UNIVERSITY OF WASHINGTON
NORTH CAMPUS HOUSING

UW Architectural Commission
University Landscape Advisory Committee

07 DECEMBER 2015

AGENDA

1. PROJECT OVERVIEW AND COMMENTS FROM LAST MEETING
2. SUSTAINABILITY
3. DEVELOPMENT OF DESIGN
4. PHASE IVA WALKTHROUGH
PROJECT OVERVIEW AND COMMENTS FROM LAST MEETING
PROJECT GOALS

RESIDENTIAL COMMUNITY
• World Class Living/Learning Community
• Support 3,200 Students
• Integrate Common Space, Regional and Recreational Programs with Landscape
• Integrate Residential Community with Campus and Neighborhood

CHARACTER
• Enhance Woodland Landscape of Kincaid Ravine and Whitman Court
• Integrate Woodland Landscape with Historic and Contemporary Landscape Influences

HISTORY
• Embrace and Enhance Historic Structures and Landscapes Including Hansee Hutchinson, Lewis, and Denny Field

CONNECTIVITY
• Strengthen Campus and Neighborhood Connections
• Enhance Quality and Safety of Pedestrian and Cycling Experiences Across and Along Stevens Way
• Improve Pedestrian and Cycling Connections from Campus Across 45th Street

SCALE AND PERCEPTION
• Landscape Types Should Range from Intimate to Expansive
• Architectural Scale to Reveal and Connect to Woodland Canopy Beyond

SUSTAINABILITY
• Be Good Stewards of Resources
• Strive to Achieve LEED Gold and 2030 Energy Challenge
• Maximize Penetration of Desirable Sun and Wind
• Retain and Manage Stormwater On-Site
ARCHITECTURE + LANDSCAPE PRINCIPLES

FRAMING
- Axes: Campus – City – Region
- Sky
- Historic Structures

GROUNDING
Public Space Programming – Outside to Inside; Inside to Outside; Landscape program to ground level building program

THREADING AND WEAVING
Connecting Buildings to each other, to the campus, and beyond

SIGNING
Unique signatures of landscape ground planes evolving into building bases

REPEATING
Housing Elevations – Lateral facades; The Field

ILLUMINATING
Housing Elevations – Transverse facades; Floor Lounges - Lanterns
CONCRETE
RETAINING/SITE/
TYPICAL WALL

BRICK
DESIGNATES
BUILDING ENTRIES

WOOD DOOR
RESIDENTIAL ENTRY
DOOR

WOOD PANELLING
USED TO HIGHLIGHT
BUILDING ENTRY
ARCHITECTURAL COMMISSION REVIEW COMMENTS
9/29/2015
• Announce the lounges and entries.
• Conclusion of formal axis from Arts Quad is positive.
• Simplify landscape in smaller courtyards.
• Study building bases – too many materials.
• Consider using both horizontal and vertical façade patterns.
• Site lighting will be critical to ensure safe and attractive conditions.
• A common element, subtly incorporated into all the facades, would help create a stimulating and interesting environment.
  Such an element might be used to establish commonality across a courtyard.

LANDSCAPE ARCHITECTURE COMMISSION REVIEW COMMENTS
9/24/2015
• Ensure path network is safe, accessible and supports bike use.
• Describe overall sustainability agenda.
• Provide detail on proposed site materials.
• Address concerns with building massing to ensure buildings maintain proportions with open spaces and frame viewsheds.
• Maximize opportunities to promote biodiversity and reduce environmental burdens.
• Provide a less tailored landscape, as parts feel too garden-like.
Building and landscape integrated into surrounding system.

Memorable woodland landscape spaces that enhance regional biodiversity.

Stormwater management with climate change over time.

Strengthen human relations to nature.

Minimize building energy use.

Thoughtful material and resource selection.
SUSTAINABILITY  FOREST PRESERVATION & BIODIVERSITY

TOTAL TREES AT 4A + 4B
PROJECT COMPLETION - 476
Stump growth: for article on forest regeneration 1970.
TREES
- Acer circinatum (Vine Maple)
- Alnus rubra (Red Alder)
- Pseudotsuga menziesii (Douglas Fir)
- Tsuga heterophylla (Western Hemlock)

SHRUBS
- Cornus stolonifera (Red Osier Dogwood)
- Mahonia aquifolium (Oregon Grape)

GROUNDCOVER
- Athyrium filix-femina (Lady Fern)
- Polystichum munitum (Western Swordfern)
- Dicentra formosa (Pacific Bleeding Heart)
- Maianthemum dilatatum (False Lilly of the Valley)
- Maianthemum racemosum (False Spikenard)
- Tellima grandiflora (Fringecups)

WHIPS
- Acer circinatum (Vine Maple)
- Alnus rubra (Red Alder)
- Pseudotsuga menziesii (Douglas Fir)
- Tsuga heterophylla (Western Hemlock)

SNAGS
COPPICING

EARLY SUCCESSIONAL FOREST TYPOLOGY
TREES
- Acer circinatum (Vine Maple)
- Acer macrophyllum (Bigleaf Maple)
- Aesculus hippocastanum (Horse-chestnut)
- Arbutus menziesii (Pacific Madrone)
- Chamaecyparis nootkatensis (Alaskan Cypress)
- Populus trichocarpa (Black Cottonwood)
- Populus tremuloides (Quaking Aspen)
- Pseudotsuga menziesii (Douglas Fir)
- Thuja plicata (Western Red Cedar)
- Sequoia sempervirens (Coast Redwood)

SHRUBS
- Cornus stolonifera (Red Osier Dogwood)
- Holodiscus discolor (Ocean Spray)
- Philadelphus lewisii (Mock Orange)
- Rhododendron macrophyllum (Pacific Rododendron)
- Ribes sanguineum (Flowering Current)
- Symphoricarpos albus (Common Snowberry)
- Viburnum Edule (Squashberry)

GROUNDCOVER
**FERN MIX 1**
- Athyrium filix-femina (Lady Fern)
- Oxalis oregana (Redwood Sorrel)
- Polystichum munitum (Swordfern)

**FERN MIX 2**
- Blechnum spicant (Deer Fern)
- Gymnocarpium dryopteris (Western Oakfern)
- Oxalis oregana (Redwood Sorrel)

**BIORETENTION MIX**
- Carex obnupta (Slough Sedge)
- Carex stipata (Awl Fruit Sedge)
- Carex pachystachya (Chamisso sedge)
- Juncus ensifolius (Swordleaf Rush)
- Schoenoplectus tabernaemontani (Softstem Bulrush)
- Scirpus microcarpus (Small-Fruited Bulrush)

**WOODLAND MIX**
- Dicentra formosa (Pacific Bleeding Heart)
- Maianthemum dilatatum (False Lilly of the Valley)
- Maianthemum racemosum (False Solomon’s Seal)
- Tellima grandiflora (Fringecups)
TREES
- Acer circinatum (Vine Maple)
- Cornus nuttallii x florida (Cornus “Eddie’s White Wonder”)

GROUNDCOVER
- Achillea millefolium (Yarrow)
- Delphinium menziesii (Menzies’ larkspur)
- Eriophyllum lanatum (Oregon Sunshine)
- Penstemon serrulatus (Cascades Penstemon)
- Symphyotrichum subspicatum (Douglas Aster)

CASCADE MEADOW TYPOLOGY
SUSTAINABILITY  FOREST PRESERVATION & BIODIVERSITY

RAVINE PLANTINGS - CONIFER DOMINANT

BIRD SPECIES
a. Red-Tailed Hawk
g. Pileated Woodpecker
b. Swift
h. Brown Creeper
c. Swallow
i. Nuthatch
d. Fly-Catcher
j. Thrush
e. Pygmy Owl
k. Towhee
f. Sapsucker
l. Winter Wren

TREE SPECIES
1. Betula papyrifera
   Paper Birch
2. Tsuga heterophylla
   Western Hemlock
3. Pinus monticola
   Western White Pine
4. Pseudotsuga menziesii
   Douglas Fir
5. Cornus nuttallii
   Pacific Dogwood
6. Acer macrophyllum
   Big Leaf Maple

CAMPUS PLANTINGS - DECIDUOUS DOMINANT

UNDERSTORY CANOPY

SHRUB LAYER

GROUND VEGETATION

OVERSTORY CANOPY
TREES
- Cercis canadensis (Eastern Redbud)
- Halesia carolina (Carolina Silverbell)
- Populus tremuloides (Quaking Aspen)
- Prunus sargentii (Sargent's Cherry)
- Prunus subhirtella (Higan Cherry)
- Ulmus parvifolia (Chinese Elm)
- Salix babylonica (Weeping Willow)

SHRUBS
- Holodiscus discolor (Ocean Spray)
- Philadelphus lewisii (Mock Orange)
- Rhododendron macrophyllum (Pacific Rododendron)

GROUNDCOVER
- Lawn (Ryegrass/Fescue/Bluegrass blend)
## SUSTAINABILITY MATERIAL LIFECYCLE EVALUATION

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<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>EMBODIED ENERGY (MJ/metric ton)</th>
<th>EMBODIED CARBON (kg CO2/metric ton)</th>
<th>DISTRIBUTION</th>
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</thead>
<tbody>
<tr>
<td>WARM MIX ASPHALT (20% RAP)</td>
<td>7,112</td>
<td>177</td>
<td>local (&lt;50 mi)</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>790</td>
<td>116</td>
<td>local (&lt;50 mi)</td>
</tr>
<tr>
<td>BRICK</td>
<td>3,000</td>
<td>232</td>
<td>global (&gt; 500 mi)</td>
</tr>
</tbody>
</table>

### USE AND MAINTENANCE

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>USE AND MAINTENANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARM MIX ASPHALT (20% RAP)</td>
<td>repair 5 y, replace top layer 15-20 y, reprocessing</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>repair 5 y, replacement 30-40 y, reprocessing</td>
</tr>
<tr>
<td>BRICK</td>
<td>repair 5 y, replacement 100+ y, recovery</td>
</tr>
</tbody>
</table>

### RECOVERY/REUSE

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>TOXICITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARM MIX ASPHALT (20% RAP)</td>
<td>Oils and emulsions, known carcinogens</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>Cement kilns offgas heavy metals</td>
</tr>
<tr>
<td>BRICK</td>
<td>None</td>
</tr>
</tbody>
</table>

### ADDITIONAL CONSIDERATIONS

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>TOTAL SQ. FEET</th>
<th>PERCENTAGE OF HARDSCAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARM MIX ASPHALT (20% RAP)</td>
<td>48,223 SF</td>
<td>48%</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>26,825 SF</td>
<td>26%</td>
</tr>
<tr>
<td>BRICK</td>
<td>11,278 SF</td>
<td>11%</td>
</tr>
</tbody>
</table>

### SOURCES:

- Materials for Sustainable Sites by Meg Calkins (2009)
- The Sustainable Sites Handbook by Meg Calkins (2011)

### END-OF-LIFE

- Collection, recycling, energy recovery, landfilling

### WASTE MANAGEMENT

- 15% Boulders, Concrete Flanks, Deck Tile, River Rock Edging, Stepping Stone, Stone Fines

**Notes:**

- Figures assume at least 20% recycled asphalt
- Reduce fossil fuel use at plant
- Decreased emissions at plant
- Decreased worker exposure to emissions during placement
- Reduces first costs
- Utilizes additive mix
- WDOT & SDOT approved
Concrete contributes the most to Global Warming Potential.

Concrete impacts could be reduced through optimization of concrete mix or through reduction of use of concrete, such as by increasing the amount of brick used.

Wood currently contributes under 10% of total impacts even though it provides the majority of the structure and is in use on the façade.

Increasing the ratio of wood to metal used in the façade would reduce environmental impacts.
• Carbon sequestration related to use of wood-framed construction and façade cladding.
• Embodied energy in wood is vastly less than in concrete and masonry.
• Increase in student density decreases number of students commuting. (Only 4% of on-campus students have cars.)
• There is no cooling within residential spaces.
• Heating in residential spaces is through electric resistance base board units. Electric supply in Seattle is provided from 100% renewable sources, mostly hydro.
• Thermally efficient windows are used throughout the residential areas.
DESIGN DEVELOPMENT
• Building C – **Eliminate** one level of West Wing
• Building D – **Eliminate** a level
• Building B – **Eliminate** a level of Downslope
  Wing and **Add** half floor on Denny Field façade
• Increase F-T-F heights in all buildings
DESIGN DEVELOPMENT  FIELD FAÇADE PATTERNING - VERTICAL
BASE DESIGN – GUIDING PRINCIPLES

- Terraced brick plinths
- Exposed Concrete Structure
- Board Formed Concrete at entries
- Storefront glazing + Punched openings in bases
SECTION A – BC COURTYARD

SECTION B – DENNY FIELD + WHITMAN WAY
Big Leaf Maple (Acer macrophyllum)

Madronas (Arbutus menziesii)

Eddie's White Wonder Dogwood (Cornus)

Noble Fir (Abies procera)
PHASE IVA WALKTHROUGH  TOWN SQUARE – EXISTING CHELAN AXIS VIEWS

FENCING  UNIVERSITY VILLAGE  NORTH PHYSICS LAB ROOF
PHASE IVA WALKTHROUGH  PERSPECTIVE FROM BUILDING D TO TOWN SQUARE
PHASE IVA WALKTHROUGH  PLAN OF BUILDING D AND EXTERIOR SPACES
PHASE IVA WALKTHROUGH  PERSPECTIVE THROUGH BUILDING D STREETSCAPE
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PHASE IV A WALKTHROUGH  PLAN OF BUILDING D AND EXTERIOR SPACES
PHASE IVA WALKTHROUGH  BUILDING D DINING TERRACE – PLANTING CHARACTER

WASHINGTON MUTUAL CENTER

LATTER DAY SAINTS CONVENTION CENTER

ENSENAPARTMENT TERRACE
PHASE IVA WALKTHROUGH  BUILDING D INTERIOR GARDEN – PLANTING CHARACTER

JAPANESE MAPLE
LOW GROUNDCOVER
CRUSHED STONE
MUGO PINE
MOSSY BOULDERS

Japanese Maple
Board Form Concrete
Japanese Mugo Pine
Moss and Fern Mix

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PHASE IVA WALKTHROUGH  PERSPECTIVE THROUGH DINING HALL
PHASE IVA WALKTHROUGH  PERSPECTIVE FROM B-D COURTYARD TO TOWN SQUARE
BOULDER WALL DETAIL

INTEGRATED BOULDER SEATWALLS
WOOD TOPPED CONCRETE SITEWALL

BOARD FORM CONCRETE

IPE BENCH TOP
PHASE IVA WALKTHROUGH  PERSPECTIVE OF B-C COURTYARD

UNIVERSITY OF WASHINGTON  NORTH CAMPUS HOUSING
PHASE IVA WALKTHROUGH  PLAN OF B-C COURTYARD

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BIKE PARKING & CIRCULATION

- Internal Bike Parking (-398 Bikes)
- Potential Exterior Bike Parking (-76 Racks/152 Bikes)

*550 Total Bike Parking Stalls Required

Circulation Routes

TOWN SQUARE

BUILDING D

WHITMAN WAY

PHASE IVA WALKTHROUGH

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