CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

Sitting/Acting as (if applicable)

Policy Session Worksheet

Presentation Date: 11-3-15 **Approx. Start Time:** 2:30pm **Approx. Length:** 90 minutes

Presentation Title: Clackamas County Extension Education Center

Department: OSU Extension Service

Presenters: Mike Bondi, OSU Extension Regional Administrator; Alec Holser and John Shorb, Architects with Opsis Architecture, LLC

Other Invitees: Clackamas County Extension Building Committee members—Irwin Rogers (chair), Dick Caldwell, Jeff Jorgensen, Patti Jarrett, and Kevin Bartel

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD? That the Board of County Commissioners designate the "Wetlands" building site on the Red Soils campus for future development of the Clackamas County Extension Education Center.

EXECUTIVE SUMMARY: See report provided for September 15 meeting. Executive Summary on pages 1-4 of report.

FINANCIAL IMPLICATIONS (current year and ongoing): Extension and 4-H Service District will finance site development costs and direct construction costs and are requesting to have Clackamas County Facilities Management handle the contract supervision for the project.

LEGAL/POLICY REQUIREMENTS: Long-term memorandum of understanding will be needed to clarify the relationship between the County and the Extension District for access to land, monetary transfers from the District to the construction contractors, and to the County, as needed. Also, clarity will be needed on the ownership and maintenance of the building and future implications, if the District would no longer exist.

PUBLIC/GOVERNMENTAL PARTICIPATION: The public has been involved in the concept design planning for the Extension Education Center to date, through the Extension Advisory Council, the Building Committee, and the public open house held during the planning process.

OPTIONS: If Clackamas County doesn't believe the Extension Education Center fits in the current or future planning for the Red Soils campus, the Extension District will need to look elsewhere in the county for an available building site.

RECOMMENDATION: Designation of the "Wetlands" building site on the Red Soils campus for future development of the Clackamas County Extension Education Center.

ATTACHMENTS:

- Electronic version of Phase I Concept Design Report and 9 hard copies provided.
- "Questions and Answers" document in response to Commissioner questions raised during a policy session on September 15, 2015.

SUBMITTED BY:
Division Director/Head Approval __**MB/mb**_____

For information on this issue or copies of attachments, please contact Mike Bondi @ 503-705-2434.

Fiscal Impact Form

RESOURCES:
Is this item in your current work plan and budget?

XX☐ YES (Have been saving budget resources for capital construction since FY10; total in FY16 budget is $4.0M)
☐ NO

START-UP EXPENSES AND STAFFING (if applicable):
None—all expenses will be part of construction budget and/or financed.

ONGOING OPERATING EXPENSES/SAVINGS AND STAFFING (if applicable):
All expenses for ongoing operating expenses will be covered as a part of annual budget.

ANTICIPATED RESULTS:
Assuming approval for project before end of CY2015, construction expected to initiate by next summer. Completion of construction expected by summer 2017 with move-in two years from now.

COSTS & BENEFITS: Costs estimated in Final Report. Benefits include improved service to citizens of County, improved work conditions for staff, and opportunity to grow programs to meet more needs and serve more people.

Costs:							
	Item	**Hours**	**Start-up Capital**	**Other Start-up**	**Annual Operations**	**Annual Capital**	**TOTAL**
Total Start-up Costs							
Ongoing Annual Costs							

Benefits/Savings:							
	Item	**Hours**	**Start-up Capital**	**Other Start-up**	**Annual Operations**	**Annual Capital**	**TOTAL**
Total Start-up Benefit/Savings							
Ongoing Annual Benefit/Savings							

OSU Extension Education Center—proposed for the Red Soils Campus of Clackamas County

Questions posed by the Board of County Commissioners during a policy session on September 15, 2015. Answers provided by Mike Bondi, Regional Administrator--OSU Extension Service and Research Center Director.

1. How will the buffer encroachment 2/1 ratio effect utilization of the larger part of the property? The proposed mitigation area to the south of the wetlands would likely reduce the future parking lot size. The masterplan shows approximately 66 spaces and the concept lot we show includes approximately 40 spaces.

2. How/will the Schafer access and parking be impacted? A shared curb cut entrance does not appear to significantly impact the Shaver Building parking lot as all parking spaces are on the east side of the entrance and could likely remain.

3. What additional studies will be needed (engineering/traffic, etc.) Per Oregon City, traffic studies and site development implication studies will be required. Per Tony Konkel, engineering has not occurred for the northern portion of the Red Soils masterplan.

4. Who will do (County, Extension, etc.), when and how will these studies be paid for, and completed? Discussion will be required with Clackamas County and Oregon City to determine 'triggers' for the extent of study required. It is not known who will pay for the studies. How much of these costs would be specific for Extension's project and/or for the general masterplan development?

Normally, any studies that are triggered due to a project are paid for by that project. If there are study costs, it will be the responsibility of the OSU Project, but that being said, that does not mean that all things that OC will request have not already been covered in previous studies performed for the masterplan or projects. OC may say that they want a new traffic study, but the County has traffic studied the entire masterplan to death and more than likely already have the answer(s).

5. Have you discussed your plans with County Counsel?
Yes—conversations have occurred with Chris Storey (emails and one personal visit on September 17). Also, Chris has discussed legal issues with others in County Administration. Chris is prepared to address any relevant questions.

6. What is the definition of wetlands for your purposes? How did you come to the determination of wetland area and what can be done with the land? Are there alternative definitions that could be used for this project?

- The wetlands survey and designation was a process completed by Clackamas County prior to OSU Extension beginning the project feasibility for the proposed Extension Education Center. The information provided below is based on what the County already knows and is interpreted for the proposed Extension Education Center. Key points would be:

- The Wetland is regulated by the Oregon Department of State Lands (DSL) and the US Army Corps of Engineers. A wetland delineation was completed and approved by DSL in 2006 and a subsequent update is in process.
- The City of Oregon City further regulates the wetland through the City's Natural Resource Overlay District (NROD) and requires a 50 foot buffer around the delineated wetland. The City considers the buffer and the wetland to be part of the NROD.
- The ability to impact the wetland under the City regulations is very limited; however there are limited uses allowed within the 50 foot buffer which require mitigation, if approved, by the City.
- Per Oregon City: For the Natural Resource Overlay District (NROD), you will have to use the code that was in place when the master plan was originally approved in 2005. The old code may allow a new structure to impede on the vegetated corridor per OCMC 17.49.050.E.1 (since structures are allowed in the zoning designation). The development standards you would be subject to are identified in OCMC 17.49.050. In the current code language, new structures are prohibited within the NROD today.
- Impacts to the wetland itself would require a removal fill permit application to the Army Corps and DSL, which would need to show an alternatives analysis and mitigation. The impacts would also require City approval through the NROD and modification to the City's zoning map through a comprehensive plan amendment. Both approvals are unlikely and time consuming.
- The wetland is located in the upper basin of Newell Creek and the City has expressed a strong desire to keep and enhance the wetland.

7. What is the expected impact on parking to the larger campus, since those lots are already dedicated to other uses? The Oregon City and Red Soils Zoning code stipulates a minimum and maximum range for parking spaces. Depending on final use classification, the Extension would fall in the range of minimum 43 spaces to a maximum of 80 spaces. At the Wetlands site the building replaces a future potential retail building so parking overall would not be impacted. On the Warner Milne site the building is additional to the masterplan potential buildings and would reduce long term parking area and spaces.

8. How will the money in excess of the budgeted costs be procured to complete the project? Bondi has discussed financing with Marc Gonzales (10-1-15) to explore possible options. See Marc for details. Basically, the District could self-finance, although our credit rating would be poor. But, we will have about ½ of the resources needed for the project and securing private funding should be possible. Public bonding is another option for the District. Marc suggested a third alternative of having the County lend the balance needed with a dedicated annual payback coming from the District's budget each year.

9. Have you worked with County Administration and Facilities to determine how this impacts the Master Plan? We have reviewed with both Jeff Jorgensen from Facilities and SERA Architects, the masterplan authors. Although either site location can work, the Wetlands site is clearly preferable—since this location is considered very limiting for future use and no other future use has clearly been identified by the County. Also, the Warner Milne site is problematic in that future large buildings, according to the masterplan, are planned in close proximity to the Extension Education Center location. Site layout restrictions in the existing masterplan make the Warner Milne site development difficult.

10. Is there assurance from Oregon City that given the plans as shown, no surprises are in the wings? There are no assurances from Oregon City. They felt the project looked reasonable relative to zoning requirements, but noted that engineering and traffic analysis would be required.

Also, we can now add the following to the list from the materials presented this week:

1. Value of lots in question? (may be a County Finance question) No idea. But, Extension would expect the County to provide the place (at no cost) for us to build a state-of-the-art education center serving the citizens of the region—using District funding. This relationship of the County providing the land and Extension financing building is consistent with Cooperative Extension's historic relationship between federal, state and local partners for the past 100 years and where these three governmental entities have worked together for the benefit of the entire community. An IGA or MOU would be needed to detail the ownership of the building, appropriate uses, upkeep and maintenance, ownership in the event the District dissolves, etc.

2. SDC charges amounts and who will pay? Amounts unknown at this time and cannot be determined until a plan is ready to take forward to the City. A SDC request form can be submitted in schematic design to receive an estimate. It will likely be important to separate the Extension project from overall north end Red Soils improvements. Extension expects to pay for the portion of the SDC fees directly related to the education center project.

3. Facilities Management costs and payment for proposed facility? There will be project costs for Facilities Management throughout the Extension Education Center project. There will be cost savings since Jeff's time and his Construction Supervisor's time and labor is allocated across all County groups. But, all project materials and the vast majority of the Facilities Management and Technology Services staff labor costs must be documented, tracked and charged to the project. Facilities Department costs are usually substantially less than the industry standard, but there will be costs and all of these must be charged to the Extension project.

4. What happens if the district is dissolved? This would need to be specified in the IGA/MOU described earlier. Logically, the building would become part of the County government facilities for other uses—with the County assuming all of the associated costs.

5. Who handles costs for maintenance of building? Annual upkeep and maintenance would be the responsibility of the District. Ideally, the District would pay allocated costs like all campus buildings at Red Soils.

6. Does the service district annual income cover <u>all</u> assumed costs going forward? Or put another way… Yes. The Extension Education Center project has been budgeted to absorb all site development, construction, move-in, annual upkeep and maintenance costs, and debt service within the annual FY2016 budget and Extension Service District budgets going forward in future years.

7. Will Extension eventually come before the Board asking for income in excess of the money generated from the tax? No. See above.

PHASE 1 CONCEPT DESIGN REPORT | AUGUST 2015

OREGON STATE UNIVERSITY

EXTENSION EDUCATION CENTER

CLACKAMAS COUNTY

Oregon State University OSU Extension Service Clackamas County

Opsis Architecture

TABLE OF CONTENTS

	Participants	iv
1.0	Executive Summary	1
	Historical Perspective	
	Preferred Site Plan	
2.0	Project Vision	7
3.0	Programming	11
	Extension Program Priorities	
	Sustainability Principles	
4.0	Site Analysis	24
	Red Soils Master Plan	
	Evaluating the Two Sites	
	Warner Milne Site	
	Wetlands Site	
5.0	Project Drawings and Model	37
	Site Plans	
	Building Plans	
	Building Model	
6.0	Appendix	47
	Structural, Mechanical, Electrical, Landscape, and Civil Narratives	
	Cost Estimate	
	LEED Scorecard	
	Oregon City Planning Meeting Minutes	

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EXECUTIVE SUMMARY

Historical Perspective

Clackamas County government and Oregon State University have enjoyed a strong relationship for nearly 100 years through their jointly funded Extension office located in Oregon City. The Extension office has been a place for the community to come for practical information and informal education services designed to address family health and well-being, youth development, farming, gardening and natural resource management.

During most of these years, Clackamas County has provided facilities for the Extension Service and their faculty and staff serving in the area. Extension offices have occupied several locations in Oregon City since our inception in 1917—including the basement of the Courthouse, the Shaver Building, and our current building on Warner Milne Road. None of these facilities have been designed for our needs or the needs of our citizen clients coming to Extension for assistance.

In 2008 voters in the County formed and funded the Clackamas Extension and 4-H Service District. This dedicated property tax source of annual revenue—coming from the District—has provided a stable source of funding for Extension's local programs and their future growth. Since the first year of the District's budget in FY2010, a capital construction fund was created to build a source of monies that could be used for facility development—to better meet the needs of clients in the future years. The reasoning behind conserving monies in the early years of the District was to provide an opportunity for creating a specially designed office and learning center that would accommodate OSU's informal education programs in the 21st century—and, to be able to grow our programs with added space and capacity in the coming years.

The Vision Moves Forward

Three years ago, Extension's citizen Advisory Council appointed a Building Committee to begin developing ideas for an Extension Education Center in Clackamas County. Their goal was to begin construction when about $4-5 million had been raised—with the hope of paying for a new facility outright.

The Committee has looked at building locations and where in the county we should be located to best serve the citizens. The Committee has been considering just what this new building should include to better serve the people with our

educational programs. And, they have monitored Extension's budgetary process and fund development for the new building.

During the annual public budget hearing process for the Clackamas Extension and 4-H Service District over the past three years, questions have been raised by the Clackamas County Commissioners about our progress on a new facility for Extension's future. As a result, in the fall of 2014, we began conversations with County government officials about the possibilities for allocating space on the Red Soils campus for Extension's new Education Center—to be built with Extension District funds.

Education Center Planning Begins

During Winter 2015, the Clackamas County Commissioners gave approval to consider two potential locations for a new Extension Education Center on the Red Soils campus—first, the open lawn area immediately EAST of the current Extension office building and called the "Warner Milne" site; and a second site called "Wetlands" and located immediately WEST of the Shaver Building and occupying the southeast corner of the Warner Milne Road and Beavercreek Road intersection.

Following a public request for qualifications process this past spring, an architectural firm, Opsis Architecture LLP, was hired to lead the planning for developing building design concepts for these two sites. The Commissioners have requested two possible designs for each site—single story and two story. Also, they requested completion of the planning and reporting back to them with recommendations by September, 2015.

During the past four months, numerous meetings have been held with the entire faculty and staff at the Extension office to develop ideas about needs, work environment, and preferences. Three meetings and discussions have been held with the Extension Advisory Council, too, for stakeholder input. And, a public outreach event was held in early June to share the early concept plans with the community.

The following pages of this report include the detailed site and construction analysis for the Extension Education Center—examining the two sites, the building program, and concept designs. The approximately 16,000 square foot building will feature a large dividable meeting room, a teaching kitchen, offices for the Extension faculty staff in addition to public lobby spaces and the Master Gardener clinic. The project is envisioned to be a demonstration project for sustainable design, leveraging Extension knowledge to educate the citizens of Clackamas County.

Preferred Site Plan

Based on the work done in preparation for this report, there are several important summary comments:

- Both sites are limited for usable space considering parking and building footprint; as a result, the only logical option would be a two story design at each location in order to accommodate current and future programmatic needs. The idea is to "build up; not out".
- The Wetlands site is the PREFFERED location for several reasons including,
  - This location is a "gateway portal" for the Red Soils campus—the first county building seen by the public coming from the east on Warner Milne Road. Extension's Education Center will be an impressive facility with an environmentally creative design and adding considerable visual appeal to the area and other campus buildings.
  - Extension's education programs—especially those focused on forestry and natural resources, horticulture and youth development—are ideally-suited to utilize the wetland resource on the site and would be an excellent fit for creative outdoor education in the community.
  - Due to the unique characteristics and significant limitations of the Wetlands site, it would be doubtful that any development might occur on this site for many years—in fact, this area might be one of the last developed on the campus. Extension's building could be a huge asset and showcase the blending of a public building in the midst of a Wetland—while providing opportunities for long-term environmental benefit.

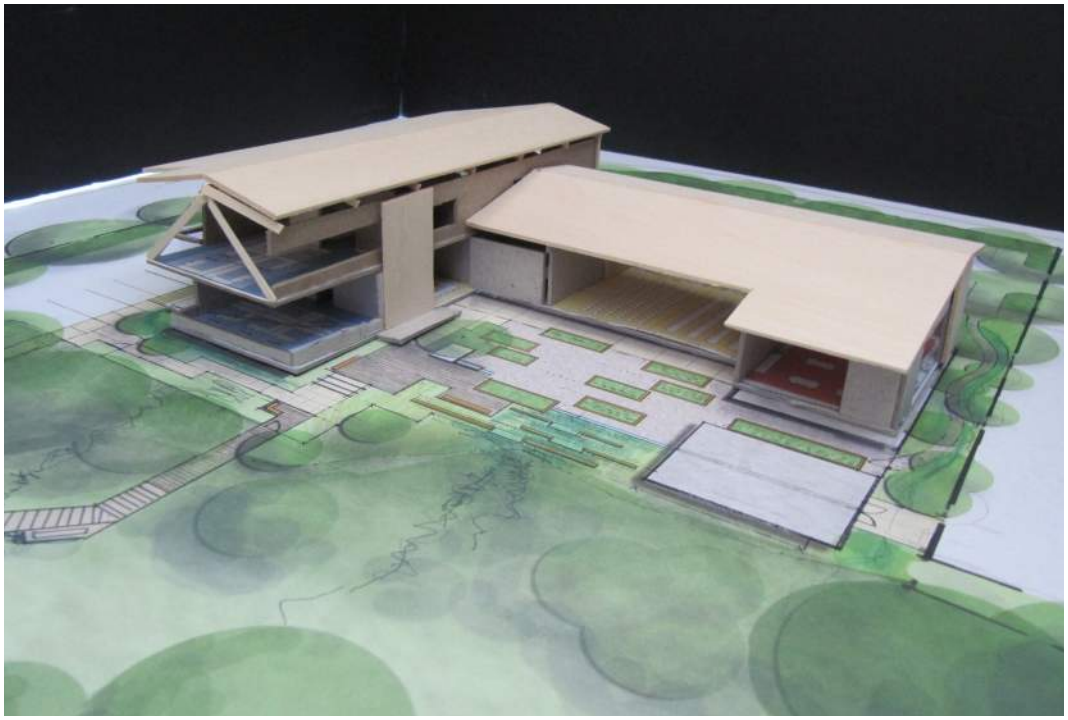
- Approving the Wetlands location for Extension's new Education Center will provide a perfect location for this important community education resource, continue to bring thousands of our citizens to the Red Soils campus each year, and have no real impact on future master plan and building development during the next 30 to 50 years or more.

Final Comments

We look forward to discussing this exciting project with the Clackamas County Commissioners in the coming weeks. Our goal is to reach a decision for approval during the final portion this fall. Once approved, Phase II of our planning would go forward to develop final concepts and construction documents prior to construction that could begin as early as Summer, 2016. Construction should be complete within 12 months and in time for Extension's 100th anniversary serving the citizens of Clackamas County.

Southwest View

WARNER MILNE
13
50' Buffer
Existing Wetland Boundary
BEAVERCREEK
Potential
Mitigation
Area



Southeast View

Northeast View

2.0 PROJECT VISION

The OSU Extension Education Center will create the first purpose designed home in the 100 year history of the Extension in Clackamas County. The approximately 16,000 square foot building will feature program offices for 4-H, Horticulture, Forestry, and Family and Community Health as well as the front office staff and administration. The building will also include a large public conferencing space that is dividable into two smaller conference rooms. A teaching kitchen will support all the Extension programs and feature both commercial and residential equipment to accommodate a wide range of classes for up to twenty students. The project is envisioned as a demonstration project for sustainable systems and careful integration of a building into the site, focusing on integrated outdoor spaces.

Extension Mission

The Oregon State University Extension Service engages the people of Oregon with research-based knowledge and education that strengthen communities and economies, sustain natural resources, and promote healthy families and individuals.

Extension Values

Community-based

We value community relationships and connect OSU to local people and issues to enhance the present and the future of the people and communities of Oregon.

Accountability

We focus on achieving measurable outcomes, and document and communicate the impact and value of our work.

Credibility

We deliver relevant, research-based knowledge through our educational programs.

Diversity

We exhibit respect, value differing perceptions and world views, and encourage diversity.

Partnerships

We collaborate with academic, public, and private partners to achieve greater results and build community capacity. We value the public good that comes from collaborating with volunteers.

Responsiveness

We engage with community partners and learners to identify priority issues and needs, to design timely responses, and to build future capability.

Project Vision

The concept design process included multiple workshops with the Extension program faculty and staff as well as the Advisory Council. The design team also led a Community outreach event to solicit additional input on the project vision and preliminary design ideas. Through this process a number of guiding principles were identified.

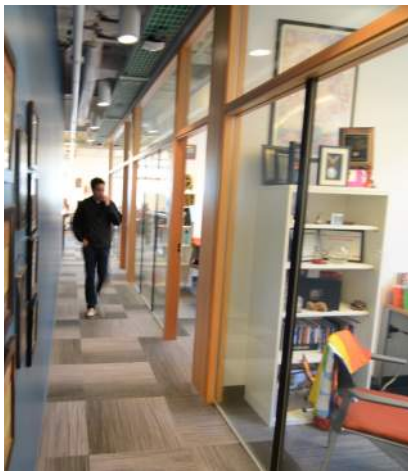
Integrated Outdoor Space

Outdoor spaces, integrated with interior conference and program spaces, are critical as educational spaces and to always maintain a connection to the outdoors. Outdoor learning from the scale of the individual to the small class is part of all of the Extension programs. A secure courtyard, open to the wetlands but framed by the building, was identified as an essential element in the concepts studied. Beyond the courtyard, the design engages the restored wetlands with a boardwalk.

Collaborative Workspace

The building program divides into a 'public' zone, for conferencing and kitchen, and a 'private' zone for program offices and workspace. To simplify wayfinding, one building entry is preferred from which both sides may be accessed. The 'public' zone will be linked together with a transparent gallery space featuring graphics illustrating the reach of the Extension programs. These areas will be used all day long and into the evening for Extension and public events. The 'private' side sequence of spaces, staffed during daytime work hours, begins at the front desk where staff receive more than 3,000 walk-in visitors a year. From here visitors may be directed to volunteers in the adjacent Master Gardener room or connected with a program member in the office area nearby. The backdoor to the program area includes a much needed mudroom for removing wet and dirty clothes as well as cleaning tools and equipment. Throughout, all areas of the building and site will be fully accessible to welcome all Clackamas County residents.

Multiple typologies were discussed for the office spaces and an open office with modular systems furniture work stations rose to the top for multiple reasons. Collaborative work space is a must. Program staff work together within their programs as well as together with other programs. They need space that allows for visibility and connection with peers. Flexibility is also crucial. The Extension expects changes in their programming and staff every few years and needs the building design to efficiently accommodate change.



Teaching Kitchen

The teaching kitchen will provide a combination of commercial and residential equipment to support a wide range of educational programming. The Master Food Preserver (MFP) and Family Food Education (FFE) volunteers will teach food safety and preservation while 4-H will utilize the kitchen to teach youth how to cook at home. Supplemental Nutrition Assistance Program Education (SNAP-Ed) will also use the space for preparing samples and recipes for events and education. The space is designed to be functional, not sterile, and flexible for a range of uses and participants.

Conference Space

The large dividable conference room will be a beautiful daylit space featuring warm wood finishes that connect seamlessly to an outdoor courtyard. The acoustics of the room will be tuned to allow a wide range of events and programming. High performance audio visual systems will be integrated into the design, including room darkening for projected presentations.

OSU College of Forestry is a world leader in the development of sustainable and innovative forestry practices. This includes the design of innovative mass timber technologies such as cross laminated timber (CLT). The OSU Extension Service embraces wood as an important Clackamas County asset and envisions the extensive use of wood in the building from innovative structural systems, to traditional framing, to warm and beautiful finishes. The project aims to show off this beautiful local resource.

PART 3 - PROGRAMMING

In addition to full staff workshops, Opsis led small group programmin meetings with each of the Extension programs. Together we developed room data sheets for each of the program spaces that include specific details including finishes, equipment and technology.

Outreach Flyer

Programming outreach and discussion extended to the many Extension volunteers through distributed flyers and feedback at many of the programs meetings.

Oregon State UNIVERSITY OSU Extension Service Clackamas County

Build stronger and healthier individuals, businesses, and communities making Clackamas County a great place for all of us to live!

The Clackamas County Extension is planning a new Education Center!

The Center will include offices (4-H, Family and Community Health, Horticulture, Forestry, and Administration), large conferencing and meeting rooms, and a teaching / food preservation kitchen as well as educational landscape and garden elements. The center is envisioned as a demonstation project reflecting the mission of the Extension programs.

Project themes and inspiration include:

Sustainable Systems

Integrated Outdoor Spaces

Extensive Use of Wood

Greenhouse

Flexible Meeting Spaces

Outdoor Learning

Extension and design team planning session

Opsis Architecture, a design firm located in Northwest Portland, is leading the integrated effort to identify the program needs and develop design concepts for the new building. Two possible sites have been selected for planning by the Clackamas County Commissioners at the Red Soils campus of county government in Oregon City. Opsis will design a one and two story schematic concept at each location for County Commissioner review.

All Extension clients, stakeholders, volunteers and the public are invited to provide comments. As we finalize the program and launch into concept design your thoughts and ideas will help shape the project.

For more information, contact the OSU Extension office in Oregon City at 503-655-8631.

Building Program

	Qty.	Exst.	NSF	Total NSF Program	Concept Design
Program Office Space					
4-H Workstations	4	407	120	480	480
4-H Workstations	2		80	160	160
4-H Work Area	1		100	100	100
Horticulture Workstations	2	184	120	240	240
Horticulture Workstations	3		80	240	240
Horticulture Work Area	1		100	100	100
Forestry Workstations	2	144	120	240	240
Forestry Workstations	1		80	80	80
Forestry Work Area	1		100	100	100
Family and Community Health Workstations	3	458	120	360	360
Family and Community Health Workstations	7		80	560	560
Family and Community Health Work Area	1		100	100	100
Future Growth Workstations	2	0	120	240	240
4 Person Conference Rooms	2	0	100	200	200
Programs Storage Room	1	81	150	150	100
		1,274	**Subtotal**	**3,350**	**3,300**
Administration / Reception					
Extension Regional Administrator Office	1	180	180	180	157
Office Manager Office	1	64	140	140	135
Administration Workstations	6	420	64	384	384
Reception Area / Counter	1	150	250	250	570
Master Gardener Public Clinic	1	147	250	250	250
Public Education Materials Storage	1	161	200	200	185
Small Meeting	1	0	100	100	135
		1,122	**Subtotal**	**1,504**	**1,816**

	Qty.	Exst.	NSF	Total NSF Program	Concept Design
Classroom / Conference / Training					
Large Conference Room (dividable, capacity 140)	2	533	1,000	2,000	2,090
Conference Lobby	1	0	800	800	1,348
14 Person Conference Room	1	138	450	450	412
Teaching Kitchen	1	362	2,100	2,100	2,100
Conference Storage	1	50	150	150	0
		1,083	**Subtotal**	**5,500**	**5,950**
Shared Support Spaces					
Copy Room	1	217	300	300	241
Staff Break Room	1	130	300	300	264
Mudroom / Lab	1	0	150	150	130
Men and Womens Restrooms	2	142	250	500	369
Family Restroom	1	118	80	80	0
Lactation Room	1	0	80	80	89
Tool Shed	1	0	150	150	0
		607	**Subtotal**	**1,560**	**1,093**
Storage					
Large Storage		0		0	0
			Subtotal	**0**	**0**
Total Building Net Program		**4,086**		**11,914**	**12,159**
70% Grossing Factor					
Shower					
Mechanical/Elec/IT Rooms					
Elevator					
Janitor Closets					
Wall Thickness					
Total Building Gross Program				17,020	**17,103**

Site Program

Gardens and Outdoor Spaces
Demonstration Edible Garden
Native Demonstration Landscaping
Native Forest Tree Planting
Greenhouse
Covered Patio
Exterior Hardscape
Loading Area
Wetlands Restoration
Wetlands Raised Boardwalks
Parking Lot Spaces
Access Roads / Sidewalks
Bike Parking Area

4-H

- Supervise 400 unpaid volunteers – HR function
- Check-in and called to front office daily
- Dedicated 4-H work area for project prep – counter with storage
- Mudroom with workbench – place to clean dirty boots and equipment
- Storage important – DSB is safe and weather protected
- Acoustic privacy important but want visible connection between workspaces too
- Public computer near front office for online enrollment
- Windows that open

Horticulture

- Oversee 1000+ Master Gardener volunteers in three counties
- Small 4 person conference room for consultations
- Include space for future growth
- Dedicated work area for project prep – counter with storage
- Adjacency to Master Gardener public clinic important
- Mudroom necessary with onsite gardens – plant identification
- Tool storage
- Exemplary stormwater management
- Raised beds in easy to maintain area, controlled public access – start small with room to expand
- Greenhouse as teaching space for 20

Forestry

- Demonstrate innovative and beautiful wood design
- All wood should be certified by third party system
- Local wood most important
- Mudroom with equipment closet critical
- Natural ventilation important
- Tool shed

Family and Community Health

- Accessibility important
- Dedicated work area for project prep – counter with storage
- Acoustic separation important – loud voices
- 4 person conference room needed
- 15 person meetings common
- Teaching kitchen space for 20 students
- Connect gardens to kitchen

Workshop #1 image discussion

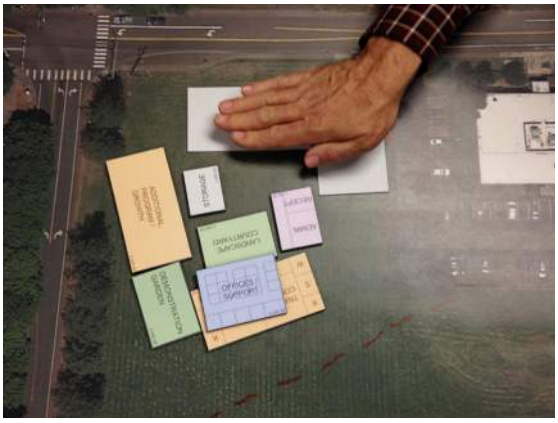
Workshop #1 program modeling on both sites

Front Office

- Clear identity for Extension building and entry point to access services
- Clear lines of sight important
- Manage cash and a safe
- Identity – illustrate the programs who work here
- Workstations – not tall partitions, visibility between
- Small, unscheduled, front office conference room
- Natural ventilation important
- Views and daylight important – at desks all day
- Include restroom(s) off of lobby
- Connect break room to outdoor space

Administration

- Future growth potential important
- Provide clearly identified main entry for events and other services
- Lactation Room – care for breastfeeding moms
- Consider care of Master Gardener volunteers – lunch, etc.



Workshop program modeling

Existing Extension Front Office entry

Advisory Council

- Plan for future growth
- Develop teaching kitchen – more space needed
- Open office typology – importance of flexibility, cost, collaboration
- Collect data on large events – consider size of conference space (140-200 people)
- Will figure out alternative financing if Extension budget not able to cover outright
- Don't delay building! Prices only going up. This is the time for the project.

Community Open House

- Views of building from adjacent roads important
- Views / connections to wetlands – boardwalk/paths
- Lobby close to visitor parking
- Public access to Conference / secure lobby with access to restrooms / kitchen – Important!
- Use local wood – engineered wood
- Rain water collection and demonstration
- Permeable pavers

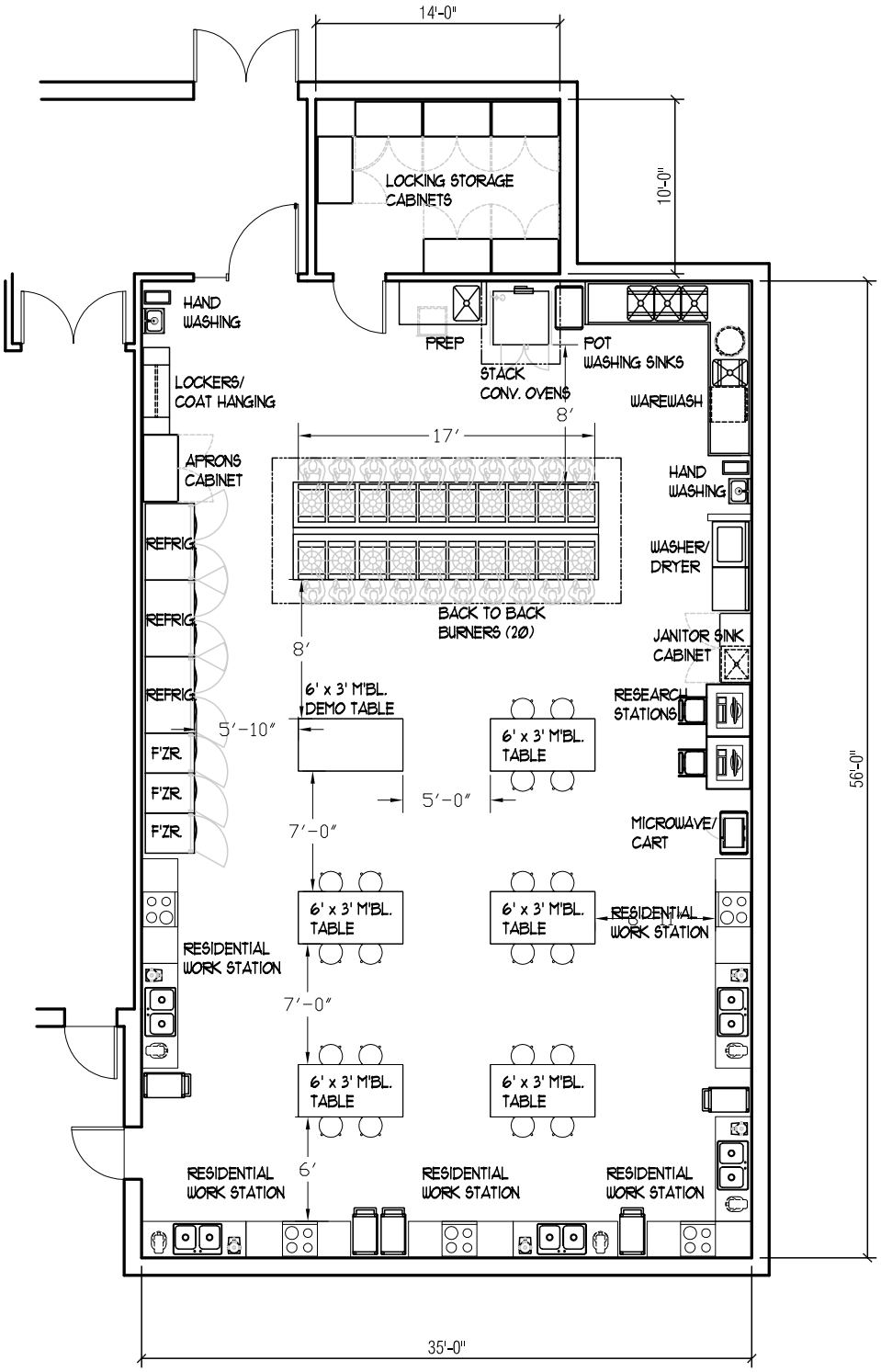
Community Open House at the Gregory Forum

- Kitchen:
  - Teaching kitchen for adults and youth, also functions as preparation kitchen
  - Not too big – efficient, decrease footsteps
  - Functional but not sterile
  - Demonstration camera and screen
  - Full height cabinets to ceiling

- Large Conference:
  - Good acoustics and AV with room darkening
  - Public access to Conference / secure lobby with access to restrooms / kitchen – Important!
  - Accomodate 140 people in chairs, flexible for use in multiple configurations

Hood River Middel School Teaching Kitchen, during Extension tour, Hood River. OR

Teaching Kitchen Room Data Sheet



SUSTAINABILITY PRINCIPLES

The programming phase included an EcoCharrette Workshop with the Extension faculty and staff during which the group discussed and identified guiding principles for the project. In addition, a preliminary LEED scorecard was discussed with specific strategies that align with the Extension progams goals and mission.

The center will serve as an educational resource for

Environmental learning, research and hands on discovery

Conservation and management of forest, agriculture and natural resources

Education about and implementation of sustainable gardening

Extension volunteers

Design will embody purpose by

Creating connections between the OSU Extension Service, the community and the natural world

Using and celebrating natural and local materials

Supporting spaces that are flexible, daylit, and welcoming

The center's design must incorporate or account for

Red Soils masterplan standards

Minimum LEED Silver certification equivalent – not pursing certification

Onsite Solar

Specific strategies suggested include

Extensive on site solar. Exceed requirement for 1.5% for solar with deferred solar from Silver Oaks project.

Rain water and gray water capture for reuse on site. Celebrate water moving to and from the cistern.

Target net zero energy. Reduce loads to extent possible and offset with solar.

Utilize natural ventilation / operable windows to provide fresh air and a connection to outside.

Consider radiant floors for the mechanical system - efficient, comfortable, and quiet.

Education Center

for New Construction (v2009)

Possible YES Points	73*
Sustainable Sites	17/26
Water Efficiency	8/10
Energy & Atmosphere	22/35
Materials & Resources	5/14
Indoor Environmental Quality	12/15
Innovation	6/6
Regional Priority	3/4

** 110 possible*

Energy

- Renewable Solar Energy (Electricity)
- Solar Thermal (Hot Water)
- Optimize Energy Performance
- Thermal Mass
- Natural Ventilation
- Geothermal / Leverage Irrigation System

Energy Board from the EcoCharrette

PART 4 - SITE ANALYSIS

EVALUATING POTENTIAL SITES

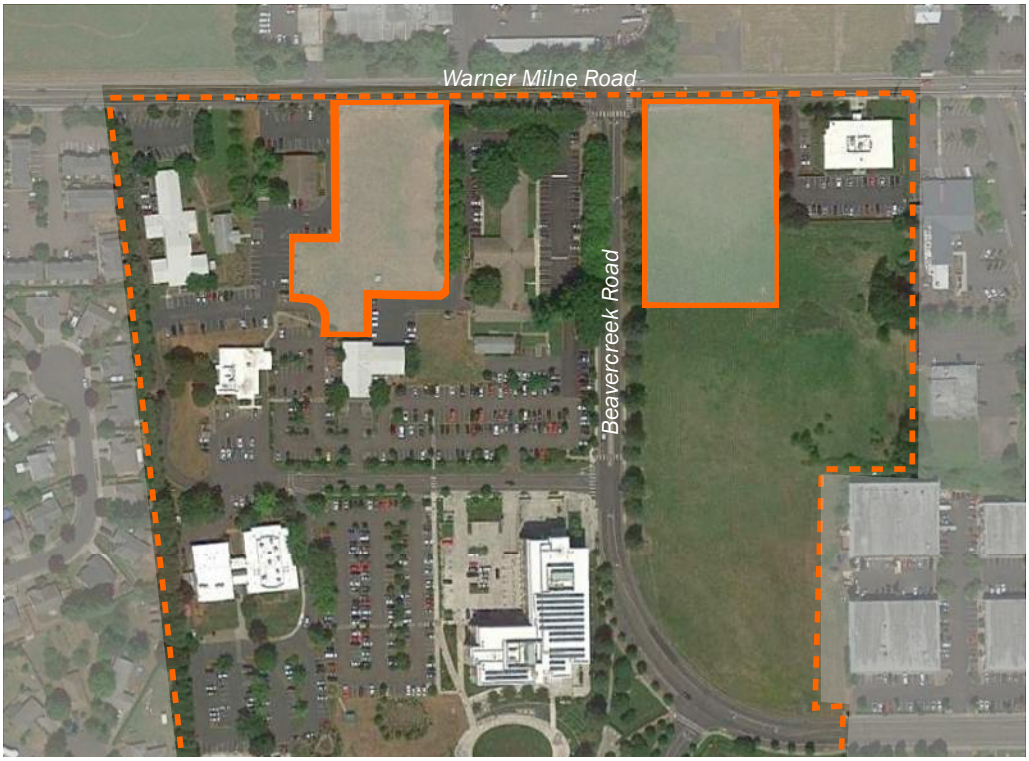
Red Soils Campus and Masterplan

Two building sites have been studied at the request of Clackamas County, both on the Red Soils campus in Oregon City. Both front on Warner Milne Road. The Warner Milne site sits due east of the existing OSU Extension office building and the Wetlands site in on the southeast corner of Warner Milne and Beavercreek Road. Both sites are currently grassy fields and have planned infrastruture or buildings identifed on them in the 2030 Masterplan.

After extensive study, summarized in this site analysis section, the 'Wetlands' site on the corner of Beavercreek and Warner Milne has been identified as the preferred site.

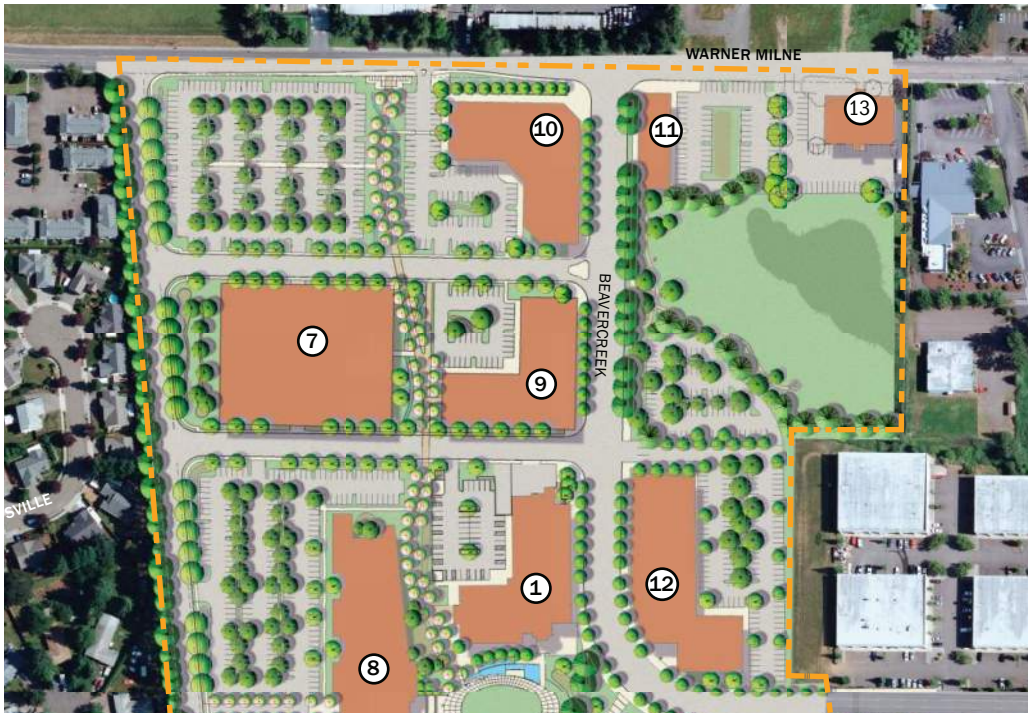
The location adjacent to the Newell Creek wetlands, currently a grassy field, provides a unique opportunity to integrate the building and its environmental focus with a site requiring restoration. The Extension faculty, staff, and volunteers all believe the wetlands site offers fantastic opportunities for educational programming while leveraging their volunteers to restore the wetlands and build boardwalks and interpretive signage.

Aerial of Existing Red Soils Campus



Google Earth Aerial

Red Soils Campus, 2030 Masterplan



From Clackamas County Red Soils Masterplan, SERA Architects

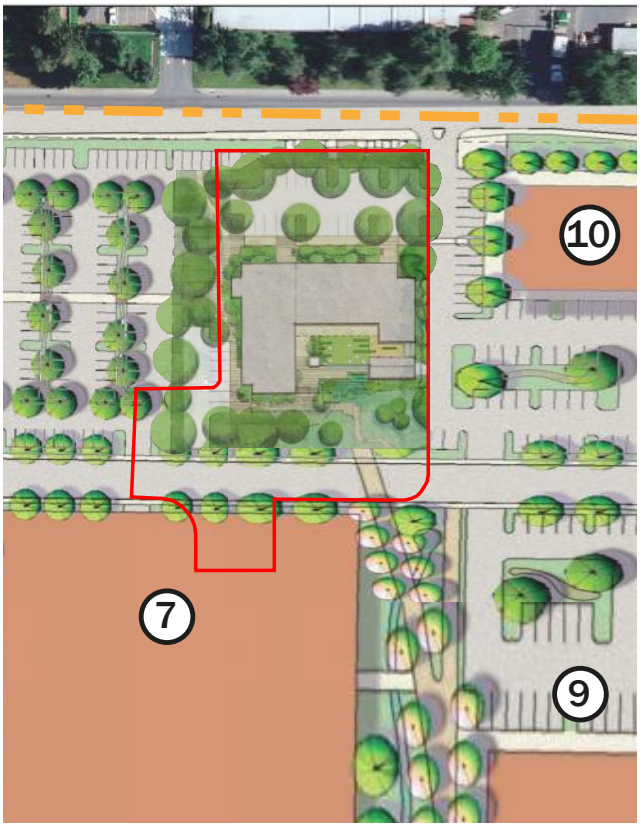
WARNER MILNE MASTERPLAN SITE ANALYSIS

The Warner Milne site sits in a challenging position relative to the Red Soils masterplan. The masterplan shows a sixty foot wide pedestrian pathway with swales and plantings running directly through the site. A future road is shown crossing the south portion of the site. In addition, large 4 story buildings and a multi-story parking garage are planned on adjacent sites. This site does provide more direct access to the central utility plant Utilidor if connection is desired. The diagram options below overlay the Masterplan on a recent aerial photo and outline the proposed project boundary.

Option A

Option A locates the building within the footprint but highlights how this location would block the pedestrian pathway that is intended to reach to Warner Milne. Each of these options illustrates how the future east west access road and parking garage (Building 7 in Masterplan) limits the usable area on the southern end of the site.

Option A



Option B

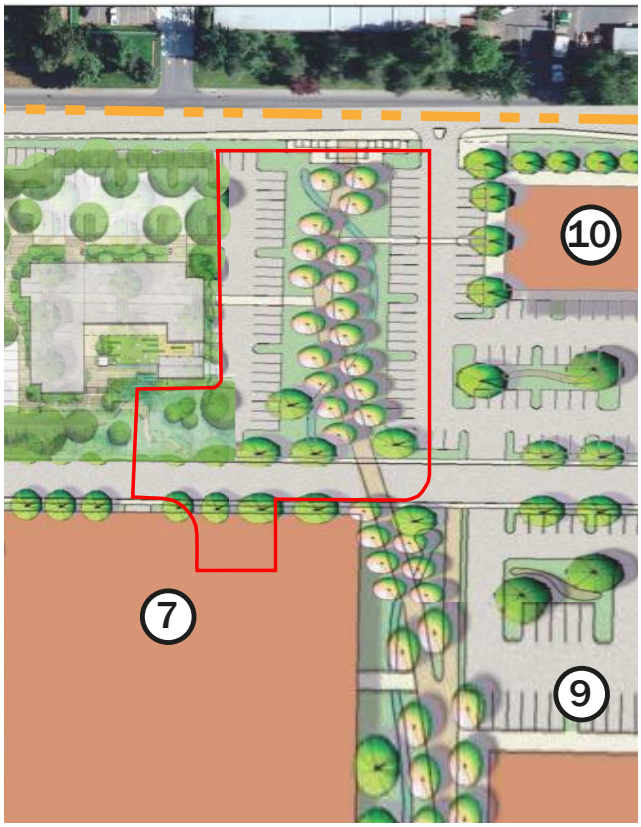
Option B suggests an option to push the building west onto the current footprint of the OSU Extension offices and future parking lot. This option maintains the clear space for the pedestrian pathway to extend north to Warner Milne.

Option C

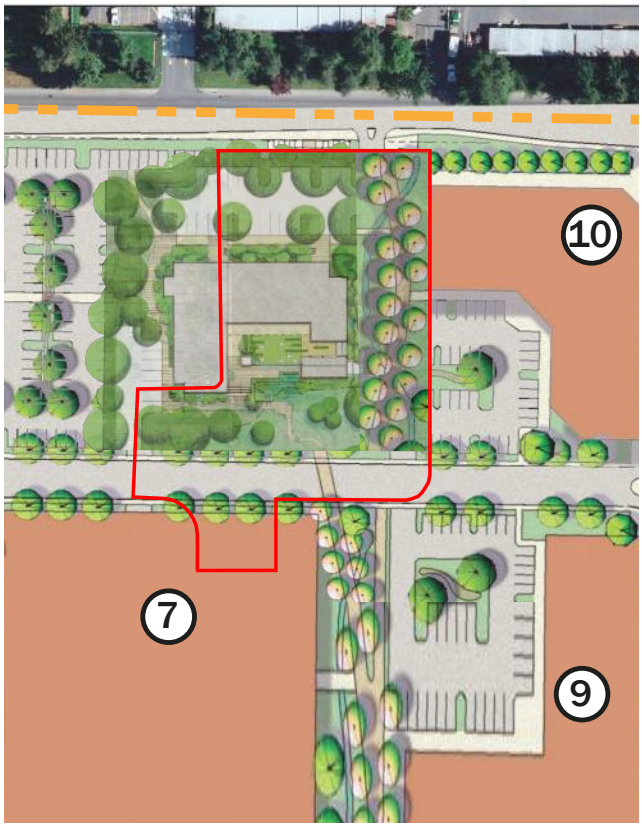
Option C considers a hybrid of A and B that only pushes the building west as far as required to allow a modified pedestrian pathway to extend through to Warner Milne.

The existing campus Utilidor is located under the proposed pedestrian pathway and currently ends at Library Court. In the future it is intended to extend north to Warner Milne under the pathway and along the east edge of the project site.

Option B



Option C



WETLANDS MASTERPLAN SITE ANALYSIS

The wetlands site is bordered by Warner-Milne Road to the North, Beavercreek Road to the West, and the Shaver Building to the East. To the south is a designated wetland that has been compromised by past agricultural practices. The site is relatively flat with a gentle slope from the NW corner to the SE corner. The site offers fantastic visibility of the building from both adjacent streets. Parking access would come off of Warner Milne, likely sharing a driveway with the adjacent Shaver Building parking lot to the east of the site. A second smaller parking lot, intended for staff use and loading, is shown on the west side of the site with a right in, right out driveway onto Beavercreek.

Beavercreek Right-of-Way

There are a number of factors limiting the buildable area of the site. There is an approximately 60 foot right-of-way along the east side of Beavercreek Road. The Red Soils Masterplan includes a proposed street section for Beavercreek that utilizes this full width, including both on street parking, a center turn lane and bike lanes as the site is built out. It is unclear at this time what would trigger the widening of Beavercreek.

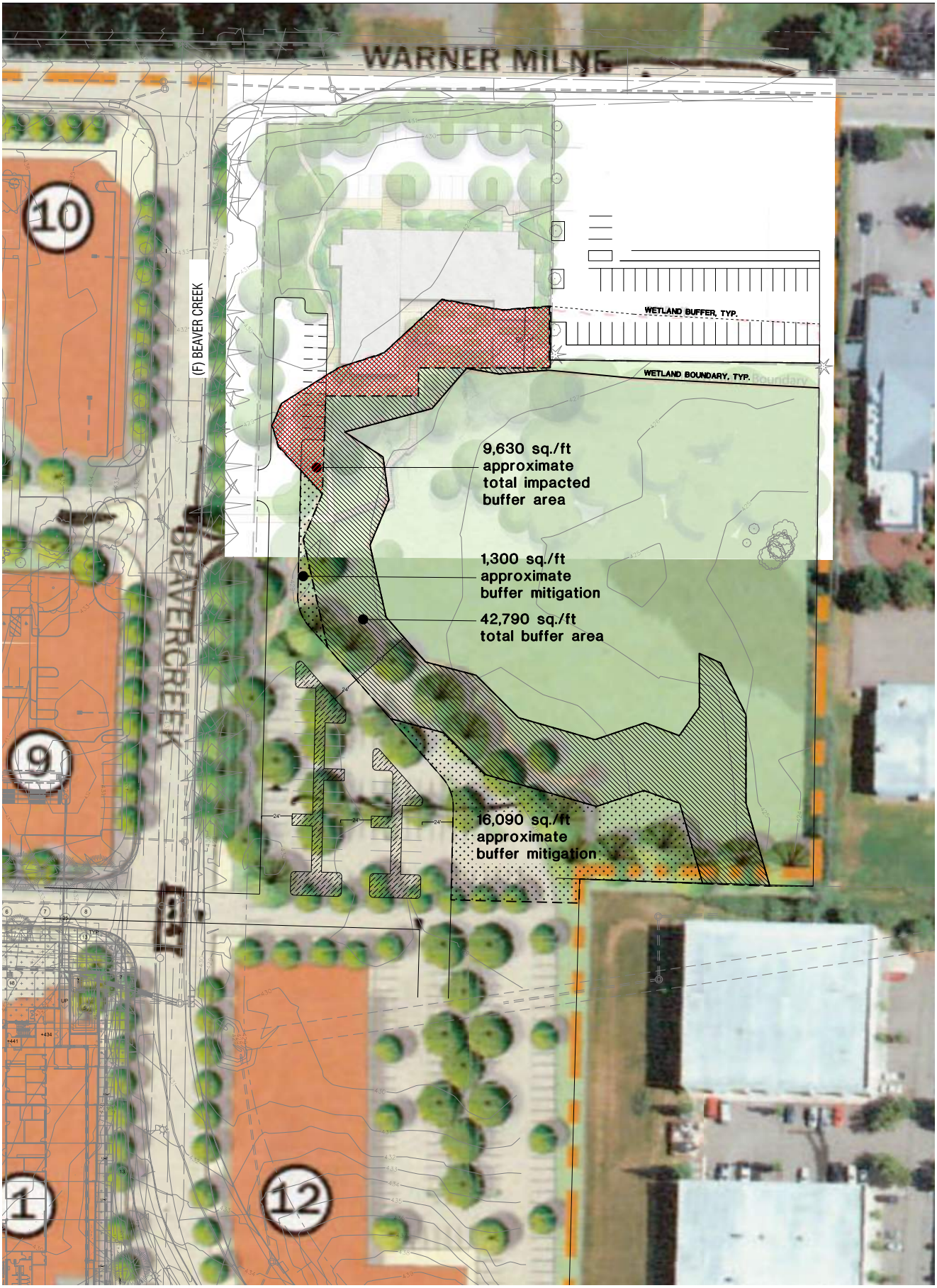
View looking south across Wetlands site, Beavercreek Road on the right

WARNER MILNE
13
50' Buffer
Existing Wetland Boundary
BEAVERCREEK
Potential
Mitigation
Area

Newell Creek Wetland

The proximity to the existing Newell Creek Wetland and associated 50' vegetated buffer significantly impacts the site. After extensive study of multiple site plans it has been determined that encroachment into the 50 foot buffer will be required. It is not anticipated that any encroachment will be required into the Wetland boundary. Any impact to the buffer (or wetland) will require Natural Resource Review per Code Section 17.49 and require mitigation at a 2:1 ratio for the encroachments.

The site analysis diagram to the right illustrates the entent of buffer encroachment anticipated and proposes a possible location for the mitigation area.


WARNER MILNE
(F) BEAVER CREEK
BEAVER CREEK
WETLAND BUFFER, TYP.
WETLAND BOUNDARY, TYP.
9,630 sq./ft
approximate
total impacted
buffer area
1,300 sq./ft
approximate
buffer mitigation
42,790 sq./ft
total buffer area
16,090 sq./ft
approximate
buffer mitigation
10
9
12
1

WETLANDS SITE PLAN

Access and Circulation

Pedestrian circulation and connections are a priority of OSU Extension Education Center and the Red Soils campus. The proposed schematic site plan provides pedestrian connections from east-west and north-south directions. These connections include a sidewalk to the bus stop on Beavercreek and a boardwalk option that carries pedestrians through the edge of wetland.

Vehicular access comes primarily from Warner Milne Road to a lot on the north side of the building. A secondary staff and service entrance comes off of Beavercreek and also potentially connects to additional future parking to the south.

Integral to the fabric of the Red Soils master plan and existing wetlands, the OSU Extension Education Center plays a significant role in creating awareness about the stewardship of wetlands. The OSU Extension Education Center landscape will serve as a demonstration garden through the display of native and native adaptive plants, low-impact storm water treatment and urban gardening. This offers an intimate interaction between users and the adjacent natural systems. The site plan concept is to create a forested grove in the front of the building to screen and shade parking and to create framed views from the street to the building. Storm water facilities around the building's edge will collect surface runoff from parking lots and the building and offer internal and external views of the integrated treatment process. A new pedestrian connection is provided along the east-west axis of the building and another one extends from the existing bus stop to create a north-south connection. Given that the main entry is on the north side of the building, careful attention will be paid to sun exposure, shading and the use of deciduous trees.

Landscape Design

The project landscape is defined by several areas that require distinct design approaches:

The perimeter landscape provides a code-compliant screen and will meet Clackamas County buffer requirements. This landscape will create the feel of a native tree grove with understory deciduous and evergreen plantings. A meandering concrete path provides pedestrians a connection from the existing bus stop at Warner Milne through a native landscape.

WARNER MILNE
BEAVERCREEK
10
9
1
12
13
50' Buffer
Existing Wetland Boundary
Potential
Mitigation
Area

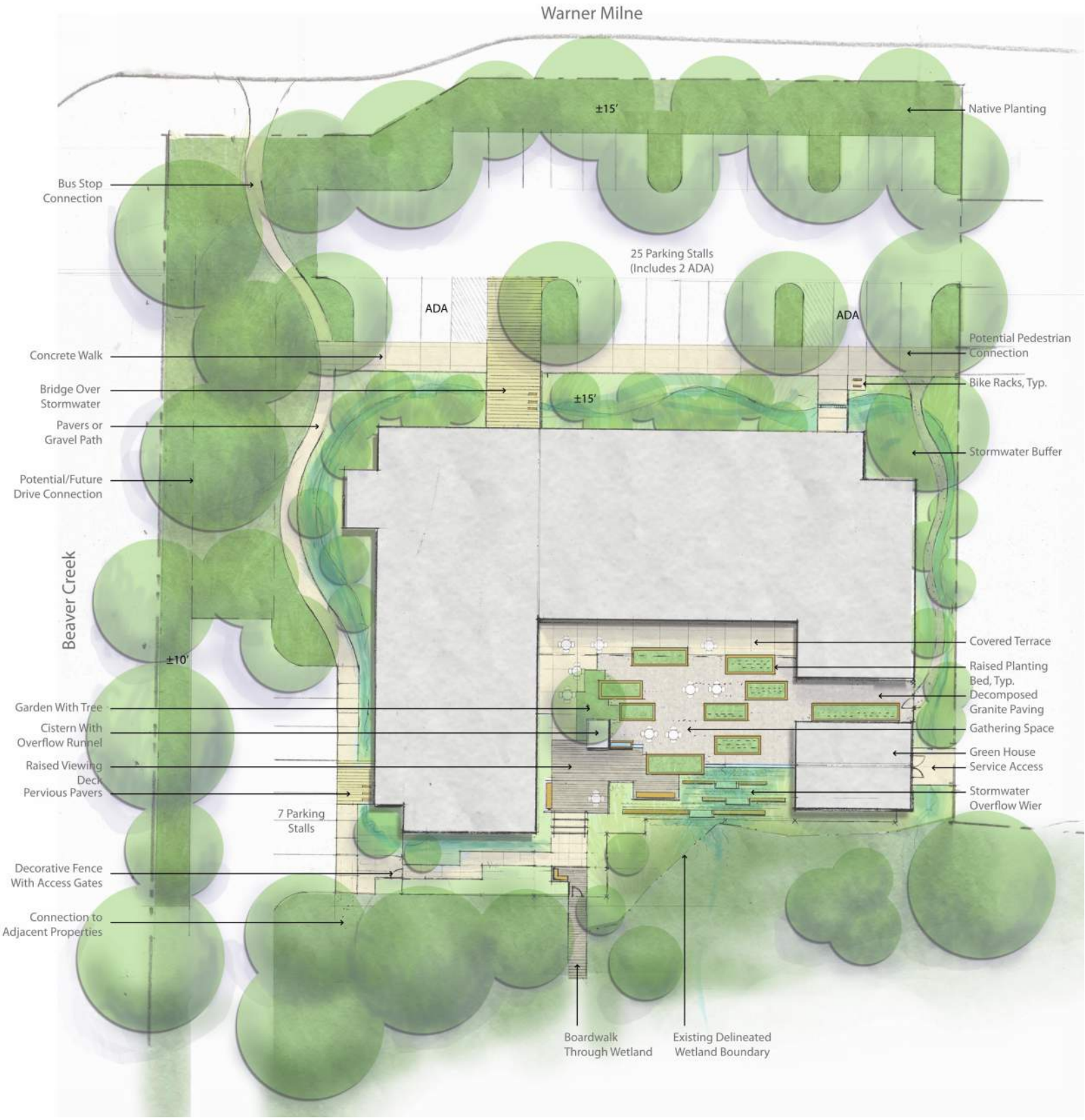
Stormwater

The stormwater treatment takes advantage of natural grades, directing surface water from the north parking lot to stormwater swales around 3 sides of the building. At the main entry to the building a "bridge" over the swale will highlight this sustainable approach. At the secondary entrance a decorative trench drain calls attention to stormwater as it flows through the planters during peak storms. Detailed grading will ensure positive drainage away from the building in this area and direct all treated stormwater to eventually flow into the restored wetland. The building will be designed with views to the planters as a part of the educational approach.

Courtyard Garden

The courtyard garden is designed to integrate indoor and outdoor spaces. It will be a flexible gathering space with a variety of smaller spaces. This will be achieved through the careful placement of ornamental, educational & edible plantings. Raised beds will be used for ornamental or vegetable gardens and provide seating around all sides. The walking surface materials include scored concrete paving, decomposed granite paving and wood decking, all at the same elevation for accessibility. This use of multiple natural materials creates a sense of different spaces within a larger, unifying one. Custom benches will provide comfort and are located to maximize views into the courtyard and restored wetland beyond. A greenhouse creates a sense of enclosure and will be used for growing vegetable starts. It will also create opportunities for gardening classes and for storing sensitive plants over the winter. The service access to the green house is on the east side with access through the existing Shaver Building parking lot.

The cistern & stormwater overflow collects roof rainwater for uses within the building. In the event of peak storms, an overflow scupper will spill water into a decorative runnel then into a decorative trench drain. The water will flow beneath the wood decking and into a series of weir walls that cascade into the restored wetland. This feature will be used for demonstration purposes and will create a dynamic focal point in the courtyard.


Warner Milne
±15'
Native Planting
Bus Stop Connection
25 Parking Stalls (Includes 2 ADA)
ADA
ADA
Potential Pedestrian Connection
Concrete Walk
Bridge Over Stormwater
Bike Racks, Typ.
±15'
Pavers or Gravel Path
Stormwater Buffer
Potential/Future Drive Connection
Beaver Creek
Covered Terrace
±10'
Raised Planting Bed, Typ.
Decomposed Granite Paving
Garden With Tree
Cistern With Overflow Runnel
Gathering Space
Green House
Raised Viewing Deck
Service Access
Pervious Pavers
Stormwater Overflow Wier
7 Parking Stalls
Decorative Fence With Access Gates
Connection to Adjacent Properties
Boardwalk Through Wetland
Existing Delineated Wetland Boundary

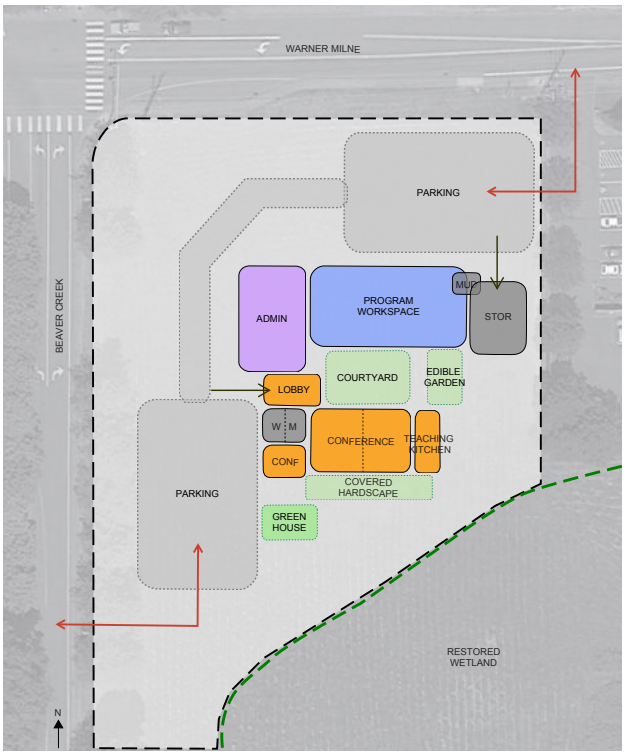
PART 5 - PROJECT DRAWINGS AND MODEL

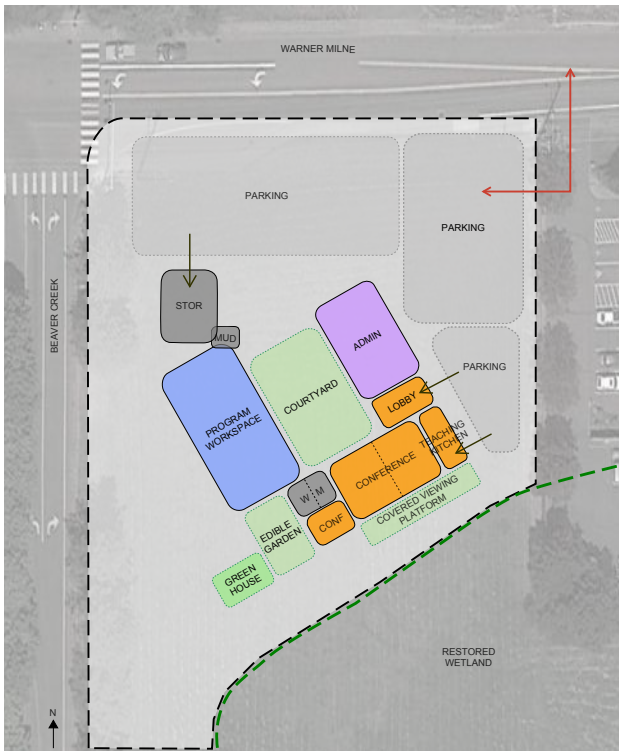
Program Configurations

During the workshops, the faculty and staff worked closely with the design team to study multiple configurations and relationships between program elements. These were all considered within the constraints of the two potential sites.

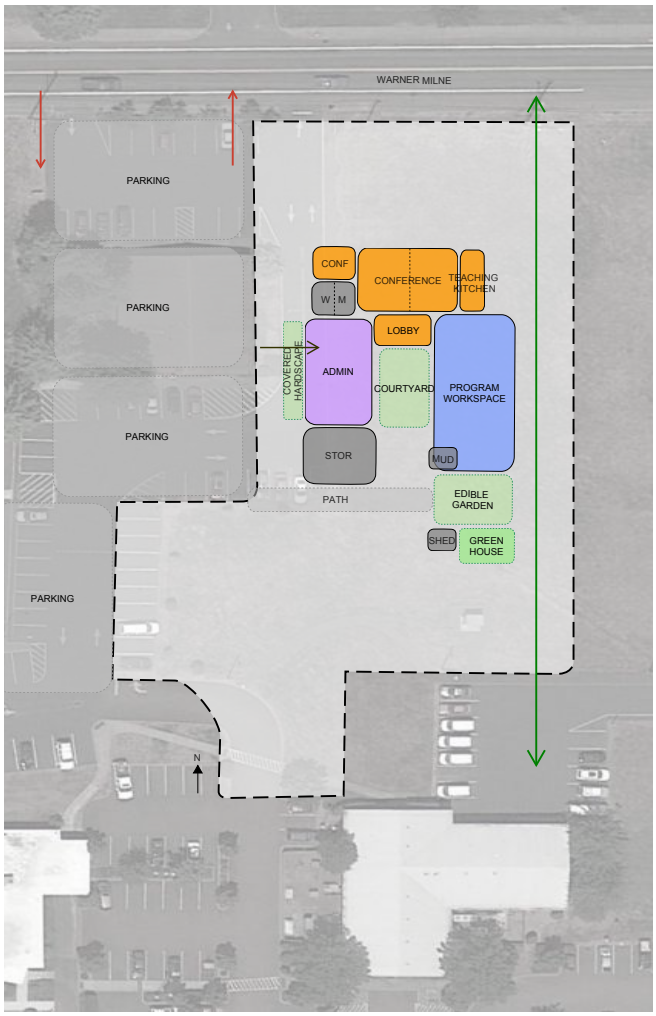
The following diagrams document the primary options studied and developed in detail as the study progressed.

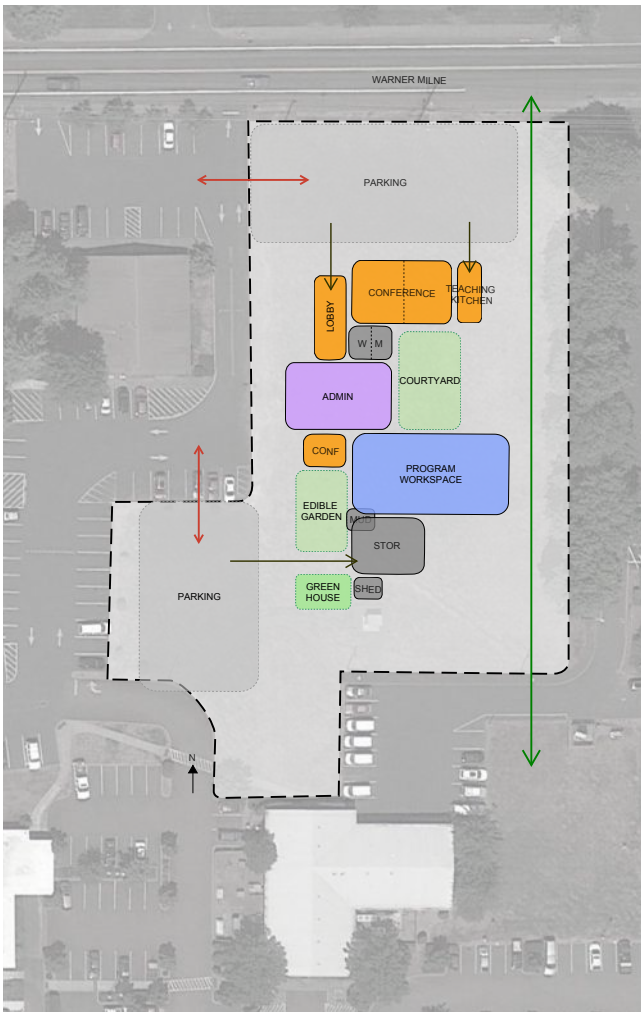
Wetlands Site





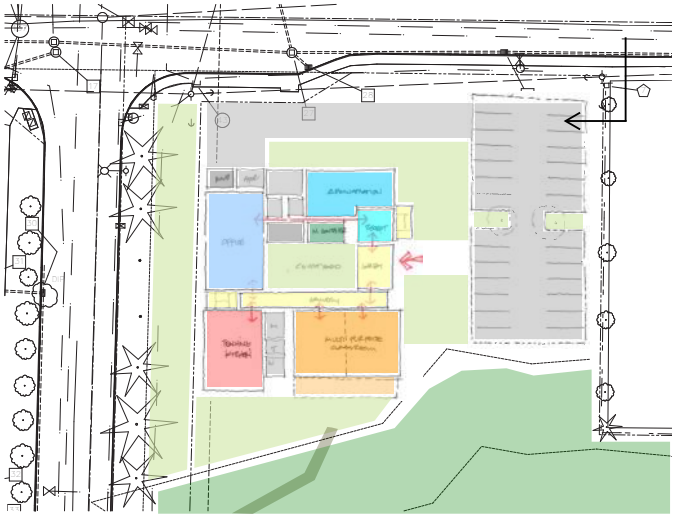
Warner Milne Site



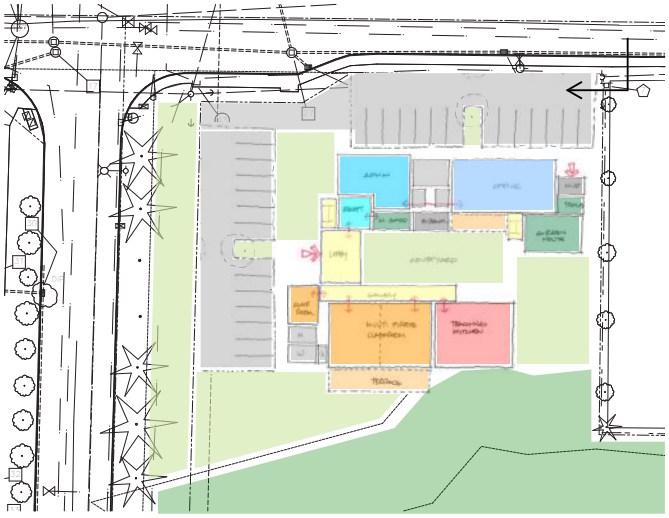


Wetlands Site

A



B

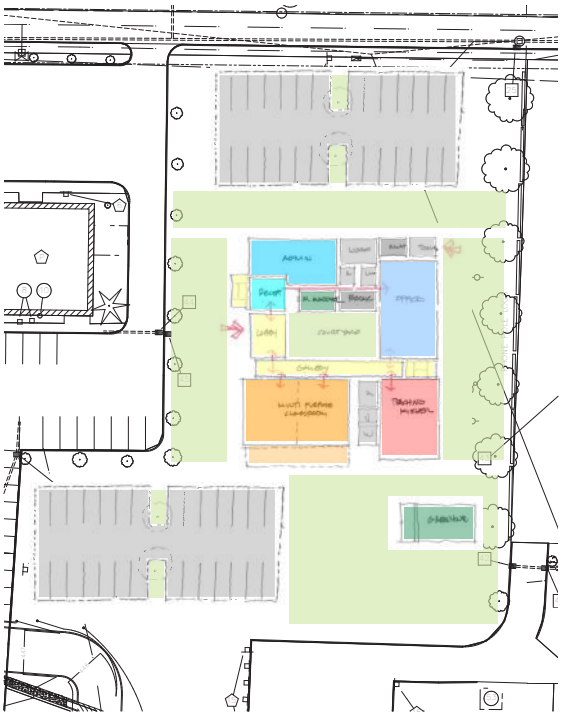


C

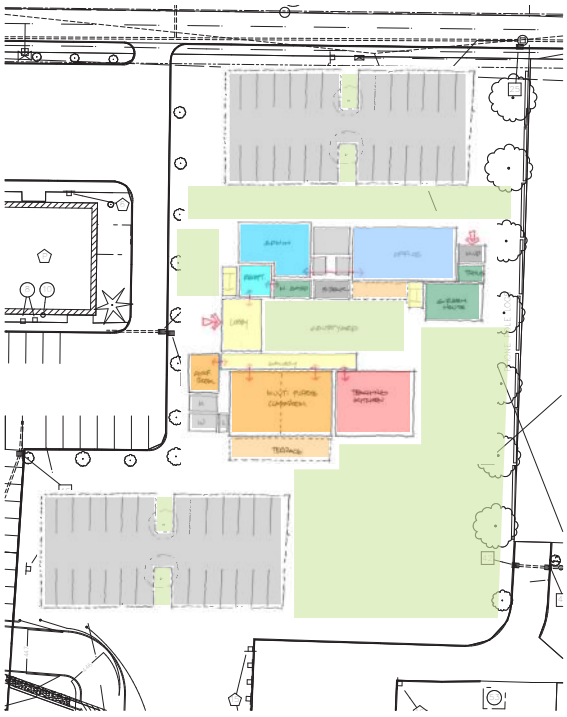
D

Warner Milne Site

A



B



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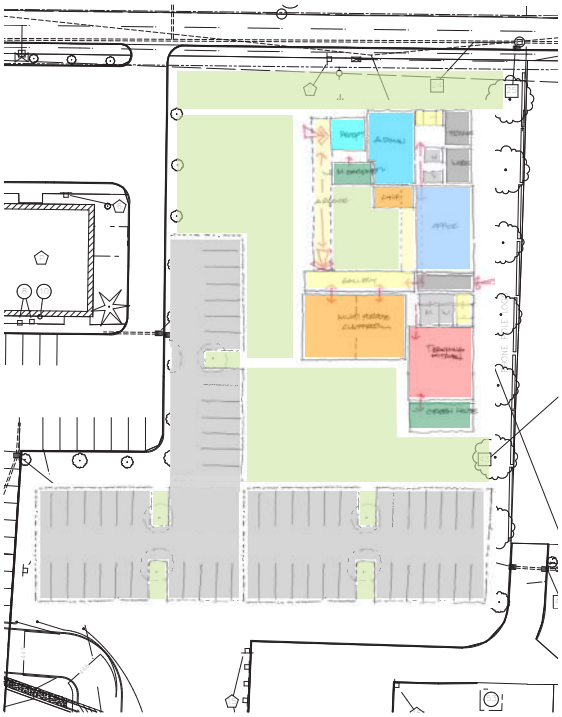

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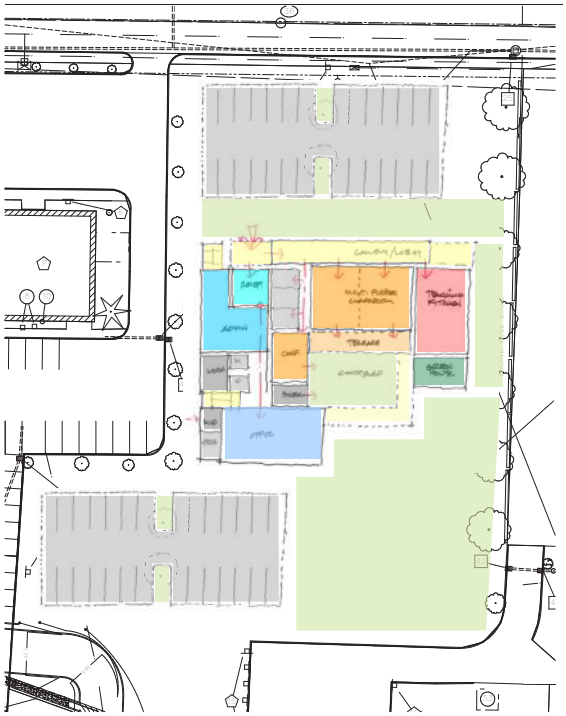
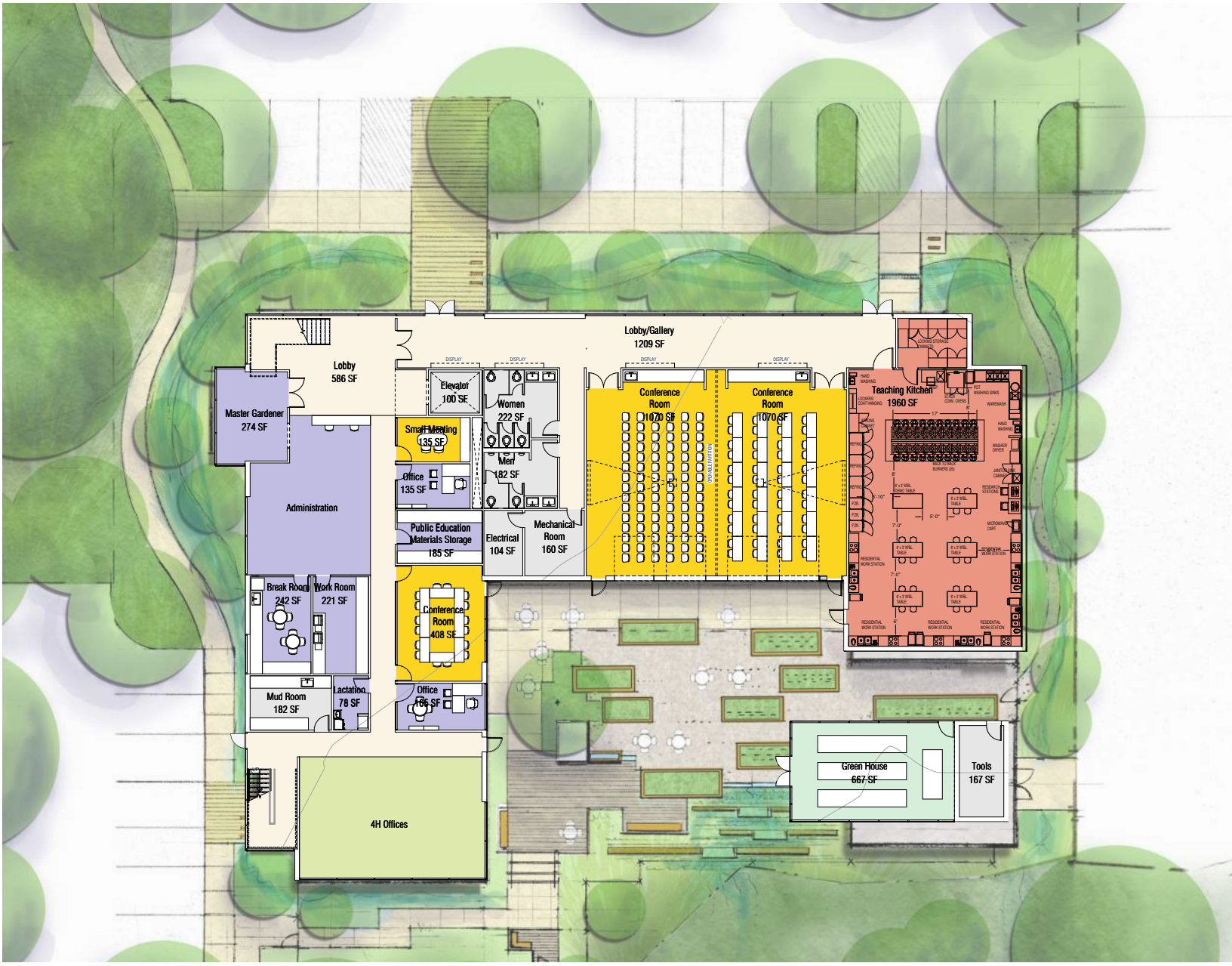


Level 1 Concept Plan

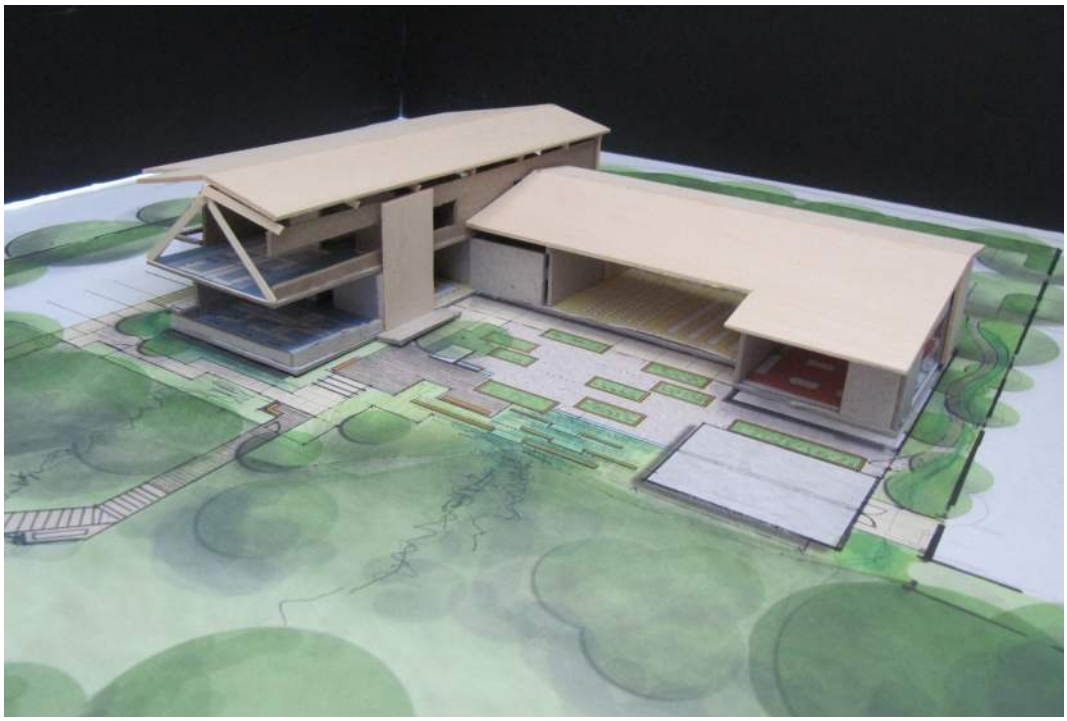


Level 2 Concept Plan

Model Photos

Northeast View

Northwest View



Southeast View

Southwest View

PART 6 - APPENDIX

Structural Narrative

Mechanical Narrative

Electrical Narrative

Landscape Narrative

Civil Narrative

Cost Estimate

LEED Scorecard

Oregon City Planning Meeting Minutes

OSU Extension Education Center
Clackamas County

Phase I Concept Structural Narrative

July 15, 2015

The OSU Extension Education Center will provide multiple program functions for several campus departments. Spaces will include administrative offices, small and large conference rooms, a teaching kitchen, courtyard, and a greenhouse.

The structural design of the two-story building is envisioned as traditional post and beam construction to provide large open spaces, future flexibility, daylighting opportunities, and economy through the use of repetitive bays and framing. Heavy timber is a good choice for the structural frame based on the building size, lighter weight, availability of local trades, and environmental benefits from the use of these renewable materials. The use of wood is also a primary architectural feature, and exposing the structure provides a significant reduction in the quantity of finish materials and labor.

Many sustainability benefits can also be realized through the use of a wood structure. The incorporation of naturally growing, renewable wood products results in a lower overall carbon footprint than other building materials. Wood continues to store carbon over its life and requires less energy during manufacturing.

Multiple options for wood framing have been investigated during conceptual design including innovative mass timber technologies such as Cross Laminated Timber (CLT). Conceptual cost estimates have indicated that CLT may result in a significant increase over more traditional framing, possibly due to workforce inexperience and the small scale of the building. For this reason, we have provided a traditional heavy timber framing concept as our basis-of-design with a CLT alternate for decking and wall panels. However, CLT use is on the rise with several projects currently in design in Oregon. The engineered product is now being manufactured locally in state and recent code adoptions have cleared a path for its use. The use of CLT floor, roof, and wall panels provides an engineered system allowing longer spans than traditional wood decking. Using larger panels also helps to reduce the overall number of components which can improve erection time. Panels are manufactured using alternating layers of dimensional lumber glued and pressed into composite panels using formaldehyde-free adhesives.

In addition to these systems, we have also provided an alternate for a wood bearing wall and joist system for cost comparative purposes. This option would provide less future flexibility due to the bearing walls and would likely require increased finish material to cover the closely spaced premanufactured joists and trusses.

Superstructure:
Base and alternative framing options are as follows:

Base Design (Heavy Timber):
The Heavy Timber base option consists of tongue and groove decking spanning between glu-lam beams and columns with a bay size of approximately twenty to twenty-five feet. The upper roof and low roof over the large conference rooms and teaching kitchen will utilize asymmetrical heavy timber wood trusses. The primary structure will be mostly exposed with some finishes provided in select locations. A long clerestory occurs along the corridor/gallery space to bring daylight into the conference rooms.

At the roof, plywood over 3x decking will span approximately 8 feet between the trusses which are supported on glu-lam girders and columns. In lieu of the decking, 8" deep Structural Insulated Panels (SIPS) could be utilized for energy efficiency. The 2nd floor consists of plywood and leveling gyp-crete topping over 3x tongue and groove decking spanning 4 feet between glu-lam beams and girders. Since most of the beams will be exposed, concealed beam and column connections will be utilized for enhanced aesthetics.

Lateral wind and seismic loads will be resisted by 2x6 wood stud shear walls with plywood or OSB sheathing. Shear walls will be located in select locations at the interior and exterior of the building, and will utilize conventional holdown hardware at panel ends transferring overturning loads into the foundations.

Alternate 1 (CLT):
Roof and floor decking will consist of CLT panels spanning between glu-lam beams and columns similar to the base design with the same column spacing.

5-layer CLT roof panels (SLT5 - 6.65" thick) will span approximately 20 feet between heavy timber trusses at both the high and low roof structures. Trusses will be supported directly on glu-lam columns, thus reducing girder depths. The 2nd floor consists of 3-layer CLT decking (SLT3 – 3.90" thick) spanning 10 feet between glu-lam beams and girders.

Lateral loads will be resisted by CLT panels located throughout the building. SLT5 panels will be used for these wall panels and conventional holdown hardware will occur at panel ends similar to plywood shear walls. Unlike traditional stud walls, the CLT wall panels could be exposed.

Alternate 2 (Bearing Wall and Joist):
Stud bearing walls will replace the post and beam system with the exception of larger rooms where columns and beams may be required. 2nd floor I-joists span between bearing walls and beams at 16-inches on center with premanufactured wood trusses or wood open-web joists at the roof spaced at 24-inches on center. Wood stud shear walls will be used to resist lateral loads similar to the heavy timber base option.

Foundations:
Based on review of available geotechnical information for the nearby development services building, we anticipate that the building will be supported on conventional shallow spread footings and a slab-on-grade. Columns will be supported on isolated spread footings, with continuous footings occurring below bearing and shear walls. A 5-inch slab on grade will be used and will accommodate radiant tubing. It is assumed that most of the slab will be exposed, so special care should be taken in the mix design, placement, and curing. A typical 18-inch turndown slab will occur around the perimeter of the building.

Greenhouse:
The greenhouse will be a separate stand-alone structure located on the site. The building will be a pre-engineered glass and metal structure supported on a concrete pad.

Additional Concept Pricing Information:
The following supplemental information can be used for estimating purposes (with appropriate allowances/contingencies):

Base Design (Traditional Heavy Timber):

Roof Structure:

- 3x Tongue and groove decking with ½" plywood (OR 8" SIPS Panels)
- Exposed heavy timber trusses at 8 feet on center with bolted connections (longer spans may be utilized at large conference rooms and teaching kitchen)
- 6 ¾" x 18" Glu-lam girders

Floor Structure:

- 3x Tongue and groove decking with ½" plywood and gyp-crete leveling topping
- 5-1/8" x 12" glu-lam beams at 4 feet on center
- 6¾" x 21" glu-lam girders at 20 feet on center

Columns:

- 10¾"x12" Glu-lams at 20 ft. on center (below 2nd floor)
- 8¾" x 9" Glu-lams at 20 ft. on center (below roof areas)

Shear Walls:

- First Floor: Approximately 100 feet of 2x6 shear wall panels in each direction, well distributed throughout the building with single sided ½" plywood or OSB.
- Second Floor: Approximately 50 feet shear wall panels in each direction
- Pre-engineered holdown systems shall occur at ends of all shear wall panels

Foundations:

- Column spread footings at 2-story areas: 6'-0" square x 2'-0" deep
- Column spread footings at single story areas: 4'-0" square x 1'-6" deep
- Shear wall continuous footings: 4'-0" wide x 2'-0" deep
- Footing Reinforcement: 75 lbs/cy
- Slab-on-grade: 5" with 1.5 psf reinforcing
- 18" square turn-down slab at perimeter with 8 pounds/foot reinforcing
- Greenhouse Pad: 6" Concrete slab-on-grade with 1.5 psf reinforcing and 18" square turn-down perimeter footing

Alternate 1 (CLT):

Roof Structure:

- SLT5 roof panels
- Exposed heavy timber, built-up roof trusses at 20 ft. o.c.
- 6¾" x 16½" Glu-lam girders between columns

Floor Structure:

- SLT3 floor panels with gyp-crete leveling topping
- 5-1/8" x 16½" Glu-lam beams at 10 ft. on center
- 6¾" x 21" Glu-lam girders at 20 ft. on center

Columns:

- Similar to base option

Shear Walls:

- First Floor: Approximately 100 feet of SLT5 shear wall panels in each direction, well distributed throughout the building.
- Second Floor: Approximately 50 feet of SLT5 shear wall panels in each direction
- Pre-engineered holdown systems shall occur at ends of all shear wall panels

Foundations:

- Similar to base option

Alternate 2 (Bearing Wall and Joist):

Roof Structure:

- Premanufactured wood trusses (gang-nail type) at 24” on center (Alternatively, open-web joists could be used with wood chords and metal webs)
- ½” plywood decking with 10d nails at 4” on center at panel edges and 12” on center at intermediate supports
- 2x6 wood stud bearing walls and glu-lam beams and posts at larger spaces (bearing walls are assumed to stack between floors)

Floor Structure:

- 16” Wood I-joists at 16” on center (span = 24 feet maximum)
- ¾” Plywood decking with gyp-crete leveling topping
- 2x6 bearing walls and glu-lam beams and posts at larger spaces

Shear Walls:

- Similar to base option

JR:kw

215165/Phase 1 Concept Structural Narrative 7-15-15.docx

OSU Extension Education Center - Clackamas County

Phase 1 Concept Design
Mechanical Narrative – by Interface Engineering

July 10, 2015

Fire Sprinklers

The building will be protected with a wet pipe system per NFPA 13, local building codes and fire marshal requirements. Areas subject to freezing, such as overhangs, canopies and unconditioned spaces, will be protected with a dry pipe system or dry sprinklers. Sprinklers, valves, switches, pipe, fittings, backflow preventers, hangers, sway braces and the like will be UL listed.

Quick response sprinklers will be provided in Light Hazard areas. Intermediate temperature (212 degree) sprinklers will be provided from a wet sprinkler system protecting data distribution rooms. Sprinklers in finished ceilings will be recessed style, corrosion resistant, white polyester finish with corrosion resistant, white polyester escutcheon. Sprinklers in unfinished areas will be white polyester finish.

Piping will be concealed where possible. Piping will be schedule 40 black steel for piping 2 inches and smaller and schedule 10 black steel for piping 2-1/2 inches and larger.

System control valves and flow and pressure switches will be supervised by the fire alarm system.

Plumbing

The domestic water system will be from a new service to the building into and including the building systems. This will include meter, backflow prevention, and pressure regulation devices. The domestic water piping will be copper with brazed joints below grade and soldered joints above grade.

The domestic hot water will be provided by a 45 sq.ft. evacuated tube solar collector and with 100-gallon heat exchanger tank, pump, dual element (6 kW each) electric water heater, and mixing valve.

The sanitary waste system will be a new service to the building. The waste and vent piping system will be no-hub cast iron with heavy duty couplings below grade and standard duty coupling above grade.

The storm drainage system will be new. The piping system will be no-hub cast iron with heavy duty couplings below grade and standard duty coupling above grade.

The plumbing fixtures will be ADA compliant as appropriate for the designated locations. The fixtures will be water conserving type.

The kitchen area will be served with a grease interceptor system (75 gpm hydromechanical).

Hose bibbs will be provided at approximately 100-foot intervals at ground level exterior of entire building. Hose bibbs will also be provided at roof hatch/access areas.

The building will be provided with utility meter set and piping extended to all gas-fired equipment.

Condensate drains will be provided at all HVAC cooling units.

Rainwater will be collected from the roof and flow by gravity to a 18,000 gallon cistern at grade. A first flush diverter will bypass sediment. A ½ HP pump will pump into a 50 gallon pressure tank with a micron filter at the outlet. The water will be extended to hose bibs and the irrigation system.

HVAC

The HVAC system will consist of radiant heating/cooling floors served from water-to-water (WW) heat pumps, a water-to-air rooftop heat recovery ventilator, and supplemental water-to-air heat pumps. A 30-ton air-water VRF heat pump will supply heating/cooling to the two-pipe condenser loop. An alternate will replace the 30-ton VRF with thirty 200-foot-deep ground coupled geoexchange bores.

Nine WW heat pumps and circulation pumps will serve the first floor radiant zones. Two WW heat pumps and circulation pumps will serve the second floor radiant zones.

A 1000 CFM rooftop water-to-air heat pump heat recovery ventilator will serve core exhaust and ventilation. Exhaust ducts will be extended to toilet and exhaust sources and outside air ducted to ceiling grilles.

A supplemental water-air heat pump will serve each large conference room and the teaching kitchen and will be controlled by carbon dioxide sensors. The teaching kitchen will have one 5000 CFM Type 1 exhaust hood and fan and six 500 CFM Type 1 exhaust hoods and fans.

Natural ventilation openings will be a combination of manual and automatic.

A direct digital control system will be provided.

ELECTRICAL SYSTEMS SCHEMATIC NARRATIVE

1. ELECTRICAL PLANNING

1.0 **Codes and Regulations.** The latest adopted revisions of the publications listed below shall be followed:

International Building Code (IBC)
National Electrical Code (NEC)
National Fire Protection Association (NFPA)
Oregon Administrative Rules (OAR)
National Electrical Contractors Association (NECA)
National Electrical Manufacturers Association (NEMA)
American National Standards Institute (ANSI)
Institute of Electrical and Electronic Engineers (IEEE)
Underwriters Laboratories (UL)

1.1 **Electrical Load Analysis.** Provide an electrical load analysis as a basis for design to determine required distribution system capacities, ratings, etc. The load analysis shall be as follows as the minimum requirements:

a. Lighting. Divide the building area into significant components by function. Determine the average lighting level and the type of light source for each area.

b. Power Load. This shall include loads other than lighting loads and those served by general purpose receptacles.

c. System Loss. A system loss of approximately 6 percent, based on the calculated maximum demand, shall be added to the building load.

d. Individual Loads. Individual loads are those with single point connection to equipment.

e. Mechanical Loads. Use actual estimated loads of mechanical equipment.

f. Other Loads. Other loads are those loads related to electronic equipment, fire alarm, telecommunication, and miscellaneous system loads.

g. Load Growth. Provide 25% load growth for anticipated usage.

1.2 **Utility Coordination.** Coordinate the incoming power, telephone, and cable services with the serving Utility Company as to location, voltage, ampacity, fault current, metering, conduit routing, trenching/backfill, and all Utility Company requirements.

1.3 **Fault Current Study.** All distribution equipment components and overcurrent protection devices shall have ratings sufficient to meet the short-circuit currents available for the building system and any anticipated growth, both within the building and from the serving utility company. A fault study of the RMS Symmetrical fault current shall be completed for the entire electrical service and distribution system, and shall include the following components as a minimum:

Conductors
Circuit Breakers
Panel Boards
Switchboards/Commercial meter center
Utility company contribution
Contributions from mechanical system motors, chillers, etc.

1.4 **Accessibility.** All electrical equipment and systems shall be designed to provide adequate clearance to allow removal of equipment from the building, as well as cleaning, adjustment and replacement of parts and other maintenance functions. Access doors and panels shall be provided where necessary to allow access to equipment requiring maintenance and adjustment.

1.5 **Design Coordination.** Coordinate with the architect to establish electrical space requirements including floor area and ceiling clearance for equipment and other items. Locations for all proposed mechanical space requirements are subject to approval of the Architect. Coordinate with the Oregon Energy Trust (OET) to seek incentive funding thorough available OET Programs that incentives projects for the design and installation of energy efficiency measures, photovoltaic renewable energy generation, Energy Star appliances, path to net-zero, etc.

1.6 **Drawing Submittals.** Provide drawings by a registered professional engineer licensed in the state of Oregon.

1.7 **Design Qualifications.** The Electrical design team must be headed by a registered professional engineer with at least 5 years of experience in the design and construction of similar facilities. This individual or equally competent professional must remain on the project team for the entire design and construction process.

2. ELECTRICAL POWER SYSTEMS

2.0 **Electrical Service.** The Utility Company shall bring electrical service to the new OSU Extension Education Center facility. Coordinate the revenue metering requirements with the Utility and provide all required accessories.

2.1 **Secondary Distribution System.** Provide interior electrical services for the new OSU Extension Education Center facility. The electrical room shall consist of a service entrance rated interior main distribution switchboard with utility terminal section, service entrance 100% LSIG circuit breaker main, switchboard distribution sections for branch panels feeder 80% LSI circuit breakers, sub-feeder branch panel boards for power and lighting distribution. Provide Surge Protection Device (SPD) rated for service entrance(Tier 1) at main switchboard and Tier 2 rated SPD for all sub-distribution switchboards. The main distribution switchboard shall feed all large equipment loads and elevator (via Bussman Power Module for elevators). Comply with all utility requirements. Installations of all electrical equipment shall meet NEC, state, and local codes. Coordinate the locations of all electrical equipment with architect. Circuit breakers shall be used as overcurrent protection for all feeders and branch circuits.

The Secondary Distribution System shall provide electrical energy at 208Y/120- Volt,

3-Phase, 4-Wire, system and shall be rated for seismic zone per IBC and the Oregon Structural Specialty Code. Provide 25% spare capacity in sizing all services.
Service feeder main and all sub-distribution switchboard feeder breakers shall be provide with power digital meters with centralized digital remote desktop computer monitoring of the buildings energy usage for trending analysis and energy management.

Provide a minimum of 18 KW (DC) bifacial photovoltaic (BIPV) arrays with inverters configured as a UL Listed Utility Grid-Tied Interface in compliance with PGE Net-Metering Policy and OAR 330-135 (Oregon Department of Energy) 1.5% of construction cost. In addition, $70,000 of budget from another Red Soils funding source has been slated for an extra 14 KW (DC) BIPV arrays for a total of 32 KW (DC) BIPV. Comply with all state and local codes for photovoltaic installations. Photovoltaic equipment shall be provided and installed to comply with Oregon Energy Trust incentive programs in order to maximize solar incentive funding to the project. Installation shall be provided by an approved OET Solar Trade Ally.

2.2 **Grounding.** Provide ground electrode system per NEC 250, state and local codes. A permanent grounding system shall be provided with methods and materials in accordance with applicable Codes and Standards to conduct ground fault currents to the grounded neutral of the electrical distribution systems, and limit potential differences between grounding conductors, raceways and enclosures.

All conductive raceways and enclosures for electrical system wiring shall be grounded. All ground circuits shall be complete to form permanent conductive paths. A ground bus shall be provided in all sections of main secondary switchboards for connections of ground conductors.

A green ground conductor shall be provided in all non-conductive raceways, sectional raceways, multi-outlet assemblies and multi-conductor cable. An insulated green conductor shall be provided in each feeder conduit and each 3-phase circuit, and for all receptacle circuits.

Provide main ground bus (TMGB) in electrical room and IT ground bus at all telecommunications rooms (MDF and IDF Rooms). Provide telecom grounding, #4CU bare minimum, per EIA/TIA 569 and 607. TMGB shall be bonded back to the main ground bus in the service entrance main switchboard section via #4CU bare.

3. SYSTEM EQUIPMENT

3.0 **Raceway.** A complete raceway system shall be provided for all power conductors. Rigid metallic conduit, rigid intermediate conduit, and electrical metallic tubing shall be used throughout the building. Rigid or rigid intermediate conduit shall be used where conduit is installed exposed in a location that is susceptible to damage. The conduit system shall be a completely grounded system. Minimum size raceway shall be 3/4-inch. All raceway in finished areas shall be concealed. All service entrance and feeder raceway shall be in conduit.

PVC conduit may be used in exterior underground applications, and shall be heavy wall type 40. Flexible metal conduit may be used for connections to light fixtures, transformers, motor driven equipment, and miscellaneous equipment. Connections to

exterior mounted motor driven and miscellaneous equipment shall be with “Liquid-Tight” flexible metal conduit. Wireways and gutters shall be constructed of sheet steel with baked enamel finish coat with hinged cover.

3.1 **Conductors.** Copper conductors shall be utilized throughout. AWG No. 12 shall be the minimum size. Conductors shall be solid except those larger than AWG No. 8, which may be stranded. Conductor insulation shall be THWN-2 for all interior wiring and XHHW-2 for all exterior wiring.

3.2 **Devices.** Switches shall be 20-Ampere, 120-208-Volt AC, specification grade toggle type only. Duplex receptacles shall be 20 Ampere, 125-Volt AC.

3.3 **Safety Switches.** Safety switches shall be provided for all motor-driven equipment and miscellaneous equipment. Switches shall be Horsepower rated, NEMA Heavy Duty rated, fully enclosed. Provide NEMA 3R for all exterior locations.

3.4 **Fuses.** Fuses shall be non-renewable type, current limiting 200,000 AIC at 600-Volt.

3.5 **Panelboards.** Lighting and power panelboards shall be no smaller than 225-Amperes. Distribution panelboards shall not be smaller 225-Ampere. Each panelboard shall have a main protective device. Door-in-door trim construction. A panelboard served by an individual dedicated feeder having no other loads connected to that feeder and having overcurrent protection not greater than that of the panelboard may omit the main protective device.

Branch panel boards shall feed all parking lot, exterior and interior building lighting, receptacles, special purpose receptacles, office equipment, copiers, printers, kitchen equipment, greenhouse equipment, computers, servers, controllers, appliances, audio/visual equipment, irrigation system, fire alarm system, security system including door controls and CCTV power supplies, telephone/intercom systems, HVAC/plumbing systems, etc.

20-Ampere shall be the minimum size of branch circuits. All circuit breakers shall be rated to interrupt the available short circuit current.

Panelboards shall be arranged so that each contains 30 to 42 branch circuits, including spares and spaces. The minimum number of spare overcurrent devices and spaces for future overcurrent devices shall be as follows:

For Lighting panelboards, at least:

10% Spare Circuit Breakers
10% Spaces

For Receptacle Panelboards at least:

15% Spare Circuit Breakers
10% Spaces

Provide a minimum of 25% spare capacity of Total Demand at each panelboard.

3.6 **Identification and Labeling.** Provide identification and labeling on all major pieces of electrical equipment, subsystems and wiring methods.

The following types of equipment shall have labels with laminated white plastic nameplates with black engraved with black engraved characters that are at least 3/16" high, attached with two self tapping screws:

Low voltage switchboards:
Each circuit breaker, including spares and spaces

Motor starter or other device:
Motor Starters.
Feeder overcurrent devices
Safety Switches
Panelboards
Special systems cabinets

3.7 **Illumination.** Provide illumination levels as indicated herein. High efficiency sources such as LED and fluorescent shall be utilized whenever possible and shall be supplied with automatic voltage sensing ballasts or drivers to operate at either 120V or 277V as required. All sources will be 4000K with a minimum CRI of 85. No incandescent or HID lighting will be utilized; where high color rendition is necessary, LED or ceramic metal halide sources will be selected. Where dimming capability is required, LED sources will be used – to be supplied with 0-10V dimmable drivers capable of dimming down to 1% of full output.

Fluorescent ballasts shall be electronic, programmed rapid start type with a THD of less than 10%. All ballasts will be CEE and NEMA premium listed. LED drivers will be constant current type with 0-10V dimming standard.

All lenses, diffusing media, and control media in luminaires shall be UV stabilized acrylic or polycarbonate. Lenses in exterior luminaires shall be tempered glass with metallic guard or high impact acrylic. All exterior luminaires shall have enclosed and gasketed lenses to prevent liquids and insects from entering the luminaire. All exterior luminaires will be supplied with minimum IP65 ratings.

Emergency egress lighting shall provide 1.0 foot-candles along the path of egress, as specified by the architect. Emergency egress lighting fixtures shall be the same as the normal egress lighting fixtures. Power for egress lighting will be provided by a central battery system located in the main electrical room.

For project wide lighting control, a wireless, addressable control system will be provided. Basis of design systems could include Lutron Ecosystem and Enlighted. User control wallstations, as well as daylight and occupancy sensors will be wireless, provided with minimum 10 year battery life. Devices must also be able to indicate end of battery life by means of visual signal. Lighting will be controlled by 0-10V dimming signal or via addressable dimming ballasts supplied with each luminaire. A maximum of 1% dimming will be required of all luminaires used is spaces where dimming is required.

In all open offices and work spaces furniture/casework integrated, occupant controlled task lighting will be provided, these luminaires can be provided either through the owner's FF&E or by the electrical contractor. Wireless dimming controls will be provided at each workstation. A lower baseline light level can then be provided for these spaces via overhead linear pendant or recessed linear troffer luminaires for safe circulation only. This lighting will be vacancy sensor controlled during regular operating hours with wireless manual on/off/dim wallstations located at entries and will revert to automatic on/off occupancy control during off hours. Where daylight is available and the space in question is larger than 300 square feet, sensors will be provided to reduce artificial light levels to maintain a target illuminance. Luminaires will dim continuously and slowly in response to changes in available daylight.

Enclosed offices and other similar spaces will be provided with linear direct/indirect LED pendant luminaires, possible supplemented with furniture integrated task lighting. Vacancy based control will be provided along with manual on/off wallstations located at entrances where daylight access is provided only. All other enclosed spaces including storage rooms, closets, etc will have automatic on/off controls.

Conference spaces will be provided with a combination of linear direct/indirect LED pendant luminaires paired with round recessed LED downlights for flexibility. The direct and indirect components along with the downlights will be independently controlled via Lutron Grafik Eye or similar control system. On/off wallstations will be located at entries, and occupancy sensors will be provided for automatic off control. A partition sensor will also be required to unite control of both large conference rooms when used together.

Architectural pendant luminaires will be selected for lobby spaces to add drama and interest. Supplemental lighting will be provided either by LED wall mount direct/indirect sconce luminaires or by recessed LED downlights. Additional point-source LED adjustable luminaires will be selected and located strategically to highlight displays and building architectural elements. Corridors and circulation spaces will be outfitted with similar coordinating luminaires adjusted for scale. Lighting in these areas will be switched on during normal business hours by timeclock, but will revert to automatic on/off control via occupancy sensor during off hours.

The teaching kitchen will be outfitted with LED high performance recessed 2x2 troffer style luminaires along with a handful of LED recessed downlights and possible LED pendants for accent purposes to help reduce the institutional feel of the space. As an alternate, LED direct/indirect pendants similar to those used in the adjacent conference spaces could be used in the absence of an accessible ceiling. All lighting in the kitchen will be manually controlled for safety purposes.

Specialty lighting will be specified for the greenhouse as required by the owner. This may include vaportight LED strip luminaires for ambient lighting and LED horticultural/grow lighting as required. Greenhouse and other specialty area lighting will be manually controlled only.

Exterior lighting shall comply with Oregon Energy Code and have separate controls for:

Exterior Lighting, Parking and Walkways

Exterior and site lighting will be selected and located to dovetail with the owner's wish to minimize impacts to the site and the environment at large. High efficiency, low glare, pedestrian scale LED luminaires with best possible BUG ratings will be selected. Occupancy sensors will be provided to reduce parking area light levels and energy usage at least 50% when unused. Building entry lighting will operate at full power from dusk until dawn while remaining building exterior, outdoor circulation and courtyard lighting will be switched off after an owner selected curfew.

The courtyard will be lit by a combination of recessed LED downlights concealed beneath the adjacent large overhangs, architectural sconces and pole mounted multiple independently adjustable LED flood lights. Each luminaire type will be independently controllable as well to suit a variety of outdoor activities. Only the recessed downlights located under the eaves will operate dusk to dawn – the remainder of the courtyard lighting will be switched off at curfew.

Illumination levels at workplane in maintained horizontal foot-candles and luminaire types shall be:

Interior spaces

Open Office Circulation	LED Direct/Indirect Pendant	10-20fc
Open Office Work Areas	LED Direct/Indirect Task	30-50fc
Teaching Kitchen	LED 2x2 Recessed Troffer	60-80fc
Corridor/Hall/Circulation	LED Recessed	5-15fc
Lobbies	LED Pendant/Recessed	15-25fc
Conference/Meeting	LED Direct/Indirect Pendant	20-40fc
Stairs	LED Direct/Indirect Sconce	10-15fc
Utility spaces	LED striplight	20-30fc
Greenhouse	LED Vaportight Strip	20-30fc
	LED Agricultural Strip	100-200fc

Exterior spaces

Parking Lot	LED Pole	1-2fc
Building Entries	LED Sconce	1-5fc
Courtyard	LED Pole	5-10fc

3.8 **Furniture Feeds.** Provide complete power connections to all electrified furniture partitions via ¾" liquid-tight flexible conduit and conductors and recessed floor, fire rated specialized furniture feed floorbox/poke-thru. Verify fire proof floor rating with architect and

structural engineer. Coordinate all furniture utility entry locations and circuit/wiring configuration with architect/owner and furniture supplier/installer.

Provide Cat 6a structured cabling and conduit infrastructure with specialized furniture feed recessed floor box at all furniture feed utility entry locations. Coordinate all furniture utility entry locations with architect/owner and furniture supplier/installer.

4. ELECTRICAL MOTOR AND POWER EQUIPMENT

Connections to all motor driven equipment, heating, ventilation, air conditioning, appliances, and miscellaneous equipment requiring electrical power shall be provided. Final connections to all such equipment shall be made with flexible metal conduit, except at exterior locations, where liquid-tight flexible metal conduit shall be provided. Provide a fused disconnect switch at each piece of motor driven equipment, except for elevator motors, which shall be fused per manufacturer's recommendations via Bussman Power Module for selective coordination.

5. SECURITY SYSTEMS

Security systems for the building will include Access Control, Intrusion Detection and Closed Circuit Television (CCTV) surveillance. Access Control will provide secure entry and exit at appropriate portals via magnetic cards and electric or magnetic locks as designated by Architect/Owner. Intrusion Detection will provide appropriate alarms via various sensors when the building is breached by unauthorized personnel. Security cameras will allow detailed inspection and recording of activities in Architect/Owner selected areas of the building and grounds. System infrastructure, cabling, devices and acceptance testing will be provided by Division 28 per manufacturer instructions. Security system will be designed to accommodate future expansion, as required.

6. FIRE ALARM SYSTEM

Provide a supervised fire alarm system to protect the facility. The system shall be designed to send, transmit and receive alarm signal after fault condition (Class B wiring).

Provide stand-alone photoelectric hardwired detector in all housing units per state and local codes.

The control panel shall supervise and power all the devices within the facility. Provide a minimum of 10% spare zones within the control panel for future zones. Any initiating device that is activated shall sound the audible and visual alarms in the building, close smoke doors, recall elevators, and actuate any smoke control systems.

Provide duct smoke detectors are required per Division 23. Provide electrical connection and control from fire alarm system to all required fire smoke dampers. Verify control voltage and control transform requirements with Division 23. Provide HVAC shut down for units of 2000 CFM or greater and smoke detector within five feet of all fire smoke dampers per Division 23, IFC, UMC, IBC, state and local code requirements.

The alarm initiating devices shall be photoelectric type smoke detectors, combination rate of rise/fixed temperature detectors (ceiling mounted and duct detectors), manual pull stations, and sprinkler waterflow devices, tamper switches and pressure switches on dry pipe system (if required). Provide manual pull stations at each exit doorway and stairway on each floor. Provide smoke detectors in corridors, area of assembly, elevator lobbies, and equipment rooms.

Audible alarms shall provide coverage in all areas. All alarms shall provide a minimum of 85dB at 10 feet from the alarms device. A flashing visual alarm shall be provided at each audible alarm, as well as in separate units for complete visual coverage in all public areas and toilets. The fire alarm system shall meet all requirements of the Americans with Disability Act (ADA). Provide full four hour battery backup with battery charger within the main fire alarm control cabinet. This shall be provided in addition to the emergency generator power. All fire alarm system wiring shall be in conduit and shall be separate from all other system wiring. Minimum conduit size for the fire alarm system shall be ¾".

DAS Antenna Communications System shall be provided as required by Clackamas County and Oregon City Fire Department.

7. TELECOMMUNICATIONS/CATV

Provide power and infrastructure for incoming service by telephone, data and cable TV utilities. Coordinate all incoming service requirements with the appropriate utility. Provide grounding for telecom systems at the point of demarcation per NEC and ANSI/TIA/EIA 569. Provide ground bus at the point of demarcation and all telecom rooms located on each floor. Bond all ground buses per ANSI/TIA/EIA 569 and bond main ground bus to ground electrode system. Provide conduit raceways, 4" minimum, for telecom infrastructure and risers to all occupied spaces per ANSI/TIA/EIA 569. Provide telecom backboards and dedicated quad receptacles at each telecom room. Provide LED strip luminaires in each telecom room. Provide conduit in all hard ceiling areas and approved cable tray and/or other approved Category 6a raceway in open or lay-in ceiling areas. Provide insulated bushings at all conduit stub outs. Provide euffer grounds as required per serving telephone utility. All occupied spaces shall have the capability for voice, data, Cable TV and Internet services via structured cabling systems per ANSI/TIA/EIA 568. Provide telecom and TV outlets as located and required by Architect/Owner. Cabling, equipment, final terminations and acceptance testing provided by Division 27. All telecommunications infrastructure shall have provisions for future CAT 8 cabling with 10GB to 40GB switches and telecommunications equipment. All telecom jacks shall be double gang box with single-gang device plate and mud-ring, RJ45, 8-pin modular jacks suitable for 1Gbs terminated with Cat 6a cables. Provide 1" EMT conduit minimum from each telecom outlet box and stub out to accessible ceiling mounted cable tray/wire basket. Provide #8CU ground conductor and bond from each stub-out with insulated ground bushing to cable tray/wire basket for a continuous ground system. Provide Cat 6a structured cabling and conduit infrastructure with specialized furniture feed recessed floor box at all furniture feed utility entry locations. Coordinate all furniture utility entry locations with architect/owner.

8. HVAC/PLUMBING

Provide electric connections to all HAVC, plumbing and Cistern equipment per Divisions 22 and 23 and install per NEC, state and local code. Verify locations of all equipment with Architect/Owner and Divisions 22 and 23. Verify all load requirements with Divisions 22 23. Provide 120VAC power to all HVAC and DDC control equipment. Provide electrical connection to all VFD drives per manufacturer's recommendations and installation instructions. Provide all motor starters per Division 22 and 23 requirements. All fused disconnects shall be provided by Division 26.

9. KITCHEN EQUIPMENT

Provide electric connections to all kitchen equipment and install per NEC, state and local code. Verify locations of all equipment with Architect/Owner. Verify all load requirements with architect, kitchen equipment supplier/installer. Provide electrical and data connections to all kitchen equipment per manufacturer's recommendations and installation instructions. All fused disconnects for all kitchen equipment rated for 1/2HP and greater shall be provided by Division 26. Provide ceiling mounted with flexible SO cord and cap special purpose receptacles at certain kitchen equipment locations identified by the architect/owner.

10. GREEN HOUSE EQUIPMENT

Provide electric connections to all greenhouse equipment and install per NEC, state and local code. Verify locations of all equipment with Architect/Owner. Verify all load requirements with architect, greenhouse equipment supplier/installer. Provide electrical and data connections to all greenhouse equipment per manufacturer's recommendations and installation instructions. All fused disconnects for all greenhouse rated for 1/2HP and greater shall be provided by Division 26. All electrical connections shall be weatherproof rated/IP65 minimum due to moisture, humidity, corrosion and water spray.

11. PRELIMINARY COST OPINION (16,900 SF, 2015 US Dollars, Not Including GC Markup)

Elect/Lighting (No Greenhouse):	$522,455	($32.08/SF)	
Elect/Lighting (Greenhouse Only):	$19,697	($32.08/SF)	ALTERNATE COST
Telecom/Security/Fire Alarm:	$270,400	($16.00/SF)	
Photovoltaic System (32KW):	$159,874	($9.46/SF)	
TOTAL	**$972,426**	**($57.54/SF)**	

END OF SECTION

OSU Extension Education Center - Clackamas County

Phase 1 Concept Design
Landscape Narrative

Site Narrative – OSU Extension

Introduction and Design Assumptions
Integral to the fabric of the Red Soils master plan and existing wetlands, the OSU Extension Education Center plays a significant role in creating awareness about the stewardship of wetlands. The OSU Extension Education Center landscape will serve as a demonstration garden through the display of native and native adaptive plants, low-impact storm water treatment and urban gardening. The building is consciously placed closer to the wetland. This offers an intimate interaction between users and the adjacent natural systems. The site plan concept is to create a forested grove in the front of the building to screen and shade parking and to create framed views from the street to the building. Storm water facilities around the building's edge will collect surface runoff from parking lots and the building and offer internal and external views of the integrated treatment process. A new pedestrian connection is provided along the east-west axis of the building and another one extends from the existing bus stop to create a north-south connection. Given that the main entry is on the north side of the building, careful attention will be paid to sun exposure, shading and the use of deciduous trees.

Existing Conditions
The site is bordered by Warner-Milne Road to the North, Beavercreek Road to the West, and the Shaver Building to the East. To the south is a designated wetland that has been compromised by past agricultural practices. The site is relatively flat with a gentle slope from the NW corner to the SE corner.

Existing Trees
There are no existing trees within the proposed site plan area.

Access and Circulation
Pedestrian circulation and connections are a priority of OSU Extension Education Center and the Red Soils campus. The proposed schematic site plan provides pedestrian connections from east-west and north-south directions.

Landscape Areas
The project landscape is defined by several areas that require distinct design approaches:

The perimeter landscape provides a code-compliant screen and will meet Clackamas County buffer requirements. This landscape will create the feel of a native tree grove with understory deciduous and evergreen plantings. A meandering concrete path provides pedestrians a connection from the existing bus stop at Warner Milne through a native landscape.

The stormwater treatment takes advantage of natural grades, directing surface water from the north parking lot to stormwater swales around 3 sides of the building. At the main entry to the building a "bridge" over the swale will highlight this sustainable approach. At the secondary entrance a decorative trench drain calls attention to stormwater as it flows through the planters during peak storms. Detailed grading will ensure positive drainage away from the building in this area and direct all treated stormwater to eventually flow into the restored wetland. The building will be designed with views to the planters as a part of the educational approach.

The courtyard garden is designed to integrate indoor and outdoor spaces. It will be a flexible gathering space with a variety of smaller spaces. This will be achieved through the careful

placement of ornamental, educational & edible plantings. Raised beds will be used for ornamental or vegetable gardens and provide seating around all sides. The walking surface materials include scored concrete paving, decomposed granite paving and wood decking, all at the same elevation for accessibility. This use of multiple natural materials creates a sense of different spaces within a larger, unifying one. Custom benches will provide comfort and are located to maximize views into the courtyard and restored wetland beyond. A greenhouse creates a sense of enclosure and will be used for growing vegetable starts. It will also create opportunities for gardening classes and for storing sensitive plants over the winter. The service access to the green house is on the east side with access through the existing Shaver Building parking lot.

The cistern & stormwater overflow collects roof rainwater for uses within the building. In the event of peak storms, an overflow scupper will spill water into a decorative runnel then into a decorative trench drain. The water will flow beneath the wood decking and into a series of weir walls that cascade into the restored wetland. This feature will be used for demonstration purposes and will create a dynamic focal point in the courtyard

Parking:
(30) standard sized (9'x18') parking stalls are shown on the proposed conceptual site plan.
(2) ADA van-accessible parking spaces are provided with the closest access to building entries.
OSU wished to share parking with the Shaver building. This will maximize the use of existing parking and minimize the amount of constructing impervious surfaces.

Utilities requirements:

- Electrical transformers will likely be located along the buildings east side.
- Trash and recycling will be accommodated from within the service area in the NE corner.

Design Elements

Paving
All vehicular areas are to be paved with asphalt, vehicular-rated paving
Concrete paving will be used on primary pedestrian pathways to provide accessible, durable routes through the project site.
Decorative concrete pavers will be used at key locations, such as main building entries to create a sense of arrival for pedestrians.

Plants The proposed landscape will incorporate native and native-adaptive vegetation approved by Clackamas County and OSU standards. In specific locations, ornamental plantings may be used for educational and learning opportunities. Plant beds will be incorporated around the entire building. The planting design will consider the mature size of the plant materials so that the design will not overgrow the plant beds. Using these considerations in plant material choice will reduce irrigation needs and long-term maintenance issues. Drought-tolerant groundcovers shall be used wherever possible in lieu of grass. All trees and shrubs shall be container grown or balled and burlapped. Deciduous trees are to be 2" caliper minimum. Planting areas will receive 12" of amended topsoil.

Irrigation A high-efficiency, fully-automated irrigation system will be provided. The irrigation system will be connected to a rain sensor to reduce water use. After a 2 year plant establishment period, the system may be permanently turned "off" at the owner's discretion.

DRAFT

OSU Extension Education Center - Clackamas County

Phase 1 Concept Design
Civil Narrative

July 10, 2015

Project Description
The OSU Extension Education Center includes a 13,000 square foot building footprint and associated sidewalk and parking areas. Stormwater management including water quality and flow control will be provided with lined vegetated facilities. Building sanitary and water services will be extended from the existing public mains in Beavercreek Road and Warner Milne Road. A cistern is proposed to reuse stormwater for irrigation.

Two Sites Studied
Two building sites have been studied for the OSU Extension Education Center, both sites are located on the Red Soils campus in Oregon City. The 'Wetlands' site on the corner of Beavercreek and Warner Milne has been identified as the preferred site and is referred to in this narrative as Site 1. The location of Site 1 is adjacent to the Newell Creek wetlands, currently a grassy field and the proposed site improvements would include impacts and enhancement to the existing wetland buffer boundary.

Wetlands Site-Site 1
The current site plan has two proposed parking lots that are not connected. The proposed north parking lot would have access from Warner Milne using the existing driveway for the Shaver Building east of the site. The smaller parking lot on the west side of the site will be used for staff parking and loading with access from Beavercreek Road. The proposed paving area is approximately 25,000 SF for the current site plan.

<u>Wetlands</u>
The proximity to the existing Newell Creek Wetland and associated 50' buffer requires Natural Resource Review per Code Section 17.49. Impacts to the wetland buffer will require mitigation at a 2:1 ratio for the encroachments. It is anticipated that a portion of the stormwater facility would be located within the existing wetland buffer.

<u>Grading</u>
The existing site is flat and slopes from the northwest to the southeast corner of the site at 1% towards the existing wetland area. Proposed grading will conform to the City of Oregon City Grading Design Standards.

<u>Water</u>
The proposed building is approximately 120 feet from the existing 12" DI watermain in Beavercreek Road and the existing 16" DI watermain in Warner Milne Road. There is an existing fire hydrant near the NE corner of the site on the west side of the existing driveway entrance and Warner Milne Road.

Building water service connections can be made to either the 12" or 16". The domestic service is anticipated to be a 2" service and meter. The fire service is anticipated to be a 6" service and will require an approved DCVA backflow prevention device.

<u>Sanitary Sewer</u>
The proposed building is approximately 140 feet from the existing 12" sanitary sewer in Warner Milne Road. The sewer is approximately 10' deep and would allow for a 5' sewer lateral depth at the building.

There is a sanitary sewer main in Beavercreek Road but the invert elevation of that main is approximately 1.5' higher than the elevation of the sanitary in Warner Milne Road.

The building sewer service lateral is anticipated to be a 6" diameter service and is anticipated that it would connect to the sanitary sewer in Warner Milne to allow for greater depth of the lateral at the building.

Paving
The anticipated parking lot paving section based on past projects in the Red Soils Campus is 3" of asphalt with an 8" aggregate base on 8" of compacted subgrade.

Public Improvements
Frontage improvements will be required by the City for Beavercreek Road and Warner Milne Road. The improvements will need to be constructed or a fee in lieu paid in order to receive a building permit.

Beavercreek Road currently has two travel lanes and a center turn lane but the typical section in the Red Soils Master plan includes a 5' bike lane 7.5' on street parallel parking, 4.5' planting strip with street trees and a 10' sidewalk in addition to the 2-12' travel lanes and 12' center turn lane.

Warner Milne Site- Site 2
The Warner Milne site is located between the Existing OSU Extension building and the Community Health building on an existing open field. The site plan currently shows one parking lot north of the building with access from the existing driveway for the Community Health building at the east edge of the site.

Grading
The existing site slopes from the west to the east at approximately 3% slope. Proposed grading will conform to the City of Oregon City Grading Design Standards.

Water
The proposed building is approximately 120 feet from the existing 14" DI watermain in Warner Milne Road. There is an existing fire hydrant near the NW corner of the site but it is on the opposite side of Warner Milne Road.

Building water service connections can be made to the 14" main. The domestic service is anticipated to be a 2" service and meter. The fire service is anticipated to be a 6" service and will require an approved DCVA backflow prevention device.

Sanitary Sewer
The proposed building is approximately 140 feet from the existing 8" sanitary sewer in Warner Milne Road. The depth of the sewer main at this location has not been confirmed with survey data or as builts but it is anticipated that it would be approximately 10' deep and allow for adequate depth of the sewer lateral at the proposed building. The building sewer service lateral is anticipated to be a 6" diameter service.

Paving
The anticipated parking lot paving section based on past projects in the Red Soils Campus is 3" of asphalt with an 8" aggregate base on 8" of compacted subgrade.

Public Improvements
Frontage improvements will be required by the City for Warner Milne Road. The improvements will need to be constructed or a fee in lieu paid in order to receive a building permit.

Stormwater Management

The stormwater management for both sites would be in accordance with the City of Oregon City Public Works Stormwater and Grading Design Standards dated February 2015.

The design standards include a Stormwater Management Strategy Hierarchy that would require infiltration facilities to the maximum extent practicable (MEP). Project specific geotechnical reports have not been prepared but based on findings from past projects at the Red Soils Campus the groundwater depth is shallow and would not allow for surface infiltration facilities.

Therefore the project would follow the second level stormwater management strategy which is onsite stormwater management facilities to meet the water quality and flow control standards.

Water Quality Requirement:
Per chapter 4.2 of the standards, water quality facilities shall be designed to capture and treat 80% of the average annual runoff volume to the MEP with the goal of 70% total suspended solids removal. The treatment volume equates to a water quality design storm of 1" over 24 hours. The BMP Sizing tool addresses these water quality requirements to size stormwater management facilities.

Flow Control Requirement:
Per chapter 4.2 of the standards, flow control facilities shall be designed such that the duration of peak flow rates from post-development conditions shall be less than or equal to the duration of peak flow rates from pre-development conditions for all peak flows between 42% of the 2-year peak flow rate up to the 10-year peak flow rate. The BMP Sizing tool addresses these flow control requirements to size stormwater management facilities.

The BMP Sizing tool was used to determine the required size of the facilities to meet the water quality and flow control requirements.

Based on the map developed by the City showing historic vegetation conditions the project sites are within the Closed forest; upland areas. The predeveloped vegetation condition of forest was used in the BMP Sizing tool.

Wetlands Site-Site 1 Stormwater Management Summary:
Stormwater management would include conveyance of the parking lot and building roof runoff to a vegetated stormwater facility (vegetated swale, raingarden, planter) at the south edge of the project site for water quality treatment and flow control. The required size of the stormwater facility is 7100 SF for the proposed parking lot impervious area of 24,000 SF and the building impervious area of 13,000 SF. The stormwater facility can be broken into several smaller facilities as the site plan and grading allows. The facility size may be reduced if the stormwater discharge rates could be increased due to the outfall location at the existing wetland and natural detention that the wetland may provide. The facility size could also be reduced in size by providing below grade detention pipes or vaults.

The vegetated swale includes 18" of growing medium which is designed to provide water quality by allowing the stormwater runoff to filter through the soil section at 2 in/hr. This filtering process also contributes to the flow control component. A perforated pipe located in a 12" thick drainage rock section under the soil media will collect the treated stormwater. The perforated pipe discharges to a flow control structure with an orifice on the pipe inlet to meter the discharge rates so they do not exceed the predeveloped conditions.

The downstream storm system for this site is a conveyance ditch to the south and east of the site that discharges to the storm sewer system at Beavercreek Road west of Molalla Avenue. The City has acknowledged potential downstream deficiencies and therefore the project will be required to provide flow control per the above stated standards.

Warner Milne Site-Site 2 Stormwater Management Summary:
Stormwater management would include conveyance of the parking lot and building roof runoff to a vegetated stormwater facility (vegetated swale, raingarden, planter) for water quality treatment and flow control. The required size of the stormwater facility is 5000 SF for the proposed parking lot impervious area of 12,800 SF and the building impervious area of 13,000 SF. The stormwater facility can be broken

into several smaller facilities as the site plan and grading allows. The facility size could also be reduced in size by providing below grade detention pipes or vaults.

The vegetated swale includes 18" of growing medium which is designed to provide water quality by allowing the stormwater runoff to filter through the soil section at 2 in/hr. This filtering process also contributes to the flow control component. A perforated pipe located in a 12" thick drainage rock section under the soil media will collect the treated stormwater. The perforated pipe discharges to a flow control structure with an orifice on the pipe inlet to meter the discharge rates so they do not exceed the predeveloped conditions.

The existing 12" storm sewer main in Warner Milne is shallow (approximately 2-3' deep). Therefore, the stormwater facility for this site will need to discharge to the existing private storm line in Library Court. This will require a 425' private storm line extension from the site to the existing private 18" storm line in Library Court. The depth of the storm line at Library Court is approximately 8' deep. The 18" storm line discharges to the public main in Beavercreek Road.

OSU Extension Education Center 7.23.2015

Project Estimate Summary

	Area	$/SF	Total
Building	16,656	$ 367	$ 6,117,084
Sitework/ Utilities		53.25	$ 887,001
Total Hard Costs			**$ 7,004,085**

Alternates

Geo Thermal System	$ 88,191
Green Roof	$ 20,238
Green House	
Welands Boardwalk	$ 84,717
Cross Laminated Timber	$ 285,967
Rainwater Reuse	$ 33,093
Total alternates	**$ 512,206**

Soft Costs

Furniture		$ 465,000
AE Fees / Permits / Testing	15%	$ 1,050,613
System Development Charges		$ -
Owner Construction Contingency	5%	$ 350,204
Total Soft Costs	27%	**$ 1,865,817**
Total Project Costs		**$ 8,869,902**

OSU Extension Education Center	*Architectural Cost Consultants, LLC*	Estimate Date: 16-Jul-15
Clackamas County, Oregon	Stanley J. Pszczolkowski, AIA	Document Date: 29-Jun-15
Opsis Architecture	8060 SW Pfaffle Street, Suite 110	Print Date: 16-Jul-15
Portland, Oregon	Tigard, Oregon 97223-8489	Print Time: 11:03 AM
Concept Probable Cost Estimate 1.3	Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Constr. Start: Summer 2016

DIRECT CONSTRUCTION COST SUMMARY

Component	Area		$ / SF	Total	
Estimate	16,656	sf	$367.26 /sf	$6,117,084	
Site Work / Utilities			$53.25	$887,001	
TOTAL DIRECT CONSTRUCTION COST	16,656	sf	$420.51 /sf	**$7,004,084**	
Budget				0	
Indicated Surplus / (Deficit)				(7,004,084)	

ALTERNATES			
01 | Ground Coupled Geoexchange System	Add ±	$88,191	
02 | Green Roof @ Lobby / Gallery	Add ±	$20,238	
03 | Greenhouse	Add ±	$0	NIC, TBD by Owner
04 | Wetlands Boardwalk	Add ±	$84,717	
05 | CLT Framing	Add ±	$285,967	
06 | Rainwater Reuse	Add ±	$33,093	

The above estimates are for direct construction cost only. They do not include furnishings & equipment, architect and engineer design fees, consultant fees, inspection and testing fees, plan check fees, state sales tax, hazardous material testing and removal, financing costs, owners contingency nor any other normally associated project and development costs.

The above estimates assume a competitively bid project, with at least three qualified bidders in each of the major sub-trades as well as the general contractors.

The above estimates assume a construction start date of: Summer 2016. If the start of construction is delayed beyond the date above, the estimates must be indexed at a rate of 4% to 5% per year compounded.

This is a probable cost estimate based on in-progress documentation provided by the architect. The actual bid documents will vary from this estimate due to document completion, detailing, specification, addendum, etc.. The estimator has no control over the cost or availability of labor, equipment, materials, over market conditions or contractor's method of pricing, contractor's construction logistics and scheduling. This estimate is formulated on the estimators professional judgment and experience. The estimate makes no warranty, expressed or implied, that the quantities, bids or the negotiated cost of the work will not vary from the estimators opinion of probable construction cost.

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SUMMARY — **Base Building**

DIRECT CONSTRUCTION COSTS	**%**	**$ / sf**	**Cost**	**Comments**
Area		16,656 sf		
01 | GENERAL REQUIREMENTS		$6.05	$100,768	
02 | FOUNDATIONS / SUBSTRUCTURE		11.16	185,872	
03 | SUPERSTRUCTURE		46.09	767,597	
04 | EXTERIOR ENCLOSURE		35.83	596,763	
05 | ROOFING		18.76	312,478	
06 | INTERIOR CONSTRUCTION		41.93	698,420	
07 | EQUIPMENT / FURNISHINGS		20.49	341,251	
08 | SPECIAL CONSTRUCTION		0.00	0	
09 | CONVEYING EQUIPMENT		4.44	74,000	
10 | FIRE SUPPRESSION		3.50	58,296	
11 | PLUMBING - per Interface Engineering		5.00	83,280	
12 | HVAC - per Interface Engineering		27.00	449,712	
13 | ELECTRICAL - per Reyes Engineering, Inc.		40.97	682,329	
14 | COMMUNICATIONS - per Reyes Engineering, Inc.		16.23	270,400	
15 | ELECTRONIC SAFETY & SECURITY		0.00	0	included w/ electrical above
16 | SITEWORK		40.23	670,087	
SUB-TOTAL		**$317.68**	**$5,291,253**	
General Conditions	7.50%	23.83	396,844	
Subcontractor Bond	1.00%	3.18	52,913	
Performance Bond	0.55%	1.90	31,576	
Bureau of Labor & Industries	0.50%	1.73	28,863	
Builders Risk	0.38%	1.32	22,046	
Contractors Contingency	0.00%	0.00	0	
Design & Estimating Contingency	10.00%	34.96	582,349	
Index To Construction Start	6.00%	23.08	384,351	
General Contractor OH & Profit	3.15%	12.84	213,891	
Preconstruction	0.00%	0.00	0	
TOTAL DIRECT CONSTRUCTION COST		**$420.51**	**$7,004,084**	
Building		**$367.26**	**$6,117,084**	
Site Work / Utilities		**$53.25**	**$887,001**	

Estimate

OSU Extension Education Center	*Architectural Cost Consultants, LLC*	Estimate Date: 16-Jul-15
Clackamas County, Oregon	Stanley J. Pszczolkowski, AIA	Document Date: 29-Jun-15
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Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
01 | GENERAL REQUIREMENTS						
Construction Hoisting						
construction hoisting	16,656	sf	$5.00	$83,280		allowance
Sub-total	16,656	sf	5.00	/sf	$83,280	
Temp Environmental Control						
temp heat	16,656	sf	$0.15	$2,498		
temp light	16,656	sf	0.15	$2,498		
forced air interior dry out	16,656	sf	0.75	$12,492		
Sub-total	16,656	sf	1.05	/sf	$17,488	
SUB-TOTAL 01 | GENERAL REQUIREMENTS					**$100,768**	
02 | FOUNDATIONS / SUBSTRUCTURE						
Poured-In-Place Concrete						
shear wall continuous wall footing	31	cy	325.00	10,111		100 lf 4' x 2'
spread footings	86	cy	365.00	31,341		
18" sq. turndown slab @ perimeter	52	cy	425.00	22,284		8 # / lf r/s
5" slab on grade	11,574	sf	6.35	73,495		1.5 # / sf r/s
elevator pit	1	sum	10,000.00	10,000		
Sub-total	16,656	sf	8.84	/sf	147,231	
Miscellaneous						
housekeeping pads	100	sf	15.00	1,500		
waterproof elevator pit	1	sum	1,750.00	1,750		
dampproof foundations	858	sf	1.25	1,073		
slab edge insulation	1	sum	0.00	0		NIC
set column hardware	48	set	100.00	4,800		allowance
Sub-total	16,656	sf	0.55	/sf	9,123	
Excavation & Fill - Building Related						
engineered backfill	1	sum	0.00	0		NIC
elevator pit excavation / backfill	1	sum	1,500.00	1,500		
footing excavation / backfill	169	cy	35.00	5,929		
level & grade	11,574	sf	0.25	2,894		
6" gravel under slab	225	cy	35.00	7,875		
vapor barrier	12,731	sf	0.35	4,456		
Sub-total	16,656	sf	1.36	/sf	22,654	
Storm Drainage Systems						
foundation drain system	572	lf	12.00	6,864		
underslab drainage system		sf	0.00	0		NIC
Sub-total	16,656	sf	0.41	/sf	6,864	
SUB-TOTAL 02 | FOUNDATIONS / SUBSTRUCTURE					**$185,872**	
03 | SUPERSTRUCTURE						
Concrete						
gypcrete topping slab @ 2nd floor	5,082	sf	1.75	8,894		
item		sf	0.00	0		
Sub-total	16,656	sf	0.53	/sf	8,894	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
03 | SUPERSTRUCTURE - Continued						
Structural Steel - Beams, Columns, Etc.						
stair - atrium	1	flight	20,000.00	20,000		
stair egress	1	flight	10,000.00	10,000		
Sub-total	16,656	sf	1.80	/sf	30,000	
Rough Carpentry						
miscellaneous blocking & framing	16,656	sf	0.50	8,328		
3x t&g decking, 1/2" plywood w/ gypcrete	5,082	sf	9.25	47,009		floor structure
3x t&g decking, 1/2" plywood	14,715	sf	8.00	117,720		roof structure
shearwalls, 2x6 w/ plywood both sides	2,250	sf	8.40	18,900		
floor structure glulam beams & girders	5,082	sf	23.40	118,919		5-1/8" x 12" glb at 4' oc
roof structure - over 2nd floor - glulam	6,948	sf	18.75	130,275		
roof structure conf. room / teaching kitchen	6,438	sf	36.75	236,597		heavy timber / trusses
roof structure - lobby / gallery - glulam	1,329	sf	17.25	22,925		
fasteners & hardware	1	sum	28,030.00	28,030		
Sub-total	16,656	sf	43.75	/sf	728,703	
SUB-TOTAL 03 | SUPERSTRUCTURE					**$767,597**	
04 | EXTERIOR ENCLOSURE						
	13,190	sf				
Masonry						
stone, brick, cmu, etc.	1	sum	0.00	0		NIC
Sub-total	16,656	sf	0.00	/sf	0	
Miscellaneous Metals						
miscellaneous	16,656	sf	0.15	2,498		allowance
Sub-total	16,656	sf	0.15	/sf	2,498	
Rough Carpentry						
miscellaneous blocking & framing	16,656	sf	0.35	5,830		
ttd sill plate	572	lf	6.00	3,432		
wall framing, 2 x 6	9,431	sf	3.50	33,008		
plywood wall sheathing	9,431	sf	1.70	16,032		
rake / fascia board	734	lf	8.50	6,240		
fasteners & hardware	1	sum	2,260.00	2,260		
Sub-total	16,656	sf	4.01	/sf	66,802	
Insulation						
rigid insulation						
ext. wall, 1"	9,431	sf	1.75	16,504		
batt insulation						
walls, r-19	9,431	sf	0.75	7,073		
rainscreen system	10,374	sf	4.50	46,683		
soffit 2nd floor	312	sf	2.00	624		
Sub-total	16,656	sf	4.26	/sf	70,884	
Wood Siding						
stained cedar	8,574	sf	12.00	102,882		assume 65%
trim	8,574	sf	2.25	19,290		
Sub-total	16,656	sf	7.34	/sf	122,172	
Flashing & Sheet Metal						
miscellaneous	16,656	sf	0.55	9,161		
Sub-total	16,656	sf	0.55	/sf	9,161	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
04 | EXTERIOR ENCLOSURE - Continued						
Caulking & Sealants						
caulking / firestopping	16,656	sf	0.15	2,498		
Sub-total	16,656	sf	0.15	/sf	2,498	
Doors, Frames & Hardware (includes installation)						
exterior						
entry doors	2	pair	5,000.00	10,000		
egress doors	4	ea	1,600.00	6,400		
egress doors - stair	1	ea	2,000.00	2,000		
oh door @ classrooms, 8' x 9', manual	4	ea	3,600.00	14,400		
Sub-total	16,656	sf	1.97	/sf	32,800	
Windows						
wood, aluminum clad	4,617	sf	55.00	253,908		assume 35%
premium for operable units	1	sum	20,000.00	20,000		allowance
Sub-total	16,656	sf	16.45	/sf	273,908	
Louvers						
wall louvers	50	sf	40.00	2,000		allowance
Sub-total	16,656	sf	0.12	/sf	2,000	
Exterior Specialties						
light shelf, exterior	117	sf	65.00	7,605		allowance
light shelf, interior	117	sf	55.00	6,435		allowance
Sub-total	16,656	sf	0.84	/sf	14,040	
SUB-TOTAL 04 | EXTERIOR ENCLOSURE					**$596,763**	
05 | ROOFING						
Insulation						
rigid insulation						
roof, r-30	15,115	sf	2.75	41,566		
tapered insulation premium	80	sf	2.50	200		
under slab on grade	11,574	sf	1.25	14,468		
Sub-total	16,656	sf	3.38	/sf	56,234	
Metal Roofing						
prefinished metal roofing	14,715	sf	12.00	176,580		
slip sheet	16,187	sf	0.28	4,532		
soffit panels	3,184	sf	10.00	31,840		
Sub-total	16,656	sf	12.79	/sf	212,952	
Membrane Roofing						
roof at mechanical well	400	sf	7.50	3,000		
protective walkway pads	80	sf	6.00	480		
Sub-total	16,656	sf	0.21	/sf	3,480	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
05 | ROOFING - Continued						
Flashing & Sheet Metal						
gutters	221	lf	20.00	4,420		stainless
downspouts	125	lf	17.00	2,125		galvanized & painted
scuppers / conductor collectors	1	ea	250.00	250		
flashing						
parapet back, mechanical well	215	sf	8.00	1,720		
rake / fascia trim	734	lf	12.00	8,809		
miscellaneous	16,656	sf	0.65	10,826		
Sub-total	16,656	sf	1.69	/sf	28,150	
Roof Accessories						
roof hatch, safety tie off, etc.	1	sum	0.00	0		NIC
screen at mechanical well & framing	200	sf	25.00	5,000		allowance
cistern	1	sum	0.00	0		included w/ plumbing per Opsis
Sub-total	16,656	sf	0.30	/sf	5,000	
Caulking & Sealants						
caulking / firestopping	16,656	sf	0.40	6,662		
Sub-total	16,656	sf	0.40	/sf	6,662	
Skylights						
skylights	1	sum	0.00	0		NIC
Sub-total	16,656	sf	0.00	/sf	0	
SUB-TOTAL 05 | ROOFING					**$312,478**	
06 | INTERIOR CONSTRUCTION						
Rough Carpentry						
miscellaneous blocking & framing	16,656	sf	0.30	4,997		
wall framing, 2 x 6	2,085	sf	3.25	6,776		allowance, assume some shearwall
wall framing, 2 x 4	8,834	sf	2.50	22,085		
furring framing, 2 x 4	1,257	sf	2.50	3,143		
shearwall sheathing	2,085	sf	1.70	3,545		
item		sf	0.00	0		
fasteners & hardware	1	sum	1,420.00	1,420		
Sub-total	16,656	sf	2.52	/sf	41,966	
Metals						
guardrail @ 2nd level atrium / stair	62	lf	250.00	15,500		
wall mounted handrail	36	lf	45.00	1,620		
guardrail @ 2nd level stair	45	lf	250.00	11,250		
wall mounted handrail	48	lf	45.00	2,160		
Sub-total	16,656	sf	1.83	/sf	30,530	
Caulking & Sealants						
caulking / firestopping	16,656	sf	0.10	1,666		
Sub-total	16,656	sf	0.10	/sf	1,666	
Doors, Frames & Hardware (includes installation)						
interior doors						
single passage	21	ea	1,350.00	28,350		
pairs	5	pair	2,800.00	14,000		
access doors	1	sum	600.00	600		
Sub-total	16,656	sf	2.58	/sf	42,950	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
06 | INTERIOR CONSTRUCTION - Continued						
Relites & Sidelites (clear finished wood)						
small meeting	44	sf	45.00	1,980		
office (2)	88	sf	45.00	3,960		
conference - level 1	136	sf	45.00	6,120		
conference (2) - level 2	96	sf	45.00	4,320		
Sub-total	16,656	sf	0.98	/sf	16,380	
Gypsumboard Systems						
gypboard sheathing at exterior walls	9,431	sf	2.25	21,219		
full height partitions	27,595	sf	6.65	183,507		framing w/ carpentry above
suspended gypboard ceiling systems	581	sf	6.00	3,486		
fascia	145	sf	8.00	1,162		allowance
accessories, misc. bracing, etc.	1	sum	10,468.70	10,469		
Sub-total	16,656	sf	13.20	/sf	219,843	
Ceilings						
suspended 2 x 4 ACT	3,636	sf	3.50	12,726		
acoustical cloud / panel treatment	2,511	sf	10.00	25,110		assume 50% coverage
Sub-total	16,656	sf	2.27	/sf	37,836	
Ceramic Tile						
floor tile	503	sf	12.00	6,036		
base	171	lf	12.00	2,052		
wall tile	684	sf	12.00	8,208		assume 48" high all walls, verify
Sub-total	16,656	sf	0.98	/sf	16,296	
Resilient						
resilient floor	2,340	sf	4.50	10,530		
base						
rubber	1,977	lf	2.50	4,943		
cove at resilient flooring	385	lf	3.25	1,251		
Sub-total	16,656	sf	1.00	/sf	16,724	
Concrete						
stained & polished concrete	4,379	sf	5.50	24,085		
protect concrete	4,379	sf	1.50	6,569		
sealed concrete	533	sf	0.65	346		
Sub-total	16,656	sf	1.86	/sf	31,000	
Stairs						
precast stair treads	216	lf	50.00	10,800		allowance, verify material
precast landing	80	sf	55.00	4,400		allowance, verify material
Sub-total	16,656	sf	0.91	/sf	15,200	
Carpet						
carpet tile	896	sy	35.00	31,365		
Sub-total	16,656	sf	1.88	/sf	31,365	
Wall Coverings / Acoustic Treatment						
wood wall panel, acoustic	1,500	sf	32.00	48,000		
wall covering allowance	16,656	sf	0.75	12,492		
Sub-total	16,656	sf	3.63	/sf	60,492	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
06 | INTERIOR CONSTRUCTION - Continued						
Paint & Wallcoverings						
exterior painting / staining	8,574	sf	0.85	7,287		
paint / finish door & frame	31	lvs	85.00	2,635		
paint gypboard ceilings / fascias	726	sf	0.75	545		
paint walls	64,621	sf	0.65	42,004		
paint exposed structure	12,439	sf	1.00	12,439		
miscellaneous specialty painting	16,656	sf	0.75	12,492		
Sub-total	16,656	sf	4.65	/sf	77,402	
Visual Display Systems						
markerboard	10	ea	672.00	6,720		allowance
tackboards	20	ea	124.00	2,480		
tack strip	200	lf	4.00	800		
tackable wall surface	300	sf	8.50	2,550		allowance
Sub-total	16,656	sf	0.75	/sf	12,550	
Signage Systems						
directories, bulletin boards, etc.	1	sum	0.00	0		NIC
signs, ada & code required	16,656	sf	0.25	4,164		
Sub-total	16,656	sf	0.25	/sf	4,164	
Toilet Partitions						
ADA	2	ea	1,053.00	2,106		
standard	5	ea	837.00	4,185		
urinal screen	2	ea	470.00	940		
Sub-total	16,656	sf	0.43	/sf	7,231	
Folding Panel Partition						
operable partition	560	sf	50.00	28,000		
Sub-total	16,656	sf	1.68	/sf	28,000	
Toilet Accessories (includes installation)						
grab bars	3	sets	115.00	345		
mirrors	5	ea	185.00	925		
paper towel dispenser / receptacle	3	ea	475.00	1,425		
janitor tool holder	1	ea	80.00	80		
sanitary napkin dispenser	0	ea	450.00	0		NIC
sanitary napkin disposal	6	ea	55.00	330		
hooks	8	ea	15.00	120		
toilet paper dispenser	8	ea	45.00	360		
seat cover dispenser	8	ea	65.00	520		
soap dispenser	13	ea	115.00	1,495		
paper towel dispenser	8	ea	65.00	520		
baby changing table		ea	350.00	0		NIC
Sub-total	16,656	sf	0.37	/sf	6,120	
Fire Extinguisher & Cabinets						
FEC	3	ea	235.00	705		
Sub-total	16,656	sf	0.04	/sf	705	
SUB-TOTAL 06 | INTERIOR CONSTRUCTION					**$698,420**	

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Portland, Oregon	Tigard, Oregon 97223-8489	Print Time: 11:03 AM
Concept Probable Cost Estimate 1.3	Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Constr. Start: Summer 2016

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
07 | EQUIPMENT / FURNISHINGS						
Casework						
lobby / gallery						
display	4.0	ea	5,000.00	20,000		
conference room (2)						
base cabinet	22.0	lf	350.00	7,700		
wall cabinet	22.0	lf	140.00	3,080		
mens / womens						
lav counter	14.0	lf	150.00	2,100		
small meeting						
base cabinet	9.0	lf	350.00	3,150		
public education materials storage						
full ht. shelving	34.0	lf	250.00	8,500		
mud room						
base cabinet	28.0	lf	350.00	9,800		
wall cabinet	28.0	lf	140.00	3,920		
work room						
base cabinet	32.0	lf	350.00	11,200		
wall cabinet	32.0	lf	140.00	4,480		
break room						
base cabinet	26.5	lf	350.00	9,275		
wall cabinet	26.5	lf	140.00	3,710		
Sub-total	16,656	sf	5.22	/sf	86,915	
Residential Appliances						
refrigerator	1	ea	1,100.00	1,100		
Sub-total	16,656	sf	0.07	/sf	1,100	
Food Service Equipment per Halliday Associates						
kitchen equipment	1	sum	225,000.00	225,000		
Sub-total	16,656	sf	13.51	/sf	225,000	
Projection Screens						
manual	1	ea	500.00	500		conf room
motorized	2	ea	1,500.00	3,000		large conf rooms
projection brackets	3	ea	500.00	1,500		
Sub-total	16,656	sf	0.30	/sf	5,000	
Window Treatment						
relites & sidelites	364	sf	0.00	0		NIC
windows, manual mecho shade or sim.	2,308	sf	8.00	18,466		allowance
Sub-total	16,656	sf	1.11	/sf	18,466	
Floor Mats & Frames						
walk-off mat, recessed	72	sf	35.00	2,520		
Sub-total	16,656	sf	0.15	/sf	2,520	
Site Furnishings						
bike racks	10	ea	225.00	2,250		
Sub-total	16,656	sf	0.14	/sf	2,250	
SUB-TOTAL 07 | EQUIPMENT / FURNISHINGS					**$341,251**	

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08 | SPECIAL CONSTRUCTION						
Special Construction						
item		sf	0.00	0		
Sub-total	16,656	sf	0.00	/sf	0	
SUB-TOTAL 08 | SPECIAL CONSTRUCTION					**$0**	
09 | CONVEYING EQUIPMENT						
Elevators						
passenger hydraulic elevator	2	stop	32,000.00	64,000		
cab finishes	1	sum	10,000.00	10,000		
Sub-total	16,656	sf	4.44	/sf	74,000	
SUB-TOTAL 09 | CONVEYING EQUIPMENT					**$74,000**	
10 | FIRE SUPPRESSION						
Fire sprinklers						
sprinklers	16,656	sf	3.50	58,296		
Sub-total	16,656	sf	3.50	/sf	58,296	
SUB-TOTAL 10 | FIRE SUPPRESSION					**$58,296**	
11 | PLUMBING - per Interface Engineering						
Plumbing						
plumbing	16,656	sf	5.00	83,280		
rainwater re-use system	1	sum	0.00	0		NIC, see alternates
Sub-total	16,656	sf	5.00	/sf	83,280	
SUB-TOTAL 11 | PLUMBING - per Interface Engineering					**$83,280**	
12 | HVAC - per Interface Engineering						
HVAC						
HVAC	16,656	sf	27.00	449,712		
item		sum	0.00	0		
Sub-total	16,656	sf	27.00	/sf	449,712	
SUB-TOTAL 12 | HVAC - per Interface Engineering					**$449,712**	
13 | ELECTRICAL - per Reyes Engineering, Inc.						
Electrical						
electrical	16,656	sf	31.37	522,455		
item		sf	0.00	0		
Sub-total	16,656	sf	31.37	/sf	522,455	
Photovoltaic System						
photovoltaic system	1	sum	159,874.00	159,874		
item		sum	0.00	0		
Sub-total	16,656	sf	9.60	/sf	159,874	
SUB-TOTAL 13 | ELECTRICAL - per Reyes Engineering, Inc.					**$682,329**	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
14 | COMMUNICATIONS - per Reyes Engineering, Inc.						
Telecommunications						
telecommunications	16,656	sf	16.23	270,400		
item		sf	0.00	0		
Sub-total	16,656	sf	16.23	/sf	270,400	
SUB-TOTAL 14 | COMMUNICATIONS - per Reyes Engineering, Inc.					**$270,400**	
15 | ELECTRONIC SAFETY & SECURITY						
Security						
security	16,656	sf	0.00	0		with electrical above
item		sum	0.00	0		
Sub-total	16,656	sf	0.00	/sf	0	
Fire Detection & Alarm						
fire detection & alarm	16,656	sf	0.00	0		with electrical above
item		sum	0.00	0		
Sub-total	16,656	sf	0.00	/sf	0	
SUB-TOTAL 15 | ELECTRONIC SAFETY & SECURITY					**$0**	
16 | SITEWORK						
Site Prep - per Walker Macy						
total site area (includes building footprint)	51,000	sf				
clear and grub and scarify to 12"	51,000	sf	0.50	25,500		
grading (assumes 12" for total site area)	2,000	cy	6.00	12,000		
Sub-total	16,656	sf	2.25	/sf	37,500	
Site Grading and Compaction - per Walker Macy						
mobilization	1	sum	22,500.00	22,500		
fine grading	51,000	sf	0.20	10,200		
paving prep	17,000	sf	1.40	23,800		
imported topsoil (assumes 3" deep)	200	cy	25.00	5,000		
Sub-total	16,656	sf	3.69	/sf	61,500	
Erosion & Sedimentation Controls						
erosion & sedimentation controls	1	sum	10,000.00	10,000		
Sub-total	16,656	sf	0.60	/sf	10,000	
Paving - per Walker Macy						
pedestrian concrete path	3,760	sf	6.00	22,560		
curb	890	lf	25.00	22,250		
paving, ac	13,000	sf	4.00	52,000		
parking bumpers, precast	33	ea	85.00	2,805		
pavement markings	13,000	sf	0.15	1,950		
decomposed granite paving	2,000	sf	8.00	16,000		
concrete stairs	40	lf	100.00	4,000		
unit pavers	800	sf	25.00	20,000		
sub-slab for unit pavers	800	sf	5.50	4,400		
tactile warning	50	sf	12.00	600		
Sub-total	16,656	sf	8.80	/sf	146,565	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
16 | SITEWORK - Continued						
Stairs/handrails - per Walker Macy						
handrails	16	lf	225.00	3,600		
item		sf	0.00	0		
Sub-total	16,656	sf	0.22	/sf	3,600	
Concrete Walls - per Walker Macy						
weir walls	100	lf	210.00	21,000		
item		lf	0.00	0		
Sub-total	16,656	sf	1.26	/sf	21,000	
Paving Specialties						
pavement markings						
ada logo	2	ea	85.00	170		
diagonal striping	320	sf	2.35	752		
parking stall striping	30	ea	15.00	450		
ada sign, post & footing	2	ea	250.00	500		
Sub-total	16,656	sf	0.11	/sf	1,872	
Site Amenities - per Walker Macy						
custom bench	20	ea	0.00	0		NIC, with FF&E
bike racks	9	ea	350.00	3,150		
café tables and chairs	0	ea	500.00	0		NIC
trash	4	ea	600.00	2,400		
light poles (for budget purposes only)	15	ea	0.00	0		with electrical above
wood decking	600	sf	30.00	18,000		
raised planter beds (lengths vary, incl. seati	9	ea	1,500.00	13,500		
custom fence with pedestrian gates	180	lf	250.00	45,000		
boardwalk (budget item)	1,600	sf	0.00	0		NIC, see alternates
Sub-total	16,656	sf	4.93	/sf	82,050	
Site Structures						
greenhouse / tools	924	sf	0.00	0		NIC, by others
item		lf	0.00	0		
Sub-total	16,656	sf	0.00	/sf	0	
Landscape Irrigation - per Walker Macy						
planting areas	16,000	sf	1.50	24,000		
controller	1	sum	2,500.00	2,500		
Sub-total	16,656	sf	1.59	/sf	26,500	
Planting - per Walker Macy						
planting areas including, mulch,	16,000	sf	3.00	48,000		
groundcover and shrubs						
trees	30	ea	300.00	9,000		
topsoil (3") deep	200	cy	15.00	3,000		
Sub-total	16,656	sf	3.60	/sf	60,000	
Water Utilities						
domestic water	120	lf	35.00	4,200		
fire service	120	lf	50.00	6,000		
meter / vault / ddc / bf	1	sum	17,500.00	17,500		
tie-in	1	sum	2,500.00	2,500		
Sub-total	16,656	sf	1.81	/sf	30,200	

Estimate	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
16 | SITEWORK - Continued						
Sanitary Sewerage Utilities						
6" pvc piping	140	lf	40.00	5,600		
connection to existing	1	sum	2,000.00	2,000		
cleanouts	2	ea	600.00	1,200		
Sub-total	16,656	sf	0.53	/sf	8,800	
Storm Drainage Utilities						
site drainage systems						
extension to private storm line	50	lf	60.00	3,000		
storm water management	7,100	sf	25.00	177,500		allowance
Sub-total	16,656	sf	10.84	/sf	180,500	
Natural Gas Distribution						
item		lf	0.00	0		NIC, by utility
item		sum	0.00	0		
Sub-total	16,656	sf	0.00	/sf	0	
Electrical Utilities						
service		sum	0.00	0		with electrical above
site lighting		ea	0.00	0		with electrical above
Sub-total	16,656	sf	0.00	/sf	0	
SUB-TOTAL 16 | SITEWORK					**$670,087**	
SUB-TOTAL			317.68	5,291,253	**$5,291,253**	
General Conditions			7.50%	396,844		
Subcontractor Bond			1.00%	52,913		
Performance Bond			0.55%	31,576		
Bureau of Labor & Industries			0.50%	28,863		
Builders Risk			0.38%	22,046		
Contractors Contingency			0.00%	0		NIC, Assume Competitive Bid
Design & Estimating Contingency			10.00%	582,349		
Index To Construction Start	Summer 2016		6.00%	384,351		@ ± 6% per year
General Contractor OH & Profit			3.15%	213,891		
Preconstruction			0.00%	0		NIC, Assume Competitive Bid
					1,712,831	32.37%
TOTAL DIRECT CONSTRUCTION COST Estimate	**16,656**	**sf**	**$420.51**	**/sf**	**$7,004,084**	
Level 1	11,574	sf				
Level 2	5,082	sf				

Alternates

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Alternates	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
01 | Ground Coupled Geoexchange System						
per Interface Engineering	16,656	sf	4.00	66,624		
item		sf	0.00	0		
Sub-total	16,656	sf	4.00 /sf		$66,624	
SUB-TOTAL 01 | Ground Coupled Geoexchange System				66,624	**$66,624**	
Markups			32.37%	21,567	21,567	32.37%
TOTAL DIRECT CONSTRUCTION COST 01 | Ground Coupled Geoexchange System	**16,656**	**sf**	**$5.29 /sf**		**$88,191**	
02 | Green Roof @ Lobby / Gallery						
roofing	(1,202)	sf	$12.28	($14,761)		
green roof system	1,202	sf	25.00	30,050		
Sub-total	16,656	sf	0.92 /sf		$15,289	
SUB-TOTAL 02 | Green Roof @ Lobby / Gallery				15,289	**$15,289**	
Markups			32.37%	4,949	4,949	32.37%
TOTAL DIRECT CONSTRUCTION COST 02 | Green Roof @ Lobby / Gallery	**16,656**	**sf**	**$1.22 /sf**		**$20,238**	
03 | Greenhouse						
Alternate Three						
greenhouse	1	sum	$0.00	$0		NIC, TBD by Owner
item		lf	0.00	0		
Sub-total	16,656	sf	0.00 /sf		$0	
SUB-TOTAL 03 | Greenhouse				0	**$0**	
Markups			32.37%	0	0	#DIV/0!
TOTAL DIRECT CONSTRUCTION COST 03 | Greenhouse	**16,656**	**sf**	**$0.00 /sf**		**$0**	

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Alternates	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
04 | Wetlands Boardwalk						
Alternate Four - per Walker Macy						
boardwalk (budget item)	1,600	sf	40.00	64,000		
item		lf	0.00	0		
Sub-total	16,656	sf	3.84	/sf	$64,000	
SUB-TOTAL 04 | Wetlands Boardwalk				64,000	**$64,000**	
Markups			32.37%	20,717	20,717	32.37%
TOTAL DIRECT CONSTRUCTION COST 04 | Wetlands Boardwalk	**16,656**	**sf**	**$5.09**	**/sf**	**$84,717**	
05 | CLT Framing						
Alternate Five						
3x t&g decking, 1/2" plywood w/ gypcrete	(5,082)	sf	$9.25	($47,009)		
floor structure glulam beams & girders	(5,082)	sf	2.90	(14,738)		5-1/8" x 12" glb at 10' oc
3x t&g decking, 1/2" plywood	(14,715)	sf	8.00	(117,720)		
roof structure conf. room / teaching kitchen	(6,438)	sf	6.75	(43,457)		
shearwalls, 2x6 w/ plywood both sides	(2,250)	sf	8.40	(18,900)		
clt floor panels, SLT3	5,082	sf	14.60	74,172		
clt panels, roof panels, SLT5	14,715	sf	22.28	327,777		
clt wall panels, SLT5	2,250	sf	21.16	47,599		
fasteners & hardware	1	sum	8,310.00	8,310		
Sub-total	16,656	sf	12.97	/sf	$216,035	
SUB-TOTAL 05 | CLT Framing				216,035	**$216,035**	
Markups			32.37%	69,933	69,933	32.37%
TOTAL DIRECT CONSTRUCTION COST 05 | CLT Framing	**16,656**	**sf**	**$17.17**	**/sf**	**$285,967**	
06 | Rainwater Reuse						
Alternate Six						
rainwater re-use system	1	sum	25,000.00	25,000		
item		lf	0.00	0		
Sub-total	16,656	sf	1.50	/sf	$25,000	
SUB-TOTAL 06 | Rainwater Reuse				25,000	**$25,000**	
Markups			32.37%	8,093	8,093	32.37%
TOTAL DIRECT CONSTRUCTION COST 06 | Rainwater Reuse	**16,656**	**sf**	**$1.99**	**/sf**	**$33,093**	

LEED-NC v2009 Preliminary Project Checklist

OSU Extension Education Center (Wetlands Site)
OSU Extension Service
Warner Milne Rd
Portland, OR

opsis architecture LLP
06.11.2015
Pre-Design Assesment (Wetlands Site)

Y	Y?	N?	N							Notes
17	2	6	1	**Sustainable Sites**					26 Pts.	
Y				C			Prereq 1	**Construction Activity Pollution Prevention**	Rq'd	Required
	1			D			Credit 1	**Site Selection**	1	
5				D			Credit 2	**Development Density & Community Connectivity**	5	
			1	D	R		Credit 3	**Brownfield Redevelopment**	1	
		6		D			Credit 4.1	**Alternative Transportation**, Public Transportation Access	6	
1				D			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1	
3				D		SB	Credit 4.3	**Alternative Transportation**, Low-Emitting & Fuel-Efficient Vehicles	3	
2				D		SB	Credit 4.4	**Alternative Transportation**, Parking Capacity	2	
1				C	R	SB	Credit 5.1	**Site Development,** Protect of Restore Habitat	1	
1				D		SB	Credit 5.2	**Site Development,** Maximize Open Space	1	
1				D		SB	Credit 6.1	**Stormwater Design,** Quantity Control	1	
	1			D		SB	Credit 6.2	**Stormwater Design,** Quality Control	1	
1				C		SB	Credit 7.1	**Heat Island Effect,** Non-Roof	1	
1				D			Credit 7.2	**Heat Island Effect,** Roof	1	
1				D			Credit 8	**Light Pollution Reduction**	1	Note: could use new LEEDv4 credit
8	2			**Water Efficiency**					10 Pts.	
Y				D			Prereq 1	**Water Use Reduction,** 20% Reduction	Rq'd	Required
2	2			D		SB	Credit 1	**Water Efficient Landscaping**	2 to 4	
2				D	R		Credit 2	**Innovative Wastewater Technologies**	2	
4				D			Credit 3	**Water Use Reduction**	2 to 4	
22	13			**Energy & Atmosphere**					35 Pts.	
Y				C			Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Rq'd	Required
Y				D			Prereq 2	**Minimum Energy Performance**	Rq'd	Required
Y				D			Prereq 3	**Fundamental Refrigerant Management**	Rq'd	Required
10	9			D			Credit 1	**Optimize Energy Performance**	1 to 19	
5	2			D			Credit 2	**On-Site Renewable Energy**	1 to 7	
2				C			Credit 3	**Enhanced Commissioning**	2	
2				D			Credit 4	**Enhanced Refrigerant Management**	2	
3				C			Credit 5	**Measurement & Verification**	3	
	2			C			Credit 6	**Green Power**	2	
5	4		5	**Materials & Resources**					14 Pts.	
Y				D			Prereq 1	**Storage & Collection of Recyclables**	Rq'd	Required
			3	D	R		Credit 1.1	**Building Reuse**, Maintain Existing Walls, Floors & Roof	1 to 3	
			1	D			Credit 1.2	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1	
2				C			Credit 2	**Construction Waste Management (CWM)**	1 to 2	
	1		1	D	R		Credit 3	**Materials Reuse**	1 to 2	
1	1			C			Credit 4	**Recycled Content**	1 to 2	
1	1			C			Credit 5	**Regional Materials**	1 to 2	
	1			C			Credit 6	**Rapidly Renewable Materials**	1	
1				C	R		Credit 7	**Certified Wood**	1	
12	1	1	1	**Indoor Environmental Quality**					15 Pts.	
Y				D			Prereq 1	**Minimum IAQ Performance**	Rq'd	Required
Y				D			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Rq'd	Required
1				D			Credit 1	**Outdoor Air Delivery Monitoring**	1	
		1		D			Credit 2	**Increased Ventilation**	1	
1				C			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1	
1				C			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1	Flushout or testing
1				C			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1	
1				C			Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1	
1				C			Credit 4.3	**Low-Emitting Materials**, Flooring Systems	1	
1				C			Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1	
	1			D			Credit 5	**Indoor Chemical & Pollutant Source Control**	1	
1				D			Credit 6.1	**Controllability of Systems**, Lighting	1	
			1	D			Credit 6.2	**Controllability of Systems**, Thermal Comfort	1	
1				D			Credit 7.1	**Thermal Comfort**, Design	1	
1				D			Credit 7.2	**Thermal Comfort**, Verification	1	
1				D			Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1	
1				D			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1	
6				**Innovation & Design Process**					6 Pts.	
1							Credit 1.1	**Innovation in Design**: Bird Friendly	1	Exemplary Performance (Up to 3 points): CWM, FSC wood, Green Power
1							Credit 1.2	**Innovation in Design**: Local Food Production	1	
1							Credit 1.3	**Innovation in Design**: Green Building Eduction	1	Innovation Credits (Up to 5 points): Bird Collision Deterrence, Green Cleaning, IPM, Social equity within the community, Green Furniture, Building Education, Active Design, Waste Management Policy,etc.
1							Credit 1.4	**Innovation in Design**: Exemplary Performance Certified Wood	1	
1							Credit 1.5	**Innovation in Design**: Integrative Process	1	
1				D			Credit 2	**LEED® Accredited Professional**	1	
3	1			**Regional Priority**					4 Pts.	
1							Credit 1.1	**Regional Priority**: Site Development, Protect and Restore Habitat	1	
1							Credit 1.2	**Regional Priority**: Innovative Wastewater Technologies	1	
	1						Credit 1.3	**Regional Priority**: Materials Reuse (5%)	1	
1							Credit 1.4	**Regional Priority**: Certified Wood	1	
73	23	7	7	**Project Totals** (pre-certification estimates)					110 Points	

Y Y? N? N

Certified 40-49 points **Silver** 50-59 points **Gold** 60-79 points **Platinum** 80-110 points

C=credit to be submitted after construction phase **D=credit to be submitted after design phase** **R=Regional priority credit** **SB= location of the LEED site boundary affects**

opsis

MEETING MINUTES

Project:	**OSU Extension Education Center** **Clackamas County**
Opsis Project No. :	4618-01
Meeting:	**Oregon City Planning Department Pre-App Mtg.**
Date:	July 8, 2015
Date Issued:	July 22, 2015
Attendees	Tony Konkol, Oregon City Community Development Director Laura Terway, Oregon City Planner Jeff Jorgensen, Clackamas County Facilities Manager Ron Peterson, HHPR Nathan Kappen, Walker Macy John Shorb, Opsis Architecture

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This represents the Design Team's understanding of discussions during the meeting. Please communicate any questions or revisions to John Shorb at Opsis Architecture.

John provided an introduction and overview of the project scope, potential sites being studied and Phase 1 concept design schedule. The Education Center is proposed to be an approximately 16,000 SF two story building on the Clackamas County Red Soils campus. Two sites are being evaluated, one on the south side of Warner Milne directly east of the existing Extension office (Warner Milne site) and the second on the southeast corner of the Beavercreek and Warner Milne intersection (Wetlands site).

Both sites were discussed relative to the Red Soils masterplan and Oregon City Planning code.

The following issues were discussed:

1. **Vehicular access points**
   The sites being considered are part of Phase 3 of the Red Soils masterplan. Per the City, the transportation impacts and improvements have not been analyzed yet. Laura will review with City Engineering the potential street improvements required and forward for discussion.
   a. Warner Milne – Proposed Warner Milne access at existing Extension parking lot appears reasonable.
   b. Wetlands – Proposed Warner Milne access at adjacent existing Shaver Building parking lot curb cut appears reasonable. A shared use agreement would be needed. From Beavercreek the proposed right in-right out curb cut seems reasonable but will require review from engineering.

2. **Parking**
   Parking is counted on the scale of the campus.
   a. Warner Milne – This site is closer to the majority of campus parking. It is unknown now how masterplan constraints will constrict the site size and potential parking on the site but ample surrounding areas appear available.
   b. Wetlands – The number of spaces currently proposed is below city code guidelines. This is the result of balancing site requirements for parking, building, and stormwater management within the limits of the adjacent NROD wetland and street setbacks. Discussed campus approach to parking with adjacent spots in the Shaver Building lot, future lot to the south, future on-street Beavercreek spaces, and throughout the campus.

3. **Beavercreek right-of-way**
   a. Wetlands – There is an approximately 60' wide right-of-way on the south side of Beavercreek. The current design acknowledges that setback. It is not known when the masterplan development will trigger the widening of Beavercreek to the section standard shown in the masterplan.

4. **Oregon City Building Development Standards**
   Buildings in this area are bound by minimum and maximum setback requirements. A variance may be granted for the maximum setback (moving the building away from the street) if additional public amenities are provided and a compelling case is made. Buildings are intended to be close to the street with parking behind.
   a. Warner Milne - The building would need to shift north to front the street with the parking on the south side.
   b. Wetlands – The direct relationship to the wetlands appears to create a compelling case for moving the building away from the street. A formal appeal would be required for approval.

5. **Newell Creek Wetlands and associated 50' vegetated buffer**
   a. Wetlands – The Extension is very interested in becoming long term stewards of the wetlands that currently do not have any compelling habitat or landscape. Their expertise and vast volunteer networks provide a unique opportunity to lead restoration of the wetlands and use them for education and training.
   b. The Extension team inquired about options to encroach into the 50' buffer and mitigate accordingly. This appears to be required to make this a viable building site for the OSU extension with parking included. The City felt there was a path to pursue this in the zoning code. Mitigation would be required at a 2:1 ratio. A diagram of mitigation areas was reviewed.
   c. At the Red Soils Jail project, mitigation was 'banked' and would be available to help offset required mitigation on this site. This was confirmed in the Jail land use documents.
      9,511 sf of mitigation provided
      2,655 sf of disturbed area (mitigation at 2:1 means 4,710 sf of mitigation required
      = 4,801 sf of banked mitigation
   d. Laura Terway followed-up the meeting with this email:
      For the Natural Resource Overlay District (NROD), you will have to use the code that was in place when the master plan was originally approved in 2005. The old code may allow a new structure to impede on the vegetated corridor per OCMC 17.49.050.E.1 (since structures are allowed in the zoning designation). The development standards you would be subject to are identified in OCMC 17.49.050. In the current code language, new structures are prohibited within the NROD today.

6. **Site Development Costs (SDC)**
   a. Tony clarified that no SDC costs have been paid for this portion of the Red Soils campus. Engineering will need to "unwind" the site development/ traffic implications of development on either site. The Extension will need to provide usage statistics, existing and proposed, as part of the analysis. Tony noted that new stormwater standards come into effect August 2015. These standards consider downstream impacts.
   b. Tony deferred to John Lewis, Public Works Director, for further information on the SDCs. He mentioned deferring improvements may be possible but typical street improvements will be required.
   c. SDC request forms are available from the City. Once filled out and submitted, the City will provide an estimate of SDC costs for the project. It will be important to note in the form what is happening to the existing buildings.

Attachments:

Wendy Marshall, Public Works Department, SDC credit email dated 7/10/15.

End Minutes

John Shorb

From: Wendy Marshall <wmarshall@ci.oregon-city.or.us>
Sent: Friday, July 10, 2015 3:28 PM
To: Laura Terway
Cc: Aleta Froman-Goodrich
Subject: SDC Credit Question

Laura –

Your question was, Can a developer apply credits for a demolished building a) to a new building on the same parcel? or b) to a different parcel? I'm answering via email so I can more thoroughly quote the codes. **13.20.050 – SDC reduction or reimbursement** is the applicable section.

- If on the same parcel, SDC "credit" is applied for the most recent structure if it existed within the last 10 years. If the demolished building had a higher rate than the new replacement building, we cannot reimburse them for the leftover amount.

- They cannot transfer the "credit" to another parcel.

The word credit is often misused (as I have done here). There really isn't a good synonym, so this is probably why it is misused. A more accurate term might be SDC "balance."

A true SDC "credit" is applied when a developer constructs a public improvement above and beyond what would normally be needed to serve the development. An example would be when our Master Plan requires a 12-inch sewer but the typical development only needs and 8-inch sewer. This credit ***can*** be carried over to a different parcel, but the developer has to be the same. See **13.20.040 – SDC credit**, and **13.20.020 – Definitions** for the term "**qualified public improvement."**

So, in summary:
- Developer will get credited for prior building on site if it was demo'd within the last 10 years (measured from building permit issuance date). No refund given if there is excess balance.
- If developer constructs "extra" public infrastructure, credits can be used towards another of his/her own projects, with a 5-year limit.
- This process is approved through the Director and not City Commission.

Hope this helps,

Wendy L Marshall, PE
Development Projects Manager
Public Works Department
City of Oregon City
PO Box 3040
625 Center Street
Oregon City, Oregon 97045
Email: wmarshall@orcity.org
503.496.1548 Direct dial
503.657.0891 City hall
503.657.7892 fax

Website: www.orcity.org | webmaps.orcity.org | Follow us on: Facebook! | Twitter
Think **GREEN** *before you print.*

Public Works/Engineering Counter hours at City Hall, 625 Center Street, are Monday through Thursday, 9 AM to 4 PM.
The counter is closed each Friday to walk-in customers.

CLACKAMAS COUNTY OSU EXTENSION EDUCATION CENTER

Clackamas County Policy Work Session, Oct. 13, 2015

Oregon State UNIVERSITY OSU Extension Service Clackamas County

Build stronger and healthier individuals, businesses, and communities making Clackamas County a great place for all of us to live!

PROGRAMMING THEMES

BOARDWALK

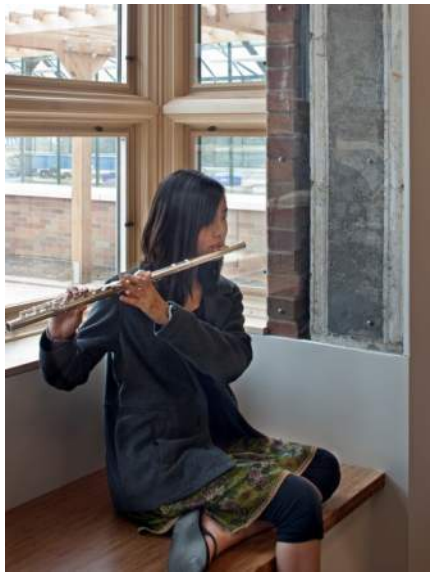
INTEGRATED OUTDOOR SPACE

GREENHOUSE

PROGRAMMING THEMES

SUSTAINABLE SYSTEMS

OUTDOOR LEARNING



PROGRAMMING THEMES

FLEXIBLE

COLLABORATIVE WORK

EXEMPLARY SUSTAINABILITY

The center will serve as an educational resource for

- Environmental learning, research and hands on discovery for youth and adults
- Conservation and management of forest, agriculture and natural resources
- Education about and implementation of sustainable gardening
- Food, nutrition, community food systems, and healthy living
- Extension volunteers

Design will embody purpose by

- Creating connections between the OSU Extension Service, the community and the natural world
- Using and celebrating natural and local materials
- Supporting spaces that are flexible, daylit, and welcoming
- Involving stakeholder and client input

The center's design must incorporate or account for

- Red Soils standards
- Minimum LEED Silver certification (TBD)
- Onsite solar
- Budget and financial realities

PROGRAM

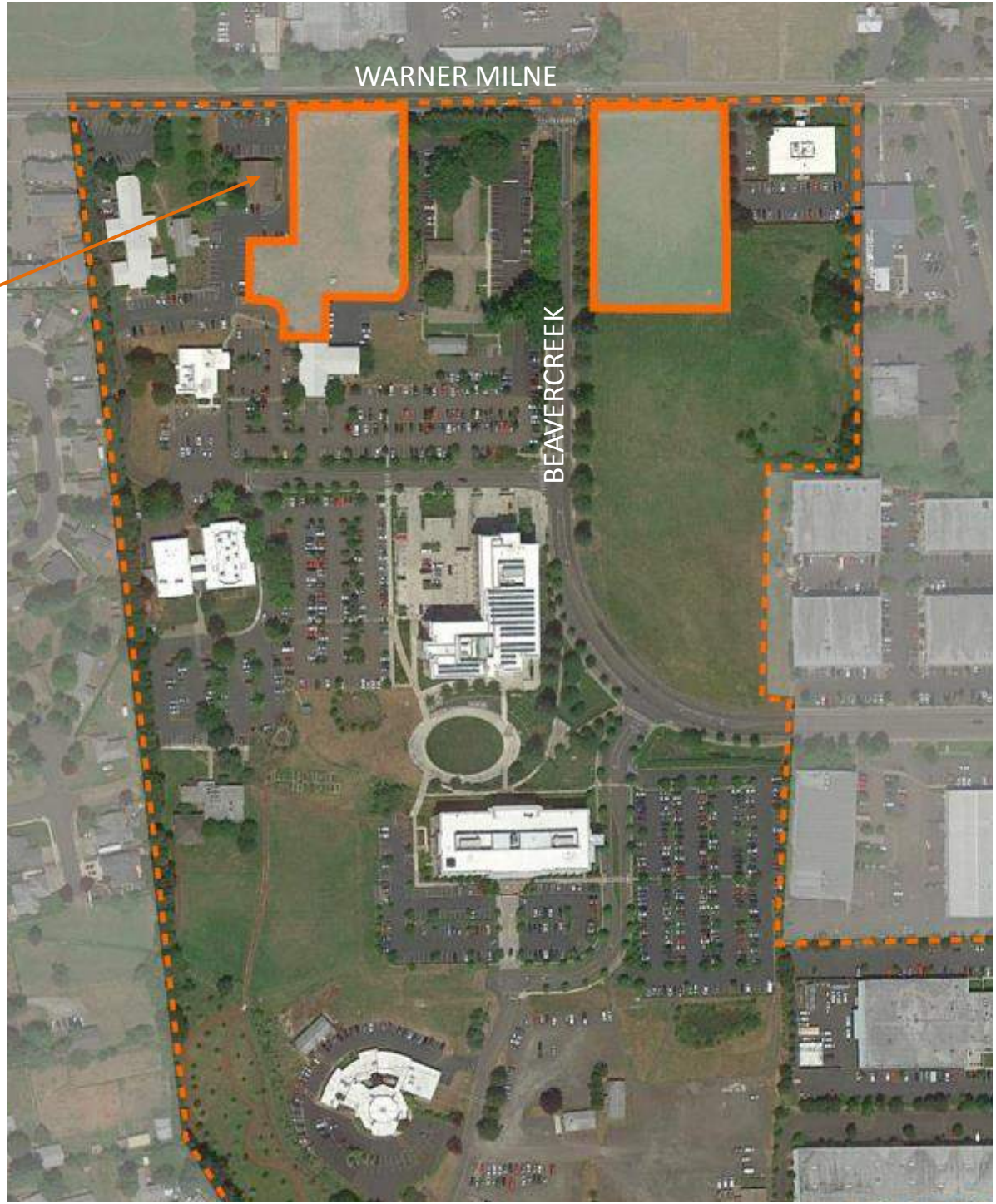
- 4-H
- Horticulture
- Forestry
- Family and Community Health
- Front Office

- Conference / Meeting space
- Teaching Kitchen
- Master Gardener Public Clinic
- Public Lobby
- Faculty and Staff Offices

TOTAL: 16,500 SQUARE FEET

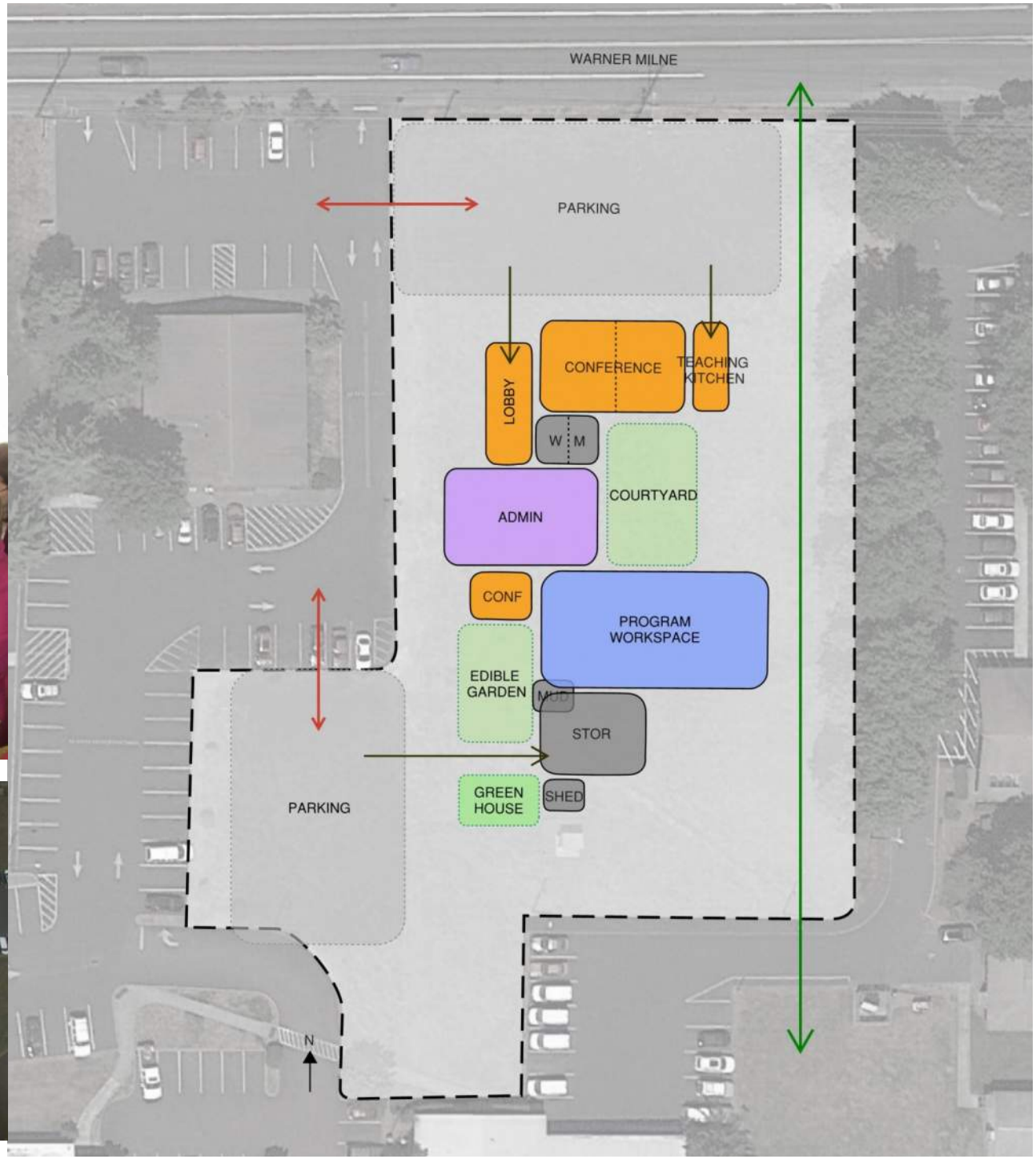
AERIAL OF SITES

EXISTING OSU
EXTENSION OFFICE



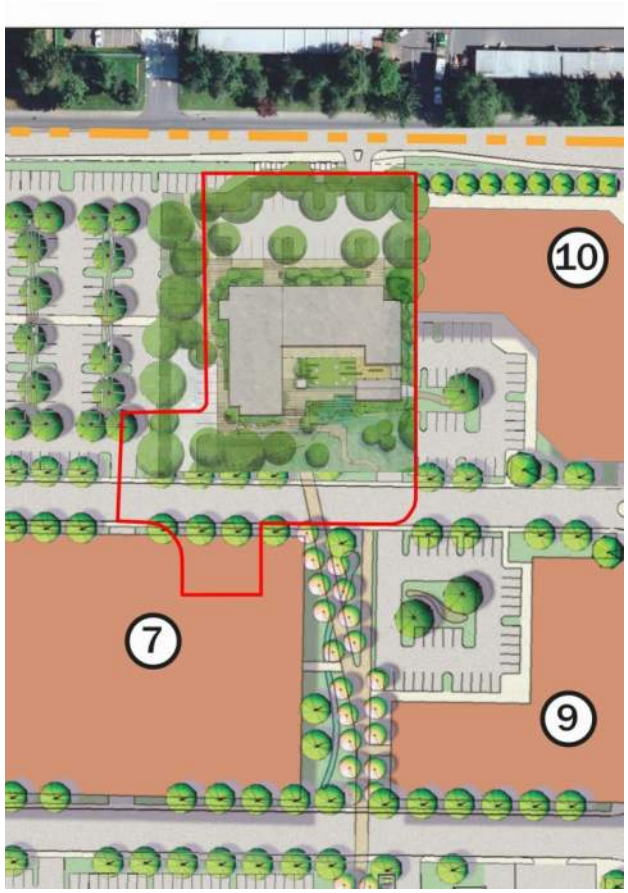
RED SOILS MASTERPLAN

WARNER MILNE

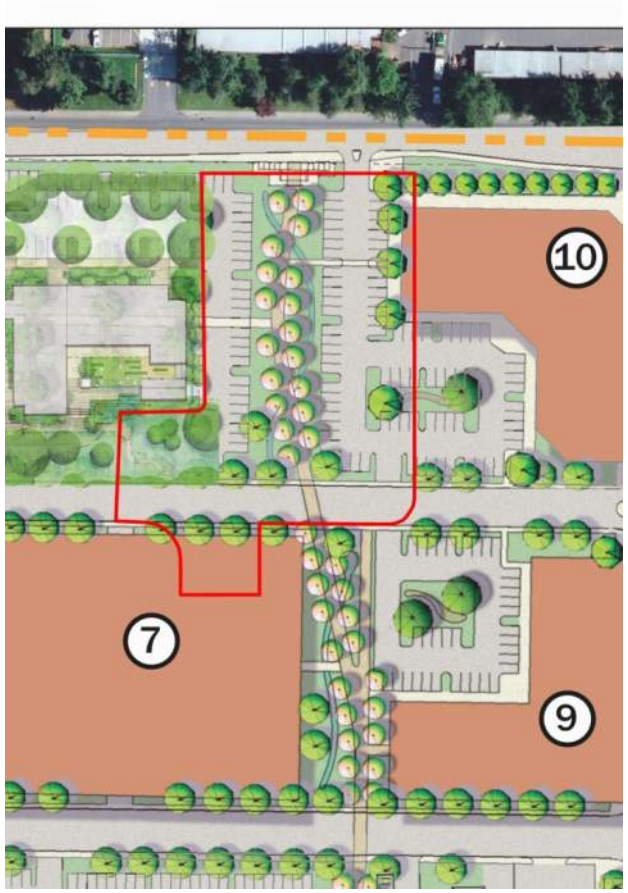


WARNER MILNE SITE

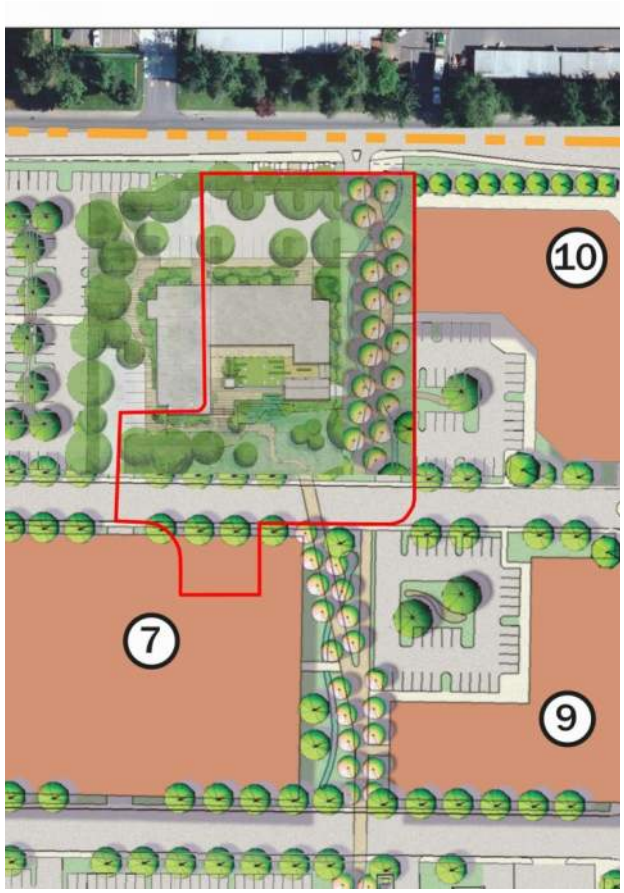
Option A



Option B

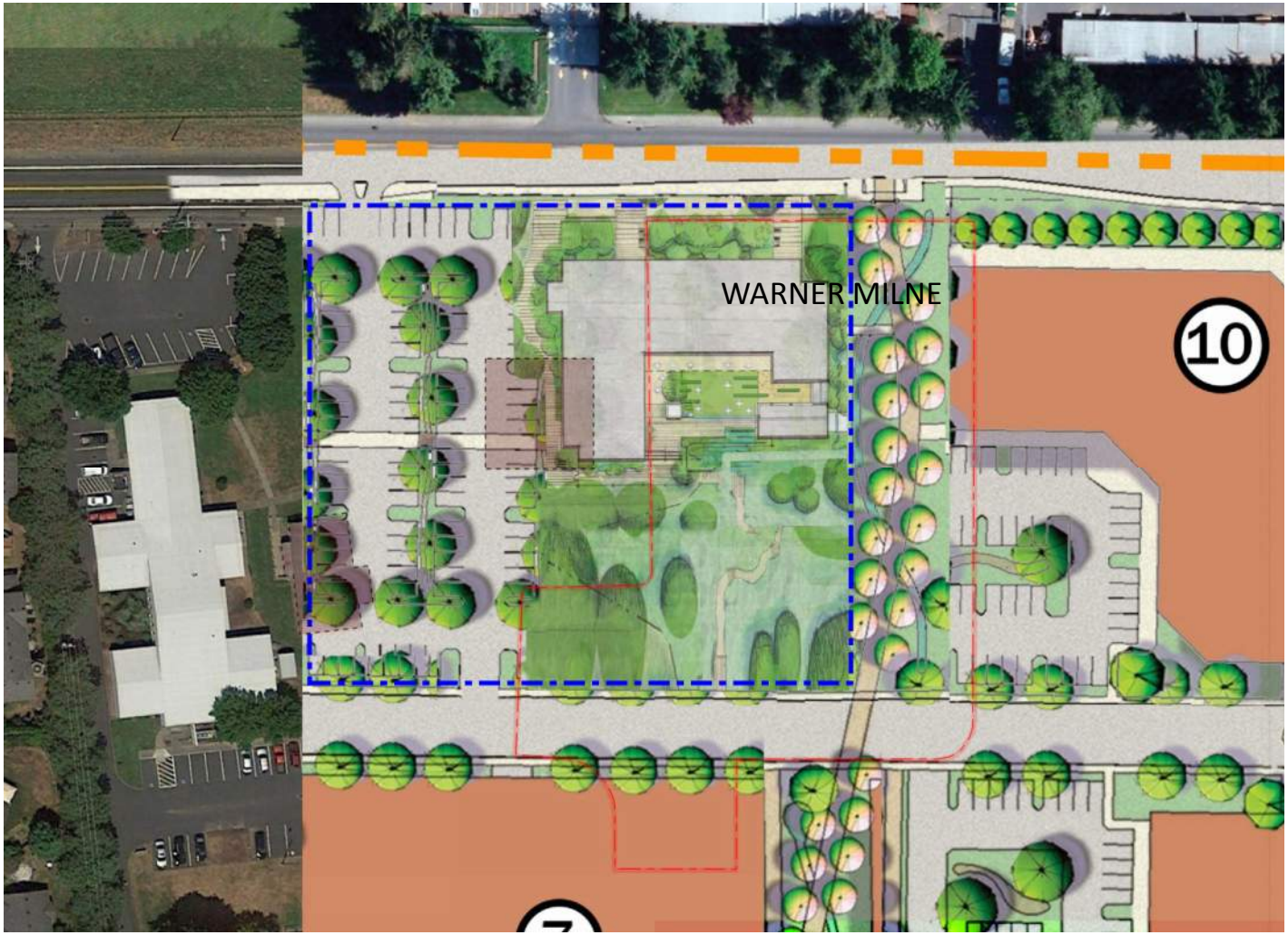


Option C



WARNER MILNE SITE

Option C

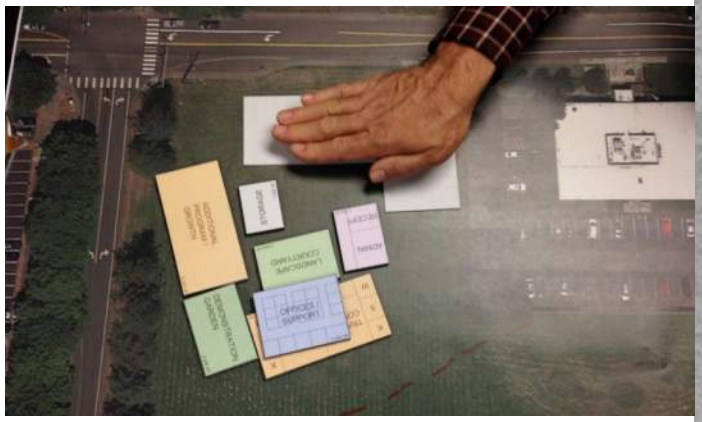


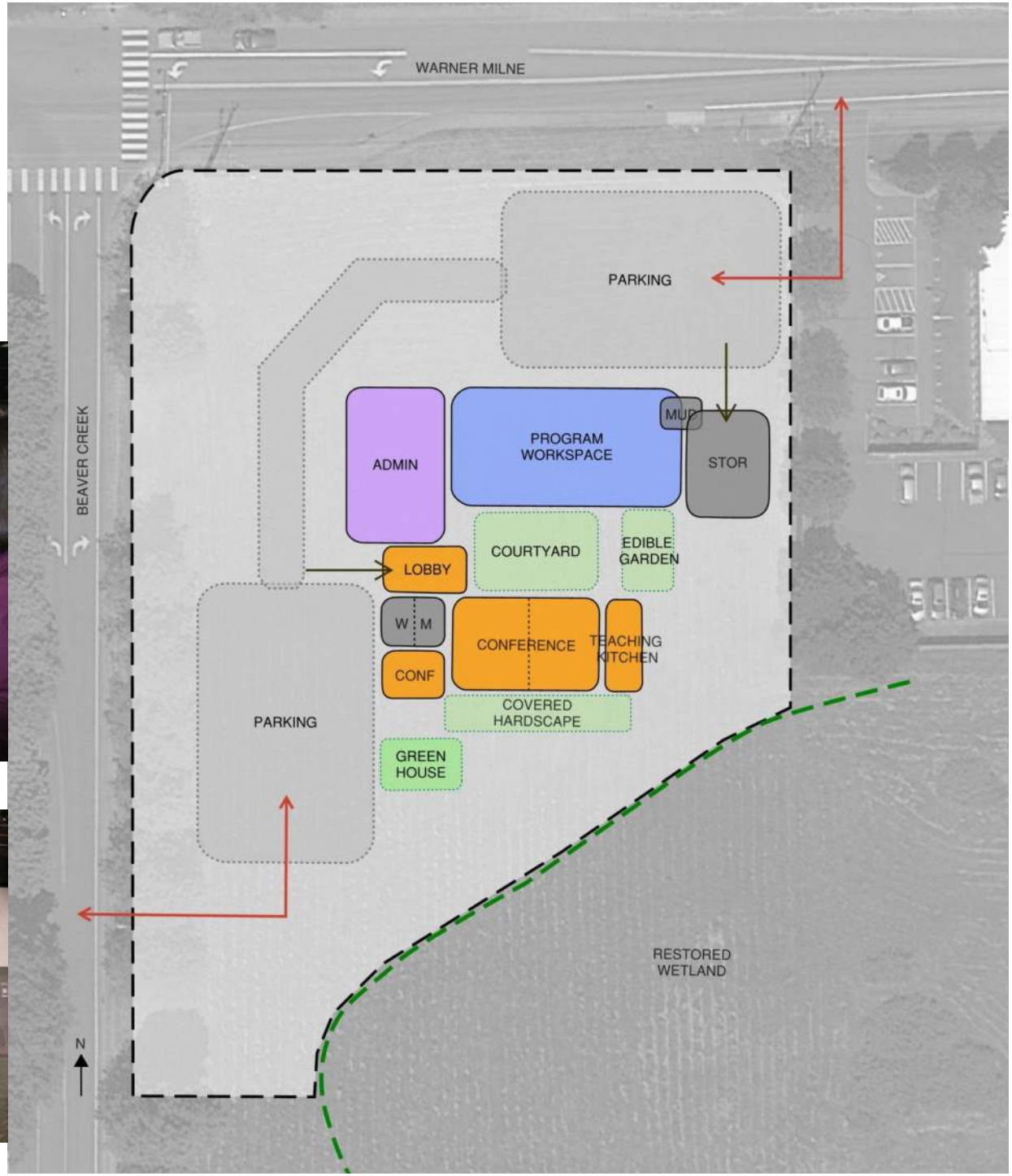
Parking

~70 Spaces

Reduces future lot size (parking) at Building 10

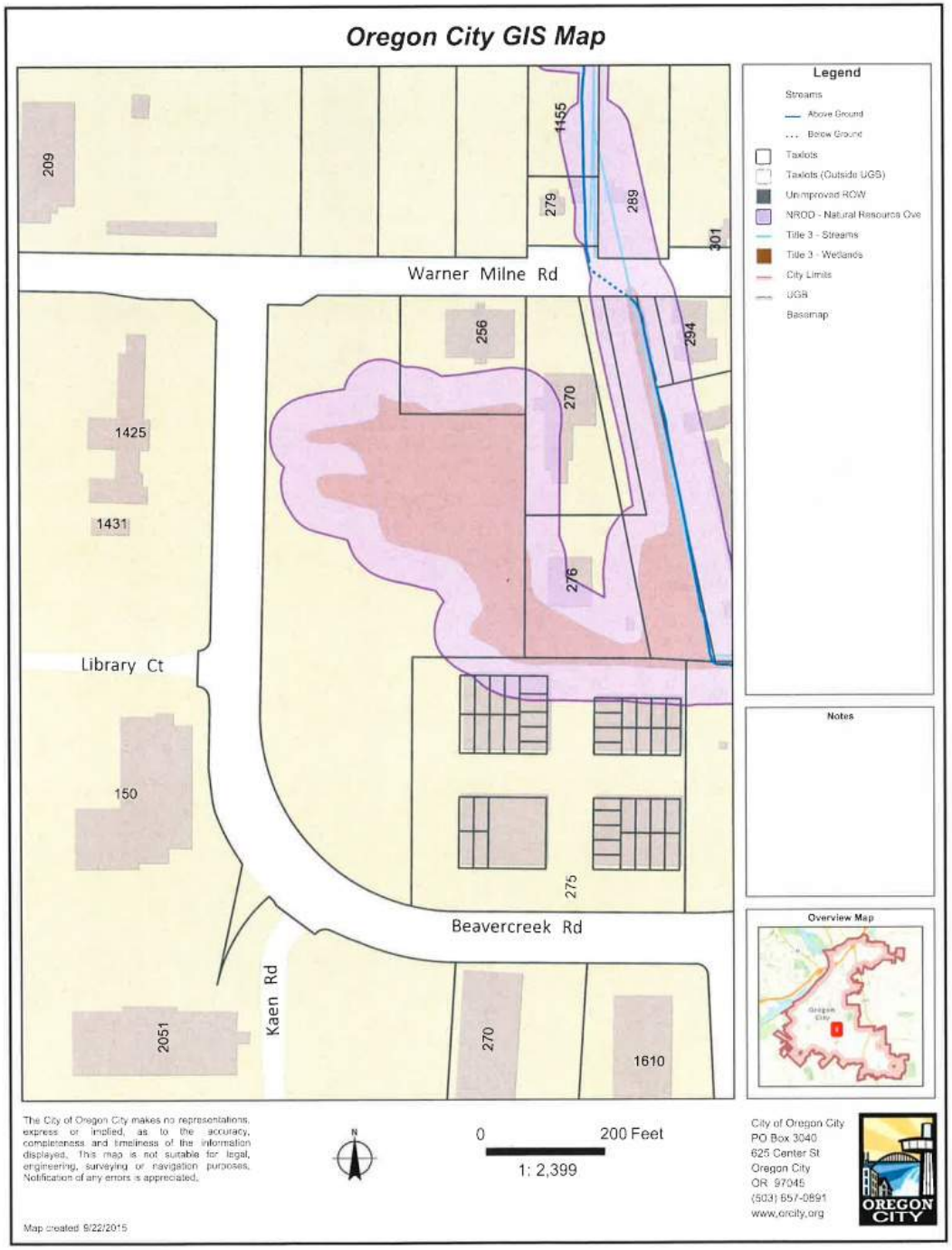
WETLANDS



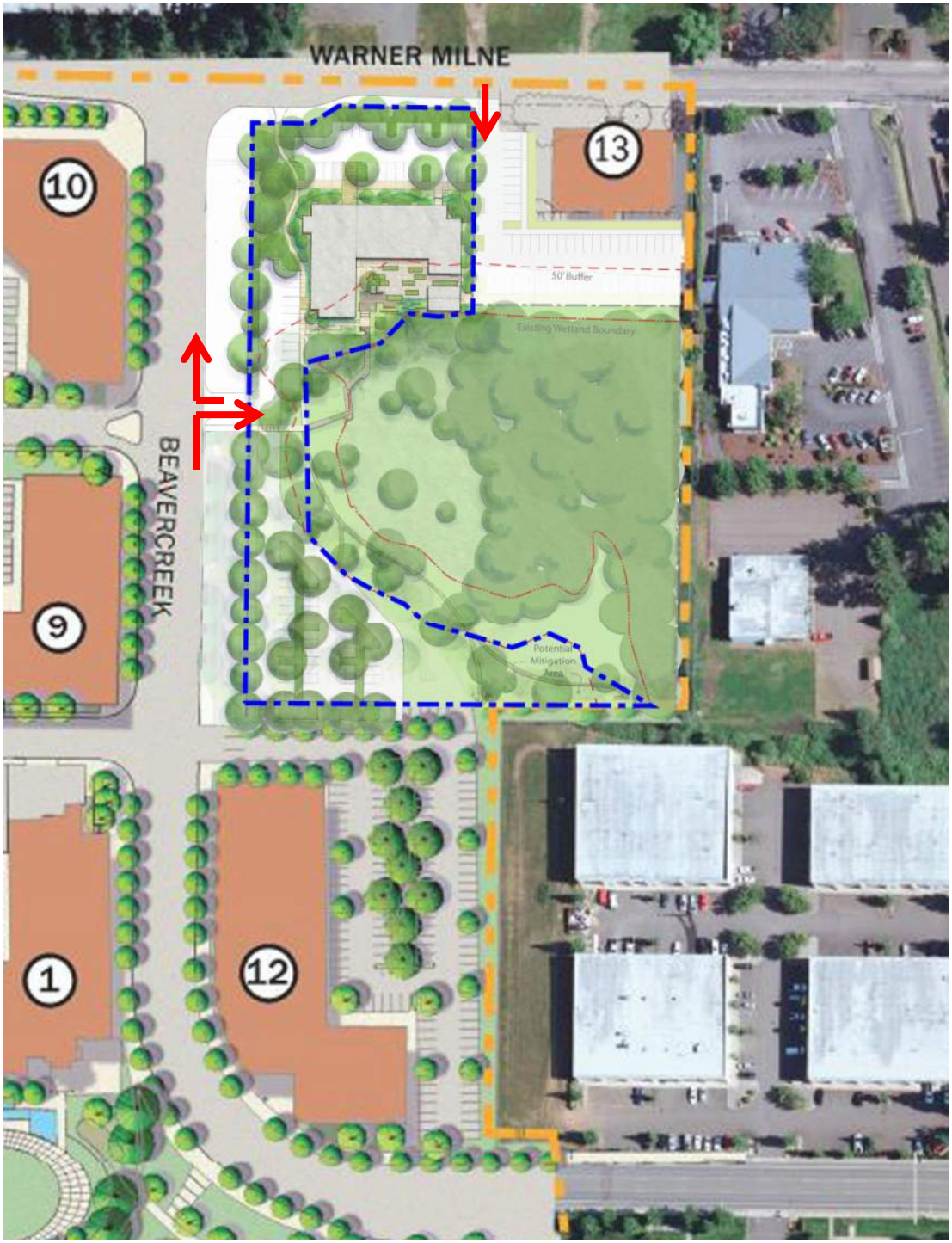

WARNER MILNE
BEAVER CREEK
PARKING
ADMIN
PROGRAM WORKSPACE
MUP
STOR
COURTYARD
EDIBLE GARDEN
LOBBY
W
M
CONFERENCE
TEACHING KITCHEN
CONF
COVERED HARDSCAPE
PARKING
GREEN HOUSE
RESTORED WETLAND
N

NEWELL CREEK WETLAND

- Regulated by the Oregon Department of State Lands (DSL) and the US Army Corps of Engineers.
- Oregon City further regulates the wetland through the City's Natural Resource Overlay District (NROD) and requires a 50 foot buffer around the delineated wetland.
- The ability to impact the wetland under the City regulations is very limited; however there are limited uses allowed within the 50 foot buffer which require mitigation if approved.
- The wetland is located in the upper basin of Newell Creek and the City has expressed a strong desire to keep and enhance the wetland.



WETLANDS SITE PREFERRED



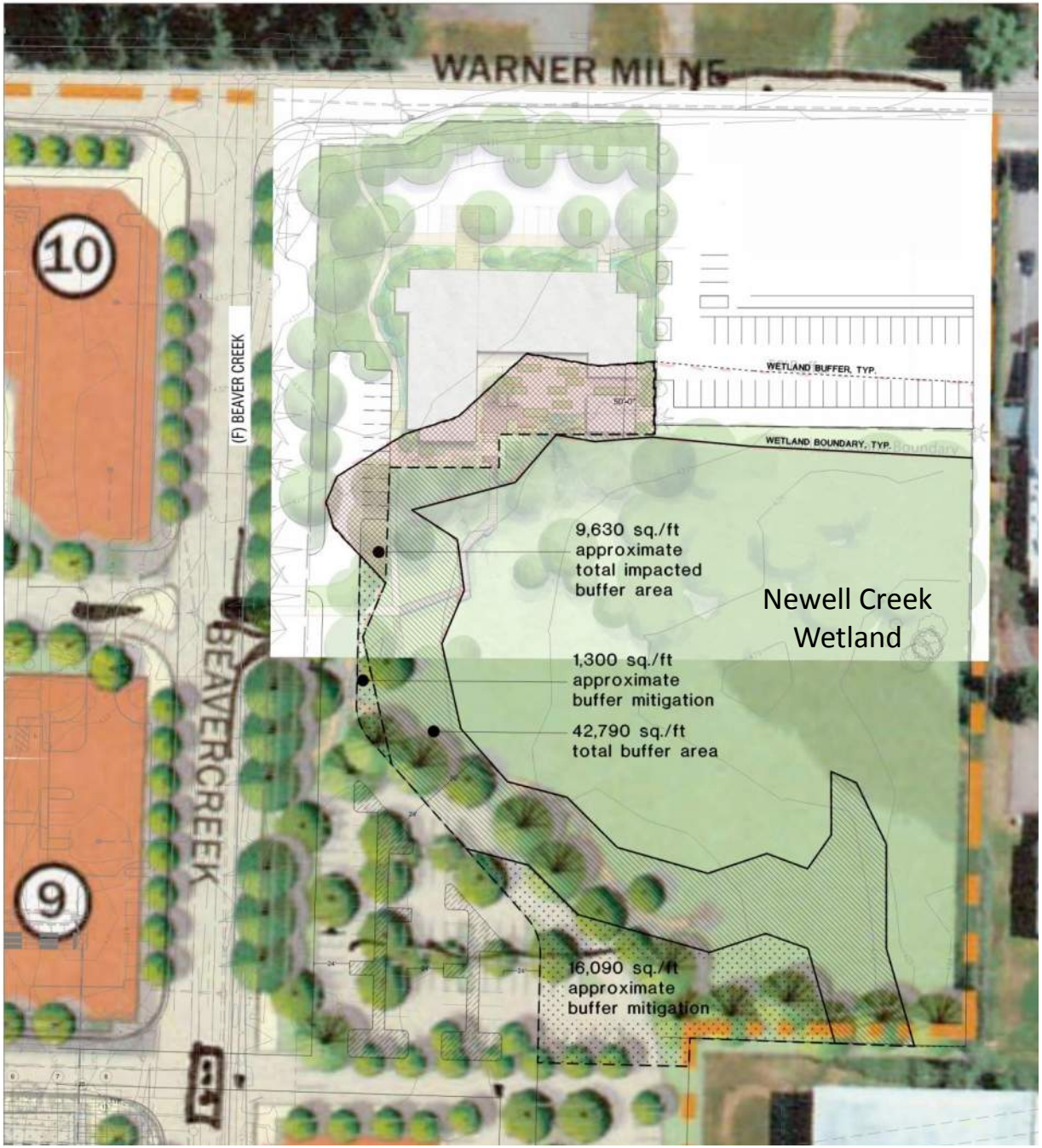
Parking

~38 Spaces at Building

~40 Spaces South of Wetland

+ Potential Shaver sharing

NEWELL CREEK MITIGATION



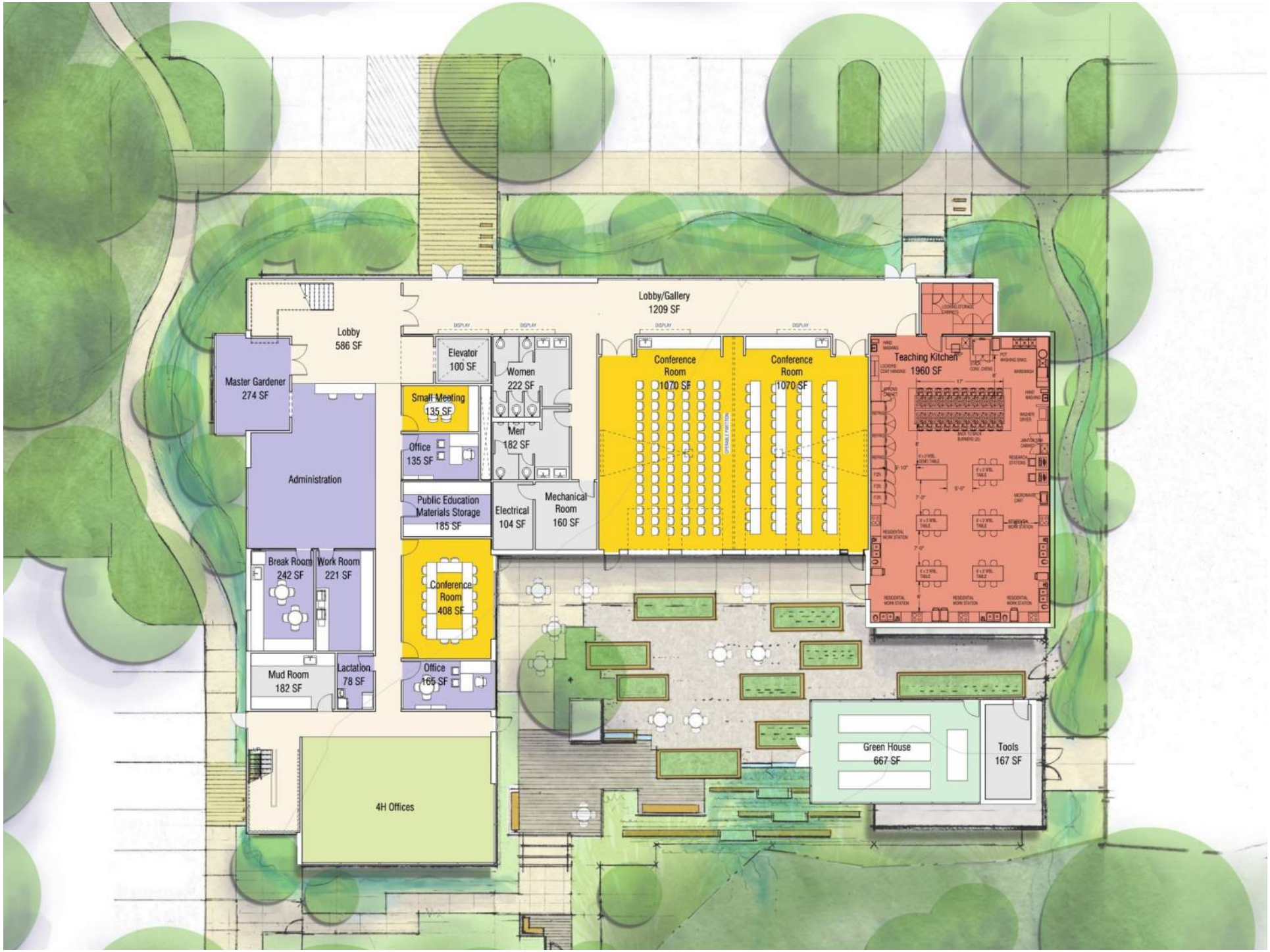
WETLANDS SITE SOUTH

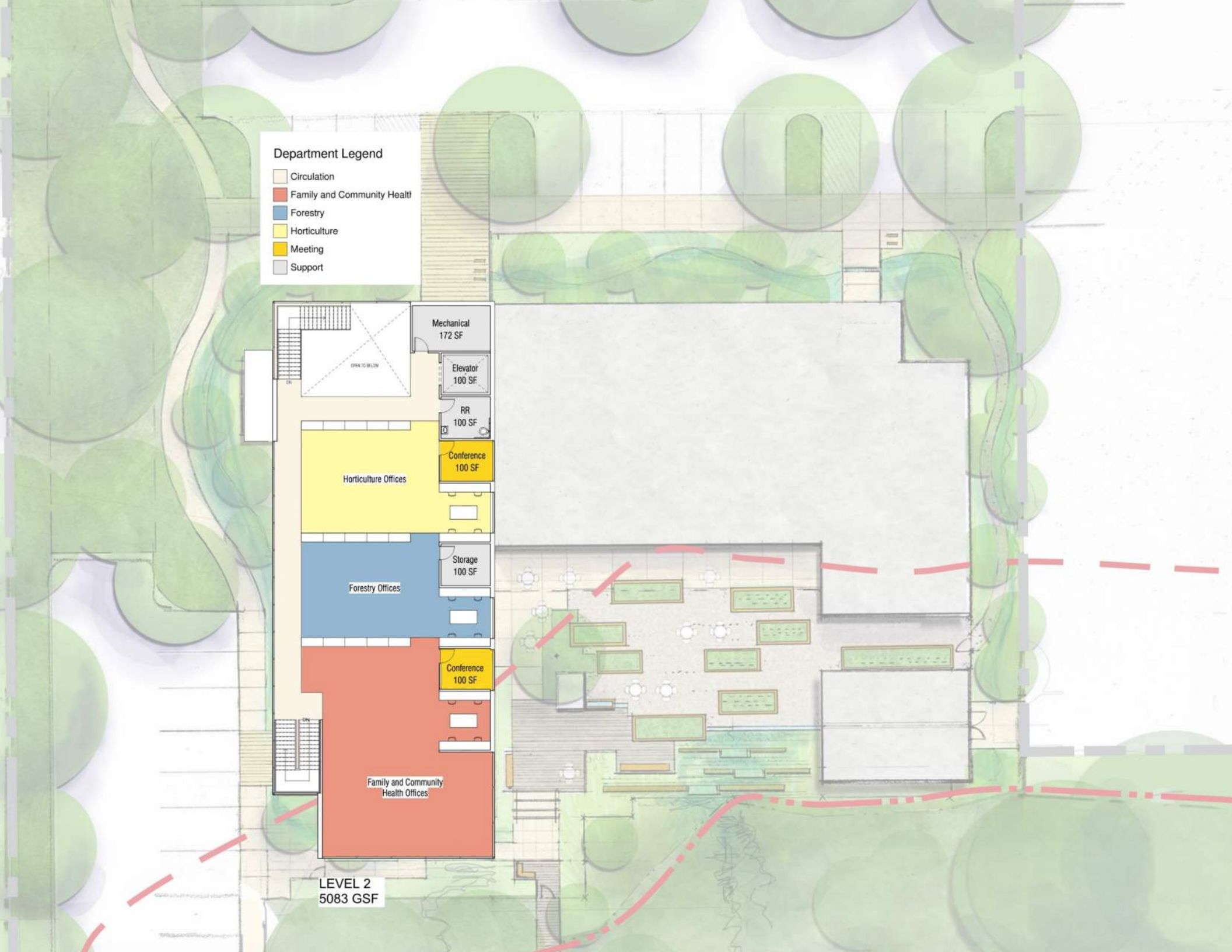
Parking

~70 Spaces

Reduces future lot size at Building 12

Warner Milne
±15'
Native Planting
Bus Stop Connection
25 Parking Stalls (Includes 2 ADA)
ADA
ADA
Potential Pedestrian Connection
Concrete Walk
Bridge Over Stormwater
±15'
Bike Racks, Typ.
Pavers or Gravel Path
Stormwater Buffer
Potential/Future Drive Connection
Beaver Creek
Covered Terrace
±10'
Raised Planting Bed, Typ.
Decomposed Granite Paving
Garden With Tree
Cistern With Overflow Rumel
Gathering Space
Raised Viewing Deck
Green House Service Access
Pervious Pavers
Stormwater Overflow Wier
7 Parking Stalls
Decorative Fence With Access Gates
Connection to Adjacent Properties
Boardwalk Through Wetland
Existing Delineated Wetland Boundary


Lobby/Gallery
1209 SF
Lobby
586 SF
Master Gardener
274 SF
Administration
Elevator
100 SF
Women
222 SF
Men
182 SF
Small Meeting
135 SF
Office
135 SF
Public Education
Materials Storage
185 SF
Electrical
104 SF
Mechanical
Room
160 SF
Conference
Room
1070 SF
Conference
Room
1070 SF
Teaching Kitchen
1960 SF
Break Room
242 SF
Work Room
221 SF
Conference
Room
408 SF
Mud Room
182 SF
Lactation
78 SF
Office
165 SF
4H Offices
Green House
667 SF
Tools
167 SF


Department Legend
Circulation
Family and Community Healt
Forestry
Horticulture
Meeting
Support
Mechanical
172 SF
Elevator
100 SF
RR
100 SF
Conference
100 SF
Horticulture Offices
Storage
100 SF
Forestry Offices
Conference
100 SF
Family and Community
Health Offices
LEVEL 2
5083 GSF

CONCEPT MODEL

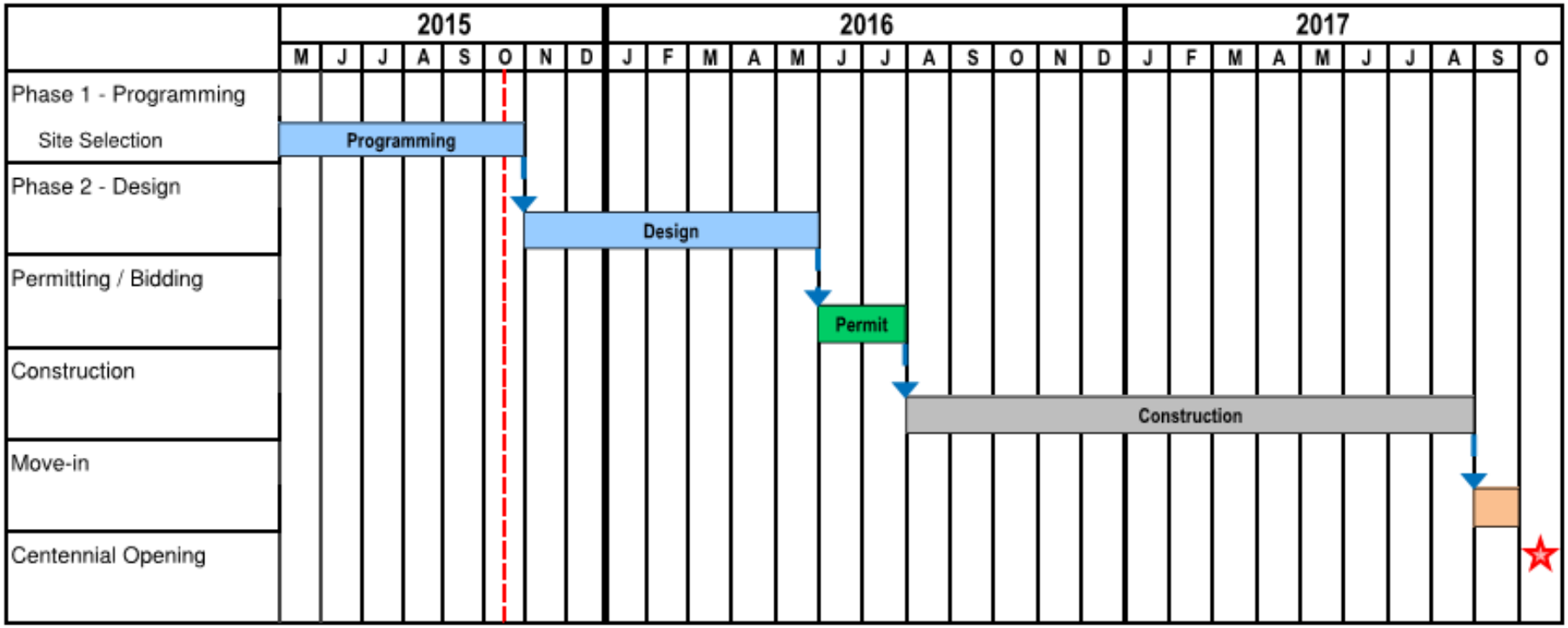
ESTIMATE

	Square Feet	Cost/SF	Estimated Cost
Building	16,656	$367	$6,117,084
Sitework/Utilities		$53	$887,001
TOTAL HARD COSTS			$7,004,085
TOTAL SOFT COSTS			$1,865,817
TOTAL PROJECT COSTS			**$8,869,902**

BUDGET

FY 2016 OSU Extension Building Funds	$4,000,000
Additional Financing for remainder	

SCHEDULE


2015
2016
2017
M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O
Phase 1 - Programming
Site Selection
Programming
Phase 2 - Design
Design
Permitting / Bidding
Permit
Construction
Construction
Move-in
Centennial Opening

Oregon State UNIVERSITY OSU Extension Service Clackamas County

opsis architecture LLP