# SCIENCES BUILDING ADDITION & RENOVATION

Capital Project Proposal 2017-2019



# Active Minds Changing Lives



Institution
Western Washington University
Project Title
Sciences Building Addition & Renovation
Project Location (City)
Bellingham

#### 1. Problem Statement (short description of the project – the needs and the benefits)

Western's 43-year old Sciences Building is structurally well suited for intensive science use, but requires significant upgrades to critical mechanical systems and space utilization in order to address costly inefficiencies and maximize the building's potential. This is at a time when the availability of instructional space science at Western continues to lag behind significant growth in STEM majors and degree production. STEM majors continue to experience unprecedented enrollment increases; that is true for the departments that occupy the Science Building, as is illustrated in Figure 1, as it is for other STEM disciplines. This situation, coupled with increased demand for introductorv science and mathematics courses from non-STEM majors and the hiring of new



STEM faculty has stretched our Above: Majors for departments housed within the Science Building have increased by 224% since 2004.

has capped intake into several STEM majors<sup>1</sup>, partially to maintain the quality of these programs and time-to-degree but also for the need of additional space. We have breached our ability to continue to perform at our current levels without new specialized space.

Building a modest addition to the Sciences Building, followed by a major renovation of the existing structure, is the most programmatically beneficial and cost effective approach to address programmatic needs as well as facility preservation and space utilization challenges. This project proposes a phased-in approach over two biennia to construct an addition to an aging existing science building (Phase 1 for 2017-19) prior to renovating the much larger original structure (Phase 2 for 2019-21). The project is estimated to ultimately accommodate an increase of 80-100 bachelor's degrees and graduate degrees in high-demand fields within four years of the completion of the first phase of the project. The phased-in approach is intended to initially provide much of the science instructional space required to facilitate the renovation of the existing facility without impeding student learning and time-to-degree. The project is a vital step to resolving critical instructional space and faculty office shortfalls within the sciences at Western. The project will also further the broader goals of the Institution in 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.

<sup>1</sup> Intake into the Chemistry and Computer Sciences majors are presently capped. Intake into the Kinesiology major has been capped for the last two years. The completion of the Carver Academic Facility in 2017 will allow the department of Health & Human Development to resume growth in that major.

#### 2. History of the Project or Facility

2013-15 Biennia: In the fall of 2013. Western commissioned a space needs assessment of the College Science of and Engineering and the Huxley College of the Environment (Appendix B). The study noted serious deficiencies in space quantity and quality for collaborative teaching spaces, research labs. and faculty offices across both colleges and in particular, the very poor quality of space within the Environmental Studies Center (ESC) impacting the functionality of the departments and programs housed in the building.

ESC La	ooratory	Asses	smer	nt			
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, In	c., based or	n analysis	prepar	ed by D	esign	for Scie	nce

The needs expressed in that study were originally represented in a 2013-15 capital request for predesign funding. That request proposed the construction of a new interdisciplinary science building that would broadly address science needs at Western and facilitate interdisciplinary activities between departments, disciplines and the specialized institutes and centers. The original structure, the Environmental Studies Center, (the building that we are presently proposing to renovate and expand) would have been repurposed for non-STEM academic programs. The needs described in that original request were as pressing then as they are now however, the scale and cost of the project made it unviable.

<u>2015-17 Biennia:</u> A comprehensive reworking and streamlining of the 2013-15 proposal resulted in our current project, which was considered for pre-design funding in the 2015-17 biennia. A major renovation and a modest addition to the Environmental Studies Center was felt to be the most programmatically beneficial and cost effective approach for providing Western with the science instructional space that it needs.



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

The ESC was completed in 1973, four years prior to Western being granted University Status and the same year that the original 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 & support.



Above: The ESC building interior atrium

Conversely, the ESC 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.

The 2015-17 predesign proposal to renovate and expand the ESC was ranked second overall in the predesign category and funded in the House, Senate and Governor's budget. However, the renovation of Western's Carver Academic Facility had been delayed over years and needed to stand as the Institution's highest capital investment priority. Accordingly, most of WWU's 2015-17 capital budget allocation was directed to the completion of the Carver Academic Facility.

No other classroom upgrades or program growth related capital projects have been initiated or are planned to occur at Western during the 2015-17 biennia. In view of the continued persistent growth in STEM disciplines and the dearth of supportive space, the Institution elected to self-fund the predesign of the Sciences Building Addition & Renovation. That predesign study is now complete and Western Washington University is requesting design and construction funding in 2017-19.

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

All of the departments and operations listed below would be accommodated within the addition and renovated building.

Academic Departments <ul> <li>Huxley College</li> <li>Department of Environmental Studies</li> <li>Department of Environmental Sciences*</li> </ul>	<ul> <li>University Centers</li> <li>Western on the Peninsulas</li> <li>Institute for Energy Studies</li> <li>Advanced Materials Science &amp; Engineering*</li> <li>Institute of Environmental Toxicology*</li> </ul>
<ul> <li>Academic Instructional Space</li> <li>General Use Science Lecture Halls*</li> <li>Science Seminar Rooms*</li> <li>Student Collaborative Areas*</li> </ul>	<ul> <li>Institute for Watershed Studies*</li> <li>Spatial Institute</li> <li>Resilience Institute</li> <li>Shannon Point Marine Center</li> <li>Sustainability</li> </ul>
<ul> <li>Academic Support</li> <li>Scientific &amp; Technical Services*</li> <li>Hazardous materials receiving and storage</li> </ul>	<ul> <li>Leadership Institute</li> <li>IDEA Institute (entrepreneurship &amp; innovation)</li> <li>* denotes a department or operation that is presently in the ESC</li> </ul>

#### **Other Academic Partnerships**

- USGS the US Geological Survey already has a presence within the building. Research Scientists from the USGS actively participate in student research and the supervision of graduate students at Western.
- NOAA Similarly, NOAA participates and assists in graduate supervision and offers yearly scholarship and internship opportunities for Western students.

Linkages to other Capital Projects: The Sciences Building Addition & Renovation project is critically interlinked with two other capital requests also proposed by Western in 2017-19. These interrelationships exist in an effort to scale this project request reasonably to the funded abilities of the State and because of the facilities-intensive nature of science instructional space; we don't have swing-lab space and our class labs are already heavily used<sup>2</sup>. Compounding this situation is that Western is presently increasing its hiring of tenure track faculty yet we have no faculty offices available for new faculty; this on a campus with 2000 FTE faculty and staff and over 15,000 students. The relationship of these interlinked capital projects are described in the diagram below:

<sup>2</sup> During the 2015 academic year at Western, 16 science labs with a combined student capacity of 395 seats operated at over <u>20</u> student contact hours per week per seat:

- 4 science labs operated over in excess of 30 student contact hours per week per seat
- 2 science labs operated over in excess of 40 student contact hours per week per seat
- WWU's highest weekly utilization in a science lab in 2015 was 47 contact hours per week per seat



- A. The Support Services Facility will assist to resolve Western's shortage of faculty and administrative office space by constructing a two story office building of approximately 25,000 gross square feet. The Support Services Facility would be located south of the main campus on land owned by the Institution that has already been rezoned for this purpose. University operations that will be housed in the new building will be administrative in nature and not have a student learning or student services component. In turn, a significant amount of office space within the core of campus will become available for faculty offices and front-line student services. The Support Services Facility will be directly supportive of the Sciences Building Addition & Renovation because it will provide most of the interim faculty offices and academic administrative space during the construction phase of the project.
- B. The 2017-19 Classroom & Lab Upgrades will improve specialized instructional space that are relevant and useful to students and ensure the continued high utilization of instructional space. The project will provide much of the on-going instructional space needs of other, principally STEM, majors but will also provide some of the displaced instructional capacity during the renovation phase of the Sciences Building Addition & Renovation.
- 4. Integral to Achieving Statewide Policy Goals:
  - a. Indicate the number of bachelor's degrees awarded at the close of the 2014-15 academic year.
    - **3,239** bachelor degrees were awarded at the close of the 2014-15 academic year.
  - b. Indicate the number of bachelor's degrees awarded in high-demand fields at the close of the 2014-15 academic year.
    - 850 bachelor degrees were awarded in high-demand fields at the close of the 2014-15 academic year
  - c. Indicate the number of advanced degrees awarded at the close of the 2014-15 academic year.
    - 241 advanced degrees were awarded at the close of the 2014-15 academic year

The Sciences Building Addition & Renovation promotes improvement on 2014-15 degree production totals in the OFM four-year public dashboard by addressing the space issues that have resulted from a steady and persistent transition of majors into STEM disciplines. То better illustrate this, the diagram to the right shows overall Student Credit Hours (SCH) for STEM and non-STEM disciplines over six years. It is an important illustration in that it shows the recent shift to STEM disciplines but also that non-STEM SCH still comprise the largest component academic of our programs by far.





The diagram to the left uses the same data as in the previous graphic but starts at a zero base so that we can closelv examine what more is happening year-over-year. lt dramatically illustrates the shift into STEM and away from non-STEM. If you viewed the second diagram without the first you may erroneously conclude that all of the space needed for STEM growth is available within the non-STEM disciplines. We will convert more non-STEM space to support STEM growth however, the simple fact remains that non-STEM is, and will likely to continue, to be the largest program component at this Institution.

Based on year-over-year growth to date, once their program growth is no longer impeded by limitations of space and quality of space, Western projects that the departments impacted by this project will produce 92 additional high demand and STEM degrees relative to the 2015 academic year as follows:

- 23 additional undergraduate and graduate degrees in Geology
- 22 additional degrees in Environmental Sciences
- 23 additional degrees in Environmental Studies
- 12 additional degrees in integrated studies as Materials Sciences and Energy Studies
- 12 additional degrees in integrated studies as Business & Sustainability

## 5. 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>3</sup> (IMP) begins with the Institutions 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 Sciences Building Addition & Renovation 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 C.

<sup>&</sup>lt;sup>3</sup> The Western Washington University Institutional Master Plan provides for capacity of growth but leaves project sequencing to the academic plan.

#### 6. Integral to institution's Academic Programs Plan:

#### a. Meet academic certification requirements?

Western Washington University's bachelor's program in Urban Planning and Sustainable Development was conditionally granted national accreditation<sup>4</sup> in 2015 and, with a successful accreditation review occurring this fall, will be one of only 15 accredited undergraduate planning programs in the United States, and the second in the state of Washington. During the Accreditation Board's most recent on-site visit to Western, concern was raised for the lack of appropriate planning studio space at Western. This project would address the shortfalls identified by the Accreditation Board.

<sup>4</sup> Accreditation was granted by the Planning Accreditation Board in association with the American Planning Association, the American Institute of Certified Planners, and the Association of Collegiate Schools of Planning.

b. Permit enrollment growth and/or specific quality improvements in current programs? 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, along with its companion projects (2017-19 Classroom & Lab Upgrades and Support Services Facility Ph. 1) is specifically focused on 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 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.

#### c. Permit initiation of new programs?

The project will allow the logical development of newly commissioned programs and new programs that are 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.
- Western's newly accredited undergraduate degree in Urban Planning.

 The Energy Studies Institute offers undergraduate programs that combine the science, technology, policy and business of energy. A new BA in Energy Policy and Management will produce its first graduates in 2017-18.

### 7. Age of Building Since Last Major Remodel:

The 43-year old Environmental Studies Center was constructed in 1973 and has not had any major renovations. Previous minor works capital projects have taken place to minimize the water leaking through the exterior windows and exposed cast-in-place concrete.

#### 8. Condition of Building:

The 2016 OFM Comparable Building Condition score for the Environmental Studies Center is 3.0 - 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.

- a. 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 core 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.
- b. 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.
- c. 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.
- d. Restoration of the Environmental Studies Center would reduce Western's maintenance backlog \$8,390,300. See Appendix D.

While the Environmental Studies Center facility is not on the Washington Heritage Register the building is a significant part of 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).

#### 9. Significant Health, Safety, and Code Issues:

**Code:** The renovation of Environmental Studies Center will address a number of code deficiencies to the 1973 constructed facility such as upgrading ADA accessibility throughout the building including classrooms and labs; increasing the number of restroom fixtures which do not meet code minimums, addressing restroom equity, addressing ventilation deficiencies which is a serious safety issue with lab makeup air and classroom ventilation; correct electrical system deficiencies, and correcting code violations with the central atrium.

<u>Health:</u> The proposed renovation will include replacement finishes with low volatile organic compounds (VOC) and low greenhouse gas (GHG) impact materials. Worn carpets will be replaced which will eliminate existing trip hazards from wrinkles and ripped seams. Asbestos containing flooring and insulation materials will be removed wherever practical or be encapsulated if not cost effective to remove. The acoustic environment will be improved with noise absorptive panels to improve audibility. Mechanical source noise will be mitigated to eliminate distracting vibrations.

**Energy Code**: The renovated facility will be more energy efficient by being designed to meet current energy code and will target LEED Gold certification or higher. The electrical upgrades included in the project will be in compliance with the Washington State Energy code. These include: low watts per square feet overall energy budget, occupancy sensors to turn lights and select outlets off automatically when unoccupied; daylight zone automatic dimming; task lighting on writing surfaces to concentrate lumens where needed most; multifactor computers and monitors. All reductions in electrical consumption translate to reduced mechanical cooling requirements.

**Seismic:** Suspended ceiling systems will include seismic bracing per current International Building Code (IBC). Lighting fixtures and other room equipment will be upgraded with secondary restraints and lateral bracing per current code.

### 10. Reasonableness of Cost:

2008 Expected Project Cost Range (51% Science Labs – Teaching and 49% Research Facility)

Construction Cost (\$309 x .51 + \$440 x .49)/2 = \$373 x 1.301 (escalation to 2020) = **\$486/GSF** Project Cost (\$437 x .51 + \$623 x .49)/2 = 528 x 1.301 (escalation to 2020 = **\$687/GSF** 

Sciences Building Addition & Renovation Project Estimated Costs

\$82,083,096/161,788 SF = **\$507/SF** estimated construction cost \$141,809,000/161,788 SF = **\$876/SF** total project cost

The estimated costs of the project are based upon similar projects currently under construction, an evaluation of local general and sub-tier contractor availability and capability and current costs for similar scope. The estimate also includes life cycle analysis recommendations for high efficiency mechanical systems and high performance envelope additions which will lower energy costs and the building's carbon generation over the life of the building. See Appendix A for C-100 cost estimate.

## 11. Availability of Space/Utilization on Campus:

a. 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 (GU) 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 the disparity between the most highly utilized labs and the lowest. Twenty two percent of all class labs performed at higher than 16 student contact hours per week per seat in the fall of 2015. Still, the overall utilization of class labs for the campus averaged over 18 student contact hours per week per seat during the same period. Relevant to this particular project request, class-lab utilization in the fall of 2015 within the Environmental Studies Center was less than nine weekly contact hours. See Appendix E.

Classroom/Lab Type	# of Rooms	# of Stations	Proposed ASF/Station	FEPG Standard	Meets Standard
MEDIUM SCIENCE LECTURE HALL C/W FOLDING Auditorium Seating w/TA	3	306 STUDENT STATIONS	14 ASF	14 ASF/STATION	YES
Small Classroom w RISER MOUNTED TC	1	49 STUDENT STATIONS	17 ASF	17 ASF/STATION	YES
MED. CLASSROOM W MTC	3	126 STUDENT STATIONS	24.5 ASF/STATION	16-26 ASF/STATION	YES
NATURAL SCIENCES CLASS LABS	10	230 STUDENT STATIONS	51 ASF/STATION	60 ASF/STATION	YES
Computer Lab	3	108	39 ASF/STATION	60 ASF/STATION	YES
OFFICE - CHAIRS/DIRECTORS	10		120 ASF/DIR. 140 ASF/CHAIR	175/ASF/CHAIR	YES
OFFICE - FACULTY & EQUIVILENTS	67		120 ASF/FACULTY	140/ASF/FACULTY	YES
OFFICE - STUDENT ASSISTANTS	20	40	120ASF/2 STDNTS SHARING	140/ASF/2 STUDENTS	YES
OFFICE - STAFF & OTHER	17		120/ASF STATION	120/ASF STATION	YES
CLERICAL/ADMINISTRATIVE	25		80 - 120ASF/CLERICAL FTE	140ASF/CLERICAL FTE	YES
OFFICE SERVICE			100ASF/CLERICAL FTE	100ASF/CLERICAL FTE	YES

# 12. Efficiency of Space Allocation:

#### 13. Adequacy of Space:

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 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, doors that can hardly be opened and water being drawn into the building because of the air pressure differential.

This project essentially restores this building for its original science use and expands the facility to facilitate program growth and degree production moving forward. The limitations of the existing building coupled with overall space shortages affecting the three major departments that occupy this facility are impeding program growth and will soon limit intake into these high-demand majors.

#### 14. Program-related space allocation: See Appendix F.

# Sciences Building Addition & Renovation

# **Appendix Contents**

- A. Office of Financial Management Reports (CBS002) Project Cost Summary/C100
- B. Environmental Studies Facility *Space Needs Assessment* Summary Prepared by Ira Fink and Associates, Inc.
- C. WWU Institutional Master Plan
- D. Environmental Studies Center Facility Maintenance Backlog Information
- E. Availability of Space Table
- F. Program-related Space Allocation Assignable Square Feet Template

# Appendix A

# 380 - Western Washington University Capital Project Request

2017-19 Biennium

Version: WV Working Version 2017-19 Budget Req

**Report Number:** CBS002 **Date Run:** 7/29/2016 5:09PM

#### Project Number: 30000768

Project Title: Sciences Building Addition & Renovation

#### Description

Project Phase Title:Design/Construction of Addition & Schematic Design of RenovationStarting Fiscal Year:2018Project Class:PreservationAgency Priority:2

#### Project Summary

Western Washington University is proposing two stages for the Sciences Building Addition & Renovation. For 2017-19, the request consists of design and construction of the addition (\$54,216,000) and schematic design of the renovation (\$2,025,000) for a total request of \$56,241,000. In 2019-21, additional funding will be requested for the renovation. 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. The first stage of this project twell design and build the addition which will help to provide surge space for the second stage, the renovation part of the project the following biennium. Schematic design of the renovation will need to be completed at the same time as the addition is designed in order to properly plan all of the inter-connections for utilities etc., between the new addition and existing building.

#### Project Description

Western's 43-year old Sciences Building is structurally well suited for intensive science use, but requires significant upgrades to critical mechanical systems and space utilization in order to address costly inefficiencies and maximize the building's potential. This is at a time when the availability of science instructional space at Western continues to lag behind significant growth in STEM majors and degree production. STEM majors continue to experience unprecedented enrollment increases; including the departments that occupy the Environmental Studies Center (ESC).

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; WWU has had several instances of having to cap intake into STEM majors, partially to maintain the quality of these programs and time-to-degree but also for the need of additional space. The university has breached its ability to continue to perform at current levels without new specialized space.

Building a modest addition to the Sciences Building, followed by a major renovation of the existing structure, is the most beneficial and cost effective approach to address programmatic needs as well as facility preservation and space utilization challenges. This project proposes a two phase approach over two biennia to construct an addition to an aging existing science building (Phase 1 for 2017-19) prior to renovating the much larger original structure (Phase 2 for 2019-21).

The project is estimated to ultimately accommodate an increase of 80-100 bachelor's degrees and graduate degrees in high-demand fields within four years of the completion of the first phase of the project. The phased-in approach is intended to initially provide much of the science instructional space required to facilitate the renovation of the existing facility without impeding student learning and time-to-degree.

#### History of the project

<u>2013-15 Biennia:</u> In the fall of 2013, Western commissioned a space needs assessment of the College of Science and Engineering and the Huxley College of the Environment. The study noted serious deficiencies in space quantity and quality for collaborative teaching spaces, research labs, and faculty offices across both colleges, and in particular, the very poor quality of space within the ESC, impacting the functionality of the departments and programs housed in the building.

The needs expressed in that study were originally represented in a 2013-15 capital request for pre-design funding. That request proposed the construction of a new interdisciplinary science building that would broadly address science needs at Western and facilitate interdisciplinary activities between departments, disciplines and the specialized institutes and centers. The original structure, the Environmental Studies Center (ESC), (the building that we are presently proposing to renovate and expand) would have been repurposed for non-STEM academic programs. The needs described in that original request were as pressing then as they are now however, the scale and cost of the project made it unviable.

# 380 - Western Washington University Capital Project Request

2017-19 Biennium

Version: WV Working Version 2017-19 Budget Req

Report Number: CBS002 Date Run: 7/29/2016 5:09PM

## Project Number: 30000768

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#### Description

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The Sciences Building Addition & Renovation project is critically interlinked with two other capital requests also proposed by Western in 2017-19, the Classroom and Lab Upgrades and the Support Services Facility Phase 1. The Classroom and Lab Upgrades will provide some of the displaced instructional capacity during the renovation phase while the Support Services Facility will directly support the project by providing most of the interim faculty offices and academic administrative space during the construction phase of the project.

Based on year-over-year growth to date, once their program growth is no longer impeded by limitations of space and quality of space, Western projects that the departments impacted by this project will produce 92 additional high demand and STEM degrees relative to the 2015 academic year as follows:

- --- 23 additional undergraduate and graduate degrees in Geology
- --- 22 additional degrees in Environmental Sciences
- --- 23 additional degrees in Environmental Studies
- --- 12 additional degrees in integrated studies as Materials Sciences and Energy Studies
- --- 12 additional degrees in integrated studies as Business & Sustainability

Project Schedule: Project Design: August 2017 Construction End: September 2021

Usable square feet (USF) = 89,423 Gross square feet (GSF) = 161,788 Building efficiency (USF divided GSF) = 55.3%

Location

City: Bellingham

County: Whatcom

Legislative District: 040

Project Type

New Facilities/Additions (Major Projects) Remodel/Renovate/Modernize (Major Projects) OFM

# 380 - Western Washington University Capital Project Request

2017-19 Biennium

Version: WV Working Version 2017-19 Budget Req

#### **Report Number:** CBS002 **Date Run:** 7/29/2016 5:09PM

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#### Description

#### **Growth Management impacts**

none

#### Funding

			Expenditures		2017-19	Fiscal Period
Acct Code	Account Title	Estimated Total	Prior Biennium	Current Biennium	Reapprops	New Approps
057-1 065-1	State Bldg Constr-State WWU Capital Projects-State	140,559,000 1,250,000				54,991,000 1,250,000
	Total	141,809,000	0	0	0	56,241,000
		F	uture Fiscal Perio	ods		
057-1	State Bldg Constr-State	<b>2019-21</b> 85,568,000	2021-23	2023-25	2025-27	

065-1	WWU Capital Projects-State				
	Total	85,568,000	0	0	0

#### **Operating Impacts**

#### Total one time start up and ongoing operating costs

Acct Code	Account Title	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
FTE	Full Time Employee	6.2	5.5	5.5	5.5	5.5
001-1	General Fund-State	754,140	577,735	594,659	605,918	620,520
	Total	754,140	577,735	594,659	605,918	620,520

#### Narrative

Based on 46,300 gsf new construction

	STATE	OF WASHINGTON	
AGE	NCY / INSTITUTIO	N PROJECT COST SUMMARY	
Agency	Western Washington U	niversity	
Project Name	Sciences Building Additi	on & Renovation	
OFM Project Number	30000768		
Contact Information			
Name	Rick Benner, FAIA		
Phone Number	360-650-3550		
Email	rick.benner@wwu.edu		
Statistics			
Gross Square Feet	161,788	MACC per Square Foot	\$452
Usable Square Feet	89,423	Escalated MACC per Square Foot	\$507
Space Efficiency	55.3%	A/E Fee Class	Α
Construction Type	Research Facilities	A/E Fee Percentage	Varies
Remodel	Varies	Projected Life of Asset (Years)	50
Additional Project Details			
Alternative Public Works Project	Yes	Art Requirement Applies	Yes
Inflation Rate	2.80%	Higher Ed Institution	Yes
Sales Tax Rate %	8.70%	Location Used for Tax Rate	
Contingency Rate	Varies		
Base Month	May-16		
Project Administered By	Agency		
Schedule	-		
Predesign Start	August-15	Predesign End	June-16
Design Start	Varies	Design End	Varies
Construction Start	Varies	Construction End	Varies
Construction Duration	Varies		

Project Cost Estimate			
Total Project	\$126,499,841	Total Project Escalated	\$141,809,041
		Rounded Escalated Total	\$141,809,000

# **Cost Estimate Summary**

Sciences Building Addition & Renovation

Acquisition			
Acquisition Subtotal	\$0	Acquisition Subtotal Escalated	\$0
Consultant Services			
Predesign Services	\$0		
A/E Basic Design Services	\$5,057,372		
Extra Services	\$2,293,000		
Other Services	\$3,142,153		
Design Services Contingency	\$848,939		
Consultant Services Subtotal	\$11,341,464	Consultant Services Subtotal Escalated	\$12,497,831
Construction			
GC/CM Risk Contingency	\$1,341,000	GC/CM Risk Contingency	\$1,508,246
GC/CM or D/B Costs	\$14,821,590	GC/CM or D/B Costs	\$16,662,892
Construction Contingencies	\$5,783,000	Construction Contingencies Escalated	\$6,536,845
Maximum Allowable Construction	\$73,160,000	Maximum Allowable Construction Cost	\$82,083,096
Cost (MACC)	\$75,100,000	(MACC) Escalated	\$82,083,090
Sales Tax	\$8,274,186	Sales Tax Escalated	\$9,290,825
Construction Subtotal	\$103,379,776	<b>Construction Subtotal Escalated</b>	\$116,081,904
Equipment			
Equipment	\$6,860,000		
Sales Tax	\$596,820		
Non-Taxable Items	\$0		
Equipment Subtotal	\$7,456,820	Equipment Subtotal Escalated	\$8,435,780
Artwork	r		
Artwork Subtotal	\$410,416	Artwork Subtotal Escalated	\$410,416
Agency Project Administration			
Agency Project Administration Subtotal	\$3,189,864		
DES Additional Services Subtotal	\$0		
Other Project Admin Costs	\$0		
Project Administration Subtotal	\$3,189,864	Project Administation Subtotal Escalated	\$3,579,498
-		·	
0.1 0			
Other Costs	4704 500		4000.010
Other Costs Subtotal	\$721,500	Other Costs Subtotal Escalated	\$803,612
Project Cost Estimate			
Total Project	\$126,499,841	Total Project Escalated	\$141,809,041

Rounded Escalated Total

\$141,809,041 \$141,809,000

# STATE OF WASHINGTON AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Western Washington University
Project Name	Sciences Building Addition & Renovation (Addition Component)
OFM Project Number	30000768

Contact Information			
Name	Rick Benner, FAIA		
Phone Number	360-650-3550		
Email	rick.benner@wwu.edu		

Statistics					
Gross Square Feet	46,330	MACC per Square Foot	\$662		
Usable Square Feet	29,334	Escalated MACC per Square Foot	\$723		
Space Efficiency	63.3%	A/E Fee Class	А		
Construction Type	<b>Research Facilities</b>	A/E Fee Percentage	7.81%		
Remodel	No Projected Life of Asset (Years)		50		
Additional Project Details					
Alternative Public Works Project	Yes	Art Requirement Applies	Yes		
Inflation Rate	2.80%	Higher Ed Institution	Yes		
Sales Tax Rate %	8.70%	Location Used for Tax Rate			
Contingency Rate	5%				
Base Month	May-16				
Project Administered By	Agency				

Schedule				
Predesign Start	August-15	Predesign End	June-16	
Design Start	August-17	Design End	January-19	
Construction Start	February-19	Construction End	March-20	
Construction Duration	13 Months			

Project Cost Estimate					
Total Project	\$49,694,123	Total Project Escalated	\$54,216,056		
		Rounded Escalated Total	\$54,216,000		

# STATE OF WASHINGTON AGENCY / INSTITUTION PROJECT COST SUMMARY Agency Western Washington University Project Name Sciences Building Addition & Renovation (Addition Component) OFM Project Number 30000768

# **Cost Estimate Summary**

	Acc	quisition			
Acquisition Subtotal \$0 Acquisition Subtotal Escalated					
	Consult	tant Services			
	66				

Consultant Services Subtotal	\$4,206,587	Consultant Services Subtotal Escalated	\$4,495,731
Design Services Contingency	\$200,314		
Other Services	\$1,184,425		
Extra Services	\$1,087,000		
A/E Basic Design Services	\$1,734,849		
Predesign Services	\$0		

Construction					
GC/CM Risk Contingency	\$514,000				
GC/CM or D/B Costs	\$5,832,000				
Construction Contingencies	\$1,533,000	Construction Contingencies Escalated	\$1,679,095		
Maximum Allowable Construction	\$20 660 000	Maximum Allowable Construction Cost			
Cost (MACC)	\$30,660,000	(MACC) Escalated	\$33,505,590		
Sales Tax	\$3,352,893	Sales Tax Escalated	\$3,665,786		
Construction Subtotal	\$41,891,893	Construction Subtotal Escalated	\$45,801,252		

Equipment					
Equipment	\$1,685,000				
Sales Tax	\$146,595				
Non-Taxable Items	\$0				
Equipment Subtotal	\$1,831,595	Equipment Subtotal Escalated	\$2,006,147		

Artwork					
Artwork Subtotal	\$167,528	Artwork Subtotal Escalated	\$167,528		

Agency Project Administration						
Agency Project Administration Subtotal	\$1,394,520					
DES Additional Services Subtotal	\$0					
Other Project Admin Costs	\$0					
Project Administration Subtotal	\$1,394,520	Project Administation Subtotal Escalated	\$1,527,419			

Other Costs				
Other Costs Subtotal	\$202,000	Other Costs Subtotal Escalated	\$217,979	

Project Cost Estimate				
Total Project	\$49,694,123	Total Project Escalated	\$54,216,056	
		Rounded Escalated Total	\$54,216,000	

Acquisition Costs					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	\$0		NA	\$0	

Consultant Services						
Item	Base Amount	Escalation Factor	Escalated Cost	Notes		
1) Pre-Schematic Design Services		14000				
Programming/Site Analysis						
Environmental Analysis						
Predesign Study						
Other						
Insert Row Here						
	ćo	1.0252	ćo	Escalated to Design Start		
SubTOTAL	ŞU	1.0352	ŞU	Escalated to Design Start		
2) Construction Documents						
A /E Basis Design Services	¢1 724 940			60% of A/E Daris Somisor		
A/E Basic Design Services	\$1,734,849			69% OF A/E Basic Services		
	<u> </u>	4 05 5 7	<u> </u>			
Sub TOTAL	\$1,734,849	1.0557	\$1,831,480	Escalated to Mid-Design		
3) Extra Services	4					
Civil Design (Above Basic Svcs)	\$55,000					
Geotechnical Investigation	\$28,000					
Commissioning	\$28,000					
Site Survey	\$17,000					
Testing	\$40,000					
LEED Services	\$22,000					
Voice/Data Consultant	\$17,000					
Value Engineering	\$17,000					
Constructability Review	\$17,000					
Environmental Mitigation (EIS)						
Landscape Consultant	\$45,000					
LCCA	\$85,000					
Acoustical Constultant	\$33,000					
Travel & Per Diem	\$100,000					
Renderings & Models	\$5,000					
Document Reproduction	\$10,000					
Advertising	\$3,000					
AV Consultant	\$20,000					
Elevator Consultant	\$10,000					
Wood Tunnel Study	\$10,000					
Laboratory Consultant	\$75,000					
Interior Design Consultant	\$35,000					
Security Consultant	\$10,000					
Lode Consultant	\$10,000					
Envelope Consultant	\$15,000					
Parking Lot Displacement Design	\$180,000					
Greenhouse Relocation Design	\$200,000					
Incort Pour Horo						
	¢1 097 000	1 0557	61 147 EAC	Escalated to Mid Decian		
	\$1,087,000	1.0557	\$1,147,546	Escalated to Mid-Design		

4) Other Services

Bid/Construction/Closeout	\$779,425			31% of A/E Basic Services
HVAC Balancing	\$80,000			
Staffing				
			_	
On Site Reps (during Design & Const.)	\$270,000			
Commissioning	\$55,000			
Insert Row Here				
Sub TOTAL	\$1,184,425	1.0953	\$1,297,301	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	\$200,314			
Other				
Insert Row Here				
Sub TOTAL	\$200,314	1.0953	\$219,404	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	\$4,206,587		\$4,495,731	

Construction Contracts					
ltem	Base Amount	Escalation	Escalated Cost	Notes	
		Factor			
1) Site Work					
G10 - Site Preparation					
G20 - Site Mechanical Utilities					
G40 - Site Electrical Utilities					
G60 - Other Site Construction					
Goo - Other Site Construction			Ι		
Relocation of Greenhouse	\$800.000				
Parking Displacement (60 spaces)	\$900,000				
Overall Sitework	\$3,010,000				
Insert Row Here	\$3,010,000				
Sub TOTAL	\$4,710,000	1.0791	\$5,082,561		
	<i>ų () 20)000</i>	110751	<i>\$0,002,001</i>		
2) Related Project Costs					
Offsite Improvements					
City Utilities Relocation					
Parking Mitigation					
Stormwater Retention/Detention					
Other					
Insert Row Here					
Sub TOTAL	\$0	1.0791	\$0		
	· · ·				
3) Facility Construction					
A10 - Foundations					
A20 - Basement Construction					
B10 - Superstructure					
B20 - Exterior Closure					
B30 - Roofing					
C10 - Interior Construction					
C20 - Stairs					
C30 - Interior Finishes					
D10 - Conveying					
D20 - Plumbing Systems					
D30 - HVAC Systems					
D40 - Fire Protection Systems					
D50 - Electrical Systems					
F10 - Special Construction					
F20 - Selective Demolition					
General Conditions					
MACC	\$25,950,000				
Insert Row Here					
Sub TOTAL	\$25,950,000	1.0953	\$28,423,035		
4) Maximum Allowable Construction C	lost				
MACC Sub TOTAL	\$30,660,000		\$33,505,596		

5) GCCM Risk Contingency				
GCCM Risk Contingency	\$514,000			
Other				
Insert Row Here			-	
Sub TOTAL	\$514,000	1.0953	\$562,985	
6) GCCM or Design Build Costs				
GCCM Fee	\$2,054,000			
Bid General Conditions	\$3,569,000			
GCCM Preconstruction Services	\$209,000			
Other				
Insert Row Here				
Sub TOTAL	\$5,832,000	1.0953	\$6,387,790	
7) Construction Contingency				
Allowance for Change Orders	\$1,533,000			
Other				
Insert Row Here				
Sub TOTAL	\$1,533,000	1.0953	\$1,679,095	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0953	\$0	
Sales Tax				
Sub TOTAL	\$3,352,893		\$3,665,786	
	· · · ·		• · · ·	
CONSTRUCTION CONTRACTS TOTAL	<b>\$41,891,893</b>		\$45,801,252	

Equipment						
ltem	Base Amount		Escalation Factor	Escalated Cost	Notes	
E10 - Equipment	\$1,290,000					
E20 - Furnishings	\$395,000					
F10 - Special Construction						
Other						
Insert Row Here			_			
Sub TOTAL	\$1,685,000		1.0953	\$1,845,581		
1) Non Taxable Items						
Other						
Insert Row Here						
Sub TOTAL	\$0		1.0953	\$0		
Sales Tax						
Sub TOTAL	\$146,595			\$160,566		
EQUIPMENT TOTAL	\$1,831,595			\$2,006,147		

Artwork							
Item	Base Amount		Escalation Factor	Escalated Cost	Notes		
Project Artwork	\$0				0.5% of Escalated MACC for new construction		
Higher Ed Artwork	\$167,528				0.5% of Escalated MACC for new and renewal construction		
Other							
Insert Row Here							
ARTWORK TOTAL	\$167,528		NA	\$167,528			

Project Management							
ltem	Base Amount		Escalation Factor	Escalated Cost	Notes		
Agency Project Management	\$1,394,520						
Additional Services							
Other							
Insert Row Here							
PROJECT MANAGEMENT TOTAL	\$1,394,520		1.0953	\$1,527,419			

Other Costs						
ltom	Paca Amount		Escalation	Escalated Cost	Notos	
item	Base Amount		Factor	Escalated Cost	Notes	
Mitigation Costs						
Hazardous Material						
Remediation/Removal						
Historic and Archeological Mitigation						
Plan Review	\$125,000					
M&O Assist	\$77,000					
Insert Row Here						
OTHER COSTS TOTAL	\$202,000		1.0791	\$217,979		

# C-100(2016)

# **Additional Notes**

Insert Row Here
Tab B. Consultant Services
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Tab C. Construction Contracts
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Tab D. Equipment
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Tab E. Artwork
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Tab F. Project Management
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Tab G. Other Costs
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Tab A. Acquisition

# STATE OF WASHINGTON AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Western Washington University	
Project Name	Sciences Building Addition & Renovation (Renovation Component)	
OFM Project Number	30000768	

Contact Information						
Name	Rick Benner, FAIA					
Phone Number	360-650-3550					
Email	rick.benner@wwu.edu					

Statistics								
Gross Square Feet	115,458	MACC per Square Foot	\$368					
Usable Square Feet	60,089	Escalated MACC per Square Foot	\$421					
Space Efficiency	52.0%	A/E Fee Class	А					
Construction Type	Research Facilities	A/E Fee Percentage	10.30%					
Remodel	Yes	Projected Life of Asset (Years)	50					
Additional Project Details								
Alternative Public Works Project	Yes	Art Requirement Applies	Yes					
Inflation Rate	2.80%	Higher Ed Institution	Yes					
Sales Tax Rate %	8.70%	Location Used for Tax Rate						
Contingency Rate	10%							
Base Month	May-16							
Project Administered By	Agency							

Schedule					
Predesign Start	August-15	Predesign End	June-16		
Design Start	August-19	Design End	August-20		
Construction Start	September-20	Construction End	September-21		
Construction Duration	12 Months				

Project Cost Estimate					
Total Project	\$76,805,715	Total Project Escalated	\$87,592,985		
		Rounded Escalated Total	\$87,593,000		

# STATE OF WASHINGTON

# AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency Project Name OFM Project Number Western Washington University

Sciences Building Addition & Renovation (Renovation Component)

30000768

# **Cost Estimate Summary**

Acquisition					
Acquisition Subtotal	\$0	Acquisition Subtotal Escalated	\$0		

Consultant Services						
Predesign Services	\$0					
A/E Basic Design Services	\$3,322,523					
Extra Services	\$1,206,000					
Other Services	\$1,957,728					
Design Services Contingency	\$648,625					
Consultant Services Subtotal	\$7,134,875	Consultant Services Subtotal Escalated	\$8,002,100			

Construction					
GC/CM Risk Contingency	\$827,000				
GC/CM or D/B Costs	\$8,989,590				
Construction Contingencies	\$4,250,000	Construction Contingencies Escalated	\$4,857,750		
Maximum Allowable Construction	¢42 E00 000	Maximum Allowable Construction Cost	¢49 E77 E00		
Cost (MACC)	\$42,500,000	(MACC) Escalated	\$48,577,500		
Sales Tax	\$4,921,293	Sales Tax Escalated	\$5,625,039		
Construction Subtotal	\$61,487,883	Construction Subtotal Escalated	\$70,280,652		

Equipment					
Equipment	\$5,175,000				
Sales Tax	\$450,225				
Non-Taxable Items	\$0				
Equipment Subtotal	\$5,625,225	Equipment Subtotal Escalated	\$6,429,633		

Artwork					
Artwork Subtotal	\$242,888	Artwork Subtotal Escalated	\$242,888		

Agency Project Administration						
Agency Project Administration Subtotal	\$1,795,344					
DES Additional Services Subtotal	\$0					
Other Project Admin Costs	\$0					
Project Administration Subtotal	\$1,795,344	Project Administation Subtotal Escalated	\$2,052,079			

Other Costs					
Other Costs Subtotal	\$519,500	Other Costs Subtotal Escalated	\$585 <i>,</i> 633		

Project Cost Estimate				
Total Project	\$76,805,715	Total Project Escalated	\$87,592,985	
		Rounded Escalated Total	\$87,593,000	

Acquisition Costs					
ltem	Base Amount		Escalation	Escalated Cost	Notes
			Factor		
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	\$0		NA	\$0	

Consultant Services					
Item	Base Amount	Escalation Factor	Escalated Cost	Notes	
1) Pre-Schematic Design Services		14000			
Programming/Site Analysis					
Environmental Analysis					
Predesign Study					
Other					
Insert Row Here					
Sub TOTAL	\$0	1.0940	\$0	Escalated to Design Start	
-	· .		· .	5	
2) Construction Documents					
A/E Basic Design Services	\$3,322,523			69% of A/E Basic Services	
Other					
Insert Row Here					
Sub TOTAL	\$3,322,523	1.1092	\$3,685,342	Escalated to Mid-Design	
•	<u> </u>				
3) Extra Services					
Civil Design (Above Basic Svcs)	\$30,000				
Geotechnical Investigation	\$5,000				
Commissioning	\$85,000				
Site Survey	\$7,500				
Testing	\$125,000				
LEED Services	\$90,000				
Voice/Data Consultant	\$35,000				
Value Engineering	\$30,000				
Constructability Review	\$30,000				
Environmental Mitigation (EIS)					
Landscape Consultant	\$30,000				
LCCA	\$40,000				
Acoustical Constultant	\$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				
Wood 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				
Insert Row Here					
Sub TOTAL	\$1,206,000	1.1092	\$1,337,696	Escalated to Mid-Design	

4) Other Services

Bid/Construction/Closeout	\$1,492,728			31% of A/E Basic Services
HVAC Balancing	\$80,000			
Staffing				
On Site Reps (during Design & Const.)	\$220,000			
Commissioning	\$165,000			
Insert Row Here				
Sub TOTAL	\$1,957,728	1.1430	\$2,237,683	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	\$648,625		_	
Other				
Insert Row Here				
Sub TOTAL	\$648,625	1.1430	\$741,379	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	\$7,134,875		\$8,002,100	

Construction Contracts						
ltem	Base Amount	Escalation	Escalated Cost	Notes		
item	buse Amount	Factor	Estalated Cost	Notes		
1) Site Work						
G10 - Site Preparation						
G20 - Site Improvements						
G30 - Site Mechanical Utilities						
G40 - Site Electrical Utilities						
G60 - Other Site Construction						
Other						
Insert Row Here						
Sub TOTAL	\$0	1.1273	\$0			
2) Related Project Costs						
Offsite Improvements						
City Utilities Relocation						
Parking Mitigation						
Stormwater Retention/Detention						
Other						
Insert Row Here						
Sub TOTAL	\$0	1.1273	\$0			
3) Facility Construction						
A10 - Foundations						
A20 - Basement Construction						
B10 - Superstructure						
B20 - Exterior Closure						
B30 - Roofing						
C10 - Interior Construction						
C20 - Stairs						
C30 - Interior Finishes						
D10 - Conveying						
D20 - Plumbing Systems						
D30 - HVAC Systems						
D40 - Fire Protection Systems						
D50 - Electrical Systems						
F10 - Special Construction						
F20 - Selective Demolition						
General Conditions						
MACC	\$38,500,000					
Exterior Cladding Alternate	\$4,000,000					
Insert Row Here						
Sub TOTAL	\$42,500,000	1.1430	\$48,577,500			
4) Maximum Allowable Construction C	ost					
MACC Sub TOTAL	\$42,500,000		\$48,577,500			

5) GCCM Risk Contingency				
GCCM Risk Contingency	\$827,000		<u> </u>	
Other				
Insert Row Here				
Sub TOTAL	\$827,000	1.1430	\$945,261	
6) GCCM or Design Build Costs				
GCCM Fee	\$3,307,000			
Bid General Conditions	\$5,392,590			
GCCM Preconstruction Services	\$290,000			
Other				
Insert Row Here				
Sub TOTAL	\$8,989,590	1.1430	\$10,275,102	
7) Construction Contingency				
Allowance for Change Orders	\$4,250,000		_	
Other				
Insert Row Here				
Sub TOTAL	\$4,250,000	1.1430	\$4,857,750	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.1430	\$0	
Sales Tax				
Sub TOTAL	\$4,921,293		\$5,625,039	
CONSTRUCTION CONTRACTS TOTAL	\$61,487,883		\$70,280,652	

Equipment						
Item	Base Amount		Escalation Factor	Escalated Cost	Notes	
E10 - Equipment	\$4,000,000					
E20 - Furnishings	\$1,175,000					
F10 - Special Construction						
Other						
Insert Row Here						
Sub TOTAL	\$5,175,000		1.1430	\$5,915,025		
1) Non Taxable Items						
Other						
Insert Row Here						
Sub TOTAL	\$0		1.1430	\$0		
Sales Tax						
Sub TOTAL	\$450,225			\$514,608		
EQUIPMENT TOTAL	\$5,625,225			\$6,429,633		
Green cells must be filled in by user						

Artwork							
Item	Base Amount		Escalation Factor	Escalated Cost	Notes		
Project Artwork	\$0				0.5% of Escalated MACC for new construction		
Higher Ed Artwork	\$242,888				0.5% of Escalated MACC for new and renewal construction		
Other							
Insert Row Here							
ARTWORK TOTAL	\$242,888		NA	\$242,888			

Project Management						
ltem	Base Amount	Escalation Factor	Escalated Cost	Notes		
Agency Project Management	\$1,795,344					
Additional Services						
Other						
Insert Row Here						
PROJECT MANAGEMENT TOTAL	\$1,795,344	1.1430	\$2,052,079			

Other Costs						
ltom	Baca Amount		Escalation	Escalated Cost	Notos	
item	base Amount		Factor	Escalated Cost	Notes	
Mitigation Costs						
Hazardous Material						
Remediation/Removal						
Historic and Archeological Mitigation						
Plan Review	\$350,000					
M&O Assist	\$169,500					
Insert Row Here						
OTHER COSTS TOTAL	\$519,500		1.1273	\$585,633		

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# **Additional Notes**

Tab A. Acquisition
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Tab B. Consultant Services
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Tab C. Construction Contracts
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Tab D. Equipment
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Tab E. Artwork
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Tab F. Project Management
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Tab G. Other Costs
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# Appendix B



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 C

# Western Washington University Institutional Master Plan

An Addendum to the Western Washington University Neighborhood Plan

Adopted by the City of Bellingham, September 24, 2001 Ordinance #2001-09-068



Approved by WWU Board of Trustees, October 5, 2001

# 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 D**



# Appendix E

# **AVAILABILITY OF SPACE**

Project Name: Sciences Building Addition & Renovation Campus Location: 516 High Street, Bellingham, WA REQUIRED FOR ALL CATEGORIES EXCEPT ACQUISITION AND INFRASTRUCTURE.

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 campus where the project is located.

#### (a) General University Classroom Utilization

Fall 2015 Weekly Contact Hours Multiply by % FTE Increase Budgeted Expected Fall 2016 Contact Hours Expected Fall 2016 Classroom Seats **Expected Hours per Week Utilization** HECB GUC Utilization Standard Difference in Utilization Standard

168,519
0.03%
168,570
7,643
 22.05
22
0.22%

#### (b) General University Lab Utilization

Fall 2015 Weekly Contact Hours	35,786
Multiply by % FTE Increase Budgeted	0.03%
Expected Fall 2016 Contact Hours	35,797
Expected Fall 2016 Class Lab Seats	1,946
Expected Hours per Week Utilization	18.39
HECB GUL Utilization Standard	16
Difference in Utilization Standard	14.93%

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.

Utilization of classrooms and class-labs remains high at Western. Of concern is the extent to which class lab utilization, particularly in STEM disciplines, are very high. To better illustrate the situation, of the 126 class labs at Western in the Fall of 2015, twenty-seven class labs operated at greater than 16 SCH per week per seat; fifteen class labs operated at greater than 20 SCH per week per seat; six class-labs operated at greater than 30 SCH per week per seat and two (Chemistry) labs operated in excess of 40 SCH per week per seat with the highest utilization for a class-lab being 47 SCH. The situation presents access and safety issues and drives our request to expand the availability of STEM instructional space both through capital renovation & expansion (this request) but also repurposing low performing instructional space (a separate request for classroom & lab upgrades).

# Appendix F

Program-related space allocation (weighted average, 6 points possible)	Assignable square feet Percentage of total x points = score	Assigned ASF (from the Predesign Study)	Percentage of total	Points	SCORE
	Instructional space (classroom, lab, library)	59742.5	66.81%	6	4.01
	Student advising/counseling services	0	0.00%	4	0.00
	Child care	0	0.00%	1	0.00
	Faculty offices	9570.0	10.70%	4	0.43
	Administrative	7160.0	8.01%	3	0.24
	Maintenance/central stores/student center	12950.0	14.48%	4	0.58
		89422.5	100.00%	22	5.26