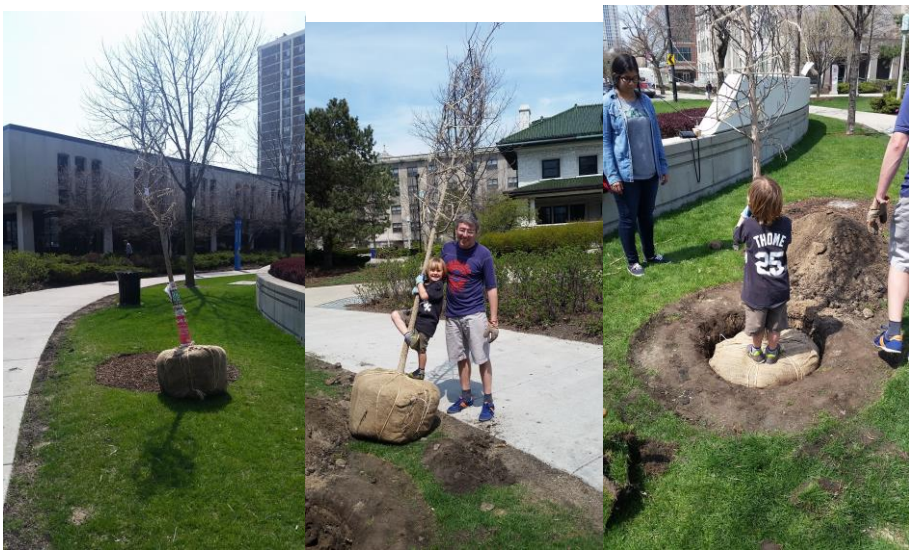
and Arbor Day Observance

2016

Spring 2016:

In the Spring of 2016 Sustainability Interns calculated the ecosystem services values of trees around campus and created Tree Tags to demonstrate how much money is saved each year as shown below.

On April 24, 2016, following Loyola's 1st B-Earth Day ("Birthday") celebration, Aaron Durnbaugh, his son, Campus Sustainability interns and volunteers planted a tree to replace one that had gotten diseased and removed. This tree was also planted in honor of Arbor Day.



Fall 2016:

TBD

2015

Spring 2015:

In the spring of 2015, Father Mitten, Loyola's Ecology Faculty and Spirituality Director, lead a blessing of the Arbor Day tree. Students collaborated in the planning and implementation of the tree planting. The students worked with Bill Curtin, Loyola's Director of Environmental Services, to facilitate the tree planting on Arbor Day.

Fall 2015:

Students once again went through the Loyola Library photographic archives to update the history of trees on campus. They are able to identify the ways that buildings have changed, and the ways that trees have been removed and replaced. Students who aimed to create Tree Tags located trees, measured them, identified their species, and made calculations of carbon sequestration as well as other ecosystem services. Students also took cores from several large trees for analysis.

2014

Spring 2014:

Spring 2014, students went through the Loyola Library photographic archives to put together a history of trees on campus. They are able to identify the ways that buildings have changed, and the ways that trees have been removed and replaced. In the same year, two students worked with Bill Curtin, Loyola's Director of Environmental Services, to have a tree planted on Arbor Day (Figure X). Students also calculated the 'value' of trees on campus and put up "Tree Tags" on many trees (Figure Y). The students were working towards Tree Campus USA certification, but we never got further than the tree planting event and tags.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Electricity
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Air Quality
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$32.96
$23.14
$2.21
$72.43
$17.88
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Fall 2014:

Students from the Institute of Environmental Sustainability here at Loyola University Chicago located and measured the height and DBH (Diameter at breast height) of all of the trees on campus. The director of academic programs and ecological restoration at Loyola's Retreat and ecology campus, Dr. Lammers, then worked with students by collecting leaves from many of the trees and identifying them to species. The students also made a rough calculation of Carbon sequestration this semester.