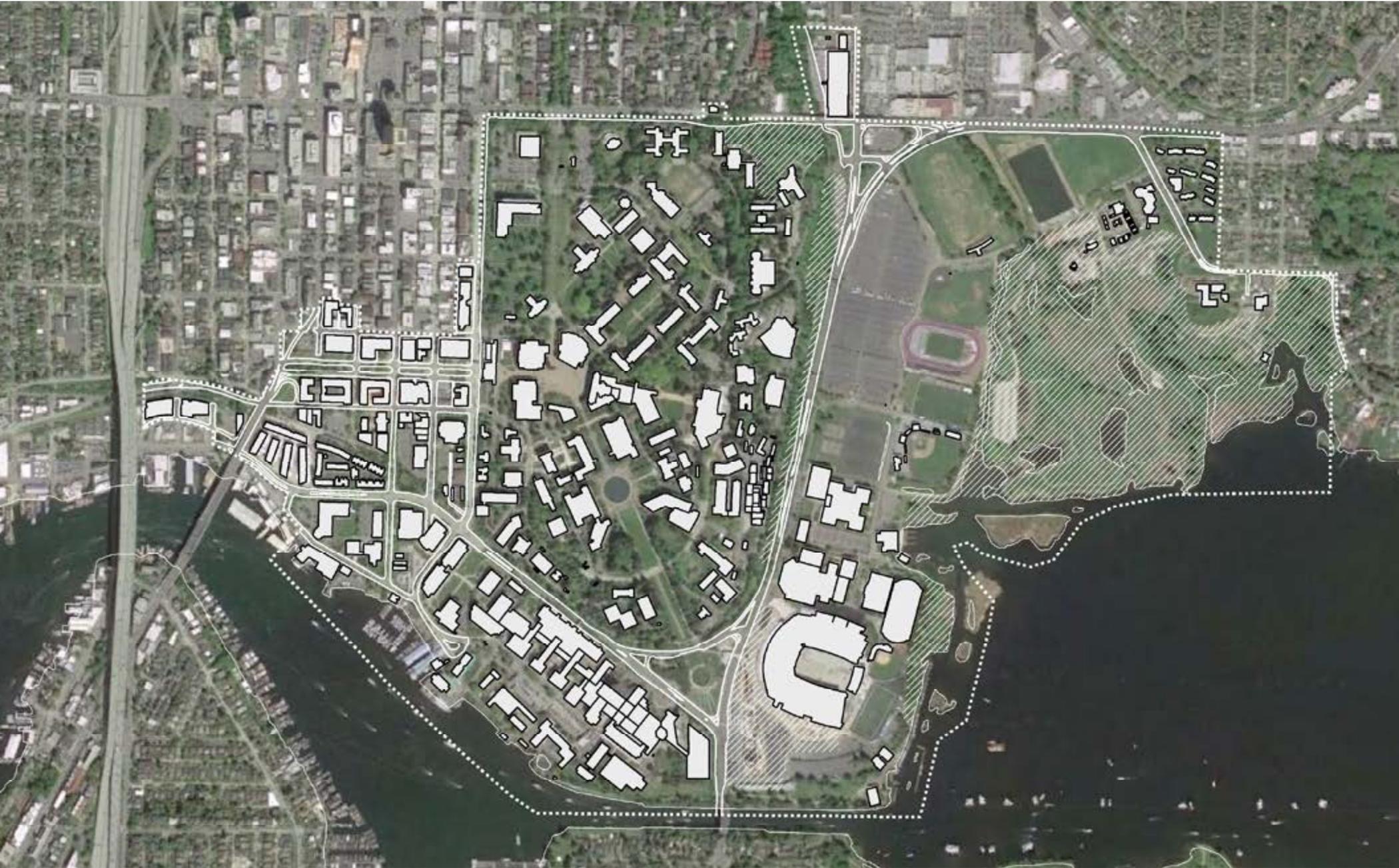


# URBAN FORESTRY + LANDSCAPE FRAMEWORK

UNIVERSITY OF WASHINGTON



# Presentation Goals

- **Provide the City with a greater awareness of the University's Urban Forestry Activities**
- **Support a growing relationship between the University and the City**
- **Gain some guidance from the city on setting goals and strategies related to Urban Forest Management**
- **To facilitate a dialogue of challenges and successes related to tree care and management on Campus**

# Campus Land Cover

Total M.I.O. Area: 655.5 Acres

*The University's primary focus of the Urban Forest Management Plan and this presentation is within the major institution overlay.*

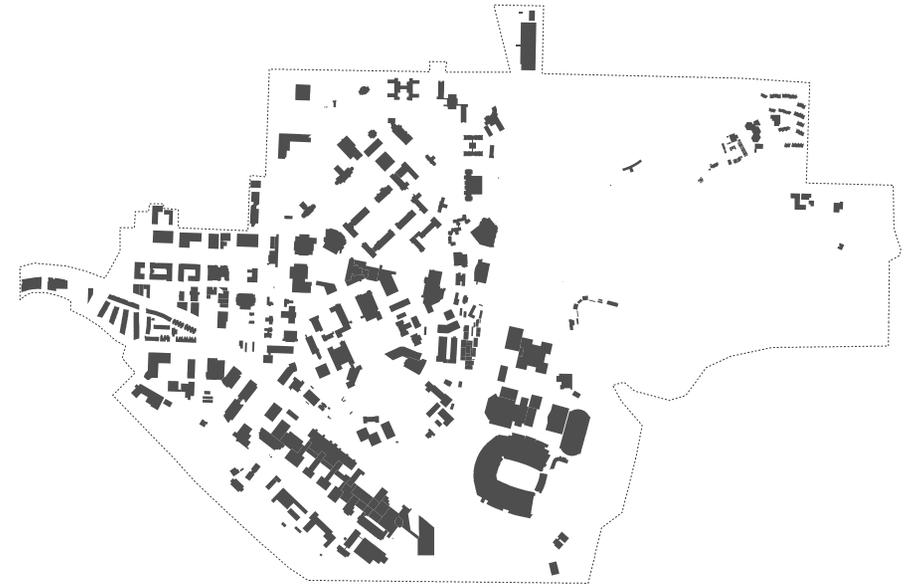


## Land Cover

Land : 538.41 acres | 81%

Water : 64.84 acres | 10%

Public ROW : 62.25 acres | 9%

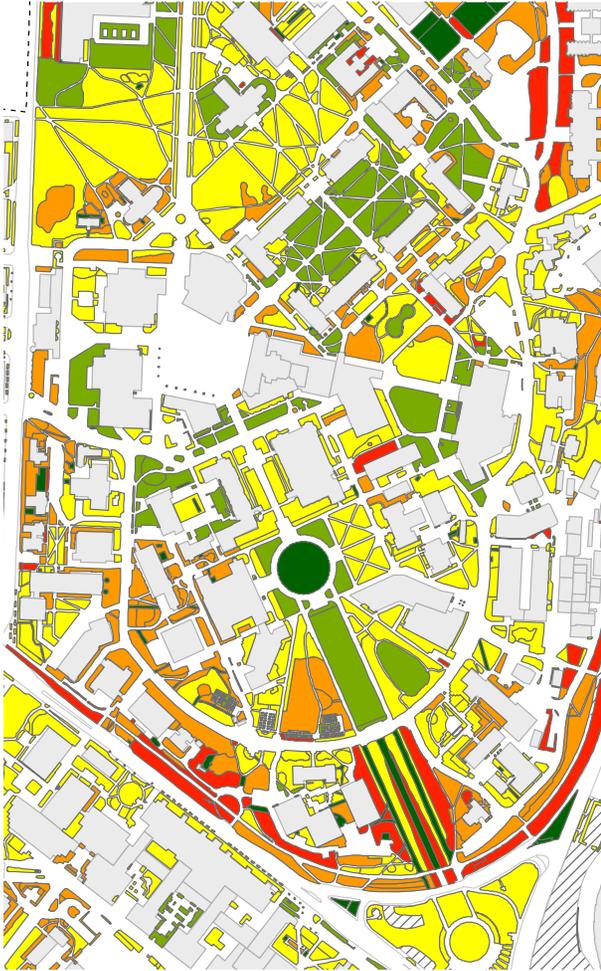


## Building Coverage

# of Buildings : 344

Total Area : 100.83 acres | 15%

# Landscape Management Tools



GIS Mapping



Asset Mapper



Grounds Management

# Landscape Mapping

The entire campus has been surveyed and mapped based on landscape type and maintenance level to aid in the creation of management strategies.

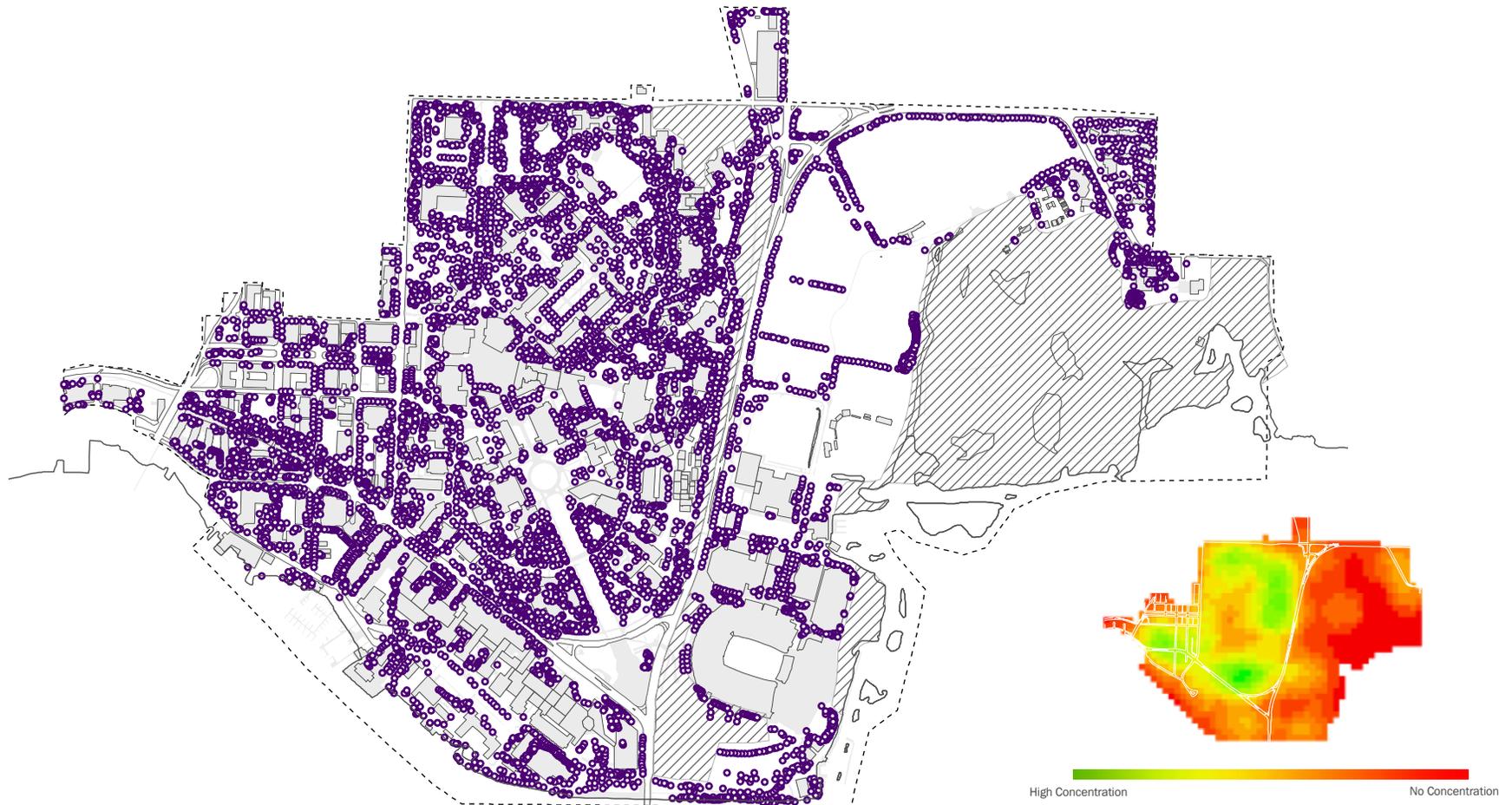


IID	Shape *	OBJECTID	FEATURE_AC	TYPE	PERMEABILI	HANDLE	GISID	FIELD_STAT	FIELD_ST_1	USERID	Area	Assigned_T	Zone	LANDSCAPE_	SHAPE_STA	SHAPE_STL
0	Polygon	1	Verified	Native	Yes			Bed to lawn	4/6/2012	cesare	10906.666547	kylewilcox2	8	4	10906.666565	518.129146
1	Polygon	401	Verified	Native	Yes				4/8/2012	cesare	14580.001197	kylewilcox2	8	4	14580.001254	534.120787
3	Polygon	1207	Verified	Bed	Yes				4/8/2012	cesare	20.005074	kylewilcox2	8	4	20.005074	17.906129
4	Polygon	1208	Verified	Bed	Yes				4/8/2012	cesare	14.629067	kylewilcox2	8	4	14.629068	15.342061
5	Polygon	1210	Verified	Bed	Yes				4/8/2012	cesare	17.039211	kylewilcox2	8	4	17.039211	16.571243

# Campus Tree Survey

8,274 TREES | 417 SPECIES

The University hired Tree Solutions to conducted a comprehensive assessment of all trees on campus. This is continually updated by the University's Arborist.



FID	Shape *	OBJECTID	Tree_Num	GlobalID	FIELD_STAT	FIELD_ST_1	Species_Name	TREE_TYPE	TREE_VALUE	TREE_STATUS	TREE_NUM	NW Nativ	CONDITION	DBH	MIN_EXCEPTIONAL_DBH	SPECIES_CODE
0	Point	1	9368	B14635FB	0	<Nul>	Nyssa sylvatica	Deciduous	480	1	9368	<Nul>	0.69	1.5	30	415
1	Point	2	9414	DOC90B2F	0	<Nul>	Koeleria paniculata	Deciduous	480	1	9414	<Nul>	0.6	3.5	30	329
2	Point	3	9418	028B4ABC	0	<Nul>	Pinus sylvestris	Coniferous	380	1	9418	<Nul>	0.74	1	24	482
3	Point	4	9417	9A2FC283	0	<Nul>	Pinus jeffreyi	Coniferous	380	1	9417	<Nul>	0.74	1	30	457
4	Point	5	9418	1D706455	0	<Nul>	Pinus jeffreyi	Coniferous	380	1	9418	<Nul>	0.74	1	30	457
5	Point	6	9415	9473E0E6	0	<Nul>	Pinus sylvestris	Coniferous	380	1	9415	<Nul>	0.8	2	24	482
6	Point	7	9612	44DB72F6B	0	<Nul>	Taxus heterophylla	Coniferous	380	1	9612	yes	0.71	1.5	<Nul>	698

# Asset Mapper

The screenshot displays the 'Asset Mapper' web application. The main area is a satellite map of the University of Washington campus. At the top of the map area, there are navigation controls: a red 'Logout' button, a 'Map' button (selected), and buttons for 'Satellite', 'Hybrid', and 'UW'. To the left of the map are 'Reset Map' and 'Clear Map' buttons. The right sidebar features the 'UNIVERSITY of WASHINGTON FACILITIES SERVICES' logo with the tagline 'Serving today...preserving tomorrow'. Below the logo are navigation links for 'Search', 'Map', 'Links', 'Contacts', and 'Help'. The 'Campus Finder' section contains a grid of icons: 'W SIGNAGE', 'CAMPUS ACCESS', 'ART', 'BUILDINGS', 'MAP', 'P.O.I.', 'SUSTAINABILITY', and 'TREES'. A 'W FS' icon is positioned below the grid. At the bottom of the map, there is a scale bar (1000 ft / 200 m) and copyright information: 'Imagery ©2014 DigitalGlobe, U.S. Geological Survey, USDA Farm Service Agency - Terms of Use'. The bottom of the sidebar contains the copyright notice: '©2010 Rich Geographic Internet Applications, LLC'.

# Grounds Management

*Grounds Management's mission is to operate, maintain and support the development of quality campus grounds, utilities and building envelopes.*

- *The University of Washington's Ground Management has **34 staff**.*
- *The University has an **ISA Certified Arborist** on staff.*  
The Arborist has a full-time assistance
- *All staff are responsible for maintaining trees. The campus Arborist oversees all tree related operations.*
- *All staff are required to monitor and prune trees, provide clearance for pedestrians, and allow access to roofs and windows within their zone.*



# Urban Forest Management

*The trees on the UW campus are one of its most valuable assets that add beauty and character to the landscape and provide innumerable benefits.*

- *The University manages all trees on campus including any tree planted by the University within the public right-of-way.*
- *The University of Washington has a **1:1 tree removal/tree replacement practice**.*
- *Signage produced by the University is used to denote tree removal.*
- *The University has a **Campus Tree Care Plan***  
[http://depts.washington.edu/grounds/arboriculture/Campus\\_Tree\\_Care\\_Plan\\_Improved.pdf](http://depts.washington.edu/grounds/arboriculture/Campus_Tree_Care_Plan_Improved.pdf)

This document outlines Tree Selection, Site Preparation & Planting, Invasive Species, Pruning, Tree Removal, Protection & Preservation, Tree Salvage Program, & Goals and Targets
- *The **Urban Forest Management Plan** (in-progress) is an effort to update this resource while expanding the scope of the document.*

# Tree Preservation & Removal

*The University has two different processes for identifying trees for removal. The ultimate goal of these processes are to identify options for preservation rather than removal.*

## 1. Hazard or Diseased Tree Removal

- *Campus Arborist and gardeners regularly monitor trees looking for hazards and potential disease.*
- *Prior to removing a tree, it is inspected using the University's Tree Hazard Evaluation Form.*
- *Removal is the last option after considering pruning, cabling, treating, or transplanting.*
- *The University's Arborist removes all trees on campus unless there are unique circumstances.*
- *The stumps of trees that have been removed are ground to be used as mulch.*



**A permit is not acquired for this type of tree removal**

# Tree Preservation & Removal

## 2. Removal due to Development

- First, an outside Arborist is hired to conduct an evaluation of the trees within the area of the project.
- The Arborist provides a tree condition report to the University.
- A site plan for the project is then developed that attempts to save as many significant trees as possible.
- Tree removal plans are submitted to DPD along with all other required documents for permitting.

## Tree Removal Review Boards

***ULAC*** - University Landscape Advisory Committee

***CUCAC*** - City/University Community Advisory Committee

***DPD*** - Seattle Department of Planning and Development

# Tree Classification

The University has developed a form for evaluating the significance of trees on Campus.

## Extraordinary - Exemplary - Significant

TREE INFORMATION	TREE TAG NUMBER	
	LOCATION	
	BOTANICAL NAME	
	COMMON NAME	
	UNIQUE CHARACTERISTICS	
	CONDITION RATING	$CR = ( \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} ) + 0.35 = \underline{\quad} \%$ $CR = (\text{crown} + \text{trunk} + \text{branch structure} + \text{twig growth} + \text{foliage} + \text{insects \& disease} + \text{roots}) + 0.35 = \%$
CRITERIA	<b>RARITY</b> <input type="checkbox"/> MEETS CRITERIA <input type="checkbox"/> DOES NOT MEET CRITERIA	NOTES:
	<b>SPECIMEN</b> <input type="checkbox"/> MEETS CRITERIA <input type="checkbox"/> DOES NOT MEET CRITERIA	NOTES:
	<b>AESTHETIC</b> <input type="checkbox"/> MEETS CRITERIA <input type="checkbox"/> DOES NOT MEET CRITERIA	NOTES:
	<b>CULTURAL + EDUCATIONAL</b> <input type="checkbox"/> MEETS CRITERIA <input type="checkbox"/> DOES NOT MEET CRITERIA	NOTES:
DESIGNATION	<input type="checkbox"/> <b>EXTRAORDINARY</b>	fulfills at least three out of four criteria
	<input type="checkbox"/> <b>EXEMPLARY</b>	fulfills at least two out of four criteria
	<input type="checkbox"/> <b>SIGNIFICANT</b>	fulfills at least one out of four criteria

For permitting, the University uses Director's Rule 16-2008 to define exceptional trees.

# Sustainable Management Practices

## Integrated Pest Management

*To minimize the use of toxic sprays the University takes advantage of natural pest management strategies.*

## Inoculations

*To help keep trees protected from devastating diseases, the University manual inoculates trees annually.*

## Tree Campus USA Annual Planting

*Each year the University works with the local community to plant on average 20 new trees a year. The campus has been a Tree Campus since 2010.*

## Mulch Partnership

*The University has established a partnership with local arborists that allow them to dump their woodchips on campus that is then used for campus landscaping.*

## Salvage Wood

*This program takes trees that need to be removed and harvests them for student furniture making or art pieces.*



# Urban Forest Assessment

Forest Canopy **28.6%** CANOPY COVER

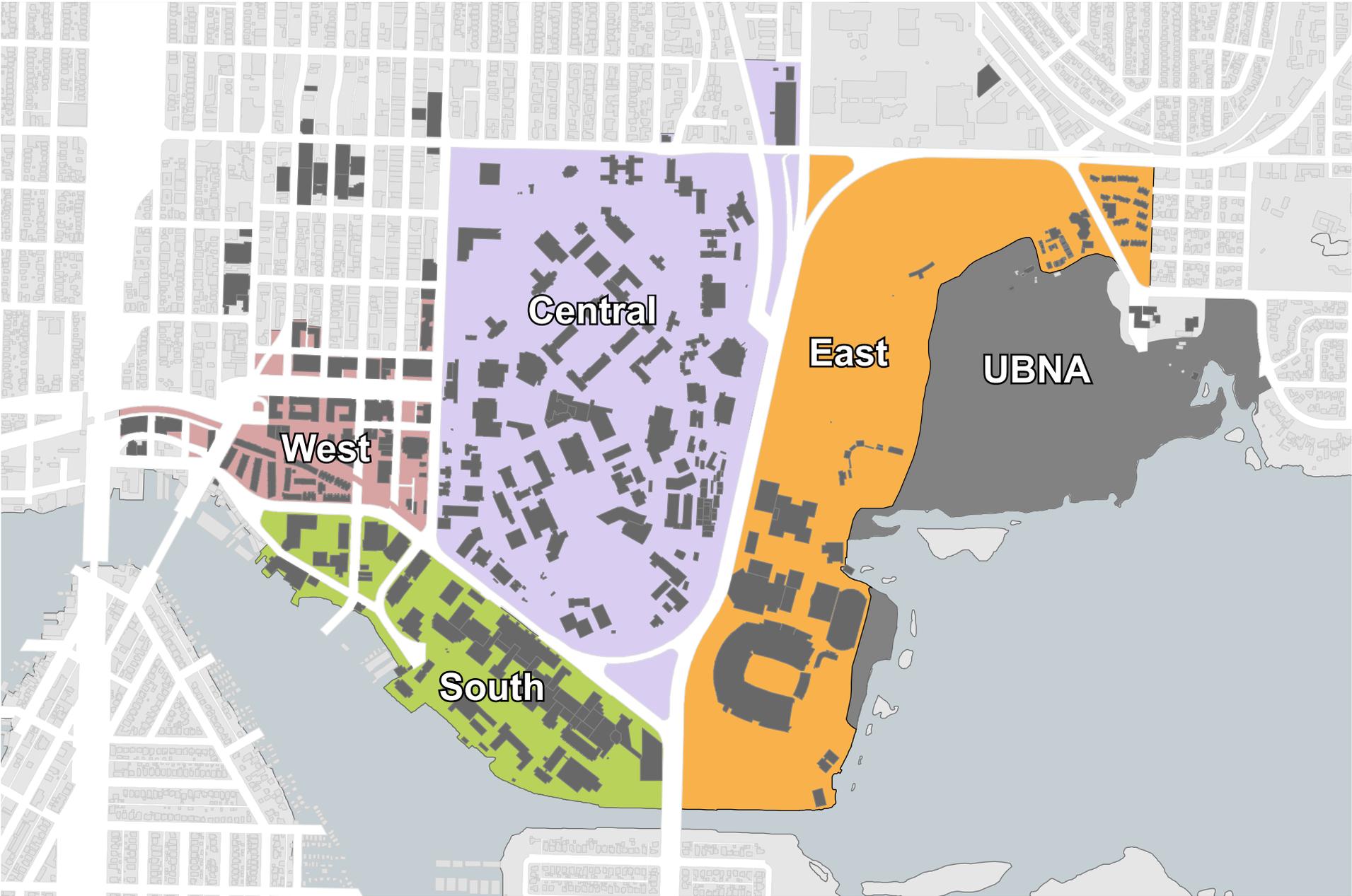
Surveyed Canopy - 94.58 ACRES  
Canopy No-Survey - 30.71 ACRES

$$\left( \frac{\text{Surveyed Canopy} + \text{Canopy No-Survey}}{\text{Total Land} - \text{Building Area}} \right)$$



# Campus Zones

West | South | Central | East



# Campus Zones

## Central Campus

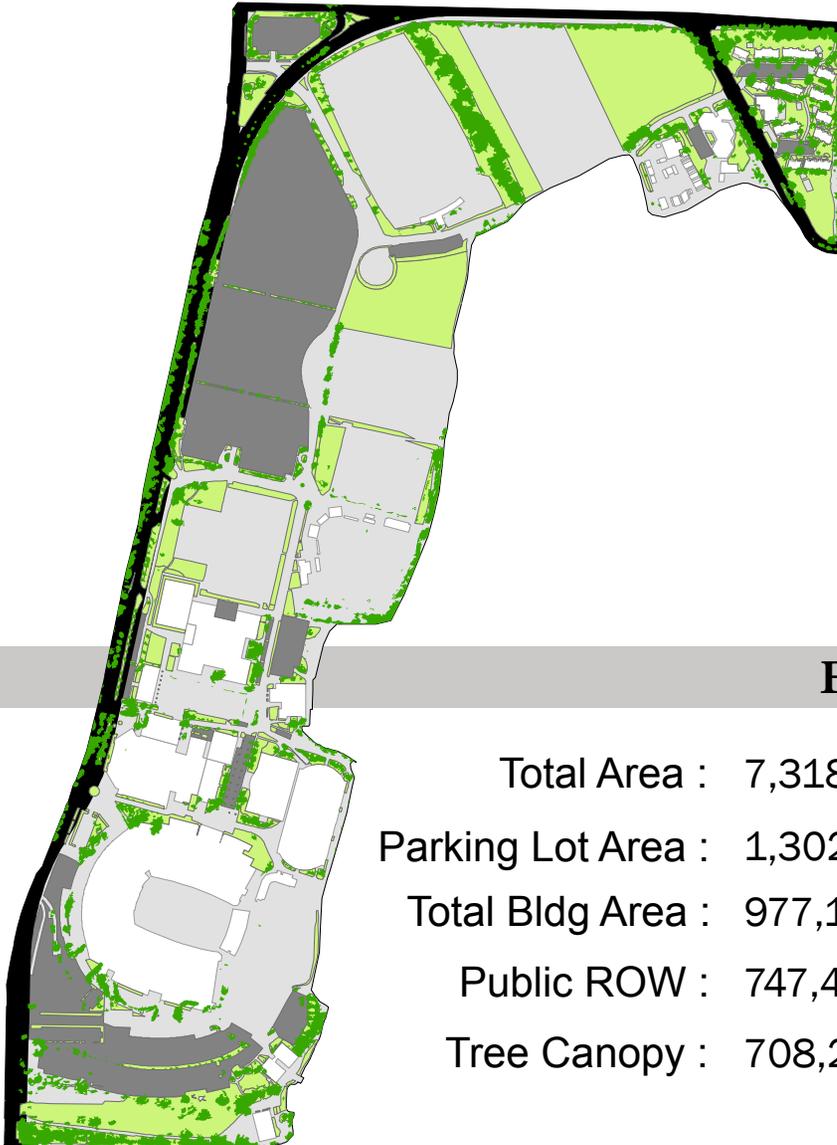
Total Area : 9,464,079 sq ft

Tree Canopy : 2,976,158 sq ft | 31.4%

Total Bldg Area : 1,771,889 sq ft | 18.7%

Public ROW : 719,169 sq ft | 7.6%

Parking Lot Area : 542,872 sq ft | 5.7%



## East Campus

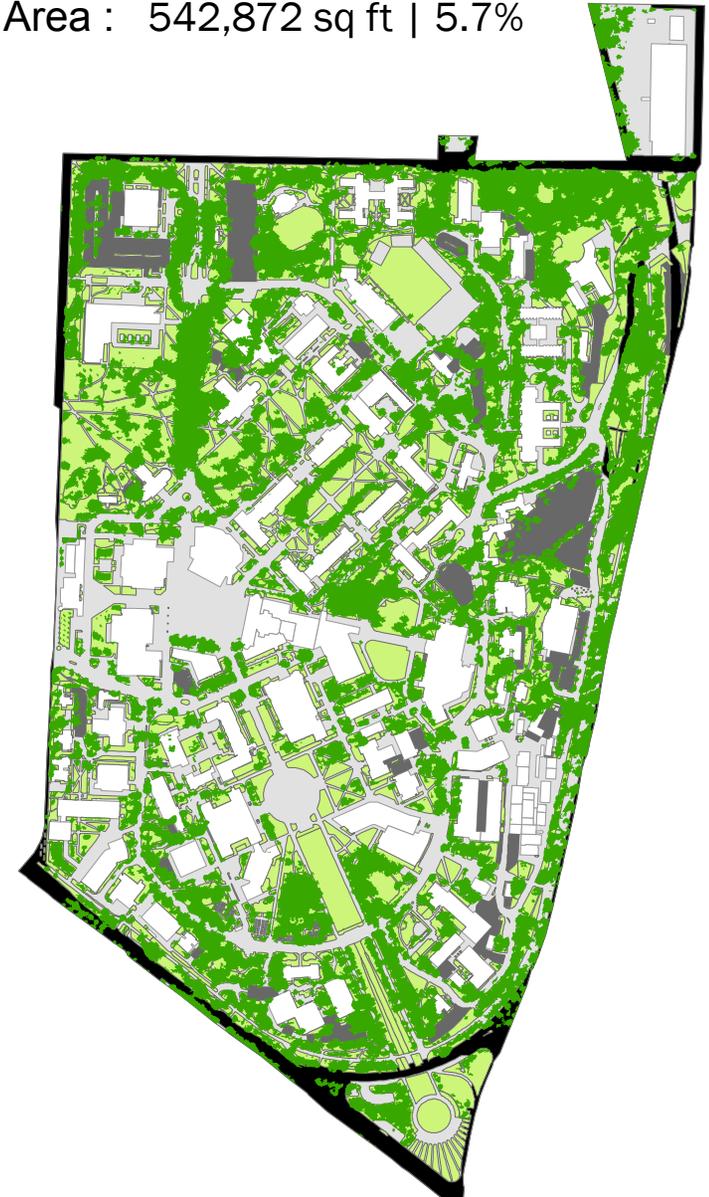
Total Area : 7,318,805 sq ft

Parking Lot Area : 1,302,849 sq ft | 17.8%

Total Bldg Area : 977,188 sq ft | 13.4%

Public ROW : 747,452 sq ft | 10.2%

Tree Canopy : 708,284 sq ft | 9.7%



## South Campus

Total Area : 2,938,288 sq ft

Total Bldg Area : 973,998 sq ft | 33.1%

Tree Canopy : 394,593 sq ft | 13.4%

Public ROW : 271,921 sq ft | 9.3%

Parking Lot Area : 209,933 sq ft | 7.1%



## West Campus

Total Area : 2,396,186 sq ft

Public ROW : 993,174 sq ft | 41.4 %

Total Bldg Area : 583,312 sq ft | 23.3 %

Parking Lot Area : 138,470 sq ft | 5.8 %

Tree Canopy : 393,834 sq ft | 16.4 %

# Urban Forest Management Plan Goals

- **Communicate the Value of Urban Forestry**
- **Identify Canopy Coverage Goals**
- **Become Better Stewards of the Urban Forest**
- **Increase General Knowledge and Awareness**
- **Maintain a Current and Dynamic Tree Database**
- **Implement Management Strategies**



# Urban Forestry Plan Outline

## The Value of Urban Forestry

- Purpose of the Plan
- History of Forestry in Region
- Benefits of Urban Forestry
- The relation between UW and the City

## UW's Urban Forest

- Current State of UW's Forest
- Management Strategies
- Urban Forestry Goals
- Responsibilities
- Forest Types
- Current Users

## Urban Forest Assessment

- Data and Charts

## Management Strategies

- BMP's
- Planting Details & Specs
- Decision Making Logic
- Sustainability Efforts
- Funding Sources
- Potential Code Exemptions

## Actions & Goals

- Areas for Future Planting
- Diversity Actions
- Zonal Efforts
- Engaging Students
- Partnerships & Education

## Implementation

## Future Efforts & Data Needed

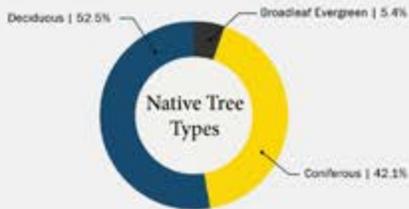
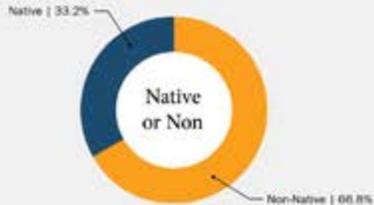
# Document Design

DATA ANALYSIS

## Native Trees | 2,704 TREES | 49 SPECIES

DECIDUOUS | CONIFEROUS | BROADLEAF EVERGREENS

Native Trees are valuable assets to the campus because of their acclimation to the local Northwest climate. Native trees normally require less watering once established, are less prone to disease, support native species through providing ideal habitat, and limit the potential damage that can be caused by invasive species. The University has slightly more than twice as many non-native trees as it does natives within the Major Institution Overlay. With 49 species of native trees, the campus Landscape Architect and advisory committee work close with designers and maintenance staff to increase the bio-diversity on campus when new plantings and projects occur.



### Most Common Native Species

Tree Species	# of Trees	Condition Rating
<i>Pseudotsuga menziesii</i>	448	78.72%
<i>Acer macrophyllum</i>	396	70.69%
<i>Acer circinatum</i>	305	79.88%
<i>Thuja plicata</i>	199	78.56%
<i>Calocedrus decurrens</i>	156	77.81%
<i>Betula pendula</i>	129	73.66%
<i>Pinus contorta</i>	120	72.42%
<i>Arbutus menziesii</i>	103	65.50%
<i>Acer platanoides</i>	88	77.65%
<i>Thuja plicata 'Zebrina'</i>	76	75.16%



# Trees Stats

8,274 TREES | 417 SPECIES

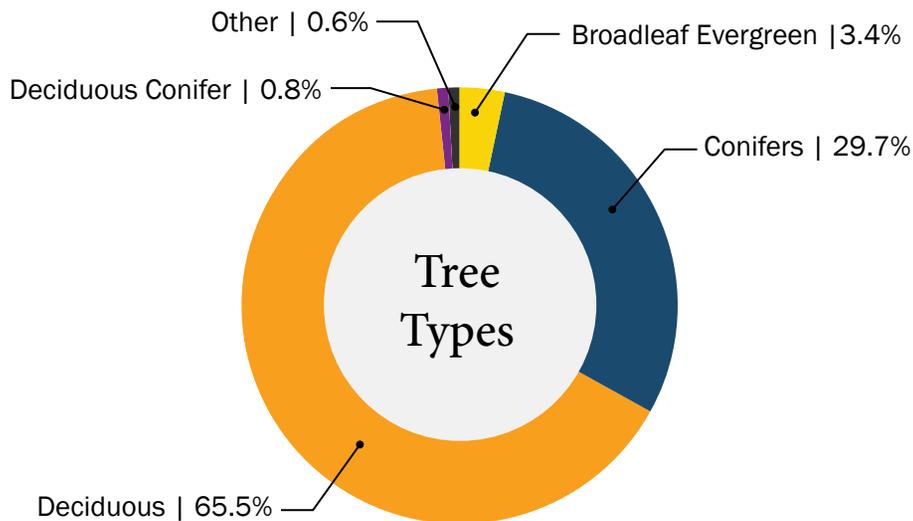
The following pages showcase the different maps and charts that will be used for the Urban Forestry Management Plan and aid in establishing long-term goals and strategies.

## 75.5%

AVERAGE CONDITION RATING

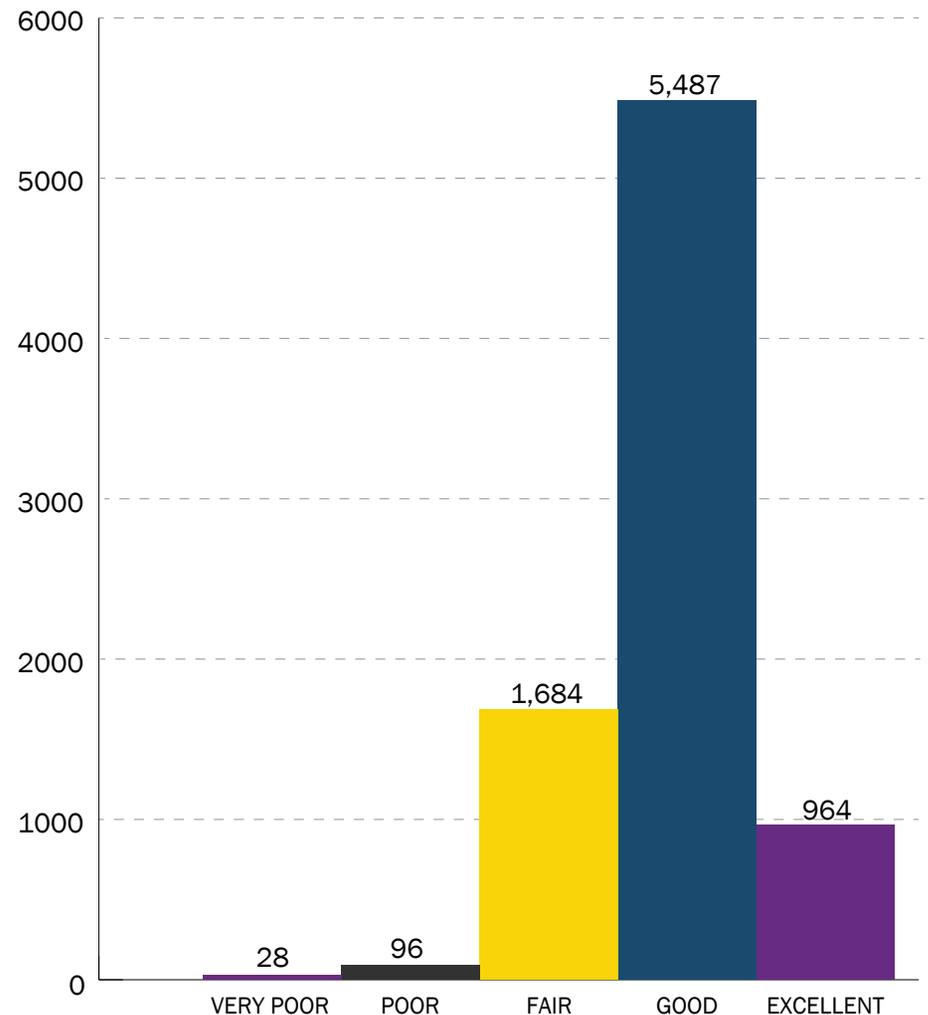
## \$35,106,400

TOTAL TREE VALUE



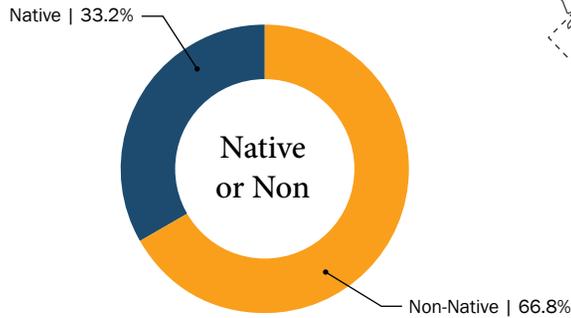
# Trees Stats

## Tree Condition



# Native Trees

2,704 TREES | 49 SPECIES



Tree Species	# of Trees	Condition Rating
<i>Pseudotsuga menziesii</i>	448	78.72%
<i>Acer macrophyllum</i>	396	70.69%
<i>Acer circinatum</i>	305	79.88%
<i>Thuja plicata</i>	199	78.56%

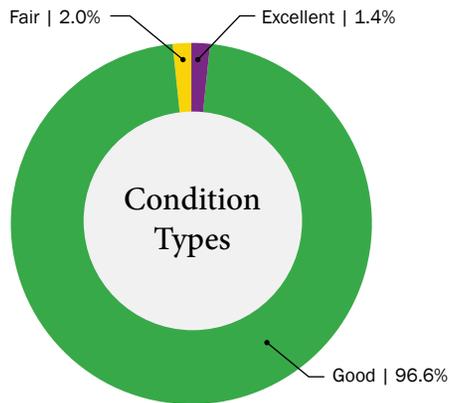
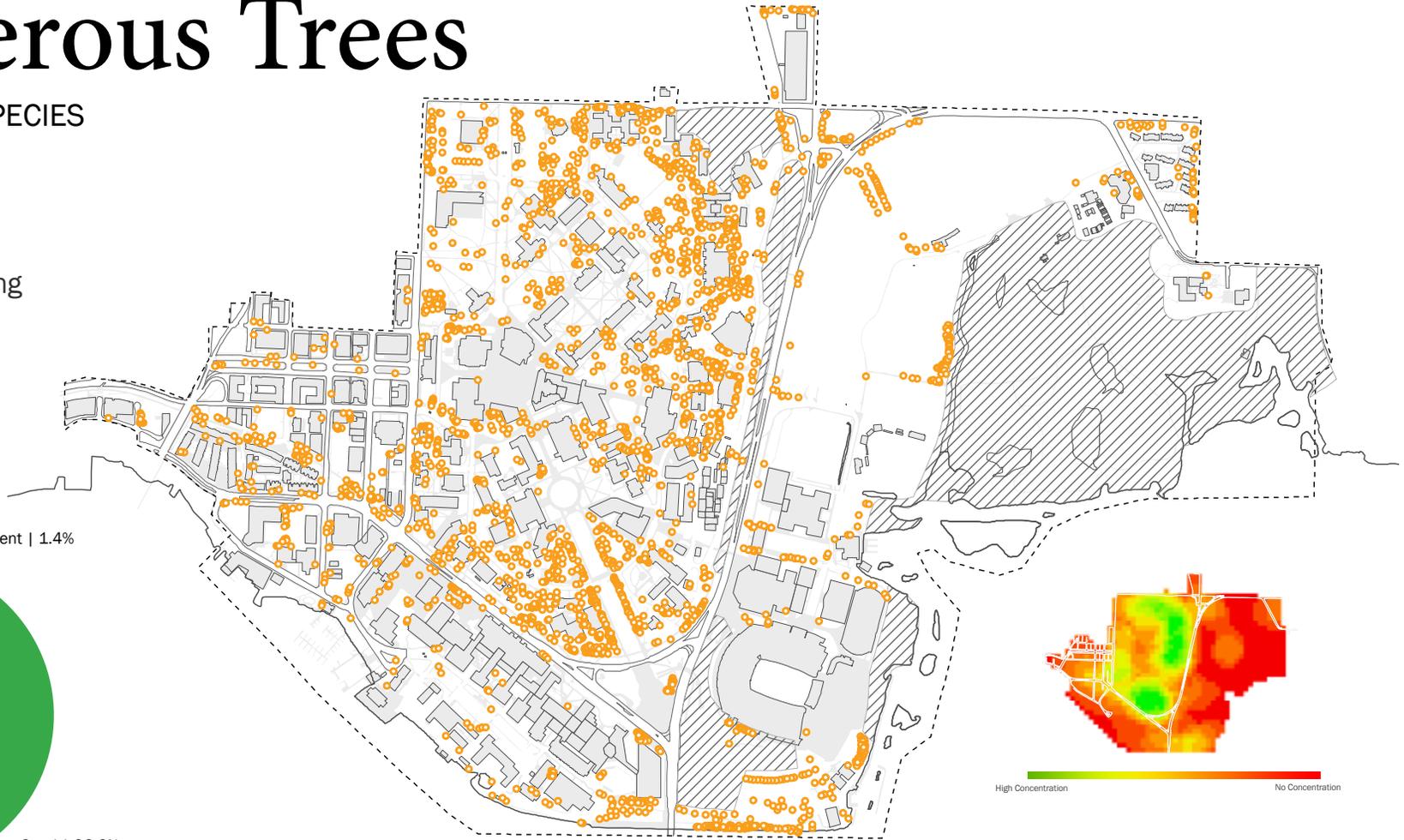
Tree Species	# of Trees	Condition Rating
<i>Calocedrus decurrens</i>	156	77.81%
<i>Betula pendula</i>	129	73.66%
<i>Pinus contorta</i>	120	72.42%
<i>Arbutus menziesii</i>	103	65.50%

# Coniferous Trees

2,458 TREES | 82 SPECIES

76.4%

Average Condition Rating



Tree Species	# of Trees	Condition Rating
<i>Pseudotsuga menziesii</i>	448	78.72%
<i>Chamaecyparis lawsoniana</i>	264	74.52%
<i>Pinus sylvestris</i>	199	73.34%
<i>Thuja plicata</i>	199	78.56%

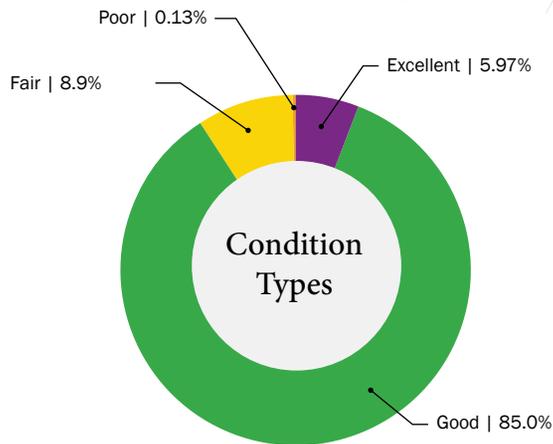
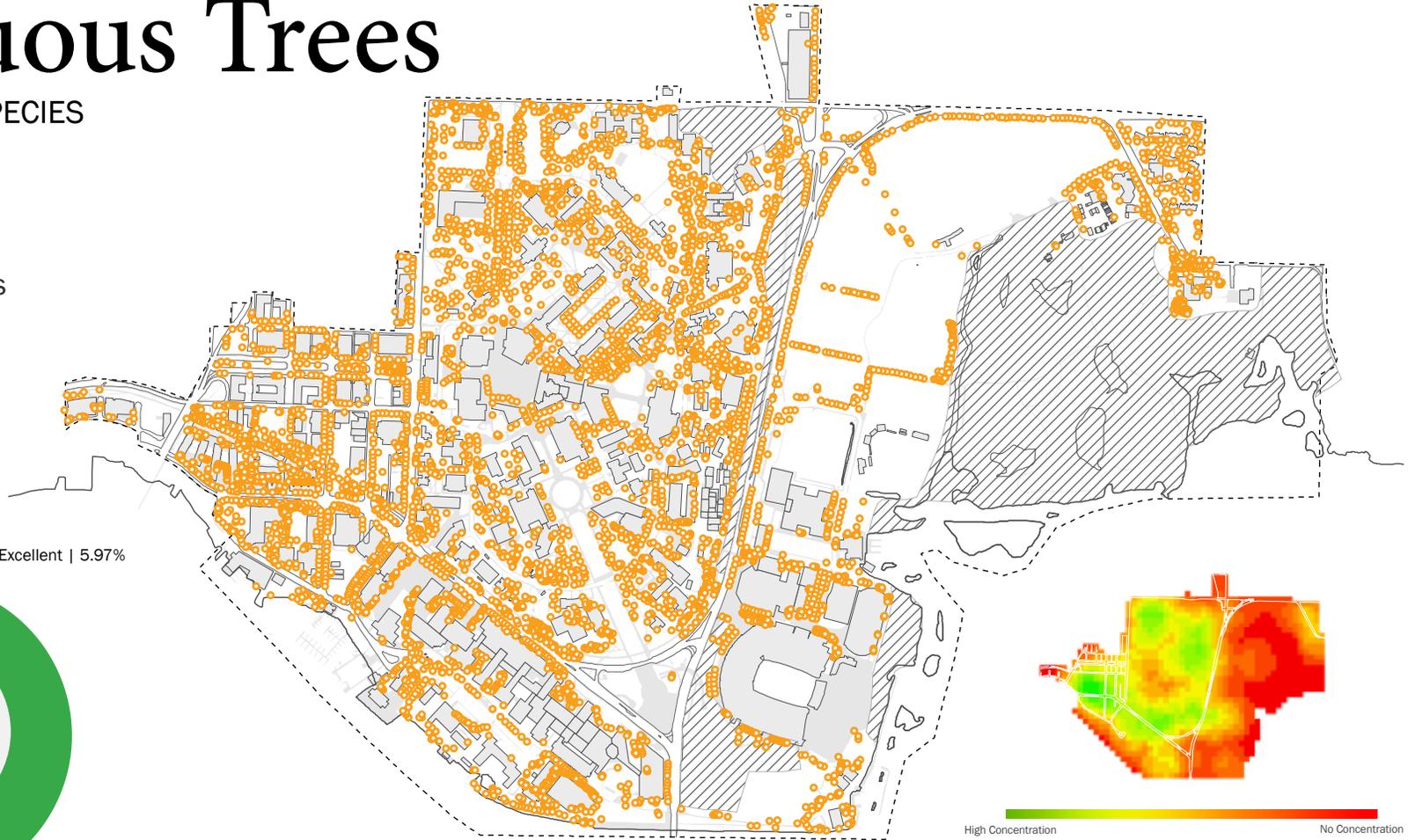
Tree Species	# of Trees	Condition Rating
<i>Calocedrus decurrens</i>	156	77.81%
<i>Cedrus deodara</i>	142	76.78%
<i>Pinus contorta</i>	120	72.42%
<i>Thuja plicata</i> 'Zebrina'	76	75.16%

# Deciduous Trees

5,420 TREES | 303 SPECIES

65.5%

of Total Trees on Campus

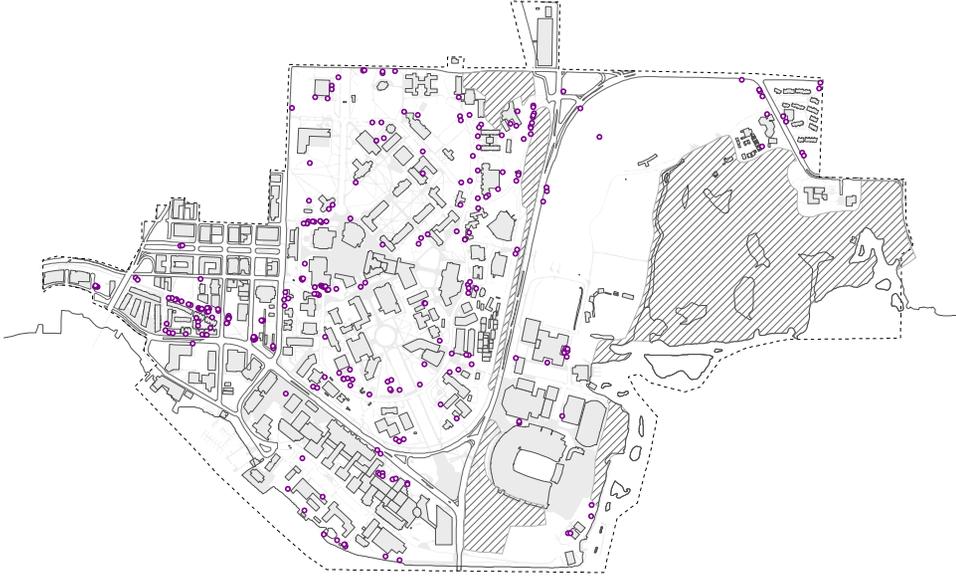


Tree Species	# of Trees	Condition Rating
Acer macrophyllum	396	70.69%
Acer circinatum	305	79.88%
Quercus rubra	195	75.54%
Acer rubrum	162	73.13%

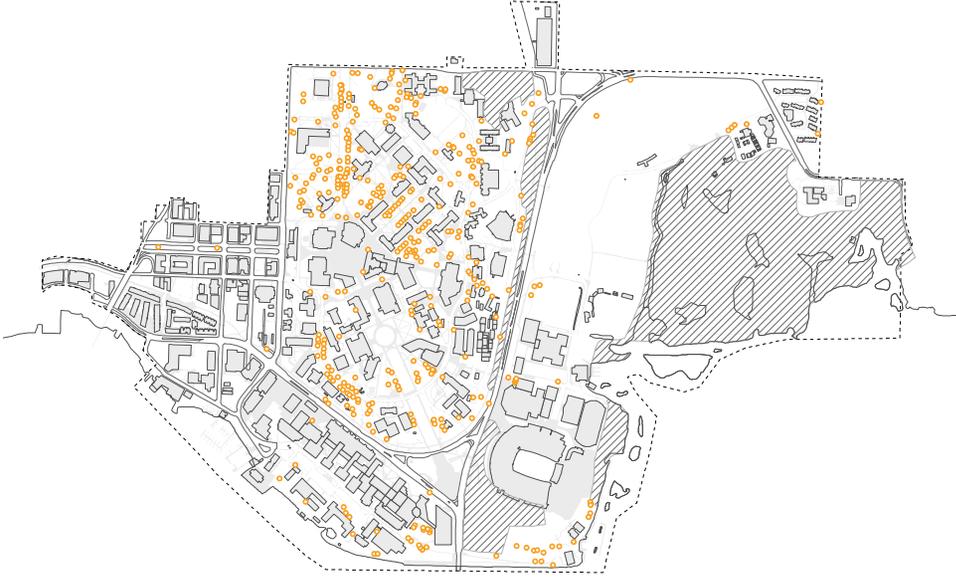
Tree Species	# of Trees	Condition Rating
Platanus x acerifolia	152	69.52%
Quercus palustris	139	75.47%
Carpinus betulus 'Fastigiata'	131	78.80%
Betula pendula	129	73.66%

# Exceptional Trees

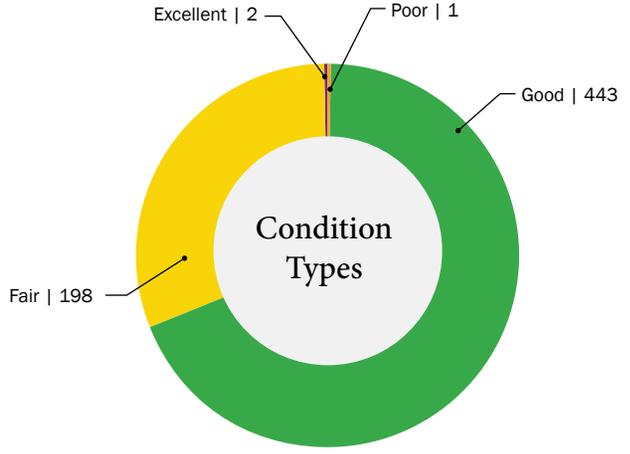
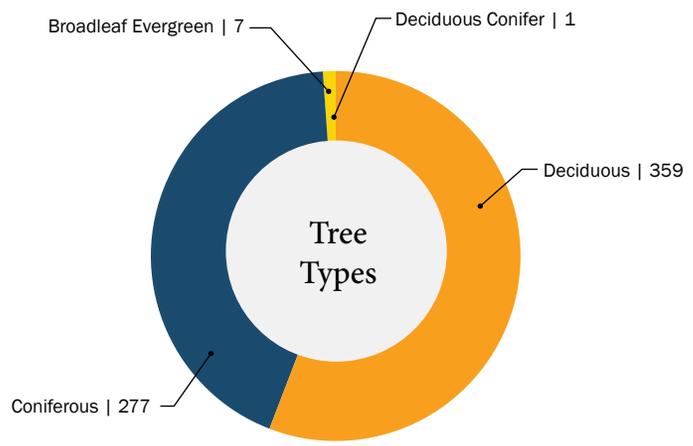
644 TREES | 70 SPECIES



**Exceptional Trees**  
259 TREES | 3.1%



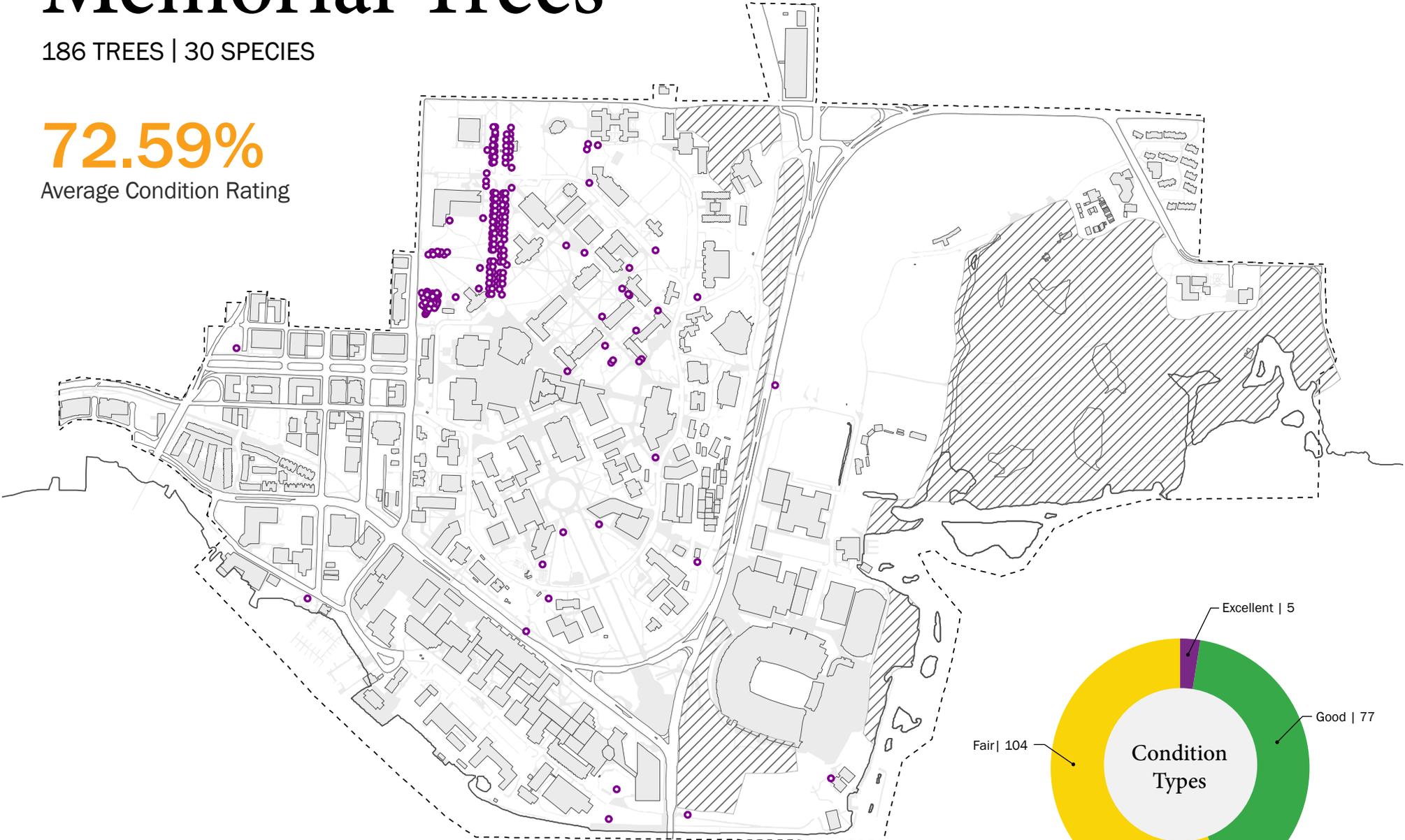
**Exceptional Trees 30+inch**  
385 TREES | 4.7%



# Memorial Trees

186 TREES | 30 SPECIES

**72.59%**  
Average Condition Rating



# Special Trees

## Most Common Jacobson Rare Trees

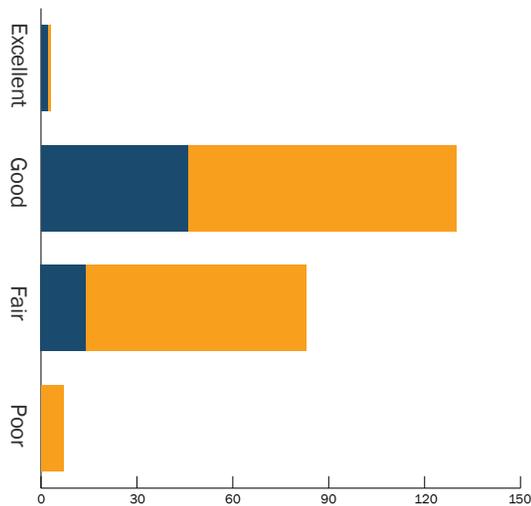
Tree Species	# of Trees	Condition Rating
<i>Prunus x yedoensis</i>	30	66.97%
<i>Idesia polycarpa</i>	19	64.89%
<i>Prunus serrulata</i> 'Hisakura'	9	71.00%
<i>Pinus coulteri</i>	8	70.50%
<i>Malus baccata</i>	7	74.14%
<i>Acacia melanoxylon</i>	7	29.43%
<i>Carpinus japonica</i>	5	67.00%
<i>Crataegus pruinosa</i>	5	72.20%



**Brockman Memorial Tree Tour**

62 TREES | 0.75%

## Tree Condition

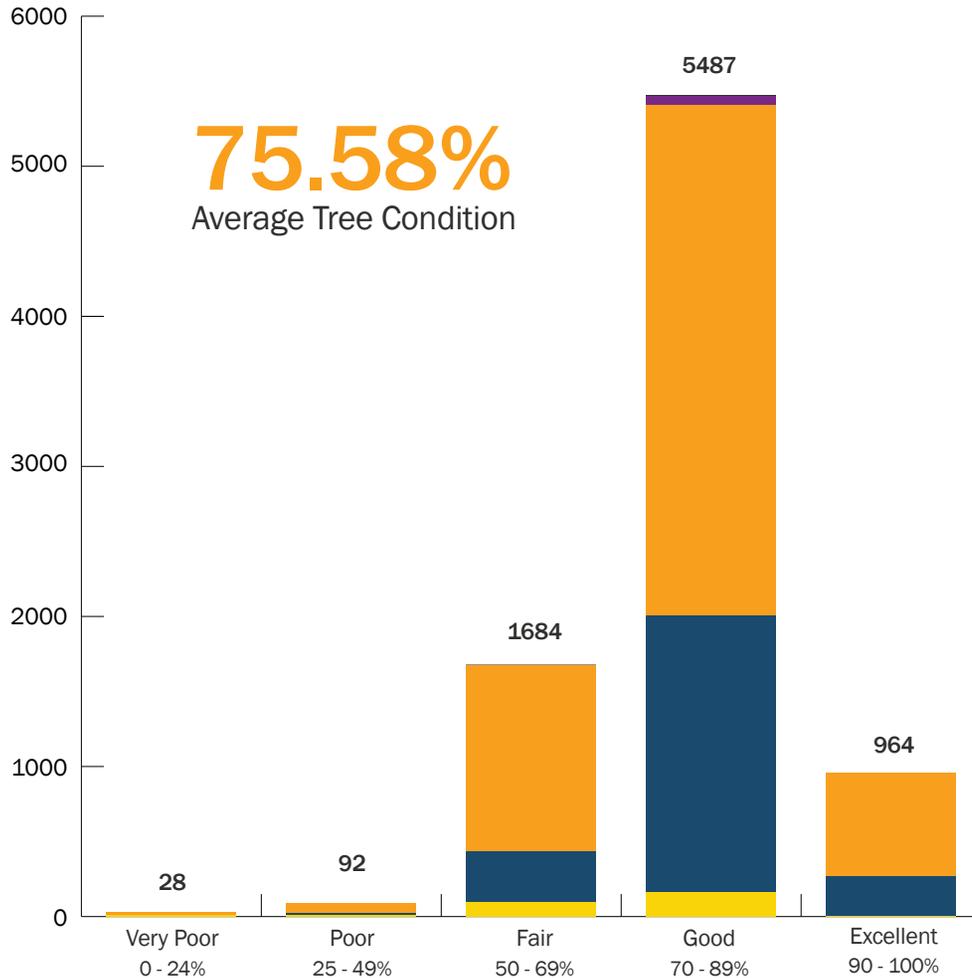


**Jacobson Rare Trees**

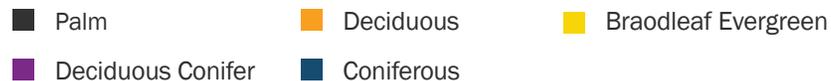
161 TREES | 1.9%

# Tree Condition

EXCELLENT | GOOD | FAIR | POOR | VERY POOR



## Overall Tree Condition



## The Best

Tree Species	# of Trees	Average Condition Rating
Prunus X Domestica 'Parfume de September'	31	100.00%
Acer rumbrum 'Scarsen'	16	100.00%
Prunus X Domestica 'Purple Gage'	11	100.00%
Prunus X Domestica 'Mirabelle de Metz'	10	100.00%
Prunus X Domestica 'Rosy Gage'	9	100.00%
Quercus chrysolepis	1	100.00%
Abies nordmannia	1	100.00%
Picea orientalis	1	100.00%
Acer palmatum 'Sango Kaku'	1	100.00%
Acer truncatum	1	100.00%
Chionanthus retusus	1	100.00%

## The Worst

Tree Species	# of Trees	Average Condition Rating
Pterostyrax psilophylla	1	57.00%
Elaeagnus angustifolia	1	57.00%
Acer grosseri	1	57.00%
Catalpa speciosa	3	55.00%
Prunus subhirtella 'Whitecomb'	4	53.00%
Picea rubens	1	51.00%
Acer tegmentosum	1	46.00%
Eucalyptus gunnii	1	40.00%
Prunus subhirtella 'Pendula'	1	40.00%
Acacia melanoxylon	8	32.88%

# Excellent Condition

964 TREES | 11.7%



# Good Condition

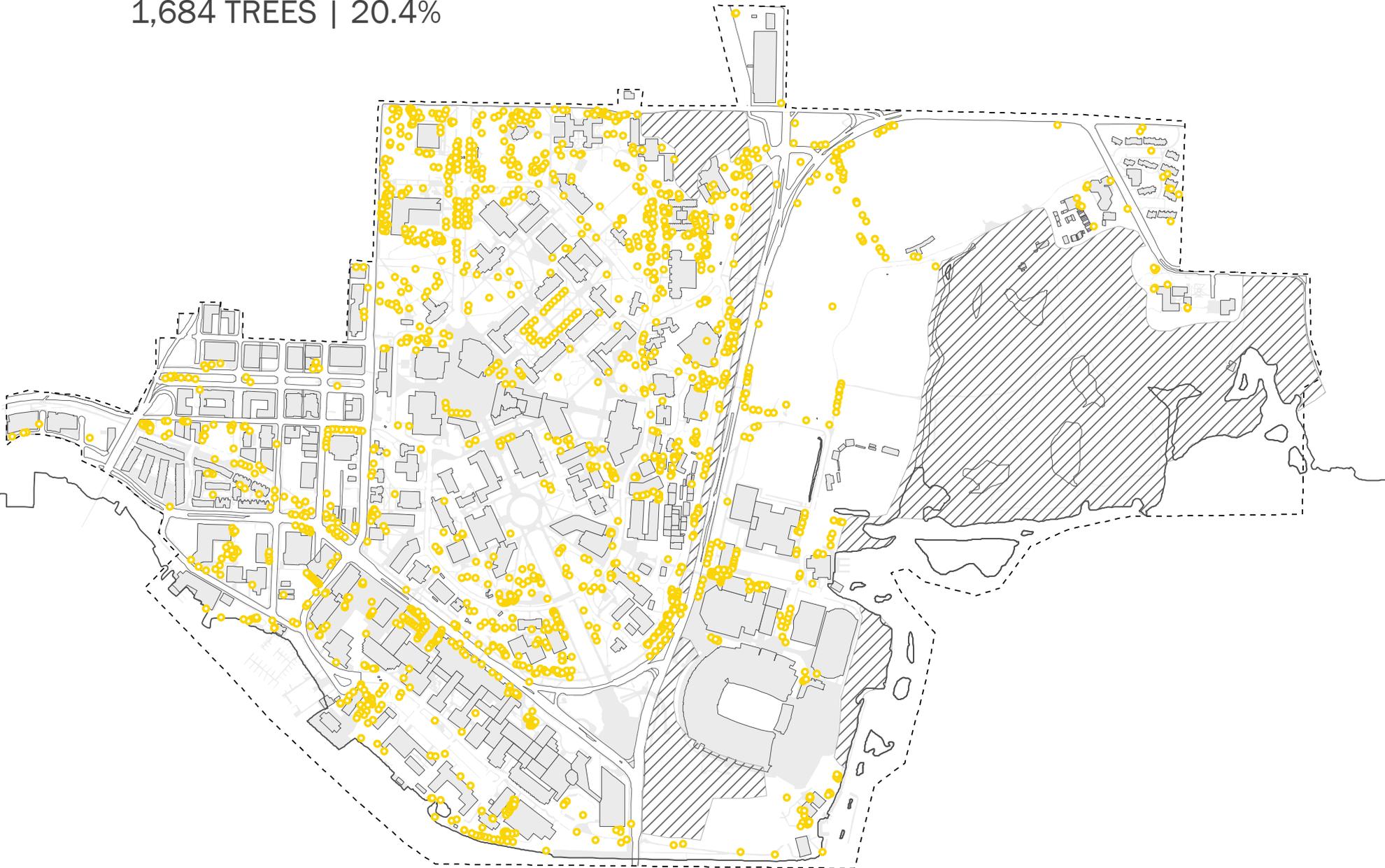


5,487 TREES | 66.3%



# Fair Condition

1,684 TREES | 20.4%



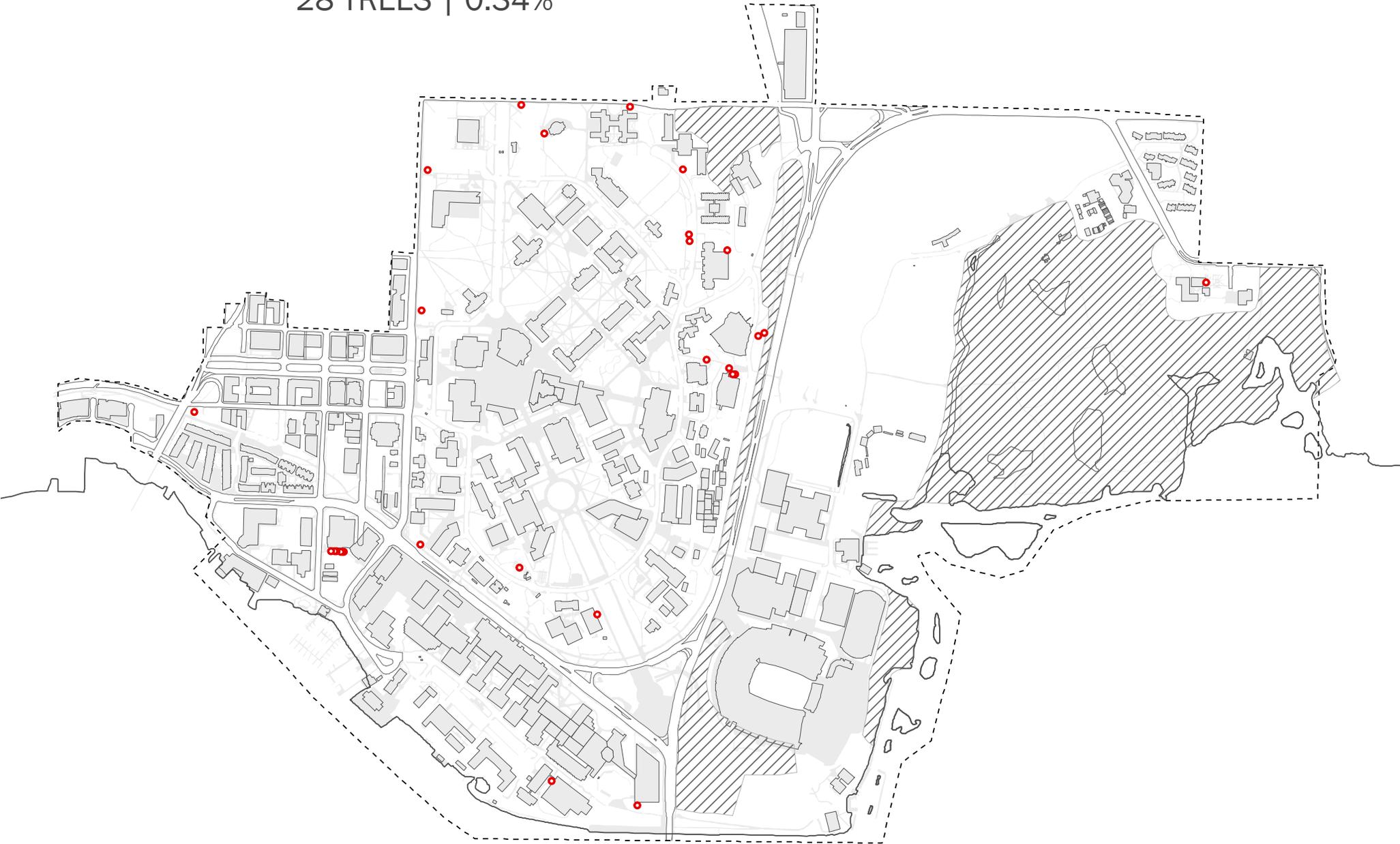
# Poor Condition

92 TREES | 1.11%



# Very Poor Condition

28 TREES | 0.34%



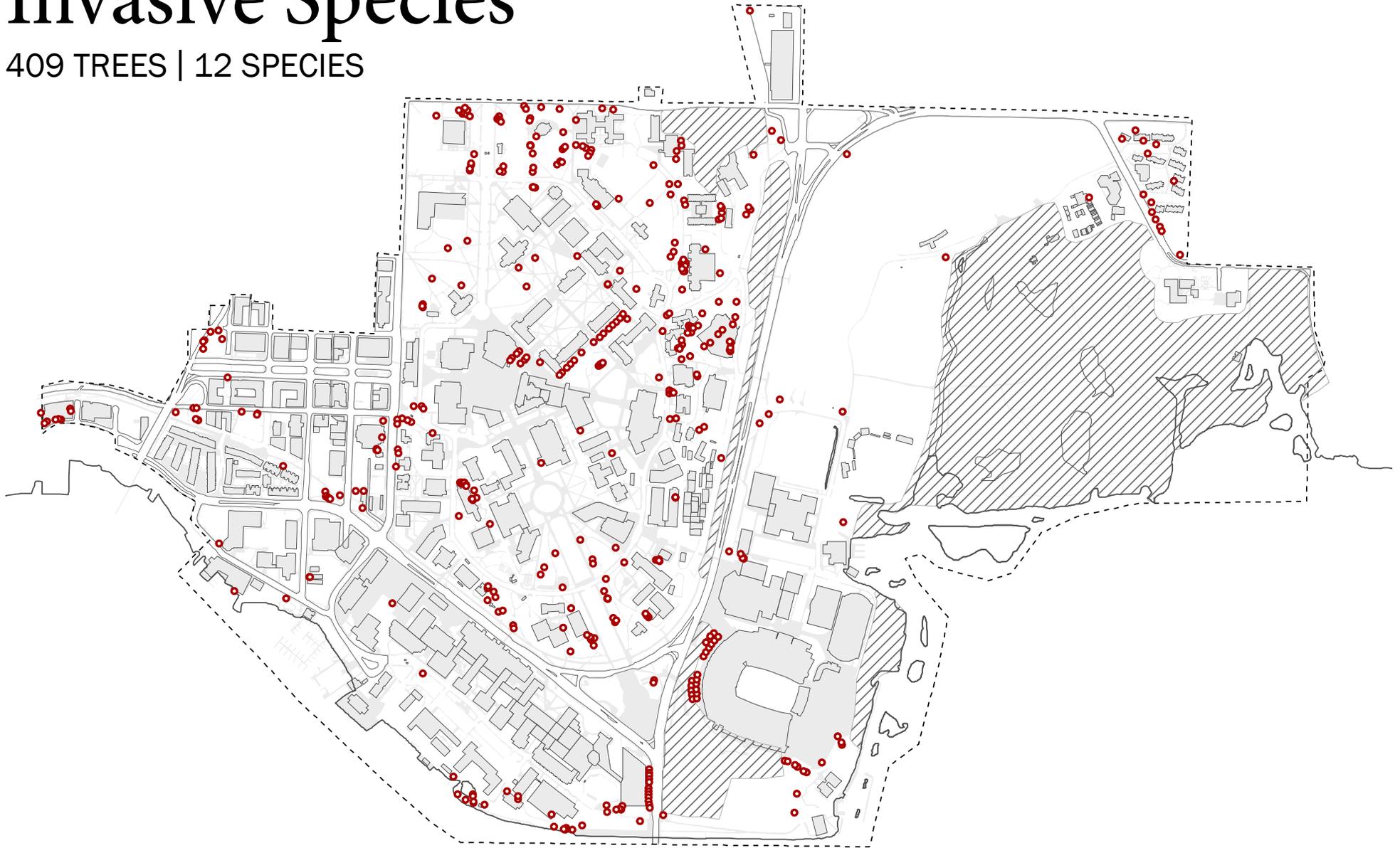
# Dutch Elm Disease

253 TREES | \$997,810



# Invasive Species

409 TREES | 12 SPECIES

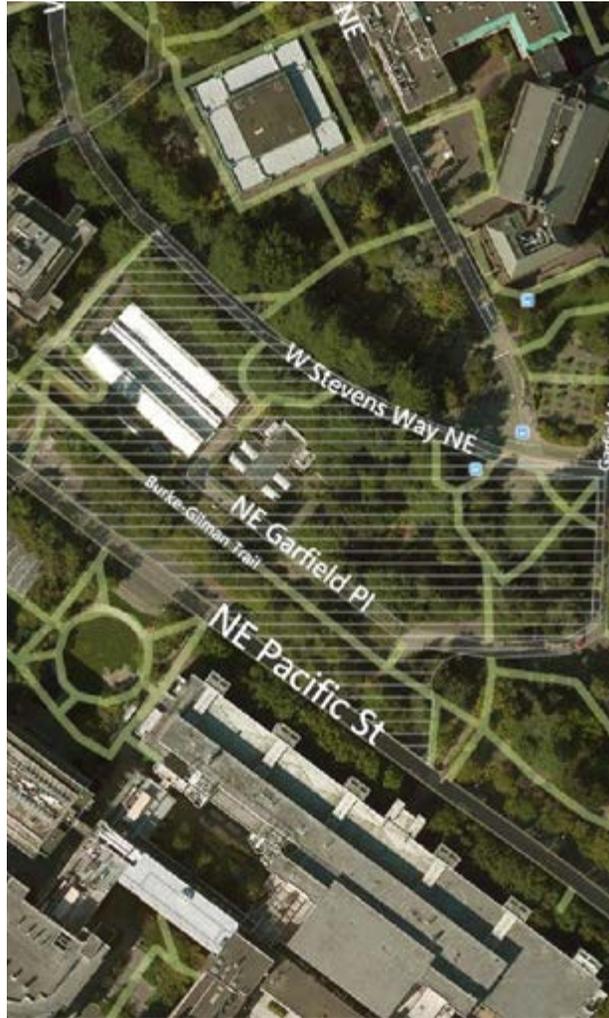


*Acer platanoides* || *Aesculus hippocastanum* || *Ailanthus altissima* || *Betula pendula* || *Crataegus monogyna*  
*Ilex aquifolium* || *Koelreuteria paniculata* || *Prunus avium* || *Prunus laurocerasus* || *Prunus lusitanica*  
*Robinia pseudoacacia* || *Sorbus aucuparia*

# Current Major Projects



*Denny Hall*

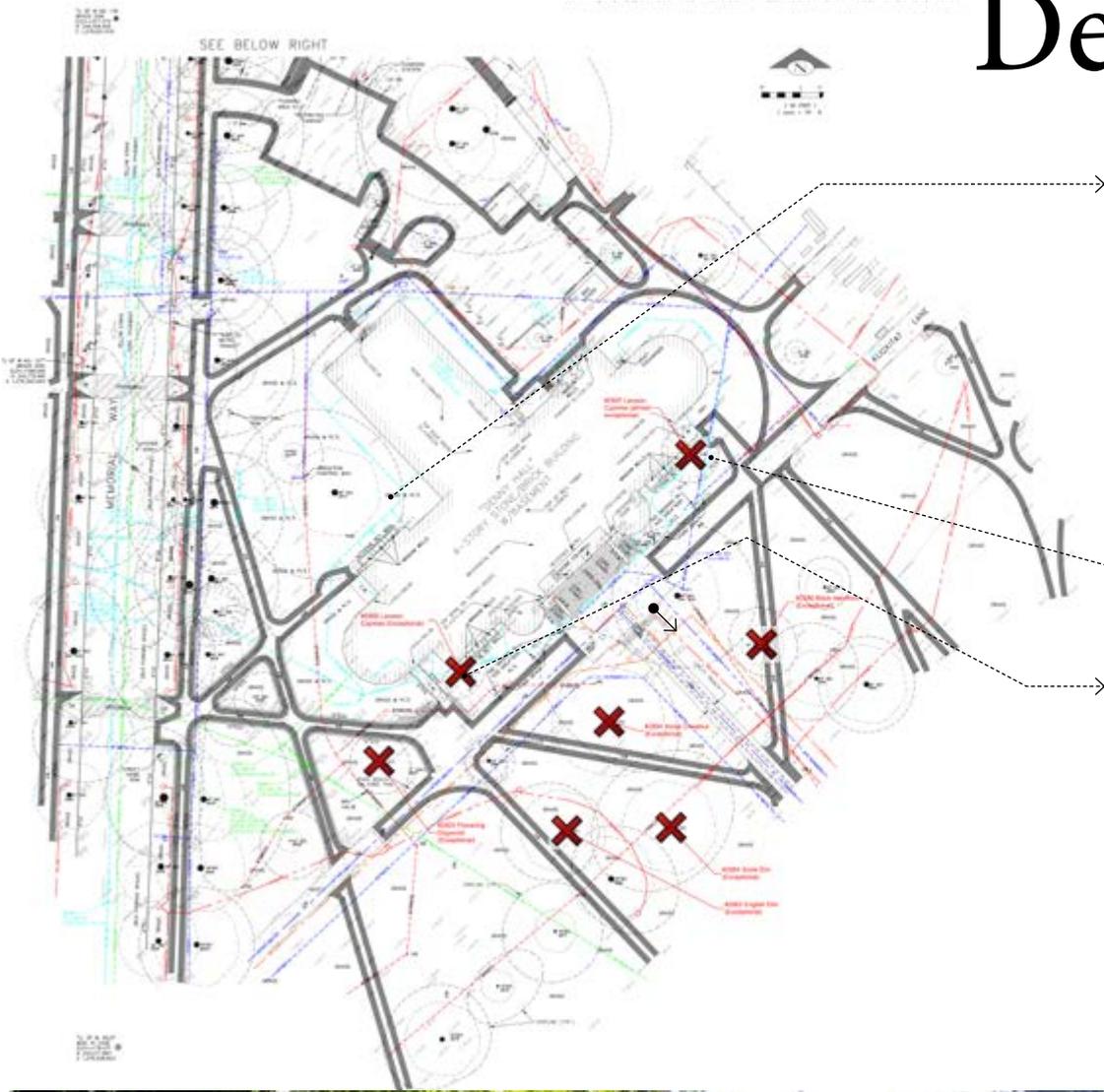


*Life Science*

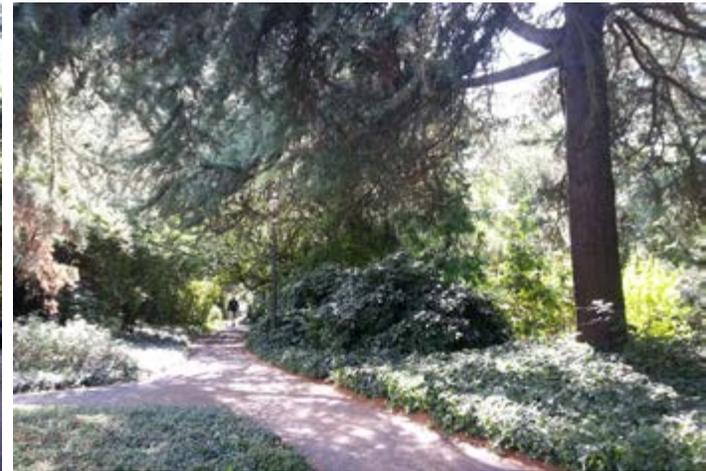


*North Campus Housing*

# Denny Hall Remodel



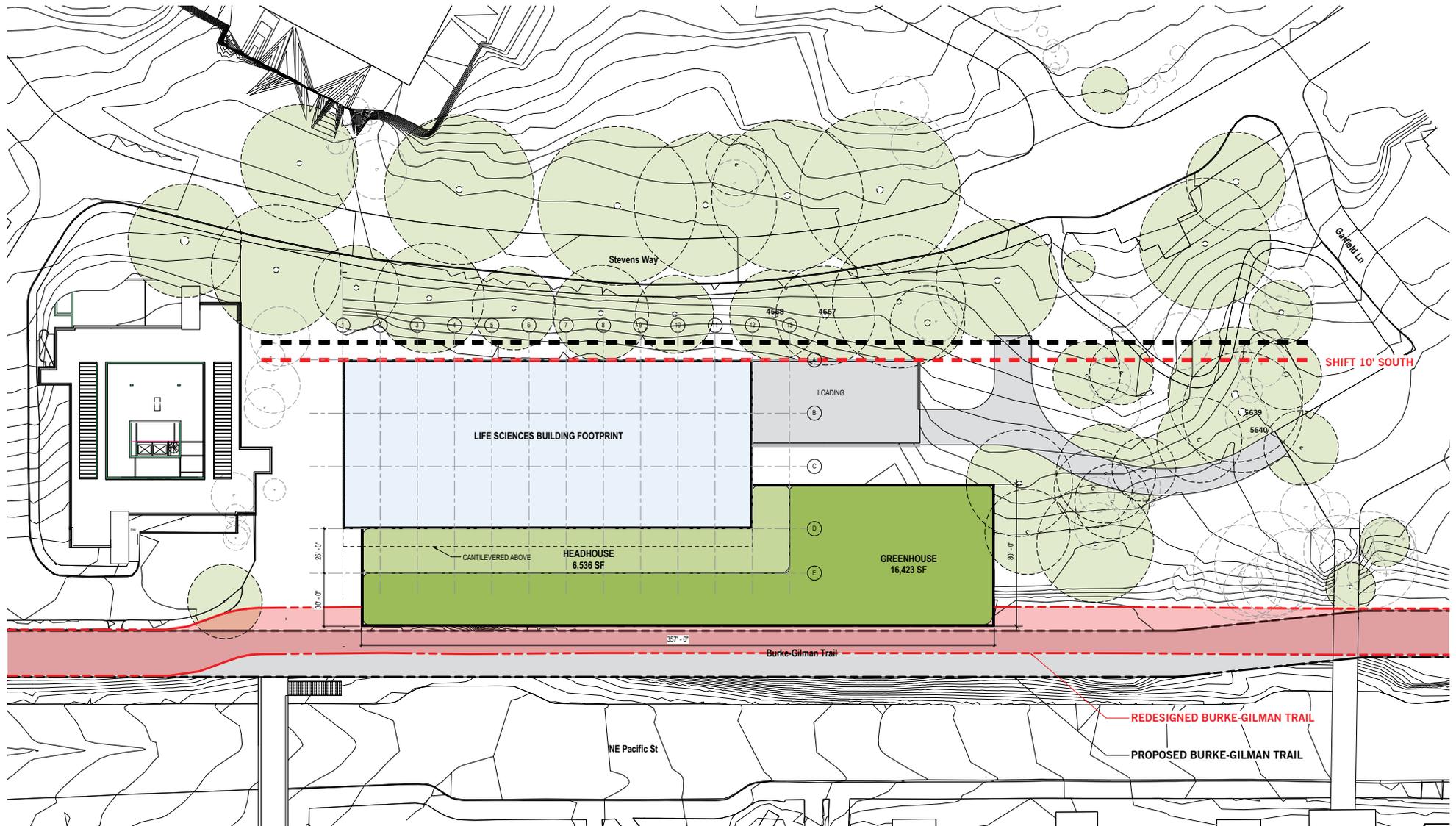
# Life Science Building New Development



# Life Science Building New Development



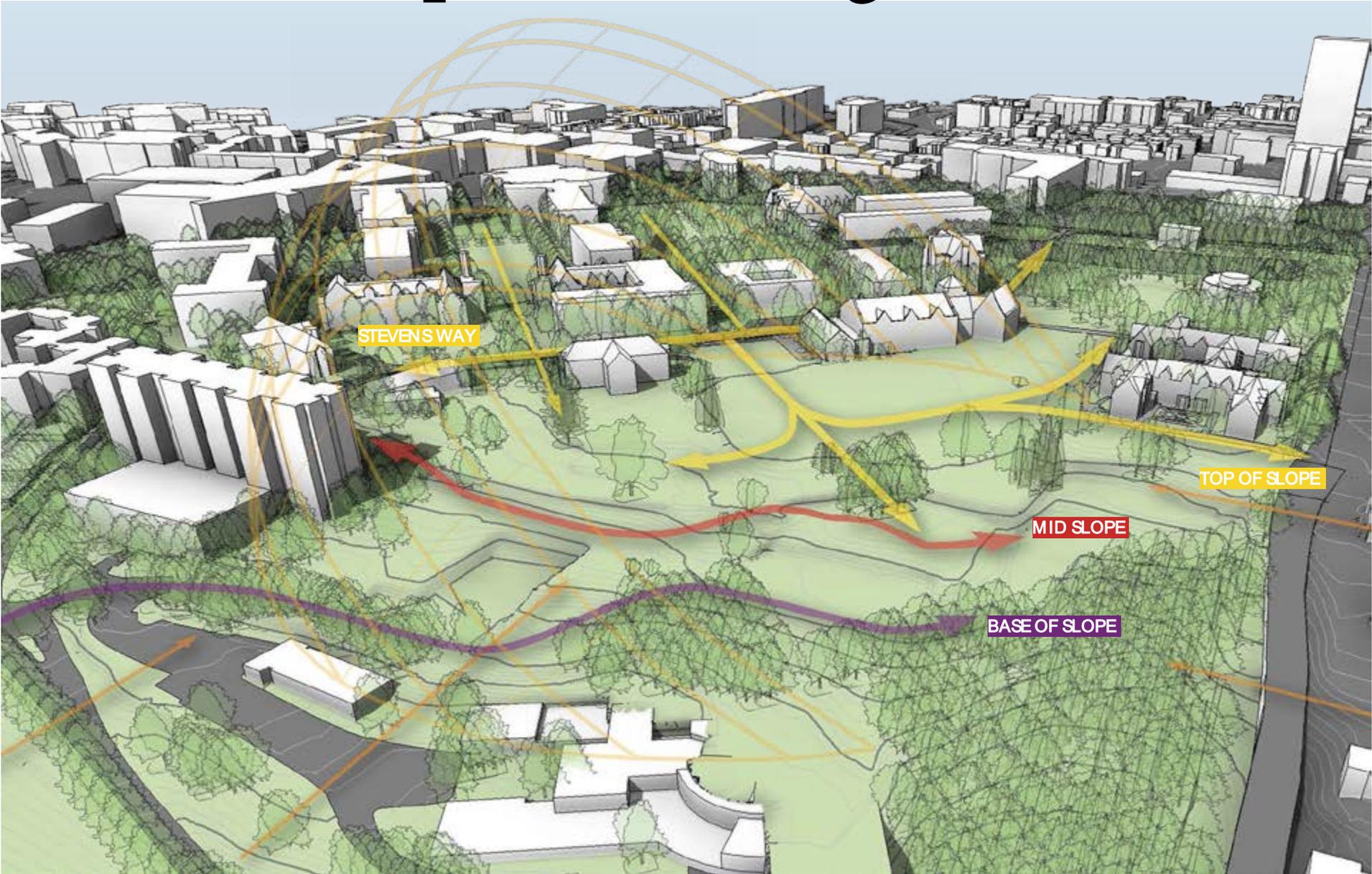
# Life Science Building New Development



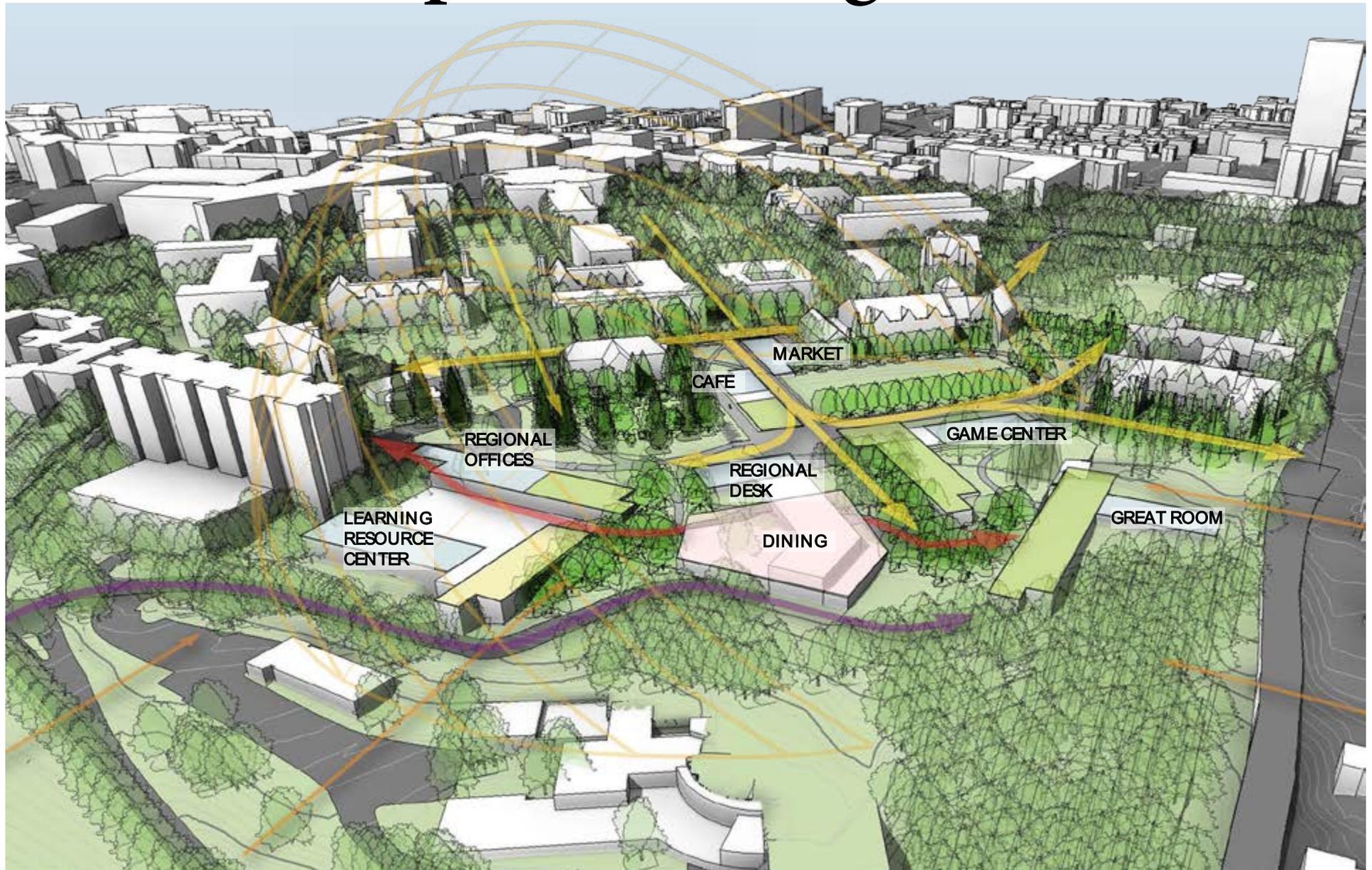
# North Campus Housing Conceptual Design



# North Campus Housing Conceptual Design



# North Campus Housing Conceptual Design



# Future Goals

- *Establish Realistic Goals and Policies related to tree and landscape management*
- *Develop a stronger relationship between students, the local community, and university*
- *Strengthening existing activities while exploring new means of engagement and education*
- *Develop an endowment fund*

Thank You!

Questions & Discussion