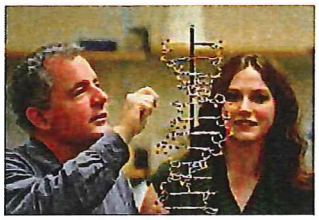
WASHINGTON STATE UNIVERSITY

Pullman Life/Physical Sciences Building

2019 – 21 Request:	**$500,000**	**Project Type:**	**Replacement**
		Project Phase:	**Predesign**
Institutional Priority:	**# 8**	**Gross Square Ft:**	**50,000**

Washington State University requests $500,000 for the predesign of a teaching and research building dedicated to foundational life and physical sciences on the Pullman campus replacing the marginally functioning 1962 Heald Hall building.

Sustained increases in student enrollment and interest in STEM programs at WSU Pullman are pushing current space resources to the limit and restricting opportunities for program growth and expansion. A new building with high-quality academic, collaborative, and investigative spaces will directly support the growth of key programs in biological sciences, chemistry, physics, and environmental sciences, and will improve WSU's ability to deliver world-class STEM education and training.



The best research and teaching in the life and physical sciences requires specialized laboratory space and access to modern infrastructure. The foundational life and physical science disciplines at WSU have not had a significant building investment in nearly 30 years. Aging buildings and limited laboratory space are significant negative influences on the university's ability to continue providing high-quality science education and training.

Consistent with the Governor's *Results Washington* goals, investing in facilities for life and physical sciences will benefit the state by increasing the quality and quantity of workforce preparation and training. Scores of future physicians and healthcare workers, engineers, researchers, farmers, business and industry leaders, conservationists, policymakers, and scientifically knowledgeable workers are educated at WSU each year. Additionally, STEM faculty at WSU make significant contributions to the state's research portfolio in agriculture, biology, chemistry, genetics, material sciences, physics, zoology, and many other disciplines.

Modern laboratory, teaching, and research space will provide WSU educators and researchers with resources to increase productivity and expand opportunities to attract external funding. Furthermore, the new facility will enrich interdisciplinary STEM degree programs across the institution and contribute to the scientific literacy of all students.

Providing high-quality discipline-specific facilities directly contributes to the recruitment and retention of highly productive faculty as well as the state's overall goal to increase enrollment and the number of degrees earned in all STEM programs. In addition to the hundreds of undergraduate and graduate students pursuing degrees in foundational scientific disciplines at WSU, students seeking degrees in applied sciences such as forestry, biotechnology, engineering, food science, materials science, and all pre-healthcare programs (e.g., medicine, dentistry, pharmacy, veterinary medicine) are trained in these foundational sciences.

The new life and physical sciences building is a high priority and is a part of the WSU Pullman campus master plan. Replacing Heald Hall is the highest and best use for the site. Heald Hall has many shortcomings, in particular, it has inadequate structural capacity to support modern laboratory equipment. Replacing it also removes the high cost of keeping an old inefficient building operational and will set the stage for renovating other facilities. Overall, a new core science building will significantly contribute to increasing the number of students completing STEM degrees and will enhance training opportunities for the next generation of scientific and educational leaders.

Institution
Washington State University
Project Title
PULLMAN LIFE/PHYSICAL SCIENCES BUILDING
Project Location (City)
Pullman, WA

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

Sustained increases in student enrollment and interest in STEM programs at Washington State University (WSU) have stretched current STEM-related space to the limit and restricted opportunities for program growth and expansion. A new building dedicated to life and physical sciences education and research is a critical need for WSU and the state of Washington.

The poor quality and limited quantity of current teaching and research space for life and physical sciences at WSU constrains the university's ability to achieve its strategic goals and meet the state's educational objectives. Outstanding research and teaching in these disciplines requires specialized laboratory space and access to modern infrastructure. On the WSU Pullman campus, the buildings housing the foundational academic life and physical science programs are, on average, more than 40- years-old, with the most recent renovation over 25 years ago. The oldest building is more than 70- years-old and in need of major renovation. Many of the teaching laboratories are in need of critical improvements.

Over the past three years, the university's ongoing master planning activities have included working with a team of architects and planners from the firm of NBBJ to produce a coherent facilities development plan to address significant needs in STEM-related program areas. A new life and physical sciences building was identified as a critical need and the first step toward increasing capacity.

Life scientists study the living world, such as plants or the human body, with disciplines including biology, ecology, genetics, neuroscience, pathology, nutrition, and more. Physical scientists study the physical and natural world through observation and experimentation and span disciplines from chemistry and physics to cosmology, materials science and engineering. Investing in these disciplines at WSU benefits the state by contributing to economic growth and workforce preparation. According to the U.S. Bureau of Labor Statistics, employment in occupations related to STEM—science, technology, engineering, and mathematics—is projected to increase 13% by 2022 to more than 9 million jobs. The data indicates nearly 1 million jobs will need to be filled by qualified researchers, educators, computer scientists, physicians, agricultural managers, communicators, and other science-based roles.[1],[2]

WSU provides fundamental instruction and research experience in life and physical sciences for scores of future doctors, chemists, farmers, engineers, government leaders, entrepreneurs, computer scientists, teachers, and many more scientifically knowledgeable workers. STEM faculty at WSU contribute to the university's research portfolio in agriculture, genetics, chemistry, cell biology, molecular biology, material sciences, physics, zoology, and many other core disciplines.

WSU is committed to providing transformational experiences for our students and supporting their transition into STEM careers in Washington. To fulfill its land-grant educational mission and contribute to the STEM employment pipeline, significant capital investment in the life and physical sciences education and training facilities at WSU is required. Existing teaching and research laboratories that are a half-century old or more are inadequate to meet the training and education needs of the next generation of life and physical scientists.

[1] http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm
[2] http://www.bls.gov/careeroutlook/2014/spring/art01.pdf

The disciplinary domains at WSU with the most inadequate educational space include the foundational realms of biological sciences (e.g., biology, ecology, plant sciences, and zoology) and physical sciences (e.g. chemistry, materials sciences, and physics), as well as the developing discipline of data analytics.

Flexible research laboratory facilities and active, adaptive educational spaces with access to advanced technology are vital to the work and education of life and physical scientists. Students with hands-on research experience using modern equipment and methodologies are better prepared to join the workforce immediately after graduation. Additionally, faculty working to solve problems ranging from improving infant health to growing sustainable crops to developing innovative new materials are more successful when facilities enhance, rather than hinder, innovation.

Finally, investing in modernized laboratory, teaching, and research space for foundational programs will benefit STEM programs and interdisciplinary projects across the institution, which in turn will benefit the state and the nation. A new life and physical sciences building will contribute to the scientific literacy of all WSU students and increase the number of students completing STEM undergraduate and graduate degrees.

2. History of the project or facility:

This new life and physical sciences building is the first in a series of planned replacements and renovations aligned with the Washington State University campus master plan, the campus development plan[3] and the institution's goal to significantly elevate research training and productivity. Construction of a new life and physical sciences building will directly contribute to the university's economic impact and job training for the state of Washington.

High quality, modern facilities are vital for maintaining and expanding STEM research initiatives, and critical for effective classroom instruction. They are also a high priority for attracting and retaining the best faculty undergraduate and graduate student scholars who contribute to the University's respected R-1 research portfolio and external funding potential.

Aging buildings and limited space for foundational instruction and research in life and physical sciences on the Pullman campus are significant negative influences on the ability of WSU to continue providing quality education and training for high-demand STEM degree programs. Improving and modernizing facilities will enable outstanding WSU faculty educators and researchers to increase productivity, attract more external funding, and enhance the impact and reputation of the state of Washington.

This new building, in addition to providing flexible space to expand and enrich educational opportunities and research activities, will play a strategic role in the University's ability to stage renovations of other facilities while continuing to serve all undergraduate students and fulfill our land-grant education mission. For example, much of the interior and infrastructure of the existing buildings housing STEM programs, including Abelson, Heald, Eastlick, and Fulmer, are well past their life expectancy. In particular, HVAC capabilities in the Fulmer Hall laboratories are perilously close to failing to meet basic safety and health standards. Should the HVAC system fail, all chemistry teaching labs and research activities would have to shut down as there are currently no alternative spaces available on the Pullman campus. A structure analysis of Heald Hall, built in 1962, revealed that floor load capacity is inadequate to support modern laboratory equipment. The building is marginally functioning because of this and other infrastructure issues. This project will be sited on the current location of Heald Hall.

Significant advancements in the techniques, protocols, technology, and safety measures required for modern STEM research and instruction have been made in the decades since construction of these science buildings on the Pullman campus. Current operating procedures for experimentation and teaching today had not been conceived of when many of the existing laboratories and classrooms were built. Desktop computers with high-speed connections are now integral to daily data collection and analysis, on every bench, in every laboratory.

[3] Campus Development Plan: https://couggis.wsu.edu/developmentprogram

Highly controlled air handling is now required by the EPA, EH&S, OSHA, Labor and Industries, and the state Department of Ecology to protect the health of faculty, students, and visitors.

3. University programs addressed or encompassed by the project:

This project encompasses faculty and academic units providing life and physical sciences degree programs on the Pullman campus. These units are highly productive and they provide significant instructional resources for undergraduate and graduate students in majors across the institution. Scores of future physicians and healthcare workers, chemical engineers, researchers, farmers, business and industry leaders, conservationists, policymakers, and scientifically literate citizens are educated at WSU each year.

Biological sciences, chemistry, and physics faculty at Washington State University contribute to a wide range of both discipline-specific and interdisciplinary educational and research programs. Areas of expertise include (but are not limited to) biology, plant sciences, veterinary medicine, chemistry, cell and molecular biology, zoology, food systems, genetics, materials science and engineering, physics, and data sciences.

WSU life and physical sciences faculty and student researchers contribute to initiatives that improve lives in Washington and around the world by:

- building the STEM education pipeline and strengthening scientific literacy of all citizens;
- improving global competitiveness of WSU graduates;
- advancing medical treatment therapies and high-quality training for health professionals;
- conducting computational modeling and data analysis to assess complex problems;
- maintaining forest resources and clean water supplies;
- creating a reliable food supply and producing better crops;
- increasing energy production and creating new materials for energy management;
- detecting potential biological threats and improving nuclear waste management.

Additionally, in the fall of 2017, WSU launched a new Bachelor of Science in Data Analytics degree that leverages strengths across multiple domains, including life and physical sciences, to train highly skilled data scientists who can extract and transform raw data into usable formats, uncover correlative and causative patterns, and provide cogent information for more informed decision-making. The new program is the first of its kind offered in the Pacific Northwest. This unique WSU degree is centered in computational mathematics and spans eight discipline-specific tracks, including life sciences (biology), physical sciences (chemistry and physics), and agricultural and environmental systems (geology, plant science, ecology). The proposed new building will contribute to the success and growth of this new degree program by providing data networking infrastructure, collaborative spaces for interdisciplinary researchers, and the introduction of a new modality of interconnected teaching. Students in another new degree program, the BA in Human Biology (expected to launch in 2019-20, with projected new enrollments of 50 students/year within 5 years) will also benefit substantially from technologically advanced laboratory facilities.

Improved and expanded life and physical science facilities will enable WSU to meet the ever-expanding educational needs of STEM students and allow for growth in the number, size and interdisciplinary of research projects, all of which will likely lead to increases in refereed publications, prestigious faculty and student recognition, and external funding.[4]

4. Integral to Achieving Statewide Policy Goals:

Provide degree targets, and describe how the project promotes improvement on 2015-16 degree production totals in the OFM four-year public dashboard.

[4] See metrics 1-4, 6,7,8, 15: https://strategicplan.wsu.edu/plan/metrics/

Quality instruction and training facilities are vital for providing high-demand STEM degree programs in chemistry, biological sciences, and physics. The proposed new facility directly supports the Results Washington goal to increase enrollments and graduates in STEM and high demand programs.[5] In addition to educating undergraduate and graduate students in these disciplines, students seeking degrees in agriculture, biotechnology, engineering, food science, materials science, and pre-healthcare programs (such as medicine, dentistry, nursing, pharmacy, and veterinary medicine) must complete a series of foundational STEM courses.

Over the past six years, the number of graduate students pursuing advanced degrees in chemistry, biological sciences, and physics has averaged over 230 per year with most enrolled in research-intensive Ph.D. studies. When this project is completed, the advanced degrees completed will likely increase by 15 per year, most of which will be in high demand fields (**Appendix A**).

The life and physical science units at Washington State University are highly productive academic and research organizations. Biological sciences, chemistry, and physics together enrolled more than 2,100 undergraduates and graduate AAFTE on the Pullman campus in academic year (AY) 2017. The academic load for these disciplines in AY 2017 was 60,654 student credit hours. When this project is complete, undergraduate degrees are estimated to increase by 100 per year, 60 of which are in high demand fields (**Appendix A).**

Multiple STEM courses are also part of the University Core Requirements for graduation that provide scientific literacy for future leaders in all disciplines.

a. Indicate the number of bachelor's degrees awarded at the close of the 2015-16 academic year.

Total WSU bachelor's degrees awarded in 2015-16: **5,517**

b. Indicate the number of bachelor's degrees awarded in high-demand fields at the close of the 2015-16 academic year.

WSU bachelor's degrees awarded in high demand fields in 2015-16: **1,976**

c. Indicate the number of advanced degrees awarded at the close of the 2015-16 academic year.

WSU advanced degrees awarded in 2015-16: **1,480** (805 of which were in high demand fields)

5. If a predesign for a Growth project, describe how the project promotes access for underserved regions and place-bound adults through distance learning and/or university centers:

This project is technically a Replacement project but growth in both enrollment and research are key factors driving the need for the new facility.

a. Is distance learning or a university center a large and significant component of the total project scope? If yes, to what degree of percentage?

Distance learning and collaboration are important components of modern life and of physical science research and instruction. Modern technological infrastructure and instructional space is necessary to offer remote or distance courses and to facilitate scientific collaboration with leading colleagues around the world. Currently, online instruction cannot be efficiently delivered from many of the outdated science buildings. This new facility will be equipped to efficiently and effectively deliver courses and support collaborations, globally.

b. WSU's Global Campus (distance learning) currently offers more than 20 biology/microbiology courses, five mathematics and statistics courses, and several offerings in plant pathology and crop sciences. The complete online biology major is expected to be available through the Global Campus by next year. At

[5] Results Washington Goal 1.3.f.h.i https://www.results.wa.gov/goals-progress/goals/world-class-education/goal-map

least one online biology course will require students to complete two all-day (Saturday) sessions of laboratory training in Pullman. Elective online biology courses are under development that may also require limited laboratory training. The new online biology major will be enhanced by modern, high quality laboratory facilities in the new life and physical sciences building.

c. Is the project likely to enroll a significant number of students who are place-bound or residents of underserved regions?

Yes. In particular, the Department of Chemistry recently received approval to offer a Bachelor of Arts in Chemistry in addition to the existing Bachelor of Science (B.S.) degree. The new B.A. degree will provide access to a chemistry degree for place-bound students in Vancouver, Tri-Cities, and Everett. Students will be able to take most of their coursework at their local campus and will only be required to complete a small number of laboratory courses on the Pullman campus. The success of this program will be greatly enhanced by updated, online education access in classrooms and quality labs in the new life and physical sciences building.

6. Integral to Campus/Facilities Master Plan:

a. Describe the proposed project's relationship and relative importance to the institution's most recent Campus/Facilities Master Plan or other applicable strategic plan.

The Life/Physical Sciences building is a high priority capital project is a part of the Pullman campus master plan[6] and the subsequent campus development plan.[7] It will be sited in the core of campus, replacing Heald Hall that is in close proximity to many of the existing facilities housing the STEM academic and research programs. Sustained increases in student enrollment and interest in STEM programs at Washington State University have stretched current space resources to the limit and restricted opportunities for program growth and expansion. This new facility will not only provide adequate space for these growing programs but also remove inadequate and marginally functioning space that is well beyond its useful life. A new facility for life and physical sciences education and research is a critical need for both WSU and the state of Washington.

b. Does the project follow the sequencing laid out in the Master Plan (if applicable)? If not, explain why it is being requested now.

Yes. This first new building follows master plan/development plan sequencing and was reinforced by a consulting firm's (NBBJ) report (excerpt in **Appendix B**) which analyzed the quality and quantity of space, in particular, for the delivery of core instruction of science-based programs on campus. In the University's master/development plans (and consistent with the independent consultant's report), this building would replace an inadequate existing facility with sufficient space that would be able to support current and future needs in STEM programs.

7. Integral to institution's Academic Programs Plan:

Describe the proposed project's relationship and relative importance to the institution's most recent Academic Programs Plan:

The university's Strategic Plan[8] identifies WSU's tripartite mission: To **advance knowledge** through creative research and scholarship across a wide range of academic disciplines; to **extend knowledge** through innovative educational programs in which emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society; and to **apply knowledge** through local and global engagement that will improve quality of life and enhance the economy of the state, the nation, and the world.

Washington State University strives to provide a truly transformational student experience. Expanding life and physical sciences resources on the Pullman campus will enable WSU to continue to evolve its pedagogy and

[6] http://facilitiesservices.wsu.edu/resources/pdf/masterplan/pullman_MasterPlan.pdf
[7] Campus Development Plan: http://couggis.wsu.edu/DevelopmentProgram/
[8] https://strategicplan.wsu.edu/plan/vision-mission-and-values/

program delivery. Inquiry-based education has been shown to increase student retention and degree completion[9]. Improving facilities will enable us to extend inquiry- and problem-based learning modules to more first-year courses and to expand experiential learning opportunities to all students studying life and physical sciences. In turn, experiential learning will increase job readiness and develop highly sought-after graduates[10].

The quality and condition of laboratory and classroom space plays a significant role in the University's ability to achieve its academic mission and meet its strategic goals. The new Life/Physical Sciences building will **strengthen faculty and student recruitment and retention** by providing modern, safe, technologically advanced space for a wide range of biological sciences, physics, and chemistry programs, each of which contributes to achieving the university's and the state's strategic goals by:

- providing high impact learning experiences that engage students;
- significantly improving retention and graduation rates of undergraduate students;
- developing and supporting outstanding graduate training programs;
- supporting interdisciplinary programs such as the Materials Science and Engineering Program and the Institute of Biological Chemistry, and degree programs in neuroscience, chemical engineering, integrated plant sciences, data analytics, and more;
- investing in and promoting identified and emerging areas of preeminence;
- attracting and retaining a diverse faculty and staff of the highest academic stature;
- leading relevant local, national, and global outreach and engagement;
- fueling the state and national economy with innovative ideas.

The new facility will also directly support the university's strategic goal to improve undergraduate student retention.[11] Peer institutions that have made similar investments in modern scientific educational facilities have noted increased retention rates.

Must the project be initiated soon in order to:

a. Meet academic certification requirements?

Yes. The Department of Chemistry's undergraduate degree programs are certified by the American Chemical Society, a congressionally chartered membership organization representing chemistry professionals at all degree levels and in all fields. Standards for this national recognition include a modern and well-maintained infrastructure in addition to a rigorous curriculum. An annual site visit is required. Access to modern, safe facilities will significantly strengthen the department's ability to maintain this certification.

b. Permit enrollment growth and/or specific quality improvements in current programs?

Yes. Much of the current laboratory and educational space at WSU for life and physical sciences is outdated and/or requires significant repair. Investing in modern, flexible laboratory facilities will help the university to meet increasing student demand for STEM degrees and provide valuable training with current and emerging technology, procedures, and equipment, which in turn will increase workforce readiness and contribute to new discoveries.

c. Permit initiation of new programs?

9 Freeman et al: http://www.pnas.org/content/111/23/8410.full

10 Cramer & Hamilton: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5410760/

[11] Strategic Plan metric Theme 2 : https://s3.wp.wsu.edu/uploads/sites/153/2014/07/WSU-Strategic-Plan-2014-2019.pdf

Yes. Two recently approved degrees will be a part of the interdisciplinary suite of programs enhanced by the new Life Physical Sciences building.

A portion of the coursework for the recently approved Bachelor of Arts in Chemistry will be delivered online and will be complemented with concentrated, on-campus lab sections. Effective implementation of this degree will require modern laboratory space for hands-on training and the appropriate infrastructure for distance course delivery. Such a facility is not available on the Pullman campus at this time.

The building will also support faculty and research initiatives for the new multi-track Bachelor of Science in Data Analytics degree program. This innovative program will leverage strengths across multiple domains, including life and physical sciences, to train highly skilled data scientists who can extract and transform raw data into usable formats, uncover correlative and causative patterns, and develop information for more informed decision-making.

8. Suitability of Existing Space:
Identify space upgrades needed and/or lack of suitable space needed to address existing and/or future program standards and needs.

The WSU strategic plan focuses on training the next generation of scientific and educational leaders through rigorous instruction and hands-on experiences, but most of the life and physical science facilities on campus are inadequate, outdated, and present numerous health and safety challenges. For example, a structural analysis of Heald Hall, completed by Coffman Engineers, revealed that floor load capacity is inadequate to support modern laboratory equipment (see **Appendix C**). In addition to the inadequate structural capacity, Heald Hall has multiple other limitations in supporting life science programs. The conclusion is that Heald Hall needs to be replaced with a new facility that meets the needs of the current and future needs in the campus master plan.

Along with modernization, it is urgent that WSU secure additional space for instruction and research. A functional space analysis by NBBJ (see **Appendix B**) determined that WSU facilities provide less than half of the optimum space required for the university's size and productivity. The analysis concluded that an additional 100,000 square feet of instructional and research space for chemistry alone is required to move WSU closer to the resources of peer institutions.[12]

Recruiting and retaining the best faculty is essential to meet programmatic and productivity goals. Approximately one third of chemistry and physics faculty and several biological sciences faculty are currently over the age of 60, so recruitment of highly productive and creative young scientists is now crucial for maintaining and growing WSU's contributions to innovation and discovery. Leading and emerging scientists expect high quality, adaptive research facilities, and they are likely to forgo opportunities at WSU if the university cannot provide even a basic modern laboratory.

Creating significant and sustainable programmatic improvements are long-term goals, usually requiring five to 10 years to yield meaningful and sustainable growth indicators. For WSU, and in turn for the state, it is necessary to provide the quality and quantity of facilities for foundational life and physical sciences disciplines to ensure that student enrollment and research faculty recruitment will keep pace with the demands.

9. Availability of Space/Utilization on Campus:
Describe the institution's plan for improving space utilization and how the project will impact the following:

The new Life/Physical Sciences facility will provide safe and modern laboratory and classroom instructional space for STEM programs on the Pullman campus. Classroom and teaching laboratory space in the new facility will be designed for basic science (STEM) courses with modernization and efficient space utilization goals in mind. The campus space use statistics are shown in **Appendix D.**

[12] Strategic Plan metric 9, 10, and 11: https://strategicplan.wsu.edu/wp-content/uploads/sites/153/2016/03/Metrics.pdf

a. The utilization of classroom space

To promote space efficiency, university scheduling matches the course sections with the size of classrooms and auditoria. Progress toward the state target for classroom usage has been steady. Classrooms and teaching laboratories in this new facility will be designed with space efficiency in mind. High quality, modern instruction in STEM disciplines includes small lecture sessions held before hands-on lessons in the class laboratory—an active-learning approach that fosters greater student-teacher interaction and significantly improves student success.

b. The utilization of class laboratory space

Based on the raw calculation (**Appendix D**), teaching laboratory use at the Pullman campus appears slightly under the state target but, in fact, if all the lab sessions scheduled after hours are included, overall usage of those spaces is above the standard target. The HECB formula counts usage within a nine-hour contiguous block of time. While the majority (87%) of scheduled teaching lab use on the Pullman campus occurs between 9:00 a.m. and 6:00 p.m., 13% of the teaching lab use is outside this time range. If included, those additional student contact hours of use put the labs above the current standard. Construction of modern facilities will significantly increase the available laboratory space on the Pullman campus and contribute to meeting the state's target space utilization goals.

10. Condition of Building:

Provide the facility's condition score (1 superior – 5 marginal functionality) from the 2016 Comparable Framework study, and summarize the major structural and systems conditions that resulted in that score. (Provide selected supporting documentation in appendices, and reference them in the body of the proposal.)

There are currently five buildings on the Pullman campus that house foundational life and physical sciences programs: Heald, Eastlick, Fulmer, Abelson, and Webster. Some programs from each of these older buildings may be relocated to the new facility. On average, it has been 45 years since these buildings were constructed or received a major renovation. In 2014-2015, WSU conducted facility condition assessments of multiple buildings through VFA, a well-known consulting firm that provides facility assessment services. VFA rates overall building condition by Facility Condition Index (FCI), a ratio of facility requirements to the replacement value. **Appendix E and Appendices E1-5** include detailed assessments of five of these buildings with programs that will be impacted the most by having new modern space provided by this project. The detailed assessments include, but are not limited to, information about their major structural and systems conditions.

The chemistry department is currently located in the Fulmer Hall complex with a Facility Condition Index (FCI) of 0.94. While a portion of the three-building Fulmer complex was renovated in 1997, the original 1935 lab building of over 60,000 gross square feet has never been renovated and has a Comparable Framework Study score of 5.0 (Needs Improvement: Marginal Functionality). The physics and geology departments are currently located in Webster (1974), a building that has a Facility Condition Index (FCI) of 0.64. This equates to a Comparable Framework Study score of 5 (Needs Improvement: Marginal Functionality).

The biology department is currently spread out over three buildings: Eastlick (1977) has a FCI of 0.57 (Poor) and a Comparable Framework Study score of 5 (Needs Improvement: Marginal Functionality); Abelson (1990 renovation) has a FCI of 0.53 (Poor) and a Comparable Framework Study score of 4 (Needs Improvement: Limited Functionality); Heald (1962) has a FCI of 0.65 (Poor) and a Comparable Framework Study score of 5 (Needs Improvement: Marginal Functionality).

The construction of the Physical/Life Science Building would include the demolition of Heald and this new facility would be constructed in Heald's current location. This will not only provide new, more functional and usable space for the life and physical science programs, but will also remove a marginally functioning facility along with the significant maintenance cost associated with keeping the 1962 Heald building operational.

APPENDIX A

Pullman Life Sciences Bldg	Anticipated Growth in Bachelor's Degrees	Anticipated Growth in High Demand Bachelor's Degrees	Anticipated Growth in Advanced Degrees	Anticipated Growth in High Demand Advanced Degrees
2015-16 Actual	5,517	1,976	1,480	805
Additional Degrees Generated by Project	100	60	15	15
Projected Degrees with Building Project	5,617	2,036	1,495	820
Projected Growth Above 2015-16 Actual Degrees	1.8%	3.0%	1.0%	1.9%
Current 2018-19 Target	5,946	2,203	1,481	895
Percent of 2015-16 Actual over 2018-19 Target	92.8%	89.7%	99.9%	89.9%
Projected Degrees as a % of 2018-19 Target	94.5%	92.4%	100.9%	91.6%

Comments: An increase of 100 new bachelor's degrees is expected and of those 60 will be in high demand degree programs. An additional 15 advanced degrees will be awarded and most of those will be in high demand areas. Refer to project proposal section 4 for more details.

APPENDIX B

Sample Par Analysis from College of Arts and Sciences Facilities

Life and Physical Sciences Programs

Academic Unit	Existing Space[1]	Par Required	Par + Projected Growth	Delta (ASF[1])	% of Par
Chemistry	97,010	224,900	254,300	157,300	43%
Physics & Astronomy	48,800	67,200	72,400	23,600	73%
School of the Environment	30,410	74,700	82,000	51,600	41%
School of Biological Sciences	132,550	245,700	254,900	122,400	54%

[1]assignable square feet (ASF)

Notes: The Par analysis was performed by the Seattle-based architectural firm, *nbbj*. This firm evaluated the assignable square feet for similar (student numbers, faculty numbers, etc) academic programs at several WSU peer institutions. From this analysis, they deduced that the highlighted programs above had insufficient space compared to peers. They also deduced that these academic programs would grow significantly in the next 10 years and that growth would lead to even more discrepancy between the current assignable square feet and what was necessary.

WASHINGTON STATE UNIVERSITY

"EXCERPT"

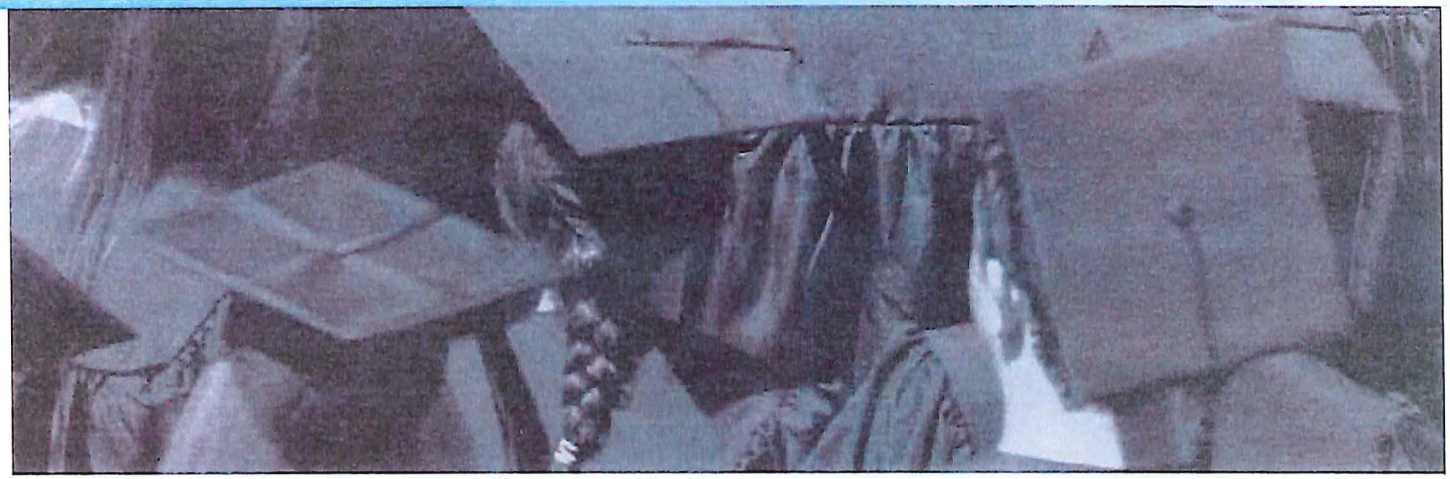
COLLEGE OF ARTS & SCIENCES
Facilities Development Plan

February 2015

nbbj

Table of Contents

1.0 EXECUTIVE SUMMARY

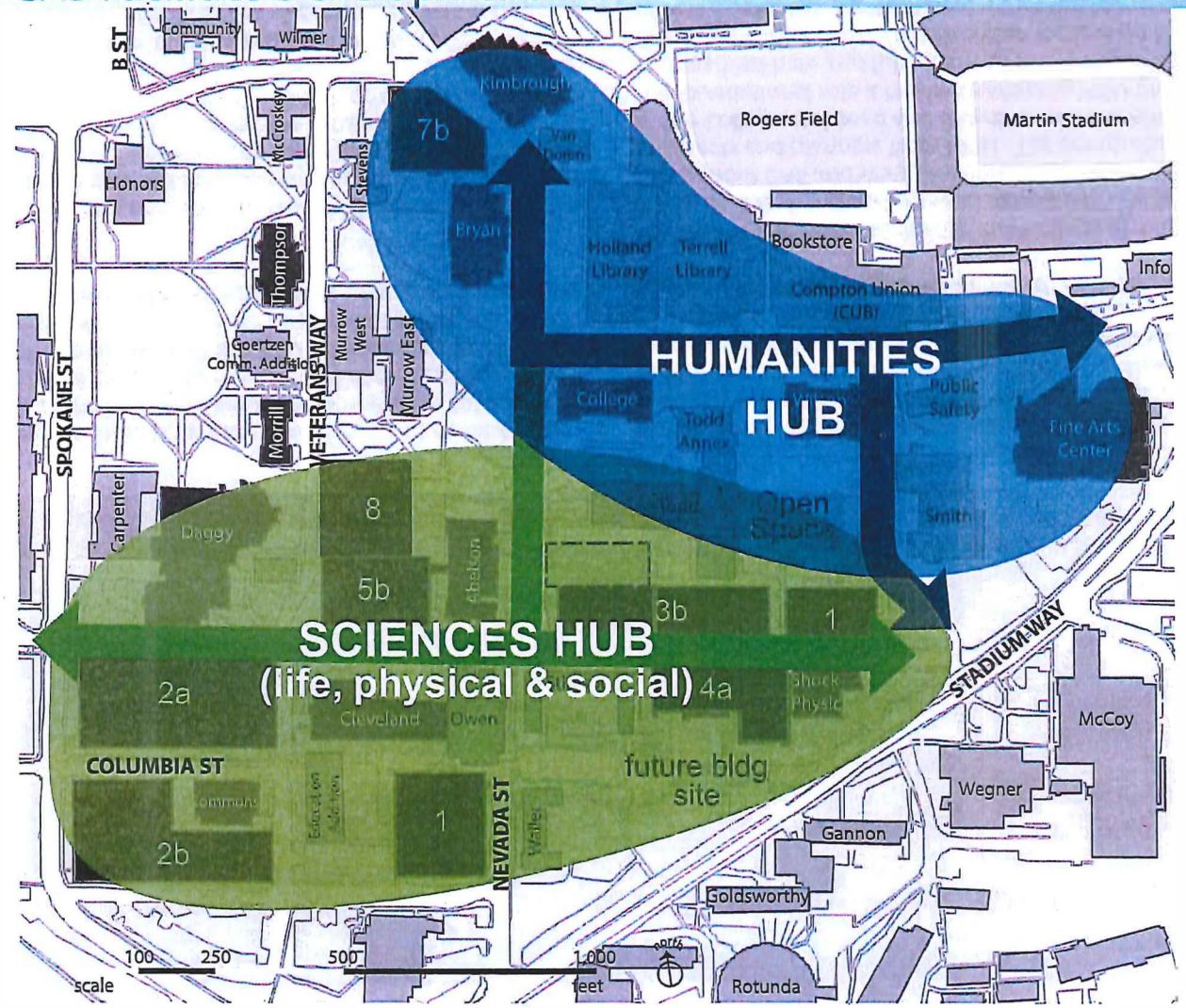


Washington State University completed a comprehensive update of the Pullman Campus Master Plan in 2012, identifying a long list of proposed actions for all districts on-campus. Since the completion of the *2012 Pullman Campus Master Plan Update,* Facilities Services and leadership across the eleven colleges have tried to ascertain how best to implement the plan.

In 2012, Washington State University (WSU) established the College of Arts & Sciences by merging two separate colleges, Liberal Arts and Sciences into one. College leadership spent its first two years envisioning the future and defining a *Strategic Plan*. The resultant mission, goals and objectives all pointed to creating a proactive strategy for building the necessary infrastructure to achieve the vision. This *College of Arts & Sciences Facilities Development Plan* was conducted to assess the data, determine the needs and recommend the necessary capital projects to accommodate the College's research, education and interdisciplinary pursuit of excellence at Washington State University. Embedded in this *Facilities Development Plan* are potential steps that could be taken in coordination with other college capital development plans to achieve the actions proposed in the *2012 Master Plan.*

For almost one year, the dean of the College of Arts & Sciences (CAS), Dr. Daryll DeWald, worked closely with leadership throughout CAS and WSU's Facilities Services and a team of architects and planners from NBBJ. The comprehensive study of the College, its broad and diverse academic offerings and the foundational role it has in developing WSU graduates is summarized here and fully detailed in the separately bound, *Planning Background*. While this plan focuses on the College of Arts & Sciences, a critical goal is that the plan interfaces with those from other colleges to collectively produce a coherent facilities development plan for the entire University.

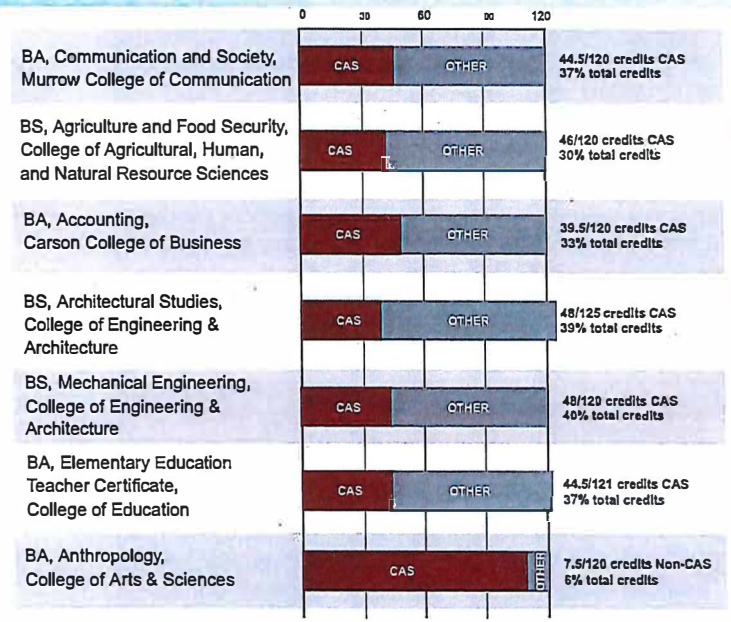
CAS Facilities Development Plan "Centers of Excellence" Vision



CAS Educational Connections at WSU

1.1 Study Findings

The College of Arts & Sciences Facilities Development Planning process ultimately resulted in 5 key findings. The physical organization of the College's academic units is graphically summarized in the "Centers of Excellence" vision diagram on the preceding page.



1. *The College of Arts & Sciences is a key stakeholder in the overall success of Washington State University.*

CAS is the largest academic college at WSU and offers 28 distinct undergraduate degrees with many opportunities for specialization. CAS departments and schools also provide a substantial share of the instruction for UCORE coursework and the foundational instruction for all science-based degrees offered in other colleges.

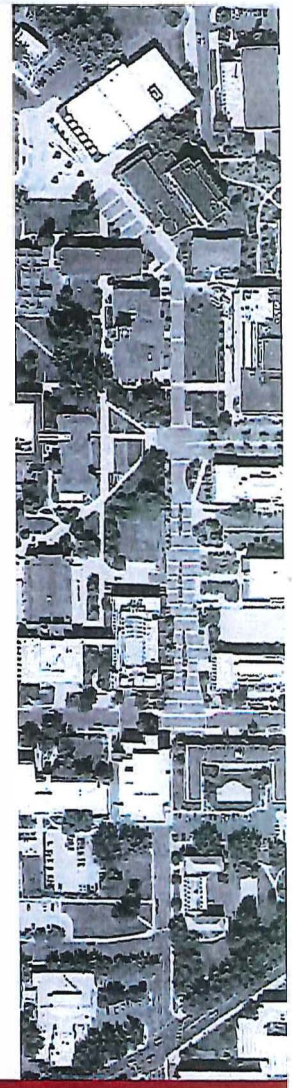
The mission of CAS and its academic units directly support and promote the success of the University and its other academic colleges. All together, CAS faculty teach more than 50 percent of all undergraduate academic credit hours at WSU and more than 80 percent of all freshmen credit hours. Except for incoming transfer students who have already completed their general requirements, every undergraduate student at WSU will enroll in College of Arts & Sciences classes. The educational mission of the College therefor links to all of the other academic units on campus and so should the capital development plan.

CAS is also a leading research enterprise with annual expenditures of over $25 million. Faculty researchers provide diverse and interdisciplinary research opportunities for undergraduates and are fully invested in graduate student training.

2. *Teaching, research and collaborative space within the College of Arts & Sciences are significantly lacking in quality and are often ill-suited for the designated function.*

A qualitative analysis determined many CAS facilities are below standard for modern higher education delivery. Substantial improvements are needed to meet the educational expectations of students, faculty, taxpayers, accreditation organizations and external funding agencies.

The average age of all CAS buildings is 54 years, or 14 years older than the average age for all WSU Pullman campus facilities combined. Poor quality, condition and/or configuration of space severely limit the College's ability



to recruit, develop and retain high quality faculty, staff and students in all disciplines.

Unsuitable and potentially unsafe laboratories also undermine the faculty's ability to perform cutting-edge research and train future leaders.

3. ***All of the College of Arts & Sciences academic units are hindered by insufficient space allocation. The life/physical sciences programs are the most significantly challenged by space shortages.***

CAS facilities are lacking in both quality and in quantity. The WSU space allocation for the College of Arts & Sciences is more than one-third smaller than WSU's peer institutions. Based on current estimates, CAS units have approximately 68 assignable square feet (ASF) per student while similar colleges of WSU's aspirational peer institutions average 100-120 ASF per student.

4. ***The existing quality and quantity of space is dramatically constraining the ability of the college, and the University, to achieve its goals and objectives.***

The College of Arts & Sciences, in alignment with the University, aims to foster excellence in the arts, humanities, and social and natural sciences and provide a foundation for intellectual and creative experiences.

A lack of space for faculty, research and instruction restricts collaboration and can inhibit innovation. Insufficient space allocation and inappropriate facilities negatively affects opportunities for interdisciplinary learning, detracts from advancements in teaching, and impedes creativity and research activities.

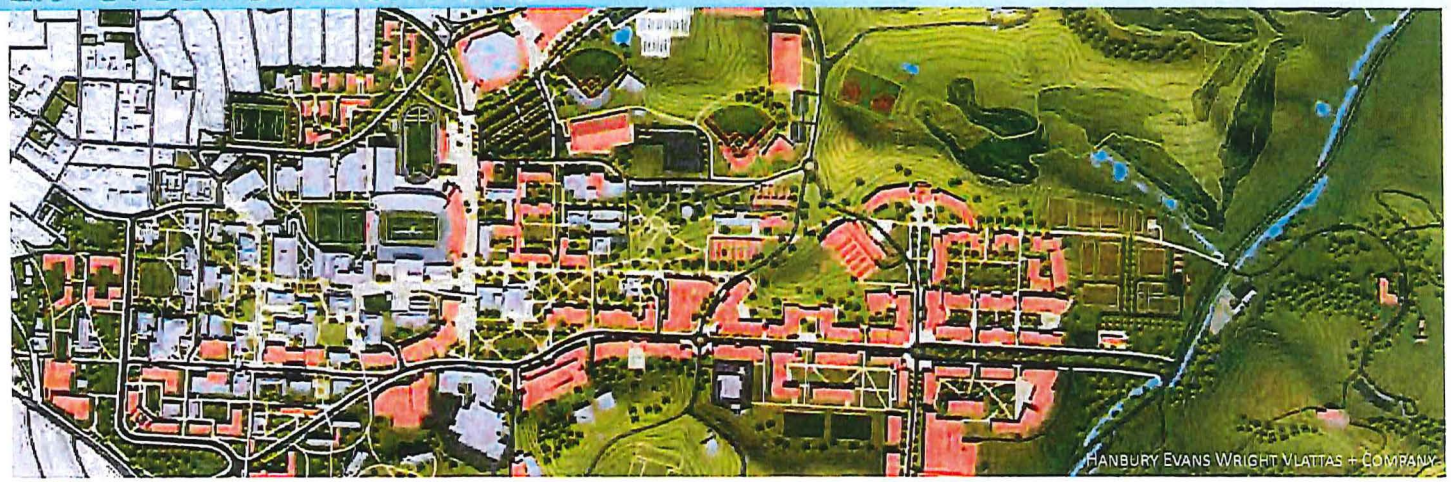
The collegial experience of all WSU students and the potential success of the institution suffer as a result. New campus facilities, such as the proposed Digital Technology Education Building, allow the opportunity to provide shared teaching/learning space for CAS and other college units and improve intercollegiate partnerships on-campus.

5. ***The proposed Facilities Development Plan is a long-term, phased investment strategy that will incrementally address the significant needs of the University and the College of Arts & Sciences.***

The proposed development plan addresses the huge need to replace and grow the College's built environment, link CAS to other academic units, and create new places on the Pullman campus. Each step will directly improve the assigned academic units, and, in turn, benefit the college and the University as a whole.

Implementation of the plan to right-size, modernize and grow the college's built environment depends on committed investment to achieve the prioritized and interconnected capital improvements. Major capital funding requests may require determination and creativity, including seeking potential public-private partnerships and donation opportunities.

2.0 STUDY BACKGROUND



Washington State University's Facilities Services and the College of Arts & Sciences contracted this *Facilities Development Plan* in order to better prepare the College to be competitive for State Legislative funding, grant funding, and private donations. WSU seeks to provide facilities that support teaching in Science, Technology, Engineering and Mathematics (STEM) fields and research in pressing global issues.

WSU seeks to optimize the growth on campus and to most efficiently utilize limited capital funding. The purpose of this Plan is to identify the most appropriate definition and sequencing of CAS projects over the next 20 years of anticipated growth and to target opportunities to interface with similar plans developed by other WSU colleges. The *Facilities Development Plan* is grounded in the recent Pullman Campus Master Plan and the *Strategic Plan* for the College of Arts & Sciences.

2.1 WSU Pullman Campus Master Plan Update

Washington State University updated the Pullman Campus Master Plan in 2012, identifying significant growth and replacement of existing facilities in order to support research initiatives and campus growth. The *2012 Pullman Campus Master Plan Update* resulted from the collaborative effort led by Facilities Services and Hanbury Evans Wright Vlattas + Company.

The *Master Plan* identifies several proposed actions for each district of the campus however, detailed definitions of the potential building projects involved was beyond the scope of the master planning effort. WSU Facilities Services is now assisting the University's colleges to evaluate their facilities and determine how to best address the unique space needs of each college and implement the *Master Plan*.

APPENDIX C

WASHINGTON STATE UNIVERSITY

Department of Capital Planning and Development

MEMORANDUM

To: Bob Bates, Provost

From: Ryan Ruffcorn

Date: July 31, 2002

Re: Heald Hall Structural Analysis

Based upon your challenge, Capital Planning and Development commissioned a new structural analysis of Heald Hall. Coffman Engineers of Spokane, Washington conducted the analysis during the month of June and provided a report to me on July 16, 2002.

The evaluation was completed in an effort to gain additional information regarding the existing structural condition of the building and to determine if renovation of the building was feasible considering the existing condition of the structure.

A copy of the report, along with a memo to Jerry Schlatter is attached for your reference. The memo summarizes the findings and provides recommendations for the future use of this facility. The report concludes that Heald Hall is not an immediate life-safety risk and the structure can be repaired in a cost-effective manner. The report also states that the building is not designed to support floor loads that a modern laboratory would require, and therefore future use should be restricted to programs that are less intensive such as classrooms and office space.

Keep in mind that there are many other deficiencies in the building that must be addressed before this facility can be considered adequate. Some of these deficiencies are listed in the attached memo.

Heald Hall, while not an immediate life-safety risk, is worthy of a major renovation. A use for this facility must be identified which will not compromise the structural system. The use of the building should be considered during the programming and planning of the adjacent Biotechnology Life Sciences Facility as well as any future Life Sciences facility projects. Heald Hall may also become valuable "swing space" that should be considered when planning future major capital projects.

cc: Jerry Schlatter
Greg Royer
Ken Spitzer
File

210 Commons Building, PO Box 641611, Pullman, WA 99164-1611
509-335-5371 • Fax: 509-335-8675 • www.cpd.wsu.edu

WASHINGTON STATE UNIVERSITY
Department of Capital Planning and Development

MEMORANDUM

To: Jerry Schlatter

From: Ryan Ruffcorn Ryan

Date: July 31, 2002

Re: Heald Hall Structural Analysis

The structural evaluation for Heald Hall has been completed by Coffman Engineers and is attached for your review. This evaluation was completed in an effort to gain additional information regarding the existing structural condition of the building and to determine if a renovation should be undertaken.

The report outlines the engineer's findings and also provides recommendations for the future. The following points highlight some of the findings:

- While the original structural evaluation states that 28% of cross-sectional area of the steel re-bar has been lost, it is important to note that this loss is at isolated locations on select columns and should not be construed as an average loss over the length of each column. Loss of rebar more likely averages 5-7% and the sample that measured 28% loss in 1993 was most likely a deep pit in the bar. It is unrealistic to assume that a 28% loss of rebar is the typical condition over the entire length of each bar in each column.
- There is approximately 10,000 sf of exterior column area, of which about 400 square feet is in need of spall repair. An additional 200 linear feet requires crack repair. Total area in need of repair accounts for only 4-5% of the total column area of the building.
- Over the nine-year period since the last evaluation was completed, the cracks allowing water infiltration have lengthened from 2-4 feet to 6-7 feet long. This indicates that deterioration is continuing to occur.
- The infiltration of water into the exterior columns must be stopped as soon as possible to eliminate any further deterioration. Application of a waterproofing membrane is strongly recommended as soon as possible.
- The cracking that is present on the inside of both interior and exterior walls is due to settlement and is not related to the column conditions.
- The facility should not be used for a purpose where 100 psf is required (such as a modern laboratory). The facility was designed to support 40 psf and additional floor loading will most likely over-stress the system.
- The structure is adequate to support a new brick façade, although a more detailed analysis is recommended prior to designing a new exterior enclosure.
- Floor/column connection points appear to be in adequate condition and have not deteriorated to a point where structural integrity has been lost.
- The building's lateral system is adequate to withstand forces that would likely be experienced during an earthquake. The exterior columns were originally designed to only support gravity loads and should perform as expected in a typical seismic event.
- Spalled concrete from the exterior columns could begin to fall from the building if deterioration is allowed to continue. This is a significant safety hazard to the University community and should be dealt with immediately.

WITNESS

110 Commons Building, PO Box 643611, Pullman, WA 99164-2611
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It appears that with the recommended maintenance to the building, the structural integrity of the facility does not pose an immediate life-safety risk, however there are many other deficiencies within the building that still must be addressed. These include:

- Life safety issues
  - Lack of fire protection system
  - Compromised fire ratings of rated walls
  - Fume hoods located adjacent to exit doors
  - Restricted exit paths
- Health safety issues
  - Lack of make-up air for existing fume hoods
  - Questionable indoor air quality
  - Cross contamination between labs and offices
- Energy Conservation issues
  - Exterior walls are under insulated and allow dust and air infiltration
  - Windows are a single-glazed non-thermally broken residential grade system
  - Mechanical system is outdated and not energy efficient
- Building infrastructure and layout is problematic
  - Mechanical and electrical systems are outdated and do not provide adequate service
  - Low floor-to-floor heights limit the possibility of renovation
  - Floor plates do not meet stiffness requirements for modern research

It is my recommendation that maintenance dollars be provided so that a waterproofing barrier can be immediately applied to the exterior columns of the building. This barrier would minimize, if not stop the infiltration of water into the cracked columns, greatly reducing the rate of corrosion. This maintenance process would then allow time to plan a renovation project for Heald Hall for a use that is less intensive than a laboratory.

COFFMAN ENGINEERS

Structural
Mechanical
Electrical
Civil
Corrosion
Program and Construction Management

July 16, 2002

Mr. Ryan Ruffcorn
Washington State University
Capital Planning and Development
Commons Building
P. O. Box 643611
Pullman, WA 99164-3611

Project: Heald Hall Evaluation
CEI #02179

Subject: Structural Review

Dear Ryan:

Per your request, Coffman Engineers has performed a structural review of Heald Hall, located on the campus of Washington State University in Pullman, Washington. This report is to present our findings.

I. Building Description

Heald Hall is a five-story structure that was constructed in two phases. Phase I consisted of four floors which were completed in 1960. Phase II included adding a fifth floor, which was completed in 1969. The structure utilizes cast-in-place concrete columns and pre-cast concrete beams for the floor and roof framing. A 4 ½" concrete structural slab was poured at each floor level after the beams were installed.

II. Background Information

In 1993, the University had a study, by Construction Technologies Laboratories, Inc, (CTL), performed on Heald Hall to determine if the deterioration to the concrete columns would compromise the structural integrity of the building. The results of the first study indicated that the structure was sound but recommended that steps be taken to repair the columns in order to protect the steel reinforcing from exposure and continued deterioration.

III. Purpose and Scope of Structural Review

The purpose of this project was to investigate the current condition of the deteriorating concrete columns and to compare our findings with those of the previous study. In addition, we were to consider how this deterioration may affect the ability of the structure to perform as intended and then make recommendations for repairs if necessary.

IV. Investigation

On Thursday, June 20, 2002, we visited the campus to perform a visual inspection of the deteriorated concrete columns at Heald Hall. We exposed the reinforcing steel on three of the exterior concrete columns, located at grids G1, J5 and J12, that were showing signs of cracking and spalling. While at the site, we also installed two crack monitors; one located on an interior CMU partition wall and a second on the inside face of an exterior CMU wall.

A. Review of Historic Documents:

The original study performed by Construction Technologies Laboratories, Inc, (CTL) was dated June 3, 1993. The scope of their work included investigating several columns where vertical cracks had appeared near construction cold joints located at each floor level. The deteriorated columns had been "sounded" to determine the extent of delaminations, which were found to be 2 to 4 feet long at some locations. CTL noted that the loss of cross-section of the steel reinforcing was "minimal" and took a series of concrete and reinforcing samples for lab analysis. The results of their study suggested that while the columns were in varying degrees of deterioration, none of the distress could be attributed to "structural overload" or "load induced structural response". They also noted that the majority of the distress was located on the south and west faces of the building. The balance of the report made recommendations for repairing the structure to reduce the rate of corrosion and extend the life of the columns.

B. Visual Evaluation:

As mentioned in the earlier report by CTL, we also noticed vertical cracks located on the sides and faces of several of the exterior concrete columns. Most of the cracks originated at the corner of the columns where the vertical reinforcing was located, however, at some locations cracks appeared at the center face of the columns. Crack widths varied from 3/16" at their widest point to hairline at the outer edges. The length of the delaminations to the columns mentioned in the earlier report ranged from 2 to 4 feet long. At the time of our investigation deterioration to the columns, at similar locations, had grown to 6 to 7 feet long, which indicates the deterioration is continuing. See Photo #1 & #2 in Appendix A.

We removed portions of the delaminated concrete to expose the corroded reinforcing. The loose rust was removed from the reinforcing in the areas where the corrosion was the heaviest, and measurements were taken. It appeared that the loss of cross section was minimal. At columns G1 and J5 where #11 bars with a diameter of 1.41" were used, we measured the diameter to be 1.31". At column J12 where # 8 bars with a 1.0" diameter were used, we measured it to be 0.956 ". This suggests that the loss of cross section was in the range of 5 to 7 percent. The earlier report by CTL commented that there was only minimal loss of steel cross section, however, when samples were taken and sent to their testing lab they recorded as much as a 28 % loss of cross section. See Photo #3 in Appendix A.

We also investigated two interior CMU walls that showed signs of cracking. These walls are partition or infill walls that do not carry load from the structure and are not associated with the problems at the exterior of the building. After reviewing the drawings it appears that differential settlement has occurred in one of the shallow piers supporting an interior slab and wall. Differential settlement of this type can be common when two types of foundations are used to support either end of a common wall, as is the case here. See Photo #4 in Appendix A.

In addition to the exterior building columns we made a brief visual inspection of the accessible foundation system and shear walls and did not see any evidence of excessive settling, movement, or cracking. A more detailed inspection is recommended if significant alterations are planned for the structure.

V. Findings

The building columns were modeled using a reduced concrete and reinforcing cross section intended to represent the losses due to deterioration. For our analysis we used the computer program, *PCA Column* to determine the capacities of the columns. Two load cases were set up in our analysis. The first used the original 40 psf design live load. The second load case was increased to 100 psf, which represented additional floor live load and additional load from a new brick façade.

To approximate the loss in cross section, the 12" x 24" column with (6) # 11 vertical bars were modeled as a 9" x 21" column with (6) # 10 vertical bars. We used a concrete strength of 3000 psi and a steel yield strength of 40,000 psi. The results of our analysis showed that the columns were adequate for both of the load cases. See Appendix B for results.

It appears that the columns are adequate for the intended loads even with the reduced cross sections of concrete and reinforcing steel. It should also be noted that the majority of the reinforcing in the columns does not appear to be corroded as the corrosion only occurs in localized areas around the floor edges.

Cause of Corrosion Problems:

When concrete is placed around reinforcing steel a protective layer is created on the steel by an oxide film. The oxide film is a result of the high alkalinity (pH) in the concrete. As the pH of the concrete decreases (over time) the reinforcing steel becomes more susceptible to corrosion. The change in the pH level of concrete is the result of a reaction with carbon dioxide in the air or when carbon dioxide is dissolved in water. This process is called "carbonization". In the earlier study, by CTL, lab analysis indicated that the two core samples showed signs of carbonization, which had penetrated the column surface to a depth of 1/2" to 13/16". This information indicates that the ability of the concrete to passivate or protect the steel from corrosion has been greatly reduced and the rate of corrosion would increase with time. It is our opinion that this is not the cause for the deterioration noted during our investigation, however, it should be viewed as a potential problem if it is not repaired.

In our opinion, the most significant cause of corrosion, at Heald Hall, continues to be the result of moisture gaining access to the reinforcing by way of open cracks in the columns. It appears that the water infiltration began at the column cold joints located at the floor levels. Once the moisture entered through these joints and made contact with the reinforcing, corrosion took place. As the steel began to corrode, the surface of the bars expanded to several times its original size. As the corroding steel is confined by concrete, concrete stresses increase until they eventually exceed the allowable tensile capacity for concrete. Once this point has been reached a crack is formed and the stresses are released. As the steel continues to expand, the crack will enlarge until a portion of the concrete becomes detached (delaminated) and spalls off. This was evident by the soundings we took on the columns where we found that the delaminations had grown from 2 to 4 feet in length, reported 1993, to approximately 6 to 7 feet in length at the time of our investigation. Not only does this suggest that the structure is continuing to deteriorate but it also suggests that there is a potential risk for concrete to spall off of the structure.

VI. Recommendations

The key to extending the life of the structure will be to eliminate the chances for water to enter the deteriorating reinforcing steel at the columns. The columns should be stabilized and protected from future water infiltration by adding a waterproofing barrier to the exterior faces of the columns.

Based on our analysis it appears that the columns have sufficient capacity for the original 40 psf floor live load and the potential load from a new brick façade. We recommend repairing the damaged concrete columns, and applying a waterproofing coating such as Sika Elasto-Color to the exposed column surfaces.

Floor loads should be limited to the 40 psf design load until further analysis can be performed. The earlier report indicated that the floor slab would be adequate if the live load was increased to 100 psf. However, our preliminary analysis shows that the slab may be overstressed by as much as 33%.

The cracking of the north and east CMU walls, of Research Lab #5, have occurred over a long period of time, as evident by the marks and dates placed by students and staff to record crack activity. Because these walls are so rigid minor movement in the shallow foundations may have resulted in the cracking observed. While the cracks appear to be significant, these walls are non-load bearing and are not related to the deterioration occurring to the exterior columns. It is likely that most of the settling has taken place, however, if settling continues the shallow foundation should be studied to determine the cause for the movement. Repairing the cracks in the walls is recommended and may help to ease the perception that there are more significant problems with the structure. The cracks could be repaired or the wall could be removed and replaced with a gyp stud wall that is designed with a deflection clip that would allow for some movement.

Hairline cracks were also noticed on the south and west CMU walls located in the herbarium. These walls are also non-load bearing; however, they differ from the corridor walls in that they are confined on either side between the main building columns. It is likely that minor building movement has resulted in the hairline cracking at these locations.

We performed a brief visual inspection of exposed shear walls and found no evidence of overstress. The earlier study suggests that the existing lateral system was "adequate for shear", "but exterior columns appear not designed for rotation of the structure due to accidental torsion". However, they mentioned that the walkway would become overstressed due to lateral load should the ground acceleration approach 0.2g. We would recommend performing a detailed lateral analysis of the building, so that modifications to improve the buildings lateral system might be implemented during a renovation program.

We also recommend creating a detailed map of each building elevation where damage such as cracking and spalling could be documented prior to the development of final cost estimates and repair documents.

See appendix C for the preliminary cost estimates for making repairs to the columns.

Thank you for the opportunity to be of service to you. Please call on us if you have any questions.

Sincerely,

Daniel T. Jordan
Staff Structural Engineer.

Attachments: Appendix A – Photos
Appendix B – Calculations
Appendix C – Table I

APPENDIX D

AVAILABILITY OF SPACE

Project Name: Pullman Life/Phys Science Building

Campus location: WSU Pullman Campus

REQUIRED FOR ALL CATEOGRIES 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 2018 on the proposed project's campus. Please fill in the gold shaded cells for the **campus** where the project is located.

(a) General University Classroom Utilization	
Fall 2017 Weekly Contact Hours	213,271
Multiply by % FTE Increase Budgeted	0%
Expected Fall 2018 Contact Hours	213,271
Expected Fall 2018 Contact Seats	10566
Expected Hours per week Utilization	**20.2**
HECB GUC Utilization Standard	22
Difference in Utilization Standard	-8%

(b) General University Lab Utilization	
Fall 2017 Weekly Contact Hours	42,569
Multiply by % FTE Increase Budgeted	0%
Expected Fall 2018 Contact Hours	42,569
Expected Fall 2018 Class Lab Seats	3,003
Expected Hours per Week Utilization	**14.2**
HECB GUL Utilization Standard	16
Difference in Utilization Standard	-11%

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.

As reflected above, usage of campus classrooms and labs nearly meet the HECB standards. In fact, if all the classes and labs scheduled after hours were counted, overall usage of those spaces is above the HECB standard. The HECB formula counts usage within a nine-hour contiguous block of time. While the majority (93%) of scheduled classroom use occurs between 8:00 a.m. and 5:00 p.m., (the hour block used for this calculation), 7% of classroom time is scheduled outside this timeframe. If counted, those additional contact hours of usage put the classroom space use above the current standard. While the majority (87%) of scheduled lab use occurs between 9:00 a.m. and 6:00 p.m. (the block used for this calculation), 13% of the teaching lab use is outside this time range. If counted, those additional contact hours of usage put the lab space use above the current standard. To promote space efficiency, university scheduling is done in a way that matches the course sections with the size of classrooms and auditoria. Progress toward the state target for classroom and teaching lab usage has been steady. Classroom and teaching laboratory space in the new facility will be designed for basic science courses with modernization and space efficiency goals in mind.

APPENDIX E

Pullman Life/Physical Sciences Building
Facility Conditions

Heald Hall (see also the Asset Detail Report on subsequent pages)

- FCI = 0.65
- Comparable Framework score = 5 – Needs Improvement: Marginal Functionality

Eastlick Hall (see also the Asset Detail Report on subsequent pages)

- FCI = 0.57
- Comparable Framework score = 5 – Needs Improvement: Marginal Functionality

Fulmer Hall (see also the Asset Detail Report on subsequent pages)

- FCI = 0.94
- Comparable Framework score = 5 – Needs Improvement: Marginal Functionality

Abelson Hall (see also the Asset Detail Report on subsequent pages)

- FCI = 0.53
- Comparable Framework score = 4 – Needs Improvement: Marginal Functionality cycles

Webster Hall (see also the Asset Detail Report on subsequent pages)

- FCI = 0.64
- Comparable Framework score = 5 – Needs Improvement: Marginal Functionality

APPENDIX E1

Asset Detail Report
By Asset Name

Region: Washington State University - FCA Data **Asset:** HEALD HALL
Campus: Assessed - September 2014 **Asset Number:** 0082

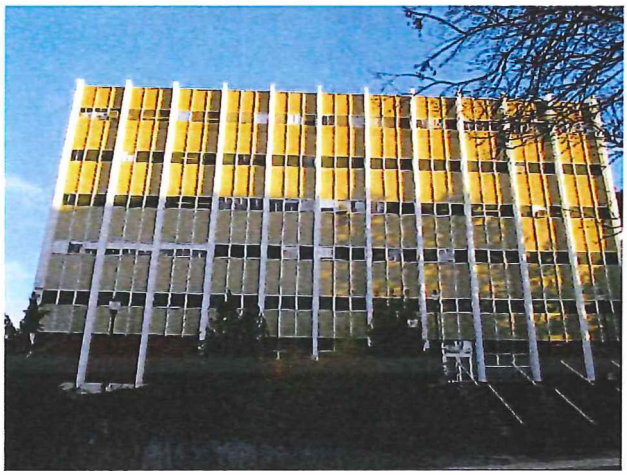
Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	13,570,991	**FCI:**	0.65
RI Cost:	15,383,421	**RI:**	0.74
Total Requirements Cost:	15,383,422		
Current Replacement Value:	20,741,396	**Date of most Recent Assessment:**	Oct 20, 2014

Type	Building		
Area	86,262 SF		
Use	ACADEMIC INSTRUCTION	**Construction Type**	
Floors	7	**Historical Category**	
Address 1	1150 COLLEGE AVE	**City**	PULLMAN
Address 2	-	**State/Province/Region**	UNITED STATES OF AMERICA
Year Constructed	1962	**Zip/Postal Code**	99164
Year Renovated	-	**Architect**	-
Ownership	Client Owned	**Commission Date**	-
		Decommission Date	-

Photo



HEALD HALL

Asset Description

General Description:

Heald Hall, also known as building 82, is located on the Washington State University campus in Pullman, WA at 1150 College Avenue and is physically connected to Eastlick Hall on the north. The building includes a three-story enclosed bridge

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connecting it to Ableson Hall to the east.

The structure is an 86,262 GSF, six-story building with a penthouse and a basement, and according to Washington State University information the building was constructed in 1962. The building contains offices, classrooms, and laboratories used by the biological science program. The Ownbey Herbarium is on the Ground Floor. The site slopes from northeast to southwest.

Generally, the survey included the portions of the site within ten feet of a building?s perimeter such as walks, fencing, retaining walls, loading dock pavement, etc. Corresponding deficiencies and corrections are then assigned to the building.

Per the Washington State Building Code, Chapter 51-50 WAC, Chapter 3, Section 508, this building is classified as Mixed Use. The primary use per Chapter 3, Section 304, is Occupancy Group B Business. The large lecture hall on the Ground Floor is Occupancy Group A-3. Based on field observations the building's Construction Type per the Washington State Building Code, Chapter 51-50 WAC, Chapter 6, Table 602, appears to meet the requirements of Type I-B, Noncombustible.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
ACT System - Perforated Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	4- Not Time Based	Oct 20, 2014	72,455
Access Ladder - Exterior - Original Renewal	Yes	E10 - Equipment	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	1,235
Accessible Ramp - Exterior Concrete Renewal	Yes	B1014 - Ramps	Accessibility	3- Due within 5 Years of Inspection	Oct 20, 2020	1,800
BUR (Built-Up Roofing) Renewal	Yes	B30 - Roofing	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2014	379,183
Branch Wiring Renewal	Yes	D5021 - Branch Wiring Devices	Lifecycle	4- Not Time Based	Oct 20, 2017	384,007
Building Wireless Upgrade	No	D50393 - LAN Network - Wireless	Technological Improvements	2- Due within 2 Years of Inspection	Aug 25, 2018	159,684
CMU Block Walls - Facing 1 Side Renewal	Yes	C1010 - Partitions	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	217,088
Cold Rooms Renewal	Yes	D30 - HVAC	Lifecycle	1- Due within 1	Oct 20, 2014	453,829

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Year of Inspection		
Curtain Wall System - Original - Bridge Renewal	Yes	B2020 - Exterior Windows	Lifecycle	4- Not Time Based	Oct 20, 2019	631,022
Curtain Wall System - Original Renewal	Yes	B2020 - Exterior Windows	Lifecycle	4- Not Time Based	Oct 20, 2014	2,366,334
Custodial/Utility Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	20,004
Distribution Equipment, Panelboards, and Feeders - 4000A 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2018	664,779
Door Assembly - 3 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	8,512
Door Assembly - 6 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	8,929
Door Assembly - 6 x 7 Storefront - Newer Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2021	11,041
Door Assembly - 6 x 7 Storefront - Original Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	11,041
Door Assembly - 6 x 7 Storefront Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	22,082
Elevators and Lifts - Exposed Live Electrical Parts - Elevator Machine Room	No	D1010 - Elevators and Lifts	Life Safety	1- Due within 1 Year of Inspection	Oct 20, 2015	3,845
Emergency Eyewash and Shower Units Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	64,669
Exhaust System - Fume Hoods - Ductwork/Fans - High Density Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 20, 2014	921,310
Exit Signs Renewal	Yes	D5092 - Emergency Light and Power	Lifecycle	2- Due within 2 Years of	Oct 20, 2016	57,373

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Systems		Inspection		
Exit Stair Rails - Non-compliant	No	C20 - Stairs	Building Code	4- Not Time Based		83,245
Exterior Access Ramp - Non-compliant	No	B1014 - Ramps	Accessibility	4- Not Time Based		2,762
Fan Coil System - Heating Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	24,593
Fire Alarm System Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2016	291,569
GWB Partitions On Furring Renewal	Yes	C1010 - Partitions	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	3,738
INSTALL WHITEBOARDS IN G0003	No	E1020 - Institutional Equipment	Mission	2- Due within 2 Years of Inspection	Oct 13, 2018	6,409
Interior Ramp - Non-compliant	No	C1020 - Interior Doors	Accessibility	4- Not Time Based		5,409
LAN System Renewal	Yes	D50392 - LAN Network - Wired	Technological Improvements	2- Due within 2 Years of Inspection	Oct 20, 2019	294,802
Lab Vacuum Pump Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	132,897
Laboratory Equipment - College - Original Renewal	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2017	107,808
Laboratory Sinks - Older Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	187,317
Lacks Fire Sprinklers	No	D40 - Fire	Life Safety	4- Not Time		327,297

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Protection		Based		
Lighting - Interior - Basement thru 3rd Floor Renewal	Yes	D5022 - Lighting Equipment	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2018	545,699
Low Tension Service and Dist. - Exposed Live Electrical Parts	No	D5012 - Low Tension Service and Dist.	Life Safety	1- Due within 1 Year of Inspection	Oct 20, 2015	283
Means of Egress - Noncompliant	No	C20 - Stairs	Life Safety	4- Not Time Based		19,019
Membrane Roofing - Mopped Renewal	Yes	B30 - Roofing	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	4,330
Metal Screen Wall Renewal	Yes	B2010 - Exterior Walls	Lifecycle	4- Not Time Based	Oct 20, 2019	37,700
Missing Guarding/Obstructed Service Access	No	D3040 - Distribution Systems	Life Safety	1- Due within 1 Year of Inspection	Oct 20, 2015	3,261
Natural Gas Supply for Bldg Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	44,251
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	77,305
Painted Plaster - Original Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2017	53,719
Pedestrian Pavement - Concrete Renewal	Yes	G2031 - Paving and Surfacing	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	3,219
Perimeter Heat System - Hydronic Fin Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	754,099

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Periodic Structural Assessment	No	B10 - Superstructure	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	43,287
Plaster Walls - 3 Coats Renewal	Yes	C1010 - Partitions	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	421,454
Plaster on Lath - Add Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	30,336
Pneumatic Controls - Average Renewal	Yes	D3060 - Controls and Instrumentation	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	443,411
Pressure Booster Pump - Triplex - 5 HP Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	62,051
Quarry Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2019	20,030
REPLACE CHAMBER CONTROLLERS (1ST FLOOR)	No	D3060 - Controls and Instrumentation	Reliability	1- Due within 1 Year of Inspection	Sep 3, 2008	81,711
REPLACE FLOORING, CARPET AND VCT	No	C3020 - Floor Finishes	Lifecycle	2- Due within 2 Years of Inspection	Jun 15, 2018	106,812
REPLACE MBC CONTROLLERS	No	D3067 - Energy Monitoring and Control	Technological Improvements	1- Due within 1 Year of Inspection	Sep 2, 2016	43,579
Remove Abandoned Equipment	No	D3030 - Cooling Generating Systems	Abandoned	4- Not Time Based		3,553
Restroom Accessories - Economy Renewal	Yes	C1030 - Fittings	Lifecycle	3- Due within 5	Oct 20, 2020	87,764

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Years of Inspection		
Restroom Fixtures - Older Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	268,855
Return Fans w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	752,456
Roof Drainage - Gravity Renewal	Yes	D2040 - Rain Water Drainage	Reliability	3- Due within 5 Years of Inspection	Oct 20, 2019	203,561
Sanitary Waste - Gravity Renewal	Yes	D2030 - Sanitary Waste	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	252,637
Steam Piping and Condensate Return Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	31,352
Sump Pump - Pedestal Renewal	Yes	D20 - Plumbing	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	2,917
Supply Fans w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	955,310
Swinging Doors - 3 x 7 HM - NR Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	29,055
Swinging Doors - 3 x 7 HM - Rated Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	24,895
Swinging Doors - 3 x 7 Wd - NR - Original Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	261,445
Swinging Doors - 3 x 7 Wd - Rated - Original Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	295,346
Swinging Doors - Pair - 6 x 7 HM - NR Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	23,386

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Swinging Doors - Pair - 6 x 7 HM - Rated Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	22,049
Swinging Doors - Pair - 6 x 7 Wd - NR Renewal	Yes	C1020 - Interior Doors	Lifecycle	4- Not Time Based	Oct 20, 2019	17,682
Telephone System - Basement thru 3rd Floor Renewal	Yes	D5033 - Telephone Systems	Technological Improvements	3- Due within 5 Years of Inspection	Oct 20, 2020	299,001
Test Gas/Air and Vacuum Distribution Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	169,957
Traction Geared Passenger Elevator Renewal	Yes	D1010 - Elevators and Lifts	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2018	324,319
VCT - Average - Basement Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Oct 20, 2014	4,843
VCT - Average - Upper Floors Renewal	Yes	C3020 - Floor Finishes	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2022	15,411
Vinyl Asbestos Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Oct 20, 2014	272,232
Water Dist Complete Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Oct 20, 2014	250,833
Water Fountains Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	24,275
Water Heater - Steam Semi-Instantaneous Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	29,914
Wood Paneling - Lecture Hall G3 Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5	Oct 20, 2017	36,750

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Asset Detail Report

By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Years of Inspection		
Total						**15,383,422**

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APPENDIX E2

Asset Detail Report
By Asset Name

Region: Washington State University - FCA Data **Asset:** EASTLICK HALL
Campus: Assessed - September 2014 **Asset Number:** 0082A

Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	13,068,539	**FCI:**	0.57
RI Cost:	15,464,755	**RI:**	0.68
Total Requirements Cost:	15,464,758		
Current Replacement Value:	22,881,623	**Date of most Recent Assessment:**	Oct 20, 2014

Type	Building		
Area	123,241 SF		
Use	ACADEMIC INSTRUCTION	**Construction Type**	
Floors	6	**Historical Category**	
Address 1	300 VETERANS WAY	**City**	PULLMAN
Address 2		**State/Province/Region**	UNITED STATES OF AMERICA
Year Constructed	1977	**Zip/Postal Code**	99164
Year Renovated		**Architect**	
Ownership	Client Owned	**Commission Date**	
		Decommission Date	

Photo

EASTLICK HALL

Asset Description

General Description:

Eastlick Hall, also known as Building 82A, is located on the Washington State University campus in Pullman, WA at 300 Veteran's Way immediately adjacent and physically connected to Heald Hall on the south.

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Asset Detail Report
By Asset Name

The structure is an 110,438 GSF, five-story structure with two basement levels and a penthouse. Portions of the Ground Floor project under paved patio areas above. According to Washington State University information the building was constructed in 1977.

The building contains offices, classrooms, and laboratories used primarily by the biological science program. The research lab spaces include a Vivarium Suite and a Biosafety Level 3 (BSL-3) Lab Suite, the latter of which not currently in use. The site slopes from northeast to southwest; the First Floor patio on the east is created by retaining walls, and the larger patio on the west, at the same floor level, is raised above the street elevation.

Generally, the survey included the portions of the site within ten feet of a building?s perimeter such as walks, fencing, retaining walls, loading dock pavement, etc. Corresponding deficiencies and corrections are then assigned to the building.

Per the Washington State Building Code, Chapter 51-50 WAC, Chapter 3, Section 304, this building is classified as Occupancy Group B Business. Based on field observations the building's Construction Type per the Washington State Building Code, Chapter 51-50 WAC, Chapter 6, Table 602, appears to meet the requirements of Type II-B, Noncombustible.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Concrete Overhangs - Sagging	No	B10 - Superstructure	Reliability	1- Due within 1 Year of Inspection	Oct 20, 2015	12,358
Interior Stairs and Ramps - Heald Connector - Non-Compliant Rails	No	B1014 - Ramps	Building Code	4- Not Time Based		7,113
Exterior Ramp - Dock Area - Non-Compliant Rails	No	B1014 - Ramps	Building Code	4- Not Time Based		5,006
Accessible Ramp - NE Corner - Concrete Deteriorated and Handrail Maintenance	No	B1014 - Ramps	Accessibility	2- Due within 2 Years of Inspection	Oct 20, 2016	1,395
Fire Separation - Missing	No	B20 - Exterior Enclosure	Life Safety	1- Due within 1 Year of Inspection	Oct 20, 2015	87,113
Exterior Plaster Soffits - Damaged and Need Paint	No	B20 - Exterior Enclosure	Reliability	2- Due within 2 Years of Inspection	Oct 20, 2016	11,951
Brick Cavity Walls - CMU Backup Renewal	Yes	B2010 - Exterior Walls	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	184,391

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Curtain Wall System - Standard Renewal	Yes	B2020 - Exterior Windows	Lifecycle	4- Not Time Based	Oct 20, 2017	121,725
Aluminum Windows Renewal	Yes	B2020 - Exterior Windows	Lifecycle	4- Not Time Based	Oct 20, 2014	286,137
Door Assembly - 6 x 7 Storefront Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	22,082
Door Assembly - 3 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	21,733
Door Assembly - 3 x 7 Storefront Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	21,701
Door Assembly - 6 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	16,778
Overhead Rolling Doors - Electric Operation Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Oct 20, 2014	13,051
Mopped Membrane with Concrete Slab Renewal	Yes	B30 - Roofing	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	47,504
Mopped Membrane with Pavers Renewal	Yes	B30 - Roofing	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	236,575
Steel Ladders - Non-Compliant	No	B3022 - Roof Hatches	Building Code	4- Not Time Based		2,011
Roof Hatch and Ladder Renewal	Yes	B3022 - Roof Hatches	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2017	6,451
CMU Walls - Settlement Cracks	No	C1010 - Partitions	Reliability	2- Due within 2 Years of Inspection	Oct 20, 2016	3,418
Swinging Doors - Cracked	No	C1020 - Interior Doors	Reliability	3- Due within 5 Years of Inspection	Oct 20, 2019	15,272
Toilet Partitions - Average Renewal	Yes	C1030 - Fittings	Lifecycle	4- Not Time Based	Oct 20, 2017	180,122
Restroom Accessories - Average Renewal	Yes	C1030 - Fittings	Lifecycle	3- Due within 5	Oct 20, 2020	147,568

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Years of Inspection		
Signage - Non-Compliant	No	C1035 - Identifying Devices	Accessibility	2- Due within 2 Years of Inspection	Oct 20, 2016	21,508
Concrete Stair - M51N and G63 - Handrails Non-Compliant	No	C20 - Stairs	Building Code	4- Not Time Based		1,047
Egress Stairs - Non-Compliant Handrails	No	C20 - Stairs	Building Code	4- Not Time Based		31,719
REPAIR FLOORS, WALLS, AND DOORS IN BASEMENT VIVARIUM	No	C30 - Interior Finishes	Lifecycle	2- Due within 2 Years of Inspection	Sep 29, 2018	170,900
Paint 4 Ground Floor Classrooms,	No	C3010 - Wall Finishes	Reliability	2- Due within 2 Years of Inspection	Jun 14, 2018	23,499
Paint Masonry/Epoxy Finish - Economy Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	62,100
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	65,375
Concrete - Painted Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Oct 20, 2014	3,493
VCT - Average Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2019	284,002
Rubber Treads - Stairs Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2019	12,218
Ceramic Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of	Oct 20, 2014	31,018

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Inspection		
Carpeting - Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	10,705
Epoxy Flooring Renewal	Yes	C3020 - Floor Finishes	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2016	103,914
ACT System - Standard Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2020	562,200
Metal Ceiling System Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2019	8,995
GWB Ceiling - G51V - Damaged	No	C3030 - Ceiling Finishes	Reliability	2- Due within 2 Years of Inspection	Oct 20, 2016	1,162
Painted Plaster Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 20, 2019	11,025
GWB Taped and Finished Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	4- Not Time Based	Oct 20, 2019	110,898
Traction Geared Passenger Elevator Renewal	Yes	D1010 - Elevators and Lifts	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2018	269,806
Sump Pump - Pedestal - 21 GPM Renewal	Yes	D20 - Plumbing	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	2,917
Laboratory Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	374,662
Custodial/Utility Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1	Oct 20, 2014	17,148

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Year of Inspection		
Emergency Eyewash and Shower Units Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	50,629
Water Coolers - Wall-Mounted Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2015	27,743
Deionized Water System Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2014	55,507
Water Dist Complete Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Oct 20, 2015	432,106
Water Heater - Steam Semi-Instantaneous Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	132,953
Water Well - Average Renewal	Yes	D2023 - Domestic Water Supply Equipment	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	7,834
Roof Drainage - Gravity Renewal	Yes	D2040 - Rain Water Drainage	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	290,824
Lab Vacuum Pump Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2016	132,897
Lab Air Compressor Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	53,468
Test Gas/Air and Vacuum Distribution Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	397,085

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Natural Gas Supply for Bldg Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2017	63,221
Cold Rooms Renewal	Yes	D30 - HVAC	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	252,127
Air Balancing - B-56 Area	No	D30 - HVAC	Reliability	1- Due within 1 Year of Inspection	Oct 20, 2015	4,428
Cooling Tower - Galvanized Renewal	Yes	D3030 - Cooling Generating Systems	Abandoned	4- Not Time Based	Oct 20, 2014	199,188
Perimeter Heat System - Hydronic Fin Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	195,378
HEPA Filter Room Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	18,798
Exhaust System - General Building Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	151,813
Central AHU - SF 5 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	301,847
Central AHU - SF 4 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	301,919
Chilled Water Distribution System Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	284,207
Investigate Cross Contamination Threat	No	D3040 - Distribution	Life Safety	1- Due within 1	Oct 20, 2015	4,133

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Systems		Year of Inspection		
Central AHU - SF 7 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2021	52,242
Exhaust System - Fume Hoods Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 20, 2019	476,431
Central AHU - SF 3 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	302,612
Return Fans (with heat recovery). Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	93,985
Central AHU - SF 1 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	300,276
Central AHU - SF 2 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	301,138
Central AHU - SF 6 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	303,434
INSTALL VFDS ON SUPPLY FANS	No	D3041 - Air Distribution Systems	Reliability	1- Due within 1 Year of Inspection	Sep 9, 2016	81,711
Bio Fans Renewal	Yes	D3042 - Exhaust Ventilation Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	55,391
Unit Heaters - Steam Renewal	Yes	D3050 - Terminal and Package Units	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2021	38,281

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
REPLACE CONTROL VALVES IN BASEMENT	No	D3060 - Controls and Instrumentation	Lifecycle	2- Due within 2 Years of Inspection	Jun 24, 2018	128,175
Wet Sprinkler System - Ordinary Hazard Renewal	Yes	D40 - Fire Protection	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	549,647
Emergency Electrical Service - 150A 208Y/120V + Distribution Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	19,102
Distribution Equipment, Panelboards, and Feeders - 4000A 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	949,758
Main Electrical Service - 4000A 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	389,025
Branch Wiring Renewal	Yes	D5021 - Branch Wiring Devices	Lifecycle	4- Not Time Based	Oct 20, 2019	548,624
Telephone System Renewal	Yes	D5033 - Telephone Systems	Technological Improvements	3- Due within 5 Years of Inspection	Oct 20, 2020	427,178
Fire Alarm System Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	2- Due within 2 Years of Inspection	Oct 20, 2016	267,031
LAN System Renewal	Yes	D5039 - Local Area Networks	Technological Improvements	1- Due within 1 Year of Inspection	Oct 20, 2019	314,455
Building Wireless Upgrade	No	D50393 - LAN Network - Wireless	Technological Improvements	2- Due within 2 Years of Inspection	Aug 25, 2018	246,469
Exit Signs Renewal	Yes	D5092 - Emergency Light and Power	Lifecycle	2- Due within 2 Years of	Oct 20, 2016	81,968

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Systems		Inspection		
Laboratory Casework - College Renewal	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	2,416,864
Fixed Casework - Institutional - High End Renewal	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2019	27,237
Replace Countertops in Labs 274 and 384	No	E - Equipment and Furnishings	Lifecycle	1- Due within 1 Year of Inspection	Mar 27, 2019	48,654
Pedestrian Pavement - Concrete Renewal	Yes	G2031 - Paving and Surfacing	Lifecycle	3- Due within 5 Years of Inspection	Oct 20, 2020	50,157
Brick Tile Renewal	Yes	G2031 - Paving and Surfacing	Lifecycle	1- Due within 1 Year of Inspection	Oct 20, 2014	5,042
Total						**15,464,758**

Replacement Value Based on System Cost with Overheads

System Costs

System	System Name	Cost
A - Substructure	Foundation Wall and Footings 16-Ft - Full Basement	858,186
A - Substructure	Structural Slab on Grade - Non-Industrial	171,915
A - Substructure	Grade Beams - Average	287,536
A - Substructure	Caissons (Drilled Pier) in Stable Ground	199,168
B10 - Superstructure	Multi-Story - Concrete	3,824,572
B1014 - Ramps	Accessible Ramp - Exterior Concrete	20,659
B1014 - Ramps	Accessible Ramp - Interior Concrete	37,490
B1020 - Roof Construction	Fall Protection - Rooftop Guardrails	1,918
B20 - Exterior Enclosure	Soffits - Plaster on Lath	31,231
B2010 - Exterior Walls	Metal Paneled Walls	3,431
B2010 - Exterior Walls	Brick Cavity Walls - CMU Backup	101,696

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Asset Detail Report

By Asset Name

System	System Name	Cost
B2013 - Exterior Louvers, Screens, and Fencing	Metal Wall Louvers	11,027
B2020 - Exterior Windows	Aluminum Windows	228,909
B2020 - Exterior Windows	Curtain Wall System - Standard	97,380
B2030 - Exterior Doors	Overhead Rolling Doors - Electric Operation	10,441
B2030 - Exterior Doors	Door Assembly - 6 x 7 Storefront	17,666
B2030 - Exterior Doors	Door Assembly - 6 x 7 HM	13,422
B2030 - Exterior Doors	Door Assembly - 3 x 7 HM	17,386
B2030 - Exterior Doors	Automatic Openers - Single	14,064
B2030 - Exterior Doors	Door Assembly - 3 x 7 Storefront	17,360
B30 - Roofing	Single-Ply Membrane - Fully Adhered	186,964
B30 - Roofing	Mopped Membrane with Pavers	189,260
B30 - Roofing	Mopped Membrane with Concrete Slab	38,003
B30 - Roofing	BUR (Built-Up Roofing)	20,164
B3022 - Roof Hatches	Roof Hatch and Ladder	5,160
C1010 - Partitions	GWB 2HR Rated Walls	34,306
C1010 - Partitions	CMU Block Walls	413,859
C1010 - Partitions	Concrete Walls - (CIP)	532,570
C1010 - Partitions	GWB Partitions On Furring	104,082
C1010 - Partitions	Brick Wall with CMU Backup	248,660
C1010 - Partitions	GWB Walls - Standard (Non-Painted)	234,500
C1010 - Partitions	Windows/Storefront Partitions - Average	42,246
C1020 - Interior Doors	Swinging Doors - Pair - 6 x 7 Wd - NR	30,550
C1020 - Interior Doors	Swinging Doors - 3 x 7 Wd - Rated	81,037
C1020 - Interior Doors	Swinging Doors - 3 x 7 Wd - NR	564,288
C1020 - Interior Doors	Swinging Doors - 3 x 7 HM	52,013
C1020 - Interior Doors	Swinging Doors - Pair - 6 x 7 HM	15,226
C1020 - Interior Doors	Door Assembly - 6 x 7 Storefront	8,833
C1020 - Interior Doors	Door Assembly - 3 x 7 Storefront	52,081
C1020 - Interior Doors	Door Assembly - Darkroom Doors	8,772
C1030 - Fittings	Restroom Accessories - Average	118,054
C1030 - Fittings	Toilet Partitions - Average	144,098
C20 - Stairs	Stairs - CIP Concrete - NW	87,977
C20 - Stairs	Stairs - CIP Concrete - SE	76,597
C20 - Stairs	Stairs - Economy	18,474

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Asset Detail Report
By Asset Name

System	System Name	Cost
C20 - Stairs	Stairs - CIP Concrete - To Heald	8,860
C20 - Stairs	Stairs - CIP Concrete - Misc	9,691
C3010 - Wall Finishes	Paint Masonry/Epoxy Finish - Economy	49,680
C3010 - Wall Finishes	Painted Finish - Average (1 Coat Prime - 2 Coats Finish)	112,716
C3010 - Wall Finishes	Ceramic Tile	2,095
C3011 - Wall Finishes to Inside Exterior Walls	GWB Dryall on Furring - Add	27,028
C3020 - Floor Finishes	Concrete - Painted	2,794
C3020 - Floor Finishes	Brick Tile	7,635
C3020 - Floor Finishes	Ceramic Tile	24,814
C3020 - Floor Finishes	Carpeting - Tile	8,564
C3020 - Floor Finishes	Epoxy Flooring	97,801
C3020 - Floor Finishes	VCT - Average	227,201
C3020 - Floor Finishes	Rubber Treads - Stairs	9,774
C3030 - Ceiling Finishes	ACT System - Standard	449,760
C3030 - Ceiling Finishes	GWB Taped and Finished	88,718
C3030 - Ceiling Finishes	Painted Plaster	8,820
C3030 - Ceiling Finishes	Metal Ceiling System	7,196
D1010 - Elevators and Lifts	Traction Geared Passenger Elevator	215,845
D20 - Plumbing	Sump Pump - Pedestal - 21 GPM	2,605
D2010 - Plumbing Fixtures	Laboratory Sinks	299,730
D2010 - Plumbing Fixtures	Restroom Fixtures	330,544
D2010 - Plumbing Fixtures	Water Coolers - Wall-Mounted	26,422
D2010 - Plumbing Fixtures	Custodial/Utility Sinks	13,718
D2010 - Plumbing Fixtures	Emergency Eyewash and Shower Units	40,503
D2020 - Domestic Water Distribution	Water Dist Complete	384,094
D2020 - Domestic Water Distribution	Deionized Water System	49,560
D2020 - Domestic Water Distribution	Water Heater - Steam Semi-Instantaneous	118,708
D2020 - Domestic Water Distribution	Pressure Booster Pump - Duplex 10 HP	55,403
D2023 - Domestic Water Supply Equipment	Water Well - Average	15,668
D2030 - Sanitary Waste	Sanitary Waste - Gravity Disch	288,750
D2040 - Rain Water Drainage	Roof Drainage - Gravity	232,659
D2090 - Other Plumbing Systems	Lab Air Compressor	50,922
D2090 - Other Plumbing Systems	Test Gas/Air and Vacuum Distribution	378,176
D2090 - Other Plumbing Systems	Natural Gas Supply for Bldg	50,576

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Asset Detail Report
By Asset Name

System	System Name	Cost
D2090 - Other Plumbing Systems	Lab Vacuum Pump	126,569
D30 - HVAC	Cold Rooms	252,127
D30 - HVAC	Bio Storage Room	25,213
D3030 - Cooling Generating Systems	Cooling Tower - Galvanized	159,350
D3040 - Distribution Systems	Chilled Water Distribution System	227,365
D3040 - Distribution Systems	Central AHU - SF 7	41,793
D3040 - Distribution Systems	Exhaust System - Fume Hoods	384,995
D3040 - Distribution Systems	Exhaust System - General Building	121,450
D3040 - Distribution Systems	Perimeter Heat System - Hydronic Fin Tube	526,272
D3040 - Distribution Systems	Steam Piping and Condensate Return	250,838
D3040 - Distribution Systems	Central AHU - SF 1	240,220
D3040 - Distribution Systems	Central AHU - SF 2	240,910
D3040 - Distribution Systems	Central AHU - SF 3	242,089
D3040 - Distribution Systems	Central AHU - SF 4	241,535
D3040 - Distribution Systems	Central AHU - SF 5	241,478
D3040 - Distribution Systems	Central AHU - SF 6	242,747
D3040 - Distribution Systems	Return Fans (with heat recovery).	93,985
D3040 - Distribution Systems	HEPA Filter Room	15,039
D3042 - Exhaust Ventilation Systems	Bio Fans	55,391
D3050 - Terminal and Package Units	Unit Heaters - Steam	34,179
D3060 - Controls and Instrumentation	DDC/Pneumatic System - Hybrid	532,332
D3093 - Dust and Fume Collectors	Dust Collector	6,407
D40 - Fire Protection	Fire Extinguishers - Dry Chem w/Cabinet (SF)	14,872
D40 - Fire Protection	Wet Sprinkler System - Ordinary Hazard	439,717
D5012 - Low Tension Service and Dist.	Emergency Electrical Service - 150A 208Y/120V + Distribution	15,281
D5012 - Low Tension Service and Dist.	Distribution Equipment, Panelboards, and Feeders - 4000A 208Y/120V	759,806
D5012 - Low Tension Service and Dist.	Main Electrical Service - 4000A 208Y/120V	311,220
D5021 - Branch Wiring Devices	Branch Wiring	438,899
D5022 - Lighting Equipment	Lighting - Interior	623,705
D5033 - Telephone Systems	Telephone System	402,998
D5037 - Fire Alarm Systems	Fire Alarm System	333,247
D5039 - Local Area Networks	LAN System	127,834
D5092 - Emergency Light and Power Systems	Exit Signs	65,575

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Asset Detail Report
By Asset Name

System	System Name	Cost
E - Equipment and Furnishings	Laboratory Casework - College	1,933,491
E - Equipment and Furnishings	Fixed Casework - Institutional - High End	91,003
E1033 - Loading Dock Equipment	Loading Dock Plate	7,264
G2031 - Paving and Surfacing	Pedestrian Pavement - Concrete	40,125
G2031 - Paving and Surfacing	Brick Tile	4,034
Subtotal		**22,881,623**

Overhead Costs

Description	Cost
	0

Total Replacement Value Based on System Cost with Overheads **22,881,623**

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APPENDIX E3

Asset Detail Report
By Asset Name

Region: Washington State University - FCA Data **Asset:** FULMER HALL-LAB
Campus: Assessed - September 2014 **Asset Number:** 0003

Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	12,371,946	**FCI:**	0.94
RI Cost:	13,393,199	**RI:**	1.02
Total Requirements Cost:	13,393,199		
Current Replacement Value:	13,179,142	**Date of most Recent Assessment:**	Sep 2, 2014

Type	Building		
Area	60,992 SF		
Use	ACADEMIC INSTRUCTION	**Construction Type**	IBC - Type II A
Floors	6	**Historical Category**	Eligible
Address 1	1320 COLLEGE AVE	**City**	PULLMAN
Address 2	-	**State/Province/Region**	UNITED STATES OF AMERICA
Year Constructed	1935	**Zip/Postal Code**	99164
Year Renovated	1997	**Architect**	-
Ownership	Client Owned	**Commission Date**	-
		Decommission Date	-

Photo

FULMER HALL-LAB

Asset Description

General:

The Fulmer Hall Lab is located on the Washington State University Campus in Pullman, Washington. The building is situated near Library Road and College Avenue. The structure is a 61768 square-foot (GSF), six story structure (including mechanical

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penthouse). According to WSU information, construction for the existing building was completed in 1935 and has had various minor renovation projects throughout the years but no major ones.

The building contains mechanical equipment associated in a mechanical spaces largely located on the fifth, penthouse and roof. Per the 2012 International Building Code, Chapter 3, and Section 303 – Assembly Group, this building is classified as Occupancy Group A3. According to the 2012 International Building Code, Chapter 6, Section 602, this building's construction type is Type II - Noncombustible, as determined from field observations.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
ACT System - Concealed Spline Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	4- Not Time Based	Sep 2, 2015	17,999
AHU-1 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	188,441
AHU-2 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	188,441
Branch Wiring - Non-GFCI Receptacles - Rooftop	No	D5021 - Branch Wiring Devices	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	468
Building Wireless Upgrade	No	D50393 - LAN Network - Wireless	Technological Improvements	2- Due within 2 Years of Inspection	Sep 2, 2016	79,842
Ceramic Floor Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 2, 2020	6,378
Ceramic Wall Tile Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 2, 2020	22,567
Custodial/Utility Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	28,288
DDC/Pneumatic System - Hybrid Renewal	Yes	D3060 - Controls and	Lifecycle	3- Due within 5	Sep 2, 2018	390,489

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Instrumentation		Years of Inspection		
Deteriorated Piping: Replace	No	D20 - Plumbing	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2019	5,198
Distribution Equipment - Fifth Floor - 1200A 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	1- Due within 1 Year of Inspection	Sep 2, 2014	33,447
Ductwork: Clean and Balance	No	D30 - HVAC	Reliability	2- Due within 2 Years of Inspection	Sep 2, 2016	2,695
Emergency Eyewash and Shower Units Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	8,594
Exhaust System - Fume Hoods - Ductwork/Fans Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	1,211,973
Exhaust System - General Building Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	75,132
Exit Signs Renewal	Yes	D5092 - Emergency Light and Power Systems	Lifecycle	1- Due within 1 Year of Inspection	Sep 2, 2015	60,800
Fan Coil System - Ceiling - Heating/Cooling - 4 Pipe Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	228,773
Fire Alarm System - Coverage Upgrade Needed	No	D5037 - Fire Alarm Systems	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	330,642
Fire Alarm System - Holes in Walls and Ceilings	No	D5037 - Fire Alarm Systems	Life Safety	1- Due within 1 Year of	Sep 2, 2015	3,524

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Inspection		
Fire Alarm System Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	1- Due within 1 Year of Inspection	Sep 2, 2014	287,425
Fire Protection - Building Not Sprinklered	No	D4010 - Sprinklers	Building Code	4- Not Time Based		323,288
Fittings - Signage (Room Numbering and Identification) Renewal	Yes	C1035 - Identifying Devices	Lifecycle	1- Due within 1 Year of Inspection	Sep 2, 2014	7,902
Fittings - Signage - Non-Compliant	No	C1035 - Identifying Devices	Building Code	3- Due within 5 Years of Inspection	Sep 2, 2019	12,568
Four Pipe Distribution System w/Pump Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Sep 2, 2020	1,174,801
HVAC Distribution System - Ductwork Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Sep 2, 2017	297,921
HVAC Fume Hoods: Insufficient Exhaust Rate/Beyond Useful Life	No	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2019	5,670,718
Heat Exchanger - Steam/HW - Shell and Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	25,859
Lighting - Interior - Exit Signs Lacking - Mechanical Penthouse	No	D5022 - Lighting Equipment	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	2,934
MODERNIZE CLASSROOM 226	No	C30 - Interior Finishes	Mission	1- Due within 1 Year of Inspection	Sep 1, 2016	0
Main Normal Electrical Service 1 of 2 - 800A 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	1- Due within 1 Year of Inspection	Sep 2, 2014	44,236

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Natural Gas Distribution for Lab Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	132,740
Non-Compliant Secondary Exterior Egress	No	B10 - Superstructure	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	9,248
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 2, 2014	32,739
Partitions - Improper Fire Separation	No	C1010 - Partitions	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	8,257
Perimeter Heat System - Hydronic Fin Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	111,303
Plumbing Fixttures - Neutralization Basin Lacking	No	D2090 - Other Plumbing Systems	Building Code	3- Due within 5 Years of Inspection	Sep 2, 2019	21,028
Plumbing Fixtures - Floor Drains Lacking Under Emergency Showers	No	D2010 - Plumbing Fixtures	Reliability	1- Due within 1 Year of Inspection	Sep 2, 2015	16,274
REPLACE CASEWORK	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2015	435,794
Replace Damaged Missing and Stained Ceiling Tiles, RM. 126A	No	C3030 - Ceiling Finishes	Reliability	2- Due within 2 Years of Inspection	May 26, 2019	1,653
Restroom Accessories - Average Renewal	Yes	C1030 - Fittings	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	12,923
Restrooms - Aged and Not	No	C1030 - Fittings	Accessibility	3- Due	Sep 2, 2019	182,595

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Accessible				within 5 Years of Inspection		
Roof - Lifeline and Tie Off System Lacking	No	B3010 - Roof Coverings	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	24,984
Sanitary Waste - Gravity Disch Renewal	Yes	D2030 - Sanitary Waste	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	178,628
Stair - Improper Egress Separation	No	C20 - Stairs	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	23,540
Stair Handrails - Non-Compliant (Exit Enclosure)	No	C20 - Stairs	Building Code	4- Not Time Based		59,848
Steam Piping and Condensate Return Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2020	155,175
TBar System - 1995 Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 2, 2015	44,781
TBar System - 1997 Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 2, 2017	65,729
Tectum Ceiling System Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 2, 2014	64,598
Traction Geared Passenger Elevator - Exposed Live Electrical Parts - Room 10EL	No	D1010 - Elevators and Lifts	Life Safety	1- Due within 1 Year of Inspection	Sep 2, 2015	2,367
Traction Geared Passenger Elevator Renewal	Yes	D1010 - Elevators and Lifts	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2019	326,845

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
UPGRADE HVAC TO REPLACE RM 123 WATER WASTER COOLING UNIT	No	D3040 - Distribution Systems	Capacity	2- Due within 2 Years of Inspection	Jun 24, 2018	53,406
UPGRADE HVAC TO REPLACE RM 134/134A WATER WASTER COOLING UNIT	No	D3040 - Distribution Systems	Capacity	2- Due within 2 Years of Inspection	Jun 24, 2018	128,175
VAT Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 2, 2014	48,649
VCT - 1997 Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 2, 2014	73,255
Water Coolers/Fountains - Wall-Mount Single-Height Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	20,642
Water Dist Complete Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Sep 2, 2017	212,899
Wet Standpipe System - Ordinary Hazard Renewal	Yes	D40 - Fire Protection	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	204,396
Window AC Units Renewal	Yes	D3050 - Terminal and Package Units	Lifecycle	3- Due within 5 Years of Inspection	Sep 2, 2017	9,385
Total						**13,393,199**

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APPENDIX E4

Asset Detail Report
By Asset Name

Region: Washington State University - FCA Data **Asset:** ABELSON HALL
Campus: Assessed - September 2014 **Asset Number:** 0032

Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	9,067,643	**FCI:**	0.53
RI Cost:	11,380,258	**RI:**	0.67
Total Requirements Cost:	11,380,260		
Current Replacement Value:	16,975,356	**Date of most Recent Assessment:**	Sep 8, 2014

Type	Building		
Area	101,546 SF		
Use	ACADEMIC INSTRUCTION	**Construction Type**	
Floors	8	**Historical Category**	None
Address 1	205 LIBRARY RD	**City**	PULLMAN
Address 2	-	**State/Province/Region**	UNITED STATES OF AMERICA
Year Constructed	1935	**Zip/Postal Code**	99164
Year Renovated	1990	**Architect**	-
Ownership	Client Owned	**Commission Date**	-
		Decommission Date	-

Photo

ABELSON HALL Auditor Touch Photo

Asset Description

Architectural:

Abelson Hall is located on the Main Campus of Washington State University. This 101,547 SF 8 floor (basement included) was built in approximately 1935 and was renovated in approximately 1990. The building structural frame is concrete on the lower

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level and the upper is steel, and the primary exterior material is brick. Windows are aluminum replacements, not original to the building.

Codes: Per the 2012 International Building Code, Chapter 3, and Section 303 – Assembly Group, this building is classified as Occupancy Group A3. According to the 2012 International Building Code, Chapter 6, Section 602, this building's construction type is Type II - Noncombustible, as determined from field observations. The building has had some modifications for accessibility, but does not appear to be fully in compliance with current accessibility regulations. The building is assumed to have been constructed in accordance with applicable codes and regulations in force at the time, and to have passed all necessary inspections when renovated. At the time of the assessment, VFA was not aware of any current citations for non-compliance.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
ACT System - Standard Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2017	568,688
Air Handing unit - AHU- 2 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	228,584
Air Handing unit - AHU-1 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	153,253
Air Handing unit - AHU-3, AHU-4 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	99,037
Aluminum Windows Renewal	Yes	B2020 - Exterior Windows	Lifecycle	4- Not Time Based	Sep 8, 2018	1,310,550
BUR (Built-Up Roofing) Renewal	Yes	B30 - Roofing	Lifecycle	3- Due within 5 Years of Inspection	Aug 6, 2021	368,300
Branch Wiring - Equipment & Devices - Panelboards - 1990 Renewal	Yes	D5021 - Branch Wiring Devices	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	207,655
Branch Wiring - Equipment & Devices - Renewal	Yes	D5021 - Branch Wiring Devices	Lifecycle	4- Not Time Based	Sep 8, 2017	349,125

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Building Wireless Upgrade	No	D50393 - LAN Network - Wireless	Technological Improvements	1- Due within 1 Year of Inspection	Aug 18, 2017	163,156
CLEAN AIR HANDLERS	No	D3040 - Distribution Systems	Reliability	1- Due within 1 Year of Inspection	Sep 3, 2016	76,264
Carpeting - Broadloom - Medium Range Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 8, 2014	20,334
Ceramic Tile Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2017	18,510
Ceramic Tile Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2017	20,380
Chiller - Electron Microscope Renewal	Yes	D3030 - Cooling Generating Systems	Abandoned	3- Due within 5 Years of Inspection	Sep 8, 2019	74,094
Cooling Tower - Stainless Steel - 50 Ton - Electron Microscope Renewal	Yes	D3030 - Cooling Generating Systems	Abandoned	3- Due within 5 Years of Inspection	Sep 8, 2018	65,972
Distribution Systems - Building Hot Water Piping Insulation Peeling	No	D3040 - Distribution Systems	Energy	3- Due within 5 Years of Inspection	Sep 8, 2019	2,118
Door Assembly - 3 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	21,280
Door Assembly - 6 x 7 Storefront Renewal	Yes	B2030 - Exterior Doors	Lifecycle	4- Not Time Based	Sep 8, 2020	132,131
Electrical Distribution Equipment - Motor Control Center Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	4- Not Time Based	Sep 8, 2020	202,326

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Elevator Controls - Motor Controller Renewal	Yes	D1010 - Elevators and Lifts	Reliability	2- Due within 2 Years of Inspection	Sep 8, 2016	15,298
Emergency Eyewash and Shower Units Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2022	18,450
Epoxy Flooring Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	1- Due within 1 Year of Inspection	Sep 8, 2014	5,230
Equipment - Autoclaves Renewal	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	334,125
Exit Signs - Fluorescent Renewal	Yes	D5092 - Emergency Light and Power Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	35,224
Fire Alarm System - Average Density -Fire Panel Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	2- Due within 2 Years of Inspection	Sep 8, 2016	9,817
Fire Alarm System - Average Density Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	329,875
Folding Partitions - Economy Renewal	Yes	C1010 - Partitions	Lifecycle	4- Not Time Based	Sep 8, 2017	78,074
Foundation Drainage Improvement	No	A1013 - Perimeter Drainage and Insulation	Reliability	3- Due within 5 Years of Inspection	Aug 28, 2020	52,683
GWB Taped and Finished Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2020	15,250
Greenhouse - Roof Renewal	Yes	B3021 - Glazed Roof Openings	Lifecycle	3- Due within 5 Years of	Sep 8, 2017	182,425

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Inspection		
HVAC - Building Hot Water Distribution System Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2022	280,215
HVAC RENOVATION	No	D3040 - Distribution Systems	Reliability	1- Due within 1 Year of Inspection	Sep 8, 2016	534,061
Heat Exchanger - Steam/HW - Shell and Tube - Building - Air Handlers Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	51,719
Heat Exchanger - Steam/HW - Shell and Tube - Domestic - DHW-1, DHW-2 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2017	58,505
Heat Exchanger - Steam/HW - Shell and Tube - Greenhouse Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	29,252
Heat Exchanger - Steam/HW - Shell and Tube - Labs - LWH-1, LWH-2 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2017	103,438
Heat Exchanger - Steam/HW - Shell and Tube -Building - Perimeter Heaters Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	103,438
Heat Recovery Ventilator - EF-3 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	18,566
LAN System Renewal	Yes	D5039 - Local Area Networks	Technological Improvements	2- Due within 2 Years of Inspection	Sep 8, 2019	509,281
Lab Air Compressor (Each) Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2017	57,243

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Lab Sink - 1990 Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	146,367
Lighting - Interior - CFL - Greenhouse, lobby Renewal	Yes	D5022 - Lighting Equipment	Lifecycle	4- Not Time Based	Sep 8, 2020	128,916
Lighting Fixtures - Interior - T-8 Renewal	Yes	D5022 - Lighting Equipment	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	262,170
Low Tension Service and Distribution - Fire Stopping Lacking in Electrical Room	No	D5012 - Low Tension Service and Dist.	Building Code	4- Not Time Based		947
Main Electrical Service - Main Switchboard - 1200 A, 277/480 V Renewal	Yes	D5012 - Low Tension Service and Dist.	Reliability	2- Due within 2 Years of Inspection	Sep 8, 2016	50,093
Main Electrical Service - Main Switchboard - 3000 A, 120/208 V Renewal	Yes	D5012 - Low Tension Service and Dist.	Reliability	2- Due within 2 Years of Inspection	Sep 8, 2016	82,683
Main Electrical Service Renewal	Yes	D5011 - High Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2022	159,187
Make-up Air Unit - MU-1, MU-5 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	36,632
Make-up Air Unit - MU-2 Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2019	31,564
Metal Paneled Walls - Economy Renewal	Yes	B2010 - Exterior Walls	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2017	6,960
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2017	59,388

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Perimeter Heat System - Fin Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2017	223,600
Plumbing Fixtures - Drinking Fountains not Code Compliant	No	D2010 - Plumbing Fixtures	Building Code	4- Not Time Based		11,767
REPAIR/REPLACE EXHAUST FANS	No	D3042 - Exhaust Ventilation Systems	Reliability	4- Not Time Based		381,320
REPLACE BRIDGE TENDERS	No	D3031 - Chilled Water Systems	Reliability	1- Due within 1 Year of Inspection	Sep 3, 2016	87,159
Raise Concrete Curb to Protect Ventilation Shaft from Storm Runoff	No	D3040 - Distribution Systems	Optimization	4- Not Time Based		10,330
Restore External Masonry	No	B2010 - Exterior Walls	Reliability	3- Due within 5 Years of Inspection	Aug 28, 2020	263,415
Restroom Accessories - Average Renewal	Yes	C1030 - Fittings	Lifecycle	4- Not Time Based	Sep 8, 2017	121,591
Restroom Fixtures Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	72,773
Roof Drainage System Renewal	Yes	D2040 - Rain Water Drainage	Reliability	2- Due within 2 Years of Inspection	Sep 8, 2016	229,669
Room 414 install edge molding on PLAM countertops	No	E2012 - Fixed Casework	Reliability	2- Due within 2 Years of Inspection	Jun 14, 2018	8,545
Sanitary Waste System Renewal	Yes	D2030 - Sanitary Waste	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	830,563
Steam Piping and Condensate Return Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of	Sep 8, 2020	173,703

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Inspection		
Traction Geared Passenger Elev - Low-Rise Renewal	Yes	D1010 - Elevators and Lifts	Reliability	3- Due within 5 Years of Inspection	Sep 8, 2017	243,076
UPGRADE BAS SYSTEM	No	D3060 - Controls and Instrumentation	Technological Improvements	1- Due within 1 Year of Inspection	Jun 28, 2017	0
Unit Heaters - Hot Water Renewal	Yes	D3050 - Terminal and Package Units	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2020	15,511
VCT - Average Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2017	231,164
Vinyl Sheet Goods Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Sep 8, 2020	154,688
Water Dist Complete - Deinonized Water Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 5 Years of Inspection	Sep 8, 2021	21,237
Water Dist Complete - Domesdtic - Main Feed Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Sep 8, 2020	127,425
Water Dist Complete - Domestic - Distribution Piping Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Sep 8, 2015	303,891
Total						**11,380,260**

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APPENDIX E5

Asset Detail Report
By Asset Name

Region: Washington State University - FCA Data **Asset:** WEBSTER PHYSICAL SCIENCES BUILDING
Campus: Assessed - September 2014 **Asset Number:** 0801

Assets are ordered by Asset Name **Currency: USD**

Statistics

FCI Cost:	25,424,608	**FCI:**	0.64
RI Cost:	29,643,276	**RI:**	0.74
Total Requirements Cost:	29,643,280		
Current Replacement Value:	39,900,849	**Date of most Recent Assessment:**	Oct 14, 2014

Type	Building		
Area	168,989 SF		
Use	ACADEMIC INSTRUCTION	**Construction Type**	IBC - Type II A
Floors	14	**Historical Category**	None
Address 1	1405 COLLEGE AVE	**City**	PULLMAN
Address 2	-	**State/Province/Region**	UNITED STATES OF AMERICA
Year Constructed	1974	**Zip/Postal Code**	99164
Year Renovated	-	**Architect**	-
Ownership	Client Owned	**Commission Date**	-
		Decommission Date	-

Photo

WEBSTER PHYSICAL SCIENCES BUILDING

Asset Description

General Description:

Webster Hall is located on the Washington State University Campus in Pullman, Washington. The building is situated on College Avenue. The structure is 168,989 square foot (GSF), fourteen stories with a basement and a mechanical penthouse. The

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building is irregular in shape with the lower two floors occupied primarily by large lecture halls having a larger footprint than the upper floors. Webster Hall is built on a sloping parcel of land with entrances on the ground level and basement and the roof of the lecture hall at grade level used as a landscaped plaza. According to WSU information, construction for the existing building was completed in 1974.

The building contains laboratories, classroom and offices with mechanical equipment located primarily in the two story penthouse. Per the 2012 International Building Code, Chapter 3, and Section 303 – Assembly Group, this building is classified as Occupancy Group A3. According to the 2012 International Building Code, Chapter 6, Section 602, this building's construction type is Type II - Noncombustible, as determined from field observations.

Requirements

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Multi-Story - Concrete Renewal	Yes	B10 - Superstructure	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2019	314,657
MASONRY RESTORATION PHASE II	No	B2010 - Exterior Walls	Reliability	3- Due within 5 Years of Inspection	Jun 14, 2021	534,061
Aluminum Windows Renewal	Yes	B2020 - Exterior Windows	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2019	2,621,100
Investigate Window Seal	No	B2020 - Exterior Windows	Reliability	2- Due within 2 Years of Inspection	Oct 14, 2016	10,588
Door Assembly - 6 x 7 Storefront Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2021	66,066
Door Assembly - 3 x 7 HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2021	4,256
INSTALL ACCESS DR/EXTEND ELEV	No	B2030 - Exterior Doors	Life Safety	2- Due within 2 Years of Inspection	Jun 16, 2018	320,437
Automatic Openers Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5	Oct 14, 2019	59,361

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Years of Inspection		
Door Assembly - 3 x 7 Storefront Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2019	7,033
Door Assembly - Large HM Renewal	Yes	B2030 - Exterior Doors	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	19,200
CMU Block Walls - Plain Renewal	Yes	C1010 - Partitions	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2019	59,427
GWB 2HR Rated Walls Renewal	Yes	C1010 - Partitions	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2019	156,910
Fittings - Signage (Room Numbering and Identification) Renewal	Yes	C1035 - Identifying Devices	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2020	29,823
Painted Finish - Average (1 Coat Prime - 2 Coats Finish) Renewal	Yes	C3010 - Wall Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2020	106,656
Concrete - Painted Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2019	16,998
Terrazzo - Cast-in-Place Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2019	145,900
VCT Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	3- Due within 5 Years of Inspection	Oct 14, 2019	484,344
Carpeting Renewal	Yes	C3020 - Floor Finishes	Interior Finishes	4- Not Time Based		167,266
ACT System - Standard Renewal	Yes	C3030 - Ceiling	Lifecycle	3- Due	Oct 14,	1,053,125

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Finishes		within 5 Years of Inspection	2022	
ACT System - Concealed Spline Renewal	Yes	C3030 - Ceiling Finishes	Interior Finishes	4- Not Time Based		199,375
EXTEND FREIGHT ELEVATOR TO PENTHOUSE OR INSTALL ROOF ACCESS DOOR	No	D1010 - Elevators and Lifts	Life Safety	4- Not Time Based		326,845
Custodial/Utility Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	4- Not Time Based	Oct 14, 2017	64,932
Restroom Fixtures Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	4- Not Time Based	Oct 14, 2017	409,148
Laboratory Sinks Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	758,819
Water Coolers Renewal	Yes	D2010 - Plumbing Fixtures	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	57,798
Conduct Water Quality Testing	No	D2020 - Domestic Water Distribution	Life Safety	1- Due within 1 Year of Inspection	Oct 14, 2015	6,971
Pressure Booster Pump - Duplex Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	111,000
Water Dist Complete Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	4- Not Time Based	Oct 14, 2020	589,874
Water Heater - Steam Instantaneous Renewal	Yes	D2020 - Domestic Water Distribution	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	250,670
Potable Water Tanks - Steel Renewal	Yes	D2023 - Domestic Water Supply Equipment	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	82,161
Lab Acid Waste System - Glass	Yes	D2090 - Other	Lifecycle	4- Not Time	Oct 14,	843,375

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Pipe Renewal		Plumbing Systems		Based	2017	
Natural Gas Distribution for Lab Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	442,466
Shop Air Compressors Renewal	Yes	D2090 - Other Plumbing Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	57,243
REMOVE ABANDONED CHILLER/PENT	No	D3030 - Cooling Generating Systems	Abandoned	3- Due within 5 Years of Inspection	Sep 8, 2020	87,159
DX Condensing Unit - Carrier Renewal	Yes	D3030 - Cooling Generating Systems	Mission	3- Due within 5 Years of Inspection	Oct 14, 2017	8,556
INSTALL HVAC HEAT EXCHANGER	No	D3031 - Chilled Water Systems	Energy	2- Due within 2 Years of Inspection	Jul 5, 2018	534,061
Steam Piping and Condensate Return Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2017	429,940
AHU-5 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	125,627
Perimeter Heat System - Hydronic Fin Tube Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2017	667,819
AHU-2 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	376,882
Exhaust System - Fume Hoods Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2017	877,643
AHU-1 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of	Oct 14, 2020	376,882

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
				Inspection		
AHU-4 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	125,627
Exhaust System - General Building Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2017	151,893
Four Pipe Distribution System w/Pumps Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2017	2,658,566
AHU-3 - Const Volume w/Distribution Renewal	Yes	D3040 - Distribution Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2020	125,627
HVAC Distribution System - Ductwork Renewal	Yes	D3040 - Distribution Systems	Lifecycle	4- Not Time Based	Oct 14, 2020	825,443
Replace Pneumatic Controls with DDC Controls	Yes	D3060 - Controls and Instrumentation	Lifecycle	2- Due within 2 Years of Inspection	Oct 14, 2017	1,060,568
Wet Sprinkler System - Ordinary Hazard w/Pump Renewal	Yes	D40 - Fire Protection	Lifecycle	4- Not Time Based	Oct 14, 2020	1,638,452
Feeder Renewal	Yes	D5010 - Electrical Service and Distribution	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	643,138
Main Normal Electrical Service - 3000A 480Y/277V - Room 1300 Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	419,174
Main Normal Electrical Service - 4000A 208Y/120V - Room 1300 Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	389,025
Main Normal Electrical Service - 4000A 208Y/120V - Room B18B Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	389,025

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
Distribution Equipment - 480Y/277V & 208Y/120V Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	793,576
Main Normal Electrical Service - 3000A 480Y/277V - Room B18B Renewal	Yes	D5012 - Low Tension Service and Dist.	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	419,174
Lighting - Rooftop Renewal	Yes	D5020 - Lighting and Branch Wiring	Lifecycle	2- Due within 2 Years of Inspection	Oct 14, 2016	4,734
Branch Wiring Renewal	Yes	D5021 - Branch Wiring Devices	Lifecycle	4- Not Time Based	Oct 14, 2017	752,278
Branch Wiring - Non-GFCI Receptacles	No	D5021 - Branch Wiring Devices	Life Safety	1- Due within 1 Year of Inspection	Oct 14, 2015	5,854
Branch Wiring - Obstructed Panel Access - Room 170	No	D5021 - Branch Wiring Devices	Life Safety	1- Due within 1 Year of Inspection	Oct 14, 2015	419
Lighting Control System - General Electric Renewal	Yes	D5022 - Lighting Equipment	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2021	121,345
Lighting Control System - Luxtrol Renewal	Yes	D5022 - Lighting Equipment	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	4,071
Wireless Radio System Renewal	Yes	D5033 - Telephone Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	33,796
Fire Alarm System Renewal	Yes	D5037 - Fire Alarm Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	796,361
Fire Alarm System - Smoke Detectors Lacking	No	D5037 - Fire Alarm Systems	Life Safety	4- Not Time Based		481,897
LAN System Renewal	Yes	D50392 - LAN	Technological	1- Due	Oct 14,	809,209

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Asset Detail Report
By Asset Name

Requirement Name	Renewal	Prime System	Category	Priority	Action Date	Estimated Cost
		Network - Wired	Improvements	within 1 Year of Inspection	2017	
Building Wireless Upgrade	No	D50393 - LAN Network - Wireless	Technological Improvements	2- Due within 2 Years of Inspection	Aug 29, 2018	260,355
Exit Signs - Lacking - Basement Floor	No	D5092 - Emergency Light and Power Systems	Life Safety	1- Due within 1 Year of Inspection	Oct 14, 2015	4,555
Life Safety Emergency Power Lacking	No	D5092 - Emergency Light and Power Systems	Reliability	4- Not Time Based		343,889
Emergency Generator Renewal	Yes	D5092 - Emergency Light and Power Systems	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2017	88,731
Exit Signs Renewal	Yes	D5092 - Emergency Light and Power Systems	Lifecycle	1- Due within 1 Year of Inspection	Oct 14, 2015	168,457
Exit Signs - Lacking - Room 12	No	D5092 - Emergency Light and Power Systems	Life Safety	1- Due within 1 Year of Inspection	Oct 14, 2015	4,407
Laboratory Casework Renewal	Yes	E - Equipment and Furnishings	Lifecycle	4- Not Time Based	Oct 14, 2020	2,113,875
Casework Cabinets Renewal	Yes	E - Equipment and Furnishings	Lifecycle	3- Due within 5 Years of Inspection	Oct 14, 2022	147,305
Total						**29,643,280**

Replacement Value Based on System Cost with Overheads

System Costs

System	System Name	Cost
A - Substructure	Structural Slab on Grade - Non-Industrial	75,804

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Asset Detail Report
By Asset Name

System	System Name	Cost
A - Substructure	Concrete Footings	25,153
A - Substructure	Foundation Wall and Footings 12-Ft - Full Basement	168,496
B10 - Superstructure	Multi-Story - Concrete	5,244,283
B1015 - Exterior Stairs and Fire Escapes	Exterior Stairs - Concrete	61,836
B2010 - Exterior Walls	Brick Cavity Walls - CMU Backup	1,535,040
B2010 - Exterior Walls	Precast Concrete Panels	2,230,200
B2020 - Exterior Windows	Aluminum Windows	2,096,880
B2030 - Exterior Doors	Door Assembly - 3 x 7 Storefront	5,626
B2030 - Exterior Doors	Door Assembly - 6 x 7 Storefront	52,853
B2030 - Exterior Doors	Door Assembly - 3 x 7 HM	3,405
B2030 - Exterior Doors	Automatic Openers	47,489
B2030 - Exterior Doors	Door Assembly - Large HM	15,360
B30 - Roofing	Single-Ply Membrane	115,340
B30 - Roofing	Single-Ply EPDM with Pavers on Roof	567,476
C1010 - Partitions	CMU Block Walls - Plain	95,850
C1010 - Partitions	GWB 2HR Rated Walls	253,080
C1010 - Partitions	Windows/Storefront Partitions	70,410
C1010 - Partitions	GWB Walls - Standard (Non-Painted)	348,000
C1020 - Interior Doors	Swinging Doors - Pair - Wd - Rated	883,711
C1020 - Interior Doors	Swinging Doors - 3 x 7 HM - Rated	138,946
C1020 - Interior Doors	Swinging Doors - 6 x 7 HM - Rated	36,227
C1020 - Interior Doors	Swinging Doors - 3 x 7 Wd - Rated	533,246
C1030 - Fittings	Restroom Accessories	22,983
C1030 - Fittings	Toilet Partitions	25,325
C1035 - Identifying Devices	Fittings - Signage (Room Numbering and Identification)	37,279
C20 - Stairs	Stairs - Concrete	505,486
C3010 - Wall Finishes	Ceramic Tile	55,530
C3010 - Wall Finishes	Painted Finish - Average (1 Coat Prime - 2 Coats Finish)	242,400
C3020 - Floor Finishes	Ceramic Tile	42,661
C3020 - Floor Finishes	VCT	387,475
C3020 - Floor Finishes	Concrete - Painted	13,598
C3020 - Floor Finishes	Carpeting	133,812
C3020 - Floor Finishes	Terrazzo - Cast-in-Place	116,720

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Asset Detail Report

By Asset Name

System	System Name	Cost
C3030 - Ceiling Finishes	ACT System - Standard	842,500
C3030 - Ceiling Finishes	GWB Taped and Finished	14,640
C3030 - Ceiling Finishes	ACT System - Concealed Spline	159,500
D1010 - Elevators and Lifts	Traction Gearless Passenger Elevator 3	928,333
D1010 - Elevators and Lifts	Traction Gearless Passenger Elevator 2	928,333
D1010 - Elevators and Lifts	Traction Gearless Passenger Elevator 1	928,333
D2010 - Plumbing Fixtures	Water Coolers	46,238
D2010 - Plumbing Fixtures	Restroom Fixtures	327,318
D2010 - Plumbing Fixtures	Emergency Eyewash and Shower Units	13,751
D2010 - Plumbing Fixtures	Laboratory Sinks	607,055
D2010 - Plumbing Fixtures	Custodial/Utility Sinks	51,945
D2020 - Domestic Water Distribution	Water Heater - Steam Instantaneous	223,812
D2020 - Domestic Water Distribution	Water Dist Complete	526,673
D2020 - Domestic Water Distribution	Pressure Booster Pump - Duplex	99,107
D2023 - Domestic Water Supply Equipment	Potable Water Tanks - Steel	65,729
D2030 - Sanitary Waste	Sanitary Waste - Gravity Disch	395,936
D2040 - Rain Water Drainage	Roof Drainage - Gravity	319,024
D2090 - Other Plumbing Systems	Lab Acid Waste System - Glass Pipe	674,700
D2090 - Other Plumbing Systems	Natural Gas Distribution for Lab	353,973
D2090 - Other Plumbing Systems	Lab Acid Waste System - Polypropylene	48,085
D2090 - Other Plumbing Systems	Shop Air Compressors	54,517
D3030 - Cooling Generating Systems	DX Condensing Unit - Carrier	6,844
D3040 - Distribution Systems	AHU-1 - Const Volume w/Distribution	301,506
D3040 - Distribution Systems	Four Pipe Distribution System w/Pumps	2,126,853
D3040 - Distribution Systems	Exhaust System - Fume Hoods	702,114
D3040 - Distribution Systems	AHU-5 - Const Volume w/Distribution	100,502
D3040 - Distribution Systems	HVAC Distribution System - Ductwork	660,354
D3040 - Distribution Systems	Steam Piping and Condensate Return	343,952
D3040 - Distribution Systems	Perimeter Heat System - Hydronic Fin Tube	596,267
D3040 - Distribution Systems	AHU-3 - Const Volume w/Distribution	100,502
D3040 - Distribution Systems	AHU-4 - Const Volume w/Distribution	100,502
D3040 - Distribution Systems	AHU-2 - Const Volume w/Distribution	301,506
D3040 - Distribution Systems	Exhaust System - General Building	121,515
D3060 - Controls and Instrumentation	Pneumatic Controls	946,936
D40 - Fire Protection	Wet Sprinkler System - Ordinary Hazard	1,310,762

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Asset Detail Report
By Asset Name

System	System Name	Cost
	w/Pump	
D40 - Fire Protection	Fire Pump - Automatic Transfer Switch	3,129
D40 - Fire Protection	Fire Extinguishers - Dry Chem w/Cabinet	5,929
D5010 - Electrical Service and Distribution	Feeder	514,511
D5012 - Low Tension Service and Dist.	Main Normal Electrical Service - 4000A 208Y/120V - Room 1300	311,220
D5012 - Low Tension Service and Dist.	Main Normal Electrical Service - 3000A 480Y/277V - Room B18B	335,339
D5012 - Low Tension Service and Dist.	Distribution Equipment - 480Y/277V & 208Y/120V	634,861
D5012 - Low Tension Service and Dist.	Main Normal Electrical Service - 3000A 480Y/277V - Room 1300	335,339
D5012 - Low Tension Service and Dist.	Main Normal Electrical Service - 4000A 208Y/120V - Room B18B	311,220
D5020 - Lighting and Branch Wiring	Lighting - Exterior	8,416
D5020 - Lighting and Branch Wiring	Lighting - Rooftop	3,787
D5021 - Branch Wiring Devices	Branch Wiring	601,822
D5022 - Lighting Equipment	Lighting Control System - General Electric	97,076
D5022 - Lighting Equipment	Lighting - Interior	855,229
D5022 - Lighting Equipment	Lighting Control System - Luxtrol	3,257
D5033 - Telephone Systems	Wireless Radio System	31,883
D5033 - Telephone Systems	Telephone System	552,594
D5037 - Fire Alarm Systems	Fire Alarm System	637,089
D50392 - LAN Network - Wired	LAN System	750,311
D5092 - Emergency Light and Power Systems	Exit Signs	134,766
D5092 - Emergency Light and Power Systems	Emergency Generator	70,984
E - Equipment and Furnishings	Laboratory Casework	1,691,100
E - Equipment and Furnishings	Fixed Seating	179,374
E - Equipment and Furnishings	Casework Cabinets	117,844
E - Equipment and Furnishings	Fixed Tables	97,702
E10 - Equipment	Steel Crane	78,100
G2057 - Irrigation Systems	Landscaping - Sprinkler System - Drip Irrigation - Planting Beds	20,370
Subtotal		**39,900,849**

Overhead Costs

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Asset Detail Report

By Asset Name

Description	Cost
	0
Total Replacement Value Based on System Cost with Overheads	**39,900,849**

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365 - Washington State University
Capital Project Request
2019-21 Biennium

*

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:49PM

Project Number: 30001327
Project Title: WSU Pullman - Life/Physical Science Bldg

Description

Starting Fiscal Year: 2018
Project Class: Program
Agency Priority: 8

Project Summary

Washington State University requests $500,000 for the predesign of a teaching and research building dedicated to foundational life and physical sciences on the Pullman campus replacing the marginally functioning 1962 Heald Hall building. Sustained increases in student enrollment and interest in STEM programs at WSU are pushing current space resources to the limit and restricting opportunities for program growth and expansion. A new building with high-quality academic, collaborative, and investigative spaces will directly support the growth of key programs in biological sciences, chemistry, physics, and environmental sciences, and will improve WSU's ability to deliver world-class STEM education and training. Heald Hall has many shortcomings, in particular, inadequate structural capacity to support modern laboratory equipment. Replacing it also removes the high cost of keeping it operational and will set the stage for renovating other facilities. Overall, a new core science building will significantly contribute to increasing the number of students completing STEM degrees and enhance training opportunities for the next generation of scientific and educational leaders.

Project Description

Identify the problem or opportunity addressed. Why is the request a priority? (Numbers not served, students without classrooms, budget savings, safety improvements, history, and other backup necessary to understand the need for the request.)

Sustained increases in student enrollment and interest in STEM programs at Washington State University (WSU) Pullman have stretched current STEM-related space to the limit and restricted opportunities for program growth and expansion. A new building dedicated to life and physical sciences education and research is a critical need for WSU and the state of Washington. The poor quality and limited quantity of current teaching and research space for life and physical sciences at WSU constrains the university's ability to achieve its strategic goals and meet the state's educational objectives. Outstanding research and teaching in these disciplines requires specialized laboratory space and access to modern infrastructure. On the WSU Pullman campus, the buildings housing the foundational academic life and physical science programs are, on average, more than 40-years-old, with the most recent renovation over 25 years ago. The oldest building is more than 70- years-old and in need of major renovation. Many of the teaching laboratories are in need of critical improvements.

WSU is committed to providing transformational experiences for our students and supporting their transition into STEM careers in Washington. To fulfill its land-grant educational mission and contribute to the STEM employment pipeline, significant capital investment in the life and physical sciences education and training facilities at WSU is required. Existing teaching and research laboratories that are a half-century old or more are inadequate to meet the training and education needs of the next generation of life and physical scientists.

The new life and physical sciences building is a high priority and is a part of the WSU Pullman campus master plan. The project, replacing Heald Hall, is the highest and best use for the core campus site. Heald Hall, built in 1962, has many shortcomings. In particular, it has inadequate structural capacity to support modern laboratory equipment. Replacing it also removes the high cost of keeping an old, inefficient building operational and will set the stage for renovating other facilities. Overall, a new core science building will significantly contribute to increasing the number of students completing STEM degrees and enhance training opportunities for the next generation of scientific and educational leaders.

What will the request produce or construct (i.e., design of a building, construction of additional space, etc.)? When will the project start and complete? Identify whether the project can be phased, and if so, which phase is included in the request.

This is a 2019-21 predesign funding request. The project is envisioned as a 50,000 gross square foot teaching and research building, dedicated to foundational life and physical sciences, on the Pullman campus, replacing the marginally functioning 1962 Heald Hall building. If funded in the 2019-21 Capital Budget, predesign would start as soon as funding is released. Funds for the design and construction phases would be requested in future biennium.

How would the request address the problem or opportunity identified in question #1? What would be the result of not taking action?

The request would address the problem of inadequate current STEM-related space on the Pullman campus by replacing Heald Hall. If action is not taken, Heald Hall will remain marginally useful, very inefficient to operate and maintain as is the current situation. Current academic teaching and research programs and enrollment in the STEM fields will be negatively impacted with no room to grow. Heald has many shortcomings, in particular, inadequate structural capacity to support modern laboratory

Description

equipment. Replacing it also removes the high cost of keeping it operational and will set the stage for renovating other facilities. Overall, a new core science building will significantly contribute to increasing the number of students completing STEM degrees and enhance training opportunities for the next generation of scientific and educational leaders.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served, etc. Be prepared to provide detailed cost backup.

Quality instruction and training facilities are vital for providing high-demand STEM degree programs in chemistry, biological sciences, and physics. The proposed new facility directly supports the Results Washington goal to increase enrollments and graduates in STEM and high demand programs. In addition to educating undergraduate and graduate students in these disciplines, students seeking degrees in agriculture, biotechnology, engineering, food science, materials science, and pre-healthcare programs (such as medicine, dentistry, nursing, pharmacy, and veterinary medicine) must complete a series of foundational STEM courses.

Over the past six years, the number of graduate students pursuing advanced degrees in chemistry, biological sciences, and physics has averaged over 230 per year with most enrolled in research-intensive Ph.D. studies. When this project is completed, the advanced degrees completed will likely increase by 15 per year, most of which will be in high demand fields.

The life and physical science units at Washington State University are highly productive academic and research organizations. Biological sciences, chemistry, and physics together enrolled more than 2,100 undergraduate and graduate AAFTE on the Pullman campus in academic year (AY) 2017. The academic load for these disciplines in AY 2017 was 60,654 student credit hours. When this project is complete, undergraduate degrees are estimated to increase by 100 per year, 60 of which are in high demand fields.

Multiple STEM courses are also part of the University Core Requirements for graduation that provide scientific literacy for future leaders in all disciplines and these courses are heavily enrolled. This budget request potentially impacts all students at WSU.

Does the request include IT-related costs? (See the IT Appendix for guidance, and follow directions to meet the OCIO review requirement.) What alternatives were explored? Why was the recommended alternative chosen?

This request does not include funding for any IT-related costs.

Will non-state funds be used to complete the project? How much, what fund source, and could the request result in matching federal, state, local, or private funds?

Non-state funds will not be used to complete the project. None have been identified.

Describe how the project supports the agency's strategic/master plans, contributes to statewide goal, or enables the agency to perform better. Reference feasibility studies, master plans, space programming, and other analyses as appropriate.

The new building follows master plan/development plan sequencing and was reinforced by a consulting firm's (NBBJ) report (excerpt in Appendix B of capital program proposal) which analyzed the quality and quantity of space, in particular, for the delivery of core instruction of science-based programs on campus. In the University's master/development plans (and consistent with the independent consultant's report), this building would replace an inadequate existing facility with sufficient space that would be able to support current and future needs in STEM programs. It will be sited in the core of campus, replacing Heald Hall that is in close proximity to many of the existing facilities housing the STEM academic and research programs.

The proposed new facility directly supports the Results Washington goal to increase enrollments and graduates in STEM and high demand programs. The quality and condition of laboratory and classroom space plays a significant role in the University's ability to achieve its academic mission and meet its strategic goals. The new Life/Physical Sciences building will strengthen faculty and student recruitment and retention by providing modern, safe, technologically advanced space for a wide range of biological sciences, physics, and chemistry programs, each of which contributes to achieving the university's and the state's strategic goals by:

- providing high impact learning experiences that engage students;
- significantly improving retention and graduation rates of undergraduate students;
- developing and supporting outstanding graduate training programs;
- supporting interdisciplinary programs such as the Materials Science and Engineering Program and the Institute of Biological Chemistry, and degree programs in neuroscience, chemical engineering, integrated plant sciences, data analytics, and more;
- investing in and promoting identified and emerging areas of preeminence;
- attracting and retaining a diverse faculty and staff of the highest academic stature;
- leading relevant local, national, and global outreach and engagement;
- fueling the state and national economy with innovative ideas.

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Capital Project Request
2019-21 Biennium

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Project Title: WSU Pullman - Life/Physical Science Bldg

Description

The new facility will also directly support the university's strategic goal to improve undergraduate student retention. Peer institutions that have made similar investments in modern scientific educational facilities have noted increased retention rates.

For projects linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda. See Chapter 14.4 in the 2017-19 Operating Budget Instructions

This project is not linked to the Puget Sound Action Agenda.

Is there additional information you would like decision makers to know when evaluating this request?

Location

City: Pullman **County:** Whitman **Legislative District:** 009

Project Type

New Facilities/Additions (Major Projects)

Growth Management impacts

WSU Pullman's physical planning policies are coordinated with many agencies and government units. The Growth Management Act and its companion Traffic Demand Management legislation and the State Environmental Policy Act, however, are applicable to WSU's physical facilities and programs. Growth Management Act (GMA)-WSU will coordinate with Counties and Municipalities throughout the State to ensure compliance with GMA. WSU will avoid construction or activities which would permanently impair "critical" areas on its campuses as they are defined in the GMA. Transportation Demand Management-A companion piece of legislation sets forth a policy for Transportation Demand Management in which the State of Washington will provide leadership. The Director of the State of Washington Department of General Administration (DGA) is required to develop a commute trip reduction plan for state agencies which are Phase I major employers WSU will conform to the plans developed by DGA. State Environmental Policy Act (SEPA)-WSU has adopted procedures set forth in the State Environmental Policy Act Handbook December 1988 and the State Environmental Policy Act Rules Chapter 197-11 Washington Administrative Code Effective April 4, 1984. Adherence to these procedures will be one of the principal means by which WSU coordinates its compliance with Growth Management requirements.

New Facility: Yes

How does this fit in master plan

See http://facilitiesservices.wsu.edu/resouorces/pdf/masterplan/Pullman_masterplan.pdf

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Expenditures Current Biennium	2019-21 Fiscal Period Reapprops	2019-21 Fiscal Period New Approps
057-1	State Bldg Constr-State	55,000,000				500,000
062-1	WSU Building Account-State					
	Total	**55,000,000**	**0**	**0**	**0**	**500,000**

Acct Code	Account Title	Future Fiscal Periods 2021-23	2023-25	2025-27	2027-29
057-1	State Bldg Constr-State	3,000,000	51,500,000		
062-1	WSU Building Account-State				
	Total	**3,000,000**	**51,500,000**	**0**	**0**

Schedule and Statistics

	Start Date	End Date

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365 - Washington State University
Capital Project Request
2019-21 Biennium

Version: 10 2019-21 WSU Capital Budget Request

Report Number: CBS002
Date Run: 7/30/2018 1:49PM

Project Number: 30001327
Project Title: WSU Pullman - Life/Physical Science Bldg

Schedule and Statistics

	Start Date	End Date
Predesign	07/01/2019	06/01/2020
Design	7/1/2021	6/1/2023
Construction	8/1/2023	5/1/2025

	Total
Gross Square Feet:	50,000
Usable Square Feet:	30,500
Efficiency:	61.0%
Escalated MACC Cost per Sq. Ft.:	625
Construction Type:	Science Labs (teaching)
Is this a remodel?	No
A/E Fee Class:	B
A/E Fee Percentage:	6.89%

Cost Summary

		Escalated Cost	% of Project
Acquisition Costs Total		**0**	**0.0%**
Consultant Services			
Pre-Schematic Design Services		687,373	1.3%
Construction Documents		1,472,404	2.7%
Extra Services		1,109,654	2.0%
Other Services		703,462	1.3%
Design Services Contingency		210,105	0.4%
Consultant Services Total		**4,182,996**	**7.6%**
Maximum Allowable Construction Cost(MACC)	**31,261,205**		
Site work		2,578,620	4.7%
Related Project Costs		1,289,310	2.3%
Facility Construction		27,393,275	49.8%
GCCM Risk Contingency		1,806,150	3.3%
GCCM or Design Build Costs		3,612,300	6.6%
Construction Contingencies		1,568,340	2.9%
Non Taxable Items		0	0.0%
Sales Tax		2,983,343	5.4%
Construction Contracts Total		**41,231,338**	**75.0%**
Equipment			
Equipment		6,261,320	11.4%
Non Taxable Items		0	0.0%
Sales Tax		488,383	0.9%

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Project Number: 30001327
Project Title: WSU Pullman - Life/Physical Science Bldg

Cost Summary

	Escalated Cost	% of Project
Equipment Total	**6,749,703**	**12.3%**
Art Work Total	**156,306**	**0.3%**
Other Costs Total	**1,184,993**	**2.2%**
Project Management Total	**1,495,015**	**2.7%**
Grand Total Escalated Costs	**55,000,351**	
Rounded Grand Total Escalated Costs	**55,000,000**	

Operating Impacts

Total one time start up and ongoing operating costs

Acct Code	Account Title	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
FTE	Full Time Employee	5.1	5.3	5.3	5.3	5.3
001-1	General Fund-State	792,000	816,000	816,000	816,000	816,000
	Total	**792,000**	**816,000**	**816,000**	**816,000**	**816,000**

Narrative

Costs are based on calculated M & O rates by building type.

OFM

Capital Project Request

2019-21 Biennium

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Parameter	Entered As	Interpreted As
Biennium	2019-21	2019-21
Agency	365	365
Version	10-A	10-A
Project Classification	*	All Project Classifications
Capital Project Number	30001327	30001327
Sort Order	Project Priority	Priority
Include Page Numbers	Y	Yes
For Word or Excel	N	N
User Group	Agency Budget	Agency Budget
User Id	*	All User Ids

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Washington State University
Project Name	WSU Pullman - Life/Physical Science Bldg
OFM Project Number	30001327

Contact Information	
Name	Jason Baerlocher
Phone Number	509-335-9012
Email	jason.baerlocher@wsu.edu

Statistics			
Gross Square Feet	50,000	MACC per Square Foot	$521
Usable Square Feet	30,500	Escalated MACC per Square Foot	$625
Space Efficiency	61.0%	A/E Fee Class	B
Construction Type	Science labs (teaching)	A/E Fee Percentage	6.89%
Remodel	No	Projected Life of Asset (Years)	50
Additional Project Details			
Alternative Public Works Project	Yes	Art Requirement Applies	Yes
Inflation Rate	3.12%	Higher Ed Institution	Yes
Sales Tax Rate %	7.80%	Location Used for Tax Rate	3812
Contingency Rate	5%		
Base Month	June-18		
Project Administered By	Agency		

Schedule			
Predesign Start	July-19	Predesign End	June-20
Design Start	July-21	Design End	June-23
Construction Start	August-23	Construction End	May-25
Construction Duration	21 Months		

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Project Cost Estimate

Total Project	$46,015,807	Total Project Escalated	$55,000,356
		Rounded Escalated Total	$55,000,000

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Washington State University
Project Name	WSU Pullman - Life/Physical Science Bldg
OFM Project Number	30001327

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$625,225		
A/E Basic Design Services	$1,300,365		
Extra Services	$980,000		
Other Services	$584,222		
Design Services Contingency	$174,491		
Consultant Services Subtotal	**$3,664,303**	**Consultant Services Subtotal Escalated**	**$4,182,998**

Construction			
GC/CM Risk Contingency	$1,500,000		
GC/CM or D/B Costs	$3,000,000		
Construction Contingencies	$1,302,500	Construction Contingencies Escalated	$1,568,341
Maximum Allowable Construction Cost (MACC)	$26,050,000	Maximum Allowable Construction Cost (MACC) Escalated	$31,261,205
Sales Tax	$2,484,495	Sales Tax Escalated	$2,983,344
Construction Subtotal	**$34,336,995**	**Construction Subtotal Escalated**	**$41,231,340**

Equipment			
Equipment	$5,200,000		
Sales Tax	$405,600		
Non-Taxable Items	$0		
Equipment Subtotal	**$5,605,600**	**Equipment Subtotal Escalated**	**$6,749,703**

Artwork			
Artwork Subtotal	**$156,306**	**Artwork Subtotal Escalated**	**$156,306**

Agency Project Administration			
Agency Project Administration Subtotal	$925,604		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$100,000		
Project Administration Subtotal	**$1,241,604**	**Project Administation Subtotal Escalated**	**$1,495,015**

Other Costs			
Other Costs Subtotal	**$1,011,000**	**Other Costs Subtotal Escalated**	**$1,184,994**

Project Cost Estimate			
Total Project	$46,015,807	Total Project Escalated	$55,000,356
		Rounded Escalated Total	$55,000,000

Cost Estimate Details

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	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis	$100,000			
Environmental Analysis	$25,000			
Predesign Study	$500,000			
Honoraria	$225			
Insert Row Here				
Sub TOTAL	**$625,225**	**1.0994**	**$687,373**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$1,300,365			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$1,300,365**	**1.1323**	**$1,472,404**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)	$100,000			
Geotechnical Investigation	$100,000			
Commissioning	$110,000			
Site Survey	$25,000			
Testing	$150,000			
LEED Services	$50,000			
Voice/Data Consultant	$150,000			
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Audit	$120,000			
Lab Consultant	$175,000			
Sub TOTAL	**$980,000**	**1.1323**	**$1,109,654**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$584,222			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
Sub TOTAL	**$584,222**	**1.2041**	**$703,462**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$174,491			
Other				
Insert Row Here				
Sub TOTAL	**$174,491**	**1.2041**	**$210,105**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$3,664,303**		**$4,182,998**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$300,000			
G20 - Site Improvements	$400,000			
G30 - Site Mechanical Utilities	$100,000			
G40 - Site Electrical Utilities	$300,000			
G60 - Other Site Construction	$1,100,000			
Other	$0			
Insert Row Here				
Sub TOTAL	**$2,200,000**	**1.1721**	**$2,578,620**	
2) Related Project Costs				
Offsite Improvements	$200,000			
City Utilities Relocation	$300,000			
Parking Mitigation	$450,000			
Stormwater Retention/Detention	$150,000			
Other				
Insert Row Here				
Sub TOTAL	**$1,100,000**	**1.1721**	**$1,289,310**	
3) Facility Construction				
A10 - Foundations	$750,000			
A20 - Basement Construction	$450,000			
B10 - Superstructure	$2,900,000			
B20 - Exterior Closure	$2,250,000			
B30 - Roofing	$400,000			
C10 - Interior Construction	$1,200,000			
C20 - Stairs	$350,000			
C30 - Interior Finishes	$1,350,000			
D10 - Conveying	$400,000			
D20 - Plumbing Systems	$2,000,000			
D30 - HVAC Systems	$5,500,000			
D40 - Fire Protection Systems	$250,000			
D50 - Electrical Systems	$3,500,000			
F10 - Special Construction	$300,000			
F20 - Selective Demolition	$100,000			
General Conditions	$1,050,000			
Other				
Insert Row Here				
Sub TOTAL	**$22,750,000**	**1.2041**	**$27,393,275**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$26,050,000**		**$31,261,205**	

5) GCCM Risk Contingency				
GCCM Risk Contingency	$1,500,000			
Other				
Insert Row Here				
Sub TOTAL	**$1,500,000**	**1.2041**	**$1,806,150**	
6) GCCM or Design Build Costs				
GCCM Fee	$1,500,000			
Bid General Conditions	$750,000			
GCCM Preconstruction Services	$750,000			
Other				
Insert Row Here				
Sub TOTAL	**$3,000,000**	**1.2041**	**$3,612,300**	
7) Construction Contingency				
Allowance for Change Orders	$1,302,500			
Other				
Insert Row Here				
Sub TOTAL	**$1,302,500**	**1.2041**	**$1,568,341**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2041**	**$0**	
Sales Tax				
Sub TOTAL	**$2,484,495**		**$2,983,344**	
CONSTRUCTION CONTRACTS TOTAL	**$34,336,995**		**$41,231,340**	

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Cost Estimate Details

Equipment				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
E10 - Equipment	$2,500,000			
E20 - Furnishings	$1,750,000			
F10 - Special Construction	$250,000			
Security	$500,000			
Telecom	$200,000			
Sub TOTAL	**$5,200,000**	**1.2041**	**$6,261,320**	
1) Non Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2041**	**$0**	
Sales Tax				
Sub TOTAL	**$405,600**		**$488,383**	
EQUIPMENT TOTAL	**$5,605,600**		**$6,749,703**	

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Cost Estimate Details

Artwork				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Project Artwork	$0			0.5% of Escalated MACC for new construction
Higher Ed Artwork	$156,306			0.5% of Escalated MACC for new and renewal construction
Other				
Insert Row Here				
ARTWORK TOTAL	**$156,306**	**NA**	**$156,306**	

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Cost Estimate Details

Project Management				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Agency Project Management	$925,604			
Additional Services				
Onsite Supervision	$216,000			
Interior Design	$100,000			
PROJECT MANAGEMENT TOTAL	**$1,241,604**	**1.2041**	**$1,495,015**	

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Cost Estimate Details

Other Costs				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
Mitigation Costs				
Hazardous Material Remediation/Removal	$250,000			
Historic and Archeological Mitigation				
Admin Expense/Building Permit	$400,000			
Facilities Support	$361,000			
OTHER COSTS TOTAL	**$1,011,000**	**1.1721**	**$1,184,994**	

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C-100(2018)
Additional Notes

Tab A. Acquisition
Insert Row Here

Tab B. Consultant Services
Insert Row Here

Tab C. Construction Contracts
Insert Row Here

Tab D. Equipment
Insert Row Here

Tab E. Artwork
Insert Row Here

Tab F. Project Management
Insert Row Here

Tab G. Other Costs
Insert Row Here