

# SCIENCE BUILDING RENOVATION & ADDITION

Capital Project  
Proposal  
2015-2017



*Active Minds Changing Lives*

**WESTERN**  
WASHINGTON UNIVERSITY

<b>Institution</b>
Western Washington University
<b>Project Title</b>
Science Building Renovation & Addition
<b>Project Location (City)</b>
Bellingham

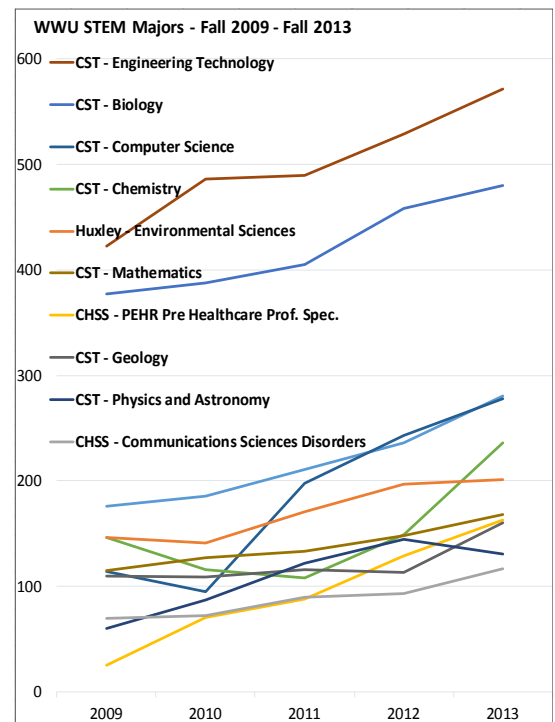
**1. Problem Statement**

The adequacy of science instructional space at Western Washington University continues to lag behind growth in majors and degree production. During the past four years almost every STEM major has experienced unprecedented enrollment increases, as is illustrated in the diagram below. This situation, coupled with increased demand for introductory science and mathematics courses from non-STEM majors and the hiring of new STEM faculty has stretched our science facilities to their limits, putting at risk our ability to continue to meet student demand while maintaining program quality. At the same time, contemporary expectations of employers, graduate and professional schools call for a strengthened interdisciplinary approach to STEM education, an approach that our outdated and discipline-fragmented building infrastructure makes difficult to accomplish. We will soon reach an impasse in our ability to continue to perform at our current levels without new specialized space.

A major renovation and a modest addition to the Environmental Studies Center is the most programmatically beneficial and cost effective approach to provide Western with the science instructional space that it needs. The existing building is structurally well suited for intensive science use; its thick slab concrete floors are ideal for locating sensitive instrumentation and the ample floor to ceiling heights are well able to adequately contain the infrastructure distribution networks unique to science buildings. The building is also well situated in direct proximity to our other science buildings.

**Programmatic Goals:** This request is to fund the renovation and addition to the forty-one year old Environmental Studies Center (ESC) to serve the Institution’s pressing needs for science instructional space and faculty-led student research in the sciences. The proposed project is an important step toward resolving critical instructional space and faculty office shortfalls within the sciences.

The project will also expand the Institution’s interdisciplinary education by providing a University hub for interdisciplinary centers and cooperative learning projects across disciplines. The facility will be responsive to, and supportive of, State and Institutional goals by expanding the pedagogy of learning through discovery in the sciences and will provide quality teaching and research spaces to support innovative interdisciplinary STEM teaching methodologies.



STEM Major growth at Western over 4 years

Western has been very effective in expanding STEM and High Demand enrollment to meet the State's Commitment to Continuous Improvement towards a World Class Education<sup>1</sup>. One of our most imminent challenges is that STEM education and high demand degree production requires well-placed and on-going investments in the physical facilities that are required to support these goals. STEM/High Demand growth in majors and a concurrent shift from non-STEM disciplines at Western has depleted the availability of the specialized instructional spaces that are required to support such growth. The renovation and addition to Western's ESC is proposed to meet these critical needs and ensure Western's continued and vigorous support for STEM/High Demand degree growth in the State of Washington.

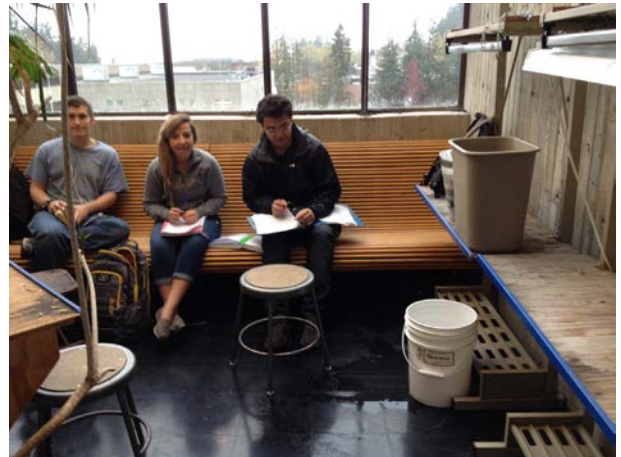
The project best supports Western's strategic goal of expanding student access to rigorous and engaging baccalaureate and graduate educations in five key ways:

- Provides state of the art STEM teaching and research spaces
- Improves the efficiency of STEM programs with flexible classrooms and labs
- Provides collaborative active learning and teaching spaces
- Improves the building's energy efficiency
- Fosters collaboration across disciplines and beyond the University

**Preservation Needs:** The ESC was completed in 1973, four years prior to Western being granted University status and the same year that the (then) College of Arts and Sciences was created. The building's original primary use was for science, but as its infrastructure has aged and its ability to safely and adequately support the modern practice of science has diminished, many of these functions have had to shift to other buildings. Our most recent minor lab renovations within the building were achieved by diverting infrastructure services from other infrastructure areas, with remaining areas used for less intensive, non-science functions such as general use instruction, administrative office space, and institutional infrastructure and support. In view of our current space and funding constraints, our short-term approach for managing the use of the facility was reasonable though finite. We have now reached the point where it is no longer possible to realize the science instructional space that we need within the building, as it presently exists.

## 2. History of the Project

The 67,000 square foot (net assignable) Environmental Studies Center was constructed in the Structural Expressionism/High-Tech architectural style that emerged in the early 1970's. Consistent with that stylistic period, much of the building's mechanical, electrical and cable distribution is expressed visually via the colorful ducting and pipe-work that extends through its five-story central atrium. Unfortunately, much of what is visually expressed within ESC's atrium has no substantive basis. The ventilation system was designed to rely on a central campus chiller system that was never operational. The building's ductwork and fans are not adequate to keep the building cool.



*Rain day: water pails are placed to contain leaks within the ESC*

<sup>1</sup> *Results Washington, World Class Education Goal Map, (Appendix B)*



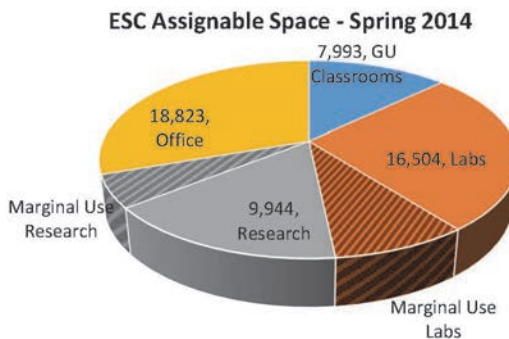
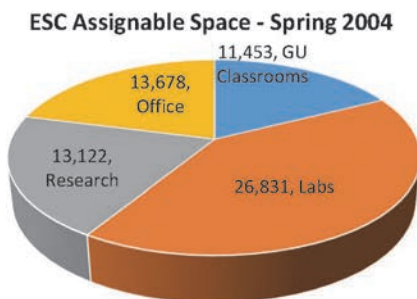
*ESC interior atrium*

In addition, the ductwork takes up space that could be better used for student collaboration and congregation.

The atrium itself is no longer compliant with current building codes and many of the building services are not code-compliant or reflective of our campus' diversity. For example, the quantity of restroom services within the ESC is wholly undersized and designed primarily for physically able male users.

As illustrated in the charts below, the prominence of science intensive activities within the ESC has declined over years as the building's support infrastructure became less able to service such specialized spaces. Approximately one third of the building's assignable area is presently given to non-science activities. These non-science activities include general administrative offices such as the Environmental Health and Safety Offices, two college dean's offices, general storage and institutional support services such as custodial storage and laundry facilities. Much of the remaining assignable area within the building is dilapidated and of marginal use. Due to the lack of ventilation, heat gain on the south side of the facility is so

extreme that offices can only be periodically used. The deficit of available building air supply has resulted in the ESC being negatively pressured; this makes the building an anomaly amongst science facilities, which are typically designed such that building pressure and containment zones can be actively managed. The current situation causes several other issues that the building is infamously known for such as a myriad of water leaks, failing window seals, mold, and doors that can hardly be opened and water being drawn into the building because of the air pressure differential.



*The decline of intensive science use in the ESC over the last 10 years*

Since the building's inception, the ESC has been the primary campus location for the department of Geology and the Huxley College of the Environment. Huxley College is one of the oldest environmental schools in the nation and was founded four years prior to the completion of the ESC. Half of the Huxley College of the Environment is presently

housed in adjoining Arntzen Hall, a general-use academic building of approximately the same age as the ESC though slightly smaller. The academic, operational and space efficiencies of bringing these two departments into the same building have been discussed for years. The University had previously studied two other options including 1) locating Huxley College to the Bellingham Waterfront and, 2) constructing a separate Interdisciplinary Science Facility <sup>2</sup> to free up needed space within the ESC that could later be renovated. Both of these options are more costly and fall out of the time-scale of Western's pressing need for a solution.

<sup>2</sup> Western Washington University had unsuccessfully proposed funding for a new Interdisciplinary Sciences Facility to the State within its 2013-15 Capital Budget proposal.

In the fall of 2013, Western commissioned nationally recognized university planner Ira Fink, FAIA, Ph.D., of Ira Fink & Associates, Berkeley, CA to perform a space needs assessment for the College of Science and Engineering and the Huxley College of the Environment. The study cited both space quantity and quality needs across both colleges but noted in particular the very poor quality of space within the ESC and specifically the serious shortages of faculty offices, research labs and teaching spaces within Huxley College. Other findings of the study include:

- Space needs within Huxley have substantially changed since the College was founded and the facilities were built 40 years ago.
- Both Huxley College departments are consistently positioned in the lowest range of amount of space per faculty, per student, and per research unit among the WWU science and technology departments.
- The instructional laboratory spaces of the Huxley College units are in the most need of attention.
- The Geology department requires improved space that is tailored to departmental purposes.

ESC Laboratory Assessment							
Building	Floor	No. Of Labs Visited	A. Optimum	B. Adequate	C. Fair	D. Poor	E. Unsatisfactory
Environmental Studies Center	Basement	2				50%	50%
Environmental Studies Center	Ground	5			40%	20%	40%
Environmental Studies Center	First	7	29%			71%	
Environmental Studies Center	Third	5		40%		60%	
Environmental Studies Center	Fifth	3			33%	67%	
Source: Ira Fink and Associates, Inc., based on analysis prepared by Design for Science							

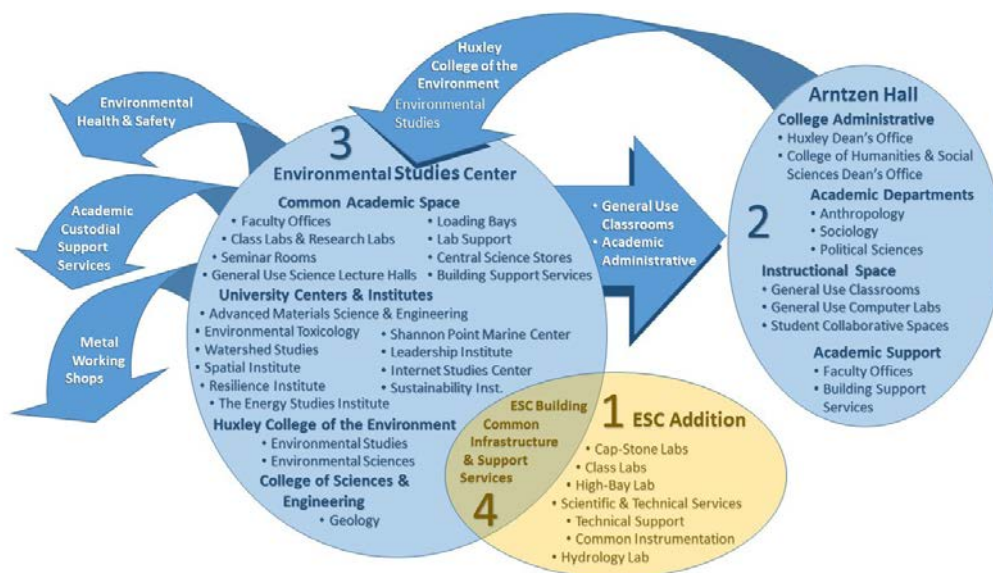
(See Appendix C.)

**Scope and Sequence of the Work:** The proposed project scope is to renovate and expand the existing ESC for predominantly science use and to achieve space utilization efficiencies by co-locating departments of the same college within the same building. Highly flexible and integrated teaching and research labs will support shared educational activities among the different science disciplines. (See Appendix F.) Non-science activities will be relocated out of the ESC into adjoining Arntzen Hall, allowing for the consolidation of Huxley College, the Geology Department and intensive collaborative science learning within the renovated/expanded ESC. The project is proposed in three distinct stages of work sequenced to ensure the continued integrity of ongoing program activities and that student learning and degree attainment are not adversely impacted by the work:

- **The ESC Addition** is envisioned as principally a lab facility that will adjoin the existing ESC. It will house class-labs; cap-stone labs; high bay labs - which could support engineering as well as scientific activities; and the Scientific & Technical Services (STS) department. STS provides technical and instructional support to the broader campus and administers common access to highly specialized instrumentation and research equipment. Building infrastructure elements such as mechanical, electrical, communications, building support services and vertical circulation would be sufficiently robust to serve the building addition and eventually the renovated ESC.

- **Arntzen Hall** is a five-story structure with pedestrian connections to the ESC at the concourse, ground and third floors. Its 48,000 square feet of space (net assignable) accommodates principally non-science uses. However, all of the Huxley Department of Environmental Studies (including some lab space) is also located here. We expect to undertake modest renovations separate of this project request during the 2017-19 biennia to consolidate most of the non-core science activities out of the ESC and into Arntzen, and in-turn to relocate Environmental Studies into the ESC to join their interdisciplinary cohort. The sum of these minor projects will relieve the ESC of almost all of its general use instructional space and all of the general administrative functions presently housed there. There will also be operational benefits resulting from this work, as most of the existing general use instructional space within the ESC is oddly located on the third and fourth floors. In locating the most intensively used spaces on the ground floors we will be able to increase ease of access, reduce occupancy load and disruption on the upper floors and better control secure access for students after hours by locating informal gathering and ad-hoc classroom use at the pedestrian-level.
- The renovation of the 67,000 square foot (net assignable) **Environmental Studies Center** will provide the range of facilities needed to enable programs at Western to implement interdisciplinary teaching and research activities that will improve both the efficiency of our programs, as well as the quality of education and training our students will receive. Classroom environments that are designed to be flexible will allow STEM programs at Western to better adopt proven models of instruction - with more group and collaborative activities involving faculty and students directly, rather than passive lectures. Courses and programs in the sciences that have adopted such changes, many of which are being developed and refined by faculty groups at Western, report clear and measureable improvements in student retention and performance. These improvements lead to higher student retention rates and lower “time to degree” for programs that can implement such changes on a large scale.

The ESC renovation will provide much needed faculty office space for Huxley College and the sciences in general. Over the course of the last five years, Western has mitigated budget cuts and revenue shortfalls in part by compressing space use on and off of the campus. For example, all of the off-campus leased office space was consolidated onto campus three years ago. With several new faculty hires and more underway<sup>3</sup> we are hard-pressed to provide sufficient office space.



Proposed scope of work and project sequence. Note: work occurring within Arntzen Hall is separate from this request.

<sup>3</sup> Allowing for replacement hires, Western has 40 net-new faculty.

We plan to consolidate many of the centers and institutes across university divisions along the ground floor of the renovated ESC. In doing so, we wish to effectively present the work of the centers to encourage the broader understanding and participation of students and faculty across the campus. Such an approach will also enable Western to streamline the necessary but non-core activities of centers and institutes; the collective total of administrative support and spaces within centers are significant and can be more efficiently managed centrally for the common good of the institution.

The ESC renovation will also centralize Science Stores within the building basement. Currently our receiving and stores relating to STEM is decentralized into departments which individually lack the resources to undertake proper inventory control and management. A consolidated approach to Science Stores in a central campus location will afford Western the economy of scale to efficiently manage inventories and be more responsive to program needs and will free up storage space in the Biology and Chemistry buildings for other program uses. The Science Stores area will be Western's distribution hub for lab and field kits, including the lab kits for distance learners. In this regard, the Science Store will be an important component of our efforts to reach place-bound students.

### 3. University programs addressed or encompassed by the project

- **Academic Instructional Space**
  - General Use Science Lecture Halls
  - Science Seminar Rooms
  - Student Collaborative Areas
- **University Centers**
  - Western on the Peninsulas
  - The Energy Studies Institute
  - Advanced Materials Science & Engineering
  - Environmental Toxicology
  - Watershed Studies
  - Spatial Institute
  - Resilience Institute
  - Shannon Point Marine Center
  - Sustainability
  - Leadership Institute
- **Other Academic Partnerships**
  - USGS - the US Geological Survey already has a presence within the building. Dr. Eric Grossman of the USGS actively (and voluntarily) participates in student research and the supervision of graduate students at Western.
  - NOAA - Similarly, NOAA has a presence on campus already. NOAA professionals participate and assist in graduate supervision. NOAA offers yearly scholarship and internship opportunities for Western students.
- **Academic Departments**
  - Science Research & Class-Labs
  - Geology
  - Huxley
    - Environmental Studies
    - Environmental Sciences
- **Academic Support**
  - Scientific & Technical Services
  - Faculty Offices
  - Grad Assistant Offices
  - Central Science Receiving & Stores

#### 4. Integral to Achieving Statewide Policy Goals

This project will enable Western to continue to contribute beyond the 2015 targets established in the 2012 Higher Education Performance Plans by providing the necessary space to support infrastructure-intensive, highly technical interdisciplinary undergraduate science learning through discovery.

- a. Western awarded 3,330 **Bachelor Degrees** at the close of the 2012-13 Academic Year. The Institution has already exceeded its 2014-15 target by 55 degrees.
- b. Western awarded 961 **High-Demand Bachelor Degrees** at the close of the 2012-13 Academic Year. The Institution has already exceeded its 2014-15 target by 131 degrees.
- c. Western awarded 276 **Advanced Degrees** at the close of the 2012-13 Academic Year. The Institution is well placed to realize its 2014-15 target of 330 Advanced Degrees.

#### 5. Describe how the project promotes access for underserved regions and place-bound adults through distance learning and/or university centers.

- a. Student success is highly reliant and relative to the quality of student access to rigorous and engaging education. Student access must include the entire sphere of educational experience whether in distance learning or by conventional means. We want to be able to provide our distance learners the lively interactions of the main campus and the discourse that is so vital to learning. This project will assist us in achieving that goal by way of the following:
  - Classroom technologies such as the ability to simulcast lab demonstrations that emanate from any campus (or home kitchen for that matter) can be shared amongst students and faculty. This is especially important to our science programs in Poulsbo, Anacortes and at the Shannon Point Marine Center, where students are able to share with their peers in Bellingham and participate in the lab experiences occurring on campus in Bellingham.
  - The design and preparation of lab-kits and our ability to expand the use of lab-kits with distance learners through the renovated ESC's Science Store. This university-wide resource will allow instructors and students to interact with distance learners in the sciences by way of a combination of methods such as on-line learning, self-directed student field trips and self-directed student science labs.
  - By way of incorporating academic centers and institutes we seek to offer distance learners a home-base on the main campus that will allow the opportunity to forge the important relationships and access to formal and informal learning opportunities that are so vital for student success.
- b. Western presently reaches place-bound residents in underserved regions in several ways. We expect that all of the following programs will be directly impacted, enhanced and expanded as a result of this project. We expect our current off-campus programs to grow from the current level of about 75 students in STEM degree programs, to 200-300 once this project is completed.
  - **Western on the Peninsulas**, our university center at Olympic College in Poulsbo was created in 2013 in collaboration with Olympic College to serve the communities of the Kitsap and Olympic Peninsulas. Huxley College presently offers a BA in Environmental Policy and a BS in Environmental Sciences at Poulsbo and also at Port Angeles.
  - The **College of Business and Economics** will offer a BA in Business Administration at Poulsbo in the fall of 2014.
  - The **Shannon Point Marine Center** (SPMC) on Fidalgo Island also enables Western to reach place-bound students in underserved regions.



- SPMC serves a consortium of public institutions in Washington State that include Skagit Valley, Edmonds, and Everett Community Colleges. These institutions all have assured access to SPMC facilities for teaching marine-oriented classes.
  - Through the SPMC's work with NOAA and the Alaska Fisheries Science Center, Western contributed to the implementation of programs for middle and high school science teachers from regional schools with high populations of minority students.
  - The SPMC's popular outreach activities with K-12 schools enables Western to broaden its reach to potential science learners and assists us in attracting high performing students.

## 6. Integral to Campus/Facilities Master Plan

- a. *Western's Institutional Master Plan (IMP)* approved by the Board of Trustees in October 2001 and adopted as an amendment to the *Western Washington University Neighborhood Plan* by the Bellingham City Council in September 2001, will guide development of the University's main campus until it reaches a capacity of 4,000,000 overall gross square feet of building space. The University is currently at just less than 3,300,000 gross square feet.
- b. The *Institutional Master Plan*<sup>4</sup> (*IMP*) begins with the Institution's heart and mission with the development of the academic core. Established as Western's highest intensity use, this area is a conceptual 10-minute walk-zone situated deep within the campus. It is strongly pedestrian focused; imbued with a sense of sanctuary; and protected from off-campus influences. While the *IMP* will increase the overall existing built density, the academic core absorbs much of that planned growth by in-fill and modernization to accommodate all of the University's main campus academic needs. It does this while retaining the desirable characteristics that define Western as it is today. Those characteristics include; the continuity of pedestrian flow, the strong connections of the built and natural environment, the sense of a "community of learners," the visual portals to the mountains, water, and adjacent neighborhoods, and the breakdown of scale. The Science Building Renovation and Addition will be located within the academic core at a location near the existing science facilities and where service vehicles can access the building. The facility is located in IMP District 11 with land use classifications of Academic, Administrative/Support, and Open Space. (See Appendix D.)

## 7. Integral to institution's Academic Programs Plan

Interdisciplinary science learning is increasingly a requirement of grant submissions and industry sponsorship. It is a primary consideration of students in selecting a field and a school of study and is evermore a factor in our ability to recruit and retain faculty and students. This project is specifically focused in Western's commitment to increased STEM degree production and degrees in high demand fields. It will provide the physical means to expand Western's vision of learning through discovery in the science. The construction of interconnected collaborative science learning environments will be responsive and supportive of our interdisciplinary teaching model.

The project will permit growth and protect access to lower division STEM programs, several of which are already stressed for lack of access. This is particularly evident in the department of Biology and its role in lower division intake to the Huxley College. Huxley students enter the College in either the upper division or as graduate students. This greatly impacts upper division and graduate intake in several other STEM disciplines and to some degree in other non-STEM disciplines such as the College of Business and Economics. The project can contribute to improving the current situation by providing access

<sup>4</sup> *The Western Washington University Institutional Master Plan provides for capacity of growth but leaves project sequencing to the academic plan.*

to modular and flexible labs. As one example, much needed efficiencies for Environmental Sciences and Biology can be realized via the common use of modular lab space. Ecology Lab (BIOL 326), Forest Ecology (ESCI 407), and Stream Ecology (ESCI 429) can all be compatible within the same lab room. Initiatives such as this will facilitate upper division intake for both Huxley and the Department of Biology. The project will allow the logical development of new programs that are already in development such as:

- Western’s new Engineering Program and its interfaces with the Advanced Material Sciences & Engineering Center, the latter of which is (and will continue to be) located in the ESC.
- The development of Geological Engineering. Consider that Western presently produces more Licensed Geologists than any other institution in the state - more than the University of Washington and Washington State University combined.
- Programs in Oceanography and Marine Sciences.

**8. Suitability of Existing Space**

In its present state, the ESC does not have the infrastructure capability, flexibility or advanced technical capacity to support the programmatic needs of the impacted departments. It is not large enough to provide adequate space for faculty, grad-students and much needed, flexible science labs. A phased renovation that relies on transferring non-intensive, non-STEM programs out of the ESC will ensure program continuity and unimpeded times-to-graduate and will enable a logical, and cost effective course of the work.



*Current ES classroom*



*Image courtesy of RFD  
Concept demonstrating high technology, connected and integrated learning environment*

**9. Availability of Space/Utilization on Campus**

- The utilization of classroom space: This project allows the Institution to right-size several of its general university classroom spaces to increase the functionality and utilization of these rooms. The project will replace general use classrooms presently within the ESC with general-use science lecture halls thus allowing for larger sections where lab demonstration is required. The transfer of non-science learning from the ESC into adjoining Arntzen Hall enables the University to increase its inventory of small collaborative (moveable tables and chair) classrooms. This type of room is in short supply as smaller tablet-armchair rooms become less relevant and are usually too small and impractical for conversion to table and chair layouts. As a result, we plan for a slight increase in assignable area given to general use classrooms but with few, net-new GU seats.

- b. The utilization of class laboratory space: Class-lab utilization on the campus continues to be high. Of growing concern is that despite the record overall utilization, several class-labs, especially within the sciences, perform poorly. Relevant to this particular project request, class-lab utilization during this period within the Environmental Studies Center was less than eight weekly contact hours.

(See Appendix E: Availability of Space Table.)

## 10. Condition of Building

The 2013 OFM –FIS Building Condition score is 3 - FAIR. The majority of problems with the building are related to the mechanical systems. The building remains serviceable but key systems have a poor condition rating. The following is a Uniformat L1 breakdown:

- The design of the HVAC system included the use of chilled water for building climate control. The campus chilled water system was abandoned in the 70's and has resulted in the inability to adequately control the building temperatures. Due to the lack of AC more air delivery is required. This results in significant noise complaints due to the bladder type air terminal devices. All of the air terminal devices and associated building controls require replacement. The fume hoods are constant volume resulting in large energy consumption. When air terminal devices are updated the fume hoods controls should be improved. Roughly 50% of the lab waste plumbing system is no longer available resulting in increased maintenance and repair costs.
- Exterior windows are problematic. Window panes are oversized and detailed flush with the exterior face of the building. Sealants are the primary weather seal. Major leaks are ongoing at the southwest corners of the top floors.
- Interior Conditions: Vinyl floor tile and carpet flooring have outlived their life cycle and need renewal or replacement. Fixed tablet arm seating and window treatments are original and need renewal. Asbestos containing (ACM) finishes and insulation are found throughout the building and are cost factors for any work.
- Restoration of the Environmental Studies Center would reduce Western's maintenance backlog \$6,500,000. (See Appendix G for a summary of backlog categories.)

While the Environmental Studies Center facility is not on the Washington Heritage Register the building is a significant part of the Western Washington University's architectural heritage. The Environmental Studies Center was constructed in 1973 (project name – Northwest Environmental Studies Center) and was the first environmental sciences facility in the nation. The building was designed by Ibsen Nelson, a prominent Washington architect. Ibsen Nelson designed four major projects on Western's campus during the 1960's and 1970's. The other Ibsen Nelson designed facilities on Western's campus include Bond Hall (1967), Arntzen Hall (1974), and Miller Hall Addition (1976).

# Science Building Renovation and Addition

## Appendix Contents

- A. Office of Financial Management reports (CBS002 and CBS003)
- B. Results Washington – Goal 1: World-Class Education
- C. Space Needs Assessment Executive Summary, Ira Fink & Associates
- D. WWU Institutional Master Plan
- E. Availability of Space Table
- F. Tradeline 2013 Competitive STEM Teaching Facilities
- G. Environmental Studies Center – Facility Maintenance Backlog Information

# **Appendix A**

## Capital Project Request

2015-17 Biennium

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Version: WV 2015-17 Working Version

Report Number: CBS002

Date Run: 8/6/2014 1:54PM

Project Number: 30000598  
 Project Title: Science Building Renovation & Addition  
 Project Class: Preservation

## Description

Starting Fiscal Year: 2016  
 Agency Priority: 4

### Project Summary

Western Washington University requests \$8.8M for the pre-design (\$.5M) and design (\$8.3M) phases of the Science Building Renovation & Addition. This project combines significant building preservation needs to the Environmental Studies Center (ESC) with the need to provide intensive collaborative active learning and teaching spaces and increased faculty offices in support of the University's continued growth in STEM enrollment.

### Project Description

Western has been very effective in expanding STEM and High Demand enrollment to meet the State's Commitment to Continuous Improvement towards a World Class Education. The adequacy of science instructional space at Western Washington University continues to lag behind growth in majors and degree production. During the past five years almost every STEM major has experienced unprecedented enrollment increases. One of our most imminent challenges is that STEM education and high demand degree production requires well-placed and on-going investments in the physical facilities that are required to support these goals.

A major renovation and a modest addition to the Environmental Studies Center is the most programmatically beneficial and cost effective approach for providing Western with the science instructional space that it needs. The existing building is structurally well suited for intensive science use; its thick slab concrete floors are ideal for locating sensitive instrumentation and the ample floor to ceiling heights are well able to adequately contain the infrastructure distribution networks unique to science buildings. The building is also well situated in direct proximity to our other science buildings. Unfortunately, the building's aging infrastructure including the current air handling systems and other building systems are insufficient to support the current and increasing need for science intensive, flexible learning and research spaces. These building systems are in critical need of renewal and upgrade.

The Environmental Studies Center, completed in 1973, was primarily built for science use but as its infrastructure has aged and its ability to safely and adequately support the modern practice of science has diminished, many of these functions have had to shift to other buildings. Our most recent minor lab renovations within the building were achieved by diverting infrastructure services from other infrastructure areas, with remaining areas used for less intensive, non-science functions such as general use instruction, administrative office space, and institutional infrastructure & support. In view of our current space and funding constraints, our short-term approach for managing the use of the facility was reasonable though finite. We have now reached the point where it is no longer possible to realize the science instructional space that we need within the building as it presently exists.

The 2013 OFM-FIS Building Condition score for the Environmental Studies Center is 3 - FAIR. The majority of problems with the building are related to the mechanical systems. Restoration of the Environmental Studies Center would reduce Western's maintenance backlog \$6,500,000.

This project best supports Western's strategic goal of expanding student access to rigorous and engaging baccalaureate and graduate educations in five key ways:

- 1) Providing state of the art STEM teaching and research spaces;
- 2) Improving the efficiency of STEM programs with flexible classrooms and labs;
- 3) Providing collaborative active learning & teaching spaces;
- 4) Improving the building energy efficiency;
- 5) Fostering collaboration across disciplines and beyond the University.

The project will also expand the Institution's interdisciplinary education by providing a University hub for interdisciplinary centers and cooperative learning projects across disciplines. The facility will be responsive-to and supportive-of State and Institutional goals by expanding the pedagogy of learning through discovery in the sciences and will provide quality teaching and research

**380 - Western Washington University  
Capital Project Request**

2015-17 Biennium

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Version: WV 2015-17 Working Version

Report Number: CBS002

Date Run: 8/6/2014 1:54PM

**Project Number:** 30000598  
**Project Title:** Science Building Renovation & Addition  
**Project Class:** Preservation

**Description**

spaces to support innovative interdisciplinary STEM teaching methodologies.

By fast-tracking the pre-design and design portions of this project, Western can save the State over \$8,000,000 in escalation costs as well as relieve the stress of increased student demand for STEM classes on the present inadequate facilities.

ECONOMIC IMPACT - See attachments for OFM Forecasting Division Economic Impact Spreadsheet

Note: Extensive project detail is provided in the Science Building Renovation & Addition project proposal submitted under the Four-Year Higher Education Capital Projects Evaluation System (CPES)

**Location**  
 City: Bellingham County: Whatcom Legislative District: 040

**Project Type**  
 Remodel/Renovate/Modernize (Major Projects)

**Funding**

Acct Code	Account Title	Estimated Total	Expenditures		2015-17 Fiscal Period	
			Prior Biennium	Current Biennium	Reappropriations	New Appropriations
057-1	State Bldg Constr-State	92,165,000				8,800,000
	<b>Total</b>	<b>92,165,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8,800,000</b>
		<b>Future Fiscal Periods</b>				
		<u>2017-19</u>	<u>2019-21</u>	<u>2021-23</u>	<u>2023-25</u>	
057-1	State Bldg Constr-State	83,365,000				
	<b>Total</b>	<b>83,365,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	

**Schedule and Statistics**

Start Date                      End Date

**380 - Western Washington University  
Capital Project Request**

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Project Number: 30000598  
 Project Title: Science Building Renovation & Addition  
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**Schedule and Statistics**

	<u>Start Date</u>	<u>End Date</u>
Pre-design	08/01/2015	02/01/2016
Design	2/1/2016	5/1/2017
Construction	7/1/2017	7/1/2019

	<u>Total</u>
Gross Square Feet:	150,000
Usable Square Feet:	82,500
Efficiency:	55.0%
Escalated MACC Cost per Sq. Ft.:	394
Construction Type:	Science Labs (teaching)
Is this a remodel?	Varies
A/E Fee Class:	B
A/E Fee Percentage:	Varies

**Cost Summary**

	<u>Escalated Cost</u>	<u>% of Project</u>
<b>Acquisition Costs Total</b>	<b>0</b>	<b>0.0%</b>
<b>Consultant Services</b>		
Pre-Schematic Design Services	500,000	0.5%
Construction Documents	3,586,289	3.9%
Extra Services	1,961,815	2.1%
Other Services	2,412,514	2.6%
Design Services Contingency	743,072	0.8%
<b>Consultant Services Total</b>	<b>9,229,975</b>	<b>10.0%</b>
<b>Maximum Allowable Construction Cost(MACC)</b>	<b>59,035,558</b>	
Site work	0	0.0%
Related Project Costs	0	0.0%
Facility Construction	53,699,996	58.3%
GCCM Risk Contingency	1,095,227	1.2%
GCCM or Design Build Costs	6,534,667	7.1%
Construction Contingencies	4,716,872	5.1%
Non Taxable Items	0	0.0%
Sales Tax	5,746,068	6.2%
<b>Construction Contracts Total</b>	<b>71,792,829</b>	<b>77.9%</b>
<b>Equipment</b>		
Equipment	7,339,151	8.0%
Non Taxable Items	0	0.0%



**380 - Western Washington University  
Capital Project Request**

2015-17 Biennium

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Version: WV 2015-17 Working Version

Report Number: CBS002

Date Run: 8/6/2014 1:54PM

Project Number: 30000598  
 Project Title: Science Building Renovation & Addition  
 Project Class: Preservation

**Cost Summary**

	<u>Escalated Cost</u>	<u>% of Project</u>
Equipment		
Sales Tax	638,507	0.7%
<b>Equipment Total</b>	<u>7,977,658</u>	<u>8.7%</u>
<b>Art Work Total</b>	295,177	0.3%
<b>Other Costs Total</b>	781,020	0.9%
<b>Project Management Total</b>	2,088,428	2.3%
<b>Grand Total Escalated Costs</b>	<u>92,165,087</u>	
<b>Rounded Grand Total Escalated Costs</b>	92,165,000	

**Operating Impacts**

Total one time start up and ongoing operating costs

<u>Acct Code</u>	<u>Account Title</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u>
FTE	Full Time Employee	4.9	4.4	4.5	4.6	4.8
001-1	General Fund-State	518,000	456,476	469,303	482,490	496,048
	<b>Total</b>	<u>518,000</u>	<u>456,476</u>	<u>469,303</u>	<u>482,490</u>	<u>496,048</u>

**Narrative**

ES new gross square footage = 38,000. Construction to be completed 06-2019

Cost Estimate Summary

2015-17 Biennium

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Cost Estimate Number: 272  
 Cost Estimate Title: Science Building Renovation & Addition  
 Version: WV 2015-17 Working Version  
 Project Number: 30000598  
 Project Title: Science Building Renovation & Addition  
 Project Phase Title:

Report Number: CBS003  
 Date Run: 8/4/2014 1:13PM

Agency Preferred: Yes

Contact Info Contact Name: Rick Benner Contact Number: 360.650.3550

Statistics

Gross Sq. Ft.: 150,000  
 Usable Sq. Ft.: 82,500  
 Space Efficiency: 55%  
 MACC Cost per Sq. Ft.: 349  
 Escalated MACC Cost per Sq. Ft.: 394  
 Remodel? Varies  
 Construction Type: Science Labs (teaching)  
 A/E Fee Class: B  
 A/E Fee Percentage: Varies

Schedule

	Start Date	End Date
Pre-design:	08-2015	02-2016
Design:	02-2016	05-2017
Construction:	07-2017	07-2019
Duration of Construction (Months):	24	

Cost Summary Escalated

<b>Acquisition Costs Total</b>		<b>0</b>
Pre-Schematic Design Services	500,000	
Construction Documents	3,586,289	
Extra Services	1,961,815	
Other Services	2,412,514	
Design Services Contingency	743,072	
<b>Consultant Services Total</b>		<b>9,229,975</b>
Site work	0	
Related Project Costs	0	
Facility Construction	53,699,996	
Construction Contingencies	4,716,872	
Non Taxable Items	0	
Sales Tax	5,746,068	
<b>Construction Contracts Total</b>		<b>71,792,829</b>
<b>Maximum Allowable Construction Cost(MACC)</b>	<b>59,035,558</b>	
Equipment	7,339,151	
Non Taxable Items	0	
Sales Tax	638,507	
<b>Equipment Total</b>		<b>7,977,658</b>
<b>Art Work Total</b>		<b>295,177</b>
<b>Other Costs Total</b>		<b>781,020</b>
<b>Project Management Total</b>		<b>2,088,428</b>
<b>Grand Total Escalated Costs</b>		<b>92,165,087</b>
<b>Rounded Grand Total Escalated Costs</b>		<b>92,165,000</b>

Additional Details

Alternative Public Works Project: Yes

Cost Estimate Summary

2015-17 Biennium

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**Cost Estimate Number:** 272  
**Cost Estimate Title:** Science Building Renovation & Addition  
**Version:** WV 2015-17 Working Version  
**Project Number:** 30000598  
**Project Title:** Science Building Renovation & Addition  
**Project Phase Title:**

**Report Number:** CBS003  
**Date Run:** 8/4/2014 1:13PM

**Agency Preferred:** Yes

**Contact Info**                      **Contact Name:** Rick Benner                      **Contact Number:** 360.650.3550

**Additional Details**

State Construction Inflation Rate: 3.08%  
Base Month and Year: 07-2014  
Project Administration By: AGY  
Project Admin Impact to DES that is NOT Included in Project Total: \$0

Cost Estimate Detail

2015-17 Biennium

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**Cost Estimate Number:** 272 **Analysis Date:** July 10, 2014  
**Cost Estimate Title:** Science Building Renovation & Addition  
**Detail Title:** Addition Component  
**Project Number:** 30000598  
**Project Title:** Science Building Renovation & Addition  
**Project Phase Title:**  
**Location:**  
**Contact Info** **Contact Name:** Rick Benner **Contact Number:** 360.650.3550

**Statistics**

Gross Sq. Ft.: 38,000  
 Usable Sq. Ft.: 20,900  
 Rentable Sq. Ft.:  
 Space Efficiency: 55%  
 Escalated MACC Cost per Sq. Ft.: 625  
 Escalated Cost per S. F. Explanation

Construction Type: Science Labs (teaching)  
 Remodel? No  
 A/E Fee Class: B  
 A/E Fee Percentage: 7.14%  
 Contingency Rate: 5.00%  
 Contingency Explanation

Projected Life of Asset (Years): 50  
 Location Used for Tax Rate:  
 Tax Rate: 8.70%  
 Art Requirement Applies: Yes  
 Project Administration by: AGY  
 Higher Education Institution?: Yes  
 Alternative Public Works?: Yes

**Project Schedule** Start Date End Date

Predesign: 08-2015 02-2016  
 Design: 02-2016 05-2017  
 Construction: 07-2017 07-2019  
 Duration of Construction (Months): 24  
 State Construction Inflation Rate: 3.08%  
 Base Month and Year: 7-2014

**Project Cost Summary**

MACC: \$ 21,020,000  
 MACC (Escalated): \$ 23,733,682  
 Current Project Total: \$ 30,278,514  
 Rounded Current Project Total: \$ 30,279,000  
 Escalated Project Total: \$ 34,053,717  
 Rounded Escalated Project Total: \$ 34,054,000

<u>ITEM</u>	<u>Base Amount</u>	<u>Sub Total</u>	<u>Escalation Factor</u>	<u>Escalated Cost</u>
<b>CONSULTANT SERVICES</b>				
<u>Pre-Schematic Design Services</u>				
Predesign Study	119,115			
<b>SubTotal: Pre-Schematic Design Services</b>		<b>119,115</b>	1.0494	<b>125,000</b>
<u>Construction Documents</u>				
A/E Basic Design Services				1,087,350
<b>SubTotal: Construction Documents</b>				<b>1,152,253</b>
<u>Extra Services</u>				
Civil Design (Above Basic Services)	55,000			
Geotechnical Investigation	28,000			
Commissioning (Systems Check)	28,000			
Site Survey	17,000			
Testing	40,000			
Leadership Energy & Environment Design List(LEED)	22,000			
Voice/Data Consultant	17,000			
Value Engineering Participation & Implementation	12,000			
Constructability Review Participation	12,000			
Landscape Consultant	45,000			
Energy Conservation Study (LCCA)	85,000			
Acoustical Consultant	33,000			
Travel & Per Diem	33,000			
Renderings & Models	5,000			
Document Reproduction	10,000			
Advertising	1,500			
AV Consultant	20,000			
Elevator Consultant	10,000			
Wind Tunnel Study	10,000			
Laboratory Consultant	75,000			
Interior Design Consultant	35,000			
Security Consultant	10,000			
Code Consultant	10,000			
Envelope Consultant	15,000			
<b>SubTotal: Extra Services</b>		<b>628,500</b>	1.0694	<b>672,118</b>
<u>Other Services</u>				
Bid/Construction/Closeout				488,520
HVAC Balancing	40,000			
On-Site Reps. (during Design & Const.)	70,000			
Commissioning	55,000			
<b>SubTotal: Other Services</b>		<b>653,520</b>	1.1291	<b>732,881</b>
<u>Design Services Contingency</u>				
Design Services Contingency	124,424			
<b>SubTotal: Design Services Contingency</b>		<b>124,424</b>	1.1291	<b>140,487</b>
<b>Total: Consultant Services</b>		<b>2,612,909</b>	1.0863	<b>2,838,305</b>
<b>CONSTRUCTION CONTRACTS</b>				
<u>Facility Construction</u>				
MACC 38,000 @ \$500	19,000,000			
<b>SubTotal: Facility Construction</b>		<b>19,000,000</b>	1.1291	<b>21,452,900</b>

<u>ITEM</u>	<u>Base Amount</u>	<u>Sub Total</u>	<u>Escalation Factor</u>	<u>Escalated Cost</u>
<b>CONSTRUCTION CONTRACTS</b>				
<b>Maximum Allowable Construction Cost (MACC)</b>		<b>21,020,000</b>	1.1300	<b>23,733,682</b>
<u>GCCM Risk Contingency</u>				
GCCM Risk Contingency	400,000			
<b>SubTotal: GCCM Risk Contingency</b>		<b>400,000</b>	1.1291	<b>451,640</b>
<u>GCCM or Design Build Costs</u>				
GCCM Fee	1,320,000			
Bid General Conditions	700,000			
GCCM Preconstruction Services	350,000			
<b>SubTotal: GCCM or Design Build Costs</b>		<b>2,370,000</b>	1.1291	<b>2,675,967</b>
<u>Construction Contingencies</u>				
Allowance for Change Orders	1,051,000			
<b>SubTotal: Construction Contingencies</b>		<b>1,051,000</b>	1.1291	<b>1,186,684</b>
<b>Sales Tax</b>		<b>1,985,427</b>	1.1291	<b>2,241,746</b>
<b>Total: Construction Contracts</b>		<b>24,806,427</b>	1.1291	<b>28,008,937</b>
<b>EQUIPMENT</b>				
E10 - Equipment	1,250,000			
E20 - Furnishings	375,000			
<b>SubTotal:</b>		<b>1,625,000</b>	1.1291	<b>1,834,788</b>
<b>Sales Tax</b>		<b>141,375</b>	1.1291	<b>159,627</b>
<b>Total: Equipment</b>		<b>1,766,375</b>	1.1291	<b>1,994,415</b>
<b>ART WORK</b>				
<b>Total: Art Work</b>		<b>118,668</b>	1.0000	<b>118,668</b>
<b>OTHER COSTS</b>				
Plan Review/Permits	125,000			
M & O Assist	68,000			
<b>Total: Other Costs</b>		<b>193,000</b>	1.0954	<b>211,412</b>
<b>PROJECT MANAGEMENT</b>				
Agency Project Management	781,135			
<b>Total: Project Management</b>		<b>781,135</b>	1.1291	<b>881,980</b>

Cost Estimate Detail

2015-17 Biennium

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**Cost Estimate Number:** 272 **Analysis Date:** July 10, 2014  
**Cost Estimate Title:** Science Building Renovation & Addition  
**Detail Title:** Renovation Component  
**Project Number:** 30000598  
**Project Title:** Science Building Renovation & Addition  
**Project Phase Title:**  
**Location:**  
**Contact Info** **Contact Name:** Rick Benner **Contact Number:** 360.650.3550

**Statistics**

Gross Sq. Ft.: 112,000  
 Usable Sq. Ft.: 61,600  
 Rentable Sq. Ft.:  
 Space Efficiency: 55%  
 Escalated MACC Cost per Sq. Ft.: 315  
 Escalated Cost per S. F. Explanation

Construction Type: Science Labs (teaching)  
 Remodel? Yes  
 A/E Fee Class: B  
 A/E Fee Percentage: 9.62%  
 Contingency Rate: 10.00%  
 Contingency Explanation

Projected Life of Asset (Years): 50  
 Location Used for Tax Rate:  
 Tax Rate: 8.70%  
 Art Requirement Applies: Yes  
 Project Administration by: AGY  
 Higher Education Institution?: Yes  
 Alternative Public Works?: Yes

**Project Schedule**

	<u>Start Date</u>	<u>End Date</u>
Predesign:	08-2015	02-2016
Design:	02-2016	05-2017
Construction:	07-2017	07-2019
Duration of Construction (Months):	24	
State Construction Inflation Rate:	3.08%	
Base Month and Year:	7-2014	

**Project Cost Summary**

MACC:	\$ 31,265,500
MACC (Escalated):	\$ 35,301,876
Current Project Total:	\$ 51,712,379
Rounded Current Project Total:	\$ 51,712,000
Escalated Project Total:	\$ 58,111,370
Rounded Escalated Project Total:	\$ 58,111,000

<u>ITEM</u>	<u>Base Amount</u>	<u>Sub Total</u>	<u>Escalation Factor</u>	<u>Escalated Cost</u>
<b>CONSULTANT SERVICES</b>				
<u>Pre-Schematic Design Services</u>				
Predesign Study	357,347			
<b>SubTotal: Pre-Schematic Design Services</b>		<b>357,347</b>	1.0494	<b>375,000</b>
<u>Construction Documents</u>				
A/E Basic Design Services				2,282,875
<b>SubTotal: Construction Documents</b>				<b>2,434,036</b>
<u>Extra Services</u>				
Civil Design (Above Basic Services)	30,000			
Geotechnical Investigation	5,000			
Commissioning (Systems Check)	85,000			
Site Survey	7,500			
Testing	125,000			
Leadership Energy & Environment Design List(LEED)	90,000			
Voice/Data Consultant	35,000			
Value Engineering Participation & Implementation	30,000			
Constructability Review Participation	30,000			
Landscape Consultant	30,000			
Energy Conservation Study (LCCA)	40,000			
Acoustical Consultant	120,000			
Travel & Per Diem	110,000			
Renderings & Models	15,000			
Document Reproduction	25,000			
Advertising	3,500			
AV Consultant	35,000			
Elevator Consultant	20,000			
Wind Tunnel Study	20,000			
Laboratory Consultant	175,000			
Interior Design Consultant	100,000			
Security Consultant	20,000			
Code Consultant	20,000			
Envelope Consultant	35,000			
<b>SubTotal: Extra Services</b>		<b>1,206,000</b>	1.0694	<b>1,289,697</b>
<u>Other Services</u>				
Bid/Construction/Closeout				1,025,640
HVAC Balancing	80,000			
On-Site Reps. (during Design & Const.)	220,000			
Commissioning	165,000			
<b>SubTotal: Other Services</b>		<b>1,490,640</b>	1.1291	<b>1,679,633</b>
<u>Design Services Contingency</u>				
Design Services Contingency	533,686			
<b>SubTotal: Design Services Contingency</b>		<b>533,686</b>	1.1291	<b>602,585</b>
<b>Total: Consultant Services</b>		<b>5,870,548</b>	1.0888	<b>6,391,670</b>
<b>CONSTRUCTION CONTRACTS</b>				
<u>Facility Construction</u>				
MACC 112,000 @ \$255	28,560,000			
<b>SubTotal: Facility Construction</b>		<b>28,560,000</b>	1.1291	<b>32,247,096</b>



<u>ITEM</u>	<u>Base Amount</u>	<u>Sub Total</u>	<u>Escalation Factor</u>	<u>Escalated Cost</u>
<b>CONSTRUCTION CONTRACTS</b>				
<b>Maximum Allowable Construction Cost (MACC)</b>		<b>31,265,500</b>	1.1300	<b>35,301,876</b>
<u>GCCM Risk Contingency</u>				
GCCM Risk Contingency	570,000			
<b>SubTotal: GCCM Risk Contingency</b>		<b>570,000</b>	1.1291	<b>643,587</b>
<u>GCCM or Design Build Costs</u>				
GCCM Fee	1,797,500			
Bid General Conditions	908,000			
GCCM Preconstruction Services	712,000			
<b>SubTotal: GCCM or Design Build Costs</b>		<b>3,417,500</b>	1.1291	<b>3,858,700</b>
<u>Construction Contingencies</u>				
Allowance for Change Orders	3,126,550			
<b>SubTotal: Construction Contingencies</b>		<b>3,126,550</b>	1.1291	<b>3,530,188</b>
<b>Sales Tax</b>		<b>3,103,643</b>	1.1291	<b>3,504,322</b>
<b>Total: Construction Contracts</b>		<b>38,777,693</b>	1.1291	<b>43,783,892</b>
<b>EQUIPMENT</b>				
E10 - Equipment	3,750,000			
E20 - Furnishings	1,125,000			
<b>SubTotal:</b>		<b>4,875,000</b>	1.1291	<b>5,504,363</b>
<b>Sales Tax</b>		<b>424,125</b>	1.1291	<b>478,880</b>
<b>Total: Equipment</b>		<b>5,299,125</b>	1.1291	<b>5,983,243</b>
<b>ART WORK</b>				
<b>Total: Art Work</b>		<b>176,509</b>	1.0000	<b>176,509</b>
<b>OTHER COSTS</b>				
Plan Review/Permits	350,000			
M & O Assist	170,000			
<b>Total: Other Costs</b>		<b>520,000</b>	1.0954	<b>569,608</b>
<b>PROJECT MANAGEMENT</b>				
Agency Project Management	1,068,504			
<b>Total: Project Management</b>		<b>1,068,504</b>	1.1291	<b>1,206,448</b>

# **Appendix B**



# GOAL 1: WORLD-CLASS EDUCATION

Expecting every child to receive a world-class education that prepares him or her for a healthy and productive life, including success in a job or career, in the community and as a lifelong learner

## GOAL TOPIC

## SUB TOPIC

## OUTCOME MEASURE

## LEADING INDICATORS

### ACCESS

All Washingtonians have access to education that prepares them to transition to elementary, middle, high school, postsecondary, career and lifelong learning opportunities

### SUCCESS

Washington's public schools provide innovative, high-quality opportunities and tools for every student to attain 21<sup>st</sup> century skills to succeed in school, job, career and community

#### EARLY LEARNING

#### K-12

#### POSTSECONDARY

#### EARLY LEARNING

#### K-12

#### POSTSECONDARY

1.1. Increase the percentage of children enrolled in high-quality early learning programs from 2013 baseline to targets per program

1.2 Increase the percentage of schools rated exemplary or very good on the Washington School Achievement Index by 10% by 2017

1.3 Increase the percentage of population enrolled in certificate, credential, apprenticeship and degree programs from 13% in 2012 to 24.8% in 2023

2.1 Increase the percentage of children entering kindergarten who demonstrate they are ready by 2% per year through 2015

2.2 Increase the percentage of K-12 students who score proficient or better on statewide exams and graduate college- and career-ready from high school by 2% from 2013 to 2014

2.3 Increase attainment of certificates, credentials, apprenticeships and degrees from 72,000 to 149,000 by 2023

1.1.a. Increase state-funded preschool enrollment slots from the 2012-2013 baseline of 8,391 slots to 22,807 slots by 2018-19 school year to serve 100% of eligible children whose families choose to enroll

1.2.a. Increase percentage of children enrolled in state-funded full-day kindergarten from 22% to 100% by 2017-18 school year

1.3.a. Increase number of students enrolled in STEM and identified high-demand employment programs in public 4-year colleges from 31,282 to 32,642 by 2016-17

2.1.a. Increase by 2% each year, 2012-13 through 2015, the percentage of children who demonstrate readiness skills for kindergarten in these areas: social-emotional, physical, language, cognitive, literacy, and math

2.2.a. Increase percentage of students proficient in 4<sup>th</sup> grade reading and writing, 7<sup>th</sup> grade math and 8<sup>th</sup> grade science by 2% from 2013 to 2014

2.3.a. Increase number of graduates in STEM and identified high-demand employment programs in public 4-year colleges from 10,726 to 11,661 by 2017-18

1.1.b. Increase number of children served in licensed child care settings and preschools participating in Washington's Quality Rating and Improvement System (QRIS) from December 2013 baseline of 60,719 children to 87,144 children by December 2015

1.2.b. Increase number of high school students who access high-quality online learning by 10% per year from 2013 to 2017

1.3.b. Increase the number of students who are enrolled in academic transfer STEM courses in public community and technical colleges from 41,936 in 2012-13 to 42,775 by 2016-17

2.1.b. Increase number of early learning providers who achieve level 3 or above in Early Achievers (voluntary quality rating and improvement system) from 2013 baseline of 253 programs to 1,471 programs by December 2015

2.2.b. Increase percentage of students in a cohort who meet standards on all high school exit exams in or by 10<sup>th</sup> grade by 2% from 2013 to 2014

2.3.b. Increase the number of graduates in academic transfer STEM in public community and technical colleges from 1,987 in 2012-13 to 2,027 in 2016-17

1.1.c. Increase percentage of infants and toddlers, who due to developmental delays receive early intervention services from 2013 baseline of 2.2% to national average of 2.4% by December 2015

1.2.c. Increase access to effective dropout prevention programs offered by school districts and available to students from X to X by 20XX

1.3.c. Increase the number of students who are enrolled in high employer demand professional-technical programs in public community and technical colleges from 40,759 in 2012-13 to 41,574 by 2016-17

2.2.c. Increase percentage of high school students who graduate from high school in 4 years and 5 years by 2 percentage points per year from 2013 to 2018

2.2.d. Reduce opportunity gaps for all students through proficiency in reading, math, science (including biology for high school) by 2 percentage points from 2013 to 2014

2.3.c. Increase the number of students earning awards in high employer demand professional-technical programs in the public community and technical college system from 12,539 in 2012-13 to 12,790 in 2016-17

1.1.d. Increase the STEM math and science training opportunities for early learning professionals by 20% from 2013 baseline total by June 2015

1.2.d. Increase percentage of low-performing students receiving learning assistance intervention from X to X by 20XX

1.3.d. Increase percentage of eligible students who sign up for College Bound program from 80% to 92% by 2017

2.2.e. Decrease percentage of recent high school graduates enrolled in pre-college or remedial courses in college from 40% to 35% by 2017

2.2.f. Increase number of K-12 schools recognized as innovative through meeting criteria listed in statute from 34 to 59 by 2017

2.3.d. Increase the percent of adult basic education and English as a second language students in public community and technical colleges who transition to pre-college or college-level within 2 years from 12% in 2010-11 to 15% in 2016-17

1.1.e. Increase by 10% the number of parents/families who have access to support through voluntary home visiting services from June 2013 baseline by June 2015

1.2.e. Increase percentage of public schools that provide access to all required subject areas (arts, world languages, career and technical education, fitness, social studies) from X to X by 20XX

1.3.e. Increase percentage of eligible students who receive State Need Grant from 70% in 2013 to 85% in 2017

2.2.g. Increase number of students who take high school courses to prepare them for STEM fields from X to X by 20XX

2.2.h. Increase percentage of high school graduates who during the 3rd quarter after graduation are either enrolled in postsecondary education or training or are employed in Washington from X% to X% by 20XX

2.3.e. Increase percentage of postsecondary graduates from 4-year colleges who during the 4th quarter after graduation are either enrolled in postsecondary education or training or are employed in Washington from 80% to 82% in 2016-17

#### Governor's Goal Council

- African American Affairs Commission – Ed Prince
- Arts Commission – Lisa Jaret
- Center for Childhood Deafness & Hearing Loss – Richard Hauan
- Community & Technical Colleges – Marty Brown
- Council of Presidents – Paul Francis
- Early Learning – Bette Hyde
- Education Ombuds – Stacy Gillett
- Office of Financial Management – Paula Moore
- Policy – Marcie Maxwell
- Results Washington – KayLyne Newell
- School for the Blind – Dean Stenehjem
- State Board of Education – Ben Rarick
- Student Achievement Council – Gene Sharratt
- Superintendent of Public Instruction – Alan Burke
- Workforce Training & Education Coord. Bd. – Eleni Papadakis

1.3.f. Increase number of families saving for postsecondary education and training expenses using the Guaranteed Education Tuition (GET) from 152,000 in 2012 to 182,000 in 2017

1.3.g. Increase project-based, career, workplace, community learning opportunities that provide STEM and 21st century skills from X to X by 20XX

1.3.h. Increase the number of students enrolled in online and hybrid courses in public 4-year colleges from 12,151 to 13,366 by 2016-17

Data separated by Native American, Asian, Pacific Islander, African American, Hispanic, Caucasian, English Language Learners, Students with Disabilities, Low Income

Data and metric will be available by October 2014

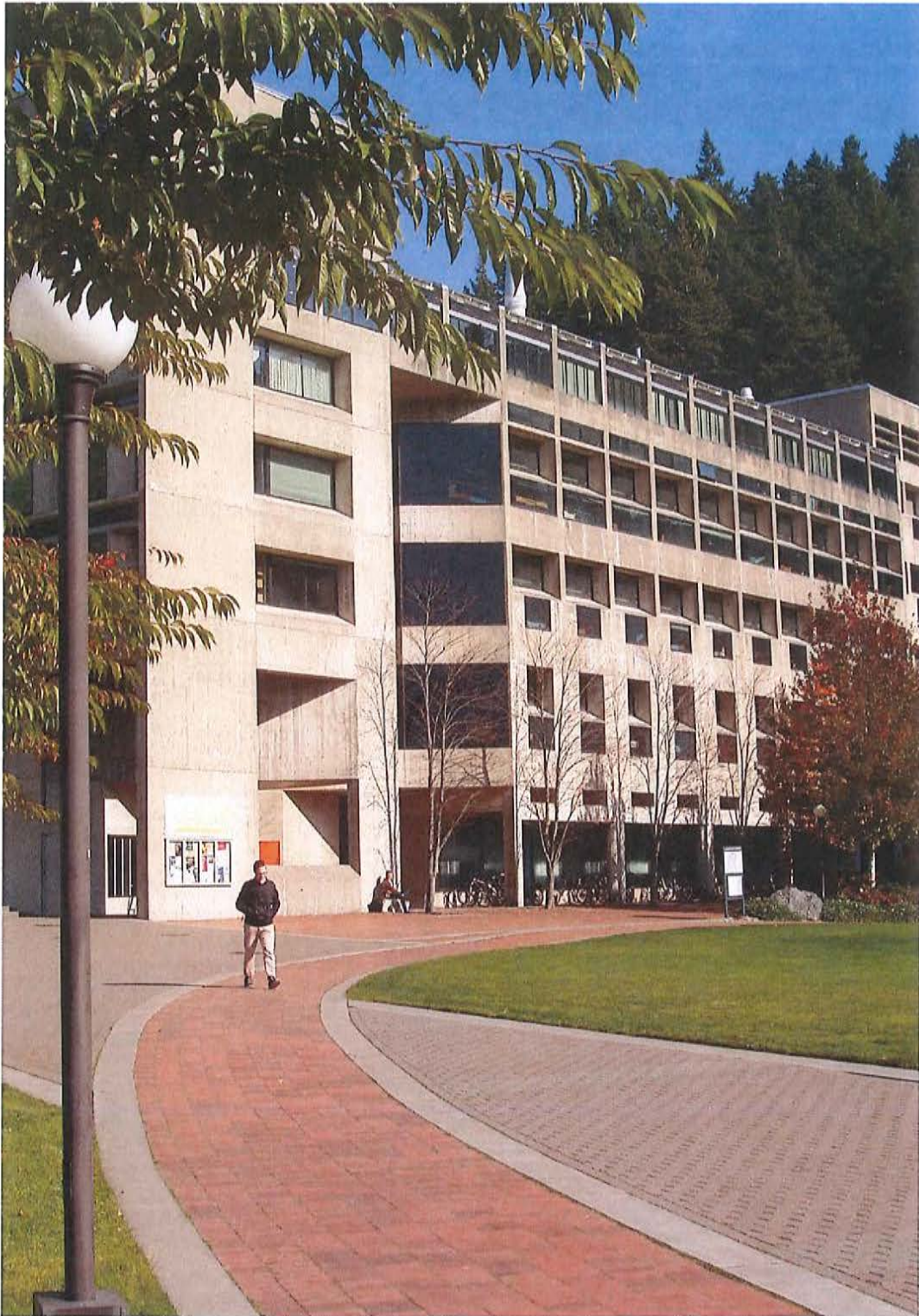
1.2.g. Increase percentage of National Board certified teachers who teach in a high-poverty school by 10% per year from 2013 to 2017

1.2.h. Increase percentage of first-year teachers with active, qualified mentor by 10% per year from 2013 to 2017

1.2.i. Increase percentage of sign language interpreters meeting newly established state performance standards from 33% in 2012-13 school year to 100% in 2016-17 school year

1.2.j. Increase percentage of teachers and principals rated distinguished from X to X by 20XX

# **Appendix C**



Ira Fink and Associates, Inc.

Environmental Studies Center. The Environmental Studies Center has 111,145 gross square feet and 63,526 assignable square feet.

# EXECUTIVE SUMMARY

## Space Needs Assessment

- This study is a broad-based, conceptual space needs assessment of the College of Sciences and Technology and the Huxley College of the Environment academic units at Western Washington University.
  - One premise of the study is that enrollment growth at WWU will be slow and total campus enrollment will remain at approximately 15,000.

## Primary Findings

### *Huxley College of the Environment*

- Of the two colleges, the primary finding of the study is that the space needs of Huxley College require the most immediate attention.
  - **Facilities:** Huxley College space needs have substantially changed since the College was founded and facilities were built 40 years ago.
  - **Space:** Both Huxley College departments are consistently positioned in the lowest range of amount of space per faculty, per student, and per research unit among the WWU science and technology departments.
  - **Class Laboratories:** Moreover, the instructional laboratory spaces of the Huxley College units are in the poorest condition of the two colleges and in the most need of attention.

### *College of Sciences and Technology*

- Among the College of Sciences and Technology (CST) units, four of the seven departments and both research units have relatively new space. Biology, Chemistry, Computer Science, Physics and Astronomy, AMSEC, SMATE are in recently renovated or otherwise relatively new space. These units have both contemporary space and space largely adequate for their needs. Geology needs better space. Mathematics needs both better space and more space. Engineering Technology requires a total review of its space and a plan to provide appropriate space for its newly designated engineering programs.

## Space for Scientific Instrumentation

- There is a collaborative desire for additional or replacement instrumentation since the instruments and their centers serve both disciplinary and interdisciplinary objectives.
  - To help guide this activity, an overall WWU plan for new and replacement instrumentation is needed.



### **Space Projections**

- To test alternatives, a series of eight separate space projection estimates, identified as Scenarios 1 through 8, were tabulated.
  - For the purposes of this study, Scenario 3 was chosen as a plausible planning projection. In Scenario 3, the faculty growth is based upon the Provost's estimates of growth from 2013 to 2018 or one new faculty member per department, whichever is greater. Faculty growth counts add one faculty member per department from 2018 to 2023.
- In Scenario 3, space needs for Huxley College would grow by 32,014 ASF from its existing 36,788 ASF in 2013 to 68,802 ASF in 2018 and an additional 3,106 ASF to 71,908 ASF in 2023.
- Space needs for CST would grow by 37,229 ASF from 231,599 ASF in 2013 to 268,828 ASF in 2018 and an additional 15,680 ASF to 284,508 ASF in 2023.
- Space needs for Scientific Technical Services would grow by an estimated 1,800 ASF based upon instrument requirements, or a growth from 7,337 ASF to 9,137 ASF.

### **Summary Report**

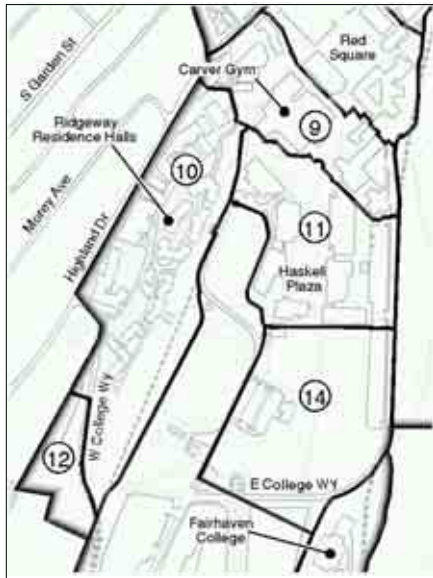
- This summary report is accompanied by three separate, standalone appendices, which together constitute an omnibus indicators report.
  - Appendix A is an expanded narrative, which includes a listing of space needs as identified by each department or unit.
  - Appendix B provides supplemental data, including detailed space benchmark analysis.
  - Appendix C presents the WWU room-by-room space database, both by building and by department.

# **Appendix D**



## District 11

Location: Haskell Plaza (Science, Mathematics and Technology Education, Chemistry, Biology, Parks Hall, Ross Engineering Technology, Arntzen Hall, Environmental Studies)



Adjacent City Zoning: None

### 2001 Primary Land Uses:

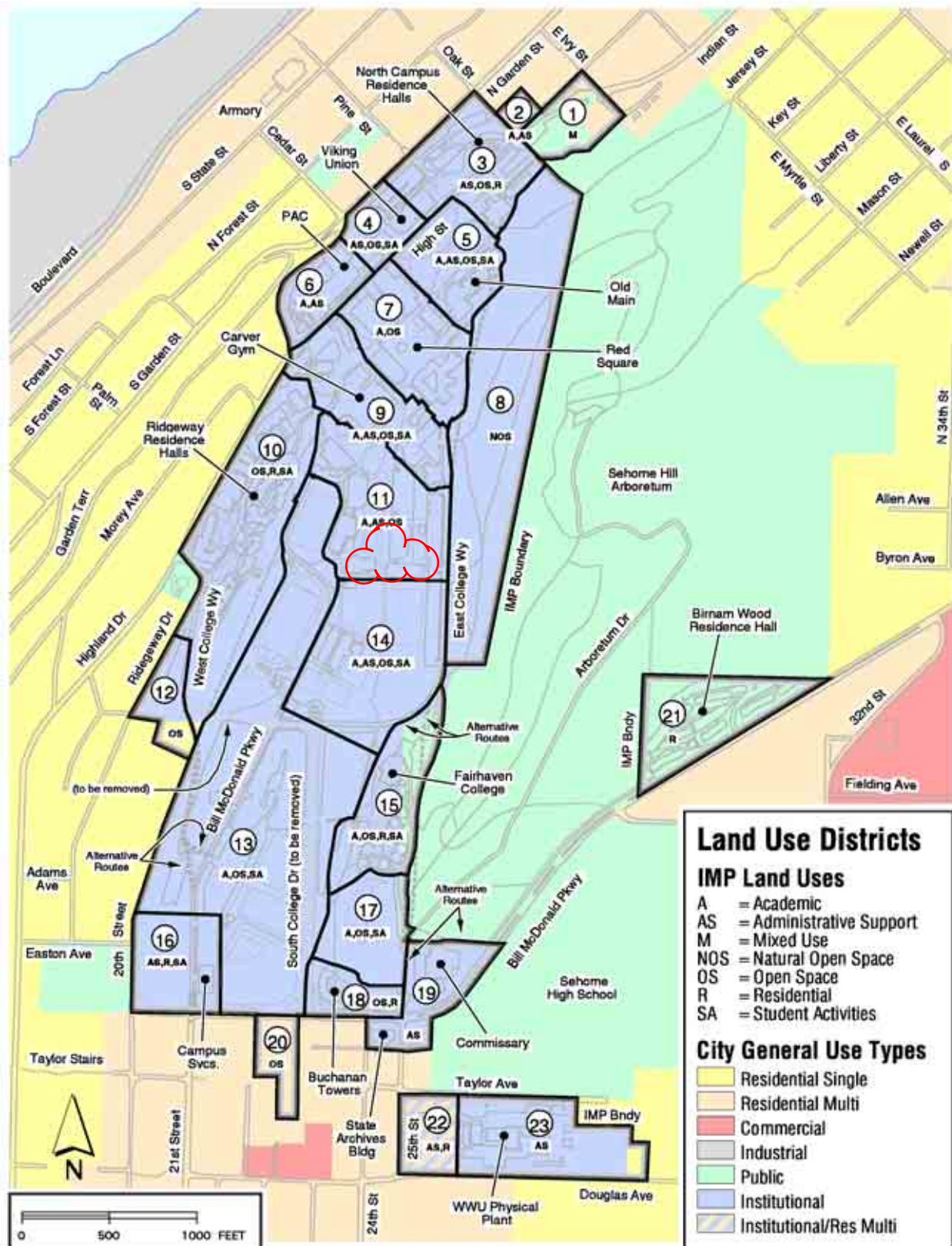
- Academic (Arntzen Hall and Greenhouse; Biology; Chemistry; Environmental Studies; Parks Hall; Science, Mathematics and Technology Education; and Ross Engineering Technology)
- Open space, sculpture sites, circulation (Haskell Plaza and Science, Mathematics and Technology Education lawn area)
- Parking

### City Land Use Designation:

- Institutional (Area 1, WWU Neighborhood Plan)

### *Institutional Master Plan Land Use Classifications:*

- Academic
- Administrative/support
- Open space



# **Appendix E**

<b>AVAILABILITY OF SPACE</b>			
Project Name: Science Building Renovation & Addition		REQUIRED FOR ALL CATEGORIES EXCEPT ACQUISITION AND INFRASTRUCTURE.	
Campus location: 516 High Street, Bellingham, WA			
Identify the average number of hours per week each (a) classroom seat and (b) classroom lab is expected to be utilized in Fall 2014 on the proposed project's campus. Please fill in the blue shaded cells for the <b>campus</b> where the project is located.			
<b>(a) General University Classroom Utilization</b>		<b>(b) General University Lab Utilization</b>	
Fall 2013 Weekly Contact Hours	179,198	Fall 2013 Weekly Contact Hours	30,540
Multiply by % FTE Increase Budgeted	0.03%	Multiply by % FTE Increase Budgeted	0.03%
Expected Fall 2014 Contact Hours	179,252	Expected Fall 2014 Contact Hours	30,549
Expected Fall 2014 Classroom Seats	7,623	Expected Fall 2014 Class Lab Seats	1,625
<b>Expected Hours per Week Utilization</b>	<b>23.5</b>	<b>Expected Hours per Week Utilization</b>	<b>18.8</b>
HECB GUC Utilization Standard	22.0	HECB GUL Utilization Standard	16.0
Difference in Utilization Standard	7%	Difference in Utilization Standard	17%
If the campus does not meet the 22 hours per classroom seat and/or the 16 hours per class lab HECB utilization standards, describe any institutional plans for achieving that level of utilization.			
Classroom and Class-lab utilization continues to be good, however, several class-labs, especially within the sciences, perform poorly. Relevant to this particular project request, class-lab utilization during this period within the Environmental Studies Center was less than 8 weekly contact hours. This situation exists in part because of the poor condition of several of the labs but is mainly a result of the limitations of the building systems.			

# **Appendix F**



TRADELINE 2013  
COLLEGE & UNIVERSITY SCIENCE FACILITIES  
BOSTON, MASSACHUSETTS  
OCTOBER 28 & 29, 2013

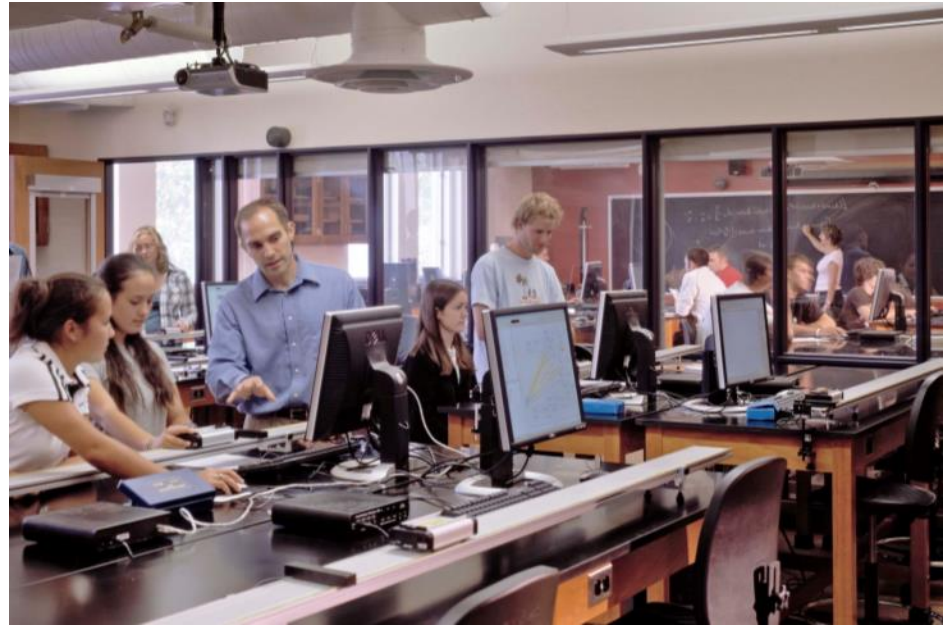
Forum 'G':  
Competitive STEM Teaching Facilities:  
Configurations, Flexibility Features,  
Pedagogy & Metrics

RICHARD HEINZ, FAIA, LEED AP  
PRINCIPAL  
SEAN TOWNE, AIA, LEED AP  
PRINCIPAL

RESEARCH FACILITIES DESIGN

# What Does STEM Look Like ?

# Transparency between Rooms



# What Does STEM Look Like ?

# Active Learning in the Laboratory

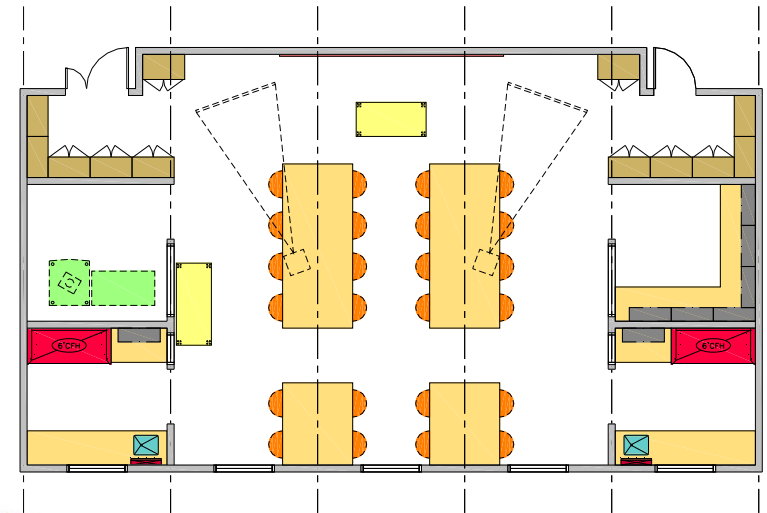
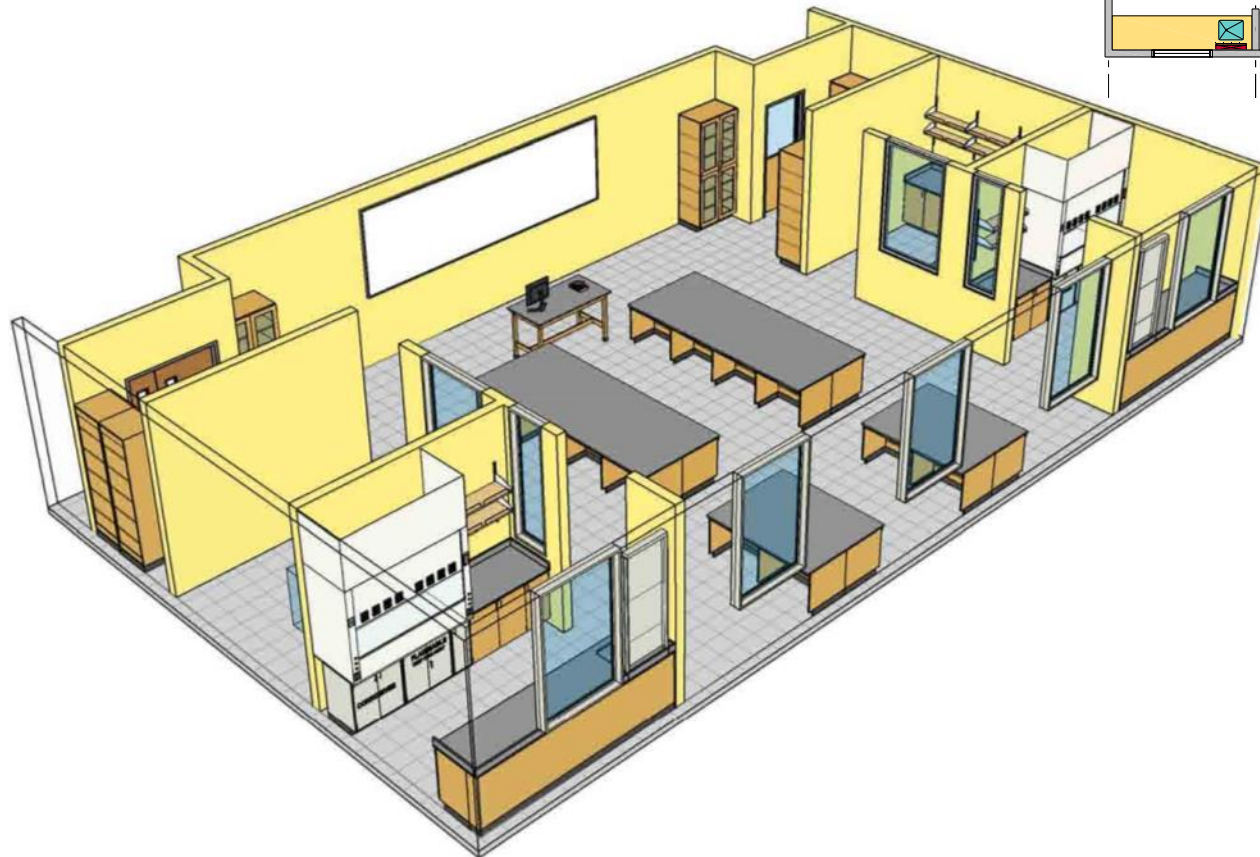




# Aligning Design with Pedagogy

- Multi Use vs. Integrated Curriculum
- Discipline Specific Alcove
- Increasing Utilization

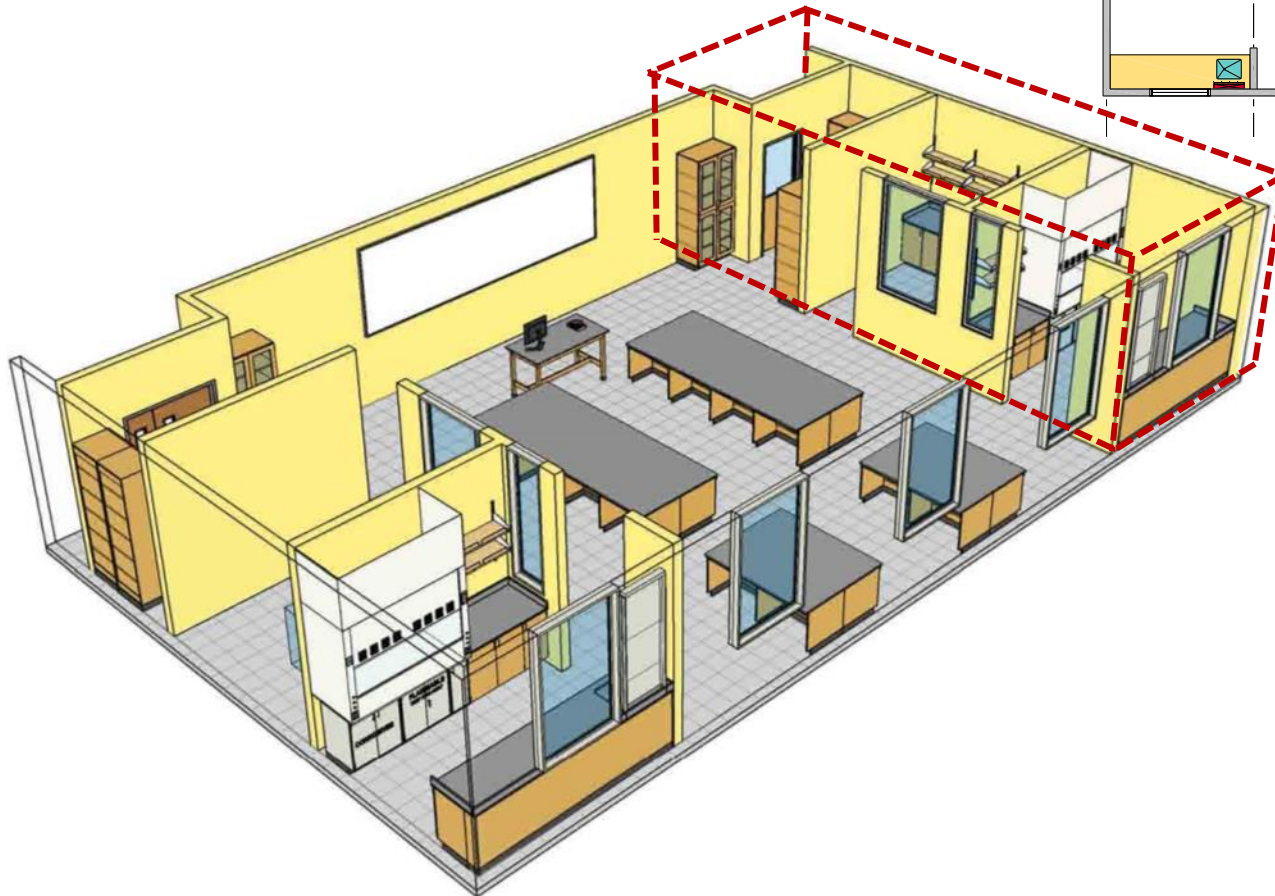
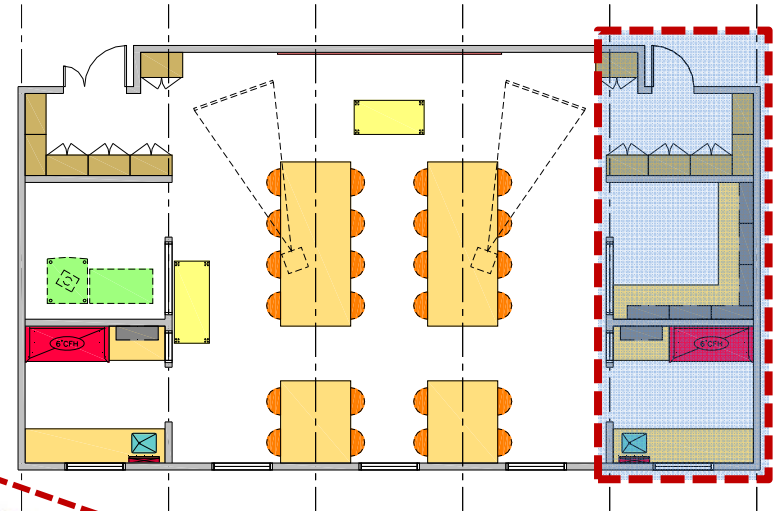
## Interdisciplinary Teaching Lab



# Aligning Design with Pedagogy

- Multi Use vs. Integrated Curriculum
- Discipline Specific Alcove
- Increasing Utilization

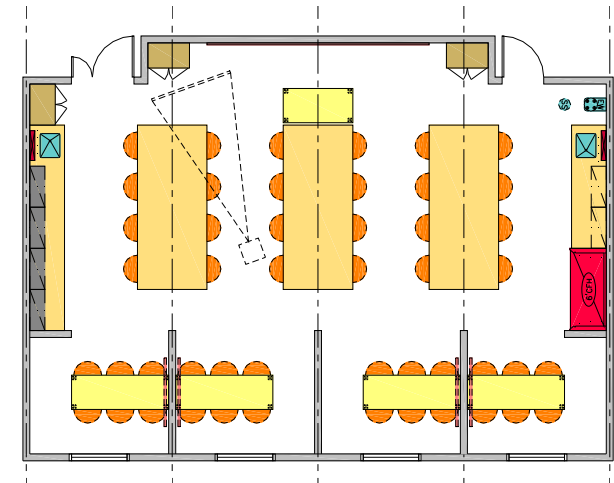
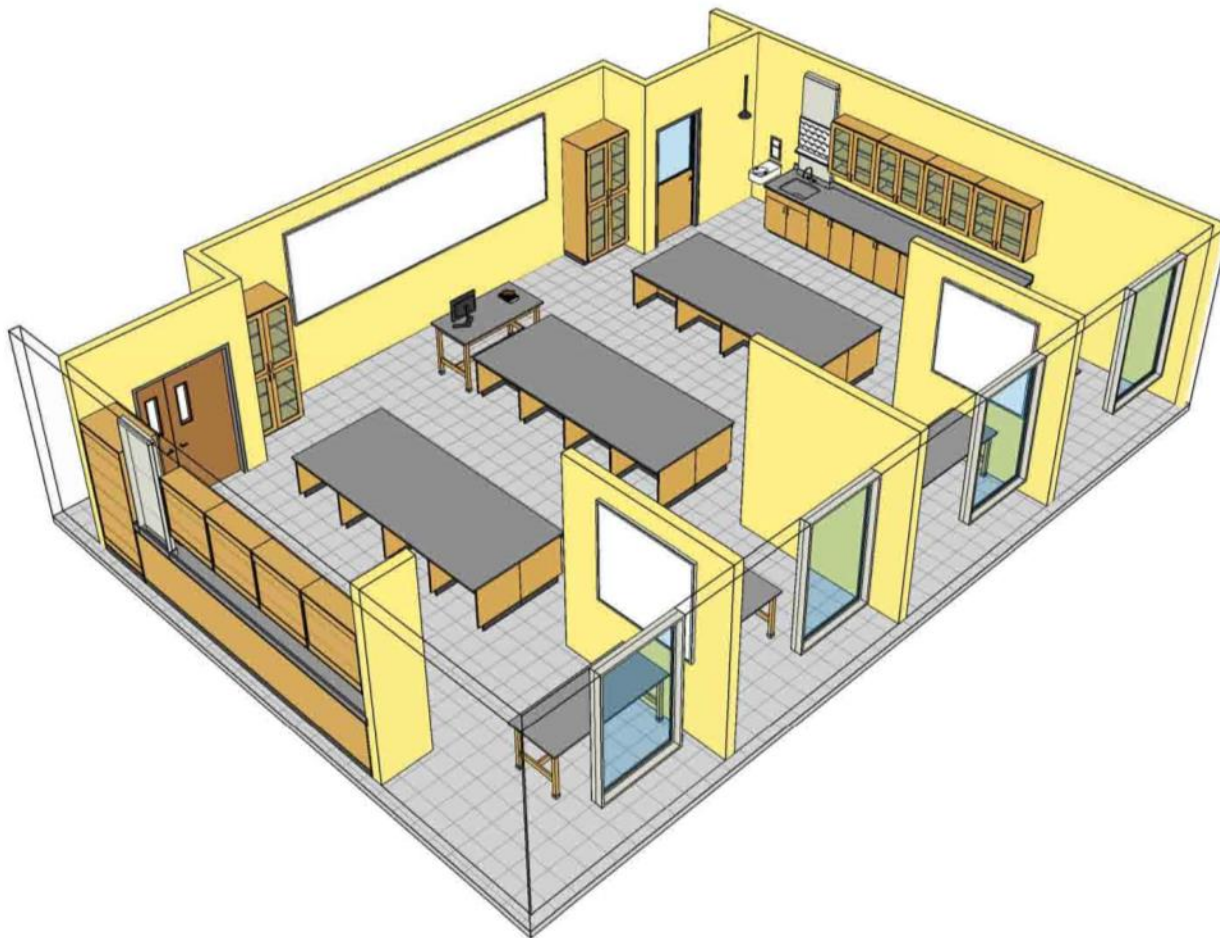
# Interdisciplinary Teaching Lab



# Aligning Design with Pedagogy

- Multi Use vs. Integrated Curriculum
- Collaborative Cross Discipline Learning
- Experiment & Discussion / Conf. Areas

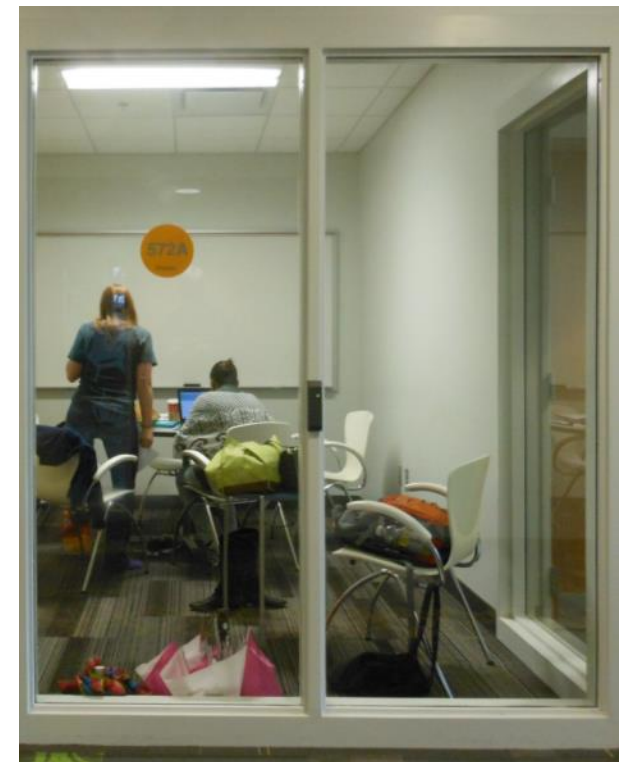
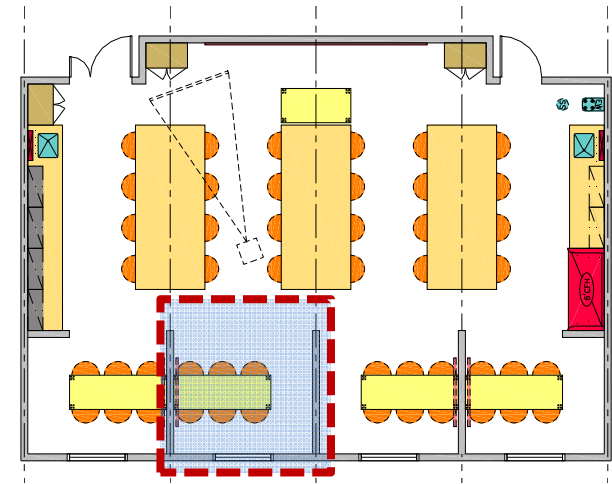
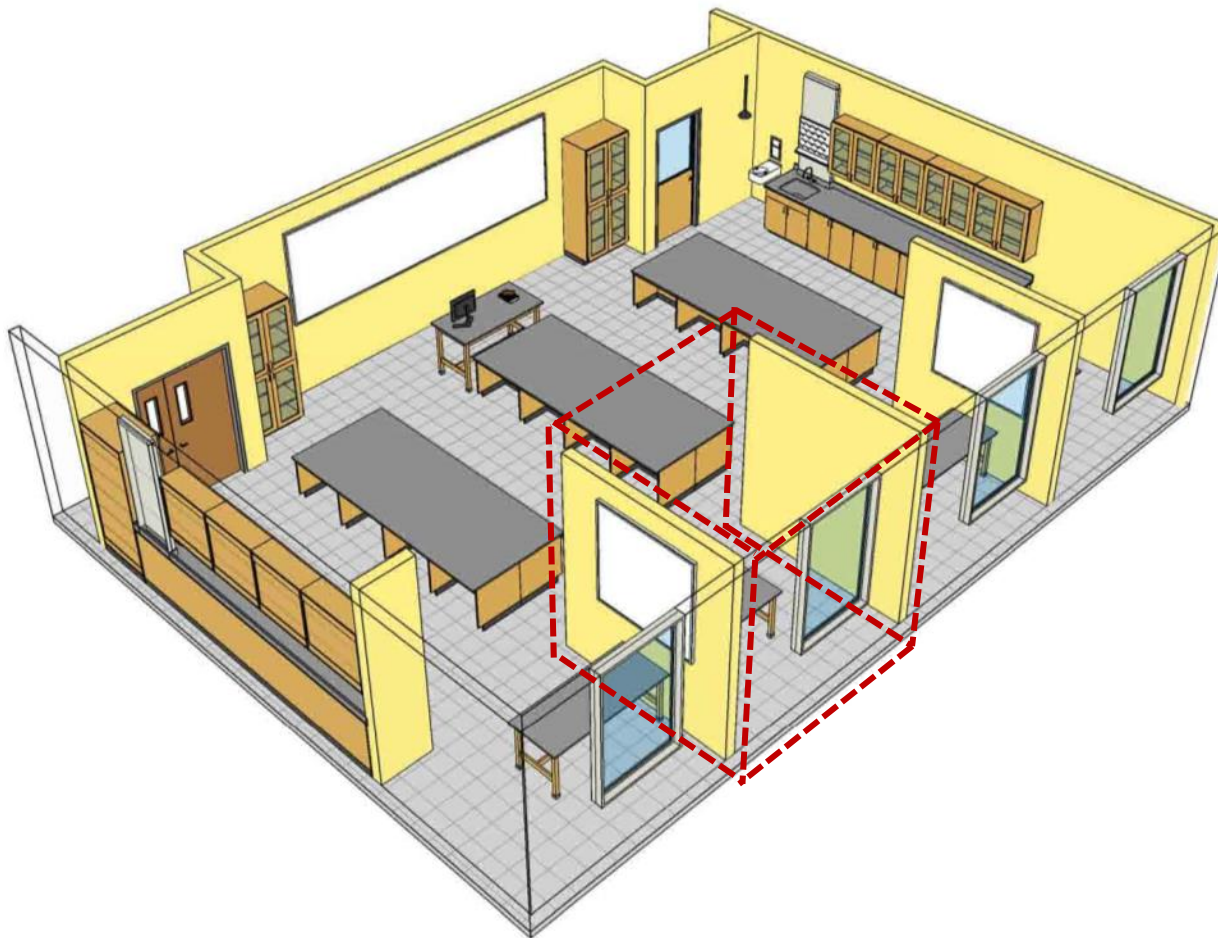
# Interdisciplinary Teaching Lab



# Aligning Design with Pedagogy

- Multi Use vs. Integrated Curriculum
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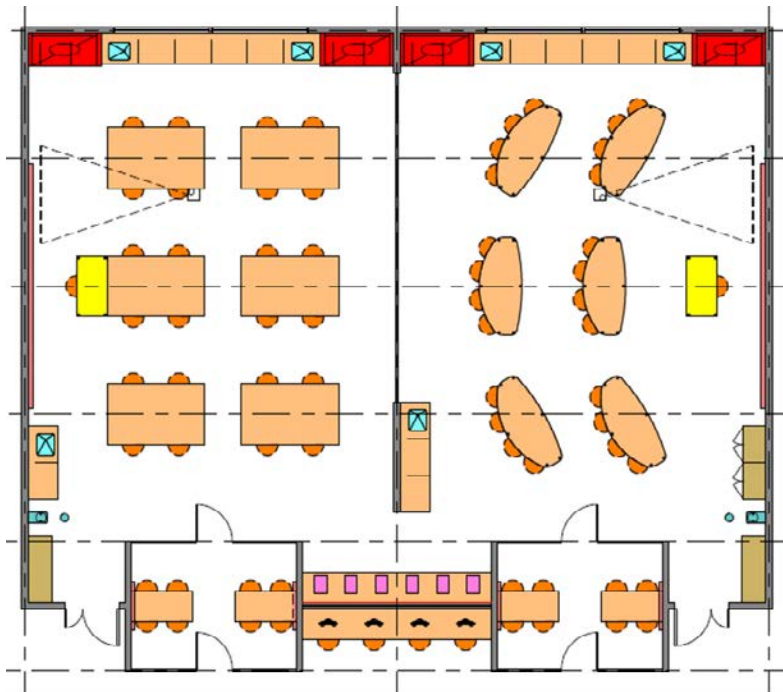
# Interdisciplinary Teaching Lab



# Aligning Design with Pedagogy

## Studios

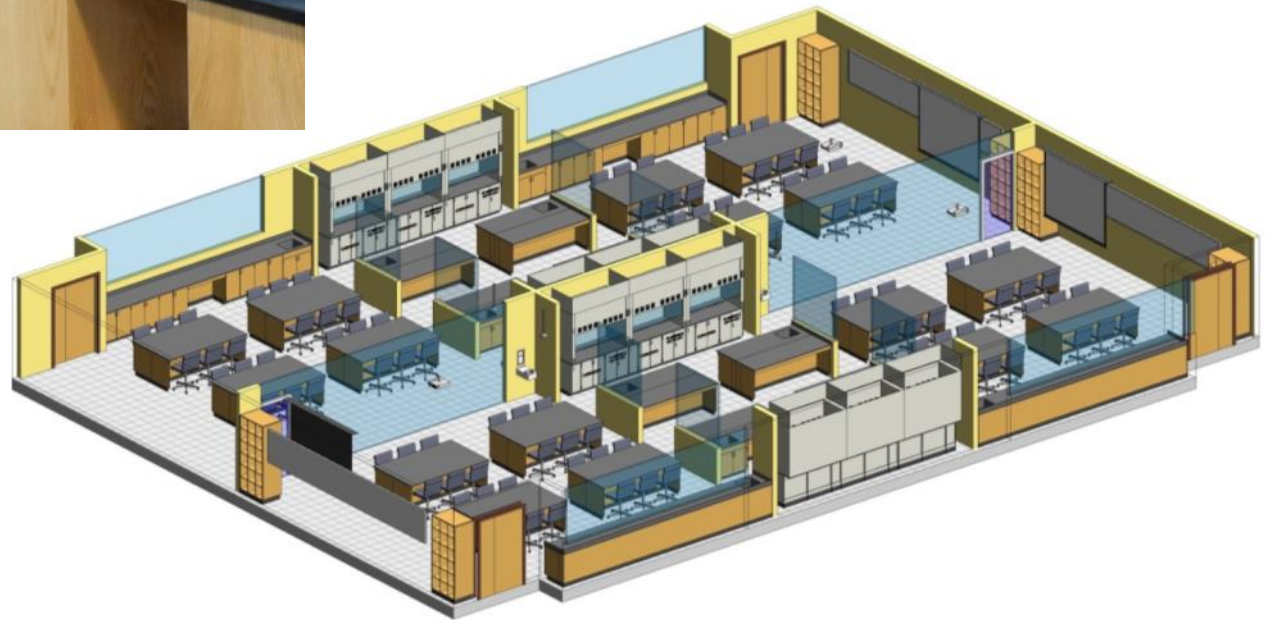
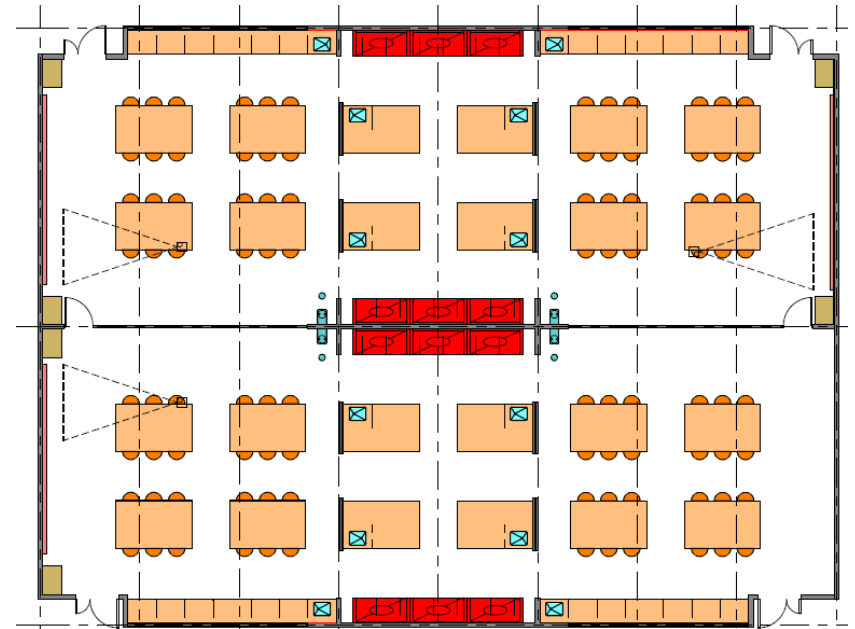
- Coupled Labs
- Break-out Spaces
- Transparency



# Aligning Design with Pedagogy

Studios

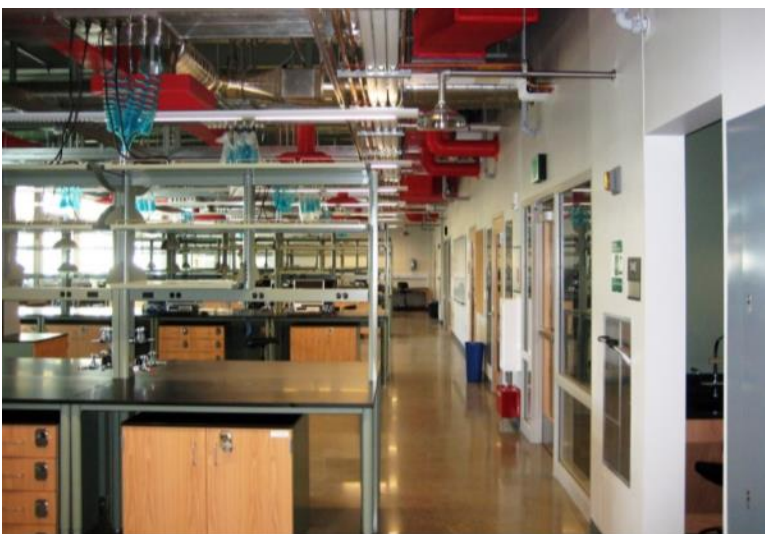
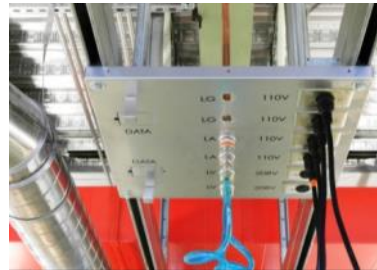
- Clustered Labs
- Shared Instrumentation
- Transparency



# Aligning Design with Pedagogy

- Engineering Senior Design Laboratory
- Flexible Bench System & Mobile Casework
- Pre-piped /Prewired Benches

# 'Universal' Laboratory



# Aligning Design with Pedagogy

# 'Universal' Laboratory

- Biology Research Laboratory
- Flexible Bench System & Mobile Casework
- Pre-piped /Prewired Benches





# Aligning Design with Pedagogy

Faculty / Student Research

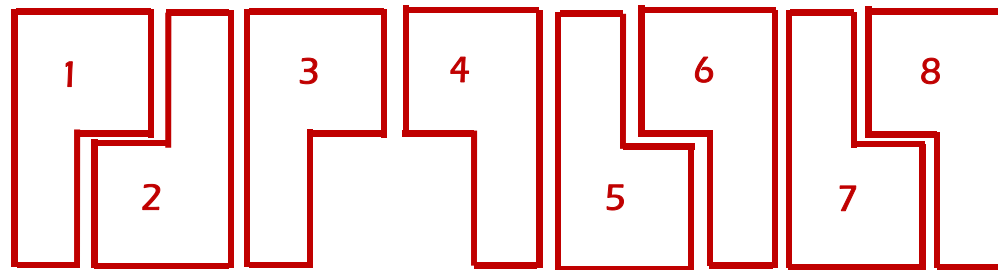
- Problem Based Learning , Collaboration, Scientific Process
- Individual or Paired Research Labs
- Consolidated & Collaborative Research Labs



# Aligning Design with Pedagogy

Faculty / Student Research

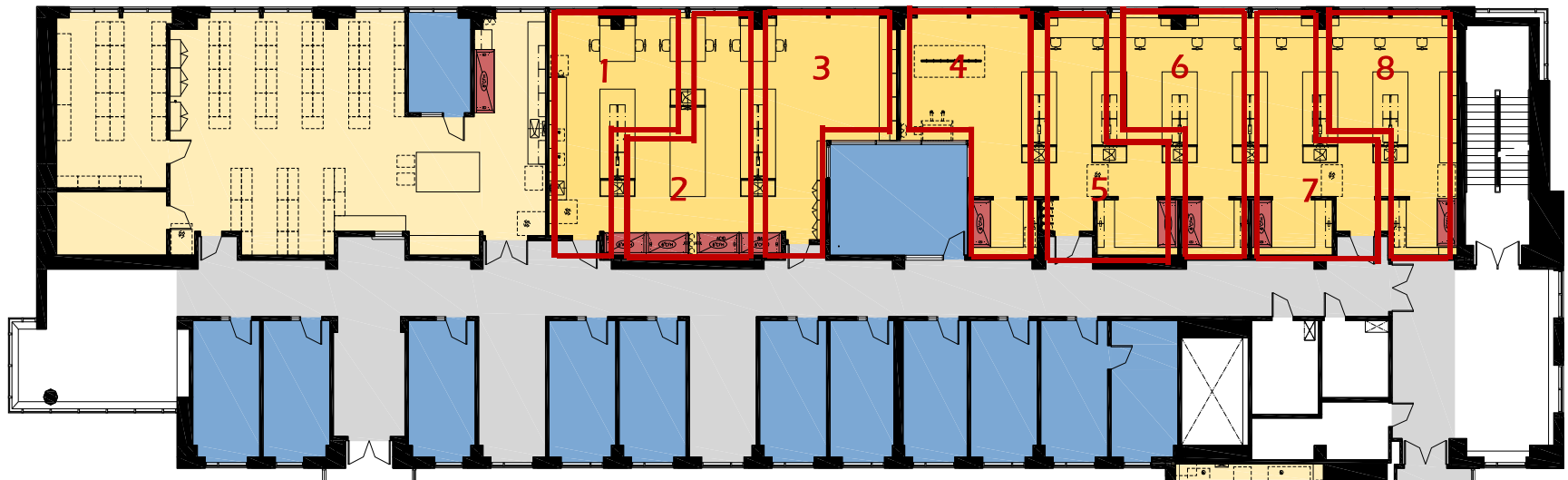
- Research Allocations
- Small / Individual Research Labs
- Consolidated & Collaborative Research Labs



# Aligning Design with Pedagogy

## Faculty / Student Research

- Research Allocations
- Small / Individual Research Labs
- Consolidated & Collaborative Research Labs



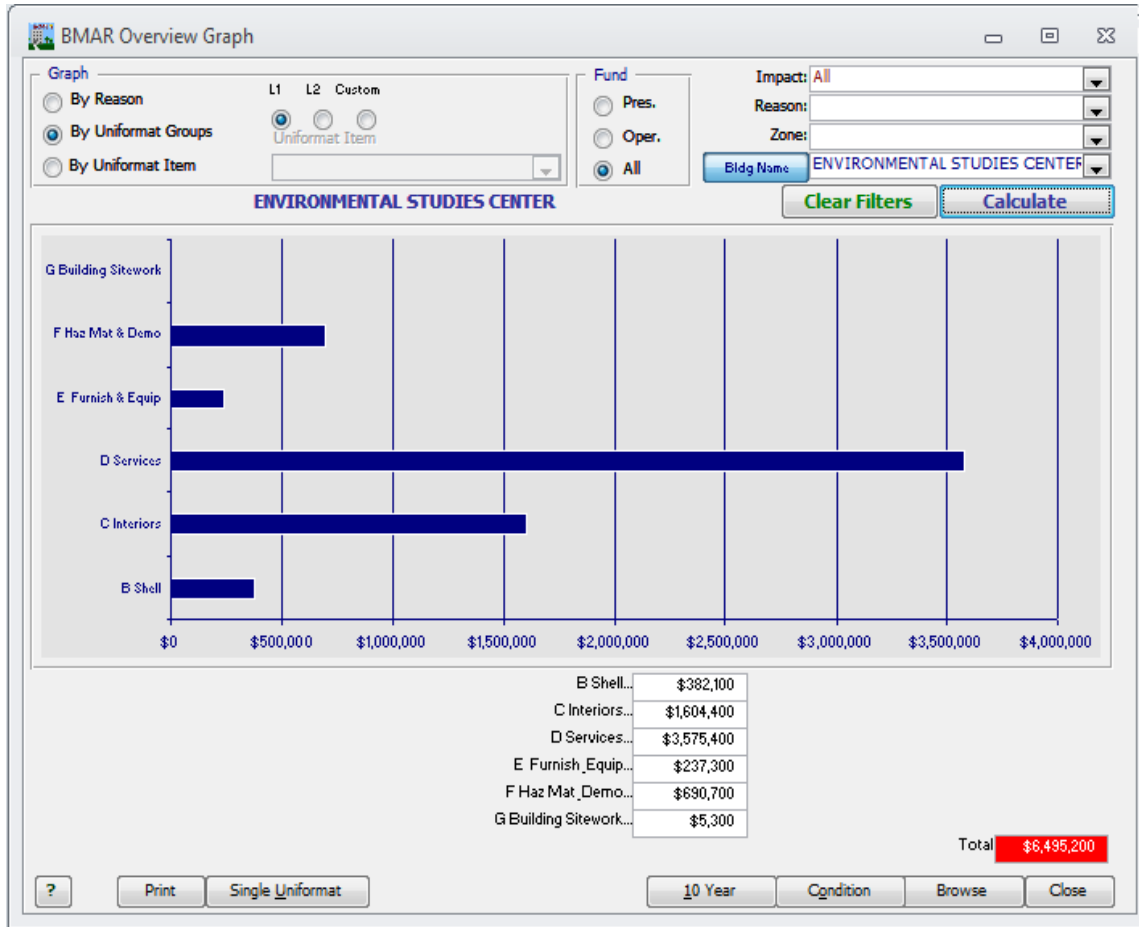
# Aligning Design with Pedagogy

Faculty / Student Research



# **Appendix G**

Restoration of the Environmental Studies Center would reduce Western's maintenance backlog \$6,500,000.



Produced 7/2014  
 WWU Facilities Maintenance