



tulane tree policy, procedures and plan

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"I think of Tulane as a great tree, with its roots deep in the Louisiana soil and its leaves and branches spreading wide. A tree that is growing exactly as it should and giving shelter to all sorts of people and projects of learning, big and small. A landmark for the whole South."

Betty Carter (N '31



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OVERVIEW

"Tulane's purpose is to create, communicate, and conserve knowledge in order to enrich the capacity of individuals, organizations and communities to think, to learn, and to act and lead with integrity and wisdom.

Tulane pursues this mission by cultivating an environment that focuses on learning and the generation of new knowledge; by expecting and rewarding teaching and research of extraordinarily high quality and impact; and by <u>fostering community-building initiatives as</u> well as scientific, cultural and social understanding that integrate with and strengthen learning and research. This mission is pursued in the context of the unique qualities of our location in New Orleans and our continual aspiration to be a truly distinctive international university."

Tulane University's Mission Statement

As a campus that continues to grow and expand, Tulane's urban landscape and the learning environment it nurtures must adapt and evolve to meet the ever-changing needs and goals of a premiere learning institution. As a campus that draws upon a diverse and rich past marked by nearly 180 years of history within the rich urban fabric of one of the oldest cities in America, Tulane draws upon and deeply preserves its heritage. This continual negotiation of Tulane's engaging future with it's deep past requires a clear and diversified assessment of the rich physical environment it has to offer.

It is impossible to imagine Tulane University without the trees that shade its quads, lawns, courtyards, and pathways. It can be said that Tulane is not only a campus, but an urban forest as well--one as rich in the history of its origins and its connection to New Orleans, as in the diversity and grandeur of its tree species, both native and rare. Like the gifted, diverse, and dedicated students and faculty who pursue a vivid future in Tulane's classrooms, or the administrators and staff who work hard to ensure Tulane's march into that future, the urban forest of Tulane is an immense asset and a rare value. Like any laboratory, library, or lecture hall, the urban forest of Tulane is a critical component of the living and learning environment embodied by the Tulane campus. The trees of Tulane generously extend and augment the landscape of the campus as a place of learning, repose, and community. The *Tulane Tree Policy and Procedures* initiative outlines important opportunities and needs as they relate to this "treescape" of Tulane University.





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THE GREEN IS IN THE LEAVES:

Temperature and Energy Use

Community heat islands (3 to 10 degrees F warmer than surrounding countryside) exist because of decreased wind, increased high-density surfaces, and heat generated from human associated activities, all of which requires additional energy expenditures to off-set. Trees can be successfully used to mitigate heat islands. Trees reduce temperatures by shading surfaces, dissipating heat through evaporation, and controlling air movement responsible for advected heat.

Shade

- 20 degrees F lower temperature on a site from trees.
- 35 degrees F lower hard surface temperature under
- tree shade than in full summer sun.
- 27% decrease in summer cooling costs with trees.
- 75% cooling savings under deciduous trees.
- 50% cooling energy savings with trees. (1980) 20 degrees F lower room temperatures in un-insulated
- house during summer from tree shade.
- West wall shading is the best cooling cost savings component.
- 10% energy savings when cooling equipment shaded (no air flow reduction).
- 15% heating energy savings with trees, (1980)
- Crown form and amount of light passing through a tree can be adjusted by crown reduction and thinning.
- Shade areas generated by trees are equivalent to
- \$2.75 per square foot of value (1975).

Active Evaporation

- 65% of heat generated in full sunlight on a tree is dissipated by active evaporation from leaf surfaces.
- 17% reduction in building cooling by active evaporation by trees.
- One acre of vegetation transpires as much as 1600 gallons of water on sunny summer days.
- 30% vegetation coverage will provide 66% as much cooling to a site as full vegetation coverage.
- A one-fifth acre house lot with 30% vegetation cover dissipates as much heat as running two central air conditioners.
- Data prepared by Dr. Kim Coder, Warnell School of Forest Resources, University of Georgia



In assessing the value, needs, and future of Tulane's trees, the tree policy and its procedures fall into three primary areas of focus:

Construction Policy & Design Review Procedures articulate the necessary procedural steps and criteria involved in the augmentation, protection and, if necessary, removal of trees involved in new construction projects on campus. Clear guidelines for the protection of trees and involvement of campus planning and design review authorities, as well as contracted professionals in a review process are the basic elements of this focus.

Maintenance, Operations & Budgetary Goals bring a renewed focus to the day-to-day operations of the University in its efforts to maintain and plan for the future of the tree ecosystems on campus. Specific aims deal with the maintenance of an up-to-date database and set of campus tree maps to assist in the location, documentation, and valuation of tree specimens all over campus. Description of tree assessment and valuation processes in relation to strategic maintenance and enhancement of the current tree population are also included. Detailed documentation and assessment allow for accurate projections of the costs for both maintenance and future enhancement.

Education, Research & Community Outreach Initiatives enable a discussion of the immense opportunity of Tulane's tree ecosystems as a rich education and research venue—both in scientific and cultural terms. The concept of a campus tree "**arboretum**" is the centerpiece of this focus. Procedures for dedicated trees and the establishment of new memorial tree plantings on campus are also outlined. Community and alumni outreach is central to the notion of extending the value of the arboretum as a component of the University's future.





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-Air Quality -- Trees help control pollution through acting as biological and physical nets, but they are also poisoned by pollution.

-Oxygen Production -- One acre of trees generates enough oxygen each day for 18 people.

Pollution Reduction

- Community forests cleanse the air by intercepting and slowing particulate materials causing them to fall out, and by absorbing pollutant gases on surfaces and through uptake onto inner leaf surfaces.

- Pollutants partially controlled by trees include nitrogen oxides, sulfur dioxides, carbon monoxide, carbon dioxide (required for normal tree function), ozone, and small particulates less than 10 microns in size.

- Removal of particulates amounts to 9% across deciduous trees and 13% across evergreen trees.

- Pollen and mold spore, are part of a living system and produced in tree areas, but trees also sweep out of the air large amounts of these particulates.

In one urban park (212 ha), tree cover was found to remove daily 48 lbs. particulates, 9 lbs. nitrogen dioxide, 6 lbs.. sulfur dioxide, and 1/2 lbs. carbon monoxide. (\$136 per day value based upon pollution control technology).

- 60% reduction in street level particulates with trees.
- One sugar maple (one foot in diameter) along a roadway removes in one growing season 60 mg. cadmium, 140 mg. chromium, 820 mg. nickel and 5200 mg. lead from the environment.

- Interiorscape trees can remove organic pollutants from indoor air.

Water Run-Off

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- 18% of growing season precipitation intercepted and evaporated by all trees.

- For every 5% of tree cover area added to a community, run-off is reduced by approximately 2%

- 7% volume reduction in six-hour storm flow by community tree canopies.

- 17% (11.3 million gallons) run-off reduction from a twelve-hour storm with tree canopies in a medium sized city (\$226,000 avoided run-off water control costs).

Data prepared by Dr. Kim Coder, Warnell Schoo of Forest Resources, University of Georgia





Multiple partners in the Tulane community play vital roles carrying out the mission of protecting, valuing, and enhancing the treescape of Tulane. Campus design and planning review authorities represented by the **University Planning Office and University Design Services** partnered with **University Construction Services** and **Facilities Services** bring, at the level of campus wide planning and operations, a strategic and logistical focus to the process of campus tree stewardship. Expertise on the scientific and academic opportunities implicit in the campus tree ecosystem are provided by partners in the **Department of Environmental Studies** and the **Department of Ecology and Evolutionary Biology**. Identification of funding possibilities and arranging the implementation of tree policy goals become their duties and opportunities.

ONGOING EFFORTS AND INITIATIVES

	Implementation Task	Status (%)	Focus	Involved Partners	Labor	Time-frame		
1	Campus Tree Survey Database completion, update, and maintenance	100%	Maint./Operations Const/Design Review	Facilities Services, University Communications, UDS/UPO	Independent ContractorTree Care Specialist	maintenance on-going		
2	Develop maintenance "worksheet" for grounds maintenance staff in the field; based on Tree Survey database format	100%	Maint./Operations	Facilities Services	complete - part of tree survey	maintain as needed		
3	Campus Tree Map completion, update, and maintenance - on Google Earth Base	100%	Maint/Operations Const/Design Review	Facilities Services, University Communications, UDS/UPO	complete - part of tree survey	on-going		
4	Update and complete tree size, species, health measurements to be included in database.	100%	Maint./Operations Education/Outreach	Facilities Services, University Communications, EEB	complete - part of tree survey	maintain as needed		
5	Complete "Priority Tree List" and Dedicated Tree Listtrees to be noted on Campus Maps.	50%	Maint./Operations Const/Design Review Education/Outreach	UDS/UPO, Facilities Services, EEB, OS	1-2 student; EEB, Grounds staff joint supervision, UDS/UPO review	4 weeks; on-going		
6	Complie photographic "album" of existing priority/dedicated trees. Includes plaques; species ident.	50%	Maint./Operations Const/Design Review Education/Outreach	UDS/UPO, Facilities Services, University Communications, EEB, OS	1 EEB student; EEB, Grounds staff joint supervision, UDS/UPO/OS review	4 weeks; maintain as needed		
7	Execute maintenance plan; include projections of maint. needs, tree health, and tree valuation.	0%	Maint/Operations Const/Design Review	Facilities Services, University Construction Services, UDS/UPO	Independent ContractorTree Care Specialist	on-going or on project- by-project basis		
8	Re-apply for Tree Campus USA designation by the Arbor Day Foundation each year	100%	Education/Outreach	UDS/UPO, Facilities Services, University Communications, Center for Public Service, OS	UDS/UPO Design Project Coordinator	Yearly in December.		
9	Research grant or other funding possibilities connected to arboretum conceptresearch, signage, graphics, website, etc.	0%	Const/Design Review Education/Outreach	UDS/UPO, EEB, Tulane Alumni Assoc.	1-2 EEB students, EEB, OS, UDS/UPO review	on-going		
10	Research, design, coordinate, and publish web interface and other multi- media for PR/Communications focus.	10%	Const/Design Review Education/Outreach	University Communications, UDS/UPO, EEB, OS	1-2 EEB students, EEB, UDS/UPO review	4-6 weeks; on-going		

UDS / UPO = University Design/ Planning Office; **EEB** = Dept. of Ecology & Evolutionary Biology; **OS** - Office of Sustainability Any Tulane student may be involved in implementation tasks; indicated academic departments have supervisory or curricular opportunities.

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THE GREEN IS IN THE LEAVES:

Water Quality / Erosion

- Community trees and forests act as filters removing nutrients and sediments while increasing ground water recharge.

- 37,500 tons of sediment per square mile per year comes off of developing and developed landscapes -trees could reduce this value by 95% (\$336,000 annual control cost savings with trees).

- 47% of surface pollutants are removed in first 15 minutes of storm -- this includes pesticides, fertilizers, and biologically derived materials and litter.

- 10,886 tons of soil saved annually with tree cover in a medium-sized city.

Noise Abatement

- 7 dB noise reduction per 100 feet of forest due to trees by reflecting and absorbing sound energy (solid walls decrease sound by 15 dB)

- Trees provide "white noise, " the noise of the leaves and branches in the wind and associated natural sounds, that masks other man-caused sounds.

Glare Reduction

Trees help control light scattering, light intensity, and modifies predominant wavelengths on a site.
Trees block and reflect sunlight and artificial lights to minimize eye strain and frame lighted areas where needed for architectural emphasis, safety, and visibility.

Property Values -- Real Estate Comparisons

- Clearing unimproved lots is costlier than properly preserving trees.

- 6% (\$2,686) total property value in tree cover.
- \$9,500 higher sale values due to tree cover.

- 27% increase in development land values with trees present.

- 19% increase in property values with trees. (1971 & 1983)

- 27% increase in appraised land values with trees. (1973)

- 9% increase in property value for a single tree. (1981)

- Values of single trees in perfect conditions and

ARBOR DAY FOUNDATION - Tree Campus USA

The Arbor Day Foundation has recognized the Tulane University Uptown Campus as a Tree Campus USA each year since 2009 for its commitment to environmental stewardship and the wide variety of beautiful and well-managed campus trees. The designation by the Arbor Day Foundation recognizes Tulane's standards of tree care, education and tree-related community service projects. There are over 1,000 trees in the uptown campus collection, with over 250 of these being live oak trees.

Tree Campus USA Standards

The following standards must be met each year to receive the Tree Campus USA recognition by the Arbor Day Foundation:

Standard 1—Campus Tree Advisory Committee

A Campus Tree Advisory Committee comprised of members representing the diverse audience of those with a stake in campus trees is established and meets regularly. This committee must include a representative from each of the following audience:

Student (undergraduate or graduate). Faculty. Facility Management. Community—for example—city forester, municipal arborist, community tree board member.

Each individual campus may also have other interested student organizations, alumni, faculty, or staff that could be represented such as administration, sustainability coordinator, professor emeritus, etc.

While responsibility of the campus trees often ultimately lies with the campus forester, arborist, landscape architect, or designated facilities department, the Campus Tree Advisory Committee can assist in providing guidance for future planning, approval of a comprehensive campus tree plan, education of the campus population as to the benefits of the campus trees, and development of connectivity to the community.

Standard 2—Campus Tree Care Plan

A Campus Tree Care Plan should be flexible enough to fit the needs and circumstances of the particular campus. The Tree Care Plan should be goal oriented and provide the opportunity to set good policy, like that listed in the ANSI A300 standards for tree care and management, and clear guidance for planting, maintaining, and removing trees. It also provides education to the

THE GREEN IS IN THE LEAVES:

locations in the Southeast range up to \$100,000. - \$100 million is the value of community trees and forests in Savannah, GA

- \$386 million is the value of community trees and forests in Oakland, CA (59% of this value is in residential trees).

Aesthetic Preferences & Visual Screening

- Large old street trees were found to be the most important indicator of attractiveness in a community.

- Increasing tree density (optimal 53 trees per acre)

and decreasing understory density are associated with positive perceptions.

- Increasing levels of tree density can initiate feelings of fear and endangerment -- an optimum number of trees allows for visual distances and openness while blocking or screening developed areas.

Visual Screening

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- The most common use of trees for utilitarian purposes is screening undesirable and disturbing sight lines.

- Tree crown management and tree species selection can help completely or partially block vision lines that show human density problems, development activities, or commercial / residential interfaces.

Recreation & Human Social Interactions

Contact with nature in many communities may be limited to local trees and green areas (for noticing natural cycles, seasons, sounds, animals, plants, etc.)
\$1.60 is the willing additional payment per visit for use of a tree covered park compared with a maintained lawn area.

- People feel more comfortable and at ease when in shaded, open areas of trees as compared to areas of hardscapes and non-living things.

- People's preferences for locating areas of social interactions in calming, beautiful, and nature-dominated areas revolve around the presence of community trees and forests.

THE GREEN IS IN THE LEAVES:

campus community, citizens, contractors, and consultants about the importance of the campus forest and the protection and maintenance of trees as part of the growth and land development process.

A Campus Tree Care Plan must include:

Clearly stated purpose.

Responsible authority/department-who enforces the Campus Tree Care Plan.

Establishment of a Campus Tree Advisory Committee, terms of the representatives, and role committee plays.

Campus tree care policies for planting, landscaping, maintenance and removal including establishing and updating a list of recommended and prohibited species; managing for catastrophic events.

Protection and Preservation policies and procedures—include process for implementing tree protection plan including step-by-step process that every project must follow including construction and trenching.

Goals and Targets—develop at least one goal and target for your Campus Tree Plan. These could include (but are not limited to) tree canopy target, development of a link between the Campus Tree Plan and other green initiatives on campus or in the community; completion of a campus-wide tree inventory, etc. Include how the goal will be measured.

Tree damage assessment—enforcement, penalties, and appeals.

Prohibited practices.

Definitions of terminology related to campus trees.

Communication strategy—how the campus tree care plan will be communicated to the college community and contractors to heighten awareness about policies and procedures as well as the goals of the institution.

Standard 3—Campus Tree Program with Dedicated Annual Expenditures

A college campus, to be designated a Tree Campus USA, must allocate finances for its annual campus tree program. Evidence should be shown that an annual work plan has been established and expenditures dedicated towards that work plan.

It is suggested, but not mandatory, that campuses work towards an annual expenditure of \$3 per full-time enrolled student. The national average among recognized Tree Campus USA colleges and universities is currently \$9 - \$11. Expenditures may take place on or off campus, like in the case of an urban campus that does not have room to plant or care for trees on their own campus but works with a nearby elementary school to plant and care for the trees there.

Expenditures could include, but are not limited to:

Cost of trees purchased

Labor, equipment and supplies for tree planting, maintenance (pruning, watering, fertilization, mulching, competition control, etc.) and removal, if needed

Value of volunteer labor (# of hours x \$22) and other contributions from student or civic organizations

THE GREEN IS IN THE LEAVES:

Staff time dedicated to campus forest planning, tree care contractors All associated costs of the campus tree management including: public education related to the campus forest; professional training; related association memberships (International Society of Arboriculture and local chapter, Society of Municipal Arborists, state urban forest council, etc.); Campus tree inventory

Standard 4—Arbor Day Observance

An Arbor Day observance provides a golden opportunity to educate the campus community to the benefits of the trees on their campus property and in the community. The Arbor Day observance can be on the campus or held in conjunction with the community where the campus is located. Your event may be held at an appropriate time for your campus. Evidence—recording of date observance was held with attachment that includes program of activities, news coverage, and/or pictures.

Standard 5—Service Learning Project

The Service Learning Project should be an outreach of the spirit of the Tree Campus USA initiative. This project should provide an opportunity to engage the student population with projects related to trees and can be part of a campus or community initiative. The project must be done within the course of the year application is submitted.

Project ideas include, but are not limited to:

Volunteer tree planting or tree maintenance Tree inventory (campus or community) Establish a Nature Explore Classroom for young children at an early childhood development center on your campus or in your community. Learn more about Nature Explore Classrooms. Establishment of campus arboreta Student-led effort to have community designated a Tree City USA Coordinate internships with the urban forestry or parks department in your community Assist Project Learning Tree or other programs centered around trees in training teachers at schools near your campus or organize training for your school's College of Education Other tree-related service learning or educational programs for students Partnership with state forestry departments on regional projects

THE GREEN IS IN THE LEAVES:

STATE OF THE CAMPUS FOREST

Overall, the campus forest is in good shape. New plantings are continually being added, with particular emphasis on increased diversity, native and adaptive species, variety of aesthetic quality and schedule of growth and development. Most areas are healthy. A few areas of stress include: the live oak trees along the South side of the LBC quad, Bruff Quad live oak trees, Claiborne Avenue at Rosen Lot and along Willow Street.

Updated information on tree totals, health, species and maintenance can be found in the database at the following link: www.bayoutreeserviceinventory.com/treeportal.asp

The following is a brief summary over the last four years:

Year	Trees planted	Trees removed	Cost of tree planting, initial care and pruning	Notes
2012	113	10	\$ 112,000	high number of pruning and removal due to damage by Hurricane Isaac
2011	120	8	\$ 76,000	
2010	56	16	\$ 32,000	tree removal due to new construction
2009	103	19	\$ 50,000	

*landscape or building projects, replacements

Generally, the campus tree population has been increasing by about 80 trees each year over the last 4 years. The current population is over 1,000 trees, with more than 250 live oaks. There is a pruning program in place that operates on a rotational basis or as needed. The number of trees pruned each year varies as dictated by hazards, damage by hurricane or tropical storms, construction projects and tree age. On average, between 10-15% of the canopy is pruned. Straightening and stalking is also considered during the pruning process.

An average of \$65,000 - \$70,000 per year has been spent on tree related expenses for new planting, initial care and long term maintenance.

DEDICATED TREES AT TULANE

CURRENT PROCEDURE

PLANTING:

The University will be responsible for the acquisition and planting of the trees in accordance with the Campus Master Plan. Donor's wishes will be strongly considered; however, final decisions about the type, size, and location of the tree will be made by the University.

PLAQUES:

An appropriate plaque may be designed and installed by the University, provided the donation meets the minim standards outlined in the "Guidelines for Donor Recognition of Campus Elements" booklet. Size of plaque will be determined by the donation amount as outlined in the booklet referenced above.

MAINTENANCE:

As newly planted trees need an appropriate amount of time to become established, the University will provide special maintenance and/or replacement of the tree(s) as needed for a period of three years. Following that time period, the University will include the tree(s) in routine grounds maintenance.

Please note that trees are living things. Tulane University is dedicated to preserving the beauty and landscaping of the campus. Every effort will be made to ensure that planted trees will continue to live. Should the tree die following the three year period, the University will determine at that time if the tree should be replaced at the University's expense.

INTENTIONS

Dedicated trees and trees donated to Tulane are critical components of the existing campus tree forest as well as of future enhancements to the campus landscape. It is important that procedures and intentions regarding dedication of trees and/ or donation of trees to the University be administered in awareness of both potential additions to the tree population and also support of existing tree ecosystem needs or opportunities. Many parts of Tulane's treescape have reached their capacity in terms of the number of trees that the landscape they can feasibly support. Many campus trees or tree groupings and allees are in need of long-term, often specialized care. This commensurates with their age, health, size, and location on campus. While new plantings are often appropriate, dedication and support opportunities for existing trees may offer represent more desirable and effective methods of nurturing the tree population while accommodating the generosity and concern of donors and memorials.



Pulane

THE TREES AND SHRUBS OF TULANE

"Checklist of Trees and Shrubs of Audubon Park and the Tulane University Campus" Compiled by Steven P. Darwin : Department of Ecology and Evolutionary Biology, **Tulane University : 1999** Acanthaceae Justicia brandegeana Wassh. & L.B. Sm. SHRIMP PLANT Aceraceae Acer negundo L. BOX-ELDER, ASH-LEAVED MAPLE Acer rubrum var. drummondii (Hook. & Arn. ex Nutt) Sarg. SWAMP RED MAPLE Acer palmatum **JAPANESE MAPLE** Acer saccharinum L. SILVER MAPLE Agavaceae Yucca aloifolia L. SPANISH BAYONET Yucca treculeana Carriere SPANISH DAGGER Anacardiaceae Rhus copallina L. SHINING SUMAC, WINGED SUMAC Rhus Glabra L. SMOOTH SUMAC Schenis malle L. COLIF PEPPER TREE Apocynaceae Nerium oleander L. OLEANDER Aquifoliaceae Ilex attenuate Ashe Ilex cornuta Lindl. & Paxt. CHINESE HOLLY Ilex decidua Walt. POSSUM HAW Ilex opaca Aiton AMERICAN HOLLY Ilex vomitoria Aiton YAUPON Araceae Philodendron selloum C. Koch PHILODENDRO Araliaceae Aralia spinosa L. DEVIL'S WALKING STICK Fatshedera lizei (Cochet) Guillaum Fatsia japonica (Thunb.) Decne. & Planch. FATSIA Tetrapanax papyriferus (Hook.) K. Koch RICE PAPER PLANT Araucariaceae Araucaria bidwillii Hook. BUNYA-BUNYA Berberidaceae Mahonia bealei (Fort.) Carriere LEATHERLEAF MAHONIA Mahonia fortunei (Lindl.) Fedde CHINESE MAHONIA Mahonia Iomariifolia H. Takeda BURMESE MAHONIA Nandina domestica Thunb. NANDINA, HEAVENLY BAMBOO Betulaceae Betula nigra L. RIVER BIRCH tulane tree policy, procedures, and plan : Tree Campus Advisory Committee : Tulane University

"Tulane University Tree Inventory" Compiled by Bayou Tree Services: 2013 Anacardiaceae Pistachia chinensis CHINESE PISTACHE Annonaceae Asimina triloba **PAWPAW TREE** Arecaceae Livistona chinensis CHINESE FAN PALMS Pheonix canariensis CANARY ISLAND DATE PALM Syagrus Romanzoffiana COCOS PALM or BLUE PALM Betulaceae Carpinus caroliniana AMERICAN HORNBEAM Cupressaceae Taxodium distichum BALD CYPRESS Fabaceae Cercis Canadensis. RED BUD Gleditsia Triacanthos HONEY LOCUST Fabaceae Cercis Canadensis. RED BUD Gleditsia Triacanthos HONEY LOCUST Lauraceae Persea palustris SWAMPBAY Sassafras albidum SASSAFRAS Lytheraceae Punica protopunica POMEGRANATE TREE Magnoliaceae Magnolia liliiflora JAPANESE MAGNOLIA Oleaceae Chionanthus retusus CHINESE FRINGE TREE

Fraxinus pennsylvanica GREEN ASH, RED ASH



THE TREES AND SHRUBS OF TULANE

Bignoniaceae Catalpa bignonioides Walt. CATALPA, INDIAN BEAN Buxaceae Buxus microphylla Siebold & Zucc. BOX, BOXWOOD, JAPANESE BOX Calycanthaceae Calycanthus floridus L. CAROLINA ALLSPICE, SWEET SHRUB, PINEAPPLE SHRUB Caprifoliaceae Abelia grandiflora (Andre) Rehd. GLOSSY ABELIA Lonicera fragrantissima Lindl. ex. Paxt. WINTER HONEYSUCKLE Sambucus canadensis L. ELDERBERRY Viburnum awabuki K. Koch Viburnum odoratissimum Ker-Gawl. SWEET VIBURNUM Viburnum suspensum Lindl. SANDANKWA VIBURNUM Viburnum tinus L. LAURUSTINUS Weigela florida (Bunge) A. C. WEIGELIA Cariaceae Carica papaya L. PAPAYA, PAW PAW, PA PAW Celastraceae Euonymus japonica Thunb. SPINDLE TREE, EUONYMUS Compositae Baccharis halimifolia L. GROUNDSEL BUSH Cornaceae Aucuba japonica Thunb. JAPANESE AUCUBA, GOLD DUST TREE Cornus drummondii C. A. Mey. ROUGH LEAF DOGWOOD Cornus florida L. FLOWERING DOGWOOD Cupressaceae Juniperus chinensis var. chinensis L. CHINESE JUNIPER Juniperus conferta Parl. SHORE JUNIPER Juniperus horizontalis Moench CREEPING JUNIPER Juniperus virginiana L. RED CEDAR, SAVIN Platycladus orientalis (L.) Franco ORIENTAL ARBORVITAE Cycadaceae Cycas revoluta Thunb. SAGO PALM, CYCAD Ebenaceae Diospyros kaki L. f. JAPANESE PERSIMMON Diospyros virginiana L. Elaeagnaceae Elaeagnus pungens Thunb. THORNY ELAEAGNUS Ericaceae Rhododendron obtusum (Lindl.) Planch. KURUME AZALEA Rhododendron pulchrum Sweet INDIAN HYBRID AZALEA Euphorbiaceae

Palmae Sabal texana TEXAS SABAL PALM Pinaceae Pinus palustris LONGLEAF PINE Rosaceae Prunus persica FLOWERING PEACH Styracaceae Halesia Macgregorii SILVER BELL Taxaceae Taxus cuspidata JAPANESE YEW, SPREADING YEW Ulmaceae Ulmus americana L. AMERICAN ELM Vitaceace Vitis rotundifolia MUSCADINE





Euphorbia pulcherrima Willd. ex. Klozsch POINSETTIA Manihot dulcis var. multifida (Graham) Pax SWEET CASSAVA Sapium sebiferum (L.) Roxb. CHINESE TALLOW TREE Fagaceae Fagus grandifolia Ehrh. AMERICAN BEECH Quercus alba L. WHITE OAK Quercus comptonae Sarg. NATCHEZ OAK Quercus falcata Michx. CHERRYBARK OAK Quercus glauca Thunb. **RING-CUP OAK** Quercus laurifolia Michx. LAUREL OAK Quercus nigra L. WATER OAK Quercus nuttallii Palmer NUTTALL OAK Quercus phellos L. WILLOW OAK Quercus virginiana Mill. LIVE OAK Ginkgoaceae Ginkgo biloba L. GINKGO, MAIDENHAIR TREE Gramineae Arundinaria pygmaea (Miq.) Asch. & Graebn. Bambusa glaucescens (Willd.) Siebold ex Holtt. HEDGE BAMBOO Bambusa tuldoides Munro PUNTING POLE BAMBOO Phyllostachys auria Carr. ex. A. & C. Riviere GOLDEN BAMBOO Pseudosasa japonica (Siebold & Zucc. ex. Steud.) Mak. METAKE Hamamelidaceae Liquidambar styraciflua L. SWEET GUM Loropetalum chinense (R. Br.) D. Oliver LOROPETALUM Hippocastanaceae Aesculus pavia L. RED BUCKEYE Illiciaceae Illicium parviflorum Michx. Juglandaceae Carya aquatica (Michx. f.) Nutt. BITTER PECAN, WATER HICKORY Carya illinoinensis (Wangenh.) C. Koch. PECAN Lauraceae Cinnamomum camphora (L.) J. Presl. CAMPHOR TREE Laurus nobilis L. LAUREL. BAY Persea americana Miller AVOCADO Leguminosae Amorpha fruticosa L. FALSE INDIGO Bauhinia punctata C. Bolle RED BAUHINIA Bauhinia variegata L. ORCHID TREE Cassia alata L. CANDLESTICK SHRUB Cassia coluteoides Coll. GOLDEN WONIER, CASSIA



Cercis canadensis L. REDBUD Erythrina crista-galli L. CORAL TREE, CRY-BABY TREE Leucaena pulverulenta (Schlechtend.) Benth. LEUCAENA Parkinsonia aculeata L. JERUSALEM THORN Robinia pseudo-acacia L. BLACK LOCUS Sophora japonica L. JAPANESE PAGODA TREE, CHINESE SCHOLAR TREE Sophora secundiflora (Ort.) Lag. ex DC. MESCAL BEAN Liliaceae Ruscus aculeatus L. BUTCHER'S BROOM Luguminosae Albizia julibrissin Durazz. ALBIZZIA, MIMOSA Lytheraceae Lagerstroemia indica L. CRAPE MYRTLE Magnoliaceae Liriodendron tulipifera L. TULIP TREE, TULIP POPLAR Magnolia grandiflora L. SOUTHERN MAGNOLIA, BULL BAY Magnolia soulangiana Soul.- Bod. CHINESE MAGNOLIA, SAUCER MAGNOLIA Magnolia stellata (Siebold & Zucc.) Maxim. STAR MAGNOLIA Magnolia virginiana L. SWEET BAY, SWAMP BAY, WHITE BAY Michelia figo (Lour.) Spreng. BANANA SHRUB Malpighiaceae Galphimia glauca Cav. THYRALLIS Malvaceae Abutilon pictum (Gillies ex. Hook & Arn.) CHINESE BELL FLOWER, FLOWERING MAPLE Hibiscus rosa-sinensis L. CHINESE HIBISCUS, ROSE-OF-CHINA Hibiscus syriacus L. ALTHEA, ROSE-OF-SHARON Malvaviscus arboreus Cav. TURK'S-CAP, WAX MALLOW Meliaceae Melia azedarach L. CHINABERRY Menispermaceae Cocculus laurifolius (Roxb.) DC. COCCULUS, SNAILSEED Moraceae Broussonetia papyrifera (L.) Venten. PAPER MULBERRY Ficus carica L. COMMON FIG Ficus religiosa L. **BO TREE** Maclura pomifera (Raf.) C. K. Schneid. OSAGE ORANGE, BOW WOOD Morus alba L. WHITE MULBERRY Morus rubra L. RED MULBERRY Myricaceae Myrica cerifera L. WAX MYRTLE, WAXBERRY Myrsinaceae Ardisia crenata Sims CORALBERRY, CHRISTMAS-BERRY





Myrtaceae Callistemon citrinus (Curtis) Stapf. CRIMSON BOTTLEBRUSH Eugenia uniflora L. SURINAM CHERRY, PITANGA Feijoa sellowiana O. Berg. PINEAPPLE GUAVA, FEIJOA Myrtus communis L. MYRTLE Psidium littorale Raddi STRAWBERRY GUAVA Oleaceae Chionanthus virginica L. FRINGE TREE, GRANCY GRAYBEARD Fraxinus americana L. WHITE ASH Fraxinus berlandieriana A. C. ARIZONA ASH Jasminum floridum Bunge **JASMINE** Jasminum mesyni Hance JAPANESE JASMINE, PRIMROSE JASMINE Ligustrum japonicum Thunb. JAPANESE PRIVET, WAX-LEAF PRIVET Ligustrum lucidum Aiton TREE LIGUSTRUM, GLOSSY PRIVET Ligustrum sinense Lour. CHINESE PRIVET Olea europaea L. OLIVE Osmanthus fragrans (Thunb.) Lour. SWEET OLIVE Palmae Arecastrum romanzoffianum (Cham.) Becc. QUEEN PALM Brahea armata S. Wats. BLUE HESPER PALM Butia capitata (Mart.) Becc. JELLY PALM, BUTIA PALM Chamaerops humilis L. EUROPEAN FAN PALM Livistona chinensis (Jacq.) R. Br. ex Mart. CHINES FAN PALM Phoenix canariensis Hort. ex Chabaud CANARY ISLAND DATE PALM Rhapis excelsa (Thunb.) A. Henry LADY PALM, BAMBOO PALM Rhopidophyllum hystrix (Pursh) H. Wendl. & Drude NEEDLE PALM Sabal minor (Jacq.) Pers. DAWARF PALMETTO Sabal palmetto (Walt.) Lodd. ex Schult. & Schult. F. CABBAGE PALMETTO Trachycarpus fortunei (Hook.) H. Wendl. WINDMILL PALM Washingtonis robusta Pinaceae Pinus elliottii Engelm. SLASH PINE Pinus glabra Walt. **SPRUCE PINE** Pinus taeda L. LOBLOLLY PINE Pittosporaceae Pittosporum tobira (Thunb.) Ait. JAPANESE PITTOSPORUM Platanaceae Platanus occidentalis L. SYCAMORE, BUTTONWOOD, PLANE TREE Plumbaginaceae Plumbago auriculata Lam. PLUMBAGO, CAPE LEADWORT Podocarpaceae Podocarpus macrophyllus (Thunb.) D. Don SOUTHERN YEW, PODOCARPUS





Proteaceae Grevillea robusta A. Cunn. SILK-OAK Punicaceae Punica granatum L. **POMEGRANATE** Rosaceae Chaenameles x supurba RUBY GLOW Chaenomeles speciosa (Sweet) Nakai JAPANESE FLOWERING QUINCE Crataegus marshallii Eggl. PARSLEY HAW Crataegus viridis L. GREEN HAWTHORNE Eriobotrya japonica (Thunb.) Lindl. LOQUAT, JAPANESE PLUM Malus angustifolia (Ait.) Michx. WILD CRAB Photinia glabra (Thunb.) Maxim. RED-TOP, JAPANESE PHOTINIA Photinia serrulata Lindl. CHINESE PHOTINIA Prunus angustfolia Marsh. CHICKASAW PLUM Prunus campanulata Maxim TAIWAN CHERRY Prunus caroliniana (Mill.) Ait. CHERRY-LAUREL Prunus cerasifera J. F. Ehrh. PURPLE LEAF PLUM Prunus mexicana S. Wats. MEXICAN PLUM Prunus serotina J. F. Ehrh. BLACK CHERRY Prunus triloba Lindl. FLOWERING ALMOND Prunus x blireiana Andre Pyracantha koidzumii (Hayata) Rehd. FIRE THORN Pyrus calleryana Decne CALLERY PEAR, BRADFORD PEAR Pyrus kawakamii Hayata **EVERGREEN PEAR** Pyrus pyrifolia (Burm. f.) Nakai SAND PEAR Pyrus x lecontii Rehd. LECANT PEAR Raphiolipis endica (L.) Lindl. Raphiolipis umbellata (Thunb.) Mak. Rosa banksiae Ait. f. LADY BANKSIA ROSE, LADY BANKS'S ROSE Rosa spp. HYBRID ROSE Spiraea cantoniensis Lour. REEVES SPIRAEA Spiraea thunbergii Siebold ex Blume Spiraea x vanhouttei (C. Broit.) Zab. VANHOUTTE SPIRAEA, BRIDAL-WREATH Rubiaceae Cephalanthus occidentalis L. BUTTON-BUSH Gardenia augusta (L.) Merr. GARDENIA, CAPE-JASMINE Rutaceae Cirtrus x paradisi Macfady (C. maxima x C. sinensis) GRAPEFRUIT Citrus aurantium L. SEVILLE ORANGE, SOUR ORANGE Citrus limon (L.) Burm. f. LEMON Citrus reticulata Blanco MANDARIN ORANGE, SATSUMA, TANGERINE Citrus sinenis (L.) Osbeck SWEET ORANGE Fortunella japonica (Thunb.) MARUMI KUMQUAT



Severinia buxifolia (Poir.) Tenore CHINESE BOX ORANGE Salicaceae Populus alba L. WHITE POPLAR Populus deltoides Bartr. ex Marsh. COTTONWOOD Salix babylonica L. WEEPING WILLOW Salix interior Rowlee SANDBAR WILLOW Salix nigra Marsh. BLACK WILLOW Sapindaceae Koelreuteria bipinnata Franch GOLDEN-RAIN TREE Koelreuteria paniculata Laxm. GOLDEN-RAIN TREE Saxifragaceae Duetzia scabra Thunb. DEUTZIA Hydrangea macrophylla (Thunb.) Ser. HYDRANGEA, HORTENSIA Hydrangea quercifolia Bartr. Philadelphus inodorus L. MOCK ORANGE Scrophulariaceae Leucophyllum frutescens (Berland.) I. M. Johnst. TEXAS-SAGE, PURPLE-SAGE Solanaceae Cestrum nocturnum L. NIGHT JESSAMINE Solanaceae Datura suaveoleus Sterculiaceae Firmiana simplex (L.) W. F. Wight CHINESE PARASOL TREE, JAPANESE VARNISH TREE Taxodiaceae Cunninghamia lanceolata (Lamb.) Hook. Metasequoia glyptostroboides H. Hu & Cheng DAWN-REDWWOD Taxodium distichum (L.) L. Rich. BALD-CYPRESS Theaceae Camellia japonica L. CAMELLIA, JAPANESE CAMELLIA Camellia sasangua Thunb. SASANQUA, SASANQUA CAMELLIA Ternstroemia gymnanthera (Wight & Arn.) T. Sprague CLEYERA, TERNSTROEMIA Ulmaceae Celtis laevigata Willd. HACKBERRY, SUGARBERRY Ulmus alata Michx. WINGED ELM, WAHOO Ulmus americana L. AMERICAN ELM Ulmus laevis Pall. EUROPEAN WHITE ELM Ulmus parvifolia Jacq. CHINESE ELM Ulmus pumila L. SIBERIAN ELM Verbenaceae Duranta repens L. GOLDEN DEWDROP, SKYFLOWER Lantana camara L. LANTANA Lantana montevidensis (Spreng.) Brig. TRAILING LANTANA Vitex agnus-castus L. CHASTE TREE, VITEX tulane tree policy, procedures, and plan : Tree Campus Advisory Committee : Tulane University



POLICY

The protection of trees shall be given a high priority, and an open process for reviewing requests for tree removal shall be instituted.

It is the policy of the university to protect and to preserve mature trees, certain unique trees, tree species, and tree arrangements on campus. The university recognizes certain tree arrangements, as identified in the Master Plan for the Uptown Campus, that contribute enormously to not only the historic and aesthetic value but also the scientific and educational quality of the campus. This policy is consistent with the Landscape section of the Campus Master Plan (quoted below), which identifies trees as one of the three primary organizational elements that define the campus landscape.

Trees: The planting of major trees is one of the most outstanding landscape features of the Tulane campus. The trees on the front campus and those to the west side of Newcomb Hall are planted in a random fashion and have grown so as to create a dense canopy which defines the quads below and knits together the buildings along the quad edges. In the middle campus, the alleys of oak trees along McAlister, Drill Field Road, Newcomb Place and Newcomb Circle form probably the most dominant landscape feature. Smaller scale trees are also used as accents throughout the landscape.

(quote from Campus Master Plan)

PROCEDURE

In the question of removal or protection of trees on campus, the following procedure will be followed:

All new campus construction projects shall be reviewed by the campus botanist, Grounds Superintendent and the Director of University Planning for their effects on existing trees. The review shall take place at the pre-design phase and again at the schematic and design development phases prior to proceeding with construction documents. The Professional of Record shall prepare all plans submitted for review. These plans shall be accompanied by a scaled plot plan indicating the location, size and caliper of all trees on the project site as well as the approximate health and age of those trees. Information regarding tree preservation should be included in the plans. This may include maps, drawings and details that shall be incorporated into the plan set. The Director of University Planning shall circulate the plans for review. The Director of University Planning is responsible for collecting the design review comments and forwarding any recommendation and decision to the Professional of Record to be included in the next drawing phase.

In all construction projects, the final version of the plot plan shall include a "tree protection zone" and fencing plan identifying this zone. At the pre-construction meeting, the Superintendent of Grounds and the Construction Superintendent shall review the maintenance of the tree protection zone and the routine monitoring of trees during the construction process.



Pulane

TULANE TREE POLICY AND PROCEDURE

The Contractor is responsible for the expense to aerate and nourish the trees during construction and for a period of two years following construction as shall be stated in the construction contract. It is the Grounds Superintendent's responsibility to determine the Contractor's schedule to aerate and nourish the trees in the post-construction period. This information must be included in the bidding documents. The Professional of Record is responsible for photographing the existing trees before and after construction. The Director of University Planning and the Grounds Superintendent have the authority to stop work on a construction site to prevent accidents and oversights that might otherwise result in tree damage. The Professional of Record shall notify the University of any potential damage to trees.

Contractors or other parties not following protection procedures will compensate the university at triple the replacement cost or value of the tree lost or damaged, whichever is higher. Valuation of trees shall follow the formal campus tree valuation method.

For damage not resulting in the loss of trees, the compensation will be as follows:

Minor damage (tree bark):	higher of 30% value of tree* or	\$1,000
Significant damage, non-structural (small branch):	higher of 50% value of tree* or	\$2,000
Significant damage (structural):	higher of 100% value of tree* c	or \$5,000
Improper site prep or maintenance:	higher of 100% value of tree* c	or \$5,000
Violating (moving or removing) tree protection fencing w	vithout written permission	\$1,000.

*Value assessed by Tulane-hired arborist before start of construction and included in construction contract. Damage assessed by a licensed arborist hired by Tulane when damage occurs. Funds from fines assessed for tree damage shall be transferred to Facilities Services in a 7-ledger account specifically designated for tree maintenance and tree-related expenses. Responsibility of tree health impact applies to (2) two years after substantial completion.

Only for projects where Tulane is not directly responsible for tree care funding (such as federally funded projects) may the arborist be hired by a different party. A Louisiana licensed arbortist should always be consulted before any work near trees.

In the case of an unforeseen condition that changes the plot plan and/or interferes with the established tree protection zone, or when a tree is endangered by construction or other harmful activities and/ or if demolition is proposed, the Superintendent of Grounds, the campus botanist and the Director of University Planning will be notified. In the event that there is no alternative to removing a tree, the option to transplant the tree must be determined by the campus botanist, the Grounds Superintendent and the Director of University Planning before removal is begun. The campus botanist, Grounds Superintendent and Director of University Planning will evaluate the tree and make a decision regarding its removal, protection or transplantation based on the Campus Tree Assessment and Valuation method. The University maintains a minimum 3-to-1 tree replacement policy requiring that three trees must be planted for every one tree removed or demolished due to unavoidable construction. The canopy size of the new trees should completely replace the size of the canopy lost - more than three trees can be replanted for each tree removed to meet this requirements. In disputed cases, during the planning or construction phases, the Campus Planning Executive Committee Chairman will render a final decision.



tulane tree policy, procedures, and plan : Tree Campus Advisory Committee : Tulane University



The Tree Assessment evaluates trees based on a "high" or "neutral" rating in each of three categories:

Historical Value is determined by two factors: a tree's dedicated or memorial status and any notable history associated with the tree's origin or planting on campus. For example, a tree or stand of trees planted by a student group or organization, alumni group, or faculty/department group would have high historical distinction. Trees that have known genealogical connections to nurseries, gardens, and other forests and arboretums that are important to the history of the wider city, national, and even international community would also rank high in historical value.

Aesthetic Value becomes a function of a tree's health, size, maturity, species, location, and importance within the visual landscape and image of the campus. Trees that function well in beautifying and shaping the larger campus landscape image as identified in Tulane's Master Plan design guidelines achieve high aesthetic value.

Scientific /Educational Value is decided by a tree's species, quality as a specimen, rare or native designation, and its contribution to both the health and diversity of Tulane's arboreal collection or overall ecosystem. Every effort should be made to maintain and seek bio-diversity for rare, exemplary and native plantings. All plants are available for use for research and instruction.

The Grounds Department of Facilities Services is the custodian of all trees on campus. As soon as the Grounds Superintendent receives the schematic plot plan, he/she, in conjunction with the campus botanist and Director of University Planning, should evaluate and identify trees that need pre-construction treatment. Appropriate action such as irrigation, fertilization and pruning by the Grounds Department or by a Tulane-hired licensed arborist should be taken as early as possible to allow mature trees time to respond.

GENERAL CONSTRUCTION SPECIFICATIONS

- 1. Before beginning work, the contractor shall meet with the Grounds Superintendent and the Tulane Project Manager at the site to review all work procedures, access routes, storage areas, and tree protection measures.
- 2. Fences shall be erected to protect trees to be preserved. Fences shall define a specific protection zone for each tree or group of trees. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the Grounds Superintendent. All tree protection fencing shall be chain link and a minimum of 6 feet tall, held in place by metal posts, pounded into the ground at a maximum post spacing of 8 feet. Chain fabric should be secured with hog ring ties or aluminum fence ties. Top and bottom spanning rails are required to assure that chain link fencing will not deform and to deter violation of the tree protection zone.





- 3. The following practices are prohibited within tree protection zone:
 - a. Foot traffic.
 - b. Erection of shed, structures, or work trailers
 - c. Impoundment of water.
 - d. Excavation or other digging unless otherwise indicated by Tulane-hired consulting arborist.
- 4. Erosion control measures should be in place along exterior of tree protection fencing, with either geotextile filter fabric or absorbent woven tubes.
- 5. Construction trailers, traffic areas, and storage areas must remain outside fenced tree protection zones at all times.
- 6. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree, with appropriate protections.
- 7. No materials, equipment, spoil, waste or washout water shall be deposited, stored or parked within the tree protection zone (fenced area).
- 8. If additional tree pruning is required for clearance during construction, the Grounds Superintendent must be notified and the pruning must be performed by a Tulane hired qualified arborist and not by construction personnel.
- 9. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.
- 10. If injury should occur to any tree during construction, it shall be evaluated as soon as possible by the Grounds Superintendent so that appropriate treatment can be applied. Cost for treatment should be born by the Contractor. Contractors or other parties not following protection procedures will compensate the university at triple the replacement cost or value of the tree lost or damaged, whichever is higher.
- **11.** Any grading or fill that will affect the drainage patterns or water table should be included in the "tree" plot plan and discussed at the pre-construction meeting. Construction or other work that is expected to encounter tree roots must be monitored by the Grounds Superintendent. Specific locations or tree tag numbers shall be identified.
- 12. Regrading
 - a. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the tree protection zone. Maintain existing grade within protection zone.
 - b. Raising Grade: Where new finished grade is indicated above existing grade around trees to remain, slope grade beyond the tree protection zone.
 - **c.** Changing Grade inside of protection zone is prohibited.



- 13. If temporary haul or access roads must pass over the root area of trees to be retained, specific locations of roads affecting trees shall be indicated and reviewed by the Grounds Superintendent and the Tulane-hired arborist. Any root protection measures such as planking, mating or mulching should be employed as prescribed by the Grounds Superintendent. The road bed material shall be maintained as necessary throughout the duration of the project.
- 14. Fire-safe areas shall be maintained around fenced areas. No heat sources, flames, ignition sources, or smoking shall be allowed near mulch or trees.
- 15. The Contractor is responsible for coordinating a monthly, on-site tree protection meeting involving the Superintendent of Grounds and the Campus Architect to review on-site tree health and maintenance of tree protection measures.





Avoiding Damage During Construction:

As the organized chaos of building takes place, the surest way to protect trees that are to be saved is to: (1) work with the builder to locate and mark with flagging and/or signs all construction roads and access to the site, parking places for workers, and areas for storage/cleaning of building materials, gravel, and soil. It is preferable that there is **one agreed upon access way** onto and off of the site. (2) work with utility contractors to **stake out exact locations of trenches** near protected trees. (3) **erect physical barriers around all "save" trees** or, better yet, around groups of trees, near construction activity.

Severing Roots:

Cutting of roots near construction should always be avoided. For, example, the routing of underground utilities does not have to follow a straight line from access point to building. Careful route selection can often avoid important trees. When that is not possible, boring is the only acceptable way to install underground utilities in a tree protection area. The depth of the boring should be such that it does not impact the health of the tree as determined by the Tulane hired arborist. (5) Five feet depth is usually recommended.

Barriers that extend beyond the dripline are a good way to protect individual trees or groups of trees during construction.





FIGURE 1.2 Tree preservation requires accurate information about patterns of tree growth and development. Inaccurate information depicts roots as extending only to the edge of the canopy and growing deeply into the soil (a). A truer image of how trees grow depicts roots as shallow in depth and extending well beyond the dripline of the canopy (b).

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MYTHS, FANTASIES, AND HALF-TRUTHS ABOUT TREE ROOTS

Myth: Tree roots can grow as deeply as the crown is tall. Reality: Most tree roots grow within 3 feet of the soil surface. Most fine roots are within the top 18 inches of the soil surface.

Myth: A tree's root zone extends only as far as the edge of the canopy. Reality: Tree roots extend far beyond the crown and occupy from two to ten times the area beneath the canopy (Figure 2.4).

Myth: In forest settings, roots of adjacent trees are separate from one another. Reality: Roots of trees in forest stands overlap and comingle, forming a dense mat (Figure 2.5).

Myth: Tree root systems form a circle around the canopy.

Reality: Root growth is highly opportunistic, creating very asymmetric forms.

Myth: Roots seek out water and mineral elements. Reality: Tree roots proliferate in areas favorable for their growth, where water, nutrients, and oxygen are abundant.

Myth: The entire root system absorbs water and mineral elements. Reality: Only the small, fine, short-lived roots function in this manner.

Myth: Trees have large taproots that anchor them into the ground. Reality: Few mature trees possess a significant taproot.

Myth: Tree roots grow independently of other soil organisms.

Reality: Roots of forest trees coexist with many types of fungi and bacteria, forming mycorrhizal associations.

Myth: Root growth occurs only in the spring and fall.

Reality: Tree roots grow any time the soil temperatures is above the range of 32 to 40°F. In irrigated landscapes, the peak period of root growth is midsummer.





FIGURE 2.5 In forest settings, root systems of individual trees overlap and intertwine, forming a dense mat of roots.

FIGURE 2.4 The root system of a tree can be described as shallow and widespread, extending far beyond the edge of the canopy.



TREE PLOT PLAN PROCEDURE

All new campus construction projects shall be reviewed by the campus botanist, Grounds Superintendent and the Director of University Planning for their effects on existing trees. The review shall take place at the predesign phase and again at the design development phase prior to proceeding with construction documents. Site drainage plan and site hardscape plan to be reviewed by Superintendent of Grounds and Director of University Planning. The Professional of Record shall prepare all plans submitted for review. These plans shall be accompanied by a scaled plot plan indicating the location, size and caliper of all trees on the project site as well as the approximate health and age of those trees. Information regarding tree preservation should be included in the plans. This may include maps, drawings and details that shall be incorporated into the plan set. The Director of University Design Services shall circulate the plans for review. The Director of University Design Services is responsible for collecting the design review comments and forwarding any recommendation and decision to the Professional of Record to be included in the next drawing phase.



FIGURE 5.2 A tree survey map depicts the location of individual trees (often referencing tree tag numbers) and their canopy outlines. A topographic plan is generally used as a base map.





TREE PLOT PLAN PROCEDURE (CONT'D)

In all construction projects, the final version of the plot plan shall include a "tree protection zone" and fencing plan identifying this zone. The Tree Protection Zone shall extend a minimum of (6) feet past the current drip line of the existing trees to remain as shown by the diagram attached. At the pre-construction meeting, the Superintendent of Grounds and the Construction Superintendent shall review the maintenance of the tree protection zone and the routine monitoring of trees during the construction process. The Contractor is responsible for the expense to aerate and nourish the trees during construction and for a period of two years following construction as shall be stated in the construction contract. It is the Grounds Superintendent's responsibility to determine the Contractor's schedule to aerate and nourish the trees in the post-construction period. This information must be included in the bidding documents. The Professional of Record is responsible for photographing the existing trees before and after construction. The Director of University Planning, Director of University Design Services and the Grounds Superintendent have the authority to stop work on a construction site to prevent accidents and oversights that might otherwise result in tree damage. The Professional of Record shall notify the University of any potential damage to trees.





TEMPORARY FENCING RELATED TO CAMPUS EVENTS

No temporary tents, barricades or any other equipment for campus events shall be placed in the Tree Protection zone as defined above.

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Tulane

Landscape Plan

DRAFT

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November, 1995

Prepared by: The Office of Campus Planning Tulane University



Notes:

*Information deemed relevant to current and future tree policy is highlighted.

*Adjustments to the body of information are suggested in red.

Introduction

Tulane is fortunate to have a site with a near tropical climate which supports an abundant set of rich, native plant materials. The climate allows for an unusual lushness of plant growth and the cultivation of a verdant landscape all year around. It can sustain a landscape of intense color- of various shades of green and of the assorted colors of the many flowering plants which thrive in this area. These qualities of climate can be exploited to create a campus with a unique, identifiable image, a place clearly different from other universities across the country. The landscape is a strong natural resource for the university, and one that is relatively inexpensive to develop.

The landscape image for Tulane should be developed to be naturalistic, instructional and varied. The naturalistic style is informal, potentially asymmetrical, with a sense of looseness and growth rather than tight control or cultivation. Landscape installations work with the natural characteristics of the site instead of imposing unfamiliar elements or qualities on the site. Plant materials are allowed to exhibit their natural growth patterns; they are not pruned or shaped into unnatural geometric shapes. Function is more important than formality of design. Pathways can be irregularly placed and planting patterns respond to the particularities of specific site - sun, orientation, adjacent buildings and trees - rather than to a strictly ordered preconceived planting plan. The emphasis is on creating places, a variety of comfortable outdoor areas for use by members of the campus community.

The naturalistic style is not incompatible with straight lines or regular geometries. It can accept formal installations. In particular, landscape form and order may be stronger in formal public areas of campus and adjacent to buildings with strong geometry and architectonic presence. The naturalistic style will facilitate ease of maintenance, but it will not be maintenancefree, nor should it be allowed to become overgrown or sloppy.

Native plant materials should be emphasized and they should be selected, placed and labelled to allow the campus to function as an outdoor teaching environment. Selection of plant materials should be coordinated with appropriate academic departments to allow the landscape to function as a teaching resource.



Notes:

*Information deemed relevant to current and future tree policy is highlighted.

*Adjustments to the body of information are suggested in red.

Landscape Functions

The campus landscape accommodates a variety of physical, aesthetic and environmental functions including the following:

- <u>Image</u> The landscape is the strongest, most pervasive element of the campus image. It should be developed to unify the disparate campus buildings and to create a coherent campus image for Tulane.
- 2. <u>Outdoor Space</u> The landscape provides spaces for occupation for formal and informal activities, including outdoor study, eating, gathering, and recreational sports. Landscape elements should be manipulated to enclose and define spaces and to create interesting transitions between spaces.
- <u>Circulation</u> The landscape accommodates and directs the circulation needs of pedestrians, bicyclists and automobiles through the network of sidewalks, bike paths, streets and parking.
- Service The landscape accommodates the service needs of the campus, providing spaces for service access to buildings and locations for trash collection.
- 5. Infrastructure The landscape accom-

modates the campus utilities : steam, chilled water, domestic water, telecommunications, electricity, gas, sewerage and storm water drainage.

Goals

- 1. Develop and reinforce the concept of a naturalistic landscape.
- 2. Create visually and botanically interesting variation within the campus landscape 2. Maintain the tree canopy over the front
- Develop the campus as a teaching environment and arboretum emphasizing native Louisiana plant materials.
- Make the function and comfort of the landscape a top priority. Provide shade; create seating areas; include bike parking; develop a variety of spaces and features.
- 5. Make the landscape visually interesting.
- Highlight and preserve the historic, aesthetic, functional, and educational/scientific values of the campus landscape and it's features.

 Design landscape installations to relate to and complement the adjacent building or buildings. Formal landscaping may be used adjacent to formally designed buildings; in these cases, formally designed areas could be likened to gardens placed within a larger, more naturalistic landscape.

Principles

Maintain the tree canopy over the front campus and the west side of the Newcomb campus. Replace trees, fill empty spaces as required.

3. Maintain the alleys of oaks along McAlister, Newcomb Place, Newcomb Circle, and the U.C. Quad/Drill Road. Maintenance of these trees is a top landscape priority.

 Maintain open grass quadrangles, including the front quad, Newcomb quads, and U.C. quad. These quads establish the upper end of the spatial hierarchy which organizes the front and middle campuses.

 Design landscape to accommodate all methods of circulation through campus, including pedestrians, bicycles, cars and service vehicles. Conflicting modes of circulation should be separated from



Standards

one another as much as possible. See Circulation Master Plan.

- Design campus to promote individual safety at all hours.
- Provide spaces required for servicing buildings, including parking areas for service vehicles and screened areas for dumpsters. Service activity should be hidden from view from major pedestrian zones.
- Plant materials should be native/ traditional. Plants should require little manipulation of growth habit.
- Lighting installations should be in compliance with the goals and standards of the Lighting Master Plan.
- 10. Include sculpture and water elements in landscape designs where appropriate.

- Design should be suited to the maintenance limitations of the Physical Plant Department Grounds Division.
 Plantings should be easy to maintain and should generally have long anticipated life spans. At the same time, efforts should be made to increase the resources of the maintenance department so that the quality of the campus landscape is not compromised.
- Landscape installations should be of high quality. Lighting, irrigation and other similar systems should be installed in a manner which will withstand heavy use, low maintenance, and will discourage vandalism.
- 3. Material selection should create a sense of consistency across campus while allowing for areas of special interest. The typical paving material for the campus is scored concrete. Concrete should generally be used for all connecting walkways; other paving materials can be used in specific installations to define spaces such as courtyards, entry plazas, etc. Consider using texturing and scoring to reduce the reflectivity of large areas of concrete and to distinguish paths or areas of paving from each other.

- Designs should minimize the potential for damage from pedestrian patterns, vehicle corner cuts, and vandalism.
- 5. Use of gravel as a walk surface should be temporary only. Establish a schedule and budget to replace gravel areas beginning in the most heavily trafficked areas. Investigate methods of containing gravel areas while in use to keep gravel bed edges neat.
- Design landscape installations to prevent water from standing on sidewalk and street surfaces; drain planting beds appropriately. Use new installations as opportunities to address drainage problems in adjacent areas.
- 7. Use of materials and details should be consistant across campus.





Climate Issues

The landscape should be climate responsive, designed to capitalize on the positive qualities and mitigate the impact of the negative qualities of the New Orleans climate.

- 1. Use deciduous trees to provide shade for outdoor spaces in the hot summer months and allow for solar warming in the colder months. Deciduous trees adjacent to buildings can effect the building's energy consumption by reducing the heat gain during the summer and allowing for solar heat gain during the winter.
- Design outdoor spaces to capitalize on the cooling potential of summer breezes and to protect against winter winds.
- Use plantings as barriers to pollution by creating planting buffers to block noise, exhaust fumes and other unpleasant odors from impacting outdoor spaces.
 Plantings also should be used to block unpleasant views.

Materials Landscape materials include, among others, the following: 1. Plantings

a. *Trees* - large and small scale, miscellaneous species.

b. Shrubs - miscellaneous species, used in the following ways:
Hedges used as screens and to define edges of campus or of quads. Hedges often used to screen parked cars.

- Foundation planting in beds around the edges of buildings. This type of planting is appropriate around buildings with unsightly ground conditions. However, complex, layered foundation planting is not characteristic of the campus.

- Planting beds, typically of amorphous form-with miscellaneous clumps of various plants. Organization, placement, and structure are typically unclear.

c. Ground covers - miscellaneous species, including grass, jasmine, monkey grass. Some areas suffer from erosion due to heavy campus traffic.

Paving Most paving across campus is scored concrete, although slate and brick are used occasionally for special paved areas. Streets are asphalt paved. <u>Other Ground Surfaces</u>
 Other ground surface materials in use include crushed gravel and mulch.

Gravel is often installed as a temporary paving material.

4. <u>Site Construction Elements</u> These elements include planters, walls and fences. Typical materials are brick, concrete block, wood and iron.

 Site Furniture Includes benches, tables, trash receptacles, recycling receptacles, kiosks, bike racks, telephones, etc. Recommend standardization of kiosks, trash receptacles and bike racks (to ribbon racks) across campus and standardization of benches by area or zone.
 Other

Curbs, bed edging, parking bumpers, striping, tree grates, man hole covers, drains, etc.

Design Elements

The following are some of the elements of landscape design which can be manipulated to achieve the goals and accommodate the functions outlined above: perspective, line, form, enclosure, texture, aroma, light and shade, air flow, sound and color.



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2.



Organizational Elements The landscape is structured primarily around the following three systems:

1. Trees: The planting of major trees is one of the most outstanding landscape features of the Tulane campus. The trees on the front campus and those to the west side of Newcomb Hall are planted in a random fashion and have grown so as to create a dense canopy which defines the quads below and knits together the buildings along the quad edges. In the middle campus, the alleys of oak trees along McAlister, Drill Field Road, Newcomb Place and Newcomb Circle form probably the most dominant landscape feature. Smaller scale trees are also used as accents throughout the landscape.

 Quads: Each section of the campus contains a major open space or lawn. The front quad and Newcomb quads organize the major academic zones and the U.C. quad anchors the center of the student oriented middle campus. The Sugar Bowl quad will be the dominant open space in the southern end of the back campus after the existing open parking lot across from Aron Residences is built out. These quads should remain the dominant hierarchical open spaces for the campus. 3. Streetscapes: The streetscapes through campus and between the major campus zones are an integral part of the landscape system. These include Freret Street, Willow Street, McAlister Drive, Drill Field Road, Newcomb Place, Newcomb Circle and Ben Weiner Drive. The appearance of these streetscapes vary, but in general, they suffer from a lack of coordination of the repetitive systems which occur along their flanks. Irregularly placed light standards, uncoordinated and unkempt signage, and broken and discontinuous sidewalks detract from the appearance of the streets. In addition, the location of parking along the street edges is generally too dense and it detracts from the pedestrian experience of the street and, in some locations, poses potentially hazardous safety conditions. The streetscapes should be overhauled to improve their character and the sense of the street fronts as identifiable, occupiable spaces.

Images

The dominant image of the typical American campus is that of a park like place, with trees placed somewhat randomly in an open landscape. This image is like that projected by the front campus and the area between Newcomb Hall and Broadway Street, and by the areas to the east of McAlister Drive. However, the middle campus is intersected by a network of perpendicular streets, so in this zone, the urban streetscape is a dominant image. The coexistence of these two dominant images is unusual and requires careful design manipulation to coordinate the systems into a coherent campus. Areas of more dense planting - small unique gardens - might be developed to mediate between the street and park spaces.





Recommendations

- Design areas at the north and south sides of Newcomb Hall to provide transitional "gateways" from the Broadway quad to Newcomb quad. Include bike parking in this area.
- Redesign Freret Street edge of campus for consistency of image and utility. Widen sidewalks for pedestrians. Allow for service traffic as necessary. Create high quality image on this very public edge of campus.
- Improve planting at Gibson Circle to create a stronger public image. Replace signage, sidewalks and repave Gibson Circle with a more formal material than asphalt.
- Improve sidwalks and sidewalk connections north of Reily.
- Use landscape elements to design symbolic gateways to the residential quads, especially Warren and Bruff quads.
- 6. Redesign the streetscape of McAlister Drive. See related proposal.

7. Increase planting along edges of Ben Weiner Drive.

- Remove some parking adjacent to quads on Newcomb Place and parking on Newcomb Circle. Repave with more formal material.
- 9. Improve Claiborne Avenue edge of campus.
- 10. Redesign paving in front of the A & S Building and replant this area.
- 11. Increase density of planting in back campus.
- 12. Improve quality of street furniture. Standardize selections.
- Design all installations with care, even those expected to be temporary. Often, short term economical solutions - such as the installation of crushed gravel in lieu of permanent paving - remain in place for extended periods of time. This can compromise the quality of appearance of the overall campus landscape.

- Related Recommendations See the following documents for related recommendations.
- Parking Plan. See especially recommendations regarding peripheral parking and reduced use of internal streets for parking.
- 2. Lighting plan.
- Signage plan.
- Circulation plan. See especially recommendations regarding bike paths, bike ports, service cart paths.



Tulane

TULANE TREE SURVEY, CAMPUS TREE MAPS

Campus Tree Assessment Phase:



Conceptual Tree Assessment Diagrams

Campus design and planning authorities must utilize a multi-faceted process for assessing the value of trees in the potential path of new development projects during the early design stages of such projects. The Assessment Phase evaluates trees based on a "high" or "neutral" rating in each of three categories:

Historical Value is determined by two factors: a tree's dedicated or memorial status and any notable history associated with the tree's origin or planting on campus. For example, a tree or stand of trees planted by a student group, alumni group, or faculty/department group would have high historical distinction. Dedicated trees and trees which have known genealogical connections to nurseries, gardens, and other forests and arboretums that are important to the history of the wider city, national, and international community would also rank high in historical value.

Aesthetic Value becomes a function of a tree's health and "maintainability", size, maturity, species, location, and importance within the visual landscape image of the campus. Trees that function well in beautifying, shaping, and shading the outdoor spaces and circulation paths they adjoin as well as contributing to broader campus views important to the larger campus landscape image as identified in Tulane's Master Plan design guidelines achieve high aesthetic value.

Scientific / Educational Value is decided by a tree's species, quality as a specimen, rare or native designation, and its contribution to both the health and diversity of Tulane's ecosystem. Every effort should be made to maintain and seek biodiversity through both rare and native plantings. All plantings are available for use in research and instruction.

Tree Policy "Overall preservation assessments"

TULANE TREE SURVEY, CAMPUS TREE MAPS

Campus Tree Valuation Phase:

Trunk formula method will be used for valuation. This is based on cost of tree replacement normalized for the diameter of the trunk at breast height, with adjustments for species, condition and location within a landscape. This method is commonly used and considered one of the most accurate of the valuation methods.

Once Campus Tree Assessment has been completed (usually during the early schematic design phase) for specific trees or groups of trees involved in new development projects, outside arboreal consultants should be contracted to undertake a *Campus Tree Valuation*. The tree valuation process involves both physical and formulaic quantification of tree value. The result is a monetary and appraised value for each tree based on a wide range of factors including more scientific tree health, site, and species analysis. The dollar amounts and maintenance or removal recommendations which result from the Campus Tree Valuation phase allow campus design and planning authorities, as well as contracted architects or builders involved in new development projects, to establish further detailed design and construction guidelines specific to the trees in question. Adherence to and execution of stipulations in the formal Tulane Tree Policy regarding tree damage or destruction penalties are also facilitated by the Campus Tree Valuation results.

Example Tree Valuation Report Excerpts from Zimple Quad

Seq. Number	Area	Tulane Tree No.	Species	DBH of Appraised Tree Species	Rating	H Stoog	S F	ating I S	Scaf Br H	S		Fol-Bud <u>T</u> Condition Rating	Location Class Rating	Diameter of Repl Tree	Trunk Area (TA) of Repi Tree	Cost of Repl Tree	Base Value of Repl Tree	Trunk Area (TA) of Appraised Tree	Trunk Area (TA) Value of Appraised Tree	Adjusted Trunk Area (ATA) of Appraised Tree	Adjusted Trunk Area (ATA) Value of Appraised Tree	Percent Damage	Value Loss Tree Notes
1	ZQ	1	Live Oak	45 10	0.0	4	3 4	4 4	4	4	4	4 97	95	4	12.56	1,255.00	\$99.00	1577.07	\$144,842.86	1340.57	\$123,295.13	0	\$0.00
2	ZQ	2	Live Oak	42 10	0.0	4	4 4	4 4	4	4	4	4 100	95	4	12.56	1,255.00	\$99.00	1372.18	\$130,245.78	1220.10	\$115,942.66	0	\$0.00
3	ZQ	3	Live Oak	37 10	0.0	4	4 4	4 4	4	4	4	4 100	95	4	12.56	1,255.00	\$99.00	1062.11	\$101,083.23	1005.93	\$95,799.50	0	\$0.00
4	ZQ	4	Live Oak	45 10	0.0	4	4 4	4 4	4	3	3	4 94	95	4	12.56	1,255.00	\$99.00	1577.07	\$140,170.51	1340.57	\$119,317.86	0	\$0.00

4 Trees Total

\$0.00 Sum of Losses



TULANE TREE SURVEY, CAMPUS TREE MAPS

	800 Trees Found [Page: 1 2 3	45678910	·]	XLS De	tail XLS S	ummary (Google Eartl	n Map	
Each tree is identified	louriet .	Location - ID	Tree .	- Condition	Conflicts	Hazards	Pend. Svc		
by a specific	Tulane University - Main Campus	AF-1	Swamp redbay - Persea palustris		2	0	0		This section of the survey
combination. The	Tulane University - Main Campus	AF-2	Swamp redbay - Persea palustris		1	0	0		shows key information about
letters indicate the	Tulane University - Main Campus	AF-3	Swamp redbay - Persea palustris		2	0	0		the tree including its condition,
area of campus in which the tree is	Tulane University - Main Campus	ASR-1	live oak - Quercus virginiana (90-100)		1	0	0		pending services.
planted. Each tree	Tulane University - Main Campus	ASR-2	sweetgum - Liquidambar styraciflua		0	0	0		
in that area is then	Tulane University - Main Campus	ASR-3	sweetgum - Liquidambar styraciflua		0	0	0		
individually numbered.	Tulane University - Main Campus	ASR-4	sweetgum - Liquidambar styraciflua		0	0	0		The Basic Tree Information sheet gives an overview of the
For example, "DW-1"	Tulane University - Main Campus	ASR-5	sweetgum - Liquidambar styraciflua		2	0	0		tree. This information includes diameter at breast height
refers to Dinwiddie Hall	Tulane University - Main Campus	ASR-6	sweetgum - Liquidambar styraciflua		0	0	0		(DBH), number of stems, diameter of root plates, crown width and total beight
tree #1.	Tulane University - Main Campus	ASR-7	sweetgum - Liquidambar styraciflua		0	0	0		width and total height.
	Tulane University - Main Campus	ASR-8	sweetgum - Liquidambar styraciflua		1	0	0		The sheet also shows when the data was last updated
T mil	Tulane University - Main Campus	ASR-9	sweetgum - Liquidambar styraciflua		3	0	0		and the geolocation of the tree is so that it can be mapped on Google Maps or Google Farth
	Tulane University - Main Campus	ASR-10	sweetgum - Liquidambar styraciflua		0	Basic Tre	e Info		
	Tulane University - Main Campus	ASR-11	sweetgum - Liquidambar styraciflua		0	Location	AF	ID: 1	Client Ref# Survey Date 1/22/2013
the second second	Tulane University - Main Campus	ASR-12	sweetgum - Liquidambar styraciflua		0	Species	Swamp r	edbay (Persea	palustris) Lat / Lon 29.93815 -90.12169 dd.dddd
the transferred to the second s	Tulane University - Main Campus	ASR-13	sweetgum - Liquidambar styraciflua		0	Street # Tree Type	Evergree	Name	Zip Ownership Private V Front Yard V Contact None V
	Tulane University - Main Campus	ASR-14	sweetgum - Liquidambar styraciflua		0	ВН		Stems	Root Plate Crown Width Total Height
	Tulane University - Main Campus	ASR-15	sweetgum - <i>Liquidambar styraciflua</i>		0	14	- F122	1	6 20 40
	Tulane University - Main Campus	ASR-16	crape myrtle - Lagerstroemia indica		1	Marker Co	or White	∫ (Enter a nu ▼	mber 0-100)
	Tulane University - Main Campus	ASR-17	crape myrtle - Lagerstroemia indica		1	Va			Swamp redbay (Persea palustris)
Clicking a tree	Tulane University - Main Campus	ASR-18	crape myrtle - Lagerstroemia indica		1	(· · ·			of Business 🎌
will bring up more	Tulane University - Main Campus	ASR-19	erane myrtle - Lagerstroemia indica		1	Not			A Evergreen, in Excellent condition, located on a Front Yard location on Private property.
detailed information.	Tulane University - Main Campus	ASR-20	crape myrtle - Lagerstroemia indica		1				entity *
Res Cart	Tulane University - Main Campus	ASR-21	crape myrtle - Lagerstroemia indica		1	J		3 /1	
	Tulane University - Main Campus	ASR-22	crape myrtle - Lagerstroemia indica		0	ΥT.			Tulane University
	800 Trees Found [Page: 1 2 3	45678910	·]			~	V		Alcee Fortier Hall

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TULANE TREE SURVEY MAP, ST. CHARLES AVE. TO FRERET ST.





TULANE TREE SURVEY MAP, FRERET ST. TO WILLOW ST.





TULANE TREE SURVEY MAP, WILLOW ST. TO REILY CENTER

Tulane



People - Initial Tree Plan 2005:

Tom Armitage, Superintendent of Grounds Tulane Facilities Services Department

Steven P. Darwin, Professor Ecology and Evolutionary Biology, Director of the Tulane University Herbarium Department of Ecology and Evolutionary Biology

Carry Hammet, Education Chair Friends of Jefferson the Beautiful (Metarie, LA)

David Garitty, President and CEO Bayou Tree Services

Skip Treme, Project Director City of New Orleans, Department of Parks and Parkways

Richard Campanella, Professor Environmental Studies Department of Environmental Studies, Center for Bioenvironmental Research

Elizabeth Davey, Professor Environmental Studies, Director of the Office of Environmental Affairs Department of Environmental Studies, Center for Bioenvironmental Research

Report Materials:

Tulane Tree Inventory 1991, *Tom Armitage and Paul Orr* Tulane Facilities Services Department, Grounds Department

Tulane Tree Inventory 1998-99, Tom Armitage and Personnel Tulane Facilities Services Department, Grounds Department

"Trees of Reed" : Reed College Tree web resource http://web.reed.edu/trees/

"Assessing Various Community Tree and Forest Values with Inventories", Dr. Kim Coder Report Document, University of Georgia, Warnell School of Forestry

tulane tree policy, procedures, and plan : Tree Campus Advisory Committee : Tulane University

People - Updated Plan June 2013:

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Report Materials:

Tulane Tree Survey 2013 Bayou Tree Services and Grounds Department

Tree Campus USA Standards Arbor Day Foundation

Tulane



- "Identified Benefits of Community Trees and Forests", Dr.. Kim Coder Report Document, University of Georgia, Warnell School of Forestry, 1996
- *Tulane: A Time to Remember, Howard K. Smith, Tommy L. Thompson* Harmony House Publishers, 1989
- "How to Save Trees During Construction", *Tree City USA Bulletin 2002* The National Arbor Day Foundation
- "A Systematic Approach to Building with Trees", Tree City USA Bulletin 2002 The National Arbor Day Foundation
- Trees and Development: A Technical Guide to Preservation of Trees During Land Development, Nelda Matheny, James Clark : The International Society of Arboriculture.
- Louisiana Trees and Shrubs, Clair A. Brown Louisiana Forestry Commission--Bulletin No. 1

Tulane Tree Policy and Procedures Initiative Document prepared by Blaise Durio, Design/Planning Consultant, Office of the University Architect and Campus Planning. Updated June 2013 by Tree Campus Advisory Committee. Staff person: Mihnea Dobre, Design Project Coordinator, Office of the University Architect and Campus Planning.