University of Oregon

Campus Tree Plan

October 2001

2000-2001 Development, Policy, Implementation, and Transportation Subcommittee
of the Campus Planning Committee
University Planning Office
University of Oregon

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Cover Photo: Memorial Quadrangle c. 1950

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1.0 Introduction/Purpose

The campus's physical landscape is an integral part of the university's mission. The most essential, long-term component of the landscape is the tree canopy.

The Campus Tree Plan describes the intent and implementation of the 1991 Long Range Campus Development Plan (LRCDP) patterns and policies related to tree management (refer to Appendix A for a complete summary of existing LRCDP policies). In addition, this plan specifically addresses the intent of the "Campus Tree" pattern contained in the university's Sustainable Development Plan (SDP), which reads as follows:

> **Campus Trees**
>
> **The university's trees provide significant defining features on campus and are vital components of the local ecosystems.**
>
> **Therefore: Development will preserve and protect existing trees to the maximum extent possible and plan for continued enhancement of the campus forest.**

The SDP recommends a series of approaches and examples to implement this pattern, including the preparation of a campus tree management plan.

To ensure that campus trees remain a vital part of the campus landscape, the university must:

- Ensure that the protection and management of a healthy canopy of trees are priorities.
- Maintain a balance of sunny and shady outdoor spaces.
- Enhance the relationship of the tree canopy to the built environment.
- Use the canopy of trees to help unify the campus and give a sense of cohesiveness.
- Acknowledge the important environmental role of trees.
- Connect the campus trees to the university's educational mission.
- Develop a plan that is adaptable and responsive to change but also preserves the campus's historic character.
- Maintain a consistent approach.

This plan, prepared by the 2000-2001 DPIT Subcommittee of the Campus Planning Committee, addresses these issues in the following sections. As with the existing SDP and LRCDP, this plan establishes design-oriented policies rather than a "fixed" plan, which is important for a constantly changing landscape.

The process for developing the plan is described in Appendix C.

1.1 Why Now?

The need for a Campus Tree Plan has increased in the past few years as new development has begun to test the edges of desired campus density. Although great efforts have been made to preserve existing trees, this is not always possible. Therefore, it is essential to have policies in place that define how to replace lost trees in a way that will preserve the campus tree canopy as well as preserve the campus's sunny spaces. This plan provides such guidance.

In addition, the campus tree canopy has reached a level of maturity for which proactive measures are necessary to perpetuate a healthy and diverse tree canopy. This plan contains patterns addressing tree siting and selection. More detailed information is provided for the designated open spaces (as defined by the LRCDP) to help define which areas should be preserved as we know them today, which areas should be restored to an earlier design, and which areas should be altered. The "Looking Forward" section describes the next steps to take to enhance this plan.

1.2 The Value of Trees

In order to define the desired tree canopy and management approach, one must consider the full range of benefits trees provide to the campus—aesthetic, environmental, educational, historical, and psychological. The multiple benefits of trees have been thoroughly documented by others and are summarized below:

Aesthetic: Trees are a primary character-defining element of the campus landscape. They enhance the aesthetics of any campus experience by defining open spaces and views, shielding unwanted noise, and providing shady areas to sit. Seasonal changes provide an ever-changing landscape, which accents the campus infrastructure and the architectural design of each building.

Environmental: The *Planning and Design Guidelines for Air, Water, and Urban Forest Quality in Neighborhood Development*, prepared by the University of Oregon Center for Housing Innovation (1999) documents the following benefits provided by trees. When thoughtfully placed, trees reduce summer energy use by shading buildings and parking lots and by cooling the air temperature through evapo-transpiration. Heavy canopy trees can block up to 95% of incoming radiation. Evapo-transpiration, the process by which plants release water vapor, utilizes heat energy, increases humidity, and results in a net heat loss throughout the day (Spirn, 1984). A single tree can transpire up to 100 gallons of water a day during the growing season. This has the same effect as running five average air conditioners for 20 hours (EPA, 1992).

Trees reduce storm water drainage by capturing rainfall in the tree canopy and root system. The root systems also control erosion by stabilizing soil conditions, and reduce water pollution by filtering sediment.

Trees are also instrumental in reducing urban pollution. The process of photosynthesis enables trees to filter and store carbon and polluting gases, and filter significant amounts of particulates from the air.

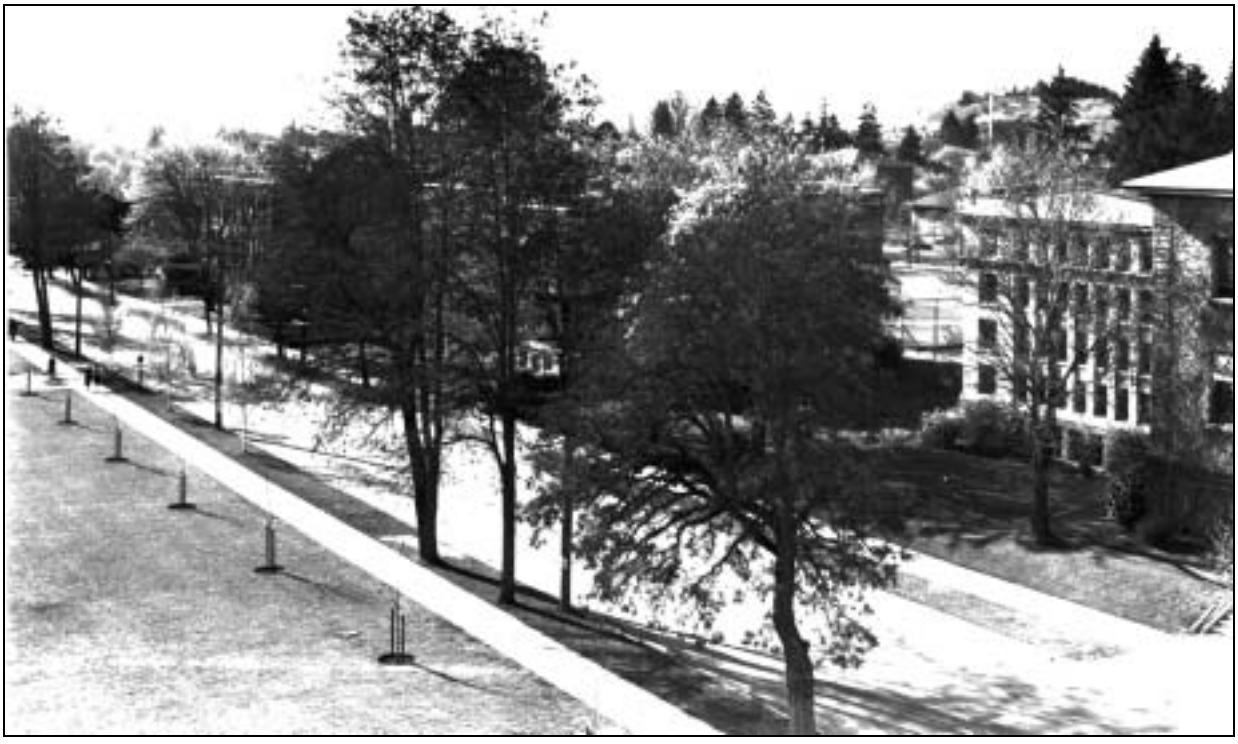
In addition, trees provide habitat for urban wildlife supplying food and safe havens, as well as critical nesting sites.

Educational: Trees provide unique educational opportunities in a campus setting. A diverse selection of trees is important for species identification and research associated primarily with landscape architecture and biology classes.

Historical: Trees associated with significant historical events related to the university enrich the campus environment. Historically significant trees help convey the history of the campus and define the collegiate character.

Psychological: A campus with trees is more desirable than those without trees, according to research noted in *Minnesota's Community and Urban Forests* (1990). Research has shown that the natural environment has a positive effect on individuals' health. Trees often help reduce the stress associated with urban settings by creating feelings of relaxation and well-being.

More detailed information about the benefits of trees on the University of Oregon campus is provided throughout the plan.



Double row of trees planted along 13th Avenue between Kincaid and University Streets, looking west (Fenton Hall on the right), c. 1920s.

2.0 Existing Policies/Management

The university completed a comprehensive inventory of trees in 1996, entitled the *University of Oregon Atlas of Trees*. Current university policies address tree management mostly in a broad sense and often as part of the overall landscape. Three primary documents address tree management on campus:

- The *University of Oregon Atlas of Trees*, 1996: This atlas is a comprehensive inventory of all trees on campus. An associated database maintained by Facilities Services provides additional information. The atlas is available for loan through the University of Oregon Library System in the Architecture and Allied Arts Library, the Science Library, and in the Oregon Collection (call number LD4363.M39 1996). It is also available for sale through the University of Oregon Bookstore and the Museum of Natural History.

- *Long Range Campus Development Plan*, 1991 (LRCDP): This plan includes a series of patterns and policies designed to guide campus development. Refer to Appendix A for a summary of patterns and policies that address trees.

- *Sustainable Development Plan*, 2000 (SDP): This plan includes a series of patterns describing the intent and implementation of the LRCDP's "Sustainable Development" pattern. Refer to Appendix B for a complete summary of patterns and policies that address trees.

The LRCDP and SDP patterns and policies represent the comprehensive framework upon which this campus tree management plan is based. Applicable patterns and policies have been integrated throughout the plan.

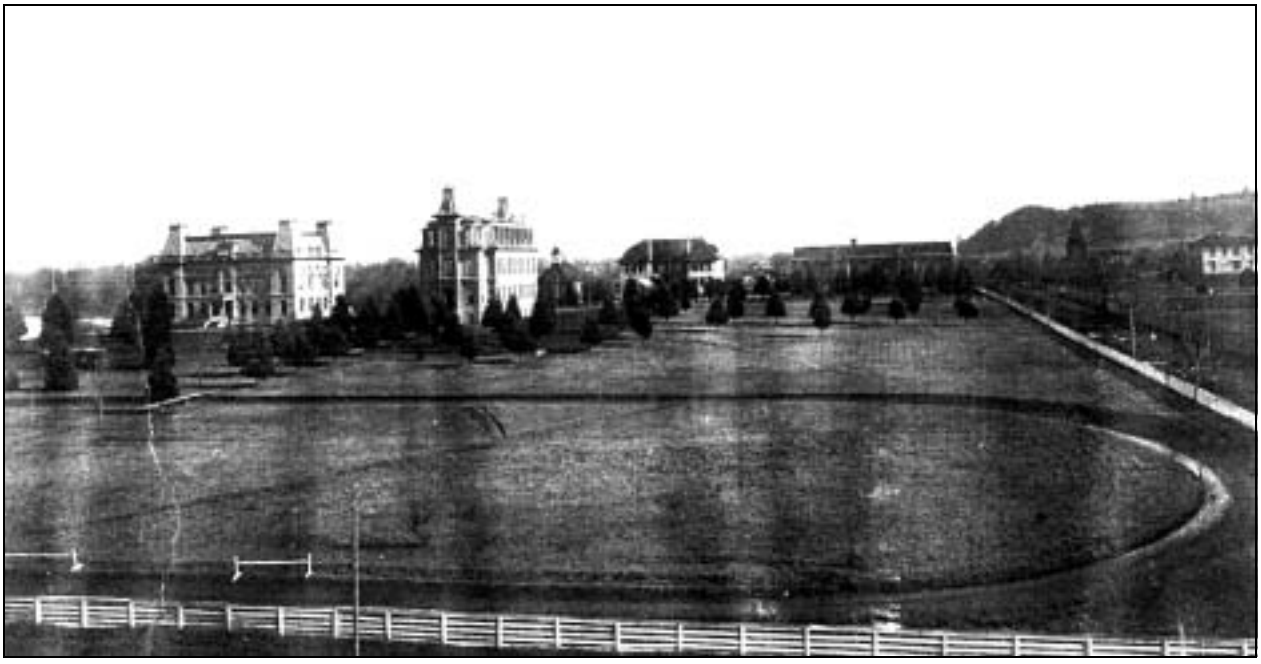
In addition, the Conceptual Landscape Master Plan, prepared by professor Ronald Lovinger in 1984, provides some interesting concepts, although the university did not officially adopt the document. Numerous smaller studies related to specific areas and projects on campus also incorporate tree-management concepts. Such studies serve as useful reference tools when determining appropriate actions for specific areas of campus.

3.0 General History and Existing Conditions

3.1 Brief History

Since the university's inception, trees have played an important role in defining its physical character. Many individuals and groups have contributed to the creation of the tree canopy we enjoy today. When Deady Hall was built in 1876, it was situated on a barren knoll in a treeless pasture, with the possible exception of the two Condon Oaks (these trees were later adopted by the classes of 1897 and 1900). Students initiated the first tree plantings in 1883 as part of a beautification effort, but the majority of the trees, mostly cedars, did not survive the following dry season. The next year, the university janitor carried out a more successful planting effort in what is considered the northwest portion of campus today (including the Old Campus Quad and west to Kincaid Street). Under contract from the regents, the janitor was paid per tree and only if it survived. These trees, including firs, cedars, maples, and palms, constituted the canopy of trees for this portion of campus for many years. The big-leaf maple near the southeast corner of Deady Hall is the sole survivor of this planting effort.[1]

At the end of the century, an additional 100 pines, firs, cedars, and maples were brought in from the surrounding hills by Dean John Straub and planted on campus. Some of the trees were planted in formal rows on either side of the entrance walk leading from Kincaid and 12th Avenue to Deady Hall, but most were planted in a rather casual arrangement surrounding Deady and Villard Halls and in the Old Campus Quadrangle.



Early tree-planting efforts, looking east from Kincaid Street, c. 1900-1902.

[1] According to the LRCDP, but not mentioned in the 1980 Tree Atlas.

As the campus grew, Ellis Lawrence's 1914 campus plan and subsequent plans established the current framework of interconnected quadrangles, malls, and axes. Over time, trees were planted to define these open spaces. In the mid-thirties, many trees were planted using funds provided through the Works Progress Administration.

In addition, the campus tree collection expanded through property acquisition. In particular, the Stafford House property (currently Straub quadrangle) and the Collier House property both had significant trees planted at the times of acquisition.

Northwest portion of campus, 1936 aerial photograph (north is at the top).

1944 aerial photograph of campus (north is at the top).

1952 aerial photograph of central campus (north is at the top).

1974 aerial photograph of central campus in the winter (north is at the top).

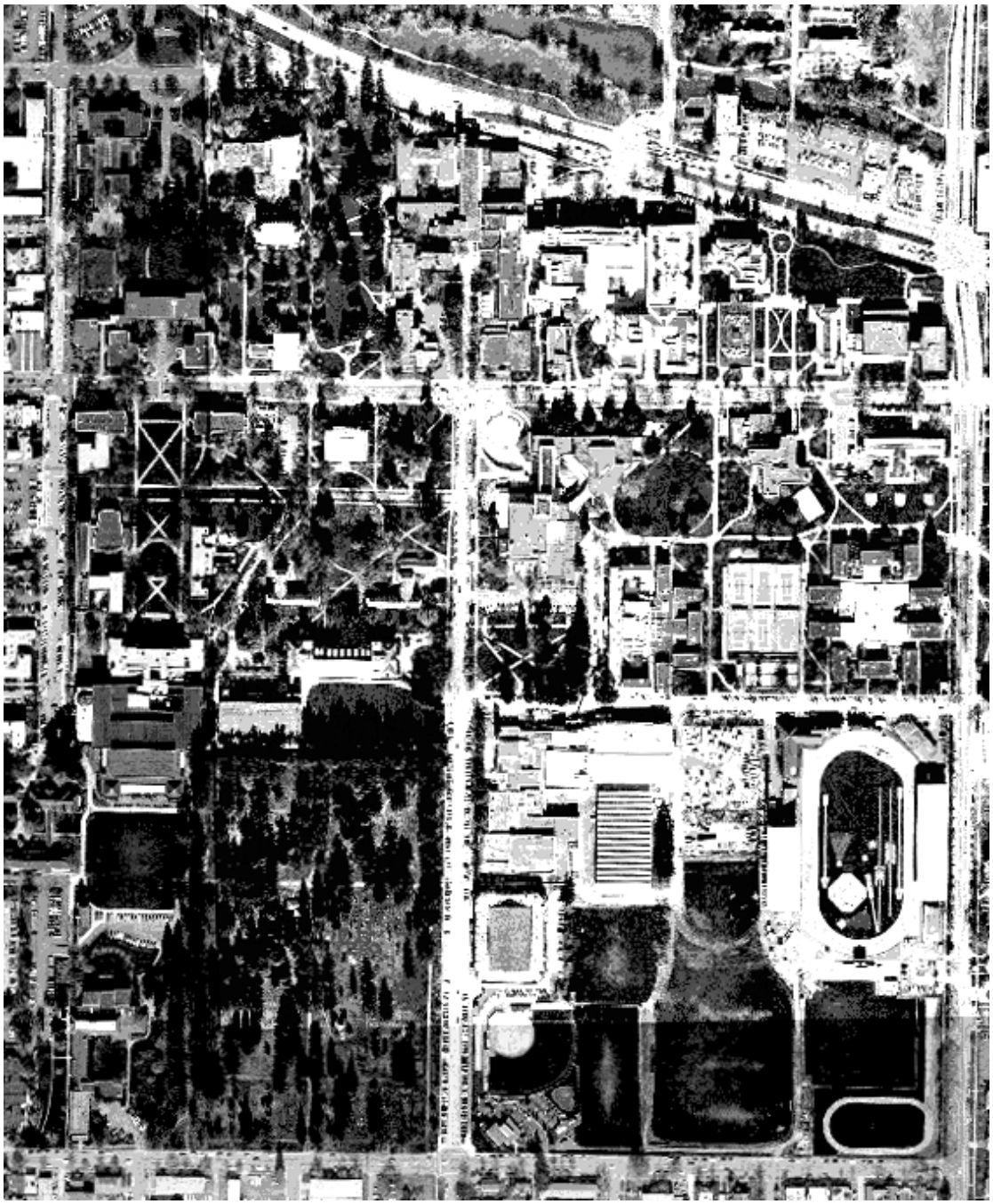
By the time the devastating Columbus Day storm hit in 1962, the campus tree canopy had reached a level of maturity that defined the quintessential character of the central campus as we know it today, with many large-canopy species. Unfortunately, a great number were blown down during the storm—some of the oldest and largest—leaving large, open spaces in the central campus area.

Old Campus Quad after the1962 Columbus Day storm (Fenton Hall is in the background).

In 1976, a project called "100 Years—100 Trees" was initiated as part of the University of Oregon's "Centennial Year" celebration. The project, co-sponsored by the Women's Club and the UO Centennial Council, far surpassed its original goal of 100 trees with a total of 450 planted between 1976 and 1983. A variety of tree species were planted as part of this project, including special varieties to enhance the university's collection of educational trees.

The Memorial / Honorarium Tree program has also helped maintain the campus tree canopy. In addition, landscaping projects associated with more recent development projects have resulted in the addition of hundreds of trees. With years of effort, the density of trees on campus has greatly increased since the first plantings on the barren knoll.

For more information, refer to George Jette's history of the campus trees contained in the 1980 *Trees of the Oregon Campus*, and the *University of Oregon Atlas of Trees* written by the University Planning Office in 1996.[2]



May 2000 aerial photograph of campus (north is at the top).

[2] The *University of Oregon Atlas of Trees* is available for loan through the University of Oregon Library System in the Architecture and Allied Arts Library, the Science Library, and in the Oregon Collection (call number LD4363.M39 1996). The atlas is also available for sale through the University of Oregon Bookstore and the Museum of Natural History.

3.2 Summary of Current Conditions

There are 3,375 trees on the contiguous campus, according to the 1996 *University of Oregon Atlas of Trees* (refer to map 3.2.1 Campus Tree Canopy). As mentioned previously, the overall density of trees on campus has greatly increased since the first plantings on the barren knoll. Even in the last two decades, as development has escalated, the number of trees has increased. In 1980, when the first comprehensive tree atlas was completed, there were 2,458 trees on the main campus (excluding the area north of Franklin Boulevard and the area east and south of Agate Street and 17th Avenue respectively) compared to 2,571 trees in 1996. Since 1994, large development projects on campus, such as the Knight Law Center and the Student Recreation Center, have resulted in an additional increase in the number of trees on campus.

In certain areas, however, such as the closed portion of 13th Avenue and, to a lesser degree, the Collier House property, some of the originally planted trees have been lost and not replaced. In addition, some of the older, established areas of campus, including the Old Campus Quad and Straub quadrangle, contain numerous trees in decline. Better identification of hazard trees has resulted in an increase in their removal in recent years. The lack of replacement of the large-canopy trees in the areas mentioned above and the trend toward smaller species in newly developed areas are of particular concern.

The *University of Oregon Atlas of Trees* (1996) is an excellent resource for identifying the existing trees on campus. It contains the following data for all trees: location, botanical name, variety, common name, species origin, family, century tree designation, and type (deciduous/conifer). The associated Atlas of Trees database maintained by the Campus and Grounds Division of Facilities Services contains the following additional data for all trees identified in the atlas: maximum height of typical growth, actual height, actual caliper, and actual spread. The following maps and tables (3.2.1 - 3.2.4) and map summarize the characteristics of the tree canopy according to the 1996 database.

3.2.1 Map: Campus Tree Canopy

Not Available

3.2.2 Map: Campus Tree Canopy and Designated Open Spaces

Not Available

3.2.3 Table: Summary of the Existing Tree Canopy
(based upon the Atlas of Trees database maintained by Facilities Services)

Total number of trees (1996)	3,375
Canopy coverage of all open space (includes all campus land excluding building footprints that is covered by a tree canopy in the summer)	about 20% (3,375 trees)
Canopy Coverage of all designated open spaces (refer to map 3.2.2)	about 28%
Deciduous (2599) Conifers (776)	77% of total 23% of total
Number of different species and cultivars Most common species: Acer rubrum red maple (132 trees) Pseudotsuga menzies Douglas fir (129 trees) Quercus palustris pin oak (120 trees) Liquidambar styraciflua American sweetgum (118 trees) Prunus serrulata Oriental cherry (101 trees) Acer platanoides Norway maple (100 trees)	over 500 about 4% of total 4% 4% 3% 3% 3% 21% of total
Species Native to the Willamette Valley (refer to table 3.2.4 for more details)	14% of total
Age range of selected species based upon truck diameter: <u>Acer macrophyllum – big-leaf maple</u> Trunk Diameter: 1 – 9 inches (1– 16' canopy) – 14 trees 10 – 29 inches (20-50' canopy) – 8 trees 30 – 79 inches (30-60' canopy) – 11 trees 80 + inches (60' canopy) – 1 tree 34 trees <u>Pseudotsuga menzies – Douglas fir</u> Trunk Diameter: 1 – 9 inches (1–34' height) – 33 trees 10 – 19 inches (30-60' height) – 27 trees 20 – 49 inches (50-100' height) – 42 trees 50 + inches (60-145' height) – 17 trees 129 trees <u>Quercus palustris – pin oak</u> Trunk Diameter: 1 – 9 inches (1–35' canopy) – 30 trees 10 – 19 inches (20-47' canopy) – 44 trees 20 – 29 inches (25-66' canopy) – 17 trees 30 + inches (35-69' canopy) – 27 trees 120 trees	 41% young 24% established 32% mature 3% very mature 28% young 23% established 35% mature 14% very mature 25% young 37% established 14% mature 24% very mature
Donated Trees (374) Includes Century Trees (450 originally planted from 1976-1983) and all other Memorial / Honorarium Trees.	11% of total

3.2.4 Table: Species Native to the Willamette Valley[3] on Campus

Abies grandis	grand fir	4
Acer circinatum	vine maple	105
Acer macrophyllum	big-leaf maple	34
Alnus rubra rhombifolia	red alder white alder	9 0
Arbutus menziesii	madrone	2
Calocedrus decurren	incense cedar	53
Cornus nuttallii	dogwood	31
Corylus cornuta	hazel	5
Crataegus douglasii	hawthorne	6
Fraxinus latifolia (F.oregana)	Oregon ash	4
Pinus ponderosa[4]	ponderosa pine	26
Populus trichocarpa	cottonwood	10
Prunus emarginata	bitter chokecherry	0
Pseudotsuga menziesii	Douglas fir	129
Quercus garryana[4]	Oregon white oak	4
Quercus kelloggii	California black oak	1
Rhamnus purshiana	cascara buckthorn	2
Salix lasiandra[5] scouleriana sessilifolia sitchensis	pacific willow scouler willow northwest willow sitka willow	See footnote #5
Taxus brevifolia	pacific (western) yew	3
Thuja plicata	western red cedar	28
Tsuga heterophylla	western hemlock	13
	Total	469 + (14% of all trees)

[3] The definition of species native to the Willamette Valley is based upon:

- The Green Guide: Eugene's Natural Landscape, by Henry W. Lawrence, Ann P. Bettman, Eugene, Or: A.P. Bettman, c. 1982
- Natural Vegetation of Oregon and Washington, by Jerry F. Franklin and C. T. Dyrness, Portland, Or., Pacific Northwest Forest & Range Experiment Station, Forest Service, U.S. Dept. of Agriculture, 1973.
- Trees to Know in Oregon, by Edward C. Jensen and Charles R. Ross, Corvallis, OR: Oregon State University Extension Service and Oregon Dept. of Forestry, 1994.

[4] Trees native to the Willamette Valley are not necessarily well suited to the micro conditions on campus. For example, most ponderosa pines are more suited to forested areas in higher elevations. There may be a subspecies known as the valley pine that is more suited to the valley floor, but it is not identified in the campus tree data. In addition, many native species, such as the Oregon white oak, are better suited in undisturbed sites, making it very difficult to transplant and establish them in a campus environment.

[5] Native willow species, e.g. those in the Millrace area, are not identified in campus tree data. Also, many are considered shrubs, e.g. piper willows.

3.3 Primary Landscape Characteristic: Open-space Framework

The primary landscape characteristic of the University of Oregon is the open-space framework. As stated in the LRCDP:

> The University of Oregon campus is organized as a system of quadrangles, malls, and other open spaces. . . . This organizational framework not only functions well, but serves as a physical representation of the University's heritage, and should be preserved, completed, and extended as opportunities arise. (13)

Trees are the primary character-defining features of the open spaces. The characteristics of the tree canopy within the open-space framework are as follows:

All Open Spaces

Open spaces on campus vary from large to small and are designed for a variety of uses as defined by the LRCDP patterns addressing open spaces. Refer to Table 4.0.2 that defines the typical character of the tree canopy for open spaces as defined by the LRCDP patterns.

Quadrangles & Malls

Formal and informal arrangements of trees are used to define quadrangles and malls that are protected from development because they are identified in the LRCPD as designated open spaces. Refer to the "Designated Open Spaces: Existing and Desired Tree Canopy Character" section for a description of desired tree canopies in individual quadrangles and malls.

Axes & View Corridors

Generally, formal arrangements of trees are used to enhance views and/or delineate axes. These axes are protected from development because they are identified in the LRCPD as designated open spaces. Refer to the "Designated Open Spaces: Existing and Desired Tree Canopy Character" section for a description of desired tree canopies in individual axes and view corridors.

4.0 General Tree Siting and Selection Patterns

The following patterns apply to all tree management activities on campus. All other applicable patterns and policies within the LRCDP and the SDP should be consulted as well (refer to Appendices A and B). A table of the existing LRCDP open-space patterns with an interpretation of how they relate to the typical tree character of campus is provided.

4.0.1 Table: Summary of Tree Patterns
(Refer to the full pattern descriptions in this section for more detail)

Tree Pattern	**Pattern Description** *Refer to the complete pattern descriptions for additional information.*
Healthy and Vital Canopy	*Strive for a sustainable tree canopy that has an uneven age structure and diverse tree species. Protect trees during construction.*
Tree Replacement Strategies	*Maintain a balanced tree population through an effective tree replacement program.*
Long-lived Tree Sites	*Site trees where they will not interfere with future development to take full advantage of and encourage a long life span.*
Sunny/Shady Open Spaces	*Preserve the current amount of non-canopied open spaces, which equals about 75-80%, by taking into consideration tree size, type, and placement.*
Environmental Mitigation	*Select tree species and locations that provide maximum environmental benefits.*
Campus as Arboretum	*Consider instructional benefits when selecting trees to replace existing ones or to establish new plantings.*
Large-canopy Trees	*Replace lost large-canopy trees and consider planting a single large-canopy tree in lieu of smaller trees where appropriate.*
Site Specific Conditions	*Make sure the tree selection fits the environmental conditions. Protect or improve existing soil conditions during construction and make design and/or site condition adjustments.*
Designated Open Spaces	*Afford extra care to trees that reinforce the system of quadrangles, malls, and open spaces.*
Outdoor Classroom	*Preserve the open, sunny spaces required for outdoor "classrooms."*
Canopied Parking	*Maximize the tree canopy over surface parking lots, with a minimum of 10%. Ensure that adequate planting space is provided.*

4.1 Healthy and Vital Canopy

A healthy, vigorous tree canopy is essential to perpetuate the character of the campus landscape and to strive towards a healthy ecosystem.

Therefore: Strive for a sustainable tree canopy that has an uneven age structure and diverse tree species. Minimize changes to site conditions for established trees, especially native species, and consider re-establishing original site conditions in areas that have been negatively altered (e.g., adjust the watering regime). Protect existing trees during construction (refer to the Tree Protection Requirements in the "Establishing Tree Responsibilities for Trees" section, and the SDP "Healthy Ecosystems" pattern in Appendix B).

When planting new trees, use native[6] or well-adapted species when appropriate, while recognizing the importance of a variety of plant materials necessary for instructional use. Select species that are resistant to disease and insects. All newly planted trees should be the optimal size required (based on the species) to ensure survival.

4.2 Tree Replacement Strategies

Trees have a limited life span and will eventually enter a phase of decline.

Therefore: Maintain a balanced tree population through an effective tree replacement program. As a general practice, a tree should not be cut down unless it is considered a hazard or it is located within a development site and meets the requirements of the "Establishing Project Responsibilities for Trees" section.

Trees planted to compensate for lost tree canopy due to new development should be located on the development site if possible (keeping in mind the "Sunny/Shady Open Spaces" pattern and all other tree siting and selection patterns). If this is not possible, work with the Campus and Grounds Supervisor to determine appropriate sites. First priority should be adjacent designated open spaces as appropriate (refer to the "Designated Open Spaces" pattern). Otherwise, trees should be planted elsewhere on campus if possible.

Tree replacement strategies should reflect the character of the open space. For example, tree replacement within a formal landscape design generally would not occur until a tree is considered a hazard. In an informal landscape design, however, it could be initiated prior to the required removal of deteriorating trees

[6] Trees native to the Willamette Valley are not necessarily well suited to the micro conditions on campus. For example, most ponderosa pines are more suited to forested areas in higher elevations. There may be a subspecies known as the valley pine that is more suited to the valley floor, but it is not identified in the campus tree data. In addition, many native species, such as the Oregon white oak, are better suited in undisturbed sites, making them very difficult to transplant and establish them in a campus environment.

by interspersing young trees between them. This often makes informal landscape designs more sustainable.

4.3 Long-lived Tree Sites

Trees take many years to become established. Once established, however, they provide a multitude of benefits over a long life span.

Therefore: Site trees where they will be less likely to interfere with future development. In general, designated significant open spaces shall have first priority for tree planting. This may include replacing trees in decline to perpetuate the desired tree-canopy character. If the proposed tree planting is part of a development project, refer to the "Establishing Project Responsibilities for Trees" section.

4.4 Sunny/Shady Open Spaces

Residents of the Pacific Northwest value sunshine during the lengthy, cool, wet portion of the year. Sunshine allows outdoor areas to warm up and dry out, enabling greater use throughout the year. Shady spots are valued during the warm summer months. Summer-shaded buildings are also highly desirable to help cool interiors by blocking solar heat gain.

Therefore: Maintain a diversity of sunny and shady open-space areas on campus. Preserve the current amount of non-canopied open spaces which equals about 75 - 80% (includes all land except building footprints that is not covered by a tree canopy in the summer). Take into consideration tree size, type and placement (refer to the "LRCDP Open-space Patterns" table at the end of this section). Adhering to this pattern may mean that it is not always possible to replant the total lost tree canopy caused by development.

4.5 Environmental Mitigation

Trees provide many environmental benefits on campus by reducing energy use, storm water drainage, erosion, and water pollution. Trees also provide important wildlife habitat.

Therefore: Select tree species and locations that provide maximum southwest- and west-side shade for buildings, cool air temperatures through evapo-transpiration, control erosion by stabilizing soil conditions, reduce off-site water drainage through canopy and root system water retention, reduce water pollution by acting as sediment filters, and help establish bird corridors. Also refer to the "Canopied Parking" pattern and the SDP (Appendix B).

4.6 Campus as Arboretum

The university campus is considered an arboretum. Plant materials on the campus, trees in particular, constitute a valuable teaching resource, particularly but not exclusively in biology and landscape architecture.

Therefore: Consider the instructional benefits when selecting trees to replace existing ones or to establish new plantings (refer to LRCDP).

4.7 Large-canopy Trees

Large-canopy trees, a distinguishing feature of the campus, are diminishing in number as the existing large trees continue to decline and as development results in open spaces that are not large enough to accommodate large trees.

Therefore: Replace lost large-canopy trees and consider planting a single large-canopy tree, rather than a series of smaller trees, where appropriate. Also, consider designing buildings and additions to provide adequate space for large-canopy trees (refer to the SDP).

4.8 Site Specific Conditions

Tree species vary as much as site conditions. Only half of each tree is visible, since root systems comprise as much biomass as above-ground portions.

Therefore: Make sure the species fit the localized environmental conditions. Consider compatibility with adjacent plantings (including irrigation needs), sight line and clearance requirements, planting area size and soil conditions, proximity to buildings, and ways to minimize disease and insect problems. Protect or improve existing soil conditions during construction and make design and/or site-condition adjustments to benefit trees' needs.

4.9 Designated Open Spaces

The primary landscape characteristic of the University of Oregon is the open-space framework consisting of a system of quadrangles, malls, and other open spaces that are designated as significant by the LRCDP. A major character-defining feature of these open spaces is the tree canopy.

Therefore: Preserve, complete, and extend the open-space framework as opportunities arise. Afford extra care to the trees that help form or reinforce the identity of these designated open spaces. Refer to the "LRCDP Open-space Patterns" table at the end of this section and the "Designated Open Spaces: Existing and Desired Tree Canopy Character" section of this plan.

4.10 The Outdoor Classroom

Many campus open spaces serve as vital "classrooms." Many outdoor "classroom" functions require open, sunny spaces (e.g., sports fields, marching band practice areas, the urban farm, and informal outdoor classes).

Therefore: Preserve the open, sunny spaces required for outdoor "classrooms." Always consider the use of the open space when selecting and placing trees. This may mean that it is not always possible to replant the total lost tree canopy caused by development (refer to the "LRCDP Open-space Patterns" table at the end of this section and the analytical area descriptions in the LRCDP).

4.11 Canopied Parking

Parking lots represent a substantial amount of the impervious surface area on campus. They create a notable amount of unfiltered storm water run-off and create undesirable heat islands.

Therefore: Maximize the tree canopy over surface parking lots. Establish a minimum coverage of 10%[7] (assuming full canopy growth) whenever possible. Ensure that adequate planting spaces are provided and select species that provide a dense canopy coverage if possible.

[7] The city's required parking lot canopy coverage at full growth equals approximately 5-10% (depending upon the parking lot size). The coverage of a typical existing campus parking lot (assuming full canopy growth) ranges from 2-5%; the current overall tree canopy coverage (not at full growth) of open space on campus is about 20%.

4.0.2 Table: LRCDP Open-space Patterns
Typical Tree-Canopy Character
(refer to the LRCDP for more detail)

LRCDP Pattern	Pattern Description	Typical Tree Character
Activity Node	*Create small centers of activity separated by quiet space.*	Usually a limited number of trees is used to define spaces (thus preventing interference with activities).
Accessible Green	*Maintain an open space in proximity to all buildings.*	Trees are used to define the space and provide a mix of sunny and shady spots.
Local Sports	*Scatter facilities for physical exercise around campus.*	Limited use of trees is appropriate to surround and define the perimeters.
Main Entrance	*Main entrances to buildings should be distinctive and easily identifiable from principal approaches.*	Trees are used to frame entrances without blocking views or hindering direct access.
Positive Outdoor Space	*Place and form buildings to define and partially enclose outdoor space.*	Trees are used to further define the space and create enclosure.
Public Outdoor Room	*Make outdoor places with some enclosure; mark them.*	Trees are used to further define the space and to shade portions of outdoor seating areas for summer use.
Quiet Backs	*Connect buildings to a quiet space, removed and buffered from adjacent sources of noise.*	Usually trees are used in an informal arrangement to provide intimacy and create seating areas. These areas may provide an opportunity for experimental or non-traditional landscaping ideas, such as native plantings.
South Facing Outdoors	*Buildings should be designed to create south-facing outdoor spaces whenever possible.*	A limit number of trees is used in these intentionally sunny areas. Trees are used to define east, west, and north sides.
Promenade	*A major pedestrian way, centrally located with main attractors at each end, should be developed to link principal activity nodes.*	Trees are used to further define the walkways and soften the hardscape.
University Streets	*Major campus activities should front on public streets that are essentially pedestrian in nature; new buildings should either connect to or extend these streets.*	Trees are used primarily in a formal arrangement to define the axes and to soften and shade the hardscape.
Shielded Parking	*Screen parking lots from view by landscaping, walls, or topographic feature.*	Trees and shrubs are used to shield views of parking from adjacent uses and to soften and shade the hardscape.

5.0 Designated Open Spaces: Existing/Desired Canopy Character

5.1 Introduction

As noted in the "Designated Open Space" pattern, every effort should be made to preserve and enhance the campus open-space framework (refer to map, 3.2.2 Campus Tree Canopy). In addition, the "Long-lived Tree Sites" pattern gives priority to planting trees in designated open spaces. For this reason, this plan focuses on defining the desired character of the tree canopy for these open spaces.

This section includes descriptions of the existing and desired tree canopy character for each designated open space. Following the open-space descriptions is a table indicating which LRCDP patterns and General Tree Siting and Selection Patterns are applicable to each designated open space. This information should be the used as a guide when implementing future tree-planting efforts.

Other Open Spaces

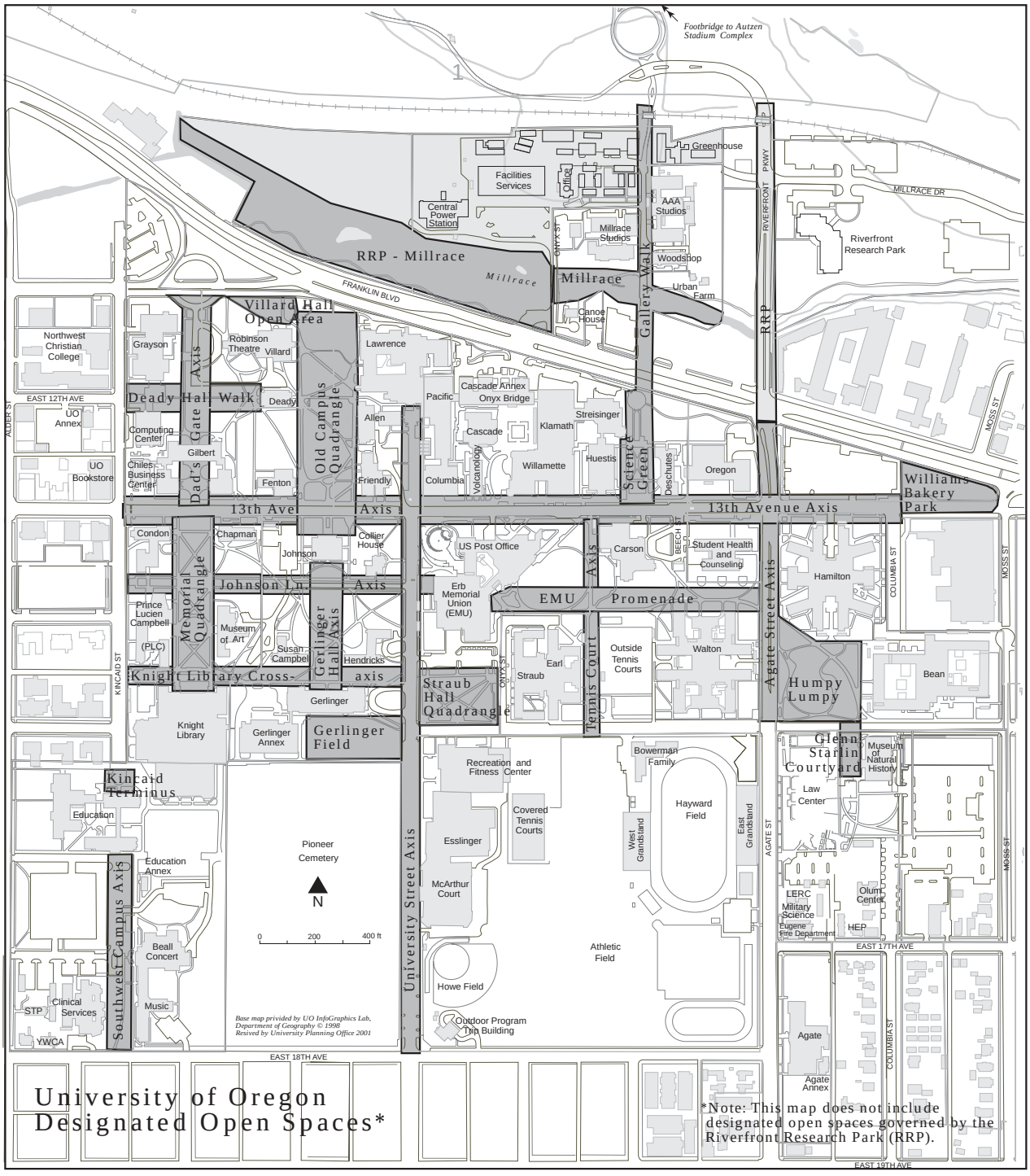
Focusing on the designated open spaces does not mean that the tree canopy in other open spaces does not serve a valuable purpose. The patterns identified in the "General Tree Siting and Selection Patterns" should be considered in all instances. Special conditions for specific landscaped areas are identified by analytical area in the LRCDP. In addition, specific uses are defined (e.g., playing field) and special designations are identified (e.g., listings on the National Register of Historic Places) in these analytical area descriptions.

More detailed information about the desired character of the other campus open spaces should be prepared when time and resources allow.

LRCDP Individual Significant Trees

The LRCDP identifies 13 specific trees that are considered historically or otherwise significant (refer to Appendix A). Those within designated open spaces are noted in the open-space descriptions. There are other significant trees on campus, however. Refer to the "Defining Significant Trees" section for a full description of criteria to consider when determining whether a tree is significant.

5.1.1 Map: Designated Open Spaces



5.2 Designated Open Spaces: Quadrangles and Malls

Memorial Quadrangle

Existing Character: This quadrangle is the academic center of campus and receives heavy pedestrian traffic. It is listed on the National Register of Historic Places and is laid out in a formal design consisting of an open, sunny lawn lined with eight pyramidal English oaks at the southern end, three English oaks and a tulip tree at the intersection of the Johnson Lane axis, and additional large-canopy trees along the outside edge of an open, sunny lawn at the northern end. The LRCDP specifically notes the English oaks as significant trees, which help form the identity of the view corridor.

Existing Condition: The trees are generally in good condition.

Existing Canopy Coverage: about 35%

Desired Character: The existing character of the area should be preserved. The English oaks are to be afforded extra care. The LRCDP states that a program for replacing these trees as they reach the end of their natural life cycles will be needed in order to preserve the area's existing character.

Old Campus Quadrangle

Existing Character: This quadrangle is an informal arrangement primarily of conifers with shrub plantings interspersed in a lawn setting. Historically, this quadrangle was the main entrance to the university, and it originally had formal plantings of roses along the pathways. Since then, it has become a quiet, park-like setting criss-crossed with pedestrian pathways. Portions of the quadrangle are within the Deady Hall and Villard Hall National Landmark boundaries and the southern boundary crosses the 13th Avenue axis. The LRCDP has identified the following trees as significant: the European linden located east of Villard Hall (1895 class tree), the big-leaf maple near the southeast corner of Deady Hall (the sole survivor of the original campus planting of 1884), and the threadleaf Japanese maple near 13th Avenue northeast of Johnson Hall (because of its size and unique character).

When Deady Hall was built in 1876, it was situated on a barren knoll in a treeless pasture, with the possible exception of the two Condon oaks located just north of the designated open space (these trees were later adopted by the classes of 1897 and 1900). Although not included in the designated open space, these two oaks are identified in the LRCDP as significant. They are prominently situated adjacent to Franklin Boulevard.

An inventory of important educational trees has not been completed for this area.

Old Campus Quad, looking north from Deady Hall roof, c 1900?

Existing Condition: Many of the conifers are in a state of decline due to old age, damage suffered during the Columbus Day storm (one is considered a habitat tree), and overwatering (particularly incense cedars and ponderosa pines). The Condon oaks are also in a state of decline due to old age, major wounds, fungal growth, and overwatering. Some trees were planted in very close proximity to the historic buildings and have outgrown their space.

Existing Canopy Coverage: about 30%

Desired Character: The existing character of the area should be preserved and enhanced. High priority should be placed on initiating a replacement program and adjusting the watering and planting regime so that the trees are not overwatered. Further research is necessary to determine an appropriate replacement program for trees crowding historic buildings. The view corridor from "The Pioneer Mother" through the Johnson Hall lobby to "The Pioneer" and the view north to the Millrace and the river should be preserved. When selecting locations for new tree plantings, opportunities to better shade the west sides of Allan Hall and Lawrence Hall should be considered. The trees identified by the LRCDP as significant should be afforded extra care.

Science Green

Existing Character: This relatively young quadrangle, extending from 13th Avenue north to Franklin Boulevard, is defined by a formal arrangement of large-canopy deciduous trees in a lawn setting. The northern half of the quadrangle is lined on

both sides with Halka honey locust to provide a rather dense canopy, and the southern half is an open, sunny lawn lined with Green Mountain sugar maples along the eastern and western outside edges. A small seating courtyard planted with a formal grove of pear trees defines the southern edge at 13th Avenue. The northern terminus of the quadrangle abuts Franklin Boulevard and was designed with the possibility of eventual connection to the Gallery Walk across Franklin Boulevard.

Existing Condition: The pear trees are planted in confined planting areas covered with grates and suffer from inadequate root zones and poor drainage. The honey locusts are suffering from midge infestations (a problem common in this region).

Existing Canopy Coverage: about 14%

Desired Character: The existing character of the area should be preserved and enhanced while maintaining the visual connection to the Gallery Walk and the view into campus from Franklin Boulevard. If the honey locusts must be replaced due to poor condition, a more suitable canopy tree species should be considered. In addition, options to improve the pear trees' confined planting areas should be explored.

Straub Hall Quadrangle

Existing Character: This quadrangle, between Straub Hall and University Street, has a traditional campus character with informal plantings of deciduous and coniferous trees in a lawn setting. Pedestrian walkways criss-cross the quadrangle, which has a mix of sunny and shady seating areas. Unique plantings from the original plantings associated with the Stafford farm site remain on this site. Some of the trees are identified as important educational trees, including the Spanish fir, the weeping higan cherries, the California incense cedar, the coast redwood, and the digger pine. The recently completed University Street Axis Conceptual Study provides additional information about existing and desired conditions.

Existing Condition: The flowering cherry trees are in a state of decline. Some volunteer trees and species remaining from the farm site, such as the holly trees, are not appropriate for a campus quadrangle. One volunteer holly along University Street is particularly poorly placed between two Norway maples.

Existing Canopy Coverage: about 31%

Desired Character: The existing character of this area should be preserved and enhanced with the exception of the inappropriate or volunteer trees. The holly along University Street should be removed, and the removal of other inappropriate trees should be considered. Refer to the University Street Axis Study for additional information. The important educational trees deserve extra care, in particular the cherry trees, which should be replaced on site or elsewhere.

Future tree plantings should include ways to buffer the open space from the EMU parking area and continue to shade the west side of Straub Hall. In addition, future tree plantings should account for the upcoming installation of a large sculpture.

5.3 Designated Open Spaces: Axes and View Corridors

13th Avenue Axis: Between Kincaid Street and University Street

Existing Character: This primary axis has heavy pedestrian and bike use (only restricted service traffic is allowed). It has a traditional street design, and is lined on either side with a double row of primarily large-canopy trees including big-leaf maples, London plane trees, and catalpas. The axis partially overlaps the Memorial Quadrangle National Register boundary and the Collier House City Landmark site. The character of the Collier House site is similar to the rest of the street with the exception of a group of mature conifers.

The LRCDP has identified the threadleaf Japanese maple northeast of Johnson Hall (a National Register building) as significant because of its size and unique character.

An inventory of important educational trees has not been completed for this area.

Existing Condition: One large conifer grand fir and a big-leaf maple in front of the Collier House were lost during a storm in 1999. Some other mature big-leaf maples have been lost in recent years in front of Gilbert Hall and others are in decline.

Existing Canopy Coverage: about 32%

Desired Character: Efforts to shade the street surface, particularly to replace the missing large-canopy trees, are a priority. However, care should be taken not to interfere with adjacent sunny open spaces, such as the Memorial Quadrangle and the Gilbert plaza. Efforts to change the character of the street to make it more bike-and-pedestrian-friendly are also encouraged. For example, the proposed design for the Lillis Business Complex / Gilbert Hall project includes new tree planting areas within the original street paving to provide adequate space to plant additional large-canopy trees that will soften the original hardscape while retaining adequate pedestrian space on the sidewalks. Placement of trees should not block the ground-level view from Dad's Gate to the Knight Library (refer to Dad's Gate Axis).

The historic character of the Collier House site should be considered when selecting and placing trees. In addition, the view corridor from "The Pioneer Mother" through the Johnson Hall lobby to "The Pioneer" should be preserved. The threadleaf Japanese maple should be afforded extra care.

Refer to "University Street Axis" for information about the intersection of 13th Avenue and University Street.

13th Avenue Axis: Between University Street and Moss Street

Existing Character: This portion of the 13th Avenue axis is open to automobiles and has the character of a typical tree-lined street. The city owns the portion between Agate Street and Moss Street; the university owns the rest. The intersection of 13th Avenue and Agate Street serves as the primary entrance to the university. Large-canopy deciduous trees, consisting primarily of red oaks and pin oaks interspersed with other deciduous trees, informally line the street. A second row of mixed species enhances the tree canopy and identifies secondary axes and building entrances.

This area contains important educational trees, including the Norway spruce near the EMU's north entrance and the Douglas fir located near the EMU's northeast corner. The LRCDP identifies the latter tree as significant because it grew from a seed that was among four fir seeds carried to the moon aboard Apollo XIV in 1971 by Astronaut Stuart Roosa. In 1978 the seedling was planted where Willamette Hall now stands; it was transplanted in 1987 to accommodate construction of the additions to the Science Facilities Additions and Alterations project.

Existing Condition: Although the existing trees are generally in good condition, a few are in decline. The health of the trees in front of Willamette Hall was damaged by past construction. The Italian stone pine tree in front of Volcanology was recently removed due to poor health, and many of the pines across from Volcanology, in front of the EMU, are in poor condition. Heavy pedestrian traffic in the critical root zone of the northern red oaks north of the EMU has compacted the soil, but this does not appear to have significantly affected the trees' health because the conditions have remained relatively constant throughout the trees' life.

Existing Canopy Coverage: about 30%

Desired Character: The LRCDP supports design strategies that encourage bikes and pedestrians and discourage through auto traffic. Further enhancement of the tree canopy is desirable to improve the appearance of the primary gateway to the university, to help connect this part of the 13th Avenue axis to the central part of the axis, and to shade the street surface. For example, the Eastgate Conceptual Study (between Oregon Hall and the University Health and Counseling Center) proposes a possible street median planted with trees. Opportunities exist for additional tree plantings between Agate Street and Moss Street. Future plantings should maintain the open, sunny lawn area at the southeast corner of the Agate Street and 13th Avenue intersection. Special care should be afforded to significant trees identified in the LRCDP, and research should be conducted to identify remedies for the poor condition of existing trees. The recently removed Italian stone pine tree provides an opportunity to install a large-canopy tree in its place to shade the west and south sides of Volcanology and the street surface. The pine was an educational tree so the same species should be replaced elsewhere on campus.

Please refer to "University Street Axis" for more information about the 13th Avenue and University Street intersection.

Agate Street Axis

Existing Character: This plan addresses only the portion of the axis south of Franklin Boulevard that serves as the primary entrance to the university. The northern portion (Riverfront Parkway) is governed by the Riverfront Research Park Master Plan. The portion of the axis south of Franklin Boulevard is owned by the city and has the character of a typical tree-lined street: it is lined in a formal arrangement with large-canopy deciduous trees consisting mostly of American sweetgums, scarlet oaks and American elms, interspersed with other deciduous trees. The canopy is enhanced by a tree-lined median between 13th Avenue and 15th Avenue.

Existing Condition: The existing trees are generally in good condition.

Existing Canopy Coverage: about 29%

Desired Character: Further enhancement of the tree canopy is desirable to improve the appearance of the primary gateway to the university, to help connect east campus to central campus, and to shade the street surface. There is also an opportunity to better shade the west side of the Hamilton residence hall complex. New trees should not interfere with the adjacent, intentionally sunny "humpy lumpy" area or the lawn area at the southeast corner of the Agate Street and 13th Avenue intersection. The motorist's view of the pedestrian crossing should not be impeded. Although the designated axis does not extend south of 15th Avenue, more street trees could be added along Agate Street towards Agate Hall.

Dad's Gate Axis

Existing Character: This axis connects Dad's Gate to 13th Avenue and is bisected by the Gilbert Hall bridge building, which will be replaced by the Lillis Business Complex/Gilbert Hall atrium space. The portion north of the Gilbert bridge is poorly defined with the exception of two big-leaf lindens and two European beeches flanking Dad's Gate. It consists partly of a service drive and partly of grassy, open space interspersed with informal plantings of conifers. This northern portion is partially within the Deady Hall National Landmark boundary and is bisected by the Deady Hall Walk, clearly delineated with two rows of Douglas firs. The LRCDP identifies two class trees of special significance in the area north of the Deady Hall Walk, a giant sequoia (class of 1880) and a California laurel (class of 1898). The California laurel, located in front of Robinson Theatre, died this past decade and was replaced.

The portion of the axis south of Gilbert Hall is primarily defined by the east and west wings of Gilbert Hall rather than by trees. Mature trees in this area were recently lost due to poor heath and hazard conditions.

The pedestrian use of this axis has substantially increased with the completion of the Grayson Hall project and will increase even more with the completion of the anticipated Lillis Business Complex/Gilbert Hall project and the Bus Rapid Transit station at Dad's Gate.

An inventory of important educational trees has not been completed for this area.

Existing Condition: Many of the trees in this area are large, mature trees in relatively good condition. Some, however, are in poor condition and will be removed as part of the Lillis Business Complex/Gilbert Hall project. In addition, some smaller trees have been moved to prepare for the upcoming Lillis Business Complex/Gilbert Hall project including a bald cyprus, redwood ash, and dogwood.

Existing Canopy Coverage: 30%

Desired Character: The northern portion of the axis should be better defined with a formal tree planting arrangement north of the Deady Hall Walk. This would also help to shade the paved access road. Placement of trees should not block the ground-level view from Dad's Gate to the Knight Library or the view of Robinson Theatre from 11th Avenue. Future tree plantings should take into consideration the future LTD Bus Rapid Transit station planned for the northern terminus of the axis in the 11th Avenue median. The portion of the axis south of the Deady Hall Walk will be accentuated with a central sidewalk as part of the proposed Lillis Business Complex/Gilbert Hall project. To preserve the informal, sunny open space, no new trees are proposed.

The mature yellow buckeye south of the Gilbert bridge building will be preserved and the tree canopy will be restored along 13th Avenue in front of Gilbert Hall as part of the Lillis Business Complex/Gilbert Hall project. The relatively small, formal courtyard space between Gilbert East and Gilbert West will remain open as an intentionally sunny, south-facing spot. If possible, however, shading the west face of Gilbert East is desirable.

A replacement program to anticipate the decline of the numerous mature trees and maintain the desired canopy character along this axis is necessary. The remaining class tree, the giant sequoia identified in the LRCDP, deserves special care.

Deady Hall Walk

Existing Character: This axis leads from Deady Hall to Kincaid Street and is clearly delineated by two formal rows of Douglas firs bisected by the Dad's Gate axis. The LRCDP specifically notes these Douglas firs as significant trees that help form or reinforce the identity of the view corridor. This axis is partially within the Deady Hall National Landmark boundary.

Existing Condition: The Douglas firs represent a range of ages; some of the older ones are in a state of decline, and one is missing. Concerns include overwatering and root compaction from an increase in pedestrian activity.

Existing Canopy Coverage: about 36%

Desired Character: The existing character of the area should be preserved. Identified in the LRCDP as significant trees, the Douglas firs are to be afforded extra care. A program for replacing these trees as they reach the end of their natural life cycles

will be needed in order to preserve the area's existing character. The proposed Lillis business Center / Gilbert Hall project will replace the missing Douglas fir. Solutions to eliminate compaction and overwatering should be researched.

EMU Promenade

Existing Character: This heavily used pedestrian axis from the east side of the EMU to Agate Street has an open, informal character. It passes through an intentionally sunny open area dotted with shade trees and is designed to provide outdoor activity space for special events and for students residing in the dormitories. The Austrian black pine north of Earl Hall is an important educational tree.

Existing Condition: One of the two mature big-leaf maples in the lawn area east of the EMU was lost, and the other is in poor condition.

Existing Canopy Coverage: about 26%

Desired Character: The existing character should be preserved and enhanced. In particular, an effort should be made to replace the lost and declining big-leaf maples. There may be an opportunity for additional trees near the Agate Street pedestrian crossing as long as the motorist's view of the crossing is not impeded. The important educational tree is to be afforded extra care.

Gallery Walk

Existing Character: This axis stretches from the railroad overpass to Franklin Boulevard and is loosely defined by a row of ponderosa pine on the east side of the walkway / bike path adjacent to the art studios. Further definition is provided by the newly planted row of zekovas on the west side, adjacent to the Zebrafish Stock Center.

The portion south of the Millrace is adjacent to Franklin Boulevard and bisects a parking lot. It is completely undefined physically as an axis, although pedestrians and bicyclists use it.

An inventory of important educational trees has not been completed for this area.

Existing Condition: The row of pine trees is in poor condition and is detrimental to building maintenance and night lighting.

Existing Canopy Coverage: about 18%

Desired Character: Further work is required to define this axis' desired character and to determine how to enhance it with trees. Deciduous canopy trees may be more appropriate than conifers. The axis is adjacent to the urban farm, which should remain open and sunny. Its proximity to the urban farm may offer unique opportunities to plant trees that serve an educational purpose but may not be appropriate on the main campus (e.g., fruit-bearing trees). Proposed plantings

adjacent to the Millrace should be compatible with and enhance this unique waterway.

Gerlinger Hall Axis

Existing Character: This pedestrian axis incorporates the view corridor from "The Pioneer Mother" through the Johnson Hall lobby to "The Pioneer." It also includes portions of the Women's Memorial Quadrangle, which is listed on the National Register of Historic Places. This grassy area has a traditional campus character with informal plantings of mature, large-canopy shade trees.

An inventory of important educational trees has not been completed for this area.

Existing Condition: Many of the trees in this area are mature; some of them are in a state of decline (particularly the pin oaks). Scarlet oaks have been used as a replacement tree.

Existing Canopy Coverage: about 46%

Desired Character: Some of the existing trees associated with this open space are not located within the designated open space and may be subject to removal when future development takes place. An effort to plan for this outcome by planting trees within the designated axis (or adjacent areas that are less likely to be affected by future development such as the Women's Memorial Quadrangle and the Johnson Lane axis) would help alleviate this potential loss. There is an opportunity to better shade the west side of Hendricks Hall. The view corridor from "The Pioneer Mother" through the Johnson Hall lobby to "The Pioneer" should be preserved as noted in the LRCDP.

Johnson Lane Axis

Existing Character: This axis is partially defined by Johnson Lane, a limited auto access route, and extends as a pedestrian access across the Memorial Quadrangle to Kincaid Street. The Johnson Lane portion is loosely defined by a mix of primarily deciduous trees planted on either side of the lane. The pedestrian portion consists of an open, grassy lane with an informal mix of conifers on the south side (including the previously noted Japanese red pine) and a row of tulip trees on the north side near Chapman Hall. The axis is further defined at its intersection with the Memorial Quadrangle with three English oaks and a tulip tree. The western end of the axis has a mix of deciduous trees and terminates at the LTD bus station and a parking lot.

An inventory of important educational trees has not been completed for this area.

Existing Condition: The trees in the axis are generally in good health with the exception of the mature pin oaks, which are in a state of decline.

Existing Canopy Coverage: about 48%

Desired Character: Further research is needed to determine how to better define this axis with more formal tree plantings (especially along Johnson Lane). Also, there may be opportunities to better define the western terminus when the parking lot is developed for university use. Additional plantings should maintain an open grassy center and preserve the view corridor from "The Pioneer Mother" to "The Pioneer" (refer to the Gerlinger Axis).

Kincaid Terminus

Existing Character: The most noticeable feature of this open space is a row of mature Douglas fir marking the northern end of the terminus. This row of trees, however, is off-center and blocks the symmetrical entry to Education, which is flanked by two young American planetrees.

Existing Condition: The trees in the open space are in good condition. The large red oak east of the area was lost but has been replaced.

Existing Canopy Coverage: about 53%

Desired Character: An opportunity exists to better define this terminus, but additional work is required to define appropriate tree-planting options. At the same time, the possibility of enhancing the approach with street trees along Kincaid Street should be considered.

Knight Library Cross-axis

Existing Character: This pedestrian walkway leading from Kincaid Street to University Street includes portions of the Women's Memorial Quadrangle and the Memorial Quadrangle, both of which are listed on the National Register of Historic Places. It has a traditional campus character with informal plantings of mature, large-canopy shade trees planted on either side of the walkway. The large European beech tree south of the Museum of Art contributes significantly to the character of axis.

An inventory of important educational trees has not been completed for this area.

Condition: The pin oak adjacent to the beech tree is in decline due to a past injury.

Existing Canopy Coverage: about 55%

Desired Character: The existing character of the area should be preserved and enhanced.

Southwest Campus Axis

Existing Character: This axis, reaching from Education south to 18th Avenue, is poorly defined. It consists partly of a parking lot / drive and partly of grassy, open space interspersed with informal plantings of deciduous and coniferous trees. Many trees in this area are important educational trees, including the ginkgo and cluster pine near 18th Avenue, the young ginkgo trees and dawn redwood near Education; and

the golden weeping willow, dragon-claw willow, ambrozyana Hispanic oak, Japanese pagoda tree, white mulberry tree, and cluster of birch in front of Music.

Existing Condition: The trees in the area are generally in good condition.

Existing Canopy Coverage: about 21%

Desired Character: Future development plans for this area should incorporate improvements to this axis. Planting additional trees to better define the axis should preserve the view of the historic west entry to Beall Hall, enhance the view from 18th Avenue looking north down the axis, preserve the mix of sunny and shady spots, and shade the west side of Music. The important educational trees should be afforded extra care.

Tennis Court Axis

Existing Character: This narrow pedestrian axis, extending from 15th Avenue north to 13th Avenue, bisects the EMU promenade. It is partially lined with American sweetgums and other deciduous large-canopy trees. The pathway borders the tennis courts and passes through an intentionally sunny, grassy area designed to provide outdoor activity space for special events and informal recreational space for students residing in the dormitories.

Existing Condition: The trees in this areas are generally in good condition. Some of the pines in the adjacent area near the EMU are in a state of decline.

Existing Canopy Coverage: about 38%

Desired Character: The existing character of the area should be preserved and enhanced, ensuring that the tennis courts and activity areas remain open and sunny.

University Street Axis (including the intersection of University Street and 13th Avenue)

Existing Character: This axis reaches all the way from Lawrence Hall south to 18th Avenue. University Street is open to automobiles between 13th Avenue and 18th Avenue and is a typical tree-lined street. The majority of trees are maples and oaks, with the exception of the area south of McArthur Court, which includes a wider mix of deciduous trees. Pin oaks dominate the portion north of 13th Avenue, known as the Lawrence Hall view corridor. The LRCDP recognizes these pin oaks as significant trees, which help form or reinforce the identity of the view corridor.

This axis is adjacent to Gerlinger Hall and Hendricks Hall, both of which are listed on the National Register of Historic Places, and the Collier House, which is listed as a City Landmark. The recently completed University Street Axis Conceptual Study provides additional information about existing conditions.

The two kobus magnolias west of the EMU are important educational trees. An inventory of important educational trees has not been completed for the entire axis.

Existing Condition: Some of the tree-planting areas have restricted root zones, restricting full growth capacity. This is particularly true at the southern end of the axis in the street diagonal parking area and at the northern end of the axis where the pin oaks are in planters. Some trees are affected by typical compaction problems evident in high foot-traffic areas. The mature fir and big-leaf maple east of the Collier House are in a state of decline. In addition, the Kentucky coffee tree west of the EMU and the black locust west of Esslinger are in poor condition.

Existing Canopy Coverage: about 22%

Desired Character: An effort should be made to soften the hardscape by finding new places with adequate growing room for trees, with the exception of the intersection of University Street and 13th Avenue. The proposed Heart of Campus project proposes an open, sunny small public square at this intersection with limited trees around the perimeter.

The trees identified as significant by the LRCDP are to be afforded extra care. The LRCDP states that a program for replacement of these trees as they reach the end of their natural life cycles will be needed in order to preserve the existing character. In addition, the important educational trees deserve extra care.

The recently completed University Street Axis Conceptual Study provides more information about the desired character of this area. For additional information about the street edge adjacent to the Straub Quadrangle, refer to "Straub Quadrangle."

5.4 Designated Open Spaces: Other

Gerlinger Field

Existing Character: This open, grassy playing field preserves the view of the south side of the historic Gerlinger Hall sun porch. The site and building are part of the Women's Memorial Quadrangle National Register designation. The only trees planted on the site are on the eastern edge adjacent to University Street, consisting mainly of a dense row of steel Lawson false cypress and a pair of Douglas fir. Although not part of the open space, the Pioneer Memorial Cemetery conifers along the southern edge contribute to the area's character and are maintained by the university.

An inventory of important educational trees has not been completed for this area.

Existing Condition: The trees on university property are in good condition. There are concerns, however, about the stability of the conifers along the steep bank of the Pioneer Memorial Cemetery just south of Gerlinger field.

Existing Canopy Coverage: about 8%

Desired Character: The existing character of the tree canopy should be preserved and enhanced. Further study is necessary to determine if there are ways to improve the current tree canopy while maintaining the open playing field. The university should continue to work with the Pioneer Memorial Park Association to maintain the conifers along the southern edge of the field.

Glenn Starlin Courtyard

Existing Character: This quiet courtyard enclosing the Museum of Natural History entrance is planted primarily with native species of trees and plants and serves as an outdoor classroom associated with the Museum of Natural History.

Existing Condition: The trees in this area are relatively young and in good condition.

Existing Canopy Coverage: about 41%

Desired Character: A mix of sunny and shady areas is desirable to accommodate various native plantings and provide seating opportunities. It may be possible to plant additional native trees to better enclose the open space while maintaining the view of the Museum of Natural History from the intersection of Agate Street and 15th Avenue. Additional trees in the adjacent parking area are also desirable to reduce its visual impact and to shade the paved surfaces.

Humpy Lumpy Area

Existing Character: This sunny open area at the northwest corner of the Agate Street and 15th Avenue intersection is dotted with large and small shade trees. It is designed to provide informal outdoor activity space for students residing in the dormitories. This area also encompasses two street edges. There are two large street trees, an American planetree and an American elm, along 15th Avenue, but only smaller trees along Agate Street (refer to "Agate Street Axis").

An inventory of important educational trees has not been completed for this area.

Existing Condition: Some trees have been lost in the short-lived plum groves, but they have been replaced.

Existing Canopy Coverage: about 26%

Desired Character: The two street edges could benefit from additional large-canopy trees to help shade the street surface and buffer the humpy lumpy open space from auto traffic. There is also an opportunity to shade the west side of the Bean residence hall complex. New trees should not interfere with the safety of the area or the intentionally sunny humpy lumpy area.

Millrace

Existing Character: The Millrace is a unique water feature on the north side of campus. This document addresses the portion of the Millrace east of Onyx Street under university ownership. This area is informally lined with a mix of deciduous trees, including black walnuts, fruit trees and some native species. The Riverfront Research Park Master Plan governs the portion west of Onyx Street, and the university does not own the southern bank of the Millrace east of Gallery walk.

An inventory of important educational trees has not been completed for this area.

Existing Condition: The trees are generally in good condition. Some invasive species, including some poplar have been removed.

Existing Canopy Coverage: about 29%

Desired Character: Proposed plantings should be compatible with and enhance this unique waterway. The Millrace area provides an opportunity to plant native riparian trees that may not be appropriate on the main campus. Appropriate native plantings to help stabilize the banks, filter storm water, and shade the water to reduce evaporative effects (such as the recent plantings near the duck pond) are encouraged when replacement of existing non-native trees occurs. A portion of the Millrace is adjacent to the urban farm and additional tree plantings should ensure that the urban farm remains open and sunny.

Villard Hall Open Area

Existing Character: This area has a traditional, informal arrangement of mature conifers interspersed in a lawn setting. Within the Villard Hall National Landmark boundary, it is prominently situated adjacent to Franklin Boulevard and provides views of Villard Hall. Two mature ponderosa pines flank the walkway leading from Dad's Gate to Villard Hall.

An inventory of important educational trees has not been completed for this area.

Existing Condition: Some of the conifers, particularly the ponderosa pines, are in a state of decline due to old age, overwatering, and disease. Although native to the region, ponderosa pines are not well suited to the valley floor. Also, frequent breakage is a problem with the mature firs.

Existing Canopy Coverage: about 28%

Desired Character: The existing character of this area should be preserved and enhanced. Initiating a replacement program and adjusting the watering and planting regime so that the trees are not overwatered are high priorities.

Williams Bakery Park

Existing Character: This open space, donated by Williams' Bakery, is prominently situated between Franklin Boulevard and the bakery. It has an undefined character consisting of a lawn interspersed with a mix of deciduous trees, primarily European beech.

An inventory of important educational trees has not been completed for this area.

Existing Condition: The area has poor drainage and remains wet a large portion of the year, which limits appropriate species. Some of the trees transplanted from the Science Facilities Additions and Alterations project are not well suited to the area and have died or are in poor condition.

Existing Canopy Coverage: about 4%

Desired Character: This area is neither traversed by pedestrians nor used for seating, which provides an opportunity for a denser canopy. Future tree plantings, however, should address all requirements established by Williams' Bakery, including preservation of the view of Williams' Bakery from Franklin Boulevard. In addition, this open space will likely serve as a primary vehicular entrance to the university when the Bus Rapid Transit is built along Franklin Boulevard. Opportunities to enhance future building construction on the parking lot site to the west should also be considered.

5.4.1 Table: Designated Open Spaces: Applicable LRCDP Patterns

LRCDP Pattern	Pattern Description	13th Avenue Axis West	13th Ave. Axis East	Agate Street Axis	Dad's Gate Axis	Deady Hall Walk	Gallery Walk	EMU Promenade	Gerlinger Hall Axis	Gerlinger Field	Glenn Starlin Courtyard	Humpy Lumpy Area	Johnson Lane Axis	Kincaid Terminus	Knight Library Cross-axis	Memorial Quadrangle	Millrace	Old Campus Quadrangle	Science Green	Straub Hall Quadrangle	Southwest Campus Axis	Tennis Court Axis	University Street Axis	Villard Hall Open Area	Williams Bakery Park
Activity Nodes	*Create small centers of activity separated by quiet space.*	*	*		*		*	*		*	*	*	*	*	*	*	*	*	*		*	*	*		
Accessible Green	*Maintain an open space in proximity to all buildings*				*		*	*	*	*	*	*	*		*	*	*	*	*	*	*	*		*	
Local Sports	*Scatter facilities for physical exercise around campus.*						*	*		*		*				*	*	*				*			
Main Entrance	*Main entrances to buildings should be distinctive and easily identifiable from main approaches.*	*	*	*	*	*								*							*		*		*
Positive Out-Door Space	*Place and form buildings to define and partially enclose outdoor space.*				*		*		*	*	*					*		*	*		*				
Public Out-Door Room	*Make outdoor places with some enclosure; mark them.*				*				*												*				
Quiet Backs	*Connect buildings to a quiet space, removed and buffered from adjacent sources of noise.*				*		*	*	*		*	*					*	*	*	*				*	
South Facing Outdoors	*Buildings should be designed to create south-facing outdoor spaces whenever possible.*				*		*	*		*		*	*					*							
Promenade	*Develop a major pedestrian way, centrally located with main attractors at each end to link principal activity nodes.*	*	*	*	*	*	*	*					*		*			*		*	*	*	*		
University Streets	*Major campus activities should front on public streets that are essentially pedestrian in nature.*	*	*	*	*		*					*	*					*		*	*		*		*
Shielded Parking	*Screen parking lots from view by landscaping, walls, or topographic features.*	*	*	*			*				*		*					*		*	*		*		*

6.0 Establishing Project Responsibilities for Trees

6.1 General Requirements

This section defines the responsibilities each project must adhere to for tree replacement and planting. The guidelines focus on a qualitative versus a quantitative approach.

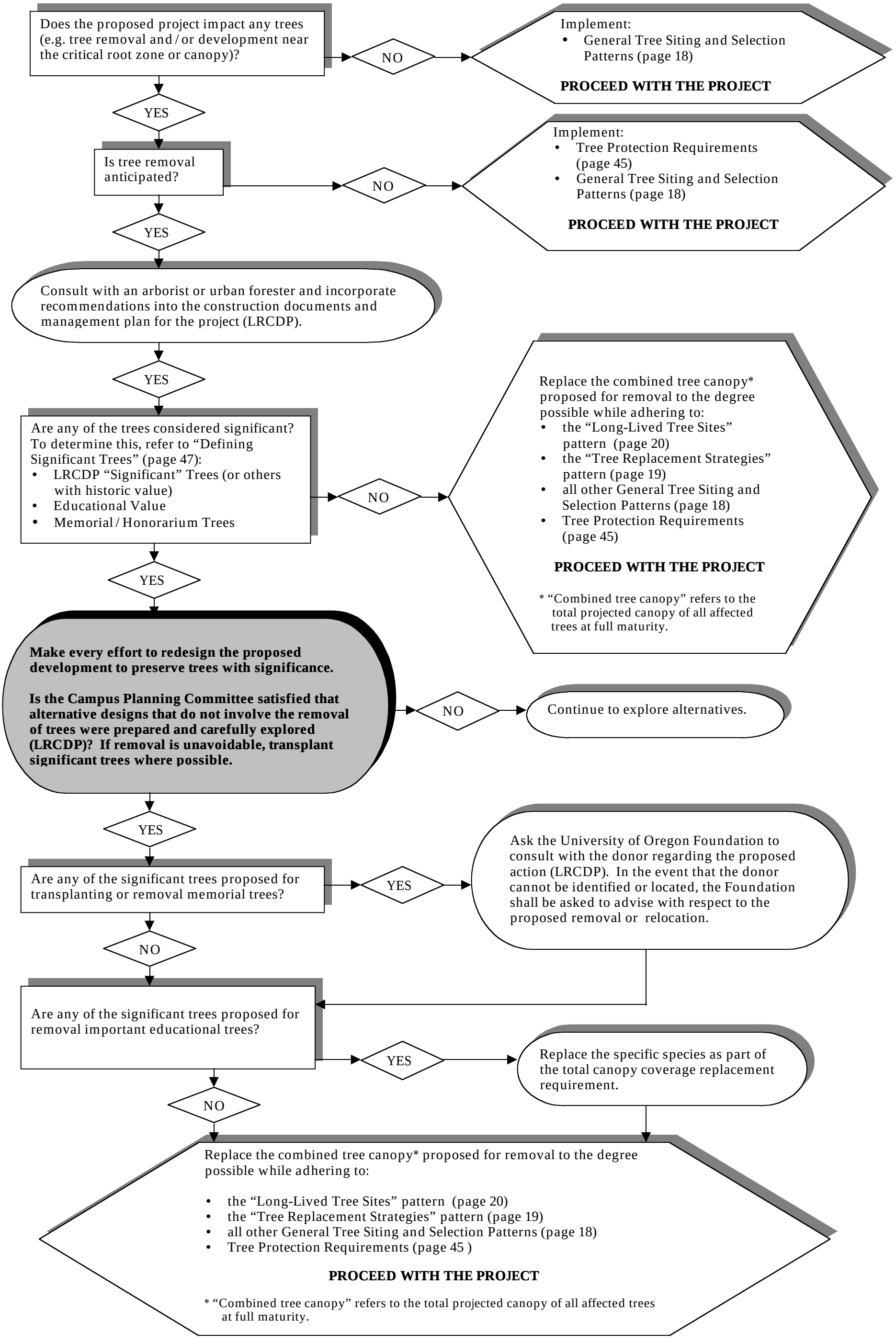
The LRCDP states that:

> When constructing buildings, the removal of trees or other substantial vegetative stands sometimes is unavoidable. . . . In preparing a plan to be adopted at Level 3 [schematic design for a project] in which the removal of a tree or construction activity in the vicinity of a tree is contemplated, the professional services of a qualified consulting arborist or urban forester should be sought. Accepted recommendations of the arborist are to be incorporated into the construction documents and management plan for the project. (36-37)
> . . .
> [Furthermore, I]n approving a Level 3 plan that requires the removal of trees or significant plant materials, the Campus Planning Committee shall be satisfied that alternative designs that do not involve the removal have been prepared and carefully explored. (36)

The following flow chart incorporates these LRCDP requirements into a step-by-step process that every project must follow.

Every development project on campus must adhere to the steps covered in the following flow chart:

6.1.1 Table: Decision Tree



6.2 Tree Protection During Construction

The SPD "Healthy Ecosystems" pattern states that all development will protect the existing ecosystems to the greatest extent possible (refer to Appendix B for the complete pattern text). To implement this pattern, every effort shall be made to preserve the integrity of the site, in particular trees, significant plant materials, and topsoil. It is important to remember that half of a tree's biomass is underground, so it is essential to protect the root zone by allocating adequate space and establishing suitable soil conditions.

Tree Protection Requirements

The following describes the procedures and documentation that must be contained in all project specifications / drawings to protect existing trees and plants during construction. All related construction drawings, including project site, landscape, and demolition plans, shall be approved, by the Landscape Architect in consultation with the project arborist, and contain the information listed below. The university has final approval in all matters.

- **Intent** — The following requirements are designed to prevent damage to plant materials including trees, ground cover, root systems, soil, bark, foliage, branches, and limbs due to construction activities, including, but not limited to:
    - Soil contamination, erosion, and compaction
    - Excessive wetting, ponding and construction run-off
    - Alteration of grade, stockpiling of soil, debris, and materials
    - Damage to soil, roots, bark, trunk, limbs, branches, and foliage
    - Unauthorized cutting, breaking, skinning and abrasion of roots, branches, and bark

- **Authorization** — The university will designate a landscape architect who, in consultation with an International Society of Arboriculture (ISA) certified arborist, will represent the university's interest in protecting valuable trees / plants. The landscape architect will be consulted by the design team on all building, utility, and landscape design issues related to the project affecting campus trees / plants. This involvement may start at conceptual deign and will not terminate until project closeout. The landscape architect, in consultation with the arborist, will determine the boundaries for the Zones of Protection and Critical Root Zones, and approve methods for protecting these areas during construction. The landscape architect will also approve methods for tree and root zone maintenance during construction, Zones of Protection posting, and allowable construction activities within the Zones of Protection. The landscape architect will monitor compliance and provide field reports, evaluate Zones of Protection violations, and determine mitigation or monetary losses from violations and damages.

- **Relocated Trees/Plants** — The landscape architect, in consultation with the arborist, will identify all trees and plants to be relocated prior to demolition / construction.

- **Saved Trees/Plants** — The landscape architect, in consultation with the arborist, will identify all trees and plants to be saved.

- **Zones of Protection** — The landscape architect, in consultation with the arborist, will determine the boundaries for the Zones of Protection for all trees / plants to be saved. Minimum protection of these zones will be a rigid 6-foot chain link or plywood fence. The following activities are prohibited in the Zone of Protection without prior written approval from the landscape architect: removal or moving of protective fencing, operation of equipment, parking vehicles, staging materials, cleaning equipment, trenching, excavations, stockpiling, flooding, and altering drainage. Tree trunks are to be protected as specified by the landscape architect, in consultation with the arborist, if there is a risk of contact by equipment. No trimming of tree canopies will be allowed without prior approval. When fencing is removed, all requirements still apply.

- **Critical Root Zone**s — The landscape architect, in consultation with the arborist, will determine the boundaries of the Critical Root Zones within the Zones of Protection where the only soil disturbances allowed are trenchless boring at specified depths, "air spade" trenching, or hand digging. No roots larger than 1 1/2" in diameter will be cut without prior approval by the landscape architect in consultation with the arborist. All cuts will be made with clean, sharp cutting tools only. No root tearing, ripping or abrasions are allowed. Exposed roots will be kept moist and protected from sun and frost at all times.

- **Procedural Proposal for Tree and Plant Protection** — Prior to any demolition or construction, the landscape architect, in consultation with the arborist, will outline materials and procedures to be used in protecting Zones of Protection including scheduling of mulching and maintenance, procedures for obtaining variances, relative timing for removal of protective fencing, and procedures for protecting Zones of Protection after fencing is removed. The contractor shall submit requests to work within the Zones of Protection following procedures established by the landscape architect.

- **Posted Notices** — Notices will be posted on Zones of Protection fencing listing prohibited activities without prior approval. These notices will remain in place until authorization is granted by the landscape architect to remove them.

- **Violations and Compensation** — Damages of two-hundred dollars ($200.00) per incident will be assessed for violation of these requirements. Additional compensation will be made to the owner for actual damages to tree foliage, branches, trunks, roots, and soil. These damages will be established by the landscape architect, in consultation with the arborist, based on the standards of the ISA. Damages can be waived if the tree is replaced with like species and size and has a full one year unconditional guarantee.

- **Additional Requirements** — Additional requirements should be incorporated into the project specifications / drawings as necessary to ensure adequate tree / plant protection as stated in #1.

6.3 Defining Significant Trees

When proposed development may negatively impact trees (e.g., adjacent construction and / or removal), it is important to define the significance of the affected trees. If a tree meets one or more of the characteristics stated below, every effort should be made to preserve it. The steps noted in the tree responsibility flow chart should be followed.

The following characteristics should be considered when determining the significance of a tree:

- LRCDP Significant Trees (or others with historic value) — The LRCDP identifies thirteen "significant trees" that are to be afforded extra care (refer to Appendix A). This list of significant trees has not been updated since 1991 and should not be considered comprehensive. Other trees associated with significant events related to the university's history deserve special attention.

- Educational Value — As stated in the LRCDP, the university campus is in fact an arboretum. The plant materials on the campus not only have an aesthetic significance, but also constitute a valuable teaching resource, particularly but not exclusively in biology and landscape architecture. For this reason, the academic or instructional value of individual materials is to be determined before existing vegetation is removed or relocated. Trees that are excellent examples of a particular species due to their size and condition or are the sole examples on campus also deserve special consideration.

- Memorial / Honorarium Trees — Trees designated in memory or in honor of an individual are subject to special care. The LRCDP states that the University of Oregon Foundation should be asked to consult with the donor regarding the proposed action. If the donor cannot be identified or located, the Foundation shall be asked to advise with respect to the proposed removal or relocation. Records of memorial plantings are maintained by the Foundation and by Facilities Services.

7.0 Looking Forward

This document is not intended to fully address a number of issues or provide all pieces of information. The following actions should take place as soon as possible to ensure effective implementation of this plan:

Update and Enhance the Tree Database — The tree database created in 1996 as part of the Atlas of Trees project is an invaluable resource. Unfortunately, it has not been updated. This is the first step required to ensure proactive tree management. Additional data fields identifying memorial/honorarium trees, educational trees, and species variety names would greatly enhance the ability to manage campus trees.

Initiate a Tree Replacement Program — Trees that are removed due to poor health have generally been replaced, and some initial work has been completed to assess the health of campus trees. A more proactive approach is necessary to replace trees in decline and maintain the character of the campus. Replacement priorities should be determined by the policies established in the tree patterns and be based on the analyses of the designated open spaces provided in this document.

Prepare a Comprehensive Landscape Analysis - The health and longevity of the campus trees are tied to a symbiotic relationship between the trees and the understory landscape. Future efforts to map out and analyze the landscape as a whole are recommended. In addition to identifying landscape features, a site analysis map showing soil and drainage conditions (e.g. soil type, wet areas, native vs. disturbed soils, old waterways and road beds) would be very useful, beginning with the designated open spaces.

Complete Analyses of the Desired Character of Designated Open Spaces — As noted in this document, further work is required to determine the desired tree-canopy character for some of the designated open spaces.

Enhance the Tree Diagnoses — Using this plan as a basis for analysis, future campus diagnostic studies should integrate information about campus trees. Such diagnoses would aid in determining where to focus management efforts.

Amend the Designated Open Spaces — Some significant open spaces on campus are not identified in the LRCDP as Designated Open Spaces. Future consideration should be given to protecting spaces used as outdoor classrooms (e.g., playing fields and the urban farm) as well as spaces connected to the open-space framework (e.g., the Condon oaks site north of the Old Campus Quadrangle and the Women's Memorial Quadrangle). Also, the open space framework should be extended to cover all areas of campus, particularly in east campus where the university is expanding, and north of Franklin Boulevard.

Appendices

Collier House, c. 1900

Appendix A: Long Range Campus Development Plan Excerpts

Summary of Long Range Campus Development Plan Policies Addressing Tree Management on Campus

V. Land Development Policies (LRCDP pp. 13-14)

Level 1 Policies and Standards

The following policies and standards are to be applied campus-wide:

1. The policy of the university is to encourage preservation, completion and/or extension of the fundamental and historic concepts of spatial organization of the campus. The University of Oregon campus is organized as a system of quadrangles, malls, and other open spaces. The quadrangles are formed and framed by the fronts of three- and four-storey buildings on the long sides and by a monumental building at one end. They are connected to other quadrangles by malls which transect them near one end.

(a) This organizational framework not only functions well, but serves as a physical representation of the university's heritage, and should be preserved, completed, and extended as opportunities arise. A few building sites on established quadrangles remain to be developed. They should be reserved for significant academic buildings that will contribute to the overall character of the space as well as promote the other policies of this plan.

5 Preservation of this organizational framework requires that the open spaces in quadrangles, malls, and view corridors be protected from encroachment. For this reason, no development shall occur in the significant open spaces identified on Map 3 except as this prohibition is specifically modified by applicable Level 2 policies.

. . .

4. All plans developed at Level 3 for individual building projects shall identify existing uses and activities that will be displaced by the proposed project, together with plans for replacement thereof. Unless the President specifically agrees to the contrary in advance, or unless provisions for these replacement uses are included in a separately authorized project, sufficient funds for accommodating the required replacement shall be included in the budget for the proposed project. In the case of replacing vehicle parking, consideration shall be given to the location of replacement facilities. The replacement spaces should be sited to serve the same general area as the spaces being replaced.

VIII. Campus Landscape Policies (LRCDP pp. 36-42)

Level 1 Policies and Standards

The following policies and standards apply campus-wide:

Plant Materials

1. Landscape materials are assets to the campus and are to be carefully selected and properly maintained.

2. In selecting and positioning landscape materials, consideration shall be given to the ways in which the vegetative materials can aid the university in achieving its goals for energy efficiency.

3. The university campus is in fact an arboretum. The plant materials on the campus not only have an aesthetic significance, but also constitute a valuable teaching resource, particularly but not exclusively in biology and landscape architecture. For this reason, the instructional benefits to be obtained by introducing materials not now present should be considered in selecting plants to replace existing materials or to establish new plantings. Similarly, the academic or instructional value of individual materials is to be determined before existing vegetation is removed or relocated.

4. Vegetation on the campus is to be planted and managed in a way that avoids excessive damage to buildings, eliminates conditions which contribute to personal safety problems, reduces susceptibility to pest infestation, minimizes reliance upon the use of pesticides, and contributes to the aesthetic quality and enjoyment of the campus as a whole. Materials likely to require excessive maintenance should be avoided or judiciously located. Appropriate Physical Plant personnel are to be consulted in a timely manner prior to planting new materials.

5. When constructing buildings, the removal of trees or other substantial vegetative stands sometimes is unavoidable. However, in approving a Level 3 plan that requires the removal of trees or significant plant materials, the Campus Planning Committee shall be satisfied that alternative designs that do not involve the removal have been prepared and carefully explored. In cases where alternatives are not feasible, to the maximum extent practical, these materials should be transplanted rather than destroyed.

6. In preparing a plan to be adopted at Level 3 in which the removal of a tree or construction activity in the vicinity of a tree is contemplated, the professional services of a qualified consulting arborist or urban forester should be sought. Accepted recommendations of the arborist are to be incorporated into the construction documents and management plan for the project.

7. Prior to relocating or removing a tree or significant planting that was donated to the university as a memorial, the University of Oregon Foundation is to be asked to consult with the donor regarding the proposed action. In the event that the donor cannot be identified or located, the Foundation shall be asked to advise with respect to the proposed removal or relocation. *N.B. Records of memorial plantings are maintained by*

the Foundation and by the Physical Plant Department; documents related to donated trees also are available in the University of Oregon Archives.

8. Trees which help form or reinforce the identity of recognized malls, promenades, and view corridors identified on Map 3 are significant trees and are to be afforded extra care. Examples include, but are not limited to, the English Oaks, which frame the Memorial Quad; the Pin Oaks, which line the promenade from 13th and University to Lawrence Hall; and the Douglas fir, which flank the walk from Deady to Kincaid Street. A program for replacement of these trees as they reach the end of their natural life cycle will be needed in order to assure that they can continue to function in this fashion.

9. Whenever possible and appropriate, plant materials are to be used to screen uses such as parking lots and service areas, and to soften the visual impact of fences and similar barricades.

. . .

Level 2 Policies

The Level 1 policies adopted above are amplified or modified in specific application as follows:

[Special Conditions for Analytical Areas
Special conditions for specific landscaped areas are identified for each analytical area— e.g.,. identifies landscapes listed on the National Register of Historic Places, such as Memorial Quad and Women's Quad, and defines specific uses, such as playing field. Please refer to pp. 19-29 of the LDCDP for a complete description**.]**

Plant materials

Area 12. This area contains eight living trees that have been identified as "class trees." These trees, identified below and on Map 5, are of special significance to the university and are to be afforded extra care:

Map No.	Class	Botanical Name	Common Name
1	1879	Cryptomeria japonica	Cryptomeria
2	1880	Sequoia gigantea	Giant Sequoia
3	1883	Ulmus carpinifolia	Smoothleaf Elm
4	1894	Juglans nigra	Black Walnut
5	1895	Tilia europaea	European Linden
6	1897	Quercus garryana	Oregon White Oak*
7	1898	Umbellularia californica	California Laurel
8	1900	Quercus garryana	Oregon White Oak*

* These trees, also known as the "Condon Oaks," were existing at the time of their "adoption" by the classes of 1897 and 1900. There is some evidence suggesting that they existed at the time the campus was established.

This area also contains two other trees of special significance to the university which are to be afforded extra care. They are:

(a) A *Metasequoia glyptostroboides* (Dawn Redwood) located north of Robinson Theatre (Number 9 on Map 5). This tree was one of two planted on the campus from the original shipment of seed from China.

(b) An *Acer macrophyllum* (Big-leaf Maple) near the southeast corner of Deady Hall (Number 10 on Map 5). This tree is the sole survivor of the original campus planting of 1884.

Area 14. This area contains one of two *Metasequoia glyptostroboides* (Dawn Redwood) planted on the campus from the original seed shipment from China. It is situated south of the front entrance to Columbia Hall and is to be afforded extra care (Number 11 on Map 5).

Area 24. Because of its size and unique character, the *Acer palmatum* "Threadleaf" (Threadleaf Japanese Maple) near 13th Avenue northeast of Johnson Hall is to be afforded extra care (Number 12 on Map 5).

Area 31. This area contains a *Pseudotsuga menziesi* (Douglas fir) which grew from a seed that was among four fir seeds carried to the moon aboard Apollo XIV in 1971 by Astronaut Stuart Roosa (Number 13 on Map 5). In 1978 the seedling was planted where Willamette Hall now stands; it was transplanted in 1987 to accommodate construction of the additions to the Science complex. It should be afforded extra care.

Appendix B: Sustainable Development Plan Excerpts

Excerpt from the 2000 Sustainable Development Plan:

Campus Trees

The university's trees provide significant defining features on campus and are vital components of the local ecosystems.

Therefore: Development will preserve and protect existing trees to the maximum extent possible and plan for continued enhancement of the campus forest.

Approaches/Examples:

- Preserve and protect the integrity of trees (supported by LRCDP policies, page 36, #5-8).
- Prepare and implement a Campus Tree Forest Plan.
- If proposed development requires removal of a tree, provide funds to replace the tree either on the development site or elsewhere on campus, as determined by the Forest Management Plan.
- Consider whether the massing and shape of proposed development provide adequate space for large-canopy trees, a defining feature of the campus landscape.

Additional patterns contained in the Sustainable Development Plan related to Campus Trees include:

Site Benefits

Every site is unique and has local environmental qualities which can be used to enhance the sustainability of development.

Therefore: All new development will site and orient the building and landscape features to take advantage of site conditions and context within the parameters of the established organizational framework of the campus.

Approaches/Examples:

- Orient buildings to make optimal use of site conditions such as solar, airflow, lighting, soil, vegetative, and topographic conditions (supported by LRCDP Site Repair pattern, page 15).
- Make usable outdoor spaces (supported by Positive Outdoor Space and South Facing Outdoors and Accessible Green LRCDP patterns, page 15).
- Select and position landscape materials to aid in achieving energy efficiency (LRCDP policy, page 36, #2). Take advantage of trees to reduce cooling loads and use hedgerows or shrubbery to block cold winter winds or help channel cool summer breezes into the building.

Healthy Ecosystems

Ecologically healthy landscapes are essential to long term maintenance of local ecosystems and biodiversity. Each site consists of interconnected living systems, all linked to the environment beyond the site's boundaries.

Therefore: All development will protect the existing ecosystems to the greatest extent possible.

Approaches / Examples:

- Protect parks, forests, wetlands, wildlife habitats, agricultural land, and watersheds to the greatest extent possible.
- Consider how the landscaped areas are linked to one another creating corridors for plants and animals. Integrate animal food sources and shelter. Tie these corridors in with the established open-space framework.
- Use native or well-adapted species for landscaping when appropriate while recognizing the importance of a variety of plant materials necessary for instructional use (LRCDP policy, page 36, #3).
- Maintain an Integrated Pest Management approach which carefully considers plant selection and design instead of using herbicides, pesticides and fertilizers and irrigation whenever possible (supported by LRCDP policy, page 36, #4).
- Preserve the integrity of the site, in particular trees, significant plant materials, and topsoil (supported by LRCDP policies, page 36, #5-8). Develop on previously disturbed areas.
- Maximize noise containment of building systems.
- Minimize night lighting within safety parameters (LRCDP policy, page 38, #1,2,3 & 8). Selection of exterior lighting standards should be consistent with energy conservation concerns (LRCDP policy, page 37, #1 & 7).
- Make underground systems easily accessible. Use vaults where possible to avoid tearing up the landscape.

Appendix C: Process for Developing the Campus Tree Plan

The Campus Tree Plan was prepared by the 2000-2001 Development, Policy, Implementation, and Transportation (DPIT) Subcommittee of the Campus Planning Committee. The need to develop a plan is identified in the 2000 Sustainable Development Plan, specifically in the "Campus Tree" pattern.

The DPIT Subcommittee began work on the Campus Tree Plan in Winter 2000/2001 by reviewing related policies and guidelines already in place at the University of Oregon as well as at other universities and organizations. They also reviewed the history of tree development on campus using historic maps and photographs. This helped the subcommittee identify the primary goals of the plan as well as issues that should be addressed. Limited time and resources meant that not all possible tree and landscape issues could be addressed as part of the Campus Tree Plan.

After developing a draft plan, the DPIT Subcommittee distributed copies to Campus Landscape and Grounds staff in Spring 2001 for review and comment. The draft plan was also reviewed by Scott Plamonden, Oregon State Urban Forester. During this review period, members were invited to a panel discussion on sustainable campus landscapes at the H.O.P.E.S. conference, which helped identify ways to integrate sustainable solutions into landscape practices. In addition, the DPIT presented the draft plan to the full Campus Planning Committee May 3, 2001 for initial review and comment.

In June 2001, the DPIT Subcommittee considered all comments and suggestions, then prepared a final draft for full Campus Planning Committee review.

On October 4, 2001, the Campus Planning Committee reviewed and approved the Campus Tree Plan as a Level 3 Plan. As described in the 1991 Long Range Campus Development Plan (LRCDP), Level 3 Plans are designed to describe the intent and implementation of LRCDP patterns and policies. In this instance, the Campus Tree Plan describes the intent and implementation of patterns and policies related to tree management.