CAPITAL PROJECT PROPOSALS 2023-2025

Psychology Replacement – Major Project

Design

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CAPITAL PROJECT PROPOSALS 2023-25

Psychology Replacement

Design | Major

Please direct questions about this proposal to:
Steve Dupont, CWU Director of Government Relations
509-201-0528

August 14, 2022

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CAPITAL PROJECT PROPOSALS 2023-25

Psychology Replacement
Design

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2022 PROJECT PROPOSAL CHECKLIST
2023-25 Biennium Four-year Higher Education Scoring Process

INSTITUTION	CAMPUS LOCATION
375 - Central Washington University	Ellensburg
PROJECT TITLE	**OFM/CBS Project #**
Behavioral and Mental Health (Psychology Replacement)- Design	40000124
PROJECT CATEGORY	**FPMT UNIQUE FACILITY ID # (OR NA)**
Replacement - Standalone	A05142
PROPOSAL IS	
New or Updated Proposal (for scoring)	**Resubmitted Proposal (retain prior score)**
☒ New proposal ☐ Resubmittal to be scored (more than 2 biennia old or significantly changed)	☐ Resubmittal from 2018 (2019-21 biennium) ☐ Resubmittal from 2020 (2021-23 biennium)
CONTACT	**PHONE NUMBER**
Delano Palmer	509-963-2906

Proposal content

- ☒ Project Proposal Checklist: this form; one for each proposal
- ☒ Project Proposal Form: Specific to category/subcategory (10-page limit)
- ☒ Appendices: templates, forms, exhibits and supporting/supplemental documentation for scoring.

Institutional priority

- ☒ Institutional Priority Form. Sent separately (not in this packet).

Check the corresponding boxes below if the proposed project meets the minimum threshold or if the item listed is provided in the proposal submittal.

Minimum thresholds

- ☒ Project is not an exclusive enterprise function such as a bookstore, dormitory, or contract food service.
- ☒ Project meets LEED Silver Standard requirements.
- ☒ Institution has a greenhouse gas emissions reduction policy in place in accordance with RCW 70A.45.050 and vehicle emissions reduction policy in place per RCW 47.01.440 or RCW 43.160.020 as applicable.
- ☒ A complete predesign report was submitted to OFM by July 1, 2022 and approved.
- ☐ Growth proposals: Based on solid enrollment projections and is more cost-effectively providing enrollment access than alternatives such as university centers and distance learning.
- ☐ Renovation proposals: Project should cost between 60 – 80% of current replacement value and extend the useful life of the facility by at least 25 years.
- ☐ Acquisition proposals: Land acquisition is not related to a current facility funding request.
- ☐ Infrastructure proposals: Project is not a facility repair project.

2022 PROJECT PROPOSAL CHECKLIST
2023-25 Biennium Four-year Higher Education Scoring Process

☐ Stand-alone, infrastructure and acquisition proposals is a single project requesting funds for one biennium.

Required appendices

☒ Project cost estimate: Excel C-100

☒ Degree Totals and Targets template to indicate the number of Bachelors, High Demand and Advanced degrees expected to be awarded in 2023. (Required for Overarching Criteria scoring criteria for Major Growth, Renovation, Replacement and Research proposals).

☒ Availability of Space/Campus Utilization template for the campus where the project is located. (Required for all categories/subcategories except Infrastructure and Acquisition proposals).

☒ Assignable Square Feet template to indicate program-related space allocation. (Required for Growth, Renovation and Replacement proposals, all categories/subcategories).

Optional appendices

Attach supplemental and supporting project documentation, *limit to materials directly related to and needed for the evaluation criteria*, such as:

☒ Degree and enrollment growth projections

☐ Selected excerpts from institutional plans

☐ Data on instructional and/or research space utilization

☐ Additional documentation for selected cost comparables (acquisition)

☒ Selected materials on facility conditions

☒ Selected materials on code compliance

☐ Tables supporting calculation of program space allocations, weighted average facility age, etc.

☐ Evidence of consistency of proposed research projects with state, regional, or local economic development plans

☐ Evidence of availability of non-state matching funds

☐ Selected documentation of prior facility failures, high-cost maintenance, and/or system unreliability for infrastructure projects

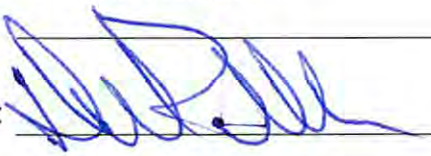
☐ Documentation of professional assessment of costs for land acquisition, land cleanup, and infrastructure projects

☐ Selected documentation of engineering studies, site survey and recommendations, or opinion letters for infrastructure and land cleanup projects

☒ Other: Predesign - 2022

I certify that the above checked items indicate either that the proposed project meets the minimum thresholds, or the corresponding items have been included in this submittal.

Name: Delano Palmer Title: Director of Capital Planning and Projects

Signature:  Date: 08/14/2022

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INSTITUTION	CAMPUS
Central Washington University	Ellensburg, Washington
PROJECT TITLE	
Behavioral and Mental Health (Psychology Replacement)- Design	

SUMMARY NARRATIVE

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

CWU seeks design funding to replace the 50-year old Psychology Building which has never been renovated. The project is necessary to ensure the health and safety of students and employees, to address continued degradation of the facility associated with previous use as a chimpanzee lab, and to accommodate our multiple behavioral and mental health related services for centralized access to education, services and basic needs. At this time the state of the building is beyond the point where repair makes sense in terms of cost and the usefulness of the existing facility. Energy systems are not compliant with current energy code or the Clean Buildings Act, resulting in the need for all new piping, ductwork and air-handler distribution systems. This building's life safety systems are in poor condition and there is minimal fire sprinkler protection, minimal fire notification and only manual pull stations for alarm activation. It was made apparent that systems had outlived their life expectancy when the whole building was out of service for nearly a month during Fall 2021 due to a failed main electrical transformer.

A key factor driving the need for replacement is the past use of the building to house chimpanzees between 1981 and 1992. The north wing of the third floor of the building housed five chimpanzees within the Chimpanzee and Human Communication Institute (CHCI). Sewage, air handling, and other systems were contaminated and corroded by the extreme demands associated with caring for the chimpanzees. The integrity of the floor structure has been compromised due to the saturation of chimpanzee urine; highly acidic urine compromised the integrity of reinforcing steel in the concrete floor. Air-handling systems were clogged with chimpanzee dander and hair. Resulting health and safety concerns caused the north wing of the third floor to be completely closed off and it has been unusable since 1993.

Age, too, has taken a toll on the building. All of the existing mechanical and electrical systems have reached their life-cycle end and have become unreliable and must be replaced. The 1973- era HVAC heats and cools inefficiently and does not supply sufficient air exchanges which have become an important part of everyday occupancy since COVID-19. The noise from the systems interferes with class and lab instruction creating a negative learning atmosphere. The building exterior walls and windows are poorly insulated and energy inefficient. Due to the lack of good insulation and inefficient HVAC systems, CWU burns unnecessarily high amounts of natural gas to heat the building, which in turn emits unnecessarily high amounts of greenhouse gases into the atmosphere. In parts of the building the insulation has liquefied and seeps through openings in the walls. The electrical infrastructure is outdated and cannot support modern technological needs of faculty or students. The elevators regularly break down, leaving students stranded. The fire alarm system is too far out of compliance to be upgraded to meet NFPA requirements. The sprinkler system is outdated and covers only a small portion of the first floor. Lighting and lighting controls are poorly designed and do not support a proper learning environment or the ability to meet Washington State energy Codes.

Washington State's Clean Buildings Act was signed into law in 2019. At 75,000 square foot, CWU's Psychology Building must meet the energy use intensity (EUI) compliance targets by June 1, 2028. A complete renovation including all new equipment and insulation would be required for compliance and is cost prohibitive. Per The Climate Commitment act, Washington State legislated limits on greenhouse gases emitted in the State of Washington. Replacing this building gives us the opportunity to make huge improvements toward these goals by extending our low temp heating water loop and utilizing geothermal to heat the building while also eliminating a high intensity energy using facility.

Seismicity and its effect on buildings has grown significantly in the 50 years since this building was constructed. Buildings today are generally designed for higher seismic forces with greater emphasis placed on structural detailing to encourage ductile, predictable behavior. For reference, a comparison of seismic base shear forces in the current design code (2018 International Building Code) are roughly 76% higher than those tabulated from the 1967 Uniform Building Code. Similarly, reinforcing requirements for walls and floor diaphragms is much more robust under the current Code. These repairs may be intrusive and require added shear walls or bracing at level 4, added diaphragm struts and collectors, and augmentation of shear wall reinforcing. See the structural assessment within the predesign **(appendix H)** for further information. While Ellensburg is east of the Cascades, buildings here are not immune from the threat of earthquakes. The Nisqually quake of 2001 cracked buildings on-campus and a Cascadia quake would certainly do much more damage to older buildings like the Psychology Building.

Psychology Department: The core academic link between the University and these services that address student mental health and support is the CWU Psychology department. The programs current home does not adequately meet existing needs. The current psychology building was established for a significantly different program over 50 years ago. In this time span, the pedagogy and research focus has shifted significantly resulting in highly sought-after programs. Currently, a significant portion of square footage is dedicated to vivarium and other laboratory spaces that do not meet current needs. Adding to the need, the Psychology program is expecting enrollment growth and the addition of a supporting faculty over the next 10 years.

Student Counseling Services: The Student Medical and Counseling Clinic is currently housed in an 11,527 gross square foot facility constructed in 1970. Services and enrollment have grown significantly since the 1970 construction of the building. Student Counseling is currently relocating from the Student Medical Center to a new temporary home in Black Hall to allow for much-needed growth of the Student Medical Center and their services. Both the current and temporary home for Student Counseling have privacy and available space challenges surrounding group counseling, evaluations, and counseling office spaces. The center has also seen an increase in overall demand for crisis services. In the past four academic years including the pandemic the center has also served between approximately 600 and 1000 students each year. In a recent counseling satisfaction survey 76% of students utilizing counseling services reported that the counseling they received helped them stay enrolled at CWU. Student Counseling needs a permanent home aligned with the campus wellness center, case management and other student support services to be able to provide a continuum of care including comprehensive mental health supports for all students.

Community Mental Health Counseling Center: The Psychology department operates a community counseling center in the current building. The available spaces are not easily adapted to the clinic's needs. To be successful, a variety of spaces are needed for group therapy and additional counseling. These are lacking. These

spaces need direct access to the public while also exhibiting appropriate privacy, both visually and acoustically, as well as having a clear separation from general academic circulation. The negligible spaces available for this program do not adequately serve the goals of the program to support the community and train future counselors. Other programs that are hindered by deficient space availability and would benefit from being located in proximity to like programs are the Academic & Behavioral Assessment & Intervention Center (AIC), Student Counseling, and the CWU Wellness Center.

Academic & Behavioral Assessment & Intervention Center (AIC): The AIC is an additional community resource that supports early childhood developmental challenges such as reading deficiencies. The psychology department partners with the local school district and other community partners to provide free assessment and intervention for area students. This program is currently limited by size of available space in the existing psychology building. The sole classroom space available is too small for the number of students in the program does not meet the demand for these services in the community. The space designated for this also needs separate circulation, privacy, and security appropriate for facility with minor children. These programmatic needs are not achievable without significant investment in the current psychology building.

Wellness Center: The CWU Wellness Center provides education, awareness, and health promotion for all CWU students. The primary focus areas are mental health education, help seeking behaviors, substance misuse prevention, recovery support, interpersonal violence response and prevention. The center houses offices for staff and volunteers with a small meeting space and classroom. The current home for the Wellness Center is in the Student Union and Recreation Center (SURC), apart from like programs. While the SURC provides excellent visibility and accessibility the Wellness Center program should provide patients greater privacy and physical connection to additional counseling and mental health services.

Case Management: The CWU Office of Case Management is an extension of the wellness support the University offers students experiencing obstacles to success. Case management picks up from the broader offerings of the Wellness Center and helps individual students get connected to formal and informal resources. The current case management center is located in Bouillon Hall, far from the services and resources the center helps coordinate. Co-locating the office with the Wellness center and other mental health resources increases the likelihood of timely and effective interventions for the most at-risk students.

Basic Needs Center: The Basic Needs Center addresses students physical and mental well-being. Basic needs include financial stability, food security, housing security, access tohealth/medical care, technology and transportation. Students accessing basic needs are often referred by the Wellness Center, Case management, or Student Counseling. Centering this program in the new facility follows through on the University's commitment to holistic wellness and student success.

Early Childhood Learning Center (ECLC): The Early Childhood Learning Center (ECLC) on the campus of Central Washington University serves 75-100 families comprised of students, faculty, and staff. Existing space does not meet the extremely high demand for quality childcare. Consistently the ECLC has a waitlist, depending on age group, of between 15 to 30 parents, many of whom get on the waitlist when they begin to plan for children. This is just the need that university is aware of. The lack of quality childcare is particularly difficult for parents with infants and toddlers as most centers in the Ellensburg community do not provide services for these age groups and it is the highest demand among students. Increased capacity to provide

quality childcare services is essential for Central Washington University to continue to thrive and grow. This is particularly true in the University's efforts to recruit and retain students, faculty, and staff. The opportunity to expand services will address inequities in our community as these services are particularly critical to those who are underrepresented minorities and lower-income community members, especially single parents.

Project Benefits

The project will result in a new functional facility that accommodates programmatic changes and enrollment increases. General enrollment increases will drive corresponding increases in demand for psychology, both a popular major and a high-demand general education subject. The psychology program in particular accommodates tremendous demand by students transferring from community colleges. CWU is a primary service provider to transfer students, who comprise half of all CWU enrollments. This new facility would help accommodate increased demand for psychology courses by creating well configured square footage for program use while also adding space to accommodate the Central Washington University Counseling Center, Wellness Center, Case Management and Basic Needs Center.

Having the University's Psychology Program, Counseling Center, Wellness Center, Case Management Department, Community Mental Health Counseling, Basic Needs Center and Early Childhood Learning all in one building will allow for enhanced collaboration between real life practice and academia. Additionally, collaboration and patient management will be centralized allowing for confidential, comfortable, easy to access spaces for patient care and essential resources.

The new facility will have a useful life expectancy of at least 50 years, and will provide a superior learning environment consisting of clean air, flexible academic spaces and new research spaces. The project will significantly increase energy efficiency, with utilities metering, improved insulation, and all new energy efficient designs and equipment. It will be designed to a minimum LEED Gold certification by the US Green Building Council. The new facility will exceed current energy standards and will eliminate the need to improve the existing Psychology Building for compliance.

The COVID-19 pandemic produced psychological hardship for everyone in the world. The World Health Organization says, "COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide in its first year", "By the end of 2021 the situation had somewhat improved but today too many people remain unable to get the care and support they need for both pre-existing and newly developed mental health conditions." This project will allow Central Washington University's Counseling Center to provide high quality counseling services to our students, faculty, staff and other community members for free, at an accessible location and in private spaces designed for confidentiality and comfort.

Joining the Counseling Center with the Psychology program will provide additional benefits such as:

- Teaching opportunities for graduate students.
- Internships for Undergraduate Psychology students.
- Collaboration between counseling staff and academic faculty which will strengthen both programs.
- Provide community outreach opportunities for Psychology students with the help of active professionals.

- Research opportunities provided by real life clients.
- Access to modern research technology for Psychology students

History of the project or facility:

The Psychology Building was constructed in 1972 and has not had any significant remodeling or renovation work. From 1981 through 1992 Psychology housed the Chimpanzee and Human Communication Institute, providing living space for five adult chimpanzees. The chimps moved to a different facility in 1993, and the wing in which the chimps were housed was closed, due to systems contamination and damage associated with the wear and tear of the chimps. CWU has attempted to obtain Capital Preservation funding to do renovation in the following biennia without success: 2003-2005, 2005-2007, 2011-2013, 2015-2017, 2017-2019 and 2019-2021.

University programs addressed or encompassed by the project:

The project addresses the following degree programs:

- Bachelor of Science in Psychology
- Master of Science in Psychology, with specializations in School Psychology, Experimental Psychology, and Mental Health Counseling
- Education Specialist, School Psychology, which prepares students seeking licensure to practice as a school psychologist in public schools. The program is approved by the National Association of School Psychologists; program graduates are eligible to become Nationally Certified School Psychologists (NCSP).

Additionally, the Behavioral and Mental Health Building will provide space for classes in the following programs or departments:

- Political Science Department
- Sociology Department
- University and Enrichment Program
- Douglas Honors College Program
- Student Counseling Center
- Wellness Center
- Basic Needs Center
- Academic & Behavioral Assessment & Intervention Center
- Early Childhood Development Center

OVERARCHING SCORING CRITERIA

1. Integral to achieving statewide policy goals

A. Indicate the number of bachelor's degrees awarded at the close of the 2020-21 academic year, and the number targeted for 2023.

The project promotes improvement on the 2020-21 degree totals by enhancing capacity and providing safe and modern learning space for the psychology programs. The most recent data available on the Statewide Public Four- Year Dashboard is 2019-20. In 2019-20 CWU awarded 2441 bachelor's degrees, this number increased by 180 from the prior academic year. Since COVID-19, our awarded degrees has dropped and the number of targeted bachelor's degrees in 2023 is 2337.

In 2010 the Psychology department had 86 Undergraduate degrees awarded. This number increased to 193 in 2020. Though our campus enrollment reduced during the pandemic, we currently have 731 undergraduate students enrolled in Psychology Undergraduate Programs. We anticipate an increase of 140 awarded undergraduate degrees generated from this project.

This project is required in order to accommodate even more robust program growth. The growth will impact lower-division courses both through would-be psychology majors and through credit hours associated with general education requirements. The increase will also hit upper-division courses that accommodate transfer students.

Psychology is one of the largest and most in-demand degree programs at CWU. Due to the current space constraints, there are ongoing wait lists for specific classes required to graduate from the Psychology program.

B. Indicate the number of bachelor's degrees awarded in high-demand fields at the close of the 2020-21 academic year, and the number targeted for 2023.

The project promotes improvement on the 2020-21 degree totals by enhancing capacity and providing safe and modern learning space for psychology programs. In 2019-20 CWU awarded 673 high demand bachelor's degrees, this number increased by 31 from the prior academic year. 7 of the 31 were increase in awarded degrees from the Psychology program. We are estimating a total of 636 degrees awarded in high-demand fields in 2023.

Since COVID-19 our total awarded degrees has dropped, however, unlike most programs, enrollment in the Psychology programs has seen very little impact during the COVID-pandemic. As a result of this project we anticipate an addition of 30 degrees awarded in high-demand fields in 2023.

C. Indicate the number of advanced degrees awarded at the close of the 2020-21 academic year, and the number targeted for 2023.

In 2019-20 CWU awarded 269 advanced degrees. Unlike undergraduate enrollment, graduate enrollment increased during the pandemic resulting in an increase in graduate degrees conferred in 2021-22.

Since COVID-19 our awarded degrees has dropped but the number of graduate degrees conferred in 2023 is likely to revert to pre-pandemic numbers of roughly 300.

2. 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 existing facility supports a large and growing academic program. Replacing the facility will meet all of the associated goals of the Capital Master Plan by replacing the high energy usage facility with a more modern functional facility. In the process of design, we plan to look closely at alternative energy sources discussed throughout our Capital Master Plan. Many of the Master Plans Goals and Objectives will be met though the course of this project. The CWU Campus Master Plan, updated for 2022, prioritizes projects like Psychology that have the greatest positive effect on all stakeholders, improving quality and capacity at the same time. Previous plans called for the renovation of Psychology, but state funding was not provided. The 2022 plan identifies Psychology as a priority for replacement in 2025-27.

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

This project does follow the sequencing laid out in the current Campus Master Plan as well as previous master plans. Previous Master Plans includes the renovation of Psychology but after being denied multiple funding bienniums, the building is now beyond the point of a renovation.

3. Integral to institution's Academic Programs Plan:

A. Meet academic certification requirements?

This project provides sufficient space and the amenities required for the multiple accredited/certified programs, both academic and nonacademic.

The Psychology Program maintains the accreditation from Commission for Accreditation of Counseling and Related Educational Programs and others, Counseling Staff maintain their State Accreditations and the Childcare Facility maintains its licensing certificate with Washington State Department of Children, Youth and Families.

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

This project provides diverse usable space to meet the programs needs while also enhancing collaboration between Psychology Academia, Community Mental Health and Counseling Center, Student Wellness Center, Case Management Department and the Basic Needs Center. This project also allows for collaboration that benefits students and other members of the community, this project would allow for all of these resources to be at one location for ease of access.

C. Permit initiation of new programs?

This project will provide diverse space to meet today's programming needs while also allowing for the creation of new programs and allowing for the new programs to be integrated with all behavioral and mental health related programs and services offered by CWU.

GENERAL CATEGORY SCORING CRITERIA

1. Age of building since last major remodel

This building was built in 1972 and has never undergone a major remodel. This building is difficult to remodel with the intentions of meeting program needs due to its "all concrete" structure. The walls, doors and windows cannot be moved or changed without changing the structural integrity of the building. Additionally, the systems are beyond their usable life and the predesign study indicates renovation is not a cost effective long term option. See details in the project predesign (**Appendix H**) and Facility Condition Index **(Appendix E)**.

2. Condition of building

The Psychology building has a 2021 Relative FCI score of 4 and weighted score of 3.3. A complete FCI list is attached as (**Appendix E)**.

This score is based largely on the fact that it has not undergone renovation or major remodel since the building was constructed in 1972. Following are major structural and systems conditions that produced the score of 4:

- Contamination and damage from the chimpanzees occurred from 1981 until they were relocated in 1993. In addition to the third-floor wing shown on the attached key plan, there was damage and contamination from leakage through the floor to the ceiling below.
- Degradation of steel underlying the third floor.
- The existing HVAC system is original to the 1973 building. Controls systems are outdated and inefficient. Air supply is not adequate. Mechanical parts are unreliable with frequent breakdowns. The system is noisy making it difficult for students to concentrate in class and lab environments.
- Existing electrical service is inadequate to support the use of technology.
- The building exterior walls and windows are poorly insulated and energy inefficient.
- The existing elevators regularly break down, leaving students and employees stranded.
- Existing lighting and lighting controls are poorly designed and do not support a proper learning environment.
- The existing fire alarm system is outdated and needs to be replaced.
- There is only sprinkler fire protection on the first floor within the main paths of egress.
- Interior finishes and doors are in poor condition.

3. Significant health, safety, and code issues

The current Psychology facility has irreversible contamination and damage from the chimpanzees occurred

from 1981 until they were relocated in 1993.

The building does not meet the following code and infrastructure requirements:

Accessibility requirements for people with disabilities:
• Washington State Law Against Discrimination (RCW49.60.222)
• Washington State Building Code (WAC 52-50)
• Americans with Disabilities Act of 1990 (2 U.S.C. Part B)
• Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794

Green Building Requirements:
- State Energy Standards for Clean Buildings, RCW 19.27A.210
- Greenhouse Gas Reduction Strategies per the Climate Commitment Act RCW 70.235.070.
- High Performance Building – LEED Silver Standard (RCW 39.35D)
- Per Executive Order 20-01 State Efficiency and Environmental Performance, New Facility Construction
- Electric Car Charging Stations per RCW 19.27.540.

Infrastructure requirements:
• International Building Code (IBC)
• International Mechanical Code
• International Fire Code (IFC)
• Local Codes and Ordinances
• National Electric Code (NFPA 70)

Fire Protection Requirements:
• National Fire Protection Association (NFPA) Section 13
• International Fire Code (IFC)
• Regulations of the State Fire Marshal

4. Reasonableness of cost

During the predesign for this project the Architects and Engineers went above and beyond to provide immense amount of data related to the construction of this replacement building. Please see (**Appendix B)** for the detailed C100 and (**Appendix H)** for the detailed predesign with details of construction costs, escalation, and the life cycle cost analysis.

The project will use the Design-Bid-Build (DBB) project delivery method per RCW 39.04 – Public works. The university is familiar and experienced with this delivery method and has found that it has been the most cost-effective by promoting competitive bidding between interested general contractors and subcontractors.

5. Availability of Space/Utilization on Campus:

Describe the institution's plan for improving space utilization and how the project will impact the following:

CWU's 10 year capital plan consists of a series of projects that will replace and upgrade CWU's outdated inventory of instructional spaces. Changes will be made strategically in order to provide an optimum mix of general scheduled classroom and class/lab spaces to meet projected program needs and accommodate growth. CWU has analyzed and identified areas of low utilization instructional space and will address problem areas such as geographic location, quality of space, distribution of instructional space size and lack of modern instructional technology.

A. The utilization of classroom space:

CWU currently exceeds the targeted 22-hour-per-week utilization standard for classroom space. Replacement is required to correct deficiencies with outdated instructional spaces to support continued effective use.

B. The utilization of class laboratory space:

CWU class laboratory space is currently below targeted levels. This project will create useful laboratory spaces to allow for program and department growth.

6. Efficiency of space allocation

A. For each major function in the proposed facility (classroom, instructional labs, offices), identify whether space allocations will be consistent with Facility Evaluation and Planning Guide (FEPG) assignable square feet standards. To the extent any proposed allocations exceed FEPG standards, explain the alternative standard that has been used, and why. See Chapter 4 of the scoring process instructions for an example. Supporting tables may be included in an appendix.

All spaces will conform with FEPG standards. Childcare rooms will conform with applicable FEPG classifications as well as Washington State Department of Children, Youth and Families regulations and applicable Washington State Administrative Codes. Upon schematic design each space will be carefully evaluated by architects and Early Childhood Consultants to ensure all FEPG standards are either met or exceeded.

B. Identify the following on C-100 form: See **(Appendix H)** for additional details.
1. Usable square feet (USF) in the proposed facility (62,300)
2. Gross square feet (GSF) (89,000)
3. Building efficiency (USF divided GSF) (70%)

7. Adequacy of space

Describe whether and the extent to which the project is needed to meet modern educational standards and/or to improve space configurations, and how it would accomplish that.

Due to its "all concrete" structure. The walls, doors and windows cannot be moved or changed without changing the structural integrity of the existing building. By constructing a new building, we will have spaces that can easily meet the modern needs of learning and department use. We will do this by developing spaces that are able to be reconfigured unlike the existing spaces. The building spaces can stay dynamic and be able to be modified with no significant changes to the building depending on the needs of the departments housed within.

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CAPITAL PROJECT PROPOSALS 2023-25

Psychology Replacement
Design

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement

Design

APPENDIX A

Availability of Space

Availability of Space/Campus Utilization Template

Project name:	Behavioral and Mental Health	CBS/OFM Project #:	40000124
Institution:	Central WA University	Scoring category:	Replacement - Major
Campus/Location:	Ellensrbug		

Enrollment

2021 fall on-campus student FTE:	9,520	Expected 2022 fall on-campus student FTE:	10,000
		% increase budgeted:	5.04%

Enter the average number of hours per week each for (a) classroom seat and (b) classroom lab is expected to be utilized in Fall 2022 for the campus where the project is located.

(a) General University Classroom Utilization		(b) General University Lab Utilization	
Fall 2021 Weekly Contact Hours	111,118	Fall 2021 Weekly Contact Hours	28,829
Multiply by % FTE Increase Budgeted	5.04%	Multiply by % FTE Increase Budgeted	5.04%
Expected Fall 2022 Contact Hours	116,721	Expected Fall 2022 Contact Hours	30,283
Expected Fall 2022 Classroom Seats	6,462	Expected Fall 2022 Class Lab Seats	3,357
Expected Hours per Week Utilization	**18.1**	**Expected Hours per Week Utilization**	**9.0**
HECB utilization standard (hours/GUC seat)	22.0	HECB utilization standard (hour/GUL seat)	16.0
Difference in utilization standard	-17.9%	Difference in utilization standard	-43.6%

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 the utilization standard.

These utilization rates reflect reduced enrollments during Covid. CWU masterplan and strategic plans project a return to normal enrollments along with modest enrollment increases. The Humanities and Social Sciences project includes a request to demolish Farrell Hall and L&L buildings which will take 1,032 seats of outdated instructional capacity out of service. This along with other capitla projects will position CWU to "right-size" and re-balance our instructional capacity with teaching spaces that meet modern pedagogical demands. - DR

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement Design

APPENDIX B

Project Cost Estimate C100

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated June 2022

Agency	Central Washington University
Project Name	Behavior and Mental Health Farrell Site W/ Childcare
OFM Project Number	40000124

Contact Information	
Name	Delano Palmer
Phone Number	(509) 963-2906
Email	Delano.Palmer@cwu.edu

Statistics			
Gross Square Feet	89,000	MACC per Gross Square Foot	$729
Usable Square Feet	62,300	Escalated MACC per Gross Square Foot	$882
Alt Gross Unit of Measure			
Space Efficiency	70.0%	A/E Fee Class	B
Construction Type	College classroom facilit	A/E Fee Percentage	5.82%
Remodel	No	Projected Life of Asset (Years)	50
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	Yes
Inflation Rate	4.90%	Higher Ed Institution	Yes
Sales Tax Rate %	8.40%	Location Used for Tax Rate	Ellensburg
Contingency Rate	5%		
Base Month (Estimate Date)	June-22	OFM UFI# (from FPMT, if available)	A05142
Project Administered By	Agency		

Schedule			
Predesign Start	March-22	Predesign End	June-22
Design Start	January-24	Design End	May-25
Construction Start	August-25	Construction End	June-27
Construction Duration	22 Months		

Green cells must be filled in by user

Project Cost Estimate

Total Project	**$89,478,127**	Total Project Escalated	**$107,662,809**
		Rounded Escalated Total	**$107,663,000**

Cost Estimate Summary

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

Consultant Services			
Predesign Services	$0		
Design Phase Services	$2,999,089		
Extra Services	$3,145,447		
Other Services	$1,459,779		
Design Services Contingency	$754,291		
Consultant Services Subtotal	**$8,358,606**	**Consultant Services Subtotal Escalated**	**$9,535,259**

Construction			
Maximum Allowable Construction Cost (MACC)	$64,841,240	Maximum Allowable Construction Cost (MACC) Escalated	$78,492,452
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$3,242,062		$3,942,024
Non-Taxable Items	$0		$0
Sales Tax	$5,718,997	Sales Tax Escalated	$6,924,496
Construction Subtotal	**$73,802,300**	**Construction Subtotal Escalated**	**$89,358,972**

Equipment			
Equipment	$4,035,068		
Sales Tax	$338,946		
Non-Taxable Items	$0		
Equipment Subtotal	**$4,374,014**	**Equipment Subtotal Escalated**	**$5,318,365**

Artwork			
Artwork Subtotal	**$535,636**	**Artwork Subtotal Escalated**	**$535,636**

Agency Project Administration			
Agency Project Administration Subtotal	$2,162,571		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$2,162,571**	**Project Administration Subtotal Escalated**	**$2,629,470**

Other Costs			
Other Costs Subtotal	**$245,000**	**Other Costs Subtotal Escalated**	**$285,107**

Project Cost Estimate

Total Project	**$89,478,127**	Total Project Escalated	**$107,662,809**
		Rounded Escalated Total	**$107,663,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	New Approp Request 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0				**$0**
Consultant Services					
Consultant Services Subtotal	$9,535,259		$7,760,314	$1,774,945	**$0**
Construction					
Construction Subtotal	$89,358,972			$89,358,972	**$0**
Equipment					
Equipment Subtotal	$5,318,365			$5,318,365	**$0**
Artwork					
Artwork Subtotal	$535,636		$535,636		**$0**
Agency Project Administration					
Project Administration Subtotal	$2,629,470		$2,629,470		**$0**
Other Costs					
Other Costs Subtotal	$285,107		$285,107		**$0**
Project Cost Estimate					
Total Project	**$107,662,809**	**$0**	**$11,210,527**	**$96,452,282**	**$0**
	$107,663,000	**$0**	**$11,211,000**	**$96,452,000**	**$0**
	Percentage requested as a new appropriation		**10%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)
AE Basic Design Services through Construction Documentation, Extra Services and Contingency
Artwork, Project Management and Other Costs

What has been completed or is underway with a previous appropriation?
Predesign services were self-funded and were completed in June 2022
Insert Row Here

What is planned with a future appropriation?
AE Basic Design Services for Bidding through Close Out
Construction Contracts, Equipment/Furniture

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**	

Green cells must be filled in by user

Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				Predesign Self-Funded $200K
Insert Row Here				
Sub TOTAL	**$0**	**1.0788**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$2,734,089			69% of A/E Basic Services
Space Specialist-Multi Use Building	$265,000			
Insert Row Here				
Sub TOTAL	**$2,999,089**	**1.1137**	**$3,340,086**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)	$354,000			
Geotechnical Investigation	$150,000			
Commissioning	$124,000			
Site Survey	$154,000			
Testing	$66,172			
LEED Services	$155,219			
Voice/Data Consultant	$174,900			
Value Engineering	$42,084			
Constructability Review	$115,000			
Environmental Mitigation (EIS)	$25,000			
Landscape Consultant	$180,851			
Childcare Consultant	$20,000			
Electronic Security	$73,935			
AV Consulting	$135,548			
Lighting Consultant	$77,509			
Laboratory / Health Care consultant	$449,771			
Acoustical	$53,590			
Interior Design	$97,619			
Elevator	$27,233			
Solar	$42,400			
Hardware	$277,256			
SEPA	$23,320			
DAHP Compliance/Historical Architect/Archaeology	$110,000			
Mass Notification Consultant	$111,300			
Hazmat Consultant	$43,129			
Demolition Consultant	$61,613			

Insert Row Here				
Sub TOTAL	**$3,145,447**	**1.1137**	**$3,503,085**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$1,228,359			31% of A/E Basic Services
HVAC Balancing	$29,000			
Staffing				
Record Drawings	$47,271			
Models & Renderings	$37,408			
Ongoing Cost Consulting	$16,459			
Site Logistics Plan	$21,200			
Psychology Demolation Utility Planning	$11,851			
Traffic Impact Consultant	$38,200			
Enhanced Commissioning	$30,031			
Insert Row Here				
Sub TOTAL	**$1,459,779**	**1.2159**	**$1,774,945**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$380,216			
Design Reconcillation	$374,075			
Insert Row Here				
Sub TOTAL	**$754,291**	**1.2159**	**$917,143**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$8,358,606**		**$9,535,259**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$749,779			
G20 - Site Improvements	$1,995,831			
G30 - Site Mechanical Utilities	$811,719			
G40 - Site Electrical Utilities	$568,204			
G60 - Other Site Construction				
General Conditions Site Work	$280,145			
Early Site - Bldg Dem	$588,944			Demo Existing Psychology
Abatement	$227,277			
General Conditions Demo and Abatement	$56,036			
Insert Row Here				
Sub TOTAL	**$5,277,934**	**1.1637**	**$6,141,933**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation	$275,600			
Parking Mitigation	$823,800			
Stormwater Retention/Detention	$183,605			
Low Temp Heating Water	$106,000			
Insert Row Here				
Sub TOTAL	**$1,389,005**	**1.1637**	**$1,616,386**	

3) Facility Construction				
A10 - Foundations	$1,979,112			
A20 - Basement Construction				
B10 - Superstructure	$10,392,654			
B20 - Exterior Closure	$10,425,459			
B30 - Roofing	$2,176,357			
C10 - Interior Construction	$4,418,065			
C20 - Stairs	$490,778			
C30 - Interior Finishes	$4,069,898			
D10 - Conveying	$584,438			
D20 - Plumbing Systems	$2,056,148			
D30 - HVAC Systems	$7,502,160			
D40 - Fire Protection Systems	$766,317			
D50 - Electrical Systems	$7,562,593			
F10 - Special Construction	$0			
F20 - Selective Demolition	$0			
General Conditions	$3,699,149			
Other Direct Cost				
PV Solar (450KW Solar)+Infrustructure				Included in D50
Equipment (built in)	$615,658			
Furnishings (built in)	$1,435,516			
Insert Row Here				
Sub TOTAL	**$58,174,301**	**1.2159**	**$70,734,133**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$64,841,240**		**$78,492,452**	
	$729		*$882 per GSF*	

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7) Owner Construction Contingency				
Allowance for Change Orders	$3,242,062			
Other				
Insert Row Here				
Sub TOTAL	**$3,242,062**	**1.2159**	**$3,942,024**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2159**	**$0**	
9) Sales Tax				
Sub TOTAL	**$5,718,997**		**$6,924,496**	
CONSTRUCTION CONTRACTS TOTAL	**$73,802,300**		**$89,358,972**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment					
E20 - Furnishings	$1,735,068				
F10 - Special Construction					
Equipment and Special Construction for Special Program	$2,300,000				
Insert Row Here					
Sub TOTAL	**$4,035,068**		**1.2159**	**$4,906,240**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.2159**	**$0**	
3) Sales Tax					
Sub TOTAL	**$338,946**			**$412,125**	
EQUIPMENT TOTAL	**$4,374,014**			**$5,318,365**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$535,636				0.5% of total project cost for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$535,636**		**NA**	**$535,636**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$2,162,571				
Additional Services					
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$2,162,571**		**1.2159**	**$2,629,470**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation	$30,000				
Traffic Mitigation/Impact Fees	$215,000				
Insert Row Here					
OTHER COSTS TOTAL	**$245,000**		**1.1637**	**$285,107**	

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C-100(2022)
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
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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement Design

APPENDIX C

Program Related Space Allocation

Program Related Space Allocation Template

Project name: Behavioral and Mental Health (Psychology)

CBS/OFM Project #: 40000124

Institution: Central WA University

Scoring category: Replacement - Major

Campus/Location: Ellensburg

Enter the assignable square feet for the proposed project for the applicable space types:

Type of Space	Points	Assignable Square Feet	Percentage of total	Score [Points x Percentage]
Instructional space (classroom, laboratories)	10	8,370	15.67	1.57
Research space	2	1,700	3.18	0.06
Office space	4	14,705	27.53	1.10
Library and study collaborative space	10	2,850	5.34	0.53
Other non-residential space	8	17,786	33.30	2.66
Support and physical plant space	6	8,000	14.98	0.90
Total:		**53,411**	**100.0**	**6.83**

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement

Design

APPENDIX D

Degree Totals and Targets /

Enrollment Management Plan

Overarching Criteria: Degree Totals and Targets Template

Project name:	Behavioral and Mental Health	CBS/OFM Project #:	40000124
Institution:	Central WA University	Scoring category:	Replacement - Major
Campus/Location:	Ellensburg		

		Bachelor degrees	Bachelor degree's in high-demand fields	Advanced degrees
2020-21 Public Four-Year Dashboard		2,441	673	269
Additional degrees generated by project		140	30	31
Projected degrees with building project	a	2,581	703	300
Projected growth above 2020-21 actual degrees		5.7%	4.5%	11.5%
Number of degrees targeted in 2023	b	2,337	636	300
Projected degrees as % of 2023 target	b/a =	90.5%	90.5%	100.0%
	Score:	**1**	**1**	**0**

Comments:

Behavioral and Mental Health (Psychology Replacement)
2019-2020 is the latest data avalible on Public Four Year Dashboard.

Enrollment Management Plan - *Destination 2025*

Year One Review

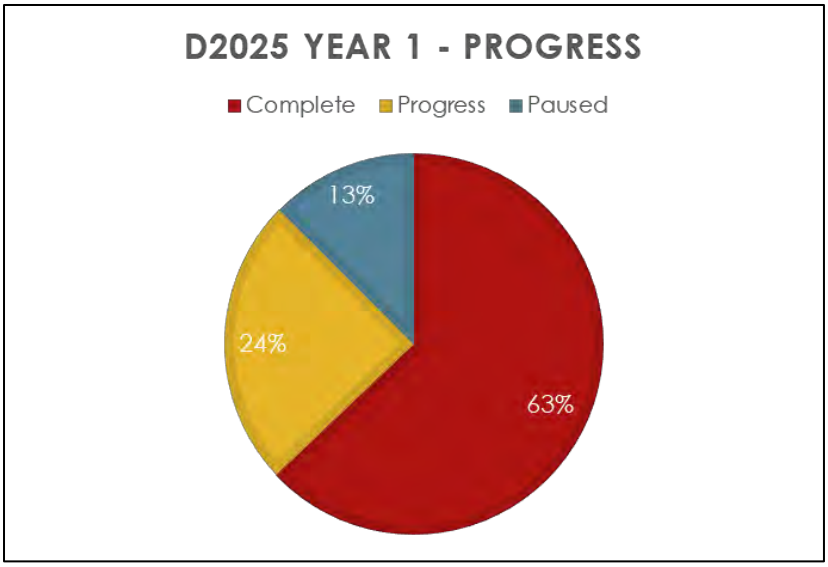
The Strategic Enrollment Management Plan was devised in 2018. The implementation of that plan was branded *Destination 2025* and kicked-off in October of 2019. The plan has three objectives that span 2019 thru 2025. They are:

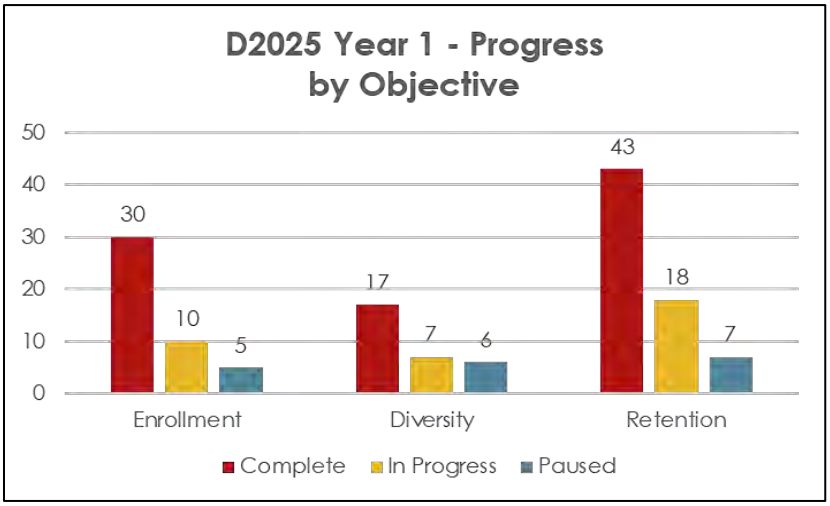
> **Objective 1:** Increase new undergraduate student enrollment from 3504 in Fall 2018 to 4532 in Fall 2025
>
> **Objective 2:** Increase the enrolled percentage of traditionally under-represented student groups (TUSG) from 37% in Fall 2018 to 44% by Fall 2025.
>
> **Objective 3:** Increase the retention rate of first year full-time (FYFT) students to 80% and new transfer student persistence to 85% while decreasing the average time-to-degree from 17.6 to 16 terms for FYFT students and from 10 to 8.7 terms for new transfer students.

The year one implementation plan launched with a strong start before facing significant external challenges. The team had to pivot early in 2020 due to the COVID-19 pandemic: 30 activities were added or altered to address the uncertainty of the virus and prepare for an all-online spring quarter. Here are some highlights:

- Increased outreach to personally contact every student registered for classes
- Reforming the Student Success Center to provide online tutoring
- Changing policies that enabled students to continue their academic progress and success
- Providing equipment and technology to students who lacked online access
- Setup virtual tours, meetings and collaborations

In addition to the COVID response activities that were added, progress continued to be made on the original plan. The charts below represent the progress that was made between Oct 2019 and Oct 2020.





Key figures:

- 63% of all activities defined in the plan were completed.
- 13% were paused due to COVID.
- The remaining 24% is a mixed bag of initiatives that either made solid progress towards completion or never got any traction.
- Most of the paused and solid progress activities were carried forward into the Year Two plan.

Some of the key activities that were accomplished in the first year include:

- 500+ virtual tours, transfer sessions and admission presentations
- Established a transfer center that served 500+ students
- Established and admissions diversity recruitment advisory council
- Increased communications to CWU centers
- Increased DEC online presence, communications, and location

- Developed DEC resource guides for LGBTQ+ and undocumented students
- Developed the English Leap Program
- Shifted academic success services online
- Updated 87 TAPP sheets

Year One Summary

Apart from Objective 1, significant progress was made on *Destination 2025* objectives. The table below documents the progress and provides the remaining progress needed to reach our 2025 goals.

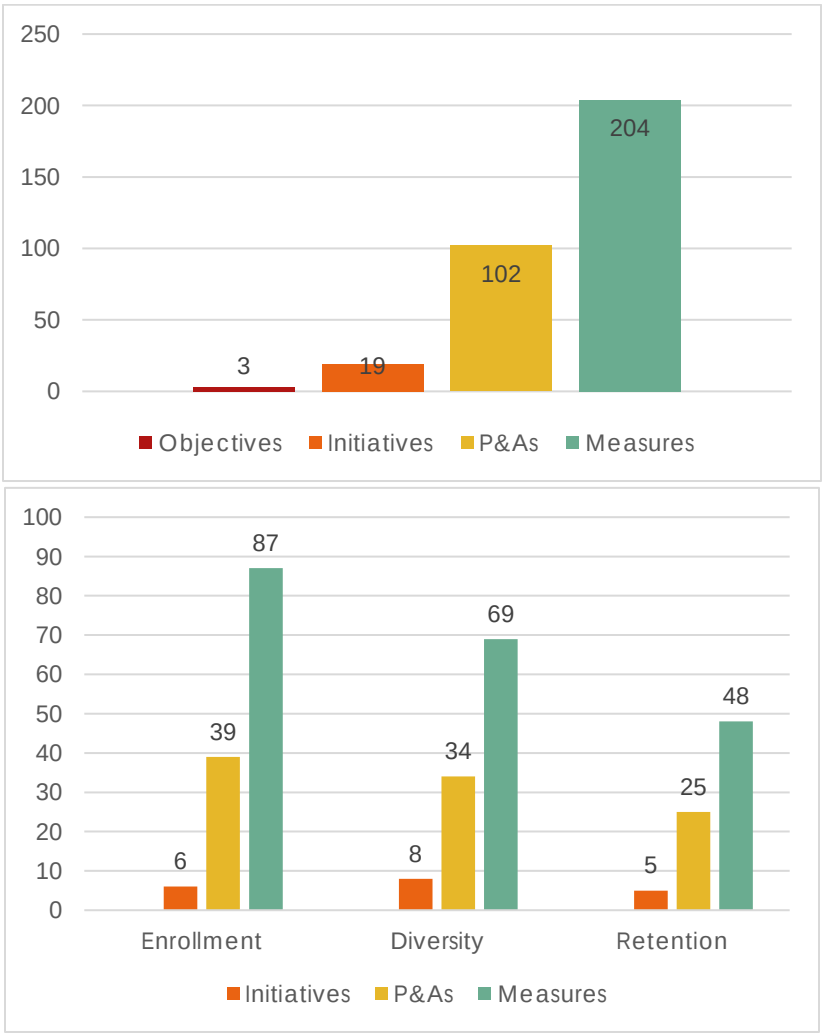
Objective	Start	5 Year Goal	Delta	Year 1 Results	Change	Remaining to Goal
Increase new undergraduate student enrollment from 3504 in Fall 2018 to 4532 in Fall 2025	3504	4532	1028	3009	-495	1523
Increase the enrolled percentage of traditionally under-represented student groups (TUSG) from 37% in Fall 2018 to 44% by Fall 2025.	37%	41%	4%	40%	3%	1%
Increase the full-time first-year retention rate to 80% by Fall 2025 (2024 cohort)	69%	80%	11%	72%	3%	8%
Increase new transfer one-year persistence rate to 85% in Fall 2025 (fall 2024 cohort)	81%	85%	4%	83%	2%	2%
Decrease the average time-to-degree for first time full time students from 17.6 to 16 terms	17.60	16.00	-1.60	15.20	-2.40	0.80
Decrease the average time-to-degree for transfer students from 10 to 8.7 terms	10.00	8.70	-1.30	9.90	-0.10	-1.20

In addition to the achievements made towards the plan objectives, there were several other benefits to the Year One execution of *Destination 2025*, which include:

- A standard process was used for planning, reporting progress and tracking of efforts. This allowed for improved cross-divisional collaboration, communications and coordination.
- The actions and update accountabilities were defined and regularly discussed leading to an increased level of transparency.
- Measurements were defined at all levels and progress was updated monthly. This provided opportunities for adjustments to be made
- Links from effort to objective to mission fulfillment

Year Two Overview

The planning for Year two began in July 2020 using the same three objectives. New initiatives were constructed to adjust for the current landscape. There is an increased focus on online services, CWU Centers and transfer students that will be a significant avenue for enrollment recovery.



The Year Two plan contains a 24% increase over Year One plan. This is largely due to an increase in the initiatives and projects with multiple measures. Some of the key activities that are planned for Year Two include:

- Expand online experience, communications, and presentations
- Build stronger partnerships with community colleges
- Increase outreach to prospective students and applicants
- Diversify recruitment channels

- Create an environment for students to feel welcome and included
- Develop relationships with community leaders
- Connect students with existing resources
- Develop a comprehensive student communications plan
- Continue development of the Transfer Center
- Implement a new advising model

This year, the project planning team for Year Two included over 30 individuals across the university. With many projects and activities already begun, we are on our way to another successful year with this project that will lead us closer to achieving our *Destination 2025* goals.

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement
Design

APPENDIX E

Psychology Building Facility

Condition Index (FCI)

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Building Size - Gross	75,064	**Building Size- Assignable**	35,758
Year Of Original Construction	1973	**Year Of Last Renovation**	
Building Use Type	Research		
Construction Type	Heavy		

Survey Date	04/15/22	**Survey By**	FMD

Building Condition Summary

Condition Index	**0.27**
Relative Condition Score	**4**
Weighted Avg Condition Score	**3.3**

Building Components

Systems	Scores	Comments
A Substructure:	**2.4**	
Foundations		
Standard Foundations	2	
Slab on Grade	3	
B Shell:	**3.1**	
Superstructure		
Floor Construction	3	
Roof Construction	3	
Exterior Closure		
Exterior Walls	3	
Exterior Windows	3	
Exterior Doors	4	
Roofing		
Roof Coverings	4	
Roof Opening	4	
Projections	4	
C Interiors:	**3.1**	

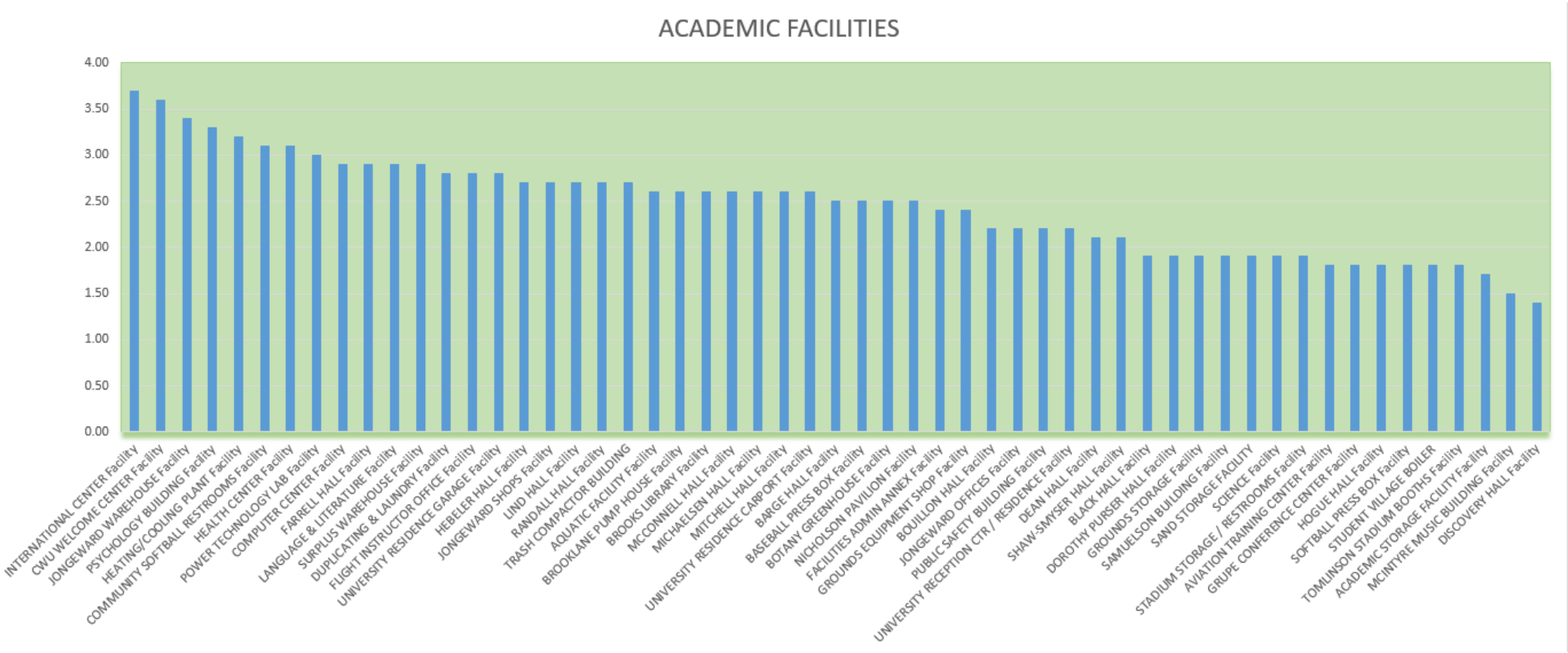
Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Interior Construction		
Fixed and Moveable Partitions	3	
Interior Doors	2	
Specialties	3	
Staircases		
Stair Construction	2	
Stair Finishes	3	
Interior Finishes		
Wall Finishes	3	
Floor Finishes	5	
Ceiling Finishes	2	
D Services:	**3.7**	
Vertical Transportation		
Elevators and Lifts	5	Out of Service Regularly
Plumbing		
Plumbing Fixtures	3	
Domestic Water Distribution	3	
Sanitary Waste	3	
Rain Water Drainage	3	
Special Plumbing Systems	2	
HVAC		
Energy Supply	4	
Heat Generating Systems		DOES NOT EXIST
Cooling Generating Systems		DOES NOT EXIST
Distribution Systems	4	
Terminal and Package Units	4	
Controls and Instrumentation	4	
Special HVAC Systems and Equipment	3	
Fire Protection		
Fire Protection Sprinkler Systems	4	1st Floor Only
Stand-Pipe and Hose Systems	4	N.E. Stairwell
Fire Protection Specialties		DOES NOT EXIST
Special Fire Protection Systems		DOES NOT EXIST
Electrical		
Electrical Service and Distribution	4	
Lighting and Branch Wiring	4	
Communication and Security Systems	4	
Special Electrical Systems	4	
E Equipment and Furnishings:	**2.7**	

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Equipment and Furnishings		
Fixed Furnishings and Equipment	3	
Moveable Furnishings (Capital Funded Onl	2	
E Special Construction:	**4.0**	
Special Construction		
Integrated Constr. & Special Constr. Syste	4	ANIMAL QUARTERS
Special Controls and Instrumentation		DOES NOT EXIST


ACADEMIC FACILITIES
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
INTERNATIONAL CENTER Facility
CWU WELCOME CENTER Facility
JONGEWARD WAREHOUSE Facility
PSYCHOLOGY BUILDING Facility
HEATING/COOLING PLANT Facility
COMMUNITY SOFTBALL RESTROOMS Facility
HEALTH CENTER Facility
POWER TECHNOLOGY LAB Facility
COMPUTER CENTER Facility
FARRELL HALL Facility
LANGUAGE & LITERATURE Facility
SURPLUS WAREHOUSE Facility
DUPLICATING & LAUNDRY Facility
FLIGHT INSTRUCTOR OFFICE Facility
UNIVERSITY RESIDENCE GARAGE Facility
HEBELER HALL Facility
JONGEWARD SHOPS Facility
LIND HALL Facility
RANDALL HALL Facility
TRASH COMPACTOR BUILDING
AQUATIC FACILITY Facility
BROOKLANE PUMP HOUSE Facility
BROOKS LIBRARY Facility
MCCONNELL HALL Facility
MICHAELSEN HALL Facility
MITCHELL HALL Facility
UNIVERSITY RESIDENCE CARPORT Facility
BARGE HALL Facility
BASEBALL PRESS BOX Facility
BOTANY GREENHOUSE Facility
NICHOLSON PAVILION Facility
FACILITIES ADMIN ANNEX Facility
GROUNDS EQUIPMENT SHOP Facility
BOUILLON HALL Facility
JONGEWARD OFFICES Facility
PUBLIC SAFETY BUILDING Facility
UNIVERSITY RECEPTION CTR / RESIDENCE Facility
DEAN HALL Facility
SHAW-SMYSER HALL Facility
BLACK HALL Facility
DOROTHY PURSER HALL Facility
GROUNDS STORAGE Facility
SAMUELSON BUILDING Facility
SAND STORAGE FACILITY
SCIENCE Facility
STADIUM STORAGE / RESTROOMS Facility
AVIATION TRAINING CENTER Facility
GRUPE CONFERENCE CENTER Facility
HOGUE HALL Facility
SOFTBALL PRESS BOX Facility
STUDENT VILLAGE BOILER
TOMLINSON STADIUM BOOTHS Facility
ACADEMIC STORAGE FACILITY Facility
MCINTYRE MUSIC BUILDING Facility
DISCOVERY HALL Facility

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement Design

APPENDIX F

Capital Master Plan

http://www.cwu.edu/facility/sites/
cts.cwu.edu.facility/files/documents/FINAL%20-%
20CWU_Master_Plan_2019-2029_August2020.pdf

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement

Design

APPENDIX G

Code Compliance

Psychology Replacement - Code Compliance

The design and construction of the proposed new Psychology Building project will be managed by the university's capital project management team in compliance with health and life safety (including seismic and ADA) codes and energy code requirements, state statutes and local laws, ordinances and university policies and procedures, which include:

- Governor Executive Order 05-05 (Archaeological and Cultural Resources)
  This Executive Order requires state agencies to review capital construction projects with the Department of Archaeology and Historic Preservation (DAHP) and Governors Office of Indian Affairs (GOIA) to determine potential impacts on cultural and/or tribal resources. See **Appendix H – Self Funded Predesign** Pages 160-182 for DAHP Letter and GOIA Letter.
- Chapter 12, Laws of 2005 (ESSB 5509)
  Psychology Replacement project will be designed and constructed according to ESSB 5509 to LEED Silver standard as a minimum, however CWU has consistently accomplished sustainable facilities at higher levels up to LEED platinum certification and set a goal of obtaining LEED Gold on all buildings built from 2022 on. See **Appendix H – Self Funded Predesign ,** Page 43 – High Performance Public Buildings (Chapter 39.35D RCW) and **Appendix H** Page 184 for LEED Checklist.
- Other State and Federal policies and requirements that will be following throughout this project see **Appendix H – Self Funded Predesign include:**
  - State Efficiency and Environmental Performance (Executive Order 20-01)
  - State Energy Standards for Clean Buildings (RCW 19.27 A.210)
  - Greenhouse Gas Emissions Reduction Policies (RCW 10.235.070) and (RCW 70.235)
    - CWU's adopted Greenhouse Gases Policy - **See Appendix H** Pages 188-197.
  - Clean Air Act of 1991
    In response to the Clean Air Act of 1991, the university encourages carpooling by providing convenient dedicated spaces. It further encourages non-automobile commuting options by providing bicycle racks, lockers, and parking for carpools, electric vehicles, motorcycles, and scooters. HVAC requirements and material selection for this project will improve indoor air quality and reduce outdoor emissions.
  - Growth Management Act of 1990
    Use regulations adopted pursuant to the Growth Management Act. This project is subject to the plan review and environmental mitigation process of
    Kittitas County and State of Washington. No significant issues are anticipated as the development proposed by this predesign document is in compliance with all major requirements.
  - Governor's Executive Order 90-94 for Protection of Wetlands
    Humanities and Social Sciences project will not impact any wetland. No environmentally sensitive areas will be affected by this project.
  - Clean Water Act
    Humanities and Social Sciences project will include storm water, drainage and erosion control plan requirements into its construction documents. The National Pollutant Discharge Elimination System (NPDES) permit requirements and storm water pollution prevention plans will be implemented through the installation and maintenance of drainage systems.
  - Hazardous Substances

The project will require selective demolition of portions of existing structures. Prior to any demolition to any facilities, CWU will engage an approved outside consultant and/or chemical hygiene expert to prepare an inventory of all hazardous substances to be abated, utilized in, or removed from, the project. This consultant assists in developing a mitigation plan for removal and/or abatement and for adherence to notification requirements.

- Government Options to Landfill Disposal
  Humanities and Social Sciences project will include a Construction Waste Management Plan and Reporting process. It is anticipated the over 90% of the selective demolition of the project will be recycled and diverted away from the landfill.

Other policies to be coordinated with include:

- Washington State Board for community & Technical College – Model Classrooms for Electronic Presentation Classrooms.
- State of Washington Facilities Evaluation and Planning Guide (FEPG)
- State of Washington Department of General Administration – Construction Waste Management Plan
- State of Washington Department of General Administration – Leadership in Energy and Environmental Design (LEED) – Quality Assurance Process Guidelines for State Agency/College and University Facilities.
- State of Washington RCW 39.35 Energy conservation in the design of public facilities.
- HB-1257 Clean Building Energy Act
- Washington State Environmental Policy Act (SEPA)
- CWU Facility Design Guidelines and Construction Standards
- International Building Code (IBC)
- International Fire Code (IFC)
- Americans with Disabilities Act (ADA)
- Local Codes and Ordinances
- Underwriters Laboratories (UL)
- Regulations of the State Fire Marshall
- Washington State Energy Code
- Washington State Department of Labor and Industries
- Washington Administrative Code (WAC)
- WAC 51-50-1604 General Design Requirements
- National Electric Code (NFPA 70)
- Illuminating Engineers Society of North America (IESNA)
- International Mechanical Code
- Uniform Plumbing Code
- Washington State Boiler and Unified Pressure Vessel Code
- ASHRAE Standard 55 – Thermal Comfort
- ASHRAE Standard 62 – Ventilation
- National Fire Protection Association (NFPA 13)
- National Fire Protection Association (NFPA 72)

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CAPITAL PROJECT PROPOSAL 2023-25

Psychology Replacement

Design

APPENDIX H

Self Funded Predesign - 2022

Predesign Study

Central Washington University
Behavioral & Mental Health Building
(Psychology Replacement)

Integrus Project No. 22224.01
State Capital Project No. 40000124

integrus ARCHITECTURE

10 South Cedar
Spokane, WA 99201
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Introduction | Project Overview

Authority

This Pre-Design Study was authorized by and contracted through Central Washington University

Format

This document has been prepared by utilizing the format recommended in the June 2020 Pre-Design Manual developed by the Office of Financial Management, State of Washington.

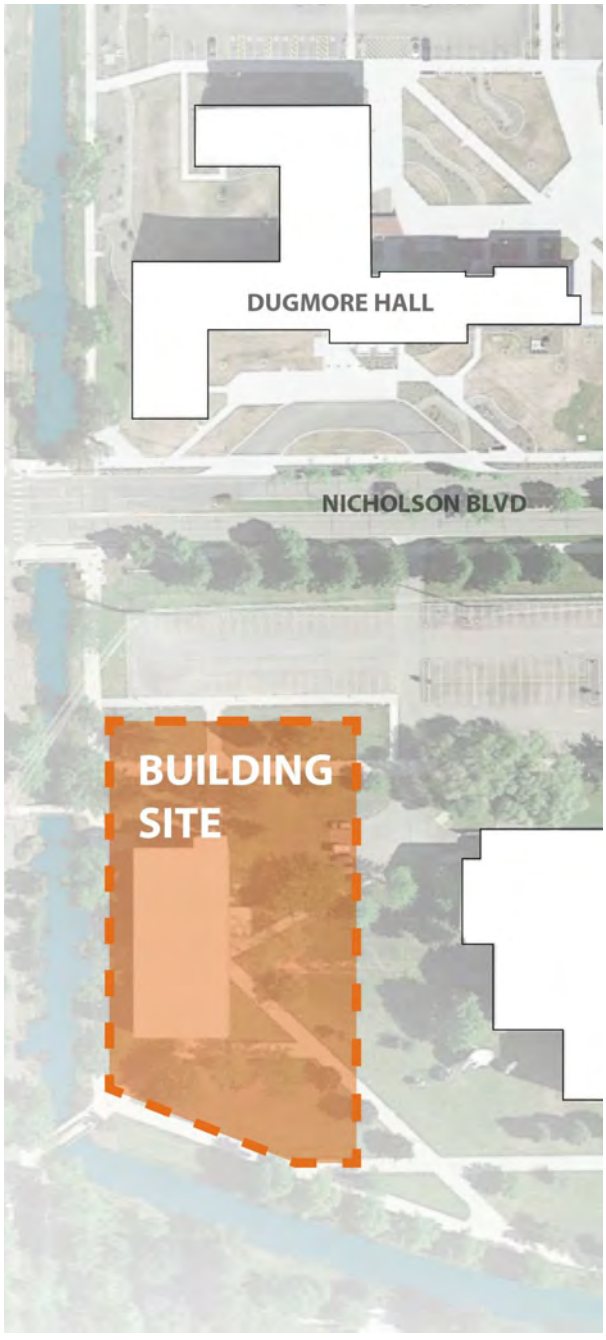
Agency Information

Activity	Start Date
Agency Name	Central Washington University
Agency Code	375
Project Number	40000124
Project Title	Behavioral & Mental Health Building
Agency Contact	Delano Palmer, Director of Capital Projects delano.palmer@cwu.edu Central Washington University 400 E University Way, MS 7405 Ellensburg, WA 98926-7405 P: (509) 963-2906

1.12 Pre-Design Committee Members

The Pre-Design Committee formed to develop recommendations for the Psychology Building programming and design is as follows:

Delano Palmer	CWU, Director Capital Projects
Richard Duffet	CWU, Interim VP of Operations
Bill Yarwood	CWU, Chief Architect
Jeremiah Eilers	CWU, Capital Planning
Dr. Michele Denbeste	CWU, Associate Vice Provost
Dr. Gail Mackin	CWU, Associate Vice Provost
Doug Ryder	CWU, University Facilities Planning Officer
Kelly Hogan	CWU, Associate Dean for Health, Wellness
Stephanie Stein	CWU, Department Chair, Professor
Becky Barnhart	Integrus Architecture
Matthew Bissen	Integrus Architecture
Steven Clark	Integrus Architecture



Central Washington University | Proposed Project Site

1.0 Executive Summary

1.1 Problem Summary

Central Washington University is currently in the process of updating its mission and vision to reflect their commitment to a holistic model of wellness and student support. The proposed project fulfills the need for a revitalized home for Psychology and alignment of student services across campus into a central and cohesive facility for the campus and community. This facility will address the Psychology department's need for 21st century research and teaching space while combining all aspects of behavioral and mental health in one building. With an increased need for counseling services and ongoing academic involvement in developing future counselors and mental health service providers, these programs can partner alongside other support mechanisms in the facility such as the early childhood learning center, case management, and basic needs program.

1.2 Opportunity and Program Requirements

The proposed project is envisioned as an 89,000 gross square foot multi-story and multi-use facility. CWU houses their existing psychology, behavioral and mental health, and student support services throughout multiple buildings primarily at the periphery of the campus. This project consolidates those functions and brings them to the campus core.

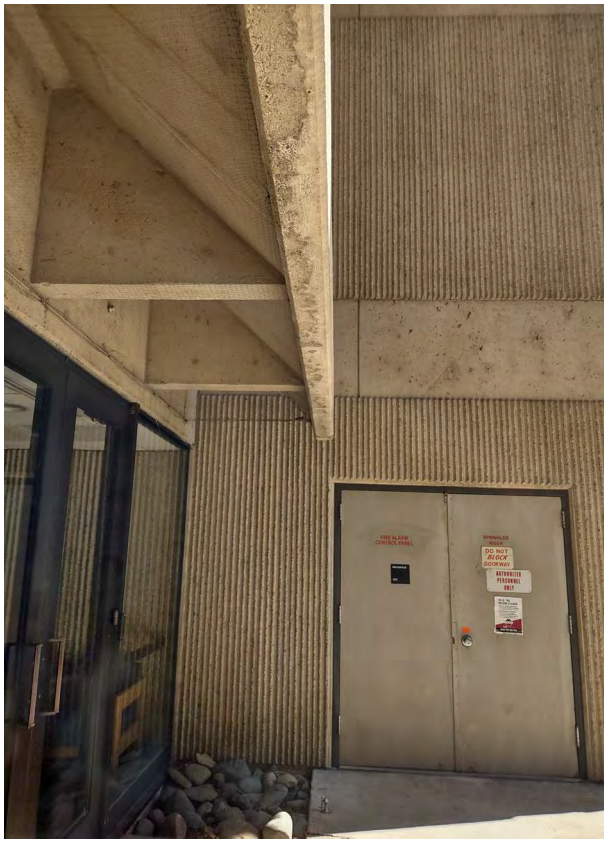
This replacement project has been a funding priority since the 2011-2013 biennium as remodels of the existing psychology building were evaluated for modernization and reuse over the last decade. The existing psychology structure has several physical and programmatic challenges to re-use in it's current state and the proposed project program requires expansion beyond the current footprint. The building currently houses the Community Mental Health and Counseling Center as well as space for Academic and Behavioral Assessment and Intervention.

Student Counseling is housed in the 1970 Student Medical Center. The counseling space is based in outdated patient rooms and has undergone only minor renovations to accommodate the counseling need. They are losing the space in Student Medical and relocating to a temporary home to provide more space for medical needs in the original building. The temporary home is in Black Hall and is not a longterm solution nor does it meet the university's goal to prioritize student counseling.

The Early Childhood Learning center is currently located in two separate locations which divides the program's staff and financial resources and creates a burden for parents who may have children in both locations. These facilities have received no upgrades or renovations other than the addition of a portable classroom building to handle additional school-age children added in recent years. This program provides critical childcare needs for student parents to be able to maintain enrollment.

Psychology Building | Dean Nicholson Blvd Entry

Psychology Building | West Facing - Dugmore Hall



Psychology Building

Overall programmatic needs include:

- Psychology Department

  Department Administration, Laboratory, testing, and classroom space
- Community Mental Health Counseling Center
- Academic & Behavioral Assessment & Intervention Center
- Student Counseling Center (Relocated from Student Health Center)
- Wellness Center
- Basic Need Center
- General Registrar Scheduled Classrooms
- Support & Shared Student Spaces
- Childcare Facilities – Daycare and Early Childhood Learning Center.

Psychology Building | Classroom

Psychology Building | Hallway

The project will result in a new functional facility that accommodates programmatic changes and enrollment increases. General enrollment increases will drive corresponding increases in demand for psychology, both a popular major and a high-demand general education subject. The psychology program in particular accommodates tremendous demand by students transferring from community colleges. CWU is a primary service provider to transfer students, who comprise half of all CWU enrollments. **More than 60 percent of community college transfer students come to CWU intending to pursue a degree in sociology or psychology.** This new facility would help accommodate increased demand for psychology courses by creating well configured square footage for program use while also adding space to accommodate the Central Washington University Counseling Center, Wellness Center, Case Management and Basic Needs Center. Having the University's Psychology Program, Counseling Center, Wellness Center, Case Management Department, Community Mental Health Counseling, Basic Needs Center and Early Childhood Learning all in one building will allow for enhanced collaboration between real life practice and academia. Additionally, collaboration and patient management will be centralized allowing for confidential, comfortable, easy to access spaces for patient care and essential resources.

The new facility will have a useful life expectancy of 50 years or more, and will provide a superior learning environment consisting of clean air, flexible academic spaces and new research spaces. The project will significantly increase energy efficiency, with utilities metering, improved insulation, and all new energy efficient designs and equipment. It will be designed to a minimum LEED Gold certification by the US Green Building Council.

The COVID-19 pandemic produced psychological hardship for everyone in the world. The World Health Organization says, "COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide in its first year", "By the end of 2021 the situation had somewhat improved but today too many people remain unable to get the care and support they need for both pre-existing and newly developed mental health conditions."

This project will allow Central Washington University's Counseling Center to provide high quality counseling services to our students, faculty, staff and other community members for free, at an accessible location and in private spaces designed for confidentiality and comfort.

1.3 Summary of Alternatives

Four alternatives were evaluated in the process of this predesign with four receiving focused development and LCCA consideration including a no action alternative, and three received.

Psychology Building | Office

Psychology Building | Classroom

NO ACTION ALTERNATIVE

This option was rejected due the lack of flexibility in the current psychology building spaces. The Psychology department has progressed and changed research priorities and strategies since the building was constructed. A significant amount of the laboratory and live animal research space is no longer needed for psychology and is not easily adapted to uses by other programs. The Psychology building is significantly out of date with energy codes and structural life safety. Upgrades to these features would be required by any remodel in the facility and remodel would be required to accommodate any new or revised uses. The existing building will continue to deteriorate and incur additional maintenance and operational costs to the university for limited return. The student counseling center is currently moving to a temporary space because of the greater needs in its current location at the student medical center and needs a permanent home. The Early Childhood Learning Center is limited in its capacity to serve student parents because of being split between two locations. The wait list for parents seeking access for their children stays consistently over double the capacity for infants with that need trending upward each year.

ALTERNATIVE A: REPLACEMENT ON FARRELL HALL SITE (PREFERRED OPTION):

This option recommends a new building be located on the site of the existing Farrell Hall. This option presents the best alignment with the University's mission, program goals, and long-range planning criteria. Bringing student and community mental health services to the core of campus allows the university to center it's holistic wellness approach to student care. Farrell Hall will be demolished as part of the North Academic Complex project and the site will be vacant prior to start of construction for the new Behavioral and Mental Health Building. Freeing up the existing psychology site best aligns with the university's masterplan, allowing for growth of student housing and parking at the campus periphery. The Farrell Hall site option provides the lowest life cycle cost with better proximity to campus utilities, including a future eco-district currently being studied.

ALTERNATIVE B: REPLACEMENT ON PSYCHOLOGY BUILDING SITE:

This option explored the demolition and replacement of the existing psychology building with a new structure on the same site. This option was rejected because it did not meet the primary goal of centering student wellness and counseling within the campus core. Developing this replacement north of Dean Nicholson Blvd places numerous constraints include the requirement to bring the public onto the site for services. This would require routing access near or through areas designated for future growth in housing. While a new more sustainable low-temp non-fossil fuel ground source water loop is envisioned near the North Academic Complex across the boulevard, bringing that system across the road is cost prohibitive.

ALTERNATIVE C: RENOVATION AND ADDITION OF THE EXISTING PSYCHOLOGY BUILDING:

This option explored the actions required to modernize the existing building and provide additional square footage to capture the programmatic needs of this project. In addition to the above mentioned site utility costs, the building abatement, structural upgrades, and energy improvements represent extremely costly, highly invasive changes to the building. Even with these upgrades it will still not be possible to entirely meet the goals of current energy codes with the existing structure. In addition, the inefficiency of the existing building plan and structural grid requires constructing a larger addition pushing the overall gross square footage of this option higher than all other options. Changes to pedagogy and research goals drive a drastically different need particularly when it comes to space size. The rigid nature of the existing building limits what is possible within the existing walls and contributes to the overall greater need for space in this option.

1.4 Summary of Preferred Alternative

The preferred option is a replacement building on the existing Farrell Hall Site. This alternative represents the best long-term value for the University as shown in the LCCA analysis and most closely aligns with the University's goals and values. This solution was developed in a collaborative process with University administration, faculty, and facilities staff. The four story, 89,000 square foot building is located to best capture the relationships between wellness and counseling services to the campus and broader Ellensburg community. The site has better connection and efficiency in relationship to existing campus utilities and future expected sustainable utility development. The location adjacent to the town canal also provides a landscaped buffer to vehicle traffic and other campus amenities creating the opportunity for quieter connections to nature for counseling spaces. All of these aspects best serve the three major areas of program need for this project: Counseling and wellness, Community focused mental health and early childhood education, and the department of psychology and associated research. These programmatic needs are outlined further throughout this document as well as additional site analysis supporting the preferred alternative.

Summary Budget of Preferred Alternative			
	Cost Estimate	Cost/SF	Escalated Costs
Acquisition	$0	$0	$0
Consultants	$8,358,606	$89	$9,535,259
MACC	$64,841,240	$690	$78,492,452
Construction	$73,802,300	$785	$89,358,972
Equipment	$4,374,014	$47	$5,318,365
Artwork	$535,636	$6	$535,636
Project Admin	$2,162,571	$23	$2,629,470
Other Costs	$245,000	$3	$285,107
Total Project	**$89,478,127**	**$952**	**$107,662,809**

2.0 Problem Statement

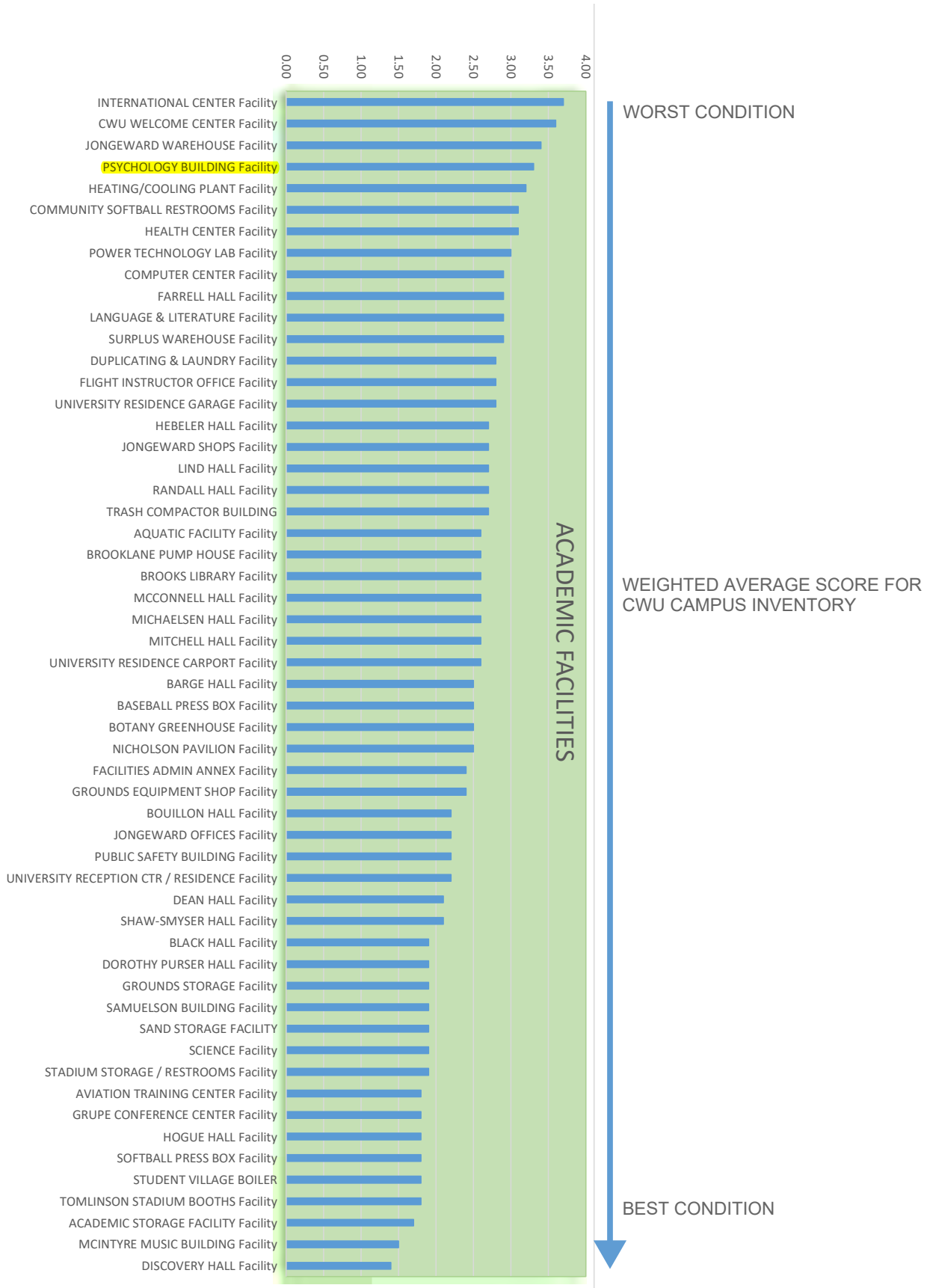
2.1 Identify the Problem

CWU seeks design funding to replace the 50-year old Psychology Building which has never been renovated. The project is necessary to ensure the health and safety of students and employees, to address continued degradation of the facility associated with previous use as a chimpanzee lab, and to accommodate our multiple behavioral and mental health related services for centralized access to education, services and basic needs. CWU requested but did not receive funding to renovate this facility in 2002, 2004, 2010, 2016, 2018 and 2020. Now the state of the buildings is quite literally beyond repair and this facility must be replaced. Energy Systems are not compliant with current energy code, resulting in the need for all new piping, ductwork and air- handler distribution systems. This building's life safety systems are in poor condition and there is minimal fire sprinkler protection, minimal fire notification and only manual pull stations for alarm activation. It was made apparent that systems had outlived their life expectancy when the whole building was out of service for nearly a month during Fall 2021 due to a failed main electrical transformer.

A key factor driving the need for replacement is the past use of the building to house chimpanzees between 1981 and 1992. The north wing of the third floor of the building housed five chimpanzees within the Chimpanzee and Human Communication Institute (CHCI). Sewage, air handling, and other systems were contaminated and corroded by the extreme demands associated with caring for the chimpanzees. The integrity of the floor structure has been compromised due to the saturation of chimpanzee urine; highly acidic urine compromised the integrity of reinforcing steel in the concrete floor. Air-handling systems were clogged with chimpanzee dander and hair. Resulting health and safety concerns caused the north wing of the third floor to be completely closed off and it has been unusable since 1993.

Age, too, has taken a toll on the building. All of the existing mechanical and electrical systems have reached their life-cycle end and have become unreliable and must be replaced. The 1973- era HVAC heats and cools inefficiently and does not supply sufficient air exchanges which have become an important part of everyday occupancy since COVID-19. The noise from the systems interferes with class and lab instruction creating a negative learning atmosphere. The building exterior walls and windows are poorly insulated and energy inefficient. In parts of the building the insulation has liquefied and seeps through openings in the walls. The electrical infrastructure is outdated and cannot support modern technological needs of faculty or students. The elevators regularly break down, leaving students stranded. The fire alarm system is to far out of compliance to be upgraded to meet NFPA requirements. The sprinkler system is outdated and covers only a small portion of the first floor. Lighting and lighting controls are poorly designed and do not support a proper learning environment or the ability to meet Washington State energy Codes.

In May of 2019 House Bill 1257 was signed into law in Washington State requiring all buildings over 50,000 sq.ft but less than 90,001 sq.ft to meet the EUI compliance targets by June 1, 2028. This building at 89,000 sq.ft falls into that category. Without a complete renovation including all new equipment and insulation this building will not be able to obtain its EUI Goal. Seismicity and its effect on buildings has grown significantly in the 50 years since this building was constructed. Buildings today are generally designed for higher seismic forces with greater emphasis placed on structural detailing to encourage ductile, predictable behavior. For reference, a comparison of seismic base shear forces in the current design code (2018 International Building Code) are roughly 76% higher than those tabulated from the 1967 Uniform Building Code. Similarly, reinforcing requirements for walls and floor diaphragms is much more robust under the current Code. These repairs may be intrusive and require added shear walls or bracing at level 4, added diaphragm struts and collectors, and augmentation of shear wall reinforcing. See the structural assessment in the appendix 6.8 for further information.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INTERNATIONAL CENTER Facility
CWU WELCOME CENTER Facility
JONGEWARD WAREHOUSE Facility
PSYCHOLOGY BUILDING Facility
HEATING/COOLING PLANT Facility
COMMUNITY SOFTBALL RESTROOMS Facility
HEALTH CENTER Facility
POWER TECHNOLOGY LAB Facility
COMPUTER CENTER Facility
FARRELL HALL Facility
LANGUAGE & LITERATURE Facility
SURPLUS WAREHOUSE Facility
DUPLICATING & LAUNDRY Facility
FLIGHT INSTRUCTOR OFFICE Facility
UNIVERSITY RESIDENCE GARAGE Facility
HEBELER HALL Facility
JONGEWARD SHOPS Facility
LIND HALL Facility
RANDALL HALL Facility
TRASH COMPACTOR BUILDING
AQUATIC FACILITY Facility
BROOKLANE PUMP HOUSE Facility
BROOKS LIBRARY Facility
MCCONNELL HALL Facility
MICHAELSEN HALL Facility
MITCHELL HALL Facility
UNIVERSITY RESIDENCE CARPORT Facility
BARGE HALL Facility
BASEBALL PRESS BOX Facility
BOTANY GREENHOUSE Facility
NICHOLSON PAVILION Facility
FACILITIES ADMIN ANNEX Facility
GROUNDS EQUIPMENT SHOP Facility
BOUILLON HALL Facility
JONGEWARD OFFICES Facility
PUBLIC SAFETY BUILDING Facility
UNIVERSITY RECEPTION CTR / RESIDENCE Facility
DEAN HALL Facility
SHAW-SMYSER HALL Facility
BLACK HALL Facility
DOROTHY PURSER HALL Facility
GROUNDS STORAGE Facility
SAMUELSON BUILDING Facility
SAND STORAGE FACILITY
SCIENCE Facility
STADIUM STORAGE / RESTROOMS Facility
AVIATION TRAINING CENTER Facility
GRUPE CONFERENCE CENTER Facility
HOGUE HALL Facility
SOFTBALL PRESS BOX Facility
STUDENT VILLAGE BOILER
TOMLINSON STADIUM BOOTHS Facility
ACADEMIC STORAGE FACILITY Facility
MCINTYRE MUSIC BUILDING Facility
DISCOVERY HALL Facility
ACADEMIC FACILITIES
WORST CONDITION
WEIGHTED AVERAGE SCORE FOR CWU CAMPUS INVENTORY
BEST CONDITION

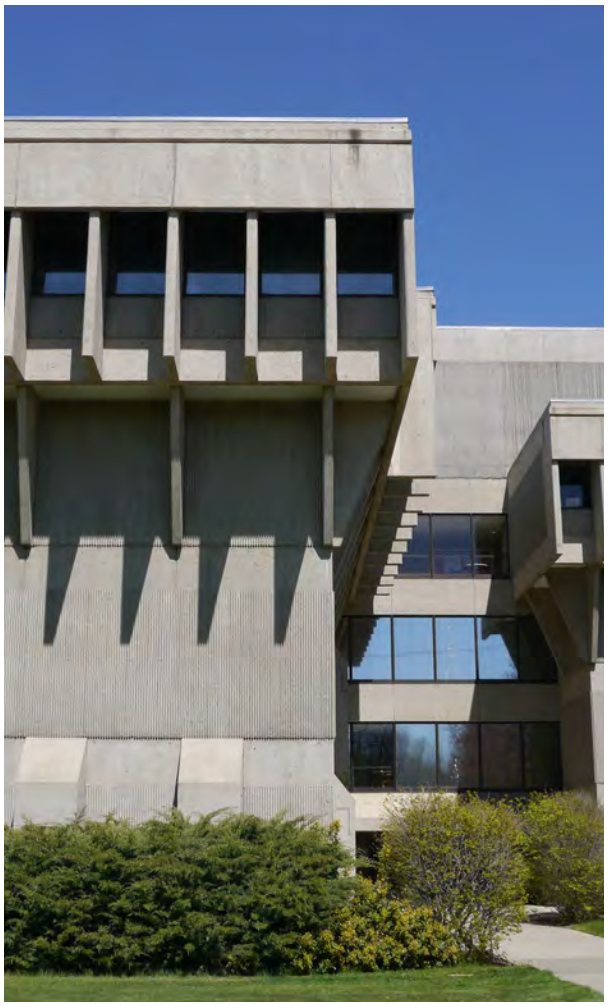
The university takes a holistic approach to wellness, supporting students, faculty, and the community at large with multi-tiered services to achieve a robust continuum of care. These efforts are vital to student academic success and their continued enrollment. Following the pandemic students are experiencing more severe mental health needs with a higher number of crisis cases. A comprehensive facility to addresses these challenges and serve the academic programs that provide the practitioners in these fields is critical to adapt to current and future needs.

Currently, these programs are in temporary or ad hoc facilities spread over the campus in areas not specifically designed for these purposes, nor are they allotted adequate amounts of space to operate. Likewise, these programs are housed in aging or temporary spaces not suited to the long-term goals of the program, department, or University. This presents challenges for students to find the support and programs they require. In addition, promoting these programs and services is difficult when they are less than accessible due to a seemingly hidden existence in numerous unrelated buildings.

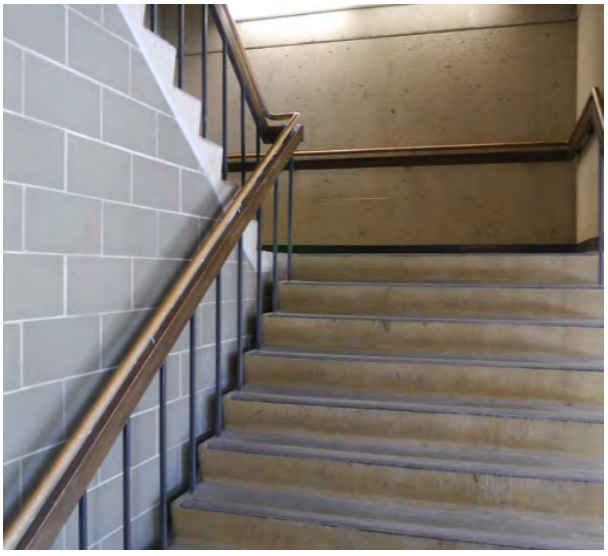
The services provided through these programs have become literal lifelines during the pandemic. The challenges students face are anticipated to grow in the post-pandemic climate, stressing the likelihood of their continued education, as well as their physical and mental well-being. Ease of access for those who need these services is made difficult through their scattered existence across campus. The University needs these essential services to ensure that students find success with in-person learning.

Psychology Department

The core academic link between the University and these services that address student mental health and support is the CWU Psychology department. The programs current home does not adequately meet existing needs. The current psychology building was established for a significantly different program over 50 years ago. In this time span, the pedagogy and research focus has shifted significantly. Currently, a significant portion of square footage is dedicated to vivarium and other laboratory spaces that don't meet current needs. In addition, the majority of interior finishes and components have a score of 3 or worse. The building shell scores at 3 for most wall, floor, and roof for the superstructure. Roof coverings all received a score of 4. Current undergraduate enrollment totals 840 students with an additional 70 graduate level students. 25 full time faculty support the program along with 4.16 adjunct FTE. Psychology continues to experience and enrollment growth trend and forecasts the need for additional faculty throughout the next ten years. The department needs testing and research facilities that meet today's standards for pedagogy, access to technology, privacy, and student support. Additionally, programs must also have adequate access, circulation, and secure separation to provide counseling for a diverse population of patient needs ranging from early childhood behavioral intervention to court-mandated adult counseling.



Psychology Building



Psychology Building

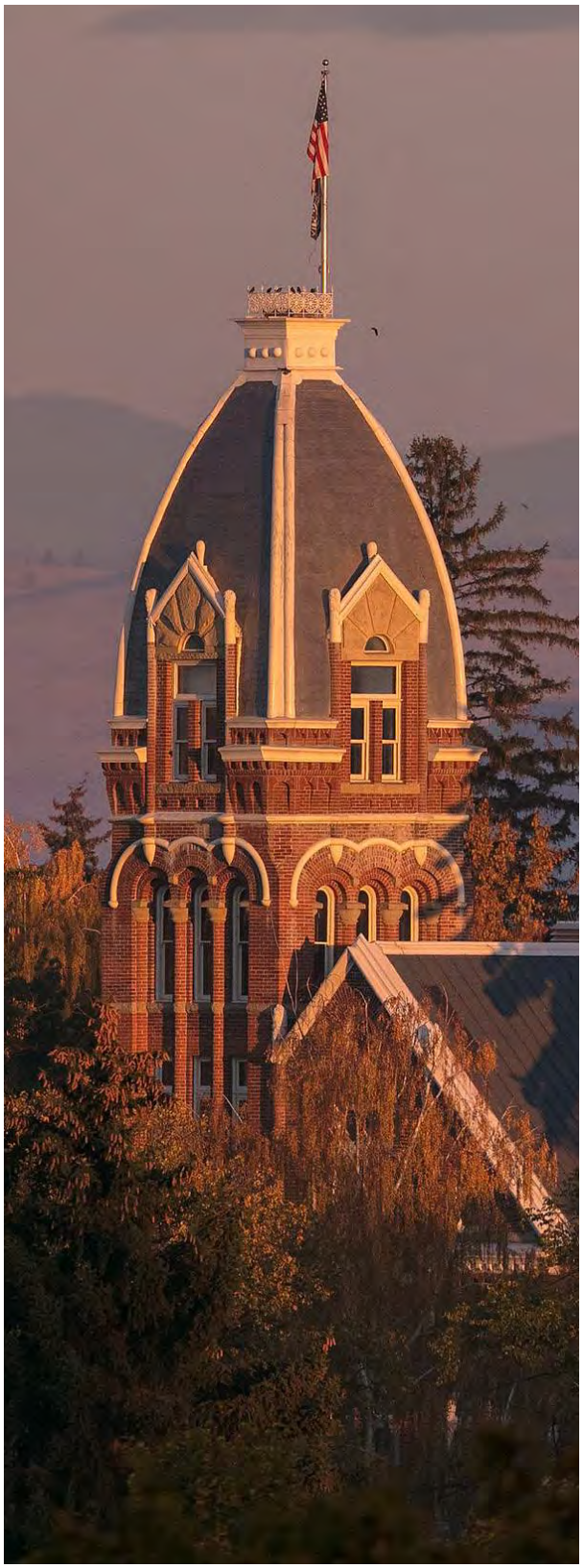
The existing building was constructed in 1973 and mechanical and electrical systems are substantially original to the existing construction and are exceeding 50 years old. These systems have doubled their normally anticipated useful service life and are a significant maintenance and energy expense for the building. Replacement of this building is an important part of the campus plan to comply with the Washington Clean Building Standard and Greenhouse Gas Emissions Policy. Replacement of the existing building is anticipated to save approximately 350 metric tons of CO2 emissions per year.

The mechanical and electrical systems were reviewed in 2022 and the systems including life safety had a facility score of 4 indicating that they need improvement and/or have limited functionality. The major systems have exceeded expected life cycles and require immediate attention to prevent or mitigate impacts on function. From a life safety perspective, the building is not fully protected by a fire suppression system. As evidence of system reliability, in 2020, the electrical service transformer for the building failed and was replaced under an emergency project at that time.

The existing Psychology Building structure has multiple seismic non-compliant issues which will limit the building's ability to absorb seismic energy in a ductile, predictable manner. These issues if not addressed make the building more susceptible to serious damage in a seismic event. Our understanding of seismicity and its effect on buildings has grown significantly in the 50 years since this building was constructed. Buildings today are generally designed for higher seismic forces with greater emphasis placed on structural detailing to encourage ductile, predictable behavior. For reference, a comparison of seismic base shear forces in the current design code (2018 International Building Code) are roughly 76% higher than those tabulated from the 1967 Uniform Building Code. Similarly, reinforcing requirements for walls and floor diaphragms is much more robust under the current Code. These repairs may be intrusive and require added shear walls or bracing at level 4, added diaphragm struts and collectors, and augmentation of shear wall reinforcing. See the structural assessment in the appendix for further information.

Community Mental Health Counseling Center

The Psychology department operates a community counseling center in the current building. The available spaces are not easily adapted to the center's needs. To be successful, a variety of spaces are needed for group therapy and additional counseling. These are lacking. These spaces need direct access to the public while also exhibiting appropriate privacy, both visually and acoustically, as well as having a clear separation from general academic circulation. The negligible spaces available for this program do not adequately serve the goals of the program to support the



CWU Campus

community and train future counselors. Other programs that are hindered by deficient space availability and would benefit from being located in proximity to like programs are the Academic & Behavioral Assessment & Intervention Center (AIC), Student Counseling, and the CWU Wellness Center.

Academic & Behavioral Assessment & Intervention Center (AIC)

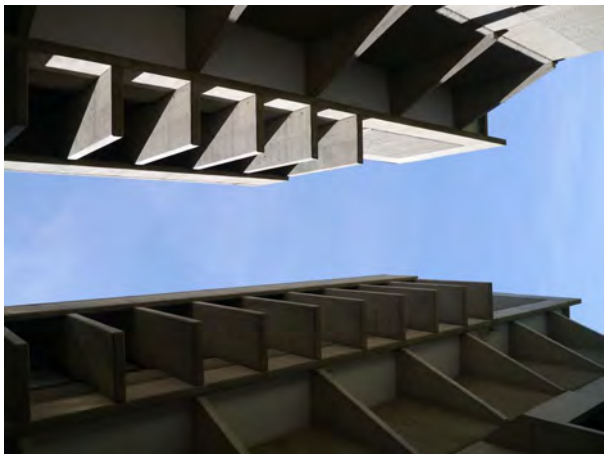
The AIC is an additional community resource that supports early childhood developmental challenges such as reading deficiencies. In addition, the AIC recently began offering counseling services specifically for children and adolescents in the local community. The psychology department partners with the local school district and other community partners to provide free assessment, intervention, and counseling for area students. This program is currently limited by size of available space in the existing psychology building. The sole classroom space available for reading interventions is too small for the number of students in the program and does not meet the demand for these services in the community. In the last two years, the AIC has served an average of 15 families per year for reading interventions and received many additional requests for these services from other families. The space designated for academic and child counseling services needs separate circulation, privacy, and security appropriate for facility with minor children. These programmatic needs are not achievable without significant investment in the current psychology building.

Student Counseling and Health Services

The Student Medical and Counseling Clinic is currently housed in an 11,527 gross square foot facility constructed in 1970.

Services and enrollment have grown significantly since the 1970 construction of the building. Prior to 2012 a series of small remodels were implemented in order to mitigate specific facilities concerns and accommodate additional services. Additional remodels were undertaken in 2015 and 2017 to create additional counseling offices and to increase the privacy of the nurse's station.

Student Counseling is currently relocating from the Student Medical Center to a new temporary home in Black Hall to allow for much-needed growth of the Student Medical Center and their services. Both the current and temporary home for Student Counseling have privacy and available space challenges surrounding group counseling, evaluations, and counseling office spaces. Even with lower case numbers Student Counseling has seen a consistent or worsening rate of severity with students seeking counseling. The center has also seen an increase in overall demand for crisis services. In the past four academic years including the pandemic the center has served between approximately 600 and 1000 students each year. **In a recent counseling satisfaction survey 76% of students utilizing counseling services reported that the counseling they received helped them stay enrolled at CWU.** Student Counseling needs a permanent home aligned with the campus



Psychology Building

CWU Campus

CWU Student Services

wellness center, case management and other student supports to be able to provide a continuum of care including comprehensive mental health supports for all students.

Wellness Center

The CWU Wellness Center provides education, awareness, and health promotion for all CWU students. The primary focus areas are mental health education, help seeking behaviors, substance misuse prevention, recovery support, interpersonal violence response and prevention. The center houses offices for staff and volunteers with a small meeting space and classroom. The current home for the Wellness Center is in the Student Union and Recreation Center (SURC), apart from like programs. While seemingly aligned with the SURC's mission, the Wellness Center program desires greater campus-facing visibility and connection to additional counseling and mental health services.

Case Management

The CWU Office of Case Management is an extension of the wellness support the University offers students experiencing obstacles to success. Case Management picks up from the broader offerings of the Wellness Center and helps individual students get connected to formal and informal resources. The current case management center is located in Bouillon Hall, far from the services and resources the center helps coordinate. Co-locating the office with the Wellness center and other mental health resources increases the likelihood of timely and effective interventions for the most at-risk students.

Basic Needs Center

The Basic Needs Center caters to student's physical and mental well-being. Basic needs include: financial stability; nutritious and sufficient food; safe, secure and adequate housing; accessible and equitable health/medical care, technology and transportation. Students accessing basic needs are often referred by the Wellness Center, Case management, or Student Counseling. Centering this program in the new facility follows through on the University's commitment to holistic wellness and student success.

The Early Childhood Learning Center (ECLC)

The Early Childhood Learning Center (ECLC) is an educational facility that is licensed to operate by the State of Washington through the Department of Children, Youth, and Families. It is guided by a standard curriculum called, Creative Curriculum, which is planned and administered by certified teachers in the classroom. The ECLC is a place where CWU students in several academic programs spend time in either student teaching or in practicum experiences as a requirement for their programs, classes, or graduation in early childhood learning, family life, or other academic programs.

Currently the ECLC is divided into two separate locations on campus which creates operational efficiency challenges as it relates to food production, preparation, and delivery, as well as staffing and supervision required by licensing for specific locations. Consolidating services into one unified location would be an opportunity to maximize staffing and create better customer experiences for parents who may currently have children in two separate locations on campus.

The Early Childhood Learning Center (ECLC) on the campus of Central Washington University serves 75-100 families comprised of students, faculty, and staff. Existing space does not meet the extremely high demand for quality childcare. Consistently the ECLC has a wait list, depending on age group, of between 15 to 30 parents, many of whom get on the wait list when they begin to plan for children. This is just the need that university is aware of. The lack of quality childcare is particularly difficult for parents with infants and toddlers as most centers in the Ellensburg community do not provide services for these age groups and it is the highest demand among students. Increased capacity to provide quality childcare services is essential for Central Washington University to continue to thrive and grow. This is particularly true in the University's efforts to recruit and retain students, faculty, and staff. The opportunity to expand services will address inequities in our community as these services are particularly critical to those who are underrepresented minorities and lower-income community members, especially single parents.

2.2 Identify and explain the statutory or other requirements that drive the project's operational programs and how these affect the need for space, location or physical accommodations

Local, State, and Federal code requirements:

The existing Psychology building is currently below the requirements of the following codes.

Accessibility requirements for people with disabilities:

- Washington State Law Against Discrimination (RCW 49.60.222)
- Washington State Building Code (WAC 52-50)
- Americans with Disabilities Act of 1990 (2 U.S.C. Part B)
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. 794

Green Building Requirements:

- High Performance Building – LEED Silver Standard (RCW 39.35D)
- State Energy Standards for Clean Buildings, RCW 19.27A.210

  Per Executive Order 20-01 State Efficiency and Environmental Performance, New Facility Construction, dated January 23, 2020.
- Electric Car Charging Stations per RCW 19.27.540.
- Greenhouse Gas Reduction Strategies per RCW 70A.45.070

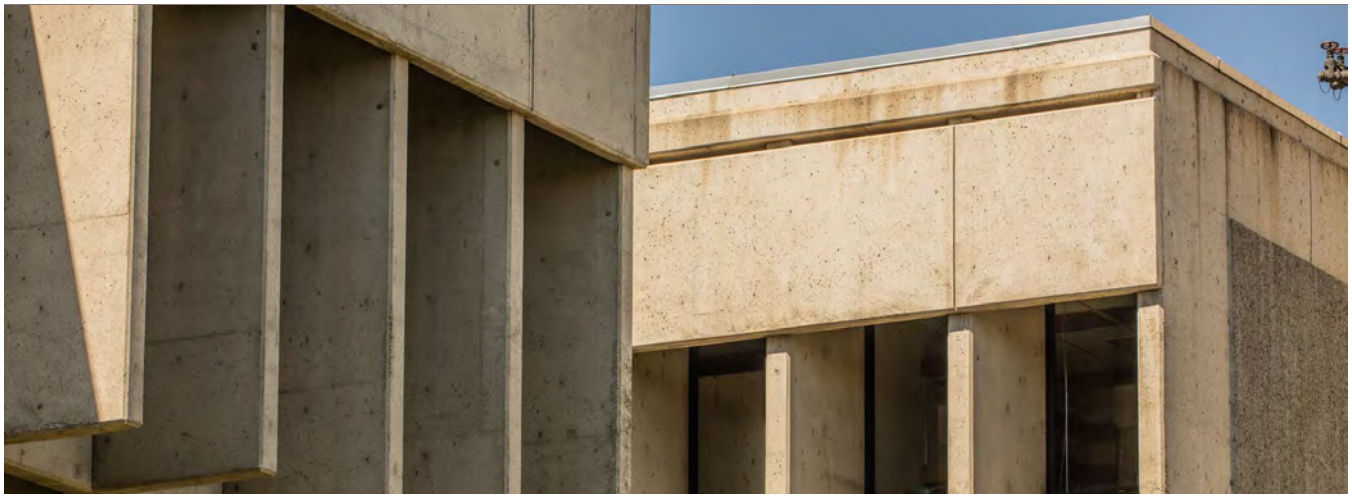
Infrastructure requirements:

- International Building Code (IBC)
- International Mechanical Code
- International Fire Code (IFC)
- Local Codes and Ordinances
- National Electric Code (NFPA 70)

Fire Protection Requirements:

- National Fire Protection Association (NFPA) Section 13
- International Fire Code (IFC)
- Regulations of the State Fire Marshall

Pedagogy, research and technology requirements significantly differ from those of fifty years ago when the psychology building was constructed. Current techniques often include more project-based work which demands group participation in a large room setup with multiple teaching and learning aids. These preferably square spaces don't fit well in the old building with short spans and small column bays. The few larger classrooms in the current psychology building have limited technology infrastructure and limited sight lines for students who have to sit around large columns. New technology is difficult to implement in old rigid concrete structures with limited pathways where very few power outlets and no data pathways existed in 1973.
Desires to blend academic and clinical counseling demand appropriate area connections between program areas with both public and internal circulation.
Research needs have shifted as the department has moved toward more human and clinical studies instead of animal behavioral research. This shift has moved the department away from the need for animal study spaces. The existing building contains two floors of space with no windows and small rigid spaces divided by concrete or masonry walls. These spaces are largely unusable for studies desired by current faculty and not functional for other academic needs.



2.3 Connection to Agency Mission, Goals and Objectives

The proposed new facility supports Central Washington University's commitment to student, faculty, and community wellness by tackling three key areas: Connections, Student Centered Space, and a Future Focused approach. The new Behavioral and Mental Health Building embodies each of these requirements by centering the key wellness functions offered by the University in a single interdisciplinary, modern and highly functional building.

Wellness

This project represents the University's commitment to providing a wellness model defined by a holistic approach to community health and student success.

Connected

The program and building will facilitate student learning through an environment that is integrated, interactive, and interdisciplinary.

- Connected to both campus core and community access
- Connected to nature and the environment, models sustainability and resilience
- Connects departments through collaborative environments
- Connects students to learning, support, childcare, and mental health resources

Student Centered

This building will reflect the University's commitment to student success with an open, welcoming, secure, and inclusive environment.

- Approachable, open, and safe place
- Supports students, faculty, and community; all ages, status, and needs
- Balances open welcoming environment with privacy needs

Future Focused

The building will serve current and future needs with flexible learning environments that can adapt to changing pedagogy, technology, and health.

- Accommodate changing research & pedagogy
- Adaptable to broader campus classroom needs
- Structure and Systems arranged for growth/change

GUIDING PRINCIPLES

WELLNESS

CONNECTED

STUDENT CENTERED

FUTURE FOCUSED

2.3.1 General Problem Solution

The student support system at CWU clearly needs consolidation in a new facility that reflects the University's commitment to wellness. Relocating the multiple service points to one location on campus will enhance efficiency in delivering services while enhancing collaboration and academics. Anchoring this facility with the Psychology department and their academic links to community, student, and faculty support delivers on a model that centers behavioral and mental health on campus. Locating this facility in the campus core while maintaining Ellensburg residents' access will best enhance accessibility to services for students, faculty, and community members.

2.4 Summary of Needs to Solve the Problem

The Behavioral and Mental Health Building will result in a new functional facility that accommodates programmatic changes and enrollment increases. General enrollment increases will drive corresponding increases in demand for psychology, both a popular major and a high-demand general education subject. The psychology program in particular accommodates tremendous demand by students transferring from community colleges. CWU is a primary service provider to transfer students, who comprise half of all CWU enrollments. More than 60 percent of community college transfer students come to CWU intending to pursue a degree in sociology or psychology. This new facility would help accommodate increased demand for psychology courses by creating well configured square footage for program use while also adding space to accommodate the Central Washington University Counseling Center, Wellness Center, Case Management and Basic Needs Center.

Having the University's Psychology Program, Counseling Center, Wellness Center, Case Management Department, Community Mental Health Counseling, Basic Needs Center and Early Childhood Learning all in one building will allow for enhanced collaboration between real life practice and academia. Additionally, collaboration and patient management will be centralized allowing for confidential, comfortable, easy to access spaces for patient care and essential resources.

The new facility will have a useful life expectancy of 50 years or more, and will provide a superior learning environment consisting of clean air, flexible academic spaces and new research spaces. The project will significantly increase energy efficiency, with utilities metering, improved insulation, and all new energy efficient designs and equipment. It will be designed to a minimum LEED Gold certification by the US Green Building Council.

The COVID-19 pandemic produced psychological hardship for everyone in the world. The World Health Organization says, "COVID-19 pandemic triggers 25% increase in prevalence of anxiety and depression worldwide in its first year", "By the end of 2021 the situation had somewhat improved but today too many people remain unable to get the care and support they need for both pre-existing and newly developed mental health conditions." This project will allow Central Washington University's Counseling Center to provide high quality counseling services to our students, faculty, staff and other community members for free, at an accessible location and in private spaces designed for confidentiality and comfort.

CWU, Campus

2.5 Project History

The Psychology Building was constructed in 1972 to house laboratories and classrooms and has not had any significant remodeling or renovation work since that time. There have been several degree programs held within the building including:

- Bachelor of Science in Psychology
- Master of Science in Psychology, with specializations in School Psychology, Experimental Psychology, and Mental Health Counseling
- Education Specialist, School Psychology, which prepares students seeking licensure to practice as a school psychologist in public schools. The program is approved by the National Association of School Psychologists; program graduates are eligible to become Nationally Certified School Psychologists (NCSP).

Psychology Building, 1980

Additionally, the Psychology Building provides space for classes in the following programs or departments:

- Political Science Department
- Sociology Department
- University and Enrichment Program
- Douglas Honors College Program

From 1981 through 1992 Psychology housed the Chimpanzee and Human Communication Institute (CHCI), providing living space for five adult chimpanzees. This usage led to the dramatic deterioration of the building.

The chimps moved to a different facility in 1993, and the wing in which the chimps were housed was closed, due to systems contamination and damage associated with the wear and tear associated with managing waste and environmental concerns for the chimpanzees; however, the building has continued to disintegrate as shown by the declining facility condition index (See Appendix 6.11). CWU has attempted to obtain Capital Preservation funding to renovate the buildings in the following biennium's without success:

2003 – 2005 Biennium - $3,600,000 – Stand-alone renovation request

2005 – 2007 Biennium - $4,600,000 - Stand-alone renovation request

2011 – 2013 Biennium - $4,900,000 - Stand-alone renovation request

2015 – 2017 Biennium - $300,060 – Predesign funding request

2017 – 2019 Biennium - $300,000 – Predesign funding request

2019 – 2021 Biennium - $300,000 – Predesign funding request

3.0 Analysis of Alternatives

3.1 Alternatives Considered: Advantages & Disadvantages

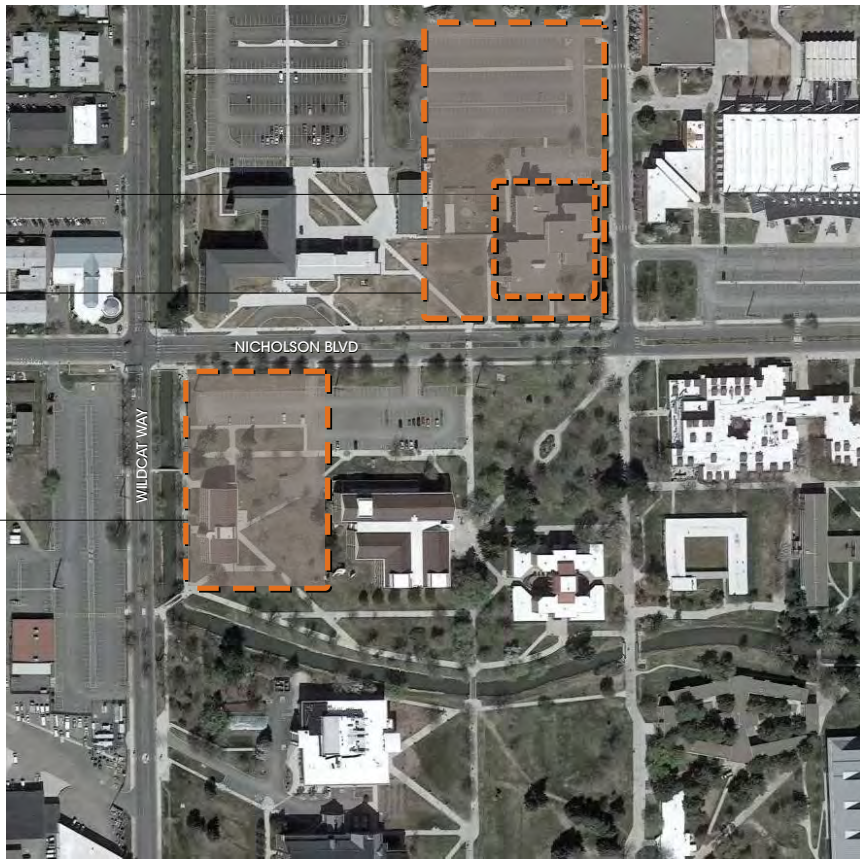
Siting the Behavior and Mental Health project is an important question for the University as they continue to develop and shape academic space growth towards the north on campus, further define campus identity along Nicholson Blvd and further develop a vision for north campus through their master planning process (see previous section). As part of the predesign process, the project stakeholders considered three alternate approaches. Each were analyzed with the above context in mind and within a decision framework that considered how each option related to the Mission and Vision of the University and Academic Programs, Constructibility and Feasibility, Budget and Building Life Cycle, and Campus Context. (See Decision Matrix page 22-23) The three options included renovation and addition to the existing building, a new building built at the site of the existing building, and a new building built west of the Brooks Library Building.

Study Alternate A
Renovation | Addition of
Existing Psychology Building

Study Alternate B
New Building at
Existing Psychology Building Site

Study Alternate C
New Building West of Brooks Library
(Preferred)

Site Alternate Study Locations



Overall Map | Central Washington University - Site Options

3.1.1 Alternative A – Replacement On Farrell Hall Site (Preferred Option)

This alternative locates a new 89,000 sf building to the west of the Brooks Library. This campus location explores the ways in which each of the driving programs Behavioral and Mental Health research and academics, CWU student wellness and counseling services, and the public facing counseling programs can be best located on campus.

Advantages:

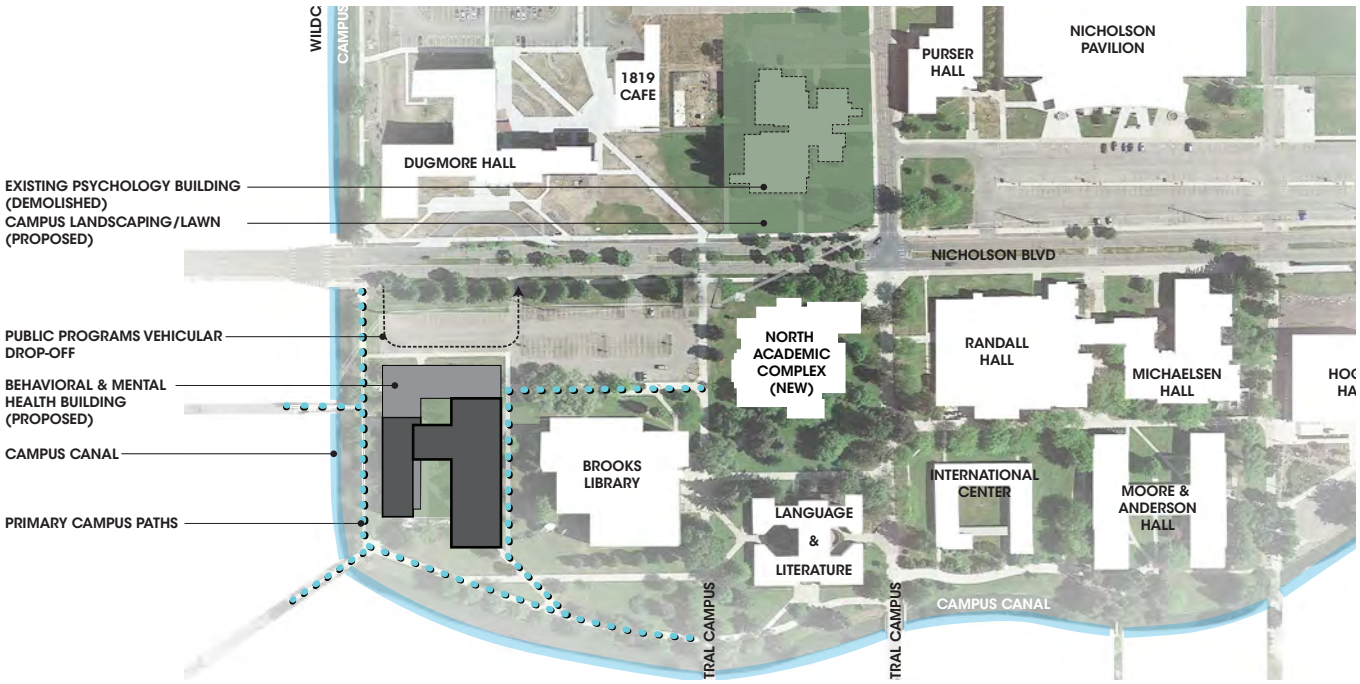
- Provides clear access and Identity for the public facing programs along Nicholson Blvd & western approach to campus.
- Locates CWU student counseling and wellness services closer to the center of campus and daily student activities without the need to cross Nicholson Blvd.
- Opportunity for the counseling and wellness programs to have a direct connection to the canal and adjacent outdoor environments as part of their programs. Providing meaningful connection to the landscape and distinctive outdoor environments that are shone to be important to the success of wellness and mental health programs.
- Allows Psychology program to stay in the current building until the new building is complete. Reducing project cost and academic impacts.

Advantages:

- Locates Behavioral and Mental Health research and academic programs closer to the other the science programs on campus furthering the University goal to provide interdisciplinary reaching and learning opportunities by locating the science programs near each other toward the western edge of campus.

Disadvantages:

- Schedule alignment with the planned demolition of Farrell Hall (Scope of work occurring as part of the North Academic Building project 4000081)



Site Diagram | Alternative A

3.1.2 Alternative B – Replacement On Psychology Building Site

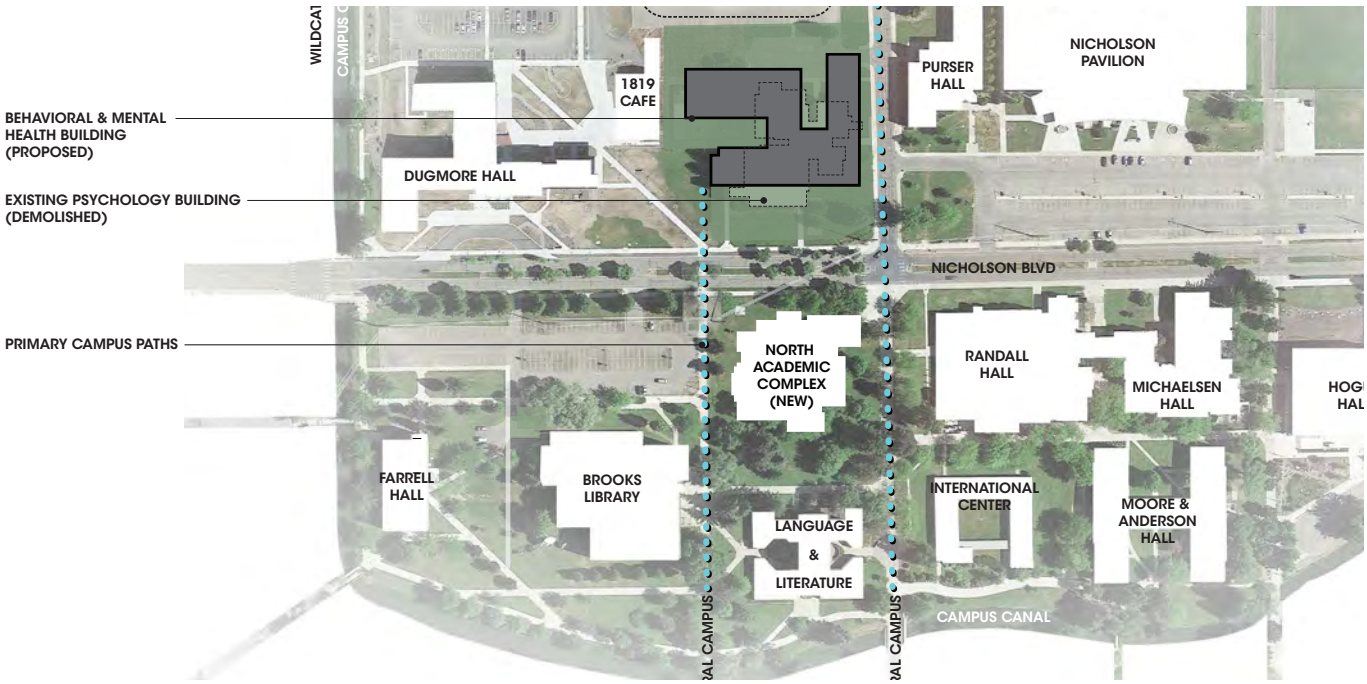
This alternate considers of the significant limitations of remodeling the existing building and studies the complete replacement of the existing building with a new 89,000 sf building.

Advantages:

- Maintain good access and identity for public facing programs along Nicholson Blvd.
- Can define academic identity north of Nicholson Blvd.
- Has access to ample parking to the north and east of the building to serve the public facing programs.

Disadvantages:

- Requires temporary relocation of the Psychology Department during construction. This relocation impacts the project budget as well as research and program effectiveness while in temporary spaces and requiring the Department and staff to move twice.
- May require new utility connections to cross Nicholson Blvd.
- By placing CWU student counseling and wellness services on the north side of Nicholson Blvd they become further from and separated from the main pedestrian areas and central campus reducing the effectiveness of drop-in wellness services.



Site Diagram | Alternative B

3.1.2 Alternative C – Renovation and Addition of The Existing Psychology Building

This alternate includes the comprehensive renovation of the existing Psychology building 73,000 SF with an addition of 21,000 SF for a total of 94,000 SF The existing building size limits the ability achieve the goal of developing meaningful connections between wellness, counseling, and behavior and mental health requiring a significant addition. The configuration and condition of the building present an existing context where the mechanical and building systems are obsolete and require full replacement. As well, as the existing building layout and building envelop do not support contemporary teaching models when it comes to behavior and mental health research and study as well as wellness and counseling. These size and condition limitations require a comprehensive and intensive renovation of the existing building.

Advantages:

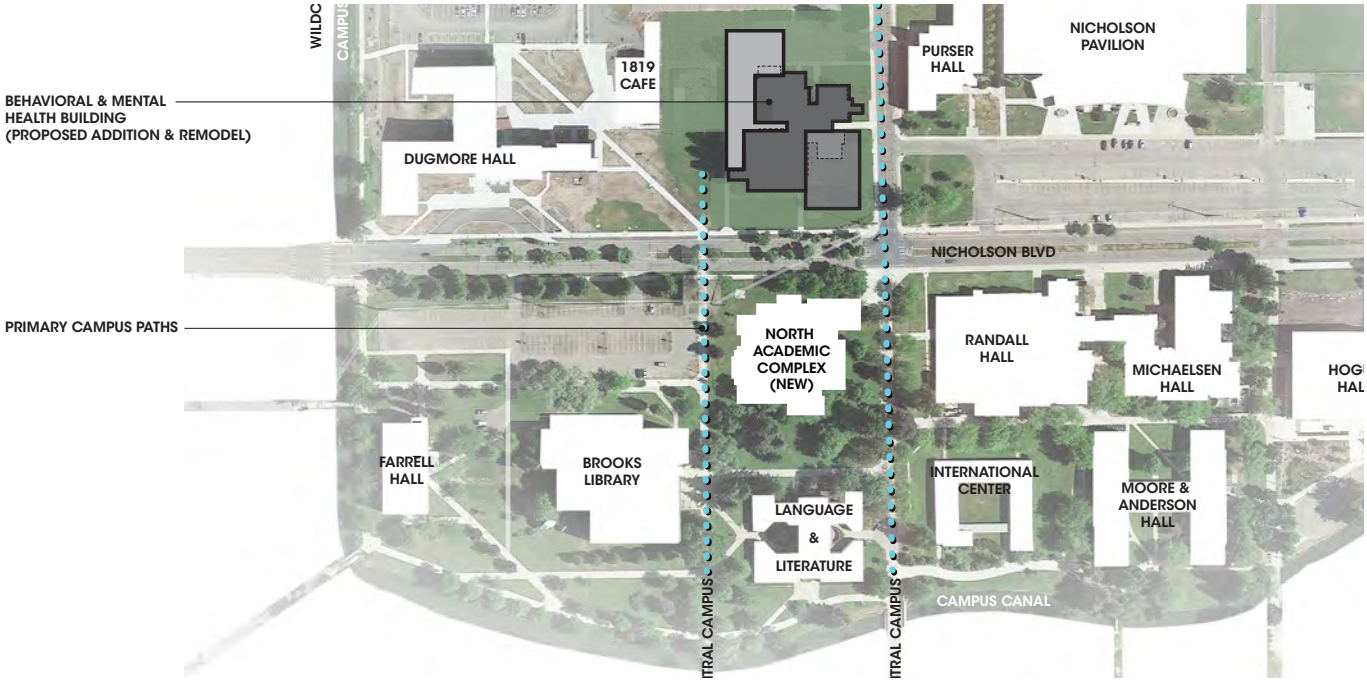
- Maintain good access and identity for public facing programs along Nicholson Blvd.
- Can define academic identity north of Nicholson Blvd.
- Has access to ample parking to the north and east of the building to serve the public facing programs.

Disadvantages:

- Existing building configuration creates program layout in-efficiencies requiring an overall larger building to provide for program requirements, needed adjacencies, and contemporary learning environments.
- Daylight access is limited with existing facades to support effective wellness and counseling programs as well as contemporary research and teaching approaches requiring significant rework of the existing concrete facade areas which currently have no windows/access to daylight.

Disadvantages:

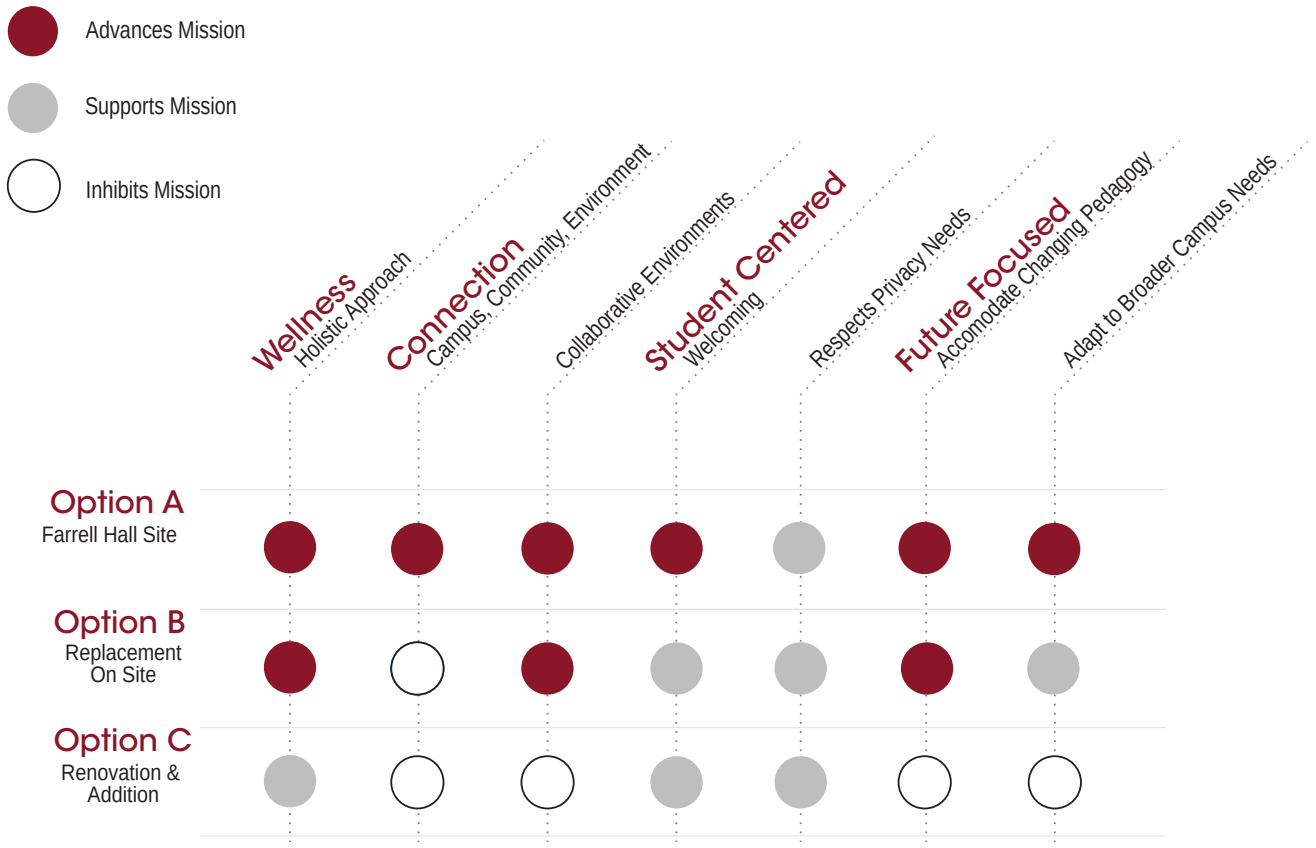
- Requires temporary relocation of the Psychology Department during construction. This relocation impacts the project budget as well as research and program effectiveness while in temporary spaces and requiring the Department and staff to move twice.
- Maintains Behavioral Health and Psychology programs as separate and distinct from other sciences on campus.
- The instructional environment of the existing spaces will become increasingly inadequate.
- Limited opportunities for outdoor courtyards for counseling and wellness programs.



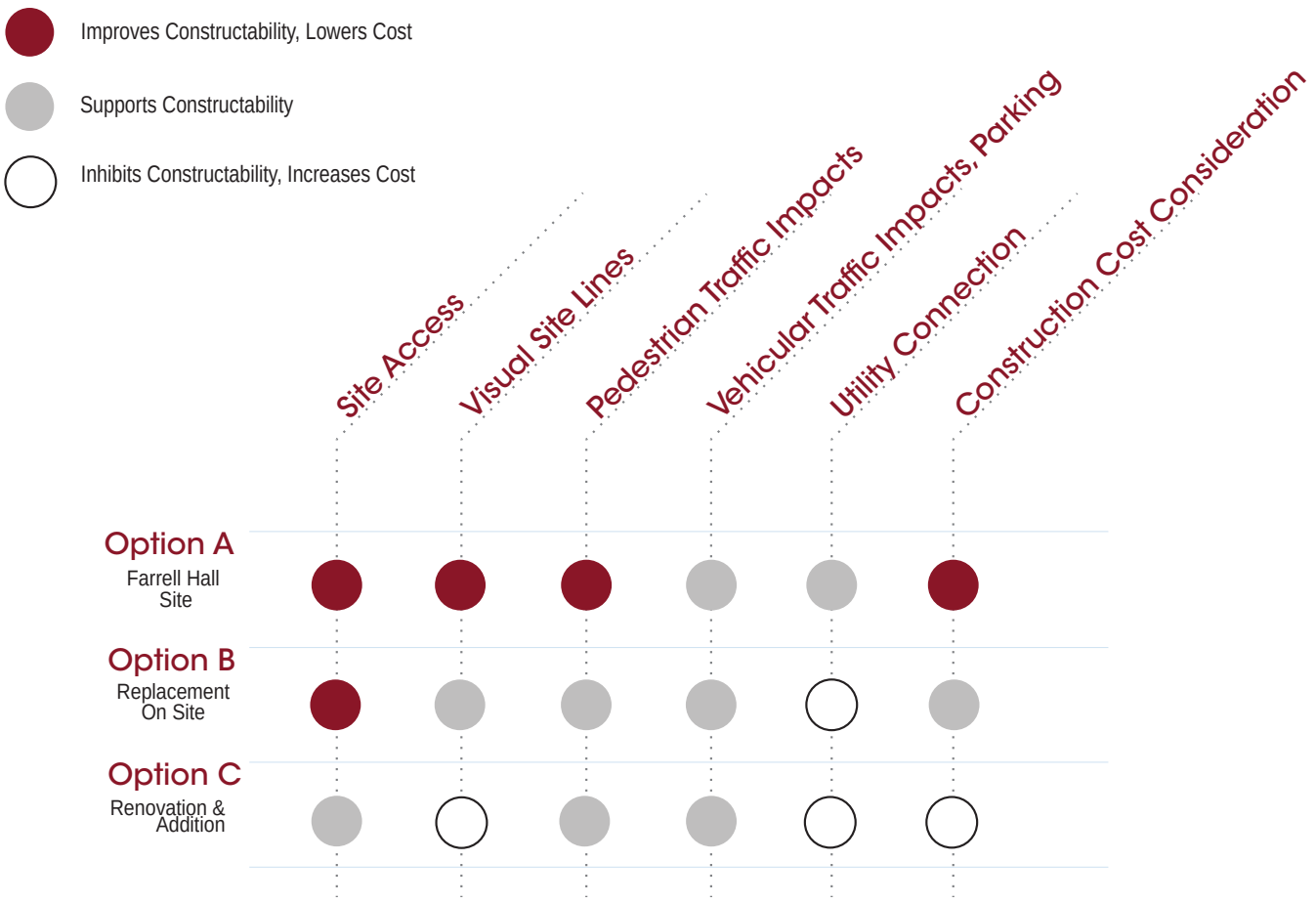
Site Diagram | Alternative C

3.2 Advantages & Disadvantages of Each Alternative

An interactive comparative analysis of the three new construction alternatives was performed with the predesign committee to evaluate them again the project guiding principles. That discussion resulted in the matrix below which shows that Alternative A | Farrell Hall Site most effectively and holistically addresses the project goals.



Matrix | Guiding Principles



Matrix | Constructability

3.3 Cost Estimate for Each Alternative

Cost estimates were performed for each of the three options. All of the options used the same general assumptions including the delivery type, construction materials, and building systems. The estimates also used the same program areas and assignable square footages. The differences in cost reflect the variations in overall building efficiency and the different amounts of building envelope required by each layout option.

3.3.1 Estimate Overview

	Preferred Option		
	Ownership Option A	Ownership Option B	Ownership Option C
	Replacement - Farrell Site	Replacement - Psychology Site	Renovation/Addition - Psychology Site
ASF	53,000	53,000	56,024
GSF	89,000	89,000	94,000
Efficiency	60%	60%	60%
Construction MACC	$ 64,841,240	$ 66,323,082	$ 57,652,351
Project Cost	**$ 89,478,127**	**$ 95,681,969**	**$ 91,531,729**

3.3.2 LCCA

Each of the construction alternatives were analyzed using the Office of Financial management (OFM) Life Cycle Cost Model (LCCM). The No Action alternative was not studied as it will not meet the university's needs as outlined above. As part of the analysis, energy modeling was performed to understand the energy efficiency of each layout along with the programmatic efficiency.

	Preferred Option		
	Ownership Option A	Ownership Option B	Ownership Option C
	Replacement - Farrell Site	Replacement - Psychology Site	Renovation/Addition - Psychology Site
Construction MACC	$ 64,841,240	$ 66,323,082	$ 57,652,351
Project Cost	$ 89,478,127	$ 95,681,969	$ 91,531,729
Annual Energy Cost	$ 52,510	$ 49,840	$ 64,860
30 Year Cumulative Cash	$ 235,798,395	$ 239,919,565	$ 240,813,825
50 Year Cumulative Cash	$ 586,329,992	$ 589,679,464	$ 613,755,050

Option A is the least expensive for both the initial construction and over the life of the building. This is because the more efficient layout allows for reduced construction, energy, and operational costs.

3.4 Schedule Estimate

All three alternates would have the same anticipated project schedule as outlined below. A full milestone schedule is included in section 4.12

Project Phase	Date of Completion
Predesign	June-22
Schematic Design	May-24
Design Development	October-24
Construction Documents	May-25
Approvals	June-25
Bid	July-25
Construction	August-25
Construction Mid Point	July-26
Substantial Completion	April-27
Construction Close out	June-27

4.0 Detailed Analysis of Preferred Alternative

4.1 Description of Preferred Alternative

The following offers additional description of the preferred alternative considered for this project.

4.1.1 Nature of Space

The project is envisioned to support three areas of program need for CWU. Each program, Counseling and Wellness, Community focused Mental Health and Child Care Centers, and the Psychology program research and academics have distinct focus and stakeholders. The strength of the project vision is that by bringing these three areas of program together in one facility the university can realize a Behavioral and Mental Health facility that as a whole is stronger than each of its individual parts. This collocation provides the opportunity for CWU to provide the innovative services expected by their students and the community when it comes to important aspects and research into Behavioral and Mental Health.

Health and wellness are a critical concern for both the personal and academic success of CWU students. Creating a welcoming and accessible hub on campus for students to access health and wellness services drives many aspects of the preferred alternative. CWU centers their wellness and counseling are founded on the Institute of Medicine (IOM) Continuum of Care Model. A model which views access to and support of prevention, treatment, and maintenance services as important to successful care. This predesign acknowledges that the design of the spaces in the programs is not neutral and have a direct effect on wellness as well as reflecting the program directors and administrator's goals to establish direct and intuitive spatial and environmental connections to support their Continuum of Care Model. The predesign approaches this critical concern by prioritizing 4 key aspects.

1. Organize the programs with clear welcoming identities and effective adjacencies and connections.
2. Access to ample natural daylight with attention places on the movement and change of daylight conditions through the day and seasons.
3. Capitalize on its campus location to provide meaningful access and views to landscape to support wellness. Bringing aspects of nature into and around the building.
4. Proximity to daily student activities and campus movement patterns to provide a readily available and inclusive resource.

The second program area addressed in the predesign is the support of the public facing counseling/research and childcare programs. These programs have distinct needs from the other health and wellness services but have similar characteristics that influence this alternative. Access to natural daylight, access and direct views to landscape, and proximity to the community. The north end of the first floor is the focus of the three-community facing centers; Early Childhood Center, the Community Mental

Precedent | Meaningful Access to Daylight & Landscape

Precedent | Readily Available & Inclusive

Precedent | Clear & Welcoming With Connections to Services

Health Counseling Center (CMHCC) and the Academic & Behavioral Assessment and Intervention Center (AIC). These three centers are an important bridge between CWU and the larger Ellensburg community.

These clear bridges that link CWU students to the center of campus the larger Ellensburg community at the northwest corner of campus is a critical aspect of the project to meet access goals. To create a place on campus that is more than a center of research but a hub for health and wellness.

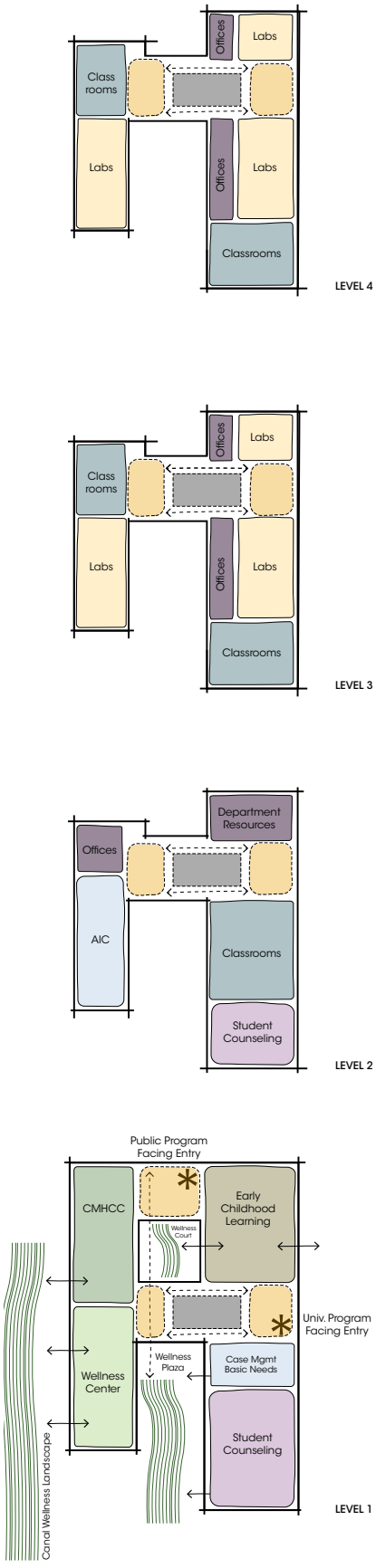
The third program component is how to provide academic excellence within STEM and the sciences by developing contemporary research, teaching, and learning spaces. Approaches to psychology research and scientific inquiry have become more collaborative and interdisciplinary. The siting of the building along with the co-location of research, teaching, wellness, and counseling is intended to spark curiosity in students to explore not only deep research questions but also inquiry based in relationships between other areas of knowledge. The project proposes to significantly improve the instructional capabilities and capacity beyond the existing facilities by providing spaces that directly meet contemporary curriculum and teaching approaches, up-to-date laboratories, appropriate technology, and flexible and adaptable infrastructure. The existing outdated facility does not have the ability to support current cutting-edge science and provide inclusive and equitable education spaces. The preferred alternate further supports collaborative and inter-disciplinary learning environments by locating this new core science research and teaching facility within the STEM centered western edge of campus. The new building has the potential to become a key bridge into and within the sciences as it is well placed adjacent to the main Brooks Library and able to become the northern hub to the western STEM focus edge of the CWU campus.

4.1.2 Occupancy Numbers

Student counseling has seen over 600 patients in 2021 and expects the number to increase in 2022. The wellness center provides services to all students at the university and continues to see growth in attendance for its services and programs. The early Childhood learning Center currently has over 50 children during the academic year and 30 during the summer.

4.1.2.1 Program Space Summary

The building gross square footage is 89,000 square feet with a net assignable area of 62,300 square feet. The assignable building areas break down as follows:



Behavioral & Mental Health Building | Program Diagrams

University Wide Classrooms/Capacity

7,450 SF – General Scheduled Classrooms

5,320 SF – Support/Shared Space

Wellness, Counseling, and Early Childhood Learning

2,580 SF – Wellness Center

6,315 SF – Student Counseling Services

1,800 SF – Case Management

2,330 SF – Basic Needs Center

9,735 SF – Early Childhood Learning Center

Psychology Program

4,050 SF – Community Mental Health Counseling Center (CMHCC)

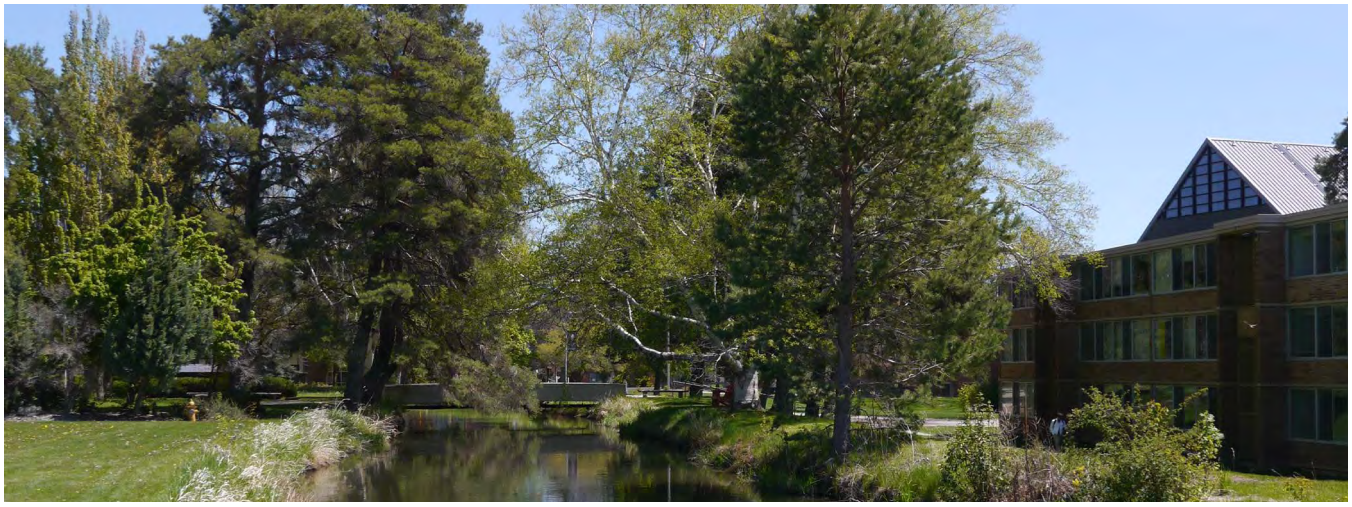
4,650 SF – Academic & Behavioral Assessment & Intervention Center (AIC)

9,675 SF – Psychology department

7,400 SF – Psychology Lab Spaces

The program space summary on the following pages contains a comprehensive breakdown of each space and associated square footages. The quantities, areas, and supporting information contained therein were created with university administrators, staff, faculty, and facilities department in a prospectus and refined through multiple programming workshops with the predesign team. This summary is in alignment with the Facilities Evaluation and Planning Guide.

CWU | Campus



CWU Campus | Canal

SPACE ID	SPACE TITLE	PROVIDED QUANTITY	SQUARE FEET	TOTAL NET SQUARE FEET	REMARKS
1 - PSYCHOLOGY					
1.1	Department Chair	1	175	175	
1.2	Reception/ Secretarial	1	450	450	
1.3	Workroom/Office Service	1	300	300	
1.4	Files/ Instructional Storage	1	200	200	
1.5	Faculty Offices	25	140	3,500	
1.6	Adjunct Offices	5	100	500	
1.7	Graduate/ TA Offices	8	75	600	
1.8	Academic Counselor Offices	2	140	280	
1.9	Engineering Tech Office	1	150	150	
1.1	Shop	1	1,000	1,000	
1.11	Engineering/ Work Rooms	5	125	625	
1.12	In-House Server Room	1	600	600	
1.13	Small Storage Rooms	6	75	450	
1.14	Shared Emeritus Offices	2	150	300	
1.15	Conference/ Seminar Room / Resource Room	1	450	450	
1.16	Large Conference/Department Meeting Room	1	600	600	
1.17	Psychology Club Office	1	140	140	
1.18	Undergraduate / Graduate Student Study Lounge	1	350	350	
1.19	Graduate Student Study Lounge	1	0	0	
1.20	Seminar/ Resource Room	1	0	0	
	Subtotal			10,670	
2 - COMMUNITY MENTAL HEALTH COUNSELING CENTER (CMHCC)					
2.1	Director Office	1	150	150	
2.2	Reception/ Secretarial	1	350	350	
2.3	Graduate Assistant Offices	2	75	150	
2.4	Files/ Material Storage	2	150	300	
2.5	Counseling Rooms (Individual)	4	100	400	
2.6	Large Observation/ Viewing Room	1	400	400	
2.7	Counseling Rooms (Family)	1	250	250	
2.8	Supervision Rooms (Individual)	2	100	200	
2.9	Supervision Rooms (Group)	2	250	500	
2.10	Work Rooms (for report writing)	2	250	500	
2.11	Student Lounge/ Break Room	1	250	250	
2.12	Group Meeting Large Multi-Media	1	350	350	
2.13	Group Meeting Small Multi-Media	1	250	250	
	Subtotal			**4,050**	
3 - ACADEMIC & BEHAVIORAL ASSESSMENT & INTERVENTION CENTER (AIC)					
3.1	Director Office	1	150	150	
3.2	Reception/ Secretarial	1	350	350	
3.3	Graduate Assistant Offices	2	75	150	
3.4	File/Material Storage	2	200	400	
3.5	Large Intervention Rooms (Group)	1	350	350	
3.6	Medium Size Intervention Rooms	4	250	1,000	
3.7	Testing Rooms (Inside AIC)	4	100	400	
3.8	Testing Rooms (Adjacent to AIC)	1	100	100	
3.9	Work Rooms (for report writing)	2	250	500	
3.10	Computer Testing Lab	1	250	250	
3.11	Student Lounge/ Break Room	1	250	250	
3.12	Assessment Room	1	150	150	
3.13	Group Meeting Large Multi-Media	1	350	350	
3.14	Group Meeting Small Multi- Media	1	250	250	
	Subtotal			**4,650**	
4 - PSYCHOLOGY LABORATORY SPACES					
4.1	Facial Expression/Eye Tracking Lab	1	600	600	• Large lab space with 3-4 computer stations and a separate observation area (looks into lab)
4.2	Social Cognition Lab	1	500	500	• Medium lab space with individual cubicles (4-6)/dividers and computers
4.3	Psychological Science/ Data Analytics Computer Lab	1	800	800	• For teaching Statistics/Methods classes • Computer work space for students • Minimum of 20 computer stations
4.4	Brain Dynamic and Cognitive Neuroscience Lab (min 4 rooms)	1	2200	2,200	• Brain Data Acquisition Lab – medium size, for EEG assessment • Brain Data Analysis Lab – medium size, analysis of EEG data, adjacent to Acquisition Lab,2-3 student stations • Cognition Lab – medium/large size for behavioral experiments, 4-5 student stations • Brain Anatomy Lab – similar to a biology lab
4.5	Human Behavior Lab	1	1000	1,000	• 6 student computer stations with observation rooms
4.6	General Experimental Research Lab	1	1800	1,800	• Shared lab space for running subjects • 12-15 small cubicles with observation rooms
4.7	Memory Lab	1	500	500	• 3 student workstations and a small separate office for a research assistant.
	Subtotal			**7,400**	

Program Space Summary, continued on next page

SPACE ID	SPACE TITLE	PROVIDED QUANTITY	SQUARE FEET	TOTAL NET SQUARE FEET	REMARKS
5 - IDS PROGRAM					
5.1	Collaboration/ Waiting	0	250	0	
5.2	Workroom/ Files/ Storage	0	140	0	
5.3	Offices	0	140	0	
	Subtotal			**0**	
6 - STUDENT COUNSELING SERVICES					
6.1	Director Office	4	150	600	
6.2	Reception/ Secretarial/ Waiting	1	350	350	
6.3	Workroom/ Office Service	1	150	150	
6.4	Files/ Storage	2	140	280	
6.5	Therapist/ Staff Offices	18	140	2,520	
6.6	Group Meeting Rooms Multi-Media	2	300	600	
6.7	Staff Lounge/ Kitchenette/ Resource Library	1	450	450	
6.8	Testing Rooms	2	130	260	
6.9	Biofeedback/ Relaxation/ Lightbox Rooms	2	130	260	
6.10	Calming Room	1	125	125	
6.11	Workroom/Group Offices for Peer Ambassadors and Psychometrists	2	300	600	
6.12	ADA Gender Neutral Restroom	2	60	120	
	Subtotal			**6,315**	
7 - WELLNESS CENTER					
7.1	Reception/ Waiting	1	250	250	
7.2	Offices	6	120	720	
7.3	Student Employee Workstation(s)	3	50	150	
7.4	Storage/ Workroom	1	300	300	
7.5	Group Meeting Space/ Classroom	2	400	800	
7.6	Alternative Therapies room (massage, biofeedback, acupuncture, meditation, etc.)	3	100	300	
7.7	ADA Gender Neutral Restroom	1	60	60	
	Subtotal			**2,580**	
8 - CASE MANAGEMENT					
8.1	Staff Offices	6	150	900	
8.2	Intern Workstations	2	50	100	
8.3	Workroom	1	200	200	
8.4	Storage	1	200	200	
8.5	Small Conference Room	1	200	200	
8.6	Reception/ Lobby Waiting Area	1	200	200	
	Subtotal			**1,800**	
9 -BASIC NEEDS CENTER					
9.1	Offices	4	150	600	
9.2	Pantry Space (to include refrigerator/ freezer)	1	450	450	
9.3	Clothing Closet	1	180	180	
9.4	Health/ Hygiene Storage	1	180	180	
9.5	Computer Stations	4	30	120	
9.6	Laundry/ Locker Space	1	250	250	
9.7	Storage	1	300	300	
9.8	Conference/ Presentation Room	1	250	250	
	Subtotal			**2,330**	
10 -GENERAL SCHEDULED CLASSROOMS					
10.1	85 Seat Multi-media Interactive Lecture Room	0	1700	0	
10.2	60 Seat Multi-media Interactive Lecture Room	0	1400	0	
10.3	45 Seat Multi-media Active Classroom	2	1250	2,500	
10.4	36 Seat Multi-media Active Classroom	4	1000	4,000	
10.5	25 Seat Seminar/Video Conference/DE Room	1	650	650	
10.6	Classroom Support Spaces	2	150	300	
	Subtotal			**7,450**	
11 -SUPPORT/SHARED SPACES					
11.1	General Scheduled Meeting/Group Therapy Room (24-hour card access)	1	350	350	
11.2	Student Collaboration Area (24-hour card access)	1	600	600	
11.3	Storage	3	100	300	
11.4	Coffee Bar/Grab and Go Food Venue	1	600	600	
11.5	Enclosed Vending Areas	2	150	300	
11.6	Public Printer Kiosks	2	100	200	
11.7	Recycle Stations	3	130	390	
11.8	LEED Shower/Restrooms	2	110	220	
11.9	ADA Gender Neutral Restrooms	4	60	240	
11.10	Lactation Room	1	120	120	
11.11	Display Areas (In public circulation space)	2	200	400	
11.12	Faculty/Staff Lounge	1	400	400	
11.13	Student Collaboration/Study Areas	3	400	1,200	

Program Space Summary, continued on next page

SPACE ID	SPACE TITLE	PROVIDED QUANTITY	SQUARE FEET	TOTAL NET SQUARE FEET	REMARKS
12 - Early Childhood Learning Center					
12.1	Vestibule	1	60	60	
12.2	Lobby	1	180	180	
12.3	Director Office	1	180	180	
12.4	Staff Office Space	1	900	900	
12.5	Work Room	1	250	250	
12.6	Office Storage	1	75	75	
12.7	Conference Room	1	200	200	
12.8	Infant Classroom	2	600	1,200	
12.9	Toddler Classroom	2	650	1,300	
12.10	Pre-School Classrom	2	650	1,300	
12.11	School Age Classroom	2	650	1,300	
12.12	Classroom Storage	8	75	600	
12.13	Multi-Purpose Space	1	850	850	
12.14	Restrooms	5	160	800	(3) Shared Restrooms between classrooms, one pair at lobby/multi-purpose area
12.15	Shower Facility	1	100	100	
12.16	Staff Restroom	2	60	120	
12.17	General Storage	2	100	200	
12.18	Outdoor Storage	1	120	120	
	Subtotal			**9,735**	
	Assignable Building Area (sq. ft.)			**62,300**	
	Efficiency Factor (Corridors, Walls, Toilets, etc.)			26,700	
	Gross Building Area (sq. ft.)			**89,000**	

4.1.3 Building Configuration

The project is envisioned as a four-story mass timber structure to support psychology research labs, interdisciplinary teaching and learning spaces, as well as an array of wellness and counseling services. The building configuration is influenced by two of the goals outlined in previous sections. First, is to develop a welcoming and supportive interconnected grouping of wellness, counseling, and student support services. Second, is to promote interdisciplinary and collaborative research, classrooms, and collaborative learning areas on each floor.

The first floor and portions of the second floor are configured to support the CWU student wellness center, student counseling center, early childhood learning, and the CMHCC and AIC centers. These are located on the lower floors to provide a low barrier of entry for these critical services as well as a meaningful connection to the landscape and ecology. This configuration also provides a high level of visibility to students and public visitors as the seek and/or consider engaging these services.

The upper floors of the building are configured to support contemporary teaching and learning models which support peer-to-peer collaboration, exposure to the scientific research and methods, and faculty mentors and advisors. This is accomplished by locating a mix of classrooms, psychology faculty and department spaces, and research labs on each of the second, third and fourth floors.

Each of the floor plates for this project are sized to maximize the availability of daylight and access to views of nature. Recent psychological research has shown that spending time in nature or having access a visual connection to the natural environment reduces stress and contributes to attention restoration. These connections will have tangible benefits for the building's full-time occupants, students, and persons receiving counseling. Research in this area abounds for childhood development as well and outdoor play is in fact required for certification of the Early Childhood Learning center. Beyond creating these physical connections, the project utilizes mass timber as a primary structural component for floor, shear wall and column components. This use of wood provides a similar biophilia response by placing the natural material throughout the building in all environments. This material serves both as a psychological benefit and aligns with the University's goals of reduction in greenhouse gas emissions by greatly reducing the embodied carbon of the building's structure.

CWU | Campus

4.1.4 Space Needs Assessment

The new 89,019 square foot Behavioral and Mental Health Center is proposed to replace 90,470 GSF of space spread across seven campus buildings.

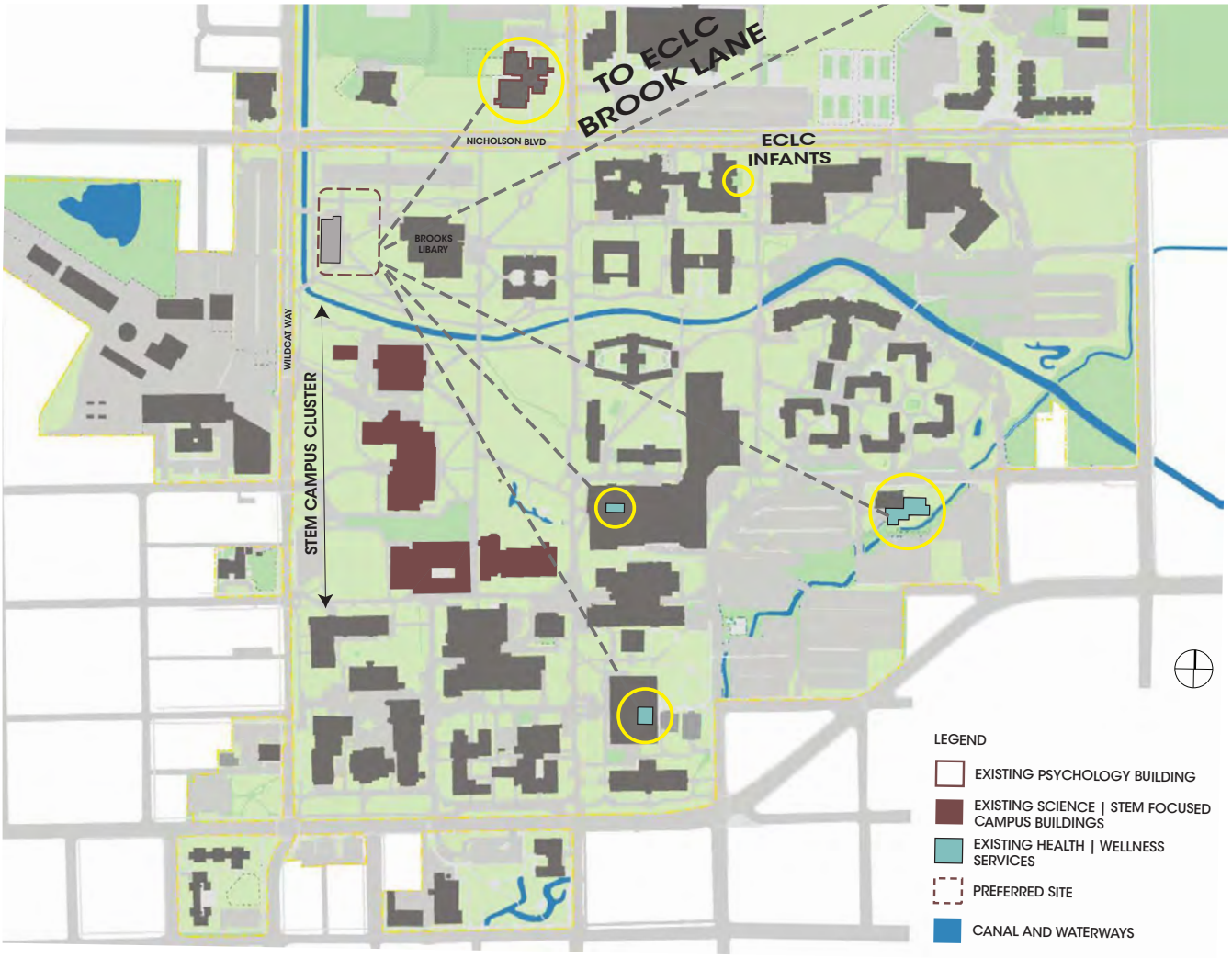
Current Space Use Approximately 90,470GSF

- 866 GSF – Wellness Center
- 4,100 GSF – Student Counseling Services/Community Mental Health
- 1,620 SF – Case Management
- 1,020 GSF – Basic Needs Center
- 7,800 GSF – Early Childhood Learning Center
- 75,064 GSF – Psychology

Co-locating these programs will reduce redundancy and inefficiency between the multiple buildings and allow for needed space to be returned to other programs on campus.

4.2 Site Analysis

While the existing site was considered for the replacement project, the Existing Farrell Hall site is preferred. This site has multiple opportunities for improved student and community access while bringing the student support services offered closer to the center of campus. The psychology department also prefers adjacency to the science neighborhood for collaboration with other university programs and departments.



To help shelter entries and outdoor space from inclement weather. Drop off and pedestrian zones are oriented to allow good southern access to assist with winter snow melt.

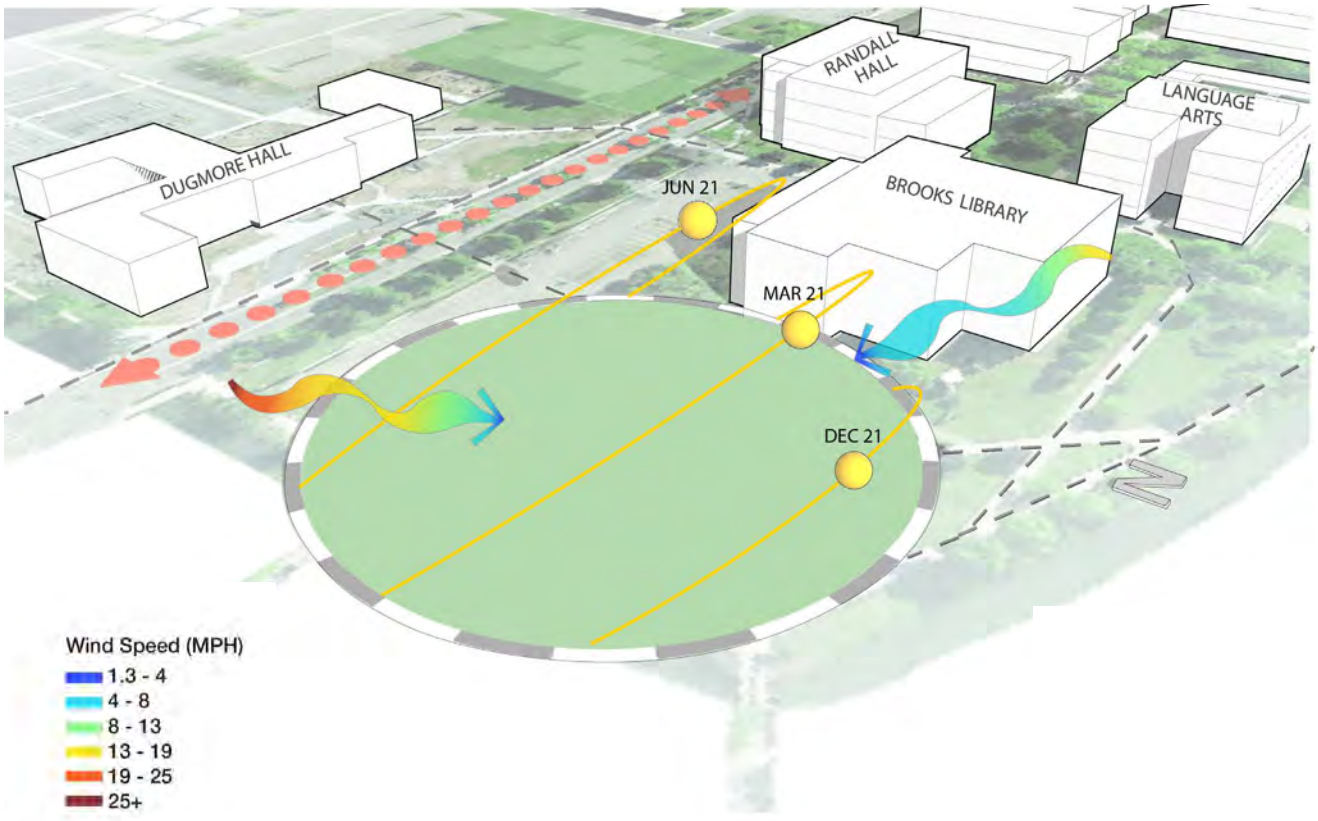
4.2.1 Location

The Farrell Hall site is located immediately west of the Brooks library and adjacent to a parking lot along Nicholson boulevard. This site allows good visibility and parking access for the clinics and which offer public-facing services. This access will also be required by the Early Childhood Learning Center for drop-off and pickup of children in the programs. The current Farrell Hall building is scheduled to be demolished by a project currently in design and demolition will be complete prior the start date of construction for the Behavioral and Mental Health building. Locating south of Nicholson Blvd places the new building in the campus core and reduces barriers to student access of wellness and mental health services. This location is also physically closer to central plant services as well as a planned future ground source heat pump loop creating lower utility infrastructure costs. Rather than utilizing the current psychology building or site, this replacement project allows for all programs in the facility to maintain their existing locations until the new space is complete.

4.2.2 Site Studies

The college is in the process of procuring the following site studies, which are scheduled to be complete at the start of the Schematic Design phase:

- Environmental Survey Assessment
- Site Topographical & Utility Survey
- Geo technical Survey
- Traffic Impact Study



Site Solar & Wind Study

4.2.2-1 Solar and Wind Studies

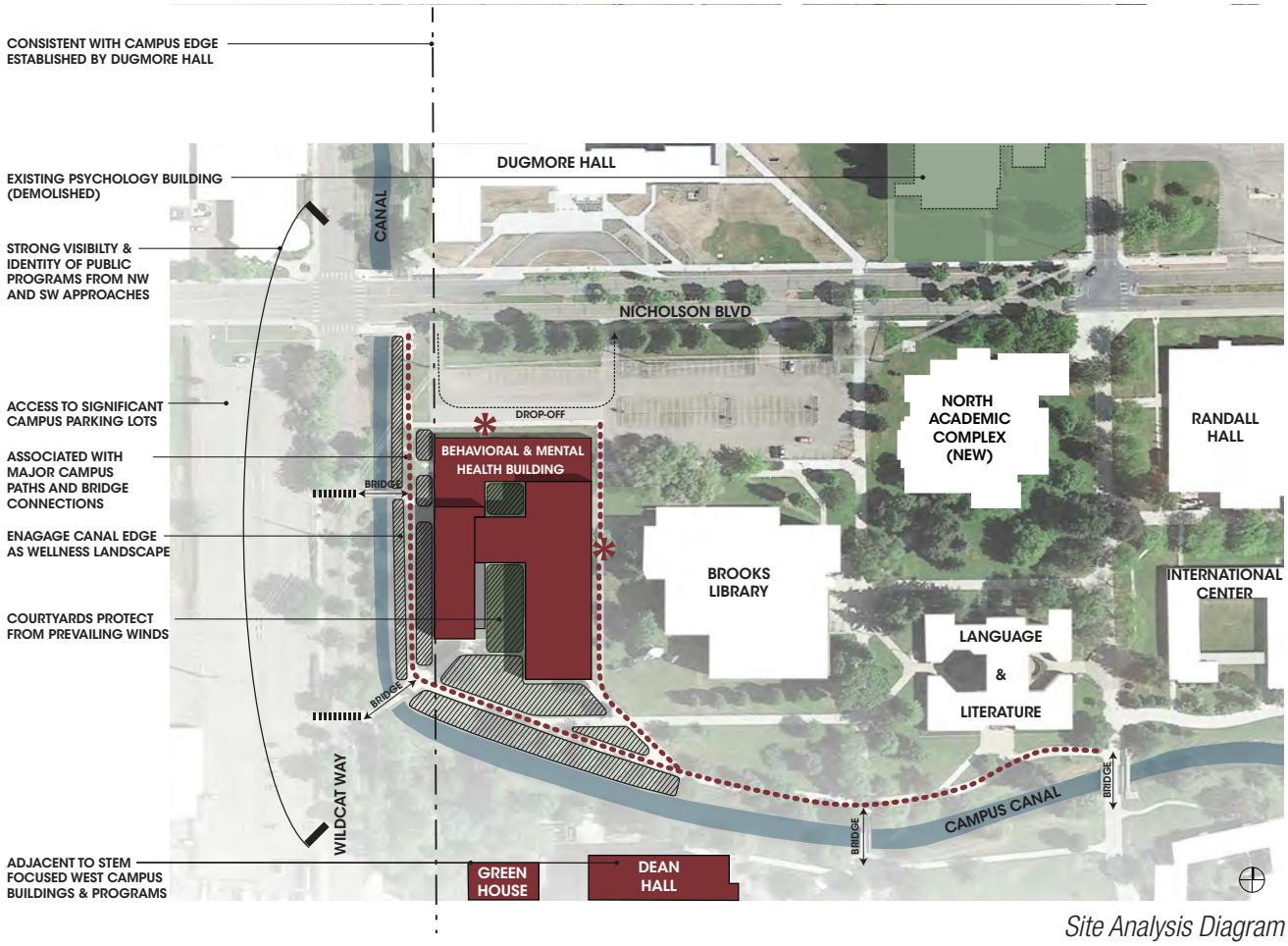
Ellensburg Washington experiences a variety of dramatic weather changes throughout the year and features 204 days of sun and strong seasonal prevailing winds primarily south and west during the summer and north and west during the winter. The Farrell hall site has excellent solar access to the south for the proposed photo voltaic system. The building and landscape features will allow the structure to help shelter entries and outdoor space from inclement weather. Dropoff and pedestrian zones are oriented to allow good southern access to assist with winter snow melt.

4.2.3 Building and Site Relationship

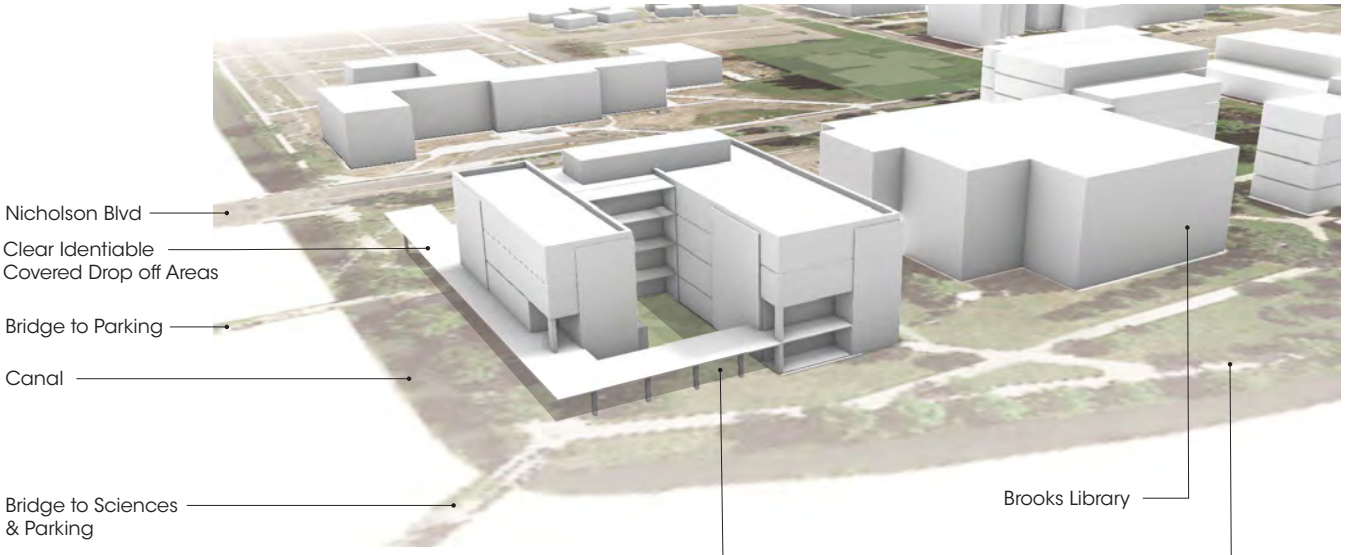
The new Behavioral and Mental Health Building is able to develop key site relationships which go beyond access opportunities outlined in the previous location section.

Key relationships include:

- The building location maintains and strengthens a primary view corridor along the north edge of the canal as a campus entry from the west.
- It further defines a campus sequence of buildings along the canal as students walking along the new building, Dean Hall and Brooks Library before arriving at the central campus lawn.
- An additional visual campus relationship is the opportunity to create a more defined implied transition to campus between Dugmore Hall across Nicholson Boulevard.
- The canal to the south and west of the building provides a strong relationship to nature and landscape to support the first and second floor counseling and wellness spaces. The predesign establishes both open landscape areas as well as more defined courtyards to provide both privacy and quiet spaces as well as expanded landscape areas. The close relationship and presence of local flora and fauna associated with the canal water flows to the building are strongly supported by the program stakeholders.
- The outdoor play spaces of the Early Childhood Learning Center are located along the wind-protected east side of the building while maintaining good solar access for winter play. These spaces have direct access from classrooms and are screened visually from the campus walkways with fencing and landscaping.
- The Predesign sets up appropriate building scales to relate to both adjacent campus buildings and to provide an approachable scale from the north for the wide age range of people who are arriving from the north. The 4-story height of the building is established to create a scale/height relationship to the Brooks library directly to the east. By extending a 1-story wing of the building to the north the entries and scales can best relate to the various kids and parents participating in the public counseling and Childhood centers.



Site Analysis Diagram



Massing Model

4.2.4 Water Rights and Availability

Water service for the project will be connected to the existing Central Washington University water system. The CWU water system is supplied by the Ellensburg Water Company. There are no known capacity issues and the system is expected to provide the water needs of the proposed improvements. Water can be provide by the existing 8-in water main along the north side of the site, south of the parking lot.

4.2.5 Storm Water Requirements

Storm water discharge rates and water quality treatment may be required for this new facility. The state storm water code adopted by the City of Ellensburg allows the use of existing site coverage (roofs and paving) to be counted towards existing conditions. The coverage of Farrell Hall will be used toward the flow control requirement of the new North Campus Academic Center. The demolition of the old Psychology building could be applied toward the coverage needed for this building, so long as that site is restored in landscape, and remains in that condition.

If flow control requirements are triggered by this site, preliminary review of the site and the proposed development indicate that the most economical storm water detention system would be a below grade vault or tank (large diameter pipe). The size of the detention tank/vault would need to have an approximate volume of 1,000 CF which is based on the 25-year/24-hour storm in the region. Storm water runoff from the development will be collected and conveyed to the detention pipe via 8-inch storm drainage pipes. A control structure will release the runoff from the detention pipe at acceptable release rates prior to discharge to the existing campus storm system. Alternative methods may also be employed to reduce the size or eliminate the underground detention facility, such as infiltration trenches, or rain gardens.

New parking may be required somewhere on campus to allow for areas of the P-8 parking lot to be dedicated to Psychology uses. Parking lots are classified as impervious, pollution-generating surfaces in which the storm water from parking lots require storm water treatment and flow control. If new parking must be created to accommodate shifts created by this building, both flow control and water quality treatment must be provided for new pavements. An acceptable means of treatment include bio filtration-swales, coalescing plate oil/water separator, and other methods described in the Department of Ecology, Storm water Management Manual for Eastern Washington.

Footing drains will be provided around the perimeter structural footing system. Perforated plastic pipes will be placed such that the highest invert is below the bottom of footing. The pipes will be installed with a minimum of six inches of free draining material and wrapped in filter fabric.

4.2.6 Site Ownership, Easements and Acquisition

The proposed project work area is located entirely within the existing Central Washington University Campus on parcel number 143534 owned by the State of Washington. The northern portion of the parcel is bordered on the west by the Ellensburg Water Company “Town Canal”. The canal also bisects the parcel along the south boundary of the proposed work area.

Located on the site of existing Farrell Hall, near the intersection of Dean Nicholson Blvd (DNB) and N Wildcat Way, and adjacent to the Town Irrigation Canal, this relatively level site will be available after the completion of the North Academic Center and demolition of Farrell Hall.

Proposed development would consist of a 4-story building west of the Brooks Library, and south of the P-8 parking lot. The Town Canal wraps around the west and south sides of the 1.8-acre site. There is no direct frontage on City streets for this site, vehicular access would be through the adjacent parking. Deliveries and trash staging should be located in the north end of the building, an existing loading/service area at the west end of the library (northeast corner of the site) could be shared with that facility.

4.2.10 Setback Requirements

At this time, based on research done for development of the North Academic Center, and existing street conditions, no City required frontage improvements are anticipated.

4.2.11 Potential Issues with the Surrounding Neighborhood

The preferred site is located entirely with the boundaries of the Central Washington University campus. As the project is located along the edge of the campus core, construction will impact only minor periphery campus circulation. The adjacent irrigation canal will be protected from construction sediment and erosion with the required measures.

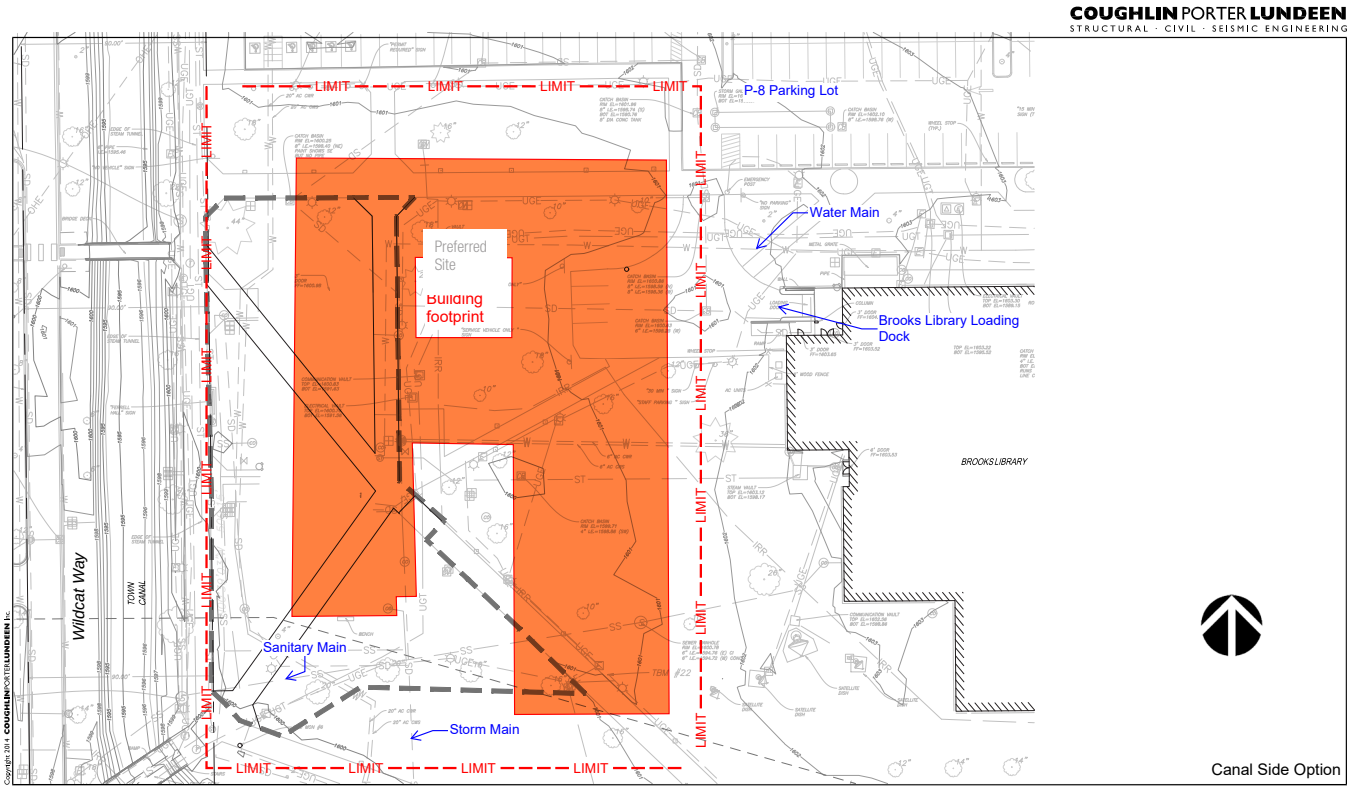
4.2.12 Utilities

Utility	Location of utility in respect to Existing Building			
	North	South	East	West
Gas System	X			
Irrigation System	X	X	X	X
Sanitary Sewer System		X		
Storm Sewer System		X		X
Water System	X			

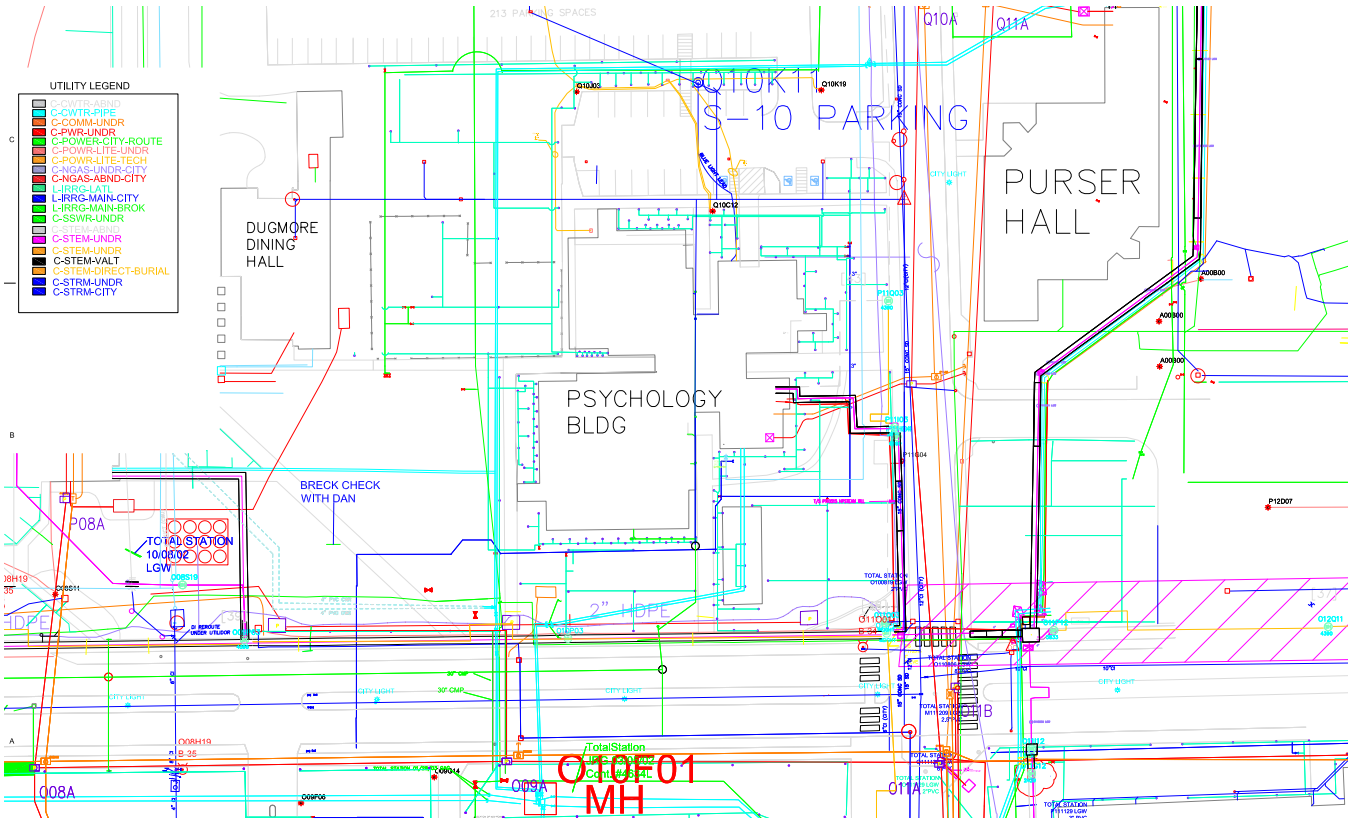
Excavation

This proposed site is relatively level, a foot or less fall from north to south, and only about two foot of grade change from the library to the canal edge. Demolition of Farrell Hall will leave the site ready for excavation of foundations of a new building.

Current building design does not include any below grade space. Extensive site grading is not anticipated. Any excavated material will be removed from the site and disposed of at an approved location in conformance with local and state regulations. The site should be designed to minimize export of on-site soils or import of structural fill.



4.2.12 Civil Documents



Underground Utilities Overview

The preferred site is served by the following utilities, by either the University or the City of Ellensburg. All should be available at the site for connection to the proposed building. See mechanical narrative for added information regarding anticipated Low Temperature Heating Water, Chilled Water, Power and Communications requirements.

- Campus chilled water is readily available on the west and north edges of the site. The new building will connect the campus system with 6" branch piping.
- Low temperature heating water will connect to the planned geothermal heating plant located, See Appendix 6.12
- Buried campus owned primary power lines traverse the southern and eastern boundaries of the site. The exiting lines do not appear to be in conflict with the location of the building. New buried primary service lines will be installed to extend the existing campus infrastructure for service to the building.
- Buried communications lines traverse the southern and eastern boundaries of the site. The exiting lines do not appear to be in conflict with the location of the building. New buried communication service lines will be installed to extend the existing campus infrastructure for service to the building.
- The current preferred location of the new building will require minor relocation of some of these utilities to maintain connection to other parts of the campus. Deeper study of this area would be required with a more detailed design of the building.

SANITARY SEWER SERVICE

The existing site is currently served by an existing 6-inch side sewer located on the south side of the Farrell Hall. We recommend that the existing side sewer be inspected and cleaned if it is proposed to be re-used, it may require lining. The larger building may require a larger sewer connection, or multiple pipes from the building.

STORM WATER CONTROL

Storm water discharge rates and water quality treatment may be required for this new facility. The state storm water code adopted by the City of Ellensburg allows the use of existing site coverage (roofs and paving) to be counted towards existing conditions. If the new building footprint is less than or equal to the existing building, then no flow control will be required for redevelopment of this site.

If flow control requirements are triggered by a larger footprint building and paving on this site, preliminary review of the site and the proposed development indicate that the most economical storm water detention system would be a below grade vault or tank (large diameter pipe). The size of the detention tank/vault would need to have an approximate volume of 500-CF of existing site coverage, based on the 25-year/24-hour storm in the region. Storm water runoff from the development will be collected and conveyed to the detention pipe via 8-inch storm drainage pipes. A control structure will release the runoff from the detention pipe at acceptable release rates prior to discharge to the existing campus storm system. Alternative methods may also be employed to reduce the size or eliminate the underground detention facility, such as infiltration trenches, or rain gardens.

New parking may be required somewhere on campus to allow for areas of the P-10 parking lot to be dedicated to Psychology uses. Parking lots are classified as impervious, pollution-generating surfaces in which the storm water from parking lots require storm water treatment and flow control. If new parking must be created to accommodate shifts created by this building, both flow control and water quality treatment must be provided for new pavements, acceptable means of treatment include bio filtration-swales, coalescing plate oil/water separator, and other methods described in the Department of Ecology, Storm water Management Manual for Eastern Washington.

Footing drains will be provided around the perimeter structural footing system. Perforated plastic pipes will be placed such that the highest invert is below the bottom of footing. The pipes will be installed with a minimum of six inches of free draining material and wrapped in filter fabric.

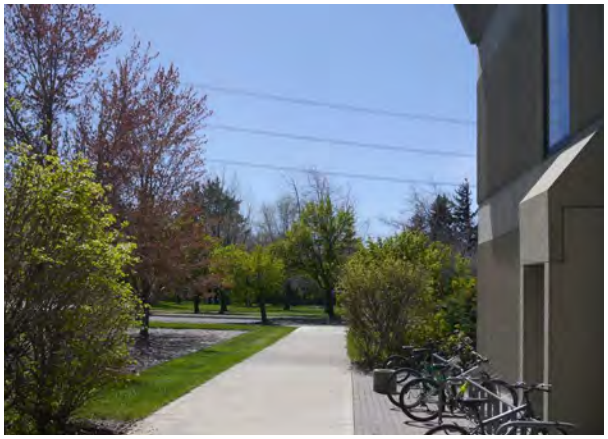
FIRE AND DOMESTIC WATER SERVICE

Fire service is assumed to be satisfied by the fire hydrants located both west and north of the existing Farrell Hall. Water can be provide by the existing 8-in water main along the north side of the site, south of the parking lot.

BEST MANAGEMENT PRACTICE'S (BPM'S)

During construction, to control sediment and storm water the site will be required to use and maintain Best Management Practices for soil and surface water. Best Management Practice's (BMP's) are defined as physical, structural, and/or managerial practices that, when used singularly or in combination, prevent or reduce pollution of water caused by construction activities. The proposed project will be an open excavation type construction for the new building. Construction access

Psychology Building



Psychology Building Entry | Bike Racks

South Facing Towards English Department

will need to be closely monitored into and out of this area. Truck washing stations will need to be constructed as needed in the vicinity of the open excavation during earthwork activities. Entrance and egress of the construction area for equipment will be via rock construction exits or ATB working surfaces. Catch basin protection will need to be used on existing and new catch basins. Site runoff will be conveyed through interceptor swales located near the toe of excavations to convey runoff to a temporary sediment pond with a movable 55-gallon drum. The movable 55-gallon drum can be placed anywhere along the bottom of the excavation and positioned to collect silt laden runoff. Clean water can then be pumped from the drum and/or sediment ponds into the existing storm drainage system.

The proposed building and site appear as if it may exceed 1-acre of disturbed soils to complete the project. If so, the project will require to obtain coverage under the State Construction Storm water General Permit, issued by the Department of Ecology. The conditions of this permit require added monitoring, record keeping and reporting in addition to the practices above.

It is likely that the west end of the P-8 parking lot will be needed for construction access, trailers, laydown and staging. The effects of this need should be reflected in the planning.

During construction, a smaller parking area will be available for the campus community using other nearby buildings. In addition, the existing paving will likely be worn excessively by heavier traffic, likely requiring pavement repair and restoration for at least the western portion of this lot at project conclusion.

4.2.13 Potential Environmental Impacts

The site is currently fully developed with a mix of hardscape, building, and green space. The existing landscape planting buffers along the town canal will be maintained while the proposed building footprint will be larger than the existing Farrell Hall.
There is no known soil contamination on site.
There are no known wetlands on site.

The project is located outside of the FEMA flood plain zones common to the City of Ellensburg.

4.2.14 Parking and Access Analysis

Vehicle access for the Behavioral and Mental Health Building will be available through the existing P-8 parking lot to the north of the building and located along Dean Nicholson Boulevard. This parking lot and the entry will require improvement associated with this project. It will also be impacted by the planned North Academic complex. It is expected that the Behavioral and Mental Health Building will displace 25-30 parking spaces. These spaces can be replaced on the existing Psychology building site after demolition. The smaller service parking lot for that building will likely be demolished and replaced with more suitable facilities.

The reconfigured parking lot for the Behavioral and Mental Health building will also include a drop off zone/lane with one way traffic for parents accessing the Early Childhood Learning Center and for patient drop-off for one of the counseling centers.

4.2.15 Impact on Surroundings During Construction

It is anticipated that the construction lay-down area and building construction phasing will be limited to the project site and a portion of the parking area. Access to parking for the Brooks Library will be coordinated to maintain accessible parking and service access as necessary. Temporary campus pathway disruptions may be necessary for the installation of utilities. Demolition of the existing Psychology Building is expected to impact only the primary site and it's service drive and parking area. A short-term reduction in parking capacity of approximately 50-60 spaces is anticipated during construction and demolition phases.

4.3 Consistency with Applicable Long-Term Plans

The Behavioral and Mental Health Facility has long been a component within CWU"s long-term plans and is specifically cited as part of CWU's 2019-2029 Capital Master Plan under the "Facility Priorities: Teaching and Learning." (See Appendix 6.6 for excerpt)

The Capital Master Plan supports the University's mission, vision, and values within the strategic plan and includes five core themes: Teaching and Learning, Inclusivity and Diversity, Scholarship and Creative Expression, Public Service and Community Engagement, and Resource Development and Stewardship. From its conception, the Behavioral and Mental Health Facility has strategically been framed to address four of the five core themes at CWU and is a key element in addressing the University's holistic approach to wellness and services for CWU students, faculty, and the surrounding community. The University will be undergoing an evaluation/updates of the Capital Master Plan in 2023-2024.

CORE THEMES

Teaching and Learning

- Student success is best achieved by providing supportive learning and living environments that encourage intellectual inquiry, exploration, and applications in environments where mentoring, advising, and learning can all interact.

- The Behavioral and Mental Health Facility will house the Psychology program, Counseling Center, Wellness Center, Case Management Department and Basic Needs Center in a single building location. This alignment will allow for enhanced collaboration between real-life and academia ensuring a rich and translatable experience for CWU students as they enter the work force.

Inclusivity and Diversity

- Diversity of peoples, cultures, and ideas is essential to learning, discovery, and creative expressions. All faculty staff and students must be and feel physically, professional, and emotionally safe in order to fully engage in and benefit from the University experience.

- By replacing the current imposing Psychology Building with a welcoming, adaptable environment that encourages users to access the amenities available, the Behavioral and Mental Health Facility advances CWU's inclusivity and diversity goals exponentially. Collaboration and patient management will now be centralized allowing for confidential, comfortable, easy to access spaces for patient care and essential resources.

Public Service and Community Engagement

- CWU believes that learning, research, and creative expression are enhanced by engagement with external partners. As a publicly funded institution, CWU also has a responsibility to help address the social and economic challenges faced by our communities.

- The Behavioral and Mental Health Facility provides CWU with a unique opportunity to collocate a variety of programs and services currently spread across campus, improving access for faculty, staff, and students through a single, accessible location. The facility also includes child-care and counseling components which will be available to the Ellensburg community, further reinforcing CWU's ability to promote inclusivity and diversity in the conception of the project.

Resource Development and Stewardship

- Key goals for CWU to enhance stewardship and more effectively utilize resources include a holistic approach to life cycle costing, as well as the ability to address deferred maintenance backlog, improve the energy efficiency of facilities and operations, and increase access to metrics and data to effectively benchmark progress over time.

- The existing Psychology Building presents a number of impediments to CWU's careful stewardship of resources. The facility cannot meet the requirements of current seismic, life safety, accessibility, or energy efficiency codes. As a result of these deficiencies, the rigid construction method, and the deferred maintenance backlog of items that continues to grow in the facility, the existing Psychology Building is at the end of its useful life and can no longer meet the needs of the campus or the surrounding community. Replacement with a state-of-the-art, safe, and attractive facility will enhance the working and learning environments of faculty, staff, students, and the surrounding community. The Behavioral and Mental Health Building will not only serve as a physical example CWU's values but will also greatly reduce the long-term impacts of resource utilization.

4.4 Regulatory Factors

4.4.1 Performance Public Buildings

High Performance Buildings (Chapter 39.35D RCW)

Central Washington University has a proven track dating back since 2007 of designing, building and operating high-performance sustainable buildings using the LEED rating system. This project will select design consultants who embody CWU's sustainability objectives. This building will be designed, constructed, and certified to the LEED Silver Standard, as a Minimum, in accordance with RCW 39.35D but CWU has consistently accomplished sustainable buildings at higher levels up to LEED platinum certification. A LEED Checklist, outlining a preliminary approach, has been included in the Appendix 6.5, LEED checklist.

4.4.2 Zero Energy Buildings

State Efficiency and Environmental Performance (Executive Order 20-01)

The Governor's Executive Order 20-01 mandates high performance buildings for reduction of greenhouse gases, reduction of pollutants from fossil fuels, and the use of clean energy when technically feasible. CWU recognizes that the costs of constructing zero energy or zero energy capable buildings is becoming closer to that of conventional buildings and will continue to advance their building construction towards this mandate using life-cycle cost analysis tools for decision making in the design process. See Appendix 6.7 for CWU's Greenhouse Gas Emissions Report.

CWU has adopted an energy policy that supports the educational mission of the university, since the educational process is dependent upon a controlled environment, which utilizes energy. It is structured to provide adequate environmental quality while minimizing expenditures of energy. See CWU's Greenhouse Gas Emissions Reduction Strategy Report for specific energy policy details.

4.4.3 Clean Building Act

State Energy Standards for Clean Buildings (RCW 19.27 A.210)

The State Department of Commerce, through RCW 19.27A.210, has developed standards for reducing greenhouse gas emissions from the building sector as published in the Washington State Clean Buildings Performance Standard (2021). The Clean Building Standard has established energy use intensity targets. Additionally, the recently adopted 2021 Edition of the Washington State Energy Code will go into effect in July of 2023. This building will be in compliance with both the Clean Building Standard and the State Energy Code in place at the time the building is permitted. With outcome based targets, increasing more stringent energy code requirements and mandated elimination of fossil fuels, public facilities will be on pace to achieve reductions of energy and associated greenhouse gas emissions as established for the State in the Greenhouse Gas Emissions Policy.

The energy policy supports the educational mission of the university, since the educational process is dependent upon a controlled environment, which utilizes energy. It is structured to provide adequate environmental quality while minimizing expenditures of energy. See Appendix 6.7 for specific energy policy details. See CWU's Greenhouse Gas Emissions Reduction Strategy Report for specific energy policy details.

4.4.4 Vehicle Charging Capabilities

Vehicle Charge Capability (RCW 19.27.540)

Where new parking is provided at the building, infrastructure for electric vehicle charging stations shall be provided for 10% of the offices in the building. The electric vehicle charging station infrastructure shall meet Level 2 charging capacity requirements with each charger rated for 40 amps at 208V, 1PH. See appendix 6.7.

4.4.5 Greenhouse Gas Reduction

4.4.5-1 State Limits

Greenhouse Gas Emissions Policy (RCW 70.235.070, updated to RCW 70A.45.070)

The referenced Revised Code of Washington regarding the greenhouse gas emissions reductions requires all state agencies to reduce greenhouse gas emissions as follows:

i. By 2020 to 1990 levels.

ii. By 2030 to forty-five percent below 1990 levels.

iii. By 2040 to seventy percent below 1990 levels.

iv. By 2050 to ninety-five percent below 1990 levels or five million metric tons.

A key part of the University's strategy toward reducing greenhouse gas emissions is the reduction in the use of fossil fuels for building energy and power. This inclusion of energy-conserving HVAC and electrical systems in this proposed new facility is the best way for the project to assist in the goal of reducing overall campus use of fossil fuels. Since major capital projects are typically the greatest consumers of energy on a campus, discovering ways to make the new facility a lower energy consumer will be especially significant.

This project intends to comply with these goals first by reducing energy use through sensible building optimization strategies and energy conserving mechanical and electrical systems. Secondarily this project will not utilize fossil fuels in the primary heating and cooling of this building. Also, this project will comply with the recently adopted energy code and will utilize a newly planned central campus geothermal heat pump heating water system for heating, localized heat pumps for domestic hot water, and chilled water from a high efficiency central campus chilled water system.

4.4.5-2 Vehicle Mile Reduction

The project is located within the pedestrian walkway system of Central Washington University and will comply with the University's transportation policy and green house reduction plan, (See Appendix 6.7).

4.4.5-3 Federal Emissions Reduction Requirements

There are no known applicable federal emissions reduction requirements.

4.4.6 Archaeological and Cultural Resources

In adherence with Washington State Order 05-05 and Section 106 of the National Historic Preservation Act of 1966, CWU has initiated consultation with the Washington State Department of Archaeology and Historic Preservation (DAHP) and Governor's Office of Indian Affairs (GOIA). The university is committed to working with DAHP and GOIA throughout the design phase to address historical and cultural resource impacts this proposed project may identify. All proposed construction will be on previously disturbed ground, therefore we do not anticipate any archaeological resources will be uncovered as part of the work. Project specifications will include requirements for an Inadvertent Discovery Plan (IDP) should any artifacts or remains be discovered during excavation.

4.4.7 Americans with Disabilities Act

The purpose of the Americans with Disability Act is to prohibit discrimination based on disability in employment, State and local government, public accommodations, commercial facilities, transportation, and telecommunications. ADA Title II requires that State and local governments provide people with disabilities an equal opportunity to benefit from all the programs, services, and activities (e.g., public education, employment, transportation, recreation, health care, social services, courts, voting and town meetings). This project will adhere to the State requirements for ADA.

This project provides ADA parking spaces complete with new ADA compliant walkways/ramps which connect to the building main entrance as well as back to the campus center.

4.4.8 Planning Compliance

City of Ellensburg, Comprehensive Plan.

4.4.9 Information Required by RCW 43.88.03.01(1)

The new Behavioral & Mental Health Building is planned in accordance with the Growth Management Act (GMA) RCW 36.70A as required by RCW 43.88.0301(1). The proposed project fully complies with the city's comprehensive plan and zoning codes.

4.4.10 Other Codes or Regulations

City of Ellensburg Comprehensive Plan

Washington State Environmental Policy Act (SEPA)

State of Washington Department of General Administration – Leadership in Energy and Environmental Design (LEED) – Quality Assurance Process Guidelines for State Agency/College and University Facilities.

4.5 Problems Requiring Further Study

A geotechnical study should be completed prior to start of design. The Kittitas valley consists of primarily glacial alluvium with an inconsistent variety of gravels, cobbles, silt and clay which can vary greatly across project sites. This predesign assumes some level of soil remediation such as over-excavation and geo-piers to provide appropriate bearing pressures.

Geothermal Infrastructure Study:

As part of a separate project, Central Washington University will be building a new open source geothermal heating plant. The heating plant will generate heating hot water for building heating and domestic hot water generation. Funding for this new central plant will be requested separately from this project, and is the primary source of heating and domestic hot water generation for this project. (See Appendix 6.12 CWU Open Loop Geothermal Feasibility Report). If this central plant is not funded alongside this project, an alternative means of heating and domestic hot water generation for the building will be required but can be accommodated within the project budget.

4.6 Requirements In Excess of the Code

CWU sustainability standard is a minimum of LEED Gold.

4.7 Technology Infrastructure Investments

Campus owned outside plant cabling will be provided to the building from the existing campus IT infrastructure. New site communications pathways will be provided to connect the new facility to the existing site utility pathways near the site. Communications rooms will be located throughout the new facility in accordance with EIA/TIA 568 and 569. The main telecom room will be centrally located on the ground level of the building. Additional secondary communications rooms will be provided as needed to ensure that all station cabling distances will be less than 295 feet from the nearest closet. Cable trays will be provided at accessible ceilings on each floor to support horizontal cabling distribution.

4.8 Security

The proposed site for the preferred alternative is within the existing campus and will be subject to the existing campus security protocols. Several building programs do however dictate additional physical security measures.

Student Counseling Center (SCC):

- Requires separate exterior entry
- Screened or separated lobby for privacy
- Separated internal circulation for staff and patients
- Provide safe space for emergency workers to access and assist students in crisis

Early Childhood Learning Center (ECLC):

- Clear site lines to drop-off and pickup zones in parking area
- Secure entry with card-reader access for parents and staff
- Secure fencing for outdoor play areas with appropriate screening from public way
- Separation of interior building circulation from ECLC

Community Mental Health Counseling Center (CMHCC):

- Requires separate exterior entry
- Screened or separated lobby for privacy
- Separation from ECLC for patients in court-mandated programs
- Separated internal circulation for staff and patients

Academic and Behavioral Assessment and Intervention Center (AIC):

- Serves minor children, requires controlled access & separate circulation

Psychology Laboratory Spaces & Workshop

- Controlled access is required for the integrity of research
- Workshop access is restricted to authorized and safety-trained personnel

4.9 Commissioning

A third-party commissioning agent, hired directly by the Central Washington University, will conduct the project commissioning in compliance with WAC 51-115C-4801 and LEED requirements for energy and water-consuming systems. The consultant will be a member of the Building commissioning Association and the U.S. Green Building Council. The consultant will act as the University's Commissioning Authority for the project. The commissioning services will enhance the facility's value, increase maintainability, save energy, and improve indoor environmental quality and comfort for the building occupants. In addition to the commissioning requirements identified in the Washington State Energy code, the commissioning agent will have the responsibilities of:

- Development of a commissioning plan.
- Identification of all the roles of the project members, including the University, the Architect/Engineering Consultants, sub-consultants, contractors, and sub-contractors.
- The plan will identify the needs of Central Washington University to ensure that functional building requirements are met and to establish the project design intent.
- The commissioning process will begin in the early phases of design and continue through construction to final completion, final Commissioning services will include but not be limited to the following areas of the building operations: energy monitoring, building automation and energy management systems, heating, ventilating and air conditioning systems, light controls, plumbing, domestic heating water system, HVAC heating and cooling systems, building enclosure, and renewable power systems.

4.10 Future Phasing

The proposed project includes the necessary areas for the included programs and does not assume any future phasing.

4.11 Project Delivery Methods

4.11.1 Delivery Method Comparison

The project is not pursuing an alternative delivery method. The proposed project does not meet the GCCM or Design Build requirements outlined in RCW 39.10. Both of these delivery methods can be effective, but they would incur additional preconstruction fees for contractor involvement early in the design. These delivery methods also require a more involved owner who is experienced and committed to the alternative method.

The project will use the Design-Bid-Build (DBB) project delivery method per RCW 39.04 – Public works. This is the delivery method that is most frequently used by Washington State Community and Technical Colleges. The university is familiar and experienced with this delivery method and has found that it has been the most cost-effective by promoting competitive bidding between interested general contractors and subcontractors.

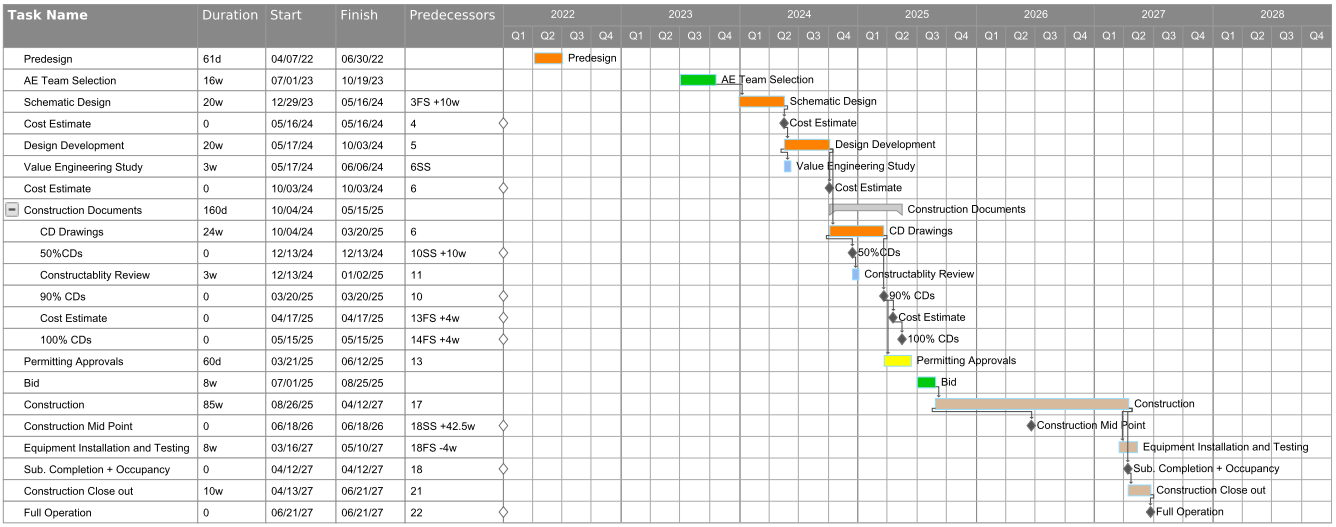
4.11.2 Management Organization Within the Agency

The university's Capital Planning and Projects (CPP) division under the Office of Operations will manage all aspects of the project from programming and initial budgeting the proposed project to the initial selection of the project architect/engineer(A/E) consultant design team and throughout the subsequent design, bidding, construction, commissioning, and warranty phases. CPP project management team will oversee the required contractual administration for the project architect/engineer (A/E) consultants and public works contractors. The CPP team is responsible to work closely with the university's administration, the design team, and the contractors to ensure the project is delivered on time and within budget. The project management/contract administration team has overseen every state and university-funded major capital projects over the past two decades, delivering each respective project on time with no cost overruns. The cost for the university's project management of the project design and construction phases is included in the Project Cost Estimate form in the Project Budget Analysis section of this report.

4.12 Schedule

4.12.1 Milestone Schedule

	Task Name	Duration	Start	Finish	Predecessors
2	Predesign	61d	04/07/22	06/30/22	
3	AE Team Selection	16w	07/01/23	10/19/23	
4	Schematic Design	20w	12/29/23	05/16/24	3FS +10w
5	Cost Estimate	0	05/16/24	05/16/24	4
6	Design Development	20w	05/17/24	10/03/24	5
7	Value Engineering Study	3w	05/17/24	06/06/24	6SS
8	Cost Estimate	0	10/03/24	10/03/24	6
9	Construction Documents	160d	10/04/24	05/15/25	
0	CD Drawings	24w	10/04/24	03/20/25	6
1	50%CDs	0	12/13/24	12/13/24	10SS +10w
2	Constructablity Review	3w	12/13/24	01/02/25	11
3	90% CDs	0	03/20/25	03/20/25	10
4	Cost Estimate	0	04/17/25	04/17/25	13FS +4w
5	100% CDs	0	05/15/25	05/15/25	14FS +4w
6	Permitting Approvals	60d	03/21/25	06/12/25	13
7	Bid	8w	07/01/25	08/25/25	
8	Construction	85w	08/26/25	04/12/27	17
9	Construction Mid Point	0	06/18/26	06/18/26	18SS +42.5w
0	Equipment Installation and Testing	8w	03/16/27	05/10/27	18FS -4w
1	Sub. Completion + Occupancy	0	04/12/27	04/12/27	18
2	Construction Close out	10w	04/13/27	06/21/27	21
3	Full Operation	0	06/21/27	06/21/27	22



4.12.2 Value Engineering and Analysis

The project schedule includes time for both a Value Engineering (VE) study and a Constructibility review. The VE study will take place at the beginning of the Design Development phase and will allow the project team to better understand what project saving opportunities can be found in the cost estimate that was developed at the end of the Schematic Design phase. The constructibility study will take place at the midpoint of the Construction Documents phase and will be complete with enough time to be incorporated into the building permit submission.

4.12.3 Potential Factors That May Delay Schedule

There are no known factors that are expected to delay the design or permitting of the project. The construction schedule may be affected by current supply chain challenges. The project team will mitigate any delays by identifying long lead time items early and will be responsive to allow for early procurement where it is feasible.

The project schedule would be delayed if construction funding is not allotted in the 2023-25 biennium and postponed to a future biennium. This would likely increase project costs due escalation. Costs would likely also increase beyond the standard escalation rates due to potential design and document revisions for code changes, and project restart fees.

4.12.4 Local Jurisdiction Coordination

The Authority Having Jurisdiction is the City of Ellensburg. The project design team will need to begin coordination with the permitting agencies to better understand permitting timelines and any potential development impact requirements.

5.0 Budget Analysis of Preferred Alternative

5.1 Cost Estimate

5.1.1 Major Assumptions

A10: Foundations:

The foundations will include continuous and spread footings, perimeter drainage, and a reinforced concrete slab on grade.

A1020: Special Foundation

Based on local norms, a specialty pile foundation allowance is included.

B10: Superstructure:

Roof structure composed of 3-ply CLT supported on glulam beams at roughly 14 feet on center. The beams will be supported on HSS columns and/or CMU walls. We anticipate the lateral force system for the building will be either CMU shear walls or concentric braced frames. It is likely that building joints will be required at connection between student collaboration area and the shop areas.

B20: Exterior enclosure:

Scope of work includes masonry brick veneer and insulated metal panel. The extent of brick will be approximately 80% and 20% insulated metal panels at opaque walls. Glazing scope includes curtain wall and storefront glazing. The extent of the glazing would vary by exposure from approximately 10% of the gross wall at west facades to 30/40% at classroom, laboratory, and counseling areas and 40% at circulation/ student areas. Other scope would include exterior sunshades. Exterior door scope will include glazed aluminum doors at vestibules and hollow metal doors at other locations.

B30: Roofing:

Roof scope of work includes an SBS modified membrane with insulation (R-Value at 20% better than code), sheet metal flashings, and rough carpentry. A green roofing system and concrete pedestal paver system is included for accessible roof areas. Additional scope includes roof ladders, roof hatch, skylights, and fall restraint anchors.

C10: Interior Construction:

Interior partitions will consist of metal stud framing, batt insulation and gypsum board, interior glazing, and interior doors. Fittings and specialties will include toilet partitions, white boards, signage, corner guards, miscellaneous, restroom and shower accessories, fire extinguishers and cabinets.

C20: Stairs

Main stair included HSS tube steel structure with polished precast treads and decorative stainless steel railing. Circulation and exit stairs include cast-in-place concrete structure and painted handrails.

C30: Interior Finishes

Wall finishes will include painted gypsum board, porcelain tile at restroom wet walls, and specialty wall finishes in common areas. Floor finishes include porcelain tile at restrooms, carpet tile in classrooms and admin area, sealed concrete in common areas, shops and MEP rooms, resilient flooring at common spaces in counseling centers and ECLC. Ceiling finishes will include ACT, wood slat ceiling, exposed CLT, gypsum board painted at restrooms, and acoustic baffles at common areas.

D10: Conveying systems

Two 3500lb elevators are included. One 5-stop elevator is included for rooftop mechanical penthouse access and one 4-stop elevator for typical floor access.

D20: Plumbing

The building plumbing systems will comply with Central Washington University's campus standards.

The flat roof areas will be equipped with a primary and overflow drainage system that will be piped with interior roof drain leaders to a point five feet outside the building for connection to the site storm drainage system.

A domestic water booster pump should be planned for this project until flows and pressures can be determined. The nearby North Academic Building requires booster pump due to low water pressures in this area on campus.

Water heating will be provided from heat pump water heaters and circulated throughout the building. The heat pump water heaters will extract heat from the division 23 heating water loop from the campus geothermal heat pump system.

Domestic cold and hot water consumption will be metered. These meters will interface with the Division 23 building automation system.

System vibration isolation requirements will be provided in accordance with the space acoustical criteria.

D30: Heating and Cooling Utilities

The building heating and cooling utilities will comply with Central Washington University's campus standards. The proposed mechanical systems are designed for a balance between high energy performance, flexibility, and low maintenance. Systems with the lowest anticipated energy use are proposed. Campus utilities will be metered and interface with the division 23 building automation system.

The building will be heated with low temperature water (120 degrees F) supplied by a new open source geothermal heating plant. The heat planting is being planned as a separate project. 6" low temperature hot water will be routed from the geothermal plant to this building and will be insulated, jacketed, and fusion-welded HDPE pipe. The cost for the pipe from the plant to this building is included in this scope of work. The heating water will then be distributed through the building via fully redundant building heating water pumps. The building heating and domestic hot water load is anticipated to be approximately 3000 mbh at -10 degrees F. An additional 200 ton heat pump with associated piping, primary pump, power, and controls that is sized for heating and domestic hot water will be added within the central plant as part of this project.

This building will be cooled from campus chilled water provided by the existing campus central chilled water plant. Chilled water will be routed to the building from nearby chilled water mains and then distributed through the building via building chilled water pumps. The building connection size will be 6" and all buried pipe will be insulated, jacketed, and fusion-welded HDPE pipe. The building cooling load is anticipated to be 240 tons/380 GPM at 105 degrees F. A building level chiller of approximately 75 tons is anticipated for winter cooling. Additional central plant equipment is not anticipated to be required at the central chilled water plant as a new 1,200 ton chiller was installed in 2022.

D30: Heating, Ventilation and Air Conditioning (HVAC)

Ventilation Air

Ventilation air will be ducted to each space via a dedicated outside air system (DOAS), preliminarily sized at 36,000 cfm. The DOAS unit will recover a minimum of 60% energy from the conditioned air that is exhausted from the building. Air will be regulated to each major zone

through air terminal units and returned to the unit via return air ducting. Air regulators shall regulate ventilation air based upon occupancy and space CO2 levels. The terminal units will duct ventilation air directly to the chilled beam induction units.

Space Conditioning

Classrooms, offices, meeting rooms and general circulation will be conditioned with active chilled beams induction units for zone level heating and cooling. Each conference room, assembly space, and student center space will have their own thermostat. Offices will be provided with a minimum of one thermostat for every two offices.

The central lobby/gathering space will be conditioned from a single zone air handling unit with radiant slab heating.

Stairwells will be conditioned with 4 pipe fan coils.

Other

A solar wall will be considered to passively heat the ventilation air before entering the DOAS air handling units. The solar wall will be equipped with louvers that bypass the solar wall when the air system is in the cooling mode.

The building automation system will be an extension of the existing campus wide Alerton control system. This system will provide operational controls for all mechanical systems that includes system operation, alarm reporting, mechanical energy monitoring, water consumption monitoring, and unoccupied setback controls.

System vibration isolation requirements will be in accordance with the space acoustical criteria.

D40: Fire Protection Systems

The building will be fully sprinklered in accordance with NFPA-13 requirements and Central Washington University Campus Standards. The systems will be a wet sprinkler system. Hydrants will be coordinated with the fire department and, where required, provided in the civil scope of work.

D50: Electrical

The building will receive electrical service from the campus owned medium voltage distribution system. New buried conduit pathways, vaults and cabling will be provided from the nearby existing campus medium voltage system to the new building service yard. A total of (2) pad mounted oil filled transformer will be installed on the site to provide normal electrical services to the building.

Electrical services will be derived from the (2) transformers with secondary voltages of 480Y/277V and 208Y/120V. The (2) services will have an estimated rating of 1200 Amps and 2000 Amps respectively. The main service switchboards will be housed in a dedicated main electrical room at the ground floor. The proposed dual service approach is intended to remove heat producing transformer from inside the building, which will result in reduced energy for electrical room space conditioning.

Battery systems will be provided to supply NEC 700 emergency loads. This will be accomplished through the use of centralized inverters or distributed battery packs.

The building electrical distribution will originate from a main electrical room on the ground floor. The building electrical distribution will be designed to provide separation of lighting, mechanical, lab and general building loads. Circuit breaker panel boards shall be provided throughout the building as required to adequately serve the associated building loads. Lab spaces will typically receive dedicated power panels located in close proximity of each lab. Each telecommunications room will be provided with a dedicated 120/208V power panel board and an equipment ground bar. Surge protection shall be provided by installing surge protection devices at the main switchboard, distribution panel boards and appropriate branch panel board locations.

Branch circuit distribution within each programmatic space will be closely coordinated with the specific function of each space. Additional spare electrical capacity will be designed into each panel to accommodate future potential changes to the building program. Wall mounted surface raceway with receptacles shall be considered for spaces with workstations such as computer labs. Floor boxes will be provided within meeting rooms and classrooms as required by the program and the code.

Owner metering shall be provided for the building main electrical service equipment. Additional sub meters shall be provided for lighting, mechanical and plug loads to allow separate metering for each end use type.

A complete system of photo voltaic arrays shall be provided for on-site renewable energy generation in compliance with the Washington State Energy Code (WSEC).The minimum system output shall be .5 watts per square foot of building.

Building interior and exterior lighting will LED type. Lighting illumination levels will be in conformance with IES standards. Lighting power densities will be in conformance with the Washington state energy code. Egress and exit lighting will be provided with backup power from battery systems.

A low voltage lighting control system shall be provided for time-based, sensor-based (both occupancy and daylight), and manual lighting control in compliance with the energy code, LEED and the building program needs. Fixtures with embedded controls shall be considered to allow for lighting zone control changes throughout the life of the building. Switching of receptacles based upon occupancy shall be provided in compliance with the energy code.

D50: Communications

New outside plant cabling will be provided as required to serve the new building from the existing campus infrastructure. Existing pathways in close proximity to the building will be extended for connection to the building main telecom room (MDF).

Communications Distribution: Communications building distribution cabling, devices and pathways will be provided by the contractor. Communications riser cabling will be provided from the entrance location to each Communications room. Each Communications room shall be provided with a dedicated 120/208V power panel board, branch circuits and an equipment ground bar.

Communication Cabling Pathways: Cable trays will be installed on each level to facilitate cabling installation. All horizontal distribution of Communications risers will occur on the main floor level. Vertical distribution of Communications risers will route vertically through the building via 4” conduit pathways between floors.

Communication Outlets: Communications outlets will be provided throughout the facility at locations such as work stations, computers, printers, projectors, lecterns and wireless access points. Horizontal station cable will be provided and routed to the nearest Communications room located on the associated floor. Category 6A copper twisted pair cabling will be routed through the communications raceway system to each communications outlet in the building. Typically, each outlet will be served with two Category 6A cables.

WiFi Systems: WiFi system pathways, station cabling and outlets will be provided by the contractor. Required locations for indoor and outdoor wireless access points will be closely coordinated with CWU. All wireless access points will be provided and installed by CWU.

Audio/Video Systems: Audio visual systems will be provided and installed by the contractor. Spaces requiring audio visual system shall include, but not be limited to classrooms, teaching labs and meeting rooms. The basis of design for classrooms and teaching labs shall be a hybrid learning classroom which will include projectors, projector screens, overhead ceiling speakers, wireless microphone systems, assistive listening devices, room control, lecture capture camera and wireless device connectivity. Large meeting rooms will require a projector and screen or wall mounted display, reinforced sound and control systems. Medium and Small meeting room audio visual equipment shall be owner furnished and installed. Computer labs will be treated as basic classroom with either projectors and screen or wall mounted displays, overhead ceiling speakers, wireless microphone systems, assistive listening devices, room control, and wireless device connectivity.

Clock System: A complete system of wireless clocks will be provided by the Owner.

Distributed Antenna System (DAS): A distributed antenna system for emergency responder radio use is not planned for the new building. This plan is in conformance with CWU standard approach for new construction projects.

D50: Security & Fire Alarm

Access Control: A complete access control system will be provided in accordance with CWU campus standards. Required locations for miscellaneous access control devices will be closely coordinated with CWU. Typical spaces to be provided with access control include building office suites, exterior entries, classroom doors, telecom closets and AV closets.

Video Surveillance (IPCCTV): Video Surveillance system cabling and pathways will be provided by the contractor. Required locations for IPCCTV devices will be closely coordinated with CWU. Typical spaces with IPCCTV devices include building entrances and building exterior. All IPCCTV cameras, power supplies and active electronic equipment will be provided and installed by CWU.

Fire Alarm: A complete battery backed addressable fire alarm system with manual pull stations, automatic detection and ADA compliant speaker/strobes will be provided throughout the facility. Initiating and annunciation devices will be installed as required by the governing codes, and in accordance with CWU campus standards. The building fire sprinkler system will be monitored by the fire alarm system for system flow and shutoff valve tampering. Central reporting capabilities will also be provided with the fire alarm system. Optical smoke imaging devices shall be considered for large multi-story atriums or other large volume spaces.

E10: Equipment

The construction cost includes the supply and install of psychology laboratory casework, psychology shop equipment, staff break room equipment, and the installation of some owner furnished equipment.

E20: Fixed Furnishing

Fixed furnishings includes built in casework and interior and exterior window treatments.

5.1.2 Summary Table

Summary Budget of Preferred Alternative			
	Cost Estimate	Cost/SF	Escalated Costs
Acquisition	$0	$0	$0
Consultants	$8,358,606	$89	$9,535,259
MACC	$64,841,240	$690	$78,492,452
Construction	$73,802,300	$785	$89,358,972
Equipment	$4,374,014	$47	$5,318,365
Artwork	$535,636	$6	$535,636
Project Admin	$2,162,571	$23	$2,629,470
Other Costs	$245,000	$3	$285,107
Total Project	**$89,478,127**	**$952**	**$107,662,809**

5.1.3 C100

Summary Construction Budget of Preferred Alternative	
G10 - Site Preparation	$749,779
G20 - Site Improvements	$1,995,831
G30 - Site Mechanical Utilities	$811,719
G40 - Site Electrical Utilities	$568,204
G60 - Other Site Construction	$0
Addt'l Site Work (Demo)	$1,152,401
Related Site Costs	$1,389,005
Site Work Subtotal	$6,666,939
A10 - Foundations	$1,979,112
A20 - Basement Construction	$0
B10 - Superstructure	$10,392,654
B20 - Exterior Closure	$10,425,459
B30 - Roofing	$2,176,357
C10 - Interior Construction	$4,418,065
C20 - Stairs	$490,778
C30 - Interior Finishes	$4,069,898
D10 - Conveying	$584,438
D20 - Plumbing Systems	$2,056,148
D30 - HVAC Systems	$7,502,160
D40 - Fire Protection Systems	$766,317
D50 - Electrical Systems	$7,562,593
F10 - Special Construction	$0
F20 - Selective Demolition	$0
General Conditions	$3,699,149
Addt'l Construction	$2,051,173
Facility Construction Subtotal	$58,174,301
MACC	**$64,841,240**

5.2 Proposed Funding

5.2.1 Fund Sources

The proposed project is expected to be funded through the State General Obligation Bonds. Design funding is being requested as a first priority in the 2023-25 Capital Budget. Construction funding will be requested as part of the 2025-27 Capital Budget.

5.2.2 Alternative Finance Assumptions

The project does not anticipate the use of any alternative finance options.

5.3 Facility Operations and Maintenance Requirements

5.3.1 Operating Budget Impact

The proposed project is expected to increase Central Washington University's ongoing maintenance and operations costs. These costs have been estimated based an assumed occupancy in 2025. Funding for the increase in operating cost will be requested within the overall state appropriated budget.

5.3.2 Operating Costs

Funding for the increase in operating costs based on the new additional gross square feet (GSF) will be requested within the overall state appropriated budget.

Assumptions

Estimated operations and maintenance costs for the preferred alternative for the Behavioral and Mental Health Facility are based on the Fiscal Year 2021 budgeted costs per gross square foot (GSF) combined with the estimated FTE Requirements for the proper maintenance of the new modern energy saving technology throughout the building. Utility costs are escalated at an inflation rate of 2% per year based on the previous year's utility rates. Staffing assumes a COLA Percentage of 3%. New construction square footage is 89,000 GSF, with the addition being approximately 13,936 GSF and the demolition the existing 75,064 GSF Psychology Building.

Utilities

Total Square Feet	89,000						
Annual Inflation	2%						
		2021	**2022**	**2023**	**2024**	**2025**	**2026**
Academic Utilities	CY 2019						
July - December 2021	1,376,523.74						
January - June 2021	1,720,692.24						
Total CY 2021 Utilities	3,097,215.98	**143,112.00**	**145,974.24**	**148,893.72**	**151,871.60**	**154,909.03**	**158,007.21**
Academic Aq Ft	2,004,494	89,000	89,000	89,000	89,000	89,000	89,000
2019 $/Sq Ft	1.545	1.608	1.640	1.673	1.706	1.741	1.775

Biennium 1		Biennium 2		Biennium 3		Biennium 4		Biennium 5	
2027	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**
161,167.36	**164,390.70**	**167,678.52**	**171,032.09**	**174,452.73**	**177,941.78**	**181,500.62**	**185,130.63**	**188,833.24**	**192,609.91**
89,000	89,000	89,000	89,000	89,000	89,000	89,000	89,000	89,000	89,000
1.811	1.847	1.884	1.922	1.960	1.999	2.039	2.080	2.122	2.164

Staffing

	FTE	Step K Rate	Annual Hours	Health Ins	Other Bens	Wages	Benefits	FY 22 Total	FY 23	FY 24	FY 25	FY 26
EMCS Technician (Y-Rated Rate)	0.25	29.36	2080	1030	20%	15,267.20	6,143.44	21,410.64	22,052.96	22,714.55	23,395.98	24,097.8
Maintenance (MM2)	0.50	27.23	2080	1030	20%	28,319.20	11,843.84	40,163.04	41,367.93	42,608.97	43,887.24	45,203.8
Custodian 1	0.25	18.07	2080	1030	20%	9,396.40	4,969.28	14,365.68	14,796.65	15,240.55	15,697.77	16,168.7
IT	0.50	34.02	2080	1030	20%	35,380.80	13,256.16	48,636.96	50,096.07	51,598.95	53,146.92	54,741.3
Police and Parking	0.25	30.05	2080	1030	20%	15,626.00	6,215.20	21,841.20	22,496.44	23,171.33	23,866.47	24,582.4
Total	1.50					103,989.60	30,069.28	**124,576.32**	**128,313.61**	**132,163.02**	**136,127.91**	**140,211.7**
COLA Assumption	3%											

Biennium 1		Biennium 2		Biennium 3		Biennium 4		Biennium 5	
FY 27	**FY 28**	**FY 29**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**FY 35**	**FY 36**
24,820.80	25,565.42	26,332.39	27,122.36	27,936.03	28,774.11	29,637.33	30,526.45	31,442.25	32,385.51
46,559.97	47,956.77	49,395.47	50,877.34	52,403.66	53,975.77	55,595.04	57,262.89	58,980.78	60,750.20
16,653.76	17,153.37	17,667.97	18,198.01	18,743.95	19,306.27	19,885.46	20,482.02	21,096.49	21,729.38
56,383.57	58,075.07	59,817.33	61,611.85	63,460.20	65,364.01	67,324.93	69,344.68	71,425.02	73,567.77
25,319.94	26,079.54	26,861.92	27,667.78	28,497.81	29,352.75	30,233.33	31,140.33	32,074.54	33,036.77
144,418.10	**148,750.64**	**153,213.16**	**157,809.56**	**162,543.84**	**167,420.16**	**172,442.76**	**177,616.04**	**182,944.53**	**188,432.86**

Operations & Maintenance

	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26
Maintenance	834,745					
EMCS/BH	263,588					
Custodial	322,938					
IT	375,877					
Total	1,797,148	**79,794**	**81,390**	**83,017**	**84,678**	**86,371**
/Sq Ft	0.8966	0.8966	0.9145	0.9328	0.9514	0.9705

Biennium 1		Biennium 2		Biennium 3		Biennium 4		Biennium 5	
FY 27	**FY 28**	**FY 29**	**FY 30**	**FY 31**	**FY 32**	**FY 33**	**FY 34**	**FY 35**	**FY 36**
88,099	**89,861**	**91,658**	**93,491**	**95,361**	**97,268**	**99,214**	**101,198**	**103,222**	**105,286**
0.9899	1.0097	1.0299	1.0505	1.0715	1.0929	1.1148	1.1371	1.1598	1.1830

Fire Protection

		Escalated '25	Orig Cost
Psychology	1973		2,843,961
Behavioral and Mental Health	2025-27	96,234,000	
	Equipment	(7,403,808)	
	Artwork	(379,321)	
	Building		88,450,871
Cost Differential			85,606,910
$1.50 per $1,000			**128,410**

One-Time FY2028 Costs	Escalated Estimate 2027
One-Time Non-Bondable FF&E (Computers)	200,000
One-Time Moving Fund	80,000
Total	**280,000**

CWU - Behavioral and Mental Health Building
2027-2036 Preliminary Operating Budget
O&M Total Estimate

Please note: If funded this building will not be operating until June of 2027.

	Biennium 1		Biennium 2		Biennium 3		Biennium 4		Biennium 5	
Summary	**FY 2027**	**FY 2028**	**FY 2029**	**FY 2030**	**FY 2031**	**FY 2032**	**FY 2033**	**FY 2034**	**FY 2035**	**FY 2036**
Utilities		164,390.70	167,678.52	171,032.09	174,452.73	177,941.78	181,500.62	185,130.63	188,833.24	192,609.91
Staffing	Opens	148,750.64	153,213.16	157,809.56	162,543.84	167,420.16	172,442.76	177,616.04	182,944.53	188,432.86
O&M	July 1, 2027	89,861	91,658	93,491	95,361	97,268	99,214	101,198	103,222	105,286
Fire Protection		$148,869.58	148,869.58	148,869.58	148,869.58	148,869.58	148,869.58	148,869.58	148,869.58	148,869.58
One-Time FY2027 Costs		280,000								
Total	**0**	**831,871.69**	**$561,419.24**	**571,202.37**	**$581,227.12**	**$591,499.71**	**$602,026.51**	**$612,814.08**	**$623,869.13**	**$635,198.57**

5.3.3 Maintenance and Operations Responsibility

Central Washington University as the owner will be responsible for all ongoing maintenance and operations.

5.4 Furniture, Fixtures and Equipment

The Budget for furniture, fixtures, and equipment has been included in the C-100 cost outline. This budget includes built-in items such as casework and equipment that will require coordinating with building systems and utilities. The budget also includes funds for information technology, telecommunication, and audio-visual equipment.

section 6.1 - predesign checklist

SECTION C

APPENDICES

APPENDIX 1: PREDESIGN CHECKLIST AND OUTLINE

A predesign should include the content detailed here. OFM will approve limited scope predesigns on a case-by-case basis.

Executive summary

- **Problem statement, opportunity or program requirement**
  - ☒ Identify the problem, opportunity or program requirement that the project addresses and how it will be accomplished.
  - ☒ Identify and explain the statutory or other requirements that drive the project's operational programs and how these affect the need for space, location or physical accommodations. Include anticipated caseload projections (growth or decline) and assumptions, if applicable.
  - ☒ Explain the connection between the agency's mission, goals and objectives; statutory requirements; and the problem, opportunity or program requirements.
  - ☒ Describe in general terms what is needed to solve the problem.
  - ☒ Include any relevant history of the project, including previous predesigns or budget funding requests that did not go forward to design or construction.
- **Analysis of alternatives (including the preferred alternative)**
  - ☒ Describe all alternatives that were considered, including the preferred alternative. Include:
    - ☒ A no action alternative.
    - ☒ Advantages and disadvantages of each alternative. Please include a high-level summary table with your analysis that compares the alternatives, including the anticipated cost for each alternative.
    - ☒ Cost estimates for each alternative:
      - ☒ Provide enough information so decision makers have a general understanding of the costs.
      - ☒ Complete OFM's Life Cycle Cost Model (RCW 39.35B.050).
    - ☒ Schedule estimates for each alternative. Estimate the start, midpoint and completion dates.
- **Detailed analysis of preferred alternative**
  - ☒ Nature of space – how much of the proposed space will be used for what purpose (i.e., office, lab, conference, classroom, etc.)
  - ☒ Occupancy numbers.
  - ☒ Basic configuration of the building, including square footage and the number of floors.
  - ☒ Space needs assessment. Identify the guidelines used.
  - ☒ Site analysis:
    - ☒ Identify site studies that are completed or under way and summarize their results.
    - ☒ Location.

- ☒ Building footprint and its relationship to adjacent facilities and site features. Provide aerial view, sketches of the building site and basic floorplans.
- ☒ Water rights and water availability.
- ☒ Stormwater requirements.
- ☒ Ownership of the site, easements, and any acquisition issues.
- ☒ Property setback requirements.
- ☒ Potential issues with the surrounding neighborhood, during construction and ongoing.
- ☒ Utility extension or relocation issues.
- ☒ Potential environmental impacts.
- ☒ Parking and access issues, including improvements required by local ordinances, local road impacts and parking demand.
- ☒ Impact on surroundings and existing development with construction lay-down areas and construction phasing.

☒ Consistency with applicable long-term plans (such as the Thurston County and Capitol campus master plans and agency or area master plans) as required by RCW 43.88.110.

☒ Consistency with other laws and regulations:

- ☒ High-performance public buildings (Chapter 39.35D RCW).
- ☒ State efficiency and environmental performance, if applicable (Executive Order 20-01).
- ☒ State energy standards for clean buildings (RCW 19.27A.210).
- ☒ Compliance with required vehicle charging capability for new buildings that provide on-site parking (RCW 19.27.540).
- ☒ Greenhouse gas emissions reduction policy (RCW 70.235.070).
- ☒ Archeological and cultural resources (Executive Order 05-05 and Section 106 of the National Historic Preservation Act of 1966). If mitigation is anticipated, please note this in the predesign with narrative about how mitigation is worked into the project schedule and budget.
- ☒ Americans with Disabilities Act (ADA) implementation (Executive Order 96-04).
- ☒ Compliance with planning under Chapter 36.70A RCW, as required by RCW 43.88.0301.
- ☒ Information required by RCW 43.88.0301(1).
- ☒ Other codes or regulations.

☒ Identify problems that require further study. Evaluate identified problems to establish probable costs and risk.

☒ Identify significant or distinguishable components, including major equipment and ADA requirements in excess of existing code.

☒ Identify planned technology infrastructure and other related IT investments that affect the building plans.

☒ Identify any site-related and/or physical security measures for the project.

☒ Describe planned commissioning to ensure systems function as designed.

☒ Describe any future phases or other facilities that will affect this project.

☒ Provide a comparative discussion of the pros and cons of the project delivery methods considered for this project, and offer a recommendation of proposed procurement method for the preferred alternative. The proposed method of project delivery must be justified.

- ☒ Describe how the project will be managed within the agency.
- ☒ Schedule.
  - ☒ Provide a high-level milestone schedule for the project, including key dates for budget approval, design, bid, acquisition, construction, equipment installation, testing, occupancy and full operation.
  - ☒ Incorporate value-engineering analysis and constructability review into the project schedule, as required by RCW 43.88.110(5)(c).
    - ☒ Describe factors that may delay the project schedule.
    - ☒ Describe the permitting or local government ordinances or neighborhood issues (such as location or parking compatibility) that could affect the schedule.
    - ☒ Identify when the local jurisdiction will be contacted and whether community stakeholder meetings are a part of the process.

- Project budget analysis for the preferred alternative
  - ☒ Cost estimate.
    - ☒ Major assumptions used in preparing the cost estimate.
    - ☒ Summary table of Uniformat Level II cost estimates.
    - ☒ The C-100.
  - ☒ Proposed funding.
    - ☒ Identify the fund sources and expected receipt of the funds.
    - ☒ If alternatively financed, such as through a COP, provide the projected debt service and fund source. Include the assumptions used for calculating finance terms and interest rates.
  - ☒ Facility operations and maintenance requirements.
    - ☒ Define the anticipated impact of the proposed project on the operating budget for the agency or institution. Include maintenance and operating assumptions (including FTEs) and moving costs.
    - ☒ Show five biennia of capital and operating costs from the time of occupancy, including an estimate of building repair, replacement and maintenance.
    - ☒ Identify the agency responsible for ongoing maintenance and operations, if not maintained by the owner.
  - ☒ Clarify whether furniture, fixtures and equipment are included in the project budget. If not included, explain why.

Predesign appendices

- ☒ Completed Life Cycle Cost Model.
- ☒ A letter from DAHP.
- NA ☐ Title report for projects including proposed acquisition. Property is currently owned by CWU

section 6.2 - LCCA spreadsheet

Project and Existing Facility Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

*	**Agency**	
*	**Project Title**	

*	**Date of Analysis:**	

	Analysis Period	
*	Years of Analysis (If not 30 or 50)	

Existing Facility Description	

	Existing Lease Information	**Lease 1**	**Lease 2**	**Lease 3**	**Lease 4**	**Lease 5**	**Lease 6**	**Total**
	Existing Square Feet							-
	Lease Start Date / Last Lease Increase							
	Lease End Date							
	Lease Rate per Month							$ -
	Lease Rate per SF per Year at End Date							
	Additional Operating Costs per Month	$ -						$ -
	Total Lease Costs per Month							$ -
*	Persons Relocating							-
	SF per Person Calculated							
	Estimated Lease Renewal Rate - 5 Year							$ -

Lease Option 1 Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

New Lease Option 1 Description	

New Lease Information		
Lease Location		Market Area:
Lease Square Feet Type		
New Facility Square Feet		
New Lease Start Date		
SF per Person Calculated		

New Lease Costs	**Years of Term**	**Rate / SF / Year**	**Rate / Month**	**Adjusted to FS Rate**	**Total FS Rate / Month**	**Estimated FSG Market Rate**	**Estimated FSG Rate / Month**	**Real Estate Transaction Fees for Term**
Year				$ -	$ -	$ -		
Years				$ -	$ -			
Years				$ -	$ -			
Years				$ -	$ -			
Years				$ -	$ -			
Total Length of Lease	0							$ -
Transaction Fee for first 5 Years	2.50%	*of total rent for first 5 years of term*						
Transaction Fee for Additional Years	1.25%	*of total rent for term beyond 5 years*						

Note: Real estate transaction fees calculated on base lease - not full service rate including added services and utilities.

Added Services	New Lease Operating Costs (Starting in current year)	Known Cost / SF / Year	Estimated Cost / SF / Year	Total Cost / Year	Cost / Month
☐	Energy (Electricity, Natural Gas)	$ -	$ -	$ -	$ -
☐	Janitorial Services	$ -	$ -	$ -	$ -
☐	Utilities (Water, Sewer, & Garbage)	$ -	$ -	$ -	$ -
☐	Grounds	$ -	$ -	$ -	$ -
☐	Pest Control	$ -	$ -	$ -	$ -
☐	Security	$ -	$ -	$ -	$ -
☐	Maintenance and Repair	$ -	$ -	$ -	$ -
☐	Management	$ -	$ -	$ -	$ -
☐	Road Clearance	$ -	$ -	$ -	$ -
☐	Telecom	$ -	$ -	$ -	$ -
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ -**	**$ -**	**$ -**	**$ -**

Escalated to lease start date

	New Lease One Time Costs	Current Estimate	Calculated (for reference)	
*	Real Estate Transaction Fees		$ -	*Per Std %*
*	Tenant Improvements		$ -	*$19 per SF*
*	IT Infrastructure		$ -	*$1500 per Person*
*	Furniture Costs		$ -	*$7000 per Person*
*	Building Security and Access Systems			*$450 per person*
*	Moving Vendor and Supplies		$ -	*$300 per Person*
	Other / Incentive			
	Total	$ -	$ -	

Biennium Budget Impacts for New Lease	Biennium Time Period Start	Finish	Existing Lease Option	New Lease Option 1	Biennium Impact:
25-27 Biennium Lease Expenditure	7/1/2025	6/30/2027	$ -	$ -	$ -
27-29 Biennium Lease Expenditure	7/1/2027	6/30/2029	$ -	$ -	$ -
29-31 Biennium Lease Expenditure	7/1/2029	6/30/2031	$ -	$ -	$ -
31-33 Biennium Lease Expenditure	7/1/2031	6/30/2033	$ -	$ -	$ -
33-35 Biennium Lease Expenditure	7/1/2033	6/30/2035	$ -	$ -	$ -

Lease Option 2 Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

* **New Lease Option 2 Description**

New Lease Information		
Lease Location		Market Area:
Lease Square Feet Type		
New Facility Square Feet		
New Lease Start Date		
SF per Person Calculated		

New Lease Costs	**Years of Term**	**Rate / SF / Year**	**Rate / Month**	**Adjusted to FS Rate**	**Total FS Rate / Month**	**Estimated FSG Market Rate**	**Estimated FSG Rate / Month**	**Real Estate Transaction Fees for Term**
Year				$ -	$ -	$ -		
Years				$ -	$ -			
Years				$ -	$ -			
Years				$ -	$ -			
Years				$ -	$ -			
Total Length of Lease	0							$ -
Transaction Fee for first 5 Years	2.50%	*of total rent for first 5 years of term*						
Transaction Fee for Additional Years	1.25%	*of total rent for term beyond 5 years*						

Note: Real estate transaction fees calculated on base lease - not including added services and utilities.

Added Services	New Lease Operating Costs (Starting in current year)	Known Cost / SF / Year	Estimated Cost / SF / Year	Total Cost / Year	Cost / Month
☐	Energy (Electricity, Natural Gas)	$ -	$ -	$ -	$ -
☑	Janitorial Services	$ -	$ -	$ -	$ -
☑	Utilities (Water, Sewer, & Garbage)	$ -	$ -	$ -	$ -
☐	Grounds	$ -	$ -	$ -	$ -
☐	Pest Control	$ -	$ -	$ -	$ -
☐	Security	$ -	$ -	$ -	$ -
☐	Maintenance and Repair	$ -	$ -	$ -	$ -
☐	Management	$ -	$ -	$ -	$ -
☐	Road Clearance	$ -	$ -	$ -	$ -
☐	Telecom	$ -	$ -	$ -	$ -
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ -**	**$ -**	**$ -**	**$ -**

Escalated to lease start date

New Lease One Time Costs	Current Estimate	Calculated (for reference)	
Real Estate Transaction Fees		$ -	*Per Std %*
Tenant Improvements		$ -	*$19 / RSF*
IT Infrastructure		$ -	*$1500 / Person*
Furniture Costs		$ -	*$7000 / Person*
Building Security and Access Systems			*$450 / Person*
Moving Vendor and Supplies		$ -	*$300 / Person*
Other / Incentive			
Total	$ -	$ -	

Biennium Budget Impacts for New Lease	Biennium Time Period Start	Finish	Existing Lease Option	New Lease Option 2	Biennium Impact:
25-27 Biennium Lease Expenditure	7/1/2025	6/30/2027	$ -	$ -	$ -
27-29 Biennium Lease Expenditure	7/1/2027	6/30/2029	$ -	$ -	$ -
29-31 Biennium Lease Expenditure	7/1/2029	6/30/2031	$ -	$ -	$ -
31-33 Biennium Lease Expenditure	7/1/2031	6/30/2033	$ -	$ -	$ -
33-35 Biennium Lease Expenditure	7/1/2033	6/30/2035	$ -	$ -	$ -

Ownership Option 1 Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

*	**Project Description**	Central Washington University-Behavior and Mental Health Farrell Site with Childcare
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Ellensburg — Market Area = Eastern Counties

	Statistics	
*	Gross Sq Ft	89,000
*	Usable Sq Ft	53,000
	Space Efficiency	60%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$730.97
	Estimated Total Project Costs per Sq Ft	$1,051.92
	Escalated MACC Cost per Sq Ft	$1,028.31
	Escalated Total Project Costs per Sq Ft	$1,479.83

*	**Move In Date**	7/1/2027

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)	5.82%	5.67% Std	5.82%
	Pre-Schematic Design services	$ -		
	Construction Documents	$ 3,008,155		
	Extra Services	$ 3,199,027		
	Other Services	$ 1,465,493		
	Design Services Contingency	$ 757,709		
	Consultant Services Total	$ 8,430,384	$ 3,674,472	$ 8,430,384
MACC	**Construction Contracts**			
	Site Work	$ 5,277,934		
	Related Project Costs	$ 1,604,005		
	Facility Construction	$ 58,174,301		
	MACC SubTotal	$ 65,056,240	$ 32,207,320	$ 65,056,240
	Construction Contingency (5% default)	$ 3,252,812	$ 3,252,812	$ 3,252,812
	Non Taxable Items	$ -		$ -
	Sales Tax	$ 5,737,960		$ 5,737,960
	Construction Additional Items Total	$ 8,990,772	$ 3,252,812	$ 8,990,772
	Equipment			
	Equipment	$ 7,356,321		
	Non Taxable Items	$ -		
	Sales Tax	$ 617,931		
	Equipment Total	$ 7,974,252		$ 7,974,252
	Art Work Total	$ 523,409	$ 325,281	$ 523,409
	Other Costs			
		$ 245,000		
	Other Costs Total	$ 245,000		$ 245,000
	Project Management Total	$ 1,401,117		$ 1,401,117
	Grand Total Project Cost	**$ 92,621,174**	**$ 40,459,885**	**$ 93,621,174**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies	$ 280,000	$ -	*$300 / Person in FY22*
Other (not covered in construction)			
Total	$ 280,000	$ 280,000	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2027	Estimated Cost /GSF/ 2027	Total Cost / Year	Cost / Month
☑	Energy (Electricity. Natural Gas)	$ 0.59	$ 1.39	$ 52,510	$ 4,376
☑	Janitorial Services	$ -	$ 2.00	$ 178,284	$ 14,857
☑	Utilities (Water, Sewer, & Garbage)	$ 1.55	$ 0.50	$ 137,505	$ 11,459
☑	Grounds	$ -	$ 0.08	$ 6,702	$ 559
☑	Pest Control	$ -	$ 0.14	$ 12,064	$ 1,005
☑	Security	$ -	$ 0.14	$ 12,064	$ 1,005
☑	Maintenance and Repair	$ -	$ 7.82	$ 695,711	$ 57,976
☑	Management	$ -	$ 1.13	$ 100,536	$ 8,378
☑	Road Clearance	$ -	$ 0.20	$ 17,426	$ 1,452
☑	Telecom	$ -	$ -	$ -	$ -
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 2.14**	**$ 13.37**	**$ 1,212,804**	**$ 101,067**

Ownership Option 2 Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

*	**Project Description**	Central Washington University-Behavior and Mental Health North Campus Full Replacement with Childcare
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Ellensburg — Market Area = Eastern Counties

	Statistics	
*	Gross Sq Ft	89,000
*	Usable Sq Ft	53,000
	Space Efficiency	60%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$745.20
	Estimated Total Project Costs per Sq Ft	$1,086.33
	Escalated MACC Cost per Sq Ft	$1,048.34
	Escalated Total Project Costs per Sq Ft	$1,528.23

*	**Move In Date**	7/1/2027

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)	5.80%	5.65% Std	5.80%
	Pre-Schematic Design services	$ -		
	Construction Documents	$ 3,051,962		
	Extra Services	$ 3,199,027		
	Other Services	$ 1,485,174		
	Design Services Contingency	$ 760,884		
	Consultant Services Total	$ 8,497,047	$ 3,746,025	$ 8,497,047
MACC	**Construction Contracts**			
	Site Work	$ 5,326,933		
	Related Project Costs	$ 3,404,005		
	Facility Construction	$ 57,592,144		
	MACC SubTotal	$ 66,323,082	$ 32,207,320	$ 66,323,082
	Construction Contingency (5% default)	$ 3,316,154	$ 3,316,154	$ 3,316,154
	Non Taxable Items			$ -
	Sales Tax	$ 5,849,696		$ 5,849,696
	Construction Additional Items Total	$ 9,165,850	$ 9,165,850	$ 9,165,850
	Equipment			
	Equipment	$ 7,356,321		
	Non Taxable Items	$ -		
	Sales Tax	$ 617,931		
	Equipment Total	$ 7,974,252		$ 7,974,252
	Art Work Total	$ 540,281	$ 331,615	$ 540,281
	Other Costs			
		$ 1,745,000		
	Other Costs Total	$ 1,745,000		$ 1,745,000
	Project Management Total	$ 1,437,863		$ 1,437,863
	Grand Total Project Cost		**$ 46,450,810**	**$ 96,683,375**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies	$ 280,000	$ -	*$300 / Person in FY22*
Other (not covered in construction)			
Total	$ 280,000	$ 280,000	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2027	Estimated Cost /GSF/ 2027	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.56	$ 1.39	$ 49,840	$ 4,153
☑	**Janitorial Services**	$ -	$ 2.00	$ 178,284	$ 14,857
☑	**Utilities (Water, Sewer, & Garbage)**	$ 1.55	$ 0.50	$ 137,505	$ 11,459
☑	**Grounds**	$ -	$ 0.08	$ 6,702	$ 559
☑	**Pest Control**	$ -	$ 0.14	$ 12,064	$ 1,005
☑	**Security**	$ -	$ 0.14	$ 12,064	$ 1,005
☑	**Maintenance and Repair**	$ -	$ 7.82	$ 695,711	$ 57,976
☑	**Management**	$ -	$ 1.13	$ 100,536	$ 8,378
☑	**Road Clearance**	$ -	$ 0.20	$ 17,426	$ 1,452
☑	**Telecom**	$ -	$ -	$ -	$ -
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 2.11**	**$ 13.37**	**$ 1,210,134**	**$ 100,845**

Ownership Option 3 Information Sheet

* ***Requires a user input*** | *Green Cell* = *Value can be entered by user.* | *Yellow Cell* = *Calculated value.*

*	**Project Description**	Central Washington University-Behavior and Mental Health North Campus Renovation & Addition with Childcare
*	**Construction or Purchase/Remodel**	Construction
*	**Project Location**	Ellensburg — Market Area = Eastern Counties

	Statistics	
*	Gross Sq Ft	94,000
*	Usable Sq Ft	56,024
	Space Efficiency	60%
	Estimated Acres Needed	4.00
	MACC Cost per Sq Ft	$613.32
	Estimated Total Project Costs per Sq Ft	$984.39
	Escalated MACC Cost per Sq Ft	$862.81
	Escalated Total Project Costs per Sq Ft	$1,384.83

*	**Move In Date**	7/1/2027

Interim Lease Information	**Start Date**
Lease Start Date	
Length of Lease (in months)	
Square Feet (holdover/temp lease)	
Lease Rate- Full Serviced ($/SF/Year)	
One Time Costs (if double move)	

	Construction Cost Estimates (See Capital Budget System For Detail)			
		Known Costs	Estimated Costs	Cost to Use
	Acquisition Costs Total		$ 1,000,000	$ 1,000,000
A & E	**Consultant Services**			
	A & E Fee Percentage (if services not specified)	8.91%	5.81% Std	8.91%
	Pre-Schematic Design services	$ -		
	Construction Documents	$ 4,163,850		
	Extra Services	$ 3,199,027		
	Other Services	$ 1,984,718		
	Design Services Contingency	$ 1,308,835		
	Consultant Services Total	$ 10,656,430	$ 3,350,250	$ 10,656,430
MACC	**Construction Contracts**			
	Site Work	$ 3,588,441		
	Related Project Costs	$ 3,583,405		
	Facility Construction	$ 50,480,505		
	MACC SubTotal	$ 57,652,351	$ 34,016,720	$ 57,652,351
	Construction Contingency (5% default)	$ 5,765,235	$ 5,765,235	$ 5,765,235
	Non Taxable Items			$ -
	Sales Tax	$ 5,327,077		$ 5,327,077
	Construction Additional Items Total	$ 11,092,312	$ 11,092,312	$ 11,092,312
	Equipment			
	Equipment	$ 7,769,598		
	Non Taxable Items	$ -		
	Sales Tax	$ 652,646		
	Equipment Total	$ 8,422,244		$ 8,422,244
	Art Work Total	$ 516,525	$ 288,262	$ 516,525
	Other Costs			
		$ 1,745,000		
	Other Costs Total	$ 1,745,000		$ 1,745,000
	Project Management Total	$ 1,448,143		$ 1,448,143
	Grand Total Project Cost		**$ 49,747,544**	**$ 92,533,005**

Construction One Time Project Costs			
One Time Costs	Estimate	Calculated	
Moving Vendor and Supplies	$ 280,000	$ -	*$300 / Person in FY22*
Other (not covered in construction)			
Total	$ 280,000	$ 280,000	

	Ongoing Building Costs				
Added Services	New Building Operating Costs	Known Cost /GSF/ 2027	Estimated Cost /GSF/ 2027	Total Cost / Year	Cost / Month
☑	**Energy (Electricity. Natural Gas)**	$ 0.69	$ 1.39	$ 64,860	$ 5,405
☑	**Janitorial Services**	$ -	$ 2.00	$ 188,300	$ 15,692
☑	**Utilities (Water, Sewer, & Garbage)**	$ 1.55	$ 0.50	$ 145,230	$ 12,103
☑	**Grounds**	$ -	$ 0.08	$ 7,079	$ 590
☑	**Pest Control**	$ -	$ 0.14	$ 12,742	$ 1,062
☑	**Security**	$ -	$ 0.14	$ 12,742	$ 1,062
☑	**Maintenance and Repair**	$ -	$ 7.82	$ 734,796	$ 61,233
☑	**Management**	$ -	$ 1.13	$ 106,184	$ 8,849
☑	**Road Clearance**	$ -	$ 0.20	$ 18,405	$ 1,534
☑	**Telecom**	$ -	$ -	$ -	$ -
	Additional Parking	$ -	$ -	$ -	$ -
	Other	$ -	$ -	$ -	$ -
	Total Operating Costs	**$ 2.24**	**$ 13.37**	**$ 1,290,339**	**$ 107,528**

Life Cycle Cost Analysis - Project Summary

Agency	
Project Title	

Existing Description	

Lease Option 1 Description	

Lease Option 2 Description	

Ownership Option 1 Description	Central Washington University-Behavior and Mental Health Farrell Site with Childcare

Ownership Option 2 Description	Central Washington University-Behavior and Mental Health North Campus Full Replacement with Childcare

Ownership Option 3 Description	Central Washington University-Behavior and Mental Health North Campus Renovation & Addition with Childcare

Lease Options Information	**Existing Lease**	**Lease Option 1**	**Lease Option 2**
Total Rentable Square Feet	-	-	-
Annual Lease Cost (Initial Term of Lease)	$ -	$ -	$ -
Full Service Cost/SF (Initial Term of Lease)	$ -	$ -	$ -
Occupancy Date	n/a		
Project Initial Costs	n/a	$ -	$ -
Persons Relocating	-	-	-
RSF/Person Calculated			

Ownership Information	**Ownership 1**	**Ownership 2**	**Ownership 3**
Total Gross Square Feet	89,000	89,000	94,000
Total Rentable Square Feet	53,000	53,000	56,024
Occupancy Date	7/1/2027	7/1/2027	7/1/2027
Initial Project Costs	$ 280,000	$ 280,000	$ 280,000
Est Construction TPC ($/GSF)	$ 1,480	$ 1,528	$ 1,385

RSF/Person Calculated	-	-	-

Financial Analysis of Options

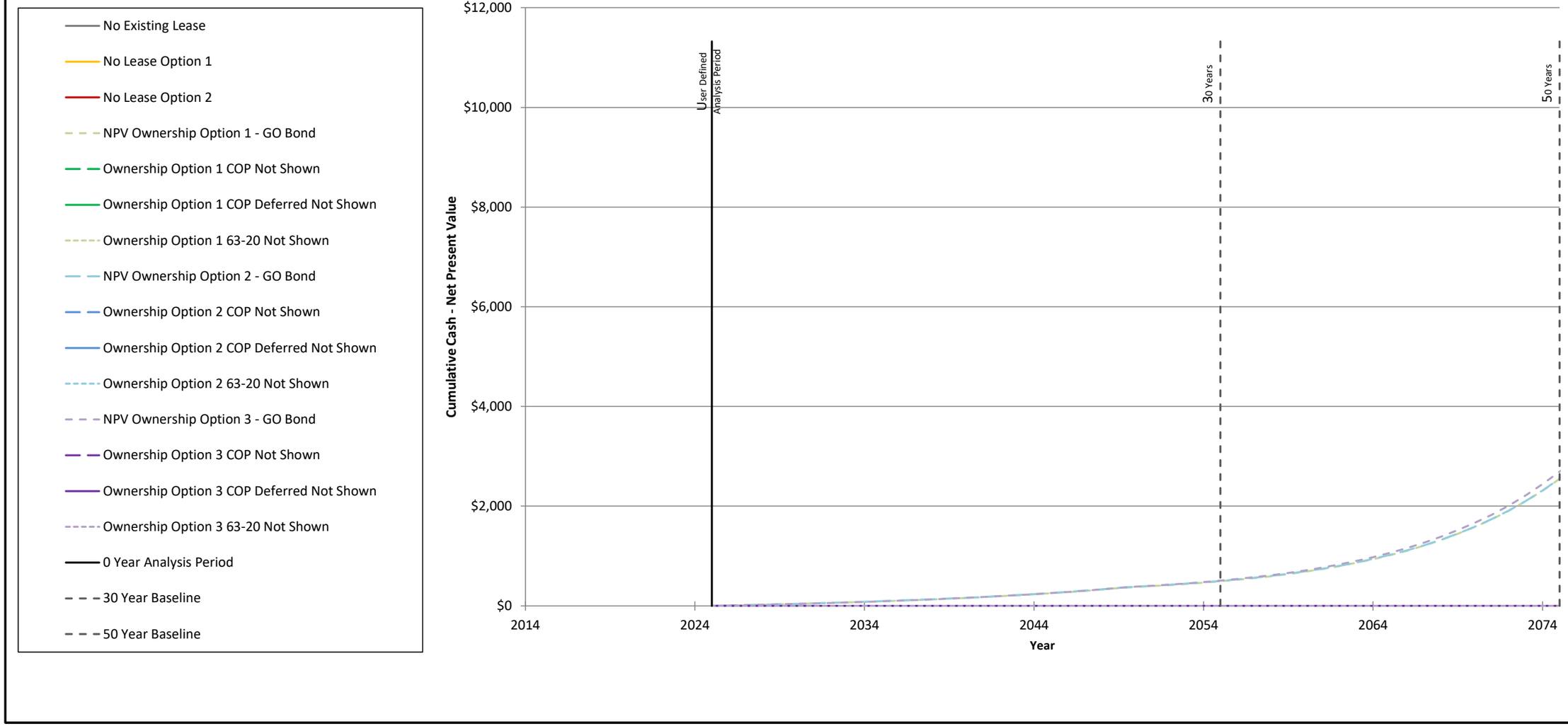
	Display Option?	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
0	0 Year Cumulative Cash	$ -	$ -	$ -	$ -				$ -				$ -			
	0 Year Net Present Value	$ -	$ -	$ -	$ -				$ -				$ -			
	Lowest Cost Option (Analysis Period)															

	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
30	30 Year Cumulative Cash	$ -	$ -	$ -	$ 235,798,395				$ 239,919,565				$ 240,813,825			
	30 Year Net Present Value	$ -	$ -	$ -	$ 464,165,870				$ 471,187,989				$ 476,413,270			
	Lowest Cost Option (30 Years)				**1**				**2**				**3**			

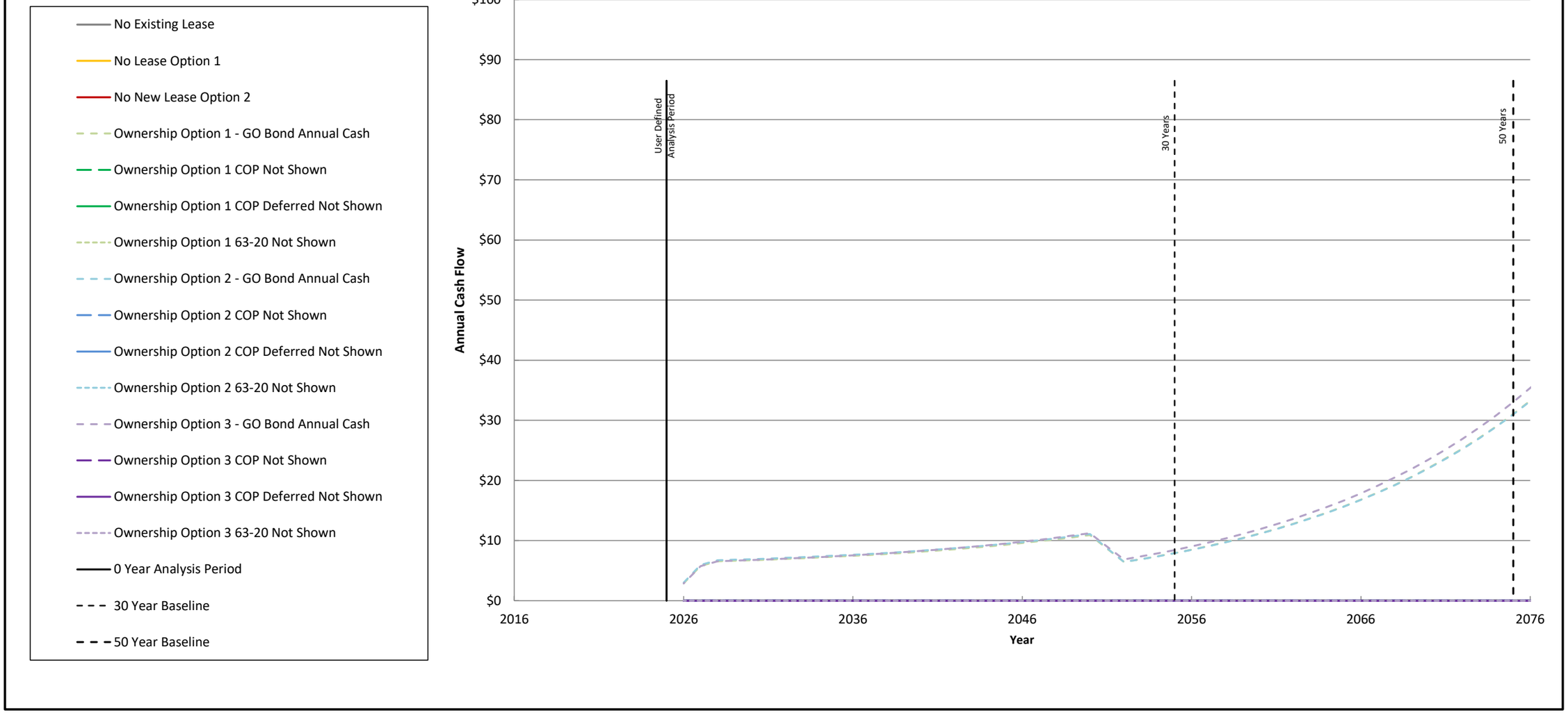
	Financial Comparisons	**Existing Lease**	**Lease 1**	**Lease 2**	**Ownership 1**				**Ownership 2**				**Ownership 3**			
Years	**Financing Means**	**Current**	**Current**	**Current**	**GO Bond**	**COP**	**COP Deferred ***	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**	**GO Bond**	**COP**	**COP Deferred**	**63-20**
50	50 Year Cumulative Cash	$ -	$ -	$ -	$ 586,329,992				$ 589,679,464				$ 613,755,050			
	50 Year Net Present Value	$ -	$ -	$ -	$2,310,982,782				$2,313,939,116				$2,441,297,941			
	Lowest Cost Option (50 Years)				**1**				**2**				**3**			

** - Defers payment on principle for 2 years while the building is being constructed. See instructions on Capitalized Interest.*

Cumulative Cash - NPV of Exist, Lease, and Own Options



Annual Cash Flow of Existing, New Lease, and Own Options



Financial Assumptions

Date of Life Cycle Cost Analysis:	
Analysis Period Start Date	7/1/2025
User Input Years of Analysis	0

All assumptions subject to change to reflect updated costs and conditions.

	Lease Options			Ownership Option 1			Ownership Option 2			Ownership Option 3		
	Existing Lease	**Lease Option 1**	**Lease Option 2**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**	**GO Bond**	**COP**	**63-20**
Inflation / Interest Rate	7.064%	7.064%	7.064%	2.881%	2.981%	3.081%	2.881%	2.981%	3.081%	2.881%	2.981%	3.081%
Discount Rate	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%	-3.814%
Length of Financing	N/A	N/A	N/A	25	25	25	25	25	25	25	25	25

See Financial Assumptions tab for more detailed information

COP Deferred and 63-20 Financing defer the payment on principle until construction completion.

New Lease Assumptions

Real Estate Transaction fees are 2.5% of the lease for the first 5 years and 1.25% for each year thereafter in the initial term of the lease.

Tenant Improvements are typically estimated at $19 per rentable square foot.

IT infrastructure is typically estimated at $1500 per person.

Furniture costs are typically estimated at $7000 per person and do not include new workstations.

Moving Vendor and Supplies are typically estimated at $300 per person.

Default Ownership Options Assumptions

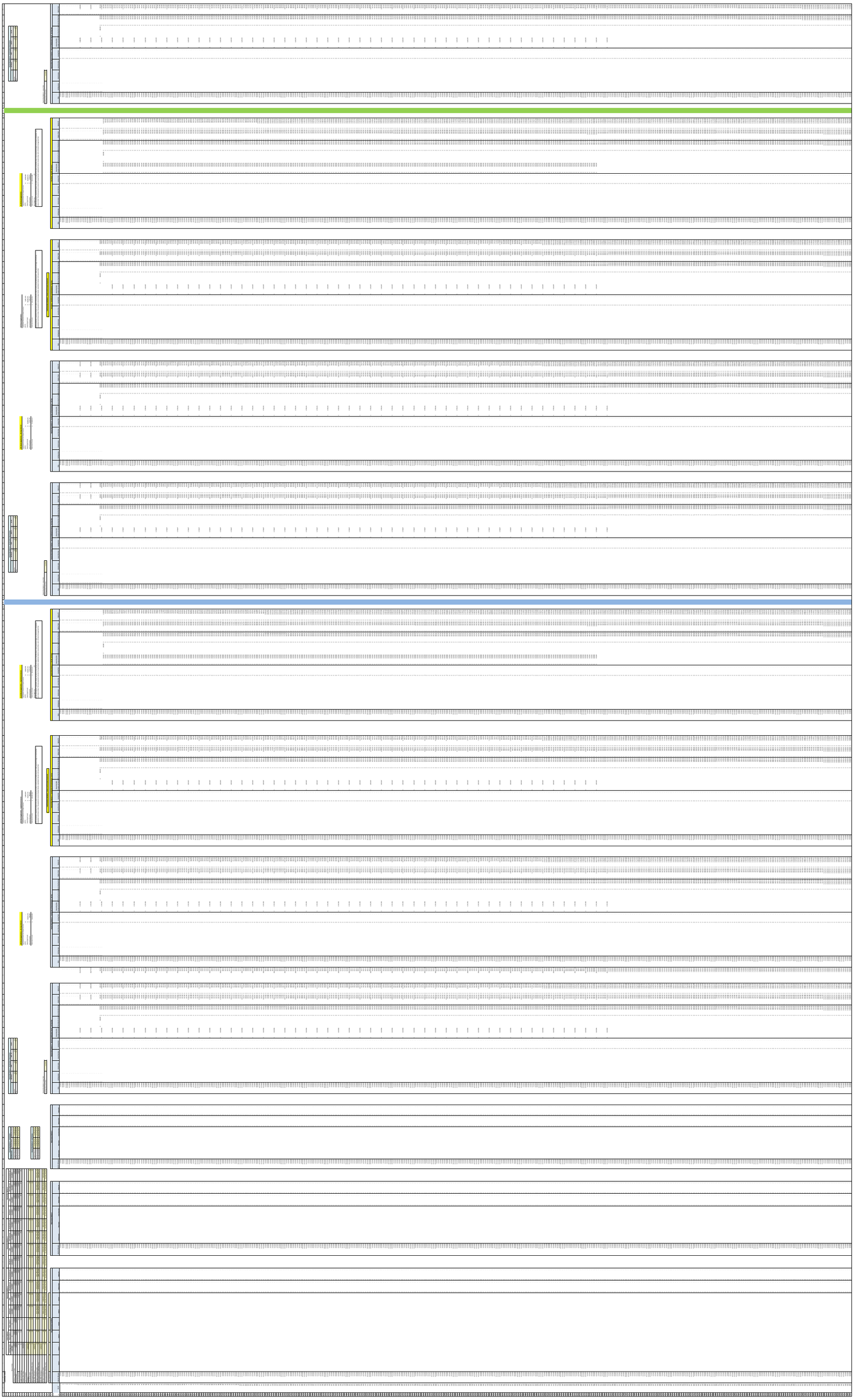
Assumes a 2 month lease to move-in overlap period for outfitting building and relocation.

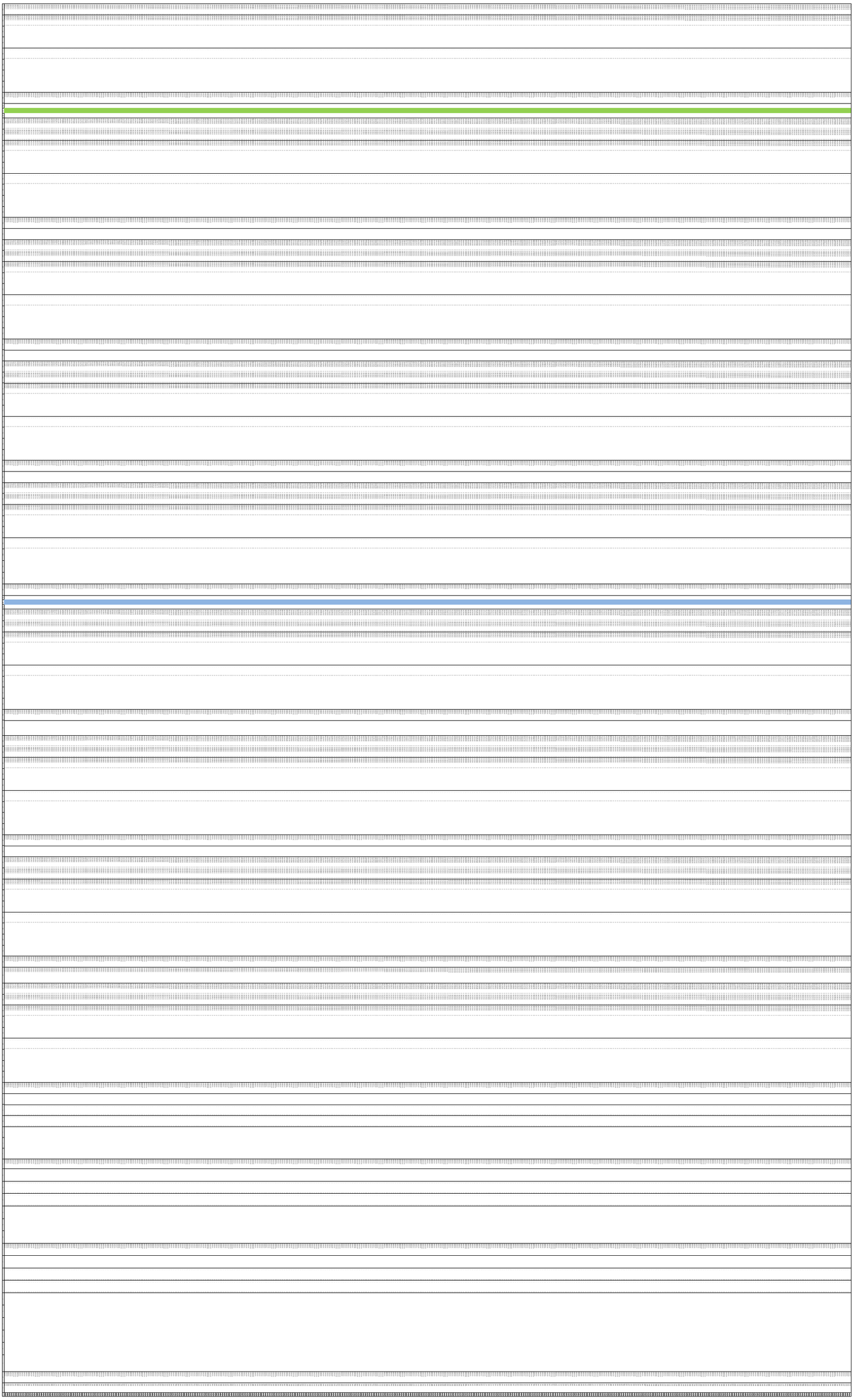
Assumes surface parking.

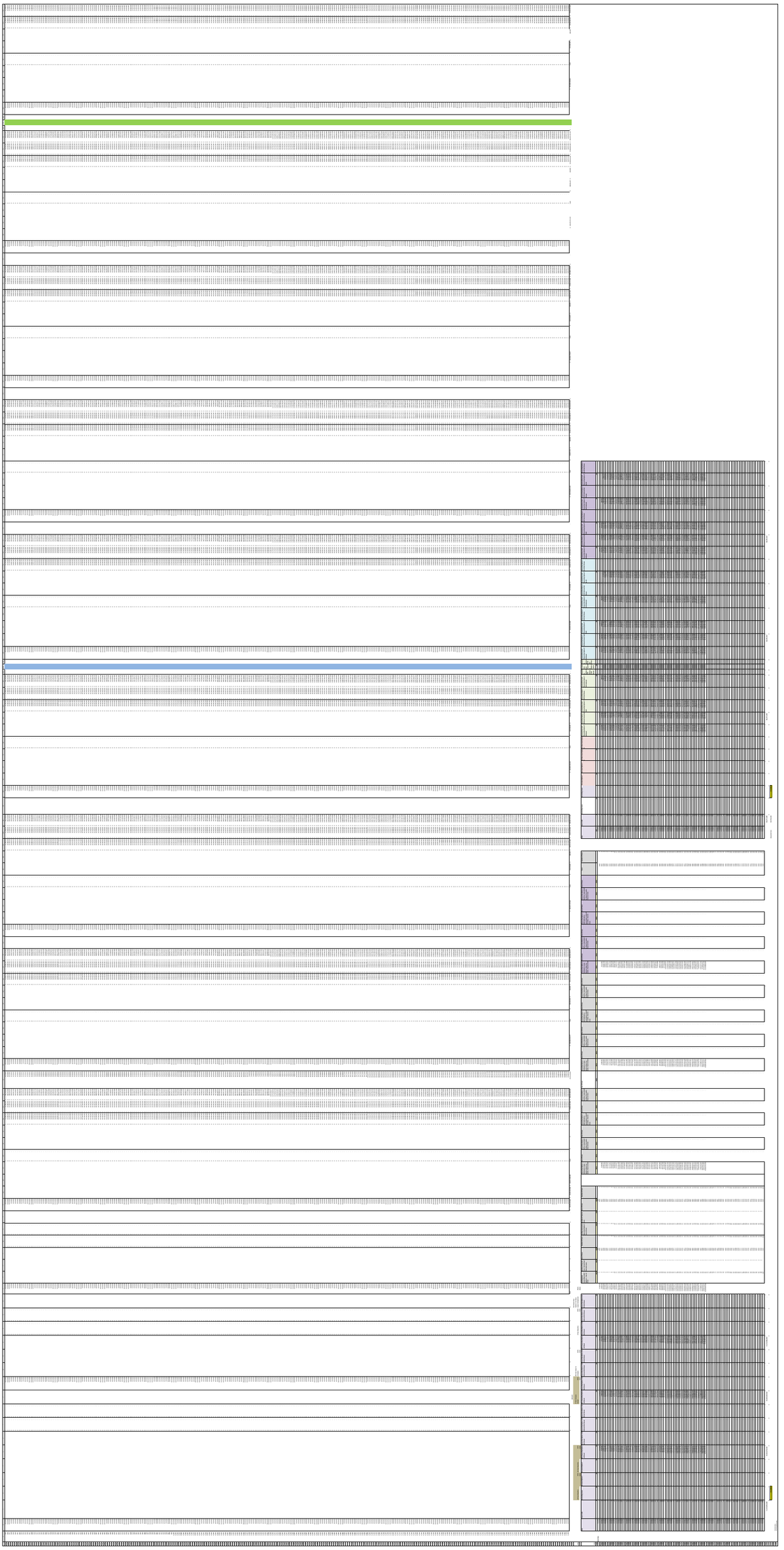
The floor plate of the construction option office building is 25,000 gross square feet.

The estimated total project cost for construction is $506.63 per square foot.

See the Capital Construction Defaults tab for more construction assumptions.







COP Bond Application - No Cap Interest

Capitalized Interest on Project Fund (2 years):	$	-
Total Project Fund	$	92,533,005
Cost of Issuance:	$	969,262
Total Use of Funds	$	93,502,267

COP Bond Application

Capitalized Interest on Project Fund (2 years):	$	5,599,965
Total Project Fund	$	92,533,005
Cost of Issuance:	$	969,262
Total Use of Funds	$	99,102,232

COP assumptions: payments shown are what is incurred by the state as semi-annual debt payment. Debt payments begin at Purchase completion and move-in date. The payments consist of project bonds, capitalized interest, and issuance fees.

63-20 Bond Application

Capitalized Interest on Project Fund (2 years):	$	5,790,641
Total Project Fund	$	92,533,005
Cost of Issuance:	$	1,740,843
Total Use of Funds	$	100,064,489
Bond Mgmt Fee		1%

63-20 assumptions: payments shown are what is incurred by the state as monthly lease. Lease payments begin at Purchase completion and move-in date. The lease payments consist of project bonds, capitalized interest, issuance fees, and a 1% bond management fee.

CAPITALIZED INTEREST / Deferred Principle Payment

Ownership Option 3 - Certificate of Participation - 25 Yes (No Cap Interest)

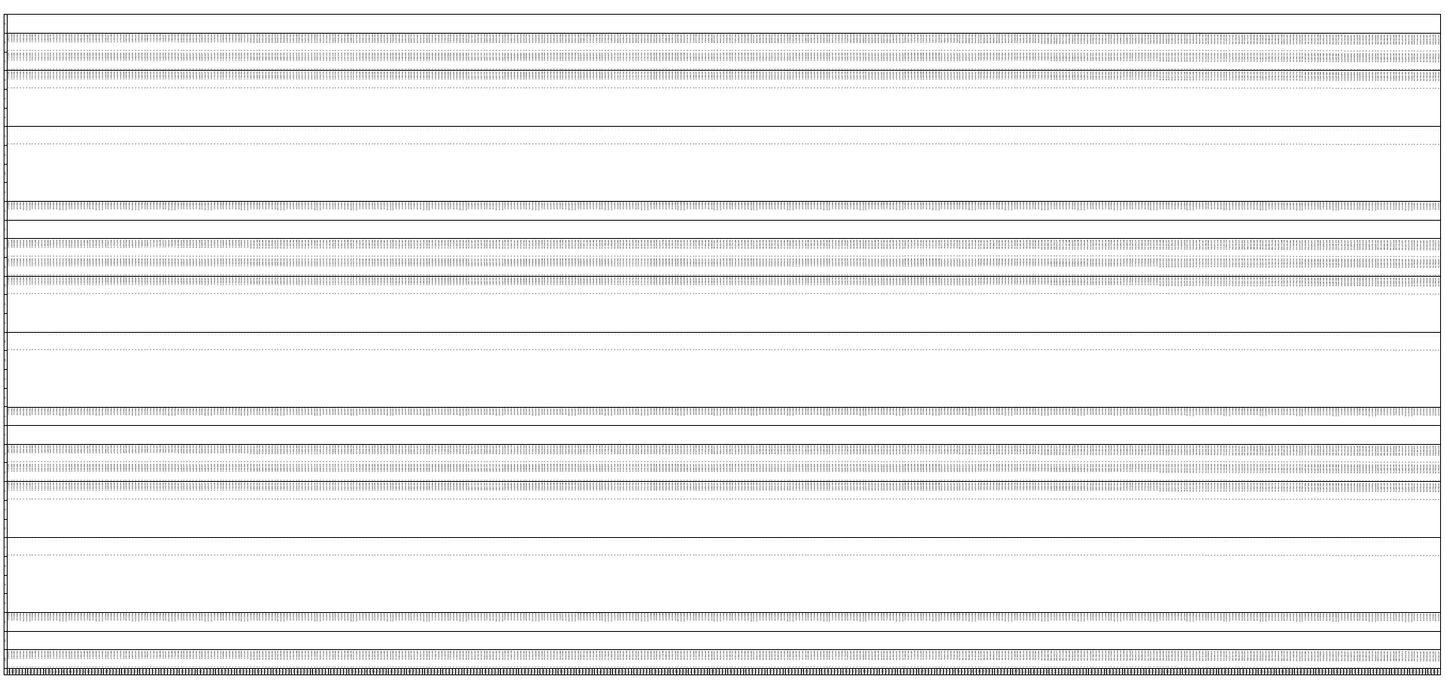
Row	Option PV (DW)	Date	Existing Lease	Interim Lease	Lease One-time	Leasing Total	Ownership Debt - Principle and Interest	Ownership One-time	Ownership Operating	Option Total	Option PV
24	$ -	7/1/2025	$ -			$ -				$ -	$ -
25	$ -	8/1/2025	$ -			$ -				$ -	$ -
26	$ -	9/1/2025	$ -			$ -				$ -	$ -
27	$ -	10/1/2025	$ -			$ -				$ -	$ -
28	$ -	11/1/2025	$ -			$ -				$ -	$ -
29	$ -	12/1/2025	$ -			$ -				$ -	$ -
30	$ -	1/1/2026	$ -			$ -				$ -	$ -
31	$ -	2/1/2026	$ -			$ -				$ -	$ -
32	$ -	3/1/2026	$ -			$ -				$ -	$ -
33	$ -	4/1/2026	$ -			$ -				$ -	$ -
34	$ -	5/1/2026	$ -			$ -				$ -	$ -
35	$ 2,984,587	6/1/2026	$ -			$ -	$ 2,679,281			$ 2,679,281	$ 2,776,497
36	$ -	7/1/2026	$ -			$ -				$ -	$ -
37	$ -	8/1/2026	$ -			$ -				$ -	$ -
38	$ -	9/1/2026	$ -			$ -				$ -	$ -
39	$ -	10/1/2026	$ -			$ -				$ -	$ -
40	$ -	11/1/2026	$ -			$ -				$ -	$ -
41	$ 2,770,501	12/1/2026	$ -			$ -	$ 2,679,281			$ 2,679,281	$ 2,831,003
42	$ -	1/1/2027	$ -			$ -				$ -	$ -
43	$ -	2/1/2027	$ -			$ -				$ -	$ -
44	$ -	3/1/2027	$ -			$ -				$ -	$ -
45	$ -	4/1/2027	$ -			$ -				$ -	$ -
46	$ 416,161	5/1/2027	$ -			$ -		$ 280,000	$ 107,528	$ 387,528	$ 416,161
47	$ 2,940,737	6/1/2027	$ -			$ -	$ 2,679,281		$ 107,528	$ 2,786,810	$ 3,002,426
48	$ 116,224	7/1/2027				$ -			$ 107,528	$ 107,528	$ 116,224
49	$ 116,601	8/1/2027				$ -			$ 107,528	$ 107,528	$ 116,601
50	$ 116,979	9/1/2027				$ -			$ 107,528	$ 107,528	$ 116,979
51	$ 117,359	10/1/2027				$ -			$ 107,528	$ 107,528	$ 117,359
52–465	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

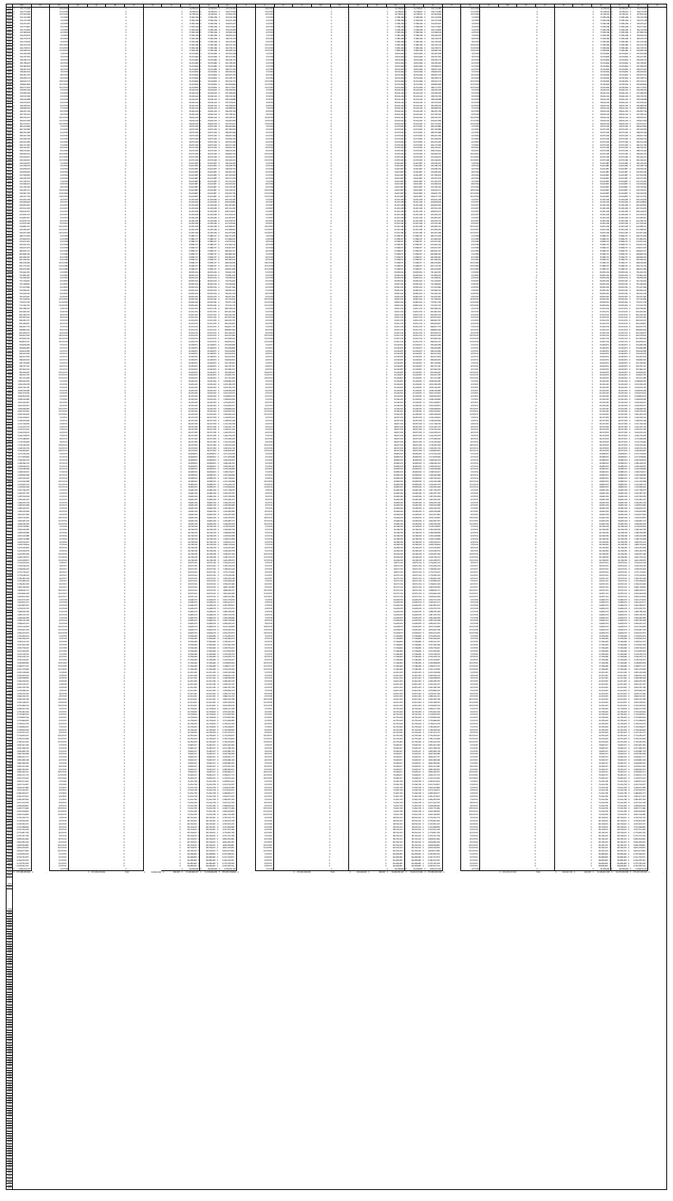
Ownership Option 3 - Certificate of Participation - 25 Yes (Capitalized Interest)

Row	Date	Existing Lease	Interim Lease	Lease One-time	Leasing Total	Ownership Debt - Principle and Interest	Ownership One-time	Ownership Operating	Option Total	Option PV
24–45	7/1/2025 – 4/1/2027	$ -			$ -				$ -	$ -
46	5/1/2027	$ -			$ -		$ 280,000	$ 107,528	$ 387,528	$ 416,161
47	6/1/2027	$ -			$ -			$ 107,528	$ 107,528	$ 115,868
48	7/1/2027				$ -			$ 107,528	$ 107,528	$ 116,224
49	8/1/2027				$ -			$ 107,528	$ 107,528	$ 116,601
50	9/1/2027				$ -			$ 107,528	$ 107,528	$ 116,979
51	10/1/2027				$ -			$ 107,528	$ 107,528	$ 117,359
52–465	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

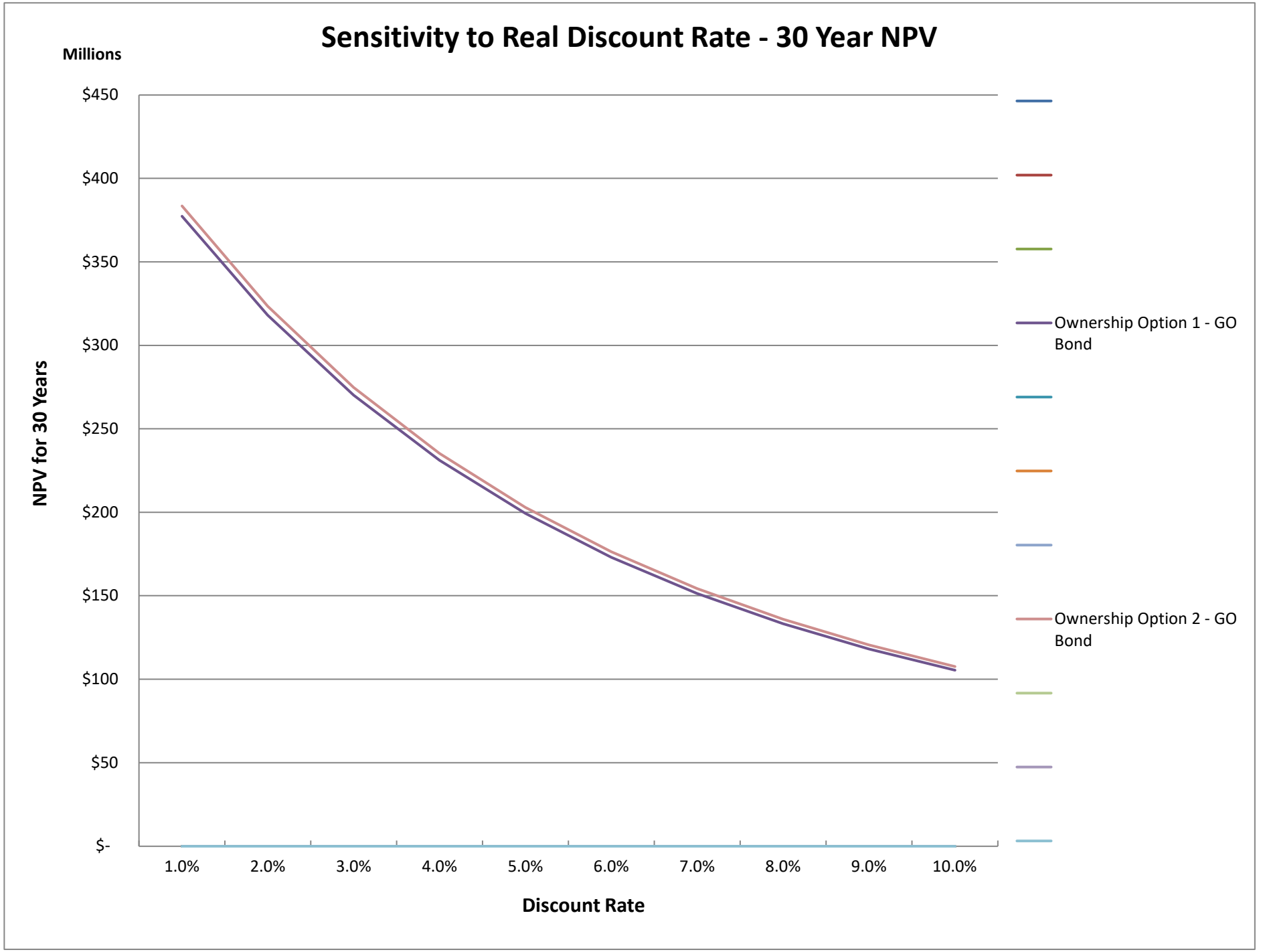
Ownership Option 3 - 63-20 - 25 Year

Row	Date	Existing Lease	Interim Lease	Lease One-time	Leasing Total	Ownership Debt - Principle and Interest	Ownership One-time	Ownership Operating	Option Total	Option PV
24–47	7/1/2025 – 6/1/2027	$ -			$ -				$ -	$ -
48	7/1/2027				$ -	$ 516,529	$ 430,000	$ 107,528	$ 1,054,058	$ 1,139,296
49	8/1/2027				$ -	$ 516,529		$ 107,528	$ 624,058	$ 676,712
50	9/1/2027				$ -	$ 516,529		$ 107,528	$ 624,058	$ 678,909
51	10/1/2027				$ -	$ 516,529		$ 107,528	$ 624,058	$ 681,112
52–465	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

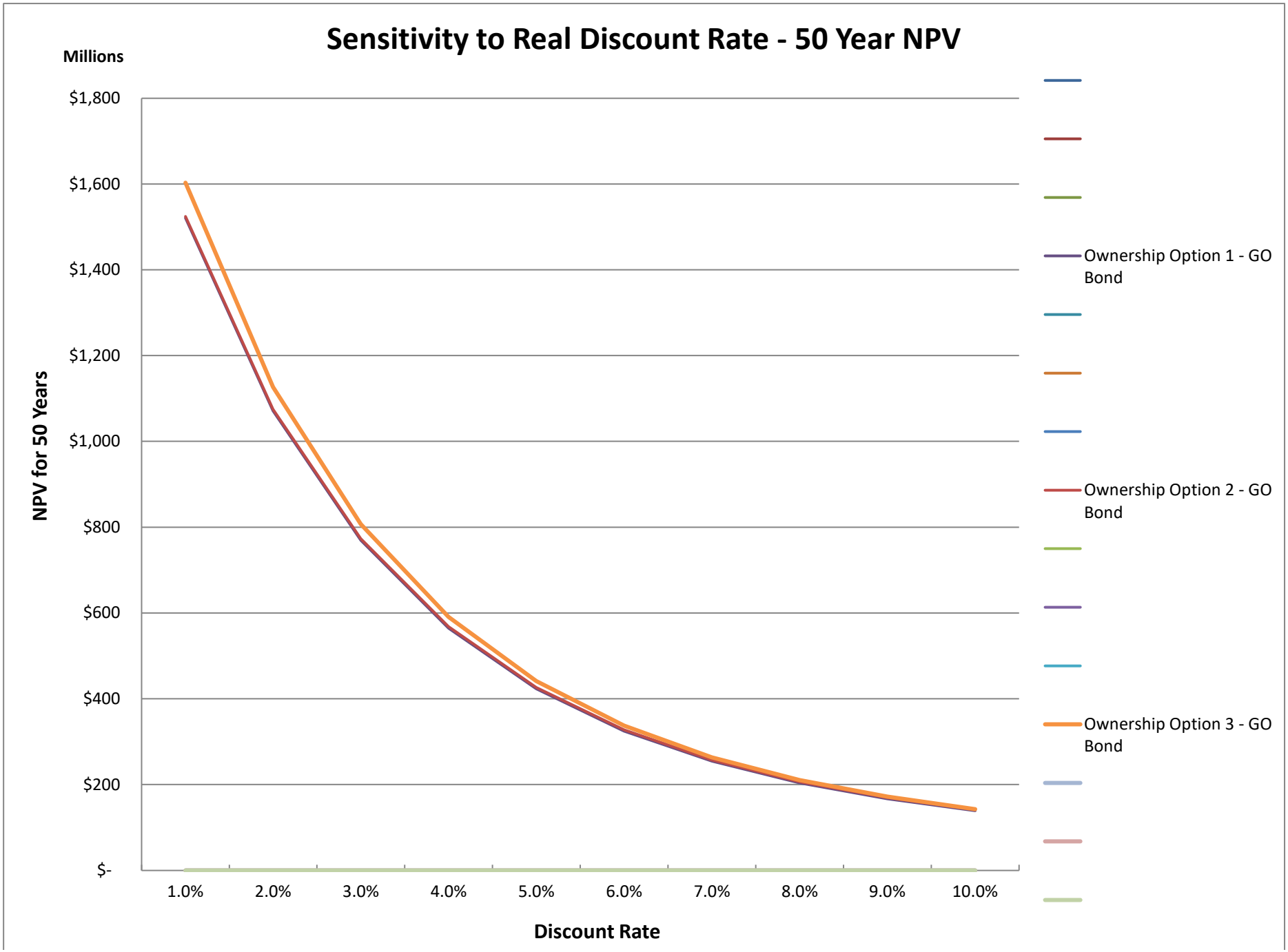




Discount Rate Sensitivity



Discount Rate Sensitivity



Capital Default Costs

Category	Costs
Est. Construction Cost MACC ($/GSF)	$ 361.88
Est. Construction Cost TPC ($/GSF)	$ 506.63
TPC / MACC Typical Ratio	1.40
Property - Cost per Acre	$ 250,000.00
Contractor Fees	22.5%
Art Work	0.5%
SF per Floor (max)	25,000
Building Site Compared to Floor Plate	1.20
Parking Stall Number Ratio: 1 to GSF	300
Surface Parking Stall Area in SF	400
SF per Acre	43,560
A/E Fees Ownership Option 1 (Based on Construction MACC)	5.67%
A/E Fees Ownership Option 2 (Based on Construction MACC)	5.65%
A/E Fees Ownership Option 3 (Based on Construction MACC)	5.81%

63-20 Additional State Incurred Legal Fees	$ 150,000.00

Ownership Option 1 - Period from Issuance of Bond to Construction Completion	
Financing Method	**Months**
GO Bond	18
COP	18
COP - Capitalized Interest	24
63-20	24

Ownership Option 2 - Period from Issuance of Bond to Construction Completion	
Financing Method	**Months**
GO Bond	18
COP	18
COP - Capitalized Interest	24
63-20	24

Ownership Option 3 - Period from Issuance of Bond to Construction Completion	
Financing Method	**Months**
GO Bond	18
COP	18
COP - Capitalized Interest	24
63-20	24

	A	B	C	D	E
1	**Life Cycle Cost Model**				
2	**Financing Assumption for OFM**				
3	**Office of the State Treasurer**				
4	**Interest Rates as of: February 16, 2022 ERFC & IHS Markit Forecasts**				
5					
6		**February 2022 Forecast**			
7	**Financing Assumptions**	**$0-$20 Million**	**$20-$100 Million**	**$100+ Million**	**Assumption Comments/Sources**
8	% Financing Cost - GO Bond	0.33%	0.28%	0.23%	Based on three year averages
9	% Financing Cost - COP	1.60%	1.05%	0.50%	Based on three year averages
10	% Financing Cost - 63-20	n/a	1.88%	1.26%	Based on MDA Analysis assuming actual expenses
11					
12	Average Interest rate - GO Bond	2.88%	2.88%	2.88%	Forecasted avg. BBI for the next 3 years (ERFC & IHS, 2/16/2022)
13	Average Interest rate - COP*	2.98%	2.98%	2.98%	Forecasted avg. BBI for the next 3 years (ERFC & IHS, 2/16/2022) plus MDA COP Spread
14	Average Interest rate - 63-20*	3.13%	3.08%	3.08%	Forecasted avg. BBI for the next 3 years (ERFC & IHS, 2/16/2022) plus MDA 63-20 Spread
15	Average Interest rate - Conventional	3.25%	3.25%	3.25%	Prime rate (63-20 at taxable rate), February 25, 2022
16	Treasurer Short Term Investment Rate Yield	0.09%	0.09%	0.09%	LGIP Net Average Rate January 2022
17	Commercial Short Term Interest	0.09%	0.09%	0.09%	LGIP Net Average Rate January 2022
18					
19	GO Yield Restriction Factor	0.00%	0.00%	0.00%	Placeholder in Model
20	COP Yield Restriction Factor	0.00%	0.00%	0.00%	Placeholder in Model
21	63-20 Yield Restriction Factor	0.00%	0.00%	0.00%	Placeholder in Model
22					
23	Short Term GO Reinvestment with Yield Restrictions	0.09%	0.09%	0.09%	Calculation
24	Months of Cash Flow Subject to Arbitrage	6	6	6	Per the Office of the State Treasurer
25					
26	Short Term COP Reinvestment with Yield Restrictions and Market	0.09%	0.09%	0.09%	Calculation
27	Short Term COP Reinvestment with Yield Restrictions	2.98%	2.98%	2.98%	Intermediate Calculation
28					
29	Short Term 63-20 Reinvestment with Yield Restrictions and Market	0.09%	0.09%	0.09%	Calculation
30	Short Term 63-20 Reinvestment with Yield Restrictions	3.13%	3.08%	3.08%	Intermediate Calculation
31					
32					
33	Developer Financing Cost with Financing Up Front	2.00%	2.00%	2.00%	Placeholder in Model -- from OFM
34	Developer Financing Cost with Financing At End	2.00%	2.00%	2.00%	Placeholder in Model -- from OFM
35	Number of Years Financed - GO Bond	25	25	25	Placeholder in Model
36	Number of Years Financed - COP	25	25	25	Placeholder in Model
37	Number of Years Financed - 63-20	25	25	25	Placeholder in Model
38					
39					
40	General Inflation	7.06%	7.06%	7.06%	Forecasted avg. inflation for the next 3-years (February 16, 2022 Forecast)
41	Real Discount Rate	-3.81%	-3.81%	-3.81%	Calculation $\mathrm{Pr} = \frac{Pn - J}{1 + J}$
42					
43					
44					
45	**Calculated Interest Rate Diffeernetals**				
46	Interest Rate Differential - COP vs. Bond	0.10%	0.10%	0.10%	
47	Interest Rate Differential - 63-20 vs. COP	0.15%	0.10%	0.10%	
48	Interest Rate Differential - 63-20 vs. Bond	0.25%	0.20%	0.20%	
49					
50					
51	**Enter Data for U/D, Ins, & COI here**				
52	% Underwriters' Discount - GO Bond	0.28%	0.23%	0.18%	Per OST Estimate on 2/25/2022 (Avg. FY 2018-2022)
53	% Underwriters' Discount - COP	0.32%	0.27%	0.22%	Per OST Estimate on 2/25/2022 (Avg. FY 2018-2022)
54	% Underwriters' Discount - 63-20	n/a	0.27%	0.22%	Per MDA Estimate on 8/26/2021
55					
56	% Bond Insurance - GO Bond	0.00%	0.00%	0.00%	No longer applicable
57	% Bond Insurance - COP	0.00%	0.00%	0.00%	No longer applicable
58	% Bond Insurance - 63-20	n/a	0.00%	0.00%	No longer applicable
59					
60	% Cost of Issuance - GO Bond	0.05%	0.05%	0.05%	Per OST Estimate on 2/25/2022
61	% Cost of Issuance - COP	1.28%	0.78%	0.28%	Per OST Estimate on 2/25/2022
62	% Cost of Issuance - 63-20	n/a	1.61%	1.04%	Per MDA Estimate on 8/26/2021
63					
64	**Total % Financing Cost - GO Bond**	0.33%	0.28%	0.23%	
65	**Total % Financing Cost - COP**	1.60%	1.05%	0.50%	
66	**Total % Financing Cost - 63-20**	n/a	1.88%	1.26%	

Operating Costs for Washington State
Oct-21

Costs are for model 2 story office building with medium levels of service. Data is for mid 2021. The Whiteston

		Today	Days
Data Date:	**10/1/2021**	6/22/2022	264
Rentable/Gross SF:	0.90		

Annua

Market	Custodial	Energy	Grounds	* M&R	Management	Pest
Aberdeen	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Acme	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ahtanum	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Airway Heights	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Albion	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Algona	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Allyn	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Almira	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Amanda Park	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Anacortes	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Anatone	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Ariel	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Arlington	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ashford	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Asotin	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Auburn	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Axford Prairie	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Bainbridge Island	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ballard	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Battle Ground	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Beaux Arts Village	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Beaver	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Belfair	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Bellevue	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Bellingham	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Benton City	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Bickleton Ridge	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Bingen	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Birch Bay	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Birdsview	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Black Diamond	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Blaine	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Blewett	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Blewett Pass	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Bonneville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

Bonney Lake	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Bothell	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Bow	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Bremerton	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Brewster	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Bridgeport	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Brier	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Brinnon	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Buckley	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Bucoda	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Burbank	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Burien	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Burlington	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Camano Island	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Camas	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Camp Murray	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Carbonado	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Carnation	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Carson	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Cashmere	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Castle Rock	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Cathlamet	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Centralia	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Chehalis	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Chelan	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Cheney	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Chewelah	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Chimacum	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Clallam Bay	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Clarkston	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Cle Elum	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Clinton	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Clyde Hill	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Colfax	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
College Place	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Colton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Colville	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Conconully	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Concrete	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Connell	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Copalis	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Copalis Beach	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Cosmopolis	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Coulee City	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Coulee Dam	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Coupeville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Covington	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120

Cowiche	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Creston	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Curlew	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Cusick	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Custer	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Darrington	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Davenport	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Dayton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Deer Park	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Delaney	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Des Moines	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Discovery Bay	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Dodge Junction	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Dodge Ridge	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Dryden	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
DuPont	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Duvall	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
East Wenatchee	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Easton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Eastsound	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Eatonville	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Edgewood	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Edmonds	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Electric City	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Elk	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Elk Heights	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Ellensburg	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Elma	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Elmer City	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Elwha	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Endicott	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Entiat	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Enumclaw	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Ephrata	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Evans	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Everett	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Everson	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Fairfield	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Fall City	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Farmington	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Federal Way	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Ferndale	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Fife	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Fircrest	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Ford	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Fordair	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Forks	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

Fort Spokane	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Four Lakes	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Frederickson	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Freeland	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Friday Harbor	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ft Lewis	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Garfield	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
George	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Gig Harbor	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Glenoma	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Glenwood	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Gold Bar	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Goldendale	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Graham	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Grand Coulee	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Grandview	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Granger	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Granite Falls	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Hamilton	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Harrah	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Harrington	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Hartline	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Hatton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Haystack Butte	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Hoquiam	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Hunters	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Hunts Point	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Husum	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Hyak	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Ilwaco	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Index	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ione	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Iron Creek	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Issaquah	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Kahlotus	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Kalama	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Kelso	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Kenmore	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Kennewick	$ 1.360	$ 0.880	$ 0.050	$ 5.540	$ 0.850	$ 0.100
Kent	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Kettle Falls	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Kingston	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Kiona	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Kirkland	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Kittitas	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Krupp	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
La Center	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

La Conner	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
La Crosse	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Lacey	$ 1.390	$ 1.160	$ 0.050	$ 5.350	$ 0.720	$ 0.090
Lake Forest Park	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Lake Stevens	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Lakewood	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Lamont	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Langley	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Larch	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Latah	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Leahy	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Leavenworth	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Liberty	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Liberty Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Lilliwaup	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Lind	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Little Buck Mountain	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Littlerock	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Locust Grove	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Lofall	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Long Beach	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Longbranch	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Longview	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Loomis	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Loon Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Lopez Island	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Lyman	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Lynden	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Lynnwood	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mabton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Malaga	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Malden	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Maltby	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Manchester	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mansfield	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Manson	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Maple Valley	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Marblemount	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Marcus	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Maryhill	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Marysville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mattawa	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
McCleary	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mead	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Medical Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Medina	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Menlo	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

Mercer Island	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Mesa	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Metaline	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Metaline Falls	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Methow	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Mill Creek	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Millwood	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Milton	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Milton	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Mineral	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Moclips	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Monroe	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Montesano	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Morton	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Moses Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Mossyrock	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mount Vernon	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Mountlake Terrace	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Moxee	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Mukilteo	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Naches	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Nahcotta	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Napavine	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Naselle	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Neah Bay	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Nespelem	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Newcastle	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Newport	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Nolan Creek	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Nooksack	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Nordland	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Normandy Park	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
North Bend	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
North Bonneville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Northport	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Oak Harbor	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Oakesdale	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Oakville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ocean Park	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ocean Shores	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Odessa	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Okanogan	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Olga	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Olympia	$ 1.390	$ 1.160	$ 0.050	$ 5.350	$ 0.720	$ 0.090
Omak	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Orcas Island	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Orient	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090

Orondo	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Oroville	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Orting	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Othello	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Pacific	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Pacific Beach	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Packwood	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Palouse	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Parkland	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Pasco	$ 1.360	$ 0.880	$ 0.050	$ 5.540	$ 0.850	$ 0.100
Pateros	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Paterson	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Pe Ell	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Peshastin	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Plymouth	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Pomeroy	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Port Angeles	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Port Gamble	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Port Hadlock	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Port Orchard	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Port Townsend	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Poulsbo	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Pratt Lake	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Prescott	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Prosser	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Pullman	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Puyallup	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Queets	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Quinault	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Quincy	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Rainier	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ravensdale	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Raymond	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Reardan	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Redmond	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Renton	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Republic	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Retsil	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Rice	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Richland	$ 1.360	$ 0.880	$ 0.050	$ 5.540	$ 0.850	$ 0.100
Ridgefield	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Ritzville	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Riverside	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Rochester	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Rock Island	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Rockford	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Rockport	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

Ronald	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Rosalia	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Roslyn	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Roy	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Royal City	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Ruston	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Ryegrass	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Salkum	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Sammamish	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Seabeck	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
SeaTac	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Seattle	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Seattle CBD	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Sedro-Woolley	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Sekiu	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Selah	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Sequim	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Shaw Island	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Shelton	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Shoreline	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Silver Lake	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Silverdale	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Skykomish	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Snohomish	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Snoqualmie	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Snoqualmie Pass	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Soap Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
South Bend	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
South Cle Elum	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
South Prairie	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Southworth	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Spanaway	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Spangle	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Spokane	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Spokane CBD	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Spokane Valley	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Sprague	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Springdale	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
St John	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Stampede	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Stanwood	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Starbuck	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Steilacoom	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Stevens Pass	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Stevenson	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Sultan	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Sumas	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100

Sumner	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Sunnyside	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Tacoma	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Tacoma CBD	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Tekoa	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Tenino	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Tieton	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Tillicum	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Toledo	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Tonasket	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Toppenish	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Toutle	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Trinidad	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Trout Lake	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Tukwila	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Tulalip Bay	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Tumwater	$ 1.390	$ 1.160	$ 0.050	$ 5.350	$ 0.720	$ 0.090
Twisp	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Tyler	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Underwood Mountain	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Union	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Union Gap	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Uniontown	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
University Place	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Usk	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Vader	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Vancouver	$ 1.390	$ 0.820	$ 0.060	$ 5.580	$ 0.830	$ 0.090
Vantage	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Vashon	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Veradale	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Vernita	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Waitsburg	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Walla Walla	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Wapato	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Warden	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Washougal	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Washtucna	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Waterville	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Wauconda	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Waverly	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Wellpinit	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Wenatchee	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
West Richland	$ 1.360	$ 0.880	$ 0.050	$ 5.540	$ 0.850	$ 0.100
Westport	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
White Pass	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
White Salmon	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Wilbur	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090

Wilkeson	$ 1.460	$ 0.990	$ 0.070	$ 5.630	$ 0.880	$ 0.120
Wilson Creek	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Winlock	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Winthrop	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Woodinville	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Woodland	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Woodway	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Yacolt	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Yakima	$ 1.360	$ 0.880	$ 0.050	$ 5.540	$ 0.850	$ 0.100
Yarrow Point	$ 1.460	$ 0.950	$ 0.070	$ 5.790	$ 0.880	$ 0.120
Yelm	$ 1.400	$ 1.150	$ 0.060	$ 5.530	$ 0.910	$ 0.100
Zillah	$ 1.330	$ 0.920	$ 0.050	$ 5.190	$ 0.750	$ 0.090
Statewide Average	$ 1.381	$ 1.012	$ 0.057	$ 5.419	$ 0.833	$ 0.099

* M&R = 50-year average cost in current dollars.

Custodial services include the cleaning of offices, work areas, restrooms and common areas. Trash removal is

Energy includes all expenses related to the purchase, generation, distribution, and conservation of energy an included are utilities maintenance or supervision.

Grounds include the maintenance of exterior landscaped areas. It does not include street sweeping or snow r Also not included is the maintenance of semi-improved and unimproved areas.

Maintenance and repair (M&R) includes all activities required to keep an asset in good working order. Preve costs are considered M&R activities, while restoration and modernization are not. Maintenance and repair cc

Management includes management services common to a large commercial facility or campus: project mana engineering. It does not include leasing commissions or direct supervision of M&R, grounds, or utilities.

Pest Control includes rodent control and insect abatement procedures and inspections, both indoors and out

Refuse service includes trash collection and disposal, pick-up services, fees, recycling operations and adminis investment in recycling programs or facilities.

Road Clearance includes sweeping sand and debris and removing snow and ice from paved areas including rc

Security services insure the physical security of assets and occupants, and include monitoring equipment, gua

Telecommunications (Telecom) includes voice and data equipment and service.

Water and Sewer includes potable water, irrigation water, and sewage service.

ıe Facilitity Operations Cost Reference 2021- Whitestone Research.

ıl Cost per Gross Square Foot

Garbage	Road Clearance	Security	Telecom	Water/ Sewer	Total	Total w/o M&R or Mgmt	Whitestone Local Area
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle

$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.070	$ 0.140	$ 0.090	$ -	$ 0.190	$ 9.270	$ 2.88	Richland
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.110	$ 0.090	$ -	$ 0.510	$ 9.630	$ 3.56	Olympia
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.110	$ 0.090	$ -	$ 0.510	$ 9.630	$ 3.56	Olympia
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane

$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.070	$ 0.140	$ 0.090	$ -	$ 0.190	$ 9.270	$ 2.88	Richland
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
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$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.070	$ 0.140	$ 0.090	$ -	$ 0.190	$ 9.270	$ 2.88	Richland
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
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$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
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$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes

$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
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$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
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$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.160	$ 0.110	$ 0.090	$ -	$ 0.510	$ 9.630	$ 3.56	Olympia
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.110	$ 0.060	$ 0.090	$ -	$ 1.060	$ 10.090	$ 3.68	Portland
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.070	$ 0.140	$ 0.090	$ -	$ 0.190	$ 9.270	$ 2.88	Richland
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane

$ 0.140	$ 0.090	$ 0.090	$ -	$ 0.520	$ 9.990	$ 3.48	Tacoma
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.070	$ 0.140	$ 0.090	$ -	$ 0.190	$ 9.270	$ 2.88	Richland
$ 0.250	$ 0.090	$ 0.090	$ -	$ 1.400	$ 11.100	$ 4.43	Seattle
$ 0.090	$ 0.040	$ 0.090	$ -	$ 0.410	$ 9.780	$ 3.34	Anacortes
$ 0.160	$ 0.130	$ 0.090	$ -	$ 0.170	$ 8.880	$ 2.94	Spokane
$ 0.142	$ 0.090	$ 0.090	$ -	$ 0.419	$ 9.543	$ 3.29	Statewide Average

s not included.

d source fuels necessary to operate an asset and its typical programmatic equipment. Not

removal, the maintenance of parking lots or roadways, or the maintenance of signage.

ntative maintenance, unscheduled maintenance, and component repair and replacement
osts for programmatic equipment are not included.

agement, material procurement, facility IT support, business services, planning and

tdoors. Use of herbicides is not included.

tration. Not included are the handling and disposal of hazardous materials and

oads, sidewalks, walkways, and parking lots.

ards, and patrol services.

Annual Operating Costs for the Selected Market
Escalated for 100 Years

Costs are for model 2 story office building with medium levels of service. Data is for mid 2021. The Whitestone Facility Operations Cost Reference 2021- Whitestone Research.

		Today	Days	Escalation Factor
Date Date:	1-Oct-21	6/22/2022	264	0.723
Rentable/Gross SF:	0.90			
Market:	Statewide Average			

Annual Cost per Gross Square Foot

Year	Custodial	Energy	Grounds	Maintenance & Repair	Management	Pest	Garbage	Road Clearance	Security	Telecom	Water/ Sewer	Total
2021	$1.3809	$1.0120	$0.0574	$5.4187	$0.8331	$0.0995	$0.1416	$0.0901	$0.0900	$0.0000	$0.4192	$9.5426
2022	$1.4785	$1.0835	$0.0615	$5.8015	$0.8920	$0.1065	$0.1516	$0.0965	$0.0964	$0.0000	$0.4489	$10.2167
2023	$1.5829	$1.1600	$0.0659	$6.2113	$0.9550	$0.1140	$0.1623	$0.1033	$0.1032	$0.0000	$0.4806	$10.9385
2024	$1.6948	$1.2419	$0.0705	$6.6501	$1.0224	$0.1221	$0.1737	$0.1106	$0.1105	$0.0000	$0.5145	$11.7112
2025	$1.8145	$1.3297	$0.0755	$7.1199	$1.0947	$0.1307	$0.1860	$0.1184	$0.1183	$0.0000	$0.5509	$12.5385
2026	$1.9427	$1.4236	$0.0808	$7.6229	$1.1720	$0.1399	$0.1991	$0.1268	$0.1266	$0.0000	$0.5898	$13.4243
2027	$2.0799	$1.5242	$0.0865	$8.1614	$1.2548	$0.1498	$0.2132	$0.1358	$0.1356	$0.0000	$0.6314	$14.3727
2028	$2.2269	$1.6319	$0.0926	$8.7380	$1.3434	$0.1604	$0.2283	$0.1454	$0.1451	$0.0000	$0.6761	$15.3880
2029	$2.3842	$1.7471	$0.0992	$9.3553	$1.4383	$0.1718	$0.2444	$0.1556	$0.1554	$0.0000	$0.7238	$16.4751
2030	$2.5526	$1.8706	$0.1062	$10.0162	$1.5399	$0.1839	$0.2617	$0.1666	$0.1664	$0.0000	$0.7750	$17.6390
2031	$2.7329	$2.0027	$0.1137	$10.7238	$1.6487	$0.1969	$0.2802	$0.1784	$0.1781	$0.0000	$0.8297	$18.8851
2032	$2.9260	$2.1442	$0.1217	$11.4814	$1.7652	$0.2108	$0.2999	$0.1910	$0.1907	$0.0000	$0.8883	$20.2192
2033	$3.1327	$2.2957	$0.1303	$12.2924	$1.8899	$0.2257	$0.3211	$0.2045	$0.2042	$0.0000	$0.9511	$21.6476
2034	$3.3540	$2.4578	$0.1395	$13.1608	$2.0234	$0.2416	$0.3438	$0.2189	$0.2186	$0.0000	$1.0183	$23.1768
2035	$3.5910	$2.6315	$0.1494	$14.0906	$2.1664	$0.2587	$0.3681	$0.2344	$0.2340	$0.0000	$1.0902	$24.8141
2036	$3.8446	$2.8174	$0.1599	$15.0860	$2.3194	$0.2770	$0.3941	$0.2510	$0.2506	$0.0000	$1.1672	$26.5671
2037	$4.1162	$3.0164	$0.1712	$16.1517	$2.4832	$0.2965	$0.4220	$0.2687	$0.2683	$0.0000	$1.2497	$28.4439
2038	$4.4070	$3.2295	$0.1833	$17.2928	$2.6587	$0.3175	$0.4518	$0.2877	$0.2872	$0.0000	$1.3379	$30.4534
2039	$4.7184	$3.4576	$0.1963	$18.5144	$2.8465	$0.3399	$0.4837	$0.3080	$0.3075	$0.0000	$1.4325	$32.6047
2040	$5.0517	$3.7019	$0.2101	$19.8223	$3.0476	$0.3639	$0.5178	$0.3298	$0.3292	$0.0000	$1.5337	$34.9081
2041	$5.4086	$3.9634	$0.2250	$21.2227	$3.2629	$0.3896	$0.5544	$0.3530	$0.3525	$0.0000	$1.6420	$37.3741
2042	$5.7906	$4.2434	$0.2409	$22.7220	$3.4934	$0.4171	$0.5936	$0.3780	$0.3774	$0.0000	$1.7580	$40.0144
2043	$6.1997	$4.5432	$0.2579	$24.3271	$3.7402	$0.4466	$0.6355	$0.4047	$0.4041	$0.0000	$1.8822	$42.8412
2044	$6.6377	$4.8641	$0.2761	$26.0457	$4.0044	$0.4782	$0.6804	$0.4333	$0.4326	$0.0000	$2.0151	$45.8677
2045	$7.1066	$5.2078	$0.2956	$27.8857	$4.2873	$0.5119	$0.7285	$0.4639	$0.4632	$0.0000	$2.1575	$49.1080
2046	$7.6087	$5.5757	$0.3165	$29.8557	$4.5902	$0.5481	$0.7800	$0.4967	$0.4959	$0.0000	$2.3099	$52.5772
2047	$8.1462	$5.9695	$0.3389	$31.9648	$4.9144	$0.5868	$0.8351	$0.5317	$0.5309	$0.0000	$2.4731	$56.2915
2048	$8.7217	$6.3913	$0.3628	$34.2229	$5.2616	$0.6283	$0.8941	$0.5693	$0.5684	$0.0000	$2.6478	$60.2681
2049	$9.3378	$6.8428	$0.3884	$36.6406	$5.6333	$0.6727	$0.9572	$0.6095	$0.6086	$0.0000	$2.8349	$64.5257
2050	$9.9974	$7.3262	$0.4159	$39.2290	$6.0313	$0.7202	$1.0248	$0.6526	$0.6516	$0.0000	$3.0351	$69.0841
2051	$10.7037	$7.8437	$0.4453	$42.0004	$6.4573	$0.7711	$1.0972	$0.6987	$0.6976	$0.0000	$3.2496	$73.9645
2052	$11.4599	$8.3978	$0.4767	$44.9674	$6.9135	$0.8255	$1.1747	$0.7480	$0.7469	$0.0000	$3.4791	$79.1897
2053	$12.2694	$8.9911	$0.5104	$48.1441	$7.4019	$0.8839	$1.2577	$0.8009	$0.7996	$0.0000	$3.7249	$84.7840
2054	$13.1362	$9.6263	$0.5465	$51.5453	$7.9248	$0.9463	$1.3466	$0.8575	$0.8561	$0.0000	$3.9880	$90.7736
2055	$14.0642	$10.3063	$0.5851	$55.1866	$8.4847	$1.0132	$1.4417	$0.9180	$0.9166	$0.0000	$4.2698	$97.1862
2056	$15.0578	$11.0344	$0.6264	$59.0853	$9.0841	$1.0847	$1.5436	$0.9829	$0.9814	$0.0000	$4.5714	$104.0519
2057	$16.1215	$11.8139	$0.6706	$63.2593	$9.7258	$1.1614	$1.6526	$1.0523	$1.0507	$0.0000	$4.8944	$111.4025
2058	$17.2604	$12.6485	$0.7180	$67.7282	$10.4129	$1.2434	$1.7694	$1.1267	$1.1249	$0.0000	$5.2401	$119.2725
2059	$18.4798	$13.5420	$0.7688	$72.5129	$11.1485	$1.3312	$1.8944	$1.2063	$1.2044	$0.0000	$5.6103	$127.6985
2060	$19.7853	$14.4987	$0.8231	$77.6355	$11.9361	$1.4253	$2.0282	$1.2915	$1.2895	$0.0000	$6.0066	$136.7196
2061	$21.1830	$15.5230	$0.8812	$83.1700	$12.7793	$1.5260	$2.1715	$1.3827	$1.3806	$0.0000	$6.4310	$146.3781
2062	$22.6794	$16.6196	$0.9435	$88.9920	$13.6821	$1.6338	$2.3249	$1.4804	$1.4781	$0.0000	$6.8853	$156.7189
2063	$24.2816	$17.7937	$1.0101	$95.2788	$14.6486	$1.7492	$2.4891	$1.5850	$1.5825	$0.0000	$7.3717	$167.7902
2064	$25.9970	$19.0507	$1.0815	$102.0097	$15.6835	$1.8728	$2.6649	$1.6970	$1.6943	$0.0000	$7.8925	$179.6437
2065	$27.8335	$20.3965	$1.1579	$109.2161	$16.7914	$2.0051	$2.8532	$1.8168	$1.8140	$0.0000	$8.4500	$192.3345
2066	$29.7998	$21.8374	$1.2397	$116.9316	$17.9776	$2.1467	$3.0548	$1.9452	$1.9421	$0.0000	$9.0470	$205.9219
2067	$31.9050	$23.3801	$1.3272	$125.1922	$19.2476	$2.2984	$3.2706	$2.0826	$2.0793	$0.0000	$9.6861	$220.4691
2068	$34.1589	$25.0318	$1.4210	$134.0363	$20.6074	$2.4607	$3.5016	$2.2297	$2.2262	$0.0000	$10.3704	$236.0440
2069	$36.5720	$26.8001	$1.5214	$143.5052	$22.0632	$2.6346	$3.7490	$2.3873	$2.3835	$0.0000	$11.1030	$252.7192
2070	$39.1557	$28.6934	$1.6289	$153.6431	$23.6218	$2.8207	$4.0138	$2.5559	$2.5519	$0.0000	$11.8873	$270.5724
2071	$41.9218	$30.7204	$1.7439	$164.4971	$25.2906	$3.0199	$4.2974	$2.7365	$2.7322	$0.0000	$12.7271	$289.6869
2072	$44.8833	$32.8907	$1.8671	$176.1179	$27.0772	$3.2333	$4.6010	$2.9298	$2.9252	$0.0000	$13.6262	$310.1516
2073	$48.0541	$35.2142	$1.9990	$188.5596	$28.9901	$3.4617	$4.9260	$3.1368	$3.1318	$0.0000	$14.5888	$332.0621
2074	$51.4488	$37.7019	$2.1403	$201.8803	$31.0381	$3.7062	$5.2740	$3.3583	$3.3531	$0.0000	$15.6194	$355.5204
2075	$55.0834	$40.3653	$2.2914	$216.1420	$33.2307	$3.9681	$5.6466	$3.5956	$3.5899	$0.0000	$16.7229	$380.6360
2076	$58.9747	$43.2169	$2.4533	$231.4113	$35.5783	$4.2484	$6.0455	$3.8496	$3.8435	$0.0000	$17.9042	$407.5258
2077	$63.1410	$46.2699	$2.6266	$247.7592	$38.0917	$4.5485	$6.4726	$4.1216	$4.1151	$0.0000	$19.1691	$436.3152
2078	$67.6015	$49.5387	$2.8122	$265.2620	$40.7827	$4.8698	$6.9298	$4.4127	$4.4058	$0.0000	$20.5233	$467.1385
2079	$72.3772	$53.0383	$3.0109	$284.0013	$43.6637	$5.2139	$7.4194	$4.7245	$4.7170	$0.0000	$21.9731	$500.1392
2080	$77.4903	$56.7851	$3.2236	$304.0644	$46.7483	$5.5822	$7.9435	$5.0582	$5.0503	$0.0000	$23.5254	$535.4712
2081	$82.9645	$60.7967	$3.4513	$325.5449	$50.0508	$5.9766	$8.5047	$5.4155	$5.4070	$0.0000	$25.1873	$573.2993
2082	$88.8255	$65.0917	$3.6951	$348.5428	$53.5866	$6.3988	$9.1055	$5.7981	$5.7890	$0.0000	$26.9667	$613.7997
2083	$95.1005	$69.6900	$3.9561	$373.1654	$57.3722	$6.8508	$9.7487	$6.2077	$6.1980	$0.0000	$28.8717	$657.1612
2084	$101.8188	$74.6132	$4.2356	$399.5275	$61.4253	$7.3348	$10.4374	$6.6463	$6.6358	$0.0000	$30.9113	$703.5860
2085	$109.0118	$79.8842	$4.5348	$427.7518	$65.7646	$7.8529	$11.1748	$7.1158	$7.1046	$0.0000	$33.0951	$753.2905
2086	$116.7128	$85.5276	$4.8552	$457.9701	$70.4105	$8.4077	$11.9642	$7.6185	$7.6065	$0.0000	$35.4330	$806.5062
2087	$124.9580	$91.5697	$5.1982	$490.3232	$75.3846	$9.0017	$12.8094	$8.1567	$8.1439	$0.0000	$37.9362	$863.4814
2088	$133.7855	$98.0385	$5.5654	$524.9618	$80.7101	$9.6376	$13.7143	$8.7329	$8.7192	$0.0000	$40.6162	$924.4816
2089	$143.2367	$104.9644	$5.9586	$562.0474	$86.4119	$10.3184	$14.6832	$9.3498	$9.3351	$0.0000	$43.4855	$989.7910
2090	$153.3556	$112.3796	$6.3795	$601.7529	$92.5164	$11.0474	$15.7204	$10.0104	$9.9946	$0.0000	$46.5575	#########
2091	$164.1893	$120.3186	$6.8302	$644.2634	$99.0522	$11.8278	$16.8310	$10.7175	$10.7007	$0.0000	$49.8465	#########
2092	$175.7884	$128.8184	$7.3127	$689.7770	$106.0496	$12.6634	$18.0200	$11.4747	$11.4566	$0.0000	$53.3679	#########
2093	$188.2069	$137.9187	$7.8293	$738.5059	$113.5414	$13.5580	$19.2930	$12.2853	$12.2660	$0.0000	$57.1380	#########
2094	$201.5026	$147.6619	$8.3824	$790.6773	$121.5625	$14.5158	$20.6560	$13.1532	$13.1325	$0.0000	$61.1745	#########
2095	$215.7377	$158.0934	$8.9746	$846.5342	$130.1502	$15.5412	$22.1152	$14.0824	$14.0602	$0.0000	$65.4961	#########
2096	$230.9783	$169.2618	$9.6086	$906.3371	$139.3446	$16.6391	$23.6775	$15.0772	$15.0535	$0.0000	$70.1231	#########
2097	$247.2957	$181.2192	$10.2874	$970.3648	$149.1885	$17.8146	$25.3502	$16.1423	$16.1169	$0.0000	$75.0769	#########
2098	$264.7657	$194.0213	$11.0142	$1,038.9157	$159.7279	$19.0731	$27.1410	$17.2827	$17.2555	$0.0000	$80.3807	#########
2099	$283.4700	$207.7279	$11.7922	$1,112.3093	$171.0118	$20.4205	$29.0584	$18.5036	$18.4745	$0.0000	$86.0591	#########
2100	$303.4955	$222.4027	$12.6253	$1,190.8878	$183.0928	$21.8631	$31.1112	$19.8108	$19.7796	$0.0000	$92.1387	#########
2101	$324.9358	$238.1142	$13.5172	$1,275.0173	$196.0273	$23.4076	$33.3091	$21.2103	$21.1770	$0.0000	$98.6478	#########
2102	$347.8907	$254.9356	$14.4721	$1,365.0902	$209.8755	$25.0612	$35.6622	$22.7087	$22.6730	$0.0000	$105.6167	#########
2103	$372.4673	$272.9454	$15.4945	$1,461.5262	$224.7021	$26.8316	$38.1815	$24.3130	$24.2747	$0.0000	$113.0779	#########
2104	$398.7800	$292.2275	$16.5891	$1,564.7749	$240.5760	$28.7271	$40.8788	$26.0305	$25.9896	$0.0000	$121.0663	#########
2105	$426.9516	$312.8717	$17.7610	$1,675.3176	$257.5714	$30.7565	$43.7667	$27.8695	$27.8256	$0.0000	$129.6189	#########
2106	$457.1133	$334.9744	$19.0157	$1,793.6694	$275.7674	$32.9293	$46.8585	$29.8383	$29.7913	$0.0000	$138.7758	#########
2107	$489.4058	$358.6385	$20.3591	$1,920.3822	$295.2488	$35.2556	$50.1688	$31.9462	$31.8959	$0.0000	$148.5795	#########
2108	$523.9796	$383.9743	$21.7974	$2,056.0465	$316.1065	$37.7462	$53.7130	$34.2030	$34.1492	$0.0000	$159.0758	#########
2109	$560.9959	$411.0999	$23.3372	$2,201.2947	$338.4376	$40.4128	$57.5075	$36.6193	$36.5616	$0.0000	$170.3136	#########
2110	$600.6271	$440.1418	$24.9859	$2,356.8039	$362.3464	$43.2677	$61.5701	$39.2062	$39.1445	$0.0000	$182.3454	#########
2111	$643.0581	$471.2354	$26.7510	$2,523.2990	$387.9441	$46.3243	$65.9197	$41.9759	$41.9099	$0.0000	$195.2270	#########
2112	$688.4866	$504.5256	$28.6408	$2,701.5560	$415.3502	$49.5969	$70.5765	$44.9413	$44.8706	$0.0000	$209.0187	#########
2113	$737.1243	$540.1675	$30.6641	$2,892.4059	$444.6924	$53.1006	$75.5624	$48.1161	$48.0404	$0.0000	$223.7848	#########
2114	$789.1980	$578.3273	$32.8303	$3,096.7383	$476.1074	$56.8519	$80.9004	$51.5153	$51.4342	$0.0000	$239.5939	#########
2115	$844.9505	$619.1829	$35.1496	$3,315.5056	$509.7418	$60.8681	$86.6156	$55.1545	$55.0677	$0.0000	$256.5199	#########
2116	$904.6415	$662.9247	$37.6327	$3,549.7276	$545.7522	$65.1681	$92.7345	$59.0509	$58.9580	$0.0000	$274.6416	#########
2117	$968.5494	$709.7567	$40.2913	$3,800.4961	$584.3065	$69.7719	$99.2857	$63.2225	$63.1230	$0.0000	$294.0435	#########
2118	$1,036.9720	$759.8970	$43.1376	$4,068.9800	$625.5845	$74.7009	$106.2997	$67.6888	$67.5823	$0.0000	$314.8160	#########
2119	$1,110.2283	$813.5795	$46.1851	$4,356.4308	$669.7786	$79.9781	$113.8091	$72.4707	$72.3566	$0.0000	$337.0560	#########
2120	$1,188.6598	$871.0544	$49.4478	$4,664.1883	$717.0947	$85.6281	$121.8491	$77.5903	$77.4682	$0.0000	$360.8671	#########
2121	$1,272.6320	$932.5895	$52.9410	$4,993.6873	$767.7535	$91.6773	$130.4571	$83.0716	$82.9409	$0.0000	$386.3604	#########

Annual Operating Costs for the Selected Market
Escalated for 100 Years

Costs are for model 2 story office building with medium levels of service. Data is for mid 2021. The Whitestone Facility Operations Cost Reference 2021- Whitestone Research.

		Today	Days	Escalation Factor
Data Date:	1-Oct-21	6/22/2022	264	0.723
Rentable/Gross SF:	0.90			

Market: Ellensburg

Annual Cost per Gross Square Foot

Year	Custodial	Energy	Grounds	Maintenance & Repair	Management	Pest	Garbage	Road Clearance	Security	Telecom	Water/ Sewer	Total
2021	$1.3300	$0.9200	$0.0500	$5.1900	$0.7500	$0.0900	$0.1600	$0.1300	$0.0900	$0.0000	$0.1700	$8.8800
2022	$1.4240	$0.9850	$0.0535	$5.5566	$0.8030	$0.0964	$0.1713	$0.1392	$0.0964	$0.0000	$0.1820	$9.5073
2023	$1.5246	$1.0546	$0.0573	$5.9492	$0.8597	$0.1032	$0.1834	$0.1490	$0.1032	$0.0000	$0.1949	$10.1790
2024	$1.6323	$1.1291	$0.0614	$6.3695	$0.9204	$0.1105	$0.1964	$0.1595	$0.1105	$0.0000	$0.2086	$10.8980
2025	$1.7476	$1.2088	$0.0657	$6.8194	$0.9855	$0.1183	$0.2102	$0.1708	$0.1183	$0.0000	$0.2234	$11.6679
2026	$1.8710	$1.2942	$0.0703	$7.3012	$1.0551	$0.1266	$0.2251	$0.1829	$0.1266	$0.0000	$0.2392	$12.4922
2027	$2.0032	$1.3857	$0.0753	$7.8170	$1.1296	$0.1356	$0.2410	$0.1958	$0.1356	$0.0000	$0.2560	$13.3747
2028	$2.1447	$1.4836	$0.0806	$8.3692	$1.2094	$0.1451	$0.2580	$0.2096	$0.1451	$0.0000	$0.2741	$14.3196
2029	$2.2962	$1.5884	$0.0863	$8.9604	$1.2949	$0.1554	$0.2762	$0.2244	$0.1554	$0.0000	$0.2933	$15.3312
2030	$2.4584	$1.7006	$0.0924	$9.5934	$1.3863	$0.1664	$0.2958	$0.2403	$0.1664	$0.0000	$0.3142	$16.4142
2031	$2.6321	$1.8207	$0.0990	$10.2712	$1.4843	$0.1781	$0.3166	$0.2573	$0.1781	$0.0000	$0.3364	$17.5738
2032	$2.8181	$1.9493	$0.1059	$10.9968	$1.5891	$0.1907	$0.3390	$0.2754	$0.1907	$0.0000	$0.3602	$18.8153
2033	$3.0171	$2.0870	$0.1134	$11.7736	$1.7014	$0.2042	$0.3630	$0.2949	$0.2042	$0.0000	$0.3856	$20.1445
2034	$3.2303	$2.2345	$0.1214	$12.6054	$1.8216	$0.2186	$0.3886	$0.3157	$0.2186	$0.0000	$0.4129	$21.5676
2035	$3.4585	$2.3923	$0.1300	$13.4959	$1.9503	$0.2340	$0.4161	$0.3380	$0.2340	$0.0000	$0.4421	$23.0912
2036	$3.7028	$2.5613	$0.1392	$14.4493	$2.0880	$0.2506	$0.4454	$0.3619	$0.2506	$0.0000	$0.4733	$24.7225
2037	$3.9644	$2.7423	$0.1490	$15.4700	$2.2356	$0.2683	$0.4769	$0.3875	$0.2683	$0.0000	$0.5067	$26.4690
2038	$4.2444	$2.9360	$0.1596	$16.5629	$2.3935	$0.2872	$0.5106	$0.4149	$0.2872	$0.0000	$0.5425	$28.3389
2039	$4.5443	$3.1434	$0.1708	$17.7330	$2.5626	$0.3075	$0.5467	$0.4442	$0.3075	$0.0000	$0.5808	$30.3408
2040	$4.8653	$3.3655	$0.1829	$18.9857	$2.7436	$0.3292	$0.5853	$0.4756	$0.3292	$0.0000	$0.6219	$32.4843
2041	$5.2090	$3.6032	$0.1958	$20.3270	$2.9374	$0.3525	$0.6267	$0.5092	$0.3525	$0.0000	$0.6658	$34.7791
2042	$5.5770	$3.8578	$0.2097	$21.7630	$3.1449	$0.3774	$0.6709	$0.5451	$0.3774	$0.0000	$0.7129	$37.2360
2043	$5.9710	$4.1303	$0.2245	$23.3004	$3.3671	$0.4041	$0.7183	$0.5836	$0.4041	$0.0000	$0.7632	$39.8666
2044	$6.3928	$4.4221	$0.2403	$24.9464	$3.6050	$0.4326	$0.7691	$0.6249	$0.4326	$0.0000	$0.8171	$42.6829
2045	$6.8444	$4.7345	$0.2573	$26.7088	$3.8596	$0.4632	$0.8234	$0.6690	$0.4632	$0.0000	$0.8749	$45.6982
2046	$7.3280	$5.0690	$0.2755	$28.5956	$4.1323	$0.4959	$0.8816	$0.7163	$0.4959	$0.0000	$0.9367	$48.9265
2047	$7.8456	$5.4271	$0.2949	$30.6157	$4.4242	$0.5309	$0.9438	$0.7669	$0.5309	$0.0000	$1.0028	$52.3829
2048	$8.3999	$5.8105	$0.3158	$32.7785	$4.7368	$0.5684	$1.0105	$0.8210	$0.5684	$0.0000	$1.0737	$56.0835
2049	$8.9933	$6.2209	$0.3381	$35.0941	$5.0714	$0.6086	$1.0819	$0.8790	$0.6086	$0.0000	$1.1495	$60.0455
2050	$9.6286	$6.6604	$0.3620	$37.5734	$5.4297	$0.6516	$1.1583	$0.9411	$0.6516	$0.0000	$1.2307	$64.2874
2051	$10.3088	$7.1309	$0.3876	$40.2277	$5.8133	$0.6976	$1.2402	$1.0076	$0.6976	$0.0000	$1.3177	$68.8289
2052	$11.0371	$7.6347	$0.4149	$43.0696	$6.2239	$0.7469	$1.3278	$1.0788	$0.7469	$0.0000	$1.4108	$73.6913
2053	$11.8168	$8.1740	$0.4442	$46.1122	$6.6636	$0.7996	$1.4216	$1.1550	$0.7996	$0.0000	$1.5104	$78.8972
2054	$12.6516	$8.7515	$0.4756	$49.3698	$7.1344	$0.8561	$1.5220	$1.2366	$0.8561	$0.0000	$1.6171	$84.4708
2055	$13.5454	$9.3697	$0.5092	$52.8575	$7.6384	$0.9166	$1.6293	$1.3240	$0.9166	$0.0000	$1.7314	$90.4382
2056	$14.5023	$10.0316	$0.5452	$56.5915	$8.1780	$0.9814	$1.7446	$1.4175	$0.9814	$0.0000	$1.8537	$96.8272
2057	$15.5268	$10.7403	$0.5837	$60.5894	$8.7557	$1.0507	$1.8679	$1.5177	$1.0507	$0.0000	$1.9846	$103.6675
2058	$16.6236	$11.4991	$0.6249	$64.8697	$9.3742	$1.1249	$1.9998	$1.6249	$1.1249	$0.0000	$2.1248	$110.9910
2059	$17.7980	$12.3114	$0.6691	$69.4524	$10.0365	$1.2044	$2.1411	$1.7397	$1.2044	$0.0000	$2.2749	$118.8319
2060	$19.0553	$13.1811	$0.7164	$74.3588	$10.7455	$1.2895	$2.2924	$1.8626	$1.2895	$0.0000	$2.4356	$127.2267
2061	$20.4015	$14.1123	$0.7670	$79.6119	$11.5046	$1.3806	$2.4543	$1.9941	$1.3806	$0.0000	$2.6077	$136.2145
2062	$21.8428	$15.1093	$0.8212	$85.2360	$12.3173	$1.4781	$2.6277	$2.1350	$1.4781	$0.0000	$2.7919	$145.8373
2063	$23.3858	$16.1767	$0.8792	$91.2575	$13.1875	$1.5825	$2.8133	$2.2858	$1.5825	$0.0000	$2.9892	$156.1399
2064	$25.0379	$17.3195	$0.9413	$97.7043	$14.1191	$1.6943	$3.0121	$2.4473	$1.6943	$0.0000	$3.2003	$167.1704
2065	$26.8067	$18.5430	$1.0078	$104.6066	$15.1166	$1.8140	$3.2249	$2.6202	$1.8140	$0.0000	$3.4264	$178.9800
2066	$28.7004	$19.8529	$1.0790	$111.9964	$16.1845	$1.9421	$3.4527	$2.8053	$1.9421	$0.0000	$3.6685	$191.6239
2067	$30.7280	$21.2554	$1.1552	$119.9084	$17.3278	$2.0793	$3.6966	$3.0035	$2.0793	$0.0000	$3.9276	$205.1611
2068	$32.8987	$22.7570	$1.2368	$128.3792	$18.5519	$2.2262	$3.9577	$3.2157	$2.2262	$0.0000	$4.2051	$219.6546
2069	$35.2228	$24.3647	$1.3242	$137.4485	$19.8625	$2.3835	$4.2373	$3.4428	$2.3835	$0.0000	$4.5022	$235.1720
2070	$37.7111	$26.0859	$1.4177	$147.1585	$21.2657	$2.5519	$4.5367	$3.6860	$2.5519	$0.0000	$4.8202	$251.7856
2071	$40.3752	$27.9287	$1.5179	$157.5544	$22.7680	$2.7322	$4.8572	$3.9464	$2.7322	$0.0000	$5.1607	$269.5728
2072	$43.2275	$29.9017	$1.6251	$168.6847	$24.3764	$2.9252	$5.2003	$4.2252	$2.9252	$0.0000	$5.5253	$288.6166
2073	$46.2813	$32.0141	$1.7399	$180.6014	$26.0985	$3.1318	$5.5677	$4.5237	$3.1318	$0.0000	$5.9157	$309.0058
2074	$49.5508	$34.2757	$1.8628	$193.3598	$27.9422	$3.3531	$5.9610	$4.8433	$3.3531	$0.0000	$6.3336	$330.8353
2075	$53.0513	$36.6971	$1.9944	$207.0196	$29.9161	$3.5899	$6.3821	$5.1855	$3.5899	$0.0000	$6.7810	$354.2070
2076	$56.7991	$39.2896	$2.1353	$221.6444	$32.0295	$3.8435	$6.8330	$5.5518	$3.8435	$0.0000	$7.2600	$379.2298
2077	$60.8116	$42.0652	$2.2861	$237.3024	$34.2922	$4.1151	$7.3157	$5.9440	$4.1151	$0.0000	$7.7729	$406.0202
2078	$65.1076	$45.0368	$2.4477	$254.0665	$36.7148	$4.4058	$7.8325	$6.3639	$4.4058	$0.0000	$8.3220	$434.7033
2079	$69.7071	$48.2184	$2.6206	$272.0148	$39.3085	$4.7170	$8.3858	$6.8135	$4.7170	$0.0000	$8.9099	$465.4127
2080	$74.6315	$51.6248	$2.8057	$291.2312	$42.0854	$5.0503	$8.9782	$7.2948	$5.0503	$0.0000	$9.5394	$498.2915
2081	$79.9038	$55.2718	$3.0039	$311.8050	$45.0585	$5.4070	$9.6125	$7.8101	$5.4070	$0.0000	$10.2133	$533.4930
2082	$85.5486	$59.1764	$3.2161	$333.8323	$48.2417	$5.7890	$10.2916	$8.3619	$5.7890	$0.0000	$10.9348	$571.1813
2083	$91.5921	$63.3569	$3.4433	$357.4157	$51.6497	$6.1980	$11.0186	$8.9526	$6.1980	$0.0000	$11.7073	$611.5321
2084	$98.0625	$67.8327	$3.6866	$382.6651	$55.2984	$6.6358	$11.7970	$9.5851	$6.6358	$0.0000	$12.5343	$654.7334
2085	$104.9901	$72.6247	$3.9470	$409.6983	$59.2050	$7.1046	$12.6304	$10.2622	$7.1046	$0.0000	$13.4198	$700.9867
2086	$112.4071	$77.7553	$4.2258	$438.6412	$63.3875	$7.6065	$13.5227	$10.9872	$7.6065	$0.0000	$14.3678	$750.5075
2087	$120.3480	$83.2483	$4.5244	$469.6288	$67.8654	$8.1439	$14.4780	$11.7633	$8.1439	$0.0000	$15.3828	$803.5267
2088	$128.8499	$89.1293	$4.8440	$502.8054	$72.6597	$8.7192	$15.5007	$12.5944	$8.7192	$0.0000	$16.4695	$860.2913
2089	$137.9525	$95.4258	$5.1862	$538.3258	$77.7927	$9.3351	$16.5958	$13.4841	$9.3351	$0.0000	$17.6330	$921.0661
2090	$147.6980	$102.1671	$5.5526	$576.3555	$83.2884	$9.9946	$17.7682	$14.4367	$9.9946	$0.0000	$18.8787	$986.1343
2091	$158.1321	$109.3846	$5.9448	$617.0718	$89.1722	$10.7007	$19.0234	$15.4565	$10.7007	$0.0000	$20.2124	#########
2092	$169.3032	$117.1120	$6.3648	$660.6645	$95.4718	$11.4566	$20.3673	$16.5484	$11.4566	$0.0000	$21.6403	#########
2093	$181.2638	$125.3853	$6.8144	$707.3368	$102.2163	$12.2660	$21.8061	$17.7175	$12.2660	$0.0000	$23.1690	#########
2094	$194.0688	$134.2431	$7.2958	$757.3062	$109.4373	$13.1325	$23.3466	$18.9691	$13.1325	$0.0000	$24.8058	#########
2095	$207.7787	$143.7266	$7.8112	$810.8057	$117.1685	$14.0602	$24.9959	$20.3092	$14.0602	$0.0000	$26.5582	#########
2096	$222.4571	$153.8801	$8.3631	$868.0846	$125.4458	$15.0535	$26.7618	$21.7439	$15.0535	$0.0000	$28.4344	#########
2097	$238.1725	$164.7509	$8.9539	$929.4099	$134.3078	$16.1169	$28.6523	$23.2800	$16.1169	$0.0000	$30.4431	#########
2098	$254.9980	$176.3896	$9.5864	$995.0676	$143.7959	$17.2555	$30.6765	$24.9246	$17.2555	$0.0000	$32.5937	#########
2099	$273.0122	$188.8506	$10.2636	$1,065.3636	$153.9543	$18.4745	$32.8436	$26.6854	$18.4745	$0.0000	$34.8963	#########
2100	$292.2990	$202.1918	$10.9887	$1,140.6256	$164.8303	$19.7796	$35.1638	$28.5706	$19.7796	$0.0000	$37.3615	#########
2101	$312.9483	$216.4755	$11.7650	$1,221.2044	$176.4746	$21.1770	$37.6479	$30.5889	$21.1770	$0.0000	$40.0009	#########
2102	$335.0564	$231.7683	$12.5961	$1,307.4757	$188.9416	$22.6730	$40.3075	$32.7499	$22.6730	$0.0000	$42.8268	#########
2103	$358.7263	$248.1415	$13.4859	$1,399.8416	$202.2892	$24.2747	$43.1550	$35.0635	$24.2747	$0.0000	$45.8522	#########
2104	$384.0683	$265.6713	$14.4387	$1,498.7326	$216.5799	$25.9896	$46.2037	$37.5405	$25.9896	$0.0000	$49.0914	#########
2105	$411.2006	$284.4395	$15.4587	$1,604.6097	$231.8800	$27.8256	$49.4677	$40.1925	$27.8256	$0.0000	$52.5595	#########
2106	$440.2496	$304.5335	$16.5507	$1,717.9664	$248.2610	$29.7913	$52.9624	$43.0319	$29.7913	$0.0000	$56.2725	#########
2107	$471.3508	$326.0471	$17.7200	$1,839.3312	$265.7993	$31.8959	$56.7039	$46.0719	$31.8959	$0.0000	$60.2478	#########
2108	$504.6491	$349.0806	$18.9718	$1,969.2697	$284.5765	$34.1492	$60.7097	$49.3266	$34.1492	$0.0000	$64.5040	#########
2109	$540.2997	$373.7412	$20.3120	$2,108.3876	$304.6803	$36.5616	$64.9985	$52.8113	$36.5616	$0.0000	$69.0609	#########
2110	$578.4689	$400.1439	$21.7470	$2,257.3335	$326.2043	$39.1445	$69.5902	$56.5421	$39.1445	$0.0000	$73.9396	#########
2111	$619.3345	$428.4118	$23.2833	$2,416.8015	$349.2488	$41.9099	$74.5064	$60.5365	$41.9099	$0.0000	$79.1631	#########
2112	$663.0870	$458.6767	$24.9281	$2,587.5351	$373.9213	$44.8706	$79.7699	$64.8130	$44.8706	$0.0000	$84.7555	#########
2113	$709.9304	$491.0797	$26.6891	$2,770.3300	$400.3367	$48.0404	$85.4052	$69.3917	$48.0404	$0.0000	$90.7430	#########
2114	$760.0831	$525.7717	$28.5746	$2,966.0384	$428.6183	$51.4342	$91.4386	$74.2938	$51.4342	$0.0000	$97.1535	#########
2115	$813.7787	$562.9146	$30.5932	$3,175.5725	$458.8978	$55.0677	$97.8982	$79.5423	$55.0677	$0.0000	$104.0168	#########
2116	$871.2676	$602.6814	$32.7544	$3,399.9090	$491.3163	$58.9580	$104.8142	$85.1615	$58.9580	$0.0000	$111.3650	#########
2117	$932.8178	$645.2575	$35.0683	$3,640.0937	$526.0251	$63.1230	$112.2187	$91.1777	$63.1230	$0.0000	$119.2324	#########
2118	$998.7162	$690.8413	$37.5457	$3,897.2460	$563.1858	$67.5823	$120.1463	$97.6189	$67.5823	$0.0000	$127.6555	#########
2119	$1,069.2700	$739.6454	$40.1981	$4,172.5648	$602.9718	$72.3566	$128.6340	$104.5151	$72.3566	$0.0000	$136.6736	#########
2120	$1,144.8079	$791.8972	$43.0379	$4,467.3332	$645.5684	$77.4682	$137.7213	$111.8985	$77.4682	$0.0000	$146.3288	#########
2121	$1,225.6822	$847.8403	$46.0783	$4,782.9254	$691.1742	$82.9409	$147.4505	$119.8035	$82.9409	$0.0000	$156.6662	#########

section 6.3 - cost estimate report

COST GROUP

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS

ESTIMATE ISSUE DATE: June 15, 2022
ESTIMATE REVISION: 1 June 20, 2022

TO BE UPDATED AND REPLACED TO REFLECT
ONLY THE PREFERRED OPTION

Submitted To:

STEVEN CLARK
INTEGRUS ARCHITECTURE
10 S. CEDAR
SPOKANE, WA 99201

CLARIFICATIONS AND ASSUMPTIONS

RC Cost Group Estimating Team:

Lead Estimator: Andy Cluness
Architectural: Andy Cluness
Structural: Andy Cluness
Mechanical: Neil Watson
Electrical: Neil Watson
Civil: Andy Cluness
Landscape: Andy Cluness
QA/QC: John Perry

Exclusions from Construction Cost:

Design fees
Owners administration costs
Building and land acquisition fees
Legal and accounting fees
Removal of unforeseen underground obstructions
Owner's furniture, furnishings and equipment
Owners supplied materials
Moving owners equipment and furniture
Compression of schedule, premium or shift work
Assessments, finance, legal and development charges
Builder's risk, project wrap-up and other owner provided insurance program
Washington State Sales Tax
AV Equipment
Builders Risk Insurance

Assumption used in establishing the estimate:

The project will be procured utilizing the Design, Bid, Build Project Delivery Method
Construction Start Date: September 2025
Construction Schedule: 22 Months
Escalation has been included to the Start of Construction: Year 1: 6.50%, Year 2: 5.50%, Year 3: 4.50%, Year 4: 4.50%

Items that may affect the cost estimate:

Modifications to the scope of work included in this estimate.
Special phasing requirements other than mentioned above.
Restrictive technical specifications or excessive contract conditions.
Any non-competitive bid situations.
Bids delayed beyond the projected schedule.

OVERALL SUMMARY CONSTRUCTION COST

		GFA	$/SF	$
Canal Side Option				
Building	New Construction	89,000 SF	774.44	68,925,351
Building Demolition and Abatement	Demolition & Abatement	44,000 SF	23.49	1,033,456
Sitework	Sitework	80,000 SF	65.25	5,219,880
TOTAL CONSTRUCTION COST				**75,178,688**
North Campus Full Replacement Option				
Building	New Construction	89,000 SF	766.69	68,235,608
Building Demolition and Abatement	Demolition & Abatement	44,000 SF	32.30	1,421,003
Sitework	Sitework	50,000 SF	99.11	4,955,694
TOTAL CONSTRUCTION COST				**74,612,305**
North Campus Renovation and Addition				
Building Addition	New Construction	30,000 SF	844.69	25,340,698
Building Renovation	Renovation	64,000 SF	538.58	34,468,986
Building Demolition and Abatement	Demolition & Abatement	10,000 SF	32.30	322,955
Sitework	Sitework	50,000 SF	78.57	3,928,656
TOTAL CONSTRUCTION COST				**64,061,295**

BUILDING DATA

Building Area: Canal Side Option

Level 1	30,500 SF	
Level 2	19,500 SF	
Level 3	19,500 SF	
Level 4	19,500 SF	
Total Gross Floor Area		**89,000 SF**
Mechanical Penthouse	3,800 SF	
Total Unoccupied Space (Excluded from GFA)		**3,800 SF**

		Quantity	Unit	Ratio to Gross Area
Number of stories (x1,000)		4	EA	0.045
Gross Area		89,000	SF	1.000
Enclosed Area		89,000	SF	1.000
Footprint Area		30,500	SF	0.343
Suspended Slab		58,500	SF	0.657
Gross Wall Area		58,530	SF	0.658
Retaining Wall Area (Excludes Stem Walls)		-	SF	
Opaque Finished Wall Area		36,289	SF	0.408
Windows or Glazing Area	38.00%	22,241	SF	0.250
Roof Area		31,415	SF	0.353
Roof Glazing Area		-	SF	
Interior Partition Length		6,400	LF	0.072
Interior Doors Per Leaf "Excludes Specialty"		185	EA	0.002
Interior Glazing		5,000	SF	0.056
Finished Area		89,000	SF	1.000
Elevators (x10,000)		2	EA	0.022

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
BUILDING: CANAL SIDE OPTION

GROSS FLOOR AREA: 89,000 SF
DATE: June 15, 2022

RC COST GROUP

No.	ELEMENT DESCRIPTION	ELEMENT TOTAL	GROUP TOTAL	COST PER SF
A10	FOUNDATIONS		$ 1,584,812	$ 17.81
A1010	Standard Foundation	$ 1,069,662	$ 12.02	
A1020	Special Foundation	$ 140,000	$ 1.57	
A1030	Slab on grade	$ 375,150	$ 4.22	
A20	BASEMENT WALL CONSTRUCTION		$ -	$ -
A2010	Basement Excavation	$ -	$ -	
A2020	Basement Wall Construction	$ -	$ -	
B10	SUPERSTRUCTURE		$ 8,322,119	$ 93.51
B1010	Floor & Roof Construction	$ 8,322,119	$ 93.51	
B20	EXTERIOR ENCLOSURE		$ 8,348,388	$ 93.80
B2010	Exterior Walls	$ 4,741,423	$ 53.27	
B2020	Exterior Windows	$ 3,501,265	$ 39.34	
B2030	Exterior Doors	$ 105,700	$ 1.19	
B30	ROOFING		$ 1,742,760	$ 19.58
B3010	Roofing	$ 1,742,760	$ 19.58	
C10	INTERIOR CONSTRUCTION		$ 3,537,851	$ 39.75
C1010	Partitions	$ 2,533,920	$ 28.47	
C1020	Interior Doors	$ 649,250	$ 7.29	
C1030	Fittings and Specialties	$ 354,681	$ 3.99	
C20	STAIRS		$ 393,000	$ 4.42
C2010	Stair Construction	$ 393,000	$ 4.42	
C30	INTERIOR FINISHES		$ 3,259,050	$ 36.62
C3010	Wall Finishes	$ 916,700	$ 10.30	
C3020	Floor Finishes	$ 899,900	$ 10.11	
C3030	Ceiling Finishes	$ 1,442,450	$ 16.21	
D10	CONVEYING		$ 468,000	$ 5.26
D1010	Elevators & Lifts	$ 468,000	$ 5.26	
D20	PLUMBING		$ 1,646,500	$ 18.50
D2010	Plumbing	$ 1,646,500	$ 18.50	
D30	HVAC		$ 6,007,500	$ 67.50
D3010	HVAC	$ 6,007,500	$ 67.50	
D40	FIRE PROTECTION		$ 613,643	$ 6.89
D4010	Sprinkler System	$ 613,643	$ 6.89	
D50	ELECTRICAL		$ 6,055,893	$ 68.04
D5000	Electrical	$ 6,055,893	$ 68.04	
E10	EQUIPMENT		$ 493,000	$ 5.54
E1010	Equipment	$ 493,000	$ 5.54	
E20	FIXED FURNISHINGS		$ 1,149,520	$ 12.92
E2010	Fixed Furnishings	$ 1,149,520	$ 12.92	
F10	SPECIAL CONSTRUCTION		$ -	$ -
F1010	Special Structure	$ -		
F1020	Special Construction	$ -		
	Sub-Total Direct Cost		**$ 43,622,038**	**$ 490.14**
	General Conditions/General Requirements 8.48%		$ 3,699,149	$ 41.56
	Sub-Total		**$ 47,321,187**	**$ 531.70**
	Estimating / Design Contingency 15.00%		$ 7,098,178	$ 79.75
	Sub-Total		**$ 54,419,365**	**$ 611.45**
	GC Fee, Bonds and Insurance 6.90%		$ 3,754,936	$ 42.19
	Sub-Total		**$ 58,174,301**	**$ 653.64**
	Escalation: September 2025 18.48%		$ 10,751,051	$ 120.80
	TOTAL CONSTRUCTION COST		**$ 68,925,351**	**$ 774.44**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
A10	**FOUNDATIONS**				
A1010	**Standard Foundation**				
	A1011 Foundations				
	Reinforced concrete continuous wall footings				
	Excavate for continuous footings	411	CY	47.90	19,692
	Backfill, assume imported fill	260	CY	58.20	15,154
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	547	CY	29.44	16,097
	Fine grade bottom of footing	3,700	SF	1.18	4,366
	Formwork to foundations - sides	3,700	SF	12.80	47,360
	Reinforcing steel in foundations	19,898	LB	1.85	36,811
	Concrete, 4,000 psi	151	CY	304.00	45,825
	Finish to top of footing	3,700	SF	1.20	4,440
	Reinforced concrete brace frame footings				
	Excavate for continuous footings	1,009	CY	47.90	48,352
	Backfill, assume imported fill	294	CY	58.20	17,089
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	1,343	CY	29.44	39,525
	Fine grade bottom of footing	5,620	SF	1.18	6,632
	Formwork to foundations - sides	3,714	SF	12.80	47,539
	Reinforcing steel in foundations	94,488	LB	1.85	174,802
	Concrete, 4,000 psi	716	CY	285.00	204,007
	Finish to top of footing	5,620	SF	1.20	6,744
	A1012 Column foundations				
	Reinforced concrete spread footings				
	Excavate for spread footings	331	CY	47.90	15,850
	Backfill, assume imported fill	174	CY	58.20	10,153
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	440	CY	29.44	12,956
	Fine grade bottom of footing	1,920	SF	1.18	2,266
	Formwork to foundations - sides	1,920	SF	12.80	24,576
	Reinforcing steel in foundations	19,086	LB	1.85	35,310
	Concrete, 4,000 psi	156	CY	304.00	47,559
	Finish to top of footing	1,920	SF	1.20	2,304
	A1013 Perimeter drainage and insulation				
	Perimeter drain pipe and rock	1,110	LF	29.45	32,690
	Perimeter insulation, rigid	2,220	SF	7.30	16,206
	Miscellaneous				
	Reinforced concrete stem walls	62	CY	1,405.00	86,642
	Elevator pit, double	1	EA	32,400.00	32,400
	Dampproofing at walls	1,665	SF	9.80	16,317
	Total For Standard Foundations				**1,069,662**
A1020	**Special Foundation**				
	A1021 Pile foundations				
	Allowance for specialty foundations at canal side area	1	LS	140,000.00	140,000
	Total For Special Foundations				**140,000**
A1030	**Slab on Grade**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	A1031 Standard slab on grade				
	Reinforced concrete slab on grade and base	30,500	SF	11.80	359,900
	A1034 Trenches, pits and bases				
	Reinforced concrete pads / slab thickening	30,500	SF	0.50	15,250
	Total For Slab on Grade				**375,150**
A20	**BASEMENT CONSTRUCTION**				
A2010	**Basement Excavation**				
	No work anticipated				N/A
	Total For Basement Excavation				
A2010	**Basement Walls**				
	No work anticipated				N/A
	Total For Basement Walls				
B1010	**Floor & Roof Construction**				
	B1012 Upper floors construction				
	Floor structure				
	GLB columns, beams, wide flange, girders	58,500	SF	29.80	1,743,300
	CLT, 5-Ply	58,500	SF	35.10	2,053,350
	Topping slab, 2	58,500	SF	9.10	532,350
	Penthouse				
	Penthouse structure, complete	3,800	SF	65.00	247,000
	Bracing / Shear Walls				
	Buckling restrained brace frames diagonals / CLT shear walls at entire building	89,000	GFA	14.45	1,286,050
	B1020 Roof construction				
	3-ply CLT decking over glulam beams and columns and wide-flange beams and columns. Girders supported on wide-flange columns.	31,415	SF	68.60	2,155,069
	Canopies, allowance	1,500	SF	110.00	165,000
	Miscellaneous				
	Fireproofing steel at steel structure	1	LS	140,000.00	140,000
	Total For Floor & Roof Construction				**8,322,119**
B20	**EXTERIOR CLOSURE**				
B2010	**Exterior Walls**				
	B2011 Exterior wall construction				
	Masonry Veneer, Brick, assume 80% of opaque wall area	29,031	SF	54.00	1,567,668
	Insulated metal wall panel, assume 20% of opaque wall area	7,258	SF	48.00	348,371
	Stud framing, thermal clips, rigid insulation, spray foam insulation, weather resistant barrier, exterior sheathing, vapor barrier and gypsum board at interior face	36,289	SF	36.40	1,320,905
	Anti-grafitti coatings	1	LS	20,000.00	20,000

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Sills, ledgers, detailing	89,000	SF	1.75	155,750
	Roof penthouses and equipment screening, complete	4,320	SF	75.00	324,000
	B2012 Parapets				
	Parapet walls				
	Furring strips, blocking , sheathing, vapor retarder, cover board and roofing membrane	2,368	SF	28.45	67,355
	Metal coping	947	LF	50.00	47,350
	B2013 Exterior louvers, screens and fencing				
	Louvers	550	SF	85.00	46,750
	B2014 Exterior sun control devices				
	Sunscreens	1	LS	320,400.00	320,400
	B2015 Balcony walls and handrails				
	Allowance for railing at roof terrace	302	LF	500.00	151,000
	B2016 Exterior soffits				
	Exterior soffits, allowance, including floor overhangs	4,415	SF	55.00	242,825
	Caulking, sealants and firestopping				
	Caulking, sealants and firestopping	89,000	GFA	1.45	129,050
	Total For Exterior Walls				**4,741,423**
B2020	**Exterior Windows**				
	B2022 Curtain walls				
	Curtain wall, assumed 30% of fenestration area	6,672	SF	125.00	834,053
	B2023 Storefronts				
	Storefront glazing, assumed 70% of fenestration area	25,402	SF	105.00	2,667,212
	Total For Exterior Windows				**3,501,265**
B2030	**Exterior Doors**				
	B 2030 Exterior Doors				
	Aluminum glazed door, per leaf	10	EA	5,800.00	58,000
	HM door, per leaf	6	EA	2,950.00	17,700
	Specialty hardware	1	LS	30,000.00	30,000
	Specialty doors, assumed not required				N/A
	Total For Exterior Doors				**105,700**
B30	**ROOFING**				
B3010	**Roof Covering**				
	B3011 Roof finishes				
	SBS roof membrane system including vapor barriers, substrate board, cover board 1/2" and rigid insulation (3 layers)	15,785	SF	26.00	410,410
	Green roofing system, complete	11,000	SF	44.75	492,250
	Concrete pedestal paver system with SBS roof membrane system	4,630	SF	77.00	356,510
	B3012 Traffic toppings and paving membranes				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Walkway pads	1	LS	7,500.00	7,500
	B3014 Flashings and trim				
	Sheet metal flashings and trim at entire building	1	LS	333,750.00	333,750
	B3016 Gutters and downspouts				
	Roof drainage included in plumbing estimate				N/A
	B3021 Glazed roof openings				
	Skylights, assumed not required				N/A
	B3022 Roof hatches				
	Roof access hatch, curb, ladder	1	EA	6,000.00	6,000
	Miscellaneous				
	Rough carpentry	1	LS	94,340.00	94,340
	Fall restraint anchors	30	EA	1,400.00	42,000
	Total For Roofing				**1,742,760**
C10	**INTERIOR CONSTRUCTION**				
C1010	**Partitions**				
	C1011 Fixed partitions				
	Partitions	92,800	SF	21.15	1,962,720
	C1013 Retractable partitions				
	Operable partitions, allowance	1,200	SF	76.00	91,200
	C1016 Interior balustrades and screens				
	Railings at openings and stair extensions	200	LF	450.00	90,000
	C1017 Interior windows and storefronts				
	Interior storefront glazing and sidelights	5,000	SF	78.00	390,000
	Total For Interior Partitions				**2,533,920**
C1020	**Interior Doors**				
	C1021 Interior doors				
	Aluminum glazed door, per leaf	16	EA	4,850.00	77,600
	SC wood / HM door, per leaf	169	EA	2,850.00	481,650
	Specialty hardware	1	LS	35,000.00	35,000
	Specialty doors, allowance	1	LS	55,000.00	55,000
	Total For Interior Doors				**649,250**
C1030	**Specialties**				
	C1033 Storage shelving and lockers				
	Janitors mop rack and shelf	4	EA	650.00	2,600
	C1035 Identifying devices				
	Code signage	89,000	SF	0.16	14,451
	Wayfinding and room identification signage	89,000	SF	0.80	71,200
	Exterior building signage	1	EA	26,500.00	26,500
	C1037 General fittings and misc. metals				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Miscellaneous metals, allow 0.3#/SF	26,700	LB	5.00	133,500
	Fire extinguisher cabinets	18	EA	310.00	5,580
	Cornerguards	1	LS	8,000.00	8,000
	Restroom and shower accessories	1	LS	27,500.00	27,500
	Elevator pit ladder	1	EA	1,350.00	1,350
	Tackboards and markerboards	80	EA	800.00	64,000
	Total For Fittings and Specialty Items				**354,681**
C20	**STAIRS**				
C2010	**Stair Construction**				
	C 2010 Stair Construction				
	Architectural stair including railings and finish	3	FLT	65,000.00	195,000
	Circulation / exit stair including railings and finish	6	FLT	33,000.00	198,000
	Total For Stair Construction				**393,000**
C30	**INTERIOR FINISHES**				
C3010	**Wall Finishes**				
	C3012 Wall finishes to interior walls				
	Interior painting	89,000	GFA	3.80	338,200
	Miscellaneous wall finishes, allow	89,000	GFA	6.50	578,500
	Total For Wall Finishes				**916,700**
C3020	**Floor Finishes**				
	C3024 Flooring				
	Floor finishes, Level 1	30,500	SF	10.90	332,450
	Floor finishes, Level 2	19,500	SF	9.70	189,150
	Floor finishes, Level 3	19,500	SF	9.70	189,150
	Floor finishes, Level 4	19,500	SF	9.70	189,150
	Total For Floor Finishes				**899,900**
C3030	**Ceiling Finishes**				
	C3031 Ceiling finishes				
	Ceiling finishes, Level 1	30,500	SF	21.40	652,700
	Ceiling finishes, Level 2	19,500	SF	13.50	263,250
	Ceiling finishes, Level 3	19,500	SF	13.50	263,250
	Ceiling finishes, Level 4	19,500	SF	13.50	263,250
	Exposed ceilings included in interior painting estimate in section C3012				N/A
	Total For Ceiling Finishes				**1,442,450**
D10	**VERTICAL TRANSPORTATION**				
D1010	**Elevator & Lift**				
	D1011 Passenger elevators				
	Passenger elevator , 5 stop	1	EA	260,000.00	260,000
	Passenger elevator , 4 stop	1	EA	208,000.00	208,000
	Total For Elevator & Lifts				**468,000**
D20	**PLUMBING**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
D2010	**Plumbing**				
	D 2010 Plumbing Fixtures				
	Plumbing systems, complete	89,000	GFA	18.50	1,646,500
	Total For Plumbing				**1,646,500**
D30	**HVAC**				
D3010	**HVAC**				
	D 3000 HVAC				
	HVAC systems, complete	89,000	GFA	67.50	6,007,500
	Total For HVAC				**6,007,500**
D40	**FIRE PROTECTION**				
D4010	**Fire Protection**				
	D 4010 Sprinklers				
	Fire suppression at building	89,000	GFA	6.50	578,500
	Add for exterior soffit dry suppression	4,415	SF	7.96	35,143
	Total For Fire Sprinkler System				**613,643**
D50	**ELECTRICAL**				
D5000	**Electrical**				
	D5000 Electrical Systems				
	Electrical Service and Distribution	89,000	SF	11.50	1,023,500
	PV system, allowance per design team	20	KVA	3,500.00	70,000
	Lighting and Branch Wiring				
	Machine and equipment power				
	Elevator	1	EA	12,100.00	12,100
	Plumbing & HVAC	89,000	GFA	3.72	331,080
	Miscellaneous	89,000	GFA	0.50	44,500
	User convenience power				
	Building	89,000	GFA	5.60	498,400
	Lighting fixtures including conduit and wire				
	Building	89,000	GFA	14.75	1,312,750
	Lighting controls				
	Building	89,000	GFA	4.65	413,850
	Telephone/Data systems				
	Telephone/Data systems	89,000	GFA	5.10	453,900
	Audio/visual systems	89,000	GFA	5.35	476,150
	Distributed Antenna Systems				
	DAS/ERRC systems	89,000	GFA	1.50	133,500
	Fire alarm system				
	Building	89,000	GFA	3.30	293,700
	Security and detection systems				
	Access control/intruder detection	89,000	GFA	2.10	186,900
	CCTV system	89,000	GFA	2.10	186,900
	Other Electrical Systems				
	Grounding systems	89,000	GFA	0.45	40,050
	Testing	1	LS	133,613.40	133,613
	Miscellaneous electrical	89,000	GFA	5.00	445,000

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Total For Electrical				**6,055,893**
E10	**EQUIPMENT**				
E1010	**Equipment**				
	E1027 Laboratory equipment				
	Lab equipment and lab casework at research areas, allowance	1	LS	345,000.00	345,000
	E1094 Residential equipment				
	Residential equipment	1	LS	20,000.00	20,000
	E1029 Other institutional equipment				
	Shop equipment	1	LS	120,000.00	120,000
	OFCI items, allowance	1	LS	8,000.00	8,000
	Total For Equipment				**493,000**
E20	**FIXED FURNISHINGS**				
E2010	**Fixed Furnishing**				
	E2012 Fixed casework				
	Casework, allowance	89,000	GFA	9.50	845,500
	E2013 Blinds and other window treatments				
	Window treatments including all roller shades in all public and classroom areas	1	LS	304,020.20	304,020
	Total For Fixed Furnishings				**1,149,520**
F10	**SPECIAL STRUCTURES**				
F1010	**Special Structure**				
	No work anticipated				N/A
	Total For Special Structure				
F1020	**Special Construction**				
	No work anticipated				N/A
	Total For Special Construction				

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
BUILDING: CANAL SIDE OPTION, DEMOLITION AND ABATEMENT *Date:* **May 27, 2022**

RC COST GROUP

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
F 2020 Hazardous Components Abatement				
HAZMAT and Abatement	32,000	SF	5.75	184,000
G1021 Building demolition				
Demolish and remove Farrell Hall and recycle all concrete	32,000	SF	14.90	476,800
Sub-Total				**660,800**
General Conditions/General Requirements	8.48%			56,036
Estimating / Design Contingency	15.00%			99,120
GC Fee, Bonds and Insurance	6.90%			56,301
Escalation: September 2025	18.48%			161,200
Total Construction Cost				**1,033,456**

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
SITEWORK: CANAL SIDE OPTION **ELEMENTAL ESTIMATE SUMMARY** **DATE:** June 15, 2022

RC COST GROUP

No.	ELEMENT DESCRIPTION		ELEMENT TOTAL	GROUP TOTAL
G10	SITE PREPARATION			$ 600,400
G1010	Site Clearing		$ 108,000	
G1020	Site Demolition and Relocations		$ 284,400	
G1030	Site Earthwork		$ 208,000	
G1040	Hazardous Waste Remediation		$ -	
G20	SITE IMPROVEMENTS			$ 1,598,200
G2010	Roadways		$ -	
G2020	Parking Lots		$ 328,000	
G2030	Pedestrian Paving		$ 204,000	
G2040	Site Development		$ 717,400	
G2050	Landscaping		$ 348,800	
G30	SITE MECHANICAL UTILITIES			$ 650,000
G3010	Water Supply		$ 72,000	
G3020	Sanitary Sewer		$ 68,000	
G3030	Storm Sewer		$ 510,000	
G3040	Heating Distribution		$ -	
G3050	Cooling Distribution		$ -	
G3060	Fuel Distribution		$ -	
G3090	Other Site Mechanical Utilities		$ -	
G40	SITE ELECTRICAL UTILITIES			$ 455,000
G4010	Electrical Distribution		$ 300,000	
G4020	Site Lighting		$ 80,000	
G4030	Site Communications and Security		$ 75,000	
G4090	Other Site Electrical Utilities		$ -	
	Sub-Total Direct Cost			**$ 3,303,600**
	General Conditions/General Requirements	8.48%		$ 280,145
	Sub-Total			**$ 3,583,745**
	Estimating / Design Contingency	15.00%		$ 537,562
	Sub-Total			**$ 4,121,307**
	GC Fee, Bonds and Insurance	6.90%		$ 284,370
	Sub-Total			**$ 4,405,677**
	Escalation: September 2025	18.48%		$ 814,202
	TOTAL CONSTRUCTION COST			**$ 5,219,880**

BUILDING DATA

Building Area: North Campus Full Replacement

Level 1	29,500 SF
Level 2	28,000 SF
Level 3	18,500 SF
Level 4	13,000 SF
Total Gross Floor Area	**89,000 SF**
Mechanical Penthouse	3,800 SF
Total Unoccupied Space (Excluded from GFA)	**3,800 SF**

		Quantity	Unit	Ratio to Gross Area
Number of stories (x1,000)		4	EA	0.045
Gross Area		89,000	SF	1.000
Enclosed Area		89,000	SF	1.000
Footprint Area		29,500	SF	0.331
Suspended Slab		59,500	SF	0.669
Gross Wall Area		57,930	SF	0.651
Retaining Wall Area (Excludes Stem Walls)		-	SF	
Opaque Finished Wall Area		35,917	SF	0.404
Windows or Glazing Area	38.00%	22,013	SF	0.247
Roof Area		30,385	SF	0.341
Roof Glazing Area		-	SF	
Interior Partition Length		6,400	LF	0.072
Interior Doors Per Leaf "Excludes Specialty"		185	EA	0.002
Interior Glazing		5,000	SF	0.056
Finished Area		89,000	SF	1.000
Elevators (x10,000)		2	EA	0.022

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
BUILDING: NORTH CAMPUS REPLACEMENT

GROSS FLOOR AREA: 89,000 SF
DATE: June 15, 2022

RC COST GROUP

No.	ELEMENT DESCRIPTION	ELEMENT TOTAL	GROUP TOTAL	COST PER SF
A10	FOUNDATIONS		$ 1,432,512	$ 16.10
A1010	Standard Foundation	$ 1,069,662	$ 12.02	
A1020	Special Foundation	$ -	$ -	
A1030	Slab on grade	$ 362,850	$ 4.08	
A20	BASEMENT WALL CONSTRUCTION		$ -	$ -
A2010	Basement Excavation	$ -	$ -	
A2020	Basement Wall Construction	$ -	$ -	
B10	SUPERSTRUCTURE		$ 8,325,461	$ 93.54
B1010	Floor & Roof Construction	$ 8,325,461	$ 93.54	
B20	EXTERIOR ENCLOSURE		$ 8,277,664	$ 93.01
B2010	Exterior Walls	$ 4,706,591	$ 52.88	
B2020	Exterior Windows	$ 3,465,373	$ 38.94	
B2030	Exterior Doors	$ 105,700	$ 1.19	
B30	ROOFING		$ 1,537,855	$ 17.28
B3010	Roofing	$ 1,537,855	$ 17.28	
C10	INTERIOR CONSTRUCTION		$ 3,537,851	$ 39.75
C1010	Partitions	$ 2,533,920	$ 28.47	
C1020	Interior Doors	$ 649,250	$ 7.29	
C1030	Fittings and Specialties	$ 354,681	$ 3.99	
C20	STAIRS		$ 393,000	$ 4.42
C2010	Stair Construction	$ 393,000	$ 4.42	
C30	INTERIOR FINISHES		$ 3,249,950	$ 36.52
C3010	Wall Finishes	$ 916,700	$ 10.30	
C3020	Floor Finishes	$ 898,700	$ 10.10	
C3030	Ceiling Finishes	$ 1,434,550	$ 16.12	
D10	CONVEYING		$ 468,000	$ 5.26
D1010	Elevators & Lifts	$ 468,000	$ 5.26	
D20	PLUMBING		$ 1,646,500	$ 18.50
D2010	Plumbing	$ 1,646,500	$ 18.50	
D30	HVAC		$ 6,007,500	$ 67.50
D3010	HVAC	$ 6,007,500	$ 67.50	
D40	FIRE PROTECTION		$ 613,405	$ 6.89
D4010	Sprinkler System	$ 613,405	$ 6.89	
D50	ELECTRICAL		$ 6,055,893	$ 68.04
D5000	Electrical	$ 6,055,893	$ 68.04	
E10	EQUIPMENT		$ 493,000	$ 5.54
E1010	Equipment	$ 493,000	$ 5.54	
E20	FIXED FURNISHINGS		$ 1,146,916	$ 12.89
E2010	Fixed Furnishings	$ 1,146,916	$ 12.89	
F10	SPECIAL CONSTRUCTION		$ -	$ -
F1010	Special Structure	$ -		
F1020	Special Construction	$ -		
	Sub-Total Direct Cost		**$ 43,185,508**	**$ 485.23**
	General Conditions/General Requirements 8.48%		$ 3,662,131	$ 41.15
	Sub-Total		**$ 46,847,639**	**$ 526.38**
	Estimating / Design Contingency 15.00%		$ 7,027,146	$ 78.96
	Sub-Total		**$ 53,874,784**	**$ 605.33**
	GC Fee, Bonds and Insurance 6.90%		$ 3,717,360	$ 41.77
	Sub-Total		**$ 57,592,144**	**$ 647.10**
	Escalation: September 2025 18.48%		$ 10,643,464	$ 119.59
	TOTAL CONSTRUCTION COST		**$ 68,235,608**	**$ 766.69**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
A10	**FOUNDATIONS**				
A1010	**Standard Foundation**				
	A1011 Foundations				
	Reinforced concrete continuous wall footings				
	Excavate for continuous footings	411	CY	47.90	19,692
	Backfill, assume imported fill	260	CY	58.20	15,154
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	547	CY	29.44	16,097
	Fine grade bottom of footing	3,700	SF	1.18	4,366
	Formwork to foundations - sides	3,700	SF	12.80	47,360
	Reinforcing steel in foundations	19,898	LB	1.85	36,811
	Concrete, 4,000 psi	151	CY	304.00	45,825
	Finish to top of footing	3,700	SF	1.20	4,440
	Reinforced concrete brace frame footings				
	Excavate for continuous footings	1,009	CY	47.90	48,352
	Backfill, assume imported fill	294	CY	58.20	17,089
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	1,343	CY	29.44	39,525
	Fine grade bottom of footing	5,620	SF	1.18	6,632
	Formwork to foundations - sides	3,714	SF	12.80	47,539
	Reinforcing steel in foundations	94,488	LB	1.85	174,802
	Concrete, 4,000 psi	716	CY	285.00	204,007
	Finish to top of footing	5,620	SF	1.20	6,744
	A1012 Column foundations				
	Reinforced concrete spread footings				
	Excavate for spread footings	331	CY	47.90	15,850
	Backfill, assume imported fill	174	CY	58.20	10,153
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	440	CY	29.44	12,956
	Fine grade bottom of footing	1,920	SF	1.18	2,266
	Formwork to foundations - sides	1,920	SF	12.80	24,576
	Reinforcing steel in foundations	19,086	LB	1.85	35,310
	Concrete, 4,000 psi	156	CY	304.00	47,559
	Finish to top of footing	1,920	SF	1.20	2,304
	A1013 Perimeter drainage and insulation				
	Perimeter drain pipe and rock	1,110	LF	29.45	32,690
	Perimeter insulation, rigid	2,220	SF	7.30	16,206
	Miscellaneous				
	Reinforced concrete stem walls	62	CY	1,405.00	86,642
	Elevator pit, double	1	EA	32,400.00	32,400
	Dampproofing at walls	1,665	SF	9.80	16,317
	Total For Standard Foundations				**1,069,662**
A1020	**Special Foundation**				
	A1021 Pile foundations				
	No work anticipated				N/A
	Total For Special Foundations				
A1030	**Slab on Grade**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	A1031 Standard slab on grade				
	Reinforced concrete slab on grade and base	29,500	SF	11.80	348,100
	A1034 Trenches, pits and bases				
	Reinforced concrete pads / slab thickening	29,500	SF	0.50	14,750
	Total For Slab on Grade				**362,850**
A20	**BASEMENT CONSTRUCTION**				
A2010	**Basement Excavation**				
	No work anticipated				N/A
	Total For Basement Excavation				
A2010	**Basement Walls**				
	No work anticipated				N/A
	Total For Basement Walls				
B1010	**Floor & Roof Construction**				
	B1012 Upper floors construction				
	Floor structure				
	GLB columns, beams, wide flange, girders	59,500	SF	29.80	1,773,100
	CLT, 5-Ply	59,500	SF	35.10	2,088,450
	Topping slab, 2	59,500	SF	9.10	541,450
	Penthouse				
	Penthouse structure, complete	3,800	SF	65.00	247,000
	Bracing / Shear Walls				
	Buckling restrained brace frames diagonals / CLT shear walls at entire building	89,000	GFA	14.45	1,286,050
	B1020 Roof construction				
	3-ply CLT decking over glulam beams and columns and wide-flange beams and columns. Girders supported on wide-flange columns.	30,385	SF	68.60	2,084,411
	Canopies, allowance	1,500	SF	110.00	165,000
	Miscellaneous				
	Fireproofing steel at steel structure	1	LS	140,000.00	140,000
	Total For Floor & Roof Construction				**8,325,461**
B20	**EXTERIOR CLOSURE**				
B2010	**Exterior Walls**				
	B2011 Exterior wall construction				
	Masonry Veneer, Brick, assume 80% of opaque wall area	28,733	SF	54.00	1,551,597
	Insulated metal wall panel, assume 20% of opaque wall area	7,183	SF	48.00	344,799
	Stud framing, thermal clips, rigid insulation, spray foam insulation, weather resistant barrier, exterior sheathing, vapor barrier and gypsum board at interior face	35,917	SF	36.40	1,307,364
	Anti-grafitti coatings	1	LS	20,000.00	20,000

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Sills, ledgers, detailing	89,000	SF	1.75	155,750
	Roof penthouses and equipment screening, complete	4,320	SF	75.00	324,000
	B2012 Parapets				
	Parapet walls				
	Furring strips, blocking , sheathing, vapor retarder, cover board and roofing membrane	2,368	SF	28.45	67,355
	Metal coping	947	LF	50.00	47,350
	B2013 Exterior louvers, screens and fencing				
	Louvers	550	SF	85.00	46,750
	B2014 Exterior sun control devices				
	Sunscreens	1	LS	320,400.00	320,400
	B2015 Balcony walls and handrails				
	Allowance for railing at roof terrace	302	LF	500.00	151,000
	B2016 Exterior soffits				
	Exterior soffits, allowance, including floor overhangs	4,385	SF	55.00	241,175
	Caulking, sealants and firestopping				
	Caulking, sealants and firestopping	89,000	GFA	1.45	129,050
	Total For Exterior Walls				**4,706,591**
B2020	**Exterior Windows**				
	B2022 Curtain walls				
	Curtain wall, assumed 30% of fenestration area	6,604	SF	125.00	825,503
	B2023 Storefronts				
	Storefront glazing, assumed 70% of fenestration area	25,142	SF	105.00	2,639,870
	Total For Exterior Windows				**3,465,373**
B2030	**Exterior Doors**				
	B 2030 Exterior Doors				
	Aluminum glazed door, per leaf	10	EA	5,800.00	58,000
	HM door, per leaf	6	EA	2,950.00	17,700
	Specialty hardware	1	LS	30,000.00	30,000
	Specialty doors, assumed not required				N/A
	Total For Exterior Doors				**105,700**
B30	**ROOFING**				
B3010	**Roof Covering**				
	B3011 Roof finishes				
	SBS roof membrane system including vapor barriers, substrate board, cover board 1/2" and rigid insulation (3 layers)	24,255	SF	26.00	630,630
	Green roofing system, complete	1,500	SF	44.75	67,125
	Concrete pedestal paver system with SBS roof membrane system	4,630	SF	77.00	356,510
	B3012 Traffic toppings and paving membranes				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Walkway pads	1	LS	7,500.00	7,500
	B3014 Flashings and trim				
	Sheet metal flashings and trim at entire building	1	LS	333,750.00	333,750
	B3016 Gutters and downspouts				
	Roof drainage included in plumbing estimate				N/A
	B3021 Glazed roof openings				
	Skylights, assumed not required				N/A
	B3022 Roof hatches				
	Roof access hatch, curb, ladder	1	EA	6,000.00	6,000
	Miscellaneous				
	Rough carpentry	1	LS	94,340.00	94,340
	Fall restraint anchors	30	EA	1,400.00	42,000
	Total For Roofing				**1,537,855**
C10	**INTERIOR CONSTRUCTION**				
C1010	**Partitions**				
	C1011 Fixed partitions				
	Partitions	92,800	SF	21.15	1,962,720
	C1013 Retractable partitions				
	Operable partitions, allowance	1,200	SF	76.00	91,200
	C1016 Interior balustrades and screens				
	Railings at openings and stair extensions	200	LF	450.00	90,000
	C1017 Interior windows and storefronts				
	Interior storefront glazing and sidelights	5,000	SF	78.00	390,000
	Total For Interior Partitions				**2,533,920**
C1020	**Interior Doors**				
	C1021 Interior doors				
	Aluminum glazed door, per leaf	16	EA	4,850.00	77,600
	SC wood / HM door, per leaf	169	EA	2,850.00	481,650
	Specialty hardware	1	LS	35,000.00	35,000
	Specialty doors, allowance	1	LS	55,000.00	55,000
	Total For Interior Doors				**649,250**
C1030	**Specialties**				
	C1033 Storage shelving and lockers				
	Janitors mop rack and shelf	4	EA	650.00	2,600
	C1035 Identifying devices				
	Code signage	89,000	SF	0.16	14,451
	Wayfinding and room identification signage	89,000	SF	0.80	71,200
	Exterior building signage	1	EA	26,500.00	26,500
	C1037 General fittings and misc. metals				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Miscellaneous metals, allow 0.3#/SF	26,700	LB	5.00	133,500
	Fire extinguisher cabinets	18	EA	310.00	5,580
	Cornerguards	1	LS	8,000.00	8,000
	Restroom and shower accessories	1	LS	27,500.00	27,500
	Elevator pit ladder	1	EA	1,350.00	1,350
	Tackboards and markerboards	80	EA	800.00	64,000
	Total For Fittings and Specialty Items				**354,681**
C20	**STAIRS**				
C2010	**Stair Construction**				
	C 2010 Stair Construction				
	Architectural stair including railings and finish	3	FLT	65,000.00	195,000
	Circulation / exit stair including railings and finish	6	FLT	33,000.00	198,000
	Total For Stair Construction				**393,000**
C30	**INTERIOR FINISHES**				
C3010	**Wall Finishes**				
	C3012 Wall finishes to interior walls				
	Interior painting	89,000	GFA	3.80	338,200
	Miscellaneous wall finishes, allow	89,000	GFA	6.50	578,500
	Total For Wall Finishes				**916,700**
C3020	**Floor Finishes**				
	C3024 Flooring				
	Floor finishes, Level 1	29,500	SF	10.90	321,550
	Floor finishes, Level 2	28,000	SF	9.70	271,600
	Floor finishes, Level 3	18,500	SF	9.70	179,450
	Floor finishes, Level 4	13,000	SF	9.70	126,100
	Total For Floor Finishes				**898,700**
C3030	**Ceiling Finishes**				
	C3031 Ceiling finishes				
	Ceiling finishes, Level 1	29,500	SF	21.40	631,300
	Ceiling finishes, Level 2	28,000	SF	13.50	378,000
	Ceiling finishes, Level 3	18,500	SF	13.50	249,750
	Ceiling finishes, Level 4	13,000	SF	13.50	175,500
	Exposed ceilings included in interior painting estimate in section C3012				N/A
	Total For Ceiling Finishes				**1,434,550**
D10	**VERTICAL TRANSPORTATION**				
D1010	**Elevator & Lift**				
	D1011 Passenger elevators				
	Passenger elevator , 5 stop	1	EA	260,000.00	260,000
	Passenger elevator , 4 stop	1	EA	208,000.00	208,000
	Total For Elevator & Lifts				**468,000**
D20	**PLUMBING**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
D2010	**Plumbing**				
	D 2010 Plumbing Fixtures				
	Plumbing systems, complete	89,000	GFA	18.50	1,646,500
	Total For Plumbing				**1,646,500**
D30	**HVAC**				
D3010	**HVAC**				
	D 3000 HVAC				
	HVAC systems, complete	89,000	GFA	67.50	6,007,500
	Total For HVAC				**6,007,500**
D40	**FIRE PROTECTION**				
D4010	**Fire Protection**				
	D 4010 Sprinklers				
	Fire suppression at building	89,000	GFA	6.50	578,500
	Add for exterior soffit dry supression	4,385	SF	7.96	34,905
	Total For Fire Sprinkler System				**613,405**
D50	**ELECTRICAL**				
D5000	**Electrical**				
	D5000 Electrical Systems				
	Electrical Service and Distribution	89,000	SF	11.50	1,023,500
	PV system, allowance per design team	20	KVA	3,500.00	70,000
	Lighting and Branch Wiring				
	Machine and equipment power				
	Elevator	1	EA	12,100.00	12,100
	Plumbing & HVAC	89,000	GFA	3.72	331,080
	Miscellaneous	89,000	GFA	0.50	44,500
	User convenience power				
	Building	89,000	GFA	5.60	498,400
	Lighting fixtures including conduit and wire				
	Building	89,000	GFA	14.75	1,312,750
	Lighting controls				
	Building	89,000	GFA	4.65	413,850
	Telephone/Data systems				
	Telephone/Data systems	89,000	GFA	5.10	453,900
	Audio/visual systems	89,000	GFA	5.35	476,150
	Distributed Antenna Systems				
	DAS/ERRC systems	89,000	GFA	1.50	133,500
	Fire alarm system				
	Building	89,000	GFA	3.30	293,700
	Security and detection systems				
	Access control/intruder detection	89,000	GFA	2.10	186,900
	CCTV system	89,000	GFA	2.10	186,900
	Other Electrical Systems				
	Grounding systems	89,000	GFA	0.45	40,050
	Testing	1	LS	133,613.40	133,613
	Miscellaneous electrical	89,000	GFA	5.00	445,000

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Total For Electrical				**6,055,893**
E10	**EQUIPMENT**				
E1010	**Equipment**				
	E1027 Laboratory equipment				
	Lab equipment and lab casework at research areas, allowance	1	LS	345,000.00	345,000
	E1094 Residential equipment				
	Residential equipment	1	LS	20,000.00	20,000
	E1029 Other institutional equipment				
	Shop equipment	1	LS	120,000.00	120,000
	OFCI items, allowance	1	LS	8,000.00	8,000
	Total For Equipment				**493,000**
E20	**FIXED FURNISHINGS**				
E2010	**Fixed Furnishing**				
	E2012 Fixed casework				
	Casework, allowance	89,000	GFA	9.50	845,500
	E2013 Blinds and other window treatments				
	Window treatments including all roller shades in all public and classroom areas	1	LS	301,416.20	301,416
	Total For Fixed Furnishings				**1,146,916**
F10	**SPECIAL STRUCTURES**				
F1010	**Special Structure**				
	No work anticipated				N/A
	Total For Special Structure				
F1020	**Special Construction**				
	No work anticipated				N/A
	Total For Special Construction				

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
F 2020 Hazardous Components Abatement				
HAZMAT and Abatement	44,000	SF	5.75	253,000
G1021 Building demolition				
Demolish and remove Farrell Hall and recycle all concrete	44,000	SF	14.90	655,600
Sub-Total				**908,600**
General Conditions/General Requirements	8.48%			77,049
Estimating / Design Contingency	15.00%			136,290
GC Fee, Bonds and Insurance	6.90%			77,414
Escalation: September 2025	18.48%			221,650
Total Construction Cost				**1,421,003**

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
SITEWORK: NORTH CAMPUS REPLACEMENT **ELEMENTAL ESTIMATE SUMMARY** **DATE:** **June 15, 2022**

RC COST GROUP

No.	ELEMENT DESCRIPTION		ELEMENT TOTAL	GROUP TOTAL
G10	SITE PREPARATION			$ 646,500
G1010	Site Clearing		$ 82,500	
G1020	Site Demolition and Relocations		$ 434,000	
G1030	Site Earthwork		$ 130,000	
G1040	Hazardous Waste Remediation		$ -	
G20	SITE IMPROVEMENTS			$ 1,309,900
G2010	Roadways		$ -	
G2020	Parking Lots		$ 143,500	
G2030	Pedestrian Paving		$ 204,000	
G2040	Site Development		$ 717,400	
G2050	Landscaping		$ 245,000	
G30	SITE MECHANICAL UTILITIES			$ 925,000
G3010	Water Supply		$ 35,000	
G3020	Sanitary Sewer		$ 40,000	
G3030	Storm Sewer		$ 400,000	
G3040	Heating Distribution		$ -	
G3050	Cooling Distribution		$ -	
G3060	Fuel Distribution		$ -	
G3090	Other Site Mechanical Utilities		$ 450,000	
G40	SITE ELECTRICAL UTILITIES			$ 255,000
G4010	Electrical Distribution		$ 100,000	
G4020	Site Lighting		$ 80,000	
G4030	Site Communications and Security		$ 75,000	
G4090	Other Site Electrical Utilities		$ -	
	Sub-Total Direct Cost			**$ 3,136,400**
	General Conditions/General Requirements	8.48%		$ 265,967
	Sub-Total			**$ 3,402,367**
	Estimating / Design Contingency	15.00%		$ 510,355
	Sub-Total			**$ 3,912,722**
	GC Fee, Bonds and Insurance	6.90%		$ 269,978
	Sub-Total			**$ 4,182,700**
	Escalation: September 2025	18.48%		$ 772,995
	TOTAL CONSTRUCTION COST			**$ 4,955,694**

BUILDING DATA

Building Area: North Campus Addition

Level 1	15,000 SF
Level 2	5,000 SF
Level 3	5,000 SF
Level 4	5,000 SF
Total Gross Floor Area	**30,000 SF**
Mechanical Penthouse	2,000 SF
Total Unoccupied Space (Excluded from GFA)	**2,000 SF**

		Quantity	Unit	Ratio to Gross Area
Number of stories (x1,000)		4	EA	0.133
Gross Area		30,000	SF	1.000
Enclosed Area		30,000	SF	1.000
Footprint Area		15,000	SF	0.500
Suspended Slab		15,000	SF	0.500
Gross Wall Area		22,850	SF	0.762
Retaining Wall Area (Excludes Stem Walls)		-	SF	
Opaque Finished Wall Area		14,167	SF	0.472
Windows or Glazing Area	38.00%	8,683	SF	0.289
Roof Area		15,450	SF	0.515
Roof Glazing Area		-	SF	
Interior Partition Length		2,150	LF	0.072
Interior Doors Per Leaf "Excludes Specialty"		65	EA	0.002
Interior Glazing		1,700	SF	0.057
Finished Area		30,000	SF	1.000
Elevators (x10,000)		1	EA	0.033

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
BUILDING: NORTH CAMPUS ADDITION

GROSS FLOOR AREA: 30,000 SF
DATE: June 15, 2022

RC COST GROUP

No.	ELEMENT DESCRIPTION	ELEMENT TOTAL	GROUP TOTAL	COST PER SF
A10	FOUNDATIONS		$ 776,252	$ 25.88
A1010	Standard Foundation	$ 591,752	$ 19.73	
A1020	Special Foundation	$ -	$ -	
A1030	Slab on grade	$ 184,500	$ 6.15	
A20	BASEMENT WALL CONSTRUCTION		$ -	$ -
A2010	Basement Excavation	$ -	$ -	
A2020	Basement Wall Construction	$ -	$ -	
B10	SUPERSTRUCTURE		$ 2,948,370	$ 98.28
B1010	Floor & Roof Construction	$ 2,948,370	$ 98.28	
B20	EXTERIOR ENCLOSURE		$ 3,229,741	$ 107.66
B2010	Exterior Walls	$ 1,792,154	$ 59.74	
B2020	Exterior Windows	$ 1,366,887	$ 45.56	
B2030	Exterior Doors	$ 70,700	$ 2.36	
B30	ROOFING		$ 671,900	$ 22.40
B3010	Roofing	$ 671,900	$ 22.40	
C10	INTERIOR CONSTRUCTION		$ 1,219,983	$ 40.67
C1010	Partitions	$ 853,851	$ 28.46	
C1020	Interior Doors	$ 227,250	$ 7.58	
C1030	Fittings and Specialties	$ 138,881	$ 4.63	
C20	STAIRS		$ 294,000	$ 9.80
C2010	Stair Construction	$ 294,000	$ 9.80	
C30	INTERIOR FINISHES		$ 1,141,500	$ 38.05
C3010	Wall Finishes	$ 309,000	$ 10.30	
C3020	Floor Finishes	$ 309,000	$ 10.30	
C3030	Ceiling Finishes	$ 523,500	$ 17.45	
D10	CONVEYING		$ 208,000	$ 6.93
D1010	Elevators & Lifts	$ 208,000	$ 6.93	
D20	PLUMBING		$ 555,000	$ 18.50
D2010	Plumbing	$ 555,000	$ 18.50	
D30	HVAC		$ 2,025,000	$ 67.50
D3010	HVAC	$ 2,025,000	$ 67.50	
D40	FIRE PROTECTION		$ 206,542	$ 6.88
D4010	Sprinkler System	$ 206,542	$ 6.88	
D50	ELECTRICAL		$ 2,097,371	$ 69.91
D5000	Electrical	$ 2,097,371	$ 69.91	
E10	EQUIPMENT		$ 123,000	$ 4.10
E1010	Equipment	$ 123,000	$ 4.10	
E20	FIXED FURNISHINGS		$ 401,169	$ 13.37
E2010	Fixed Furnishings	$ 401,169	$ 13.37	
F10	SPECIAL CONSTRUCTION		$ -	$ -
F1010	Special Structure	$ -		
F1020	Special Construction	$ -		
F20	SELECTIVE BUILDING DEMOLITION		$ 140,000	$ 4.67
F2010	Building Elements Demolition	$ 140,000		
	Sub-Total Direct Cost		**$ 16,037,827**	**$ 534.59**
	General Conditions/General Requirements 8.48%		$ 1,360,008	$ 45.33
	Sub-Total		**$ 17,397,835**	**$ 579.93**
	Estimating / Design Contingency 15.00%		$ 2,609,675	$ 86.99
	Sub-Total		**$ 20,007,510**	**$ 666.92**
	GC Fee, Bonds and Insurance 6.90%		$ 1,380,518	$ 46.02
	Sub-Total		**$ 21,388,029**	**$ 712.93**
	Escalation: September 2025 18.48%		$ 3,952,669	$ 131.76
	TOTAL CONSTRUCTION COST		**$ 25,340,698**	**$ 844.69**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
A10	**FOUNDATIONS**				
A1010	**Standard Foundation**				
	A1011 Foundations				
	Reinforced concrete continuous wall footings				
	Excavate for continuous footings	171	CY	47.90	8,196
	Backfill, assume imported fill	108	CY	58.20	6,307
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	228	CY	29.44	6,700
	Fine grade bottom of footing	1,540	SF	1.18	1,817
	Formwork to foundations - sides	1,540	SF	12.80	19,712
	Reinforcing steel in foundations	8,282	LB	1.85	15,321
	Concrete, 4,000 psi	63	CY	304.00	19,073
	Finish to top of footing	1,540	SF	1.20	1,848
	Reinforced concrete brace frame footings				
	Excavate for continuous footings	559	CY	47.90	26,797
	Backfill, assume imported fill	174	CY	58.20	10,105
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	744	CY	29.44	21,905
	Fine grade bottom of footing	2,920	SF	1.18	3,446
	Formwork to foundations - sides	2,094	SF	12.80	26,803
	Reinforcing steel in foundations	50,928	LB	1.85	94,216
	Concrete, 4,000 psi	386	CY	285.00	109,957
	Finish to top of footing	2,920	SF	1.20	3,504
	A1012 Column foundations				
	Reinforced concrete spread footings				
	Excavate for spread footings	331	CY	47.90	15,850
	Backfill, assume imported fill	258	CY	58.20	15,009
	Disposal of excavated material off-site within 8 miles, assumed a 33% swell factor	440	CY	29.44	12,956
	Fine grade bottom of footing	896	SF	1.18	1,057
	Formwork to foundations - sides	896	SF	12.80	11,469
	Reinforcing steel in foundations	8,907	LB	1.85	16,478
	Concrete, 4,000 psi	73	CY	304.00	22,194
	Finish to top of footing	896	SF	1.20	1,075
	A1013 Perimeter drainage and insulation				
	Perimeter drain pipe and rock	640	LF	29.45	18,848
	Perimeter insulation, rigid	1,280	SF	7.30	9,344
	Miscellaneous				
	Reinforced concrete stem walls	36	CY	1,405.00	49,956
	Elevator pit, double	1	EA	32,400.00	32,400
	Dampproofing at walls	960	SF	9.80	9,408
	Total For Standard Foundations				**591,752**
A1020	**Special Foundation**				
	A1021 Pile foundations				
	No work anticipated				N/A
	Total For Special Foundations				
A1030	**Slab on Grade**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	A1031 Standard slab on grade				
	Reinforced concrete slab on grade and base	15,000	SF	11.80	177,000
	A1034 Trenches, pits and bases				
	Reinforced concrete pads / slab thickening	15,000	SF	0.50	7,500
	Total For Slab on Grade				**184,500**
A20	**BASEMENT CONSTRUCTION**				
A2010	**Basement Excavation**				
	No work anticipated				N/A
	Total For Basement Excavation				
A2010	**Basement Walls**				
	No work anticipated				N/A
	Total For Basement Walls				
B1010	**Floor & Roof Construction**				
	B1012 Upper floors construction				
	Floor structure				
	GLB columns, beams, wide flange, girders	15,000	SF	29.80	447,000
	CLT, 5-Ply	15,000	SF	35.10	526,500
	Topping slab, 2	15,000	SF	9.10	136,500
	Penthouse				
	Penthouse structure, complete	2,000	SF	65.00	130,000
	Bracing / Shear Walls				
	Buckling restrained brace frames diagonals / CLT shear walls at entire building	30,000	GFA	14.45	433,500
	B1020 Roof construction				
	3-ply CLT decking over glulam beams and columns and wide-flange beams and columns. Girders supported on wide-flange columns.	15,450	SF	68.60	1,059,870
	Canopies, allowance	1,500	SF	110.00	165,000
	Miscellaneous				
	Fireproofing steel at steel structure	1	LS	50,000.00	50,000
	Total For Floor & Roof Construction				**2,948,370**
B20	**EXTERIOR CLOSURE**				
B2010	**Exterior Walls**				
	B2011 Exterior wall construction				
	Masonry Veneer, Brick, assume 80% of opaque wall area	11,334	SF	54.00	612,014
	Insulated metal wall panel, assume 20% of opaque wall area	2,833	SF	48.00	136,003
	Stud framing, thermal clips, rigid insulation, spray foam insulation, weather resistant barrier, exterior sheathing, vapor barrier and gypsum board at interior face	14,167	SF	36.40	515,679
	Anti-grafitti coatings	1	LS	20,000.00	20,000

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Sills, ledgers, detailing	30,000	SF	1.75	52,500
	Roof penthouses and equipment screening, complete	1,920	SF	75.00	144,000
	B2012 Parapets				
	Parapet walls				
	Furring strips, blocking , sheathing, vapor retarder, cover board and roofing membrane	1,350	SF	28.45	38,408
	Metal coping	540	LF	50.00	27,000
	B2013 Exterior louvers, screens and fencing				
	Louvers	180	SF	85.00	15,300
	B2014 Exterior sun control devices				
	Sunscreens	1	LS	108,000.00	108,000
	B2016 Exterior soffits				
	Exterior soffits, allowance, including floor overhangs	1,450	SF	55.00	79,750
	Caulking, sealants and firestopping				
	Caulking, sealants and firestopping	30,000	GFA	1.45	43,500
	Total For Exterior Walls				**1,792,154**
B2020	**Exterior Windows**				
	B2022 Curtain walls				
	Curtain wall, assumed 30% of fenestration area	2,605	SF	125.00	325,613
	B2023 Storefronts				
	Storefront glazing, assumed 70% of fenestration area	9,917	SF	105.00	1,041,275
	Total For Exterior Windows				**1,366,887**
B2030	**Exterior Doors**				
	B 2030 Exterior Doors				
	Aluminum glazed door, per leaf	6	EA	5,800.00	34,800
	HM door, per leaf	2	EA	2,950.00	5,900
	Specialty hardware	1	LS	30,000.00	30,000
	Specialty doors, assumed not required				N/A
	Total For Exterior Doors				**70,700**
B30	**ROOFING**				
B3010	**Roof Covering**				
	B3011 Roof finishes				
	SBS roof membrane system including vapor barriers, substrate board, cover board 1/2" and rigid insulation (3 layers)	10,450	SF	26.00	271,700
	Green roofing system, complete	5,000	SF	44.75	223,750
	B3012 Traffic toppings and paving membranes				
	Walkway pads	1	LS	3,750.00	3,750
	B3014 Flashings and trim				
	Sheet metal flashings and trim at entire building	1	LS	112,500.00	112,500
	B3016 Gutters and downspouts				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Roof drainage included in plumbing estimate				N/A
	B3021 Glazed roof openings				
	Skylights, assumed not required				N/A
	B3022 Roof hatches				
	Roof access hatch, curb, ladder	1	EA	6,000.00	6,000
	Miscellaneous				
	Rough carpentry	1	LS	31,800.00	31,800
	Fall restraint anchors	16	EA	1,400.00	22,400
	Total For Roofing				**671,900**
C10	**INTERIOR CONSTRUCTION**				
C1010	**Partitions**				
	C1011 Fixed partitions				
	Partitions	31,175	SF	21.15	659,351
	C1013 Retractable partitions				
	Operable partitions, allowance	400	SF	76.00	30,400
	C1016 Interior balustrades and screens				
	Railings at openings and stair extensions	70	LF	450.00	31,500
	C1017 Interior windows and storefronts				
	Interior storefront glazing and sidelights	1,700	SF	78.00	132,600
	Total For Interior Partitions				**853,851**
C1020	**Interior Doors**				
	C1021 Interior doors				
	Aluminum glazed door, per leaf	6	EA	4,850.00	29,100
	SC wood / HM door, per leaf	59	EA	2,850.00	168,150
	Specialty hardware	1	LS	12,000.00	12,000
	Specialty doors, allowance	1	LS	18,000.00	18,000
	Total For Interior Doors				**227,250**
C1030	**Specialties**				
	C1033 Storage shelving and lockers				
	Janitors mop rack and shelf	4	EA	650.00	2,600
	C1035 Identifying devices				
	Code signage	30,000	SF	0.16	4,871
	Wayfinding and room identification signage	30,000	SF	0.80	24,000
	Exterior building signage	1	EA	26,500.00	26,500
	C1037 General fittings and misc. metals				
	Miscellaneous metals, allow 0.3#/SF	9,000	LB	5.00	45,000
	Fire extinguisher cabinets	6	EA	310.00	1,860
	Cornerguards	1	LS	2,700.00	2,700
	Restroom and shower accessories	1	LS	9,200.00	9,200
	Elevator pit ladder	1	EA	1,350.00	1,350
	Tackboards and markerboards	26	EA	800.00	20,800

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Total For Fittings and Specialty Items				**138,881**
C20	**STAIRS**				
C2010	**Stair Construction**				
	C 2010 Stair Construction				
	Architectural stair including railings and finish	3	FLT	65,000.00	195,000
	Circulation / exit stair including railings and finish	3	FLT	33,000.00	99,000
	Total For Stair Construction				**294,000**
C30	**INTERIOR FINISHES**				
C3010	**Wall Finishes**				
	C3012 Wall finishes to interior walls				
	Interior painting	30,000	GFA	3.80	114,000
	Miscellaneous wall finishes, allow	30,000	GFA	6.50	195,000
	Total For Wall Finishes				**309,000**
C3020	**Floor Finishes**				
	C3024 Flooring				
	Floor finishes, Level 1	15,000	SF	10.90	163,500
	Floor finishes, Level 2	5,000	SF	9.70	48,500
	Floor finishes, Level 3	5,000	SF	9.70	48,500
	Floor finishes, Level 4	5,000	SF	9.70	48,500
	Total For Floor Finishes				**309,000**
C3030	**Ceiling Finishes**				
	C3031 Ceiling finishes				
	Ceiling finishes, Level 1	15,000	SF	21.40	321,000
	Ceiling finishes, Level 2	5,000	SF	13.50	67,500
	Ceiling finishes, Level 3	5,000	SF	13.50	67,500
	Ceiling finishes, Level 4	5,000	SF	13.50	67,500
	Exposed ceilings included in interior painting estimate in section C3012				N/A
	Total For Ceiling Finishes				**523,500**
D10	**VERTICAL TRANSPORTATION**				
D1010	**Elevator & Lift**				
	D1011 Passenger elevators				
	Passenger elevator , 4 stop	1	EA	208,000.00	208,000
	Total For Elevator & Lifts				**208,000**
D20	**PLUMBING**				
D2010	**Plumbing**				
	D 2010 Plumbing Fixtures				
	Plumbing systems, complete	30,000	GFA	18.50	555,000
	Total For Plumbing				**555,000**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
D30	**HVAC**				
D3010	**HVAC**				
	D 3000 HVAC				
	HVAC systems, complete	30,000	GFA	67.50	2,025,000
	Total For HVAC				**2,025,000**
D40	**FIRE PROTECTION**				
D4010	**Fire Protection**				
	D 4010 Sprinklers				
	Fire suppression at building	30,000	GFA	6.50	195,000
	Add for exterior soffit dry supression	1,450	SF	7.96	11,542
	Total For Fire Sprinkler System				**206,542**
D50	**ELECTRICAL**				
D5000	**Electrical**				
	D5000 Electrical Systems				
	Electrical Service and Distribution	30,000	SF	11.50	345,000
	PV system, allowance per design team	20	KVA	3,500.00	70,000
	Lighting and Branch Wiring				
	Machine and equipment power				
	Elevator	1	EA	12,100.00	12,100
	Plumbing & HVAC	30,000	GFA	3.72	111,600
	Miscellaneous	30,000	GFA	0.50	15,000
	User convenience power				
	Building	30,000	GFA	5.60	168,000
	Lighting fixtures including conduit and wire				
	Building	30,000	GFA	14.75	442,500
	Lighting controls				
	Building	30,000	GFA	4.65	139,500
	Telephone/Data systems				
	Telephone/Data systems	30,000	GFA	5.10	153,000
	Audio/visual systems	30,000	GFA	5.35	160,500
	Distributed Antenna Systems				
	DAS/ERRC systems	30,000	GFA	1.50	45,000
	Fire alarm system				
	Building	30,000	GFA	3.30	99,000
	Security and detection systems				
	Access control/intruder detection	30,000	GFA	2.10	63,000
	CCTV system	30,000	GFA	2.10	63,000
	Other Electrical Systems				
	Grounding systems	30,000	GFA	0.45	13,500
	Testing	1	LS	46,671.00	46,671
	Miscellaneous electrical	30,000	GFA	5.00	150,000
	Total For Electrical				**2,097,371**
E10	**EQUIPMENT**				
E1010	**Equipment**				
	E1027 Laboratory equipment				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	Lab equipment and lab casework at research areas, allowance	1	LS	110,000.00	110,000
	E1094 Residential equipment Residential equipment	1	LS	10,000.00	10,000
	E1029 Other institutional equipment OFCI items, allowance	1	LS	3,000.00	3,000
	Total For Equipment				**123,000**
E20	**FIXED FURNISHINGS**				
E2010	**Fixed Furnishing**				
	E2012 Fixed casework Casework, allowance	30,000	GFA	9.50	285,000
	E2013 Blinds and other window treatments Window treatments including all roller shades in all public and classroom areas	1	LS	116,169.00	116,169
	Total For Fixed Furnishings				**401,169**
F10	**SPECIAL STRUCTURES**				
F1010	**Special Structure**				
	No work anticipated				N/A
	Total For Special Structure				
F1020	**Special Construction**				
	No work anticipated				N/A
	Total For Special Construction				
F20	**SELECTIVE BUILDING DEMOLITION**				
F2010	**Building Elements Demolition**				
	Selective exterior demolition and temporary protection	1	LS	140,000.00	140,000
	Total For Selective Building Demolition				**140,000**

BUILDING DATA

Building Area: North Campus Renovation

Level 1	16,000 SF
Level 2	16,000 SF
Level 3	16,000 SF
Level 4	16,000 SF
Total Gross Floor Area	**64,000 SF**

	Quantity	Unit	Ratio to Gross Area
Number of stories (x1,000)	4	EA	0.063
Gross Area	64,000	SF	1.000
Enclosed Area	64,000	SF	1.000
Footprint Area	16,000	SF	0.250
Suspended Slab	48,000	SF	0.750
Finished Area	64,000	SF	1.000

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
BUILDING: NORTH CAMPUS RENOVATION

GROSS FLOOR AREA: 64,000 SF
DATE: June 15, 2022

RC COST GROUP

No.	ELEMENT DESCRIPTION	ELEMENT TOTAL	GROUP TOTAL	COST PER SF
A10	FOUNDATIONS		$ 216,000	$ 3.38
A1010	Standard Foundation	$ 176,000	$ 2.75	
A1020	Special Foundation	$ -	$ -	
A1030	Slab on grade	$ 40,000	$ 0.63	
A20	BASEMENT WALL CONSTRUCTION		$ -	$ -
A2010	Basement Excavation	$ -	$ -	
A2020	Basement Wall Construction	$ -	$ -	
B10	SUPERSTRUCTURE		$ 1,160,640	$ 18.14
B1010	Floor & Roof Construction	$ 1,160,640	$ 18.14	
B20	EXTERIOR ENCLOSURE		$ 2,580,000	$ 40.31
B2010	Exterior Walls	$ 1,600,000	$ 25.00	
B2020	Exterior Windows	$ 960,000	$ 15.00	
B2030	Exterior Doors	$ 20,000	$ 0.31	
B30	ROOFING		$ 755,990	$ 11.81
B3010	Roofing	$ 755,990	$ 11.81	
C10	INTERIOR CONSTRUCTION		$ 2,317,869	$ 36.22
C1010	Partitions	$ 1,680,069	$ 26.25	
C1020	Interior Doors	$ 422,000	$ 6.59	
C1030	Fittings and Specialties	$ 215,800	$ 3.37	
C20	STAIRS		$ 99,000	$ 1.55
C2010	Stair Construction	$ 99,000	$ 1.55	
C30	INTERIOR FINISHES		$ 2,289,600	$ 35.78
C3010	Wall Finishes	$ 659,200	$ 10.30	
C3020	Floor Finishes	$ 640,000	$ 10.00	
C3030	Ceiling Finishes	$ 990,400	$ 15.48	
D10	CONVEYING		$ -	$ -
D1010	Elevators & Lifts	$ -	$ -	
D20	PLUMBING		$ 1,184,000	$ 18.50
D2010	Plumbing	$ 1,184,000	$ 18.50	
D30	HVAC		$ 4,320,000	$ 67.50
D3010	HVAC	$ 4,320,000	$ 67.50	
D40	FIRE PROTECTION		$ 192,000	$ 3.00
D4010	Sprinkler System	$ 192,000	$ 3.00	
D50	ELECTRICAL		$ 4,378,553	$ 68.41
D5000	Electrical	$ 4,378,553	$ 68.41	
E10	EQUIPMENT		$ 370,000	$ 5.78
E1010	Equipment	$ 370,000	$ 5.78	
E20	FIXED FURNISHINGS		$ 824,960	$ 12.89
E2010	Fixed Furnishings	$ 824,960	$ 12.89	
F10	SPECIAL CONSTRUCTION		$ -	$ -
F1010	Special Structure	$ -		
F1020	Special Construction	$ -		
F20	SELECTIVE BUILDING DEMOLITION		$ 1,126,400	$ 17.60
F2010	Building Elements Demolition	$ 1,126,400		
	Sub-Total Direct Cost		**$ 21,815,012**	**$ 340.86**
	General Conditions/General Requirements 8.48%		$ 1,849,913	$ 28.90
	Sub-Total		**$ 23,664,925**	**$ 369.76**
	Estimating / Design Contingency 15.00%		$ 3,549,739	$ 55.46
	Sub-Total		**$ 27,214,664**	**$ 425.23**
	GC Fee, Bonds and Insurance 6.90%		$ 1,877,812	$ 29.34
	Sub-Total		**$ 29,092,476**	**$ 454.57**
	Escalation: September 2025 18.48%		$ 5,376,510	$ 84.01
	TOTAL CONSTRUCTION COST		**$ 34,468,986**	**$ 538.58**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
A10	**FOUNDATIONS**				
A1010	**Standard Foundation**				
	A1011 Foundations				
	Modifcations to foundations for seismic upgrade	1	LS	176,000.00	176,000
	Total For Standard Foundations				**176,000**
A1020	**Special Foundation**				
	A1021 Pile foundations				
	No work anticipated				N/A
	Total For Special Foundations				
A1030	**Slab on Grade**				
	A1031 Standard slab on grade				
	Reinforced concrete slab on grade and base modifications and patching per plumbing and seismic upgrade	1	LS	40,000.00	40,000
	Total For Slab on Grade				**40,000**
A20	**BASEMENT CONSTRUCTION**				
A2010	**Basement Excavation**				
	No work anticipated				N/A
	Total For Basement Excavation				
A2010	**Basement Walls**				
	No work anticipated				N/A
	Total For Basement Walls				
B1010	**Floor & Roof Construction**				
	B1012 Upper floors construction				
	Structural upgrades	48,000	SF	18.00	864,000
	B1020 Roof construction				
	Structural upgrades	16,480	SF	18.00	296,640
	Total For Floor & Roof Construction				**1,160,640**
B20	**EXTERIOR CLOSURE**				
B2010	**Exterior Walls**				
	B2011 Exterior wall construction				
	Allowance for modifications to exterior opaque walls	1	LS	1,600,000.00	1,600,000
	Total For Exterior Walls				**1,600,000**
B2020	**Exterior Windows**				
	B2023 Storefronts				
	Allowance for modifications to fenestration areas	1	LS	960,000.00	960,000
	Total For Exterior Windows				**960,000**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
B2030	**Exterior Doors**				
	B 2030 Exterior Doors				
	Allowance for modifications to exterior doors	1	LS	20,000.00	20,000
	Total For Exterior Doors				**20,000**
B30	**ROOFING**				
B3010	**Roof Covering**				
	B3011 Roof finishes				
	SBS roof membrane system including vapor barriers, substrate board, cover board 1/2" and rigid insulation (3 layers)	16,000	SF	26.00	416,000
	B3012 Traffic toppings and paving membranes				
	Walkway pads	1	LS	3,750.00	3,750
	B3014 Flashings and trim				
	Sheet metal flashings and trim at entire building	1	LS	240,000.00	240,000
	B3016 Gutters and downspouts				
	Roof drainage included in plumbing estimate				N/A
	B3021 Glazed roof openings				
	Skylights, assumed not required				N/A
	B3022 Roof hatches				
	Roof access hatch, curb, ladder	1	EA	6,000.00	6,000
	Miscellaneous				
	Rough carpentry	1	LS	67,840.00	67,840
	Fall restraint anchors	16	EA	1,400.00	22,400
	Total For Roofing				**755,990**
C10	**INTERIOR CONSTRUCTION**				
C1010	**Partitions**				
	C1011 Fixed partitions				
	Partitions	61,625	SF	21.15	1,303,369
	C1013 Retractable partitions				
	Operable partitions, allowance	800	SF	76.00	60,800
	C1016 Interior balustrades and screens				
	Railings at openings and stair extensions	130	LF	450.00	58,500
	C1017 Interior windows and storefronts				
	Interior storefront glazing and sidelights	3,300	SF	78.00	257,400
	Total For Interior Partitions				**1,680,069**
C1020	**Interior Doors**				
	C1021 Interior doors				
	Aluminum glazed door, per leaf	10	EA	4,850.00	48,500

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	SC wood / HM door, per leaf	110	EA	2,850.00	313,500
	Specialty hardware	1	LS	23,000.00	23,000
	Specialty doors, allowance	1	LS	37,000.00	37,000
	Total For Interior Doors				**422,000**
C1030	**Specialties**				
	Specialties and fittings	1	LS	215,800.13	215,800
	Total For Fittings and Specialty Items				**215,800**
C20	**STAIRS**				
C2010	**Stair Construction**				
	C 2010 Stair Construction				
	Stair modifications, allow	1	LS	99,000.00	99,000
	Total For Stair Construction				**99,000**
C30	**INTERIOR FINISHES**				
C3010	**Wall Finishes**				
	C3012 Wall finishes to interior walls				
	Interior painting	64,000	GFA	3.80	243,200
	Miscellaneous wall finishes, allow	64,000	GFA	6.50	416,000
	Total For Wall Finishes				**659,200**
C3020	**Floor Finishes**				
	C3024 Flooring				
	Floor finishes, Level 1	16,000	SF	10.90	174,400
	Floor finishes, Level 2	16,000	SF	9.70	155,200
	Floor finishes, Level 3	16,000	SF	9.70	155,200
	Floor finishes, Level 4	16,000	SF	9.70	155,200
	Total For Floor Finishes				**640,000**
C3030	**Ceiling Finishes**				
	C3031 Ceiling finishes				
	Ceiling finishes, Level 1	16,000	SF	21.40	342,400
	Ceiling finishes, Level 2	16,000	SF	13.50	216,000
	Ceiling finishes, Level 3	16,000	SF	13.50	216,000
	Ceiling finishes, Level 4	16,000	SF	13.50	216,000
	Exposed ceilings included in interior painting estimate in section C3012				N/A
	Total For Ceiling Finishes				**990,400**
D10	**VERTICAL TRANSPORTATION**				
D1010	**Elevator & Lift**				
	No work anticipated				N/A
	Total For Elevator & Lifts				
D20	**PLUMBING**				
D2010	**Plumbing**				

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
	D 2010 Plumbing Fixtures				
	Plumbing systems, complete	64,000	GFA	18.50	1,184,000
	Total For Plumbing				**1,184,000**
D30	**HVAC**				
D3010	**HVAC**				
	D 3000 HVAC				
	HVAC systems, complete	64,000	GFA	67.50	4,320,000
	Total For HVAC				**4,320,000**
D40	**FIRE PROTECTION**				
D4010	**Fire Protection**				
	D 4010 Sprinklers				
	Fire suppression at building, modifications	64,000	GFA	3.00	192,000
	Total For Fire Sprinkler System				**192,000**
D50	**ELECTRICAL**				
D5000	**Electrical**				
	D5000 Electrical Systems				
	Electrical Service and Distribution	64,000	SF	11.50	736,000
	PV system, allowance per design team	20	KVA	3,500.00	70,000
	Lighting and Branch Wiring				
	Machine and equipment power				
	Elevator	1	EA	12,100.00	12,100
	Plumbing & HVAC	64,000	GFA	3.72	238,080
	Miscellaneous	64,000	GFA	0.50	32,000
	User convenience power				
	Building	64,000	GFA	5.60	358,400
	Lighting fixtures including conduit and wire				
	Building	64,000	GFA	14.75	944,000
	Lighting controls				
	Building	64,000	GFA	4.65	297,600
	Telephone/Data systems				
	Telephone/Data systems	64,000	GFA	5.10	326,400
	Audio/visual systems	64,000	GFA	5.35	342,400
	Distributed Antenna Systems				
	DAS/ERRC systems	64,000	GFA	1.50	96,000
	Fire alarm system				
	Building	64,000	GFA	3.30	211,200
	Security and detection systems				
	Access control/intruder detection	64,000	GFA	2.10	134,400
	CCTV system	64,000	GFA	2.10	134,400
	Other Electrical Systems				
	Grounding systems	64,000	GFA	0.45	28,800
	Testing	1	LS	96,773.40	96,773
	Miscellaneous electrical	64,000	GFA	5.00	320,000
	Total For Electrical				**4,378,553**

	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
E10	**EQUIPMENT**				
E1010	**Equipment**				
	E1027 Laboratory equipment				
	Lab equipment and lab casework at research areas, allowance	1	LS	235,000.00	235,000
	E1094 Residential equipment				
	Residential equipment	1	LS	10,000.00	10,000
	E1029 Other institutional equipment				
	Shop equipment	1	LS	120,000.00	120,000
	OFCI items, allowance	1	LS	5,000.00	5,000
	Total For Equipment				**370,000**
E20	**FIXED FURNISHINGS**				
E2010	**Fixed Furnishing**				
	E2012 Fixed casework				
	Casework, allowance	64,000	GFA	9.50	608,000
	E2013 Blinds and other window treatments				
	Window treatments including all roller shades in all public and classroom areas	1	LS	216,960.00	216,960
	Total For Fixed Furnishings				**824,960**
F10	**SPECIAL STRUCTURES**				
F1010	**Special Structure**				
	No work anticipated				N/A
	Total For Special Structure				
F1020	**Special Construction**				
	No work anticipated				N/A
	Total For Special Construction				
F20	**SELECTIVE BUILDING DEMOLITION**				
F2010	**Building Elements Demolition**				
	F2010 Building Demolition				
	Selective exterior demolition and temporary protection	64,000	GFA	12.50	800,000
F2020	**Hazardous Components Abatement**				
	F2020 Hazardous Components Abatement				
	HAZMAT Abatement	64,000	GFA	5.10	326,400
	Total For Selective Building Demolition				**1,126,400**

ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTALS
F 2020 Hazardous Components Abatement				
HAZMAT and Abatement	10,000	SF	5.75	57,500
G1021 Building demolition				
Demolish and remove Farrell Hall and recycle all concrete	10,000	SF	14.90	149,000
Sub-Total				**206,500**
General Conditions/General Requirements	8.48%			17,511
Estimating / Design Contingency	15.00%			30,975
GC Fee, Bonds and Insurance	6.90%			17,594
Escalation: September 2025	18.48%			50,375
Total Construction Cost				**322,955**

CENTRAL WASHINGTON UNIVERSITY
BEHAVIORAL AND MENTAL HEALTH BUILDING
ELLENSBURG, WA
PRE-DESIGN ESTIMATE OPTIONS
SITEWORK: ADDITION AND RENOVATION **ELEMENTAL ESTIMATE SUMMARY** **DATE:** **June 15, 2022**

RC COST GROUP

No.	ELEMENT DESCRIPTION		ELEMENT TOTAL	GROUP TOTAL
G10	SITE PREPARATION			$ 446,500
G1010	Site Clearing		$ 82,500	
G1020	Site Demolition and Relocations		$ 234,000	
G1030	Site Earthwork		$ 130,000	
G1040	Hazardous Waste Remediation		$ -	
G20	SITE IMPROVEMENTS			$ 1,309,900
G2010	Roadways		$ -	
G2020	Parking Lots		$ 143,500	
G2030	Pedestrian Paving		$ 204,000	
G2040	Site Development		$ 717,400	
G2050	Landscaping		$ 245,000	
G30	SITE MECHANICAL UTILITIES			$ 475,000
G3010	Water Supply		$ 35,000	
G3020	Sanitary Sewer		$ 40,000	
G3030	Storm Sewer		$ 400,000	
G3040	Heating Distribution		$ -	
G3050	Cooling Distribution		$ -	
G3060	Fuel Distribution		$ -	
G3090	Other Site Mechanical Utilities		$ -	
G40	SITE ELECTRICAL UTILITIES			$ 255,000
G4010	Electrical Distribution		$ 100,000	
G4020	Site Lighting		$ 80,000	
G4030	Site Communications and Security		$ 75,000	
G4090	Other Site Electrical Utilities		$ -	
	Sub-Total Direct Cost			**$ 2,486,400**
	General Conditions/General Requirements	8.48%		$ 210,847
	Sub-Total			**$ 2,697,247**
	Estimating / Design Contingency	15.00%		$ 404,587
	Sub-Total			**$ 3,101,834**
	GC Fee, Bonds and Insurance	6.90%		$ 214,027
	Sub-Total			**$ 3,315,860**
	Escalation: September 2025	18.48%		$ 612,796
	TOTAL CONSTRUCTION COST			**$ 3,928,656**

section 6.4 - DAHP letter & tribal consultation

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

April 18, 2022

Jeremiah Eilers
Capital Planning & Projects
400 E. University Way M.S. 7523

In future correspondence please refer to:
Project Tracking Code: 2022-04-02435
Re: Central Washington University Psychology Replacement Project

Dear Jeremiah Eilers:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The above referenced project has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Governor's Executive Order 21-02 (21-02). Our review is based upon documentation contained in your communication.

We currently understand that Central Washington University is self-funding a predesign, and applying for design funding in the 2023-2025 biennium for the above-referenced project. We also understand that the current vision of the project involves the demolition of Property ID: 677641, the CWU - Psychology Building. As you may or may not know, DAHP expressed our opinion that this building is eligible for listing in the National Register of Historic Places in 2016, and we continue this opinion at the time of this letter. Therefore, we would like to use this opportunity to strongly encourage the University explore alternatives to the demolition of this historic property, which would be an adverse impact under 21-02, and therefore require mitigation.

We appreciate the University reaching out at this phase of the project. Further consultation with DAHP is not required at this time. Should the project become obligated with state capital funding for the construction phase of the project, further consultation will be required. We would like to use this opportunity to inform the University that should future consultation occur, we may request information such as any environmental impact studies that are prepared for the project; as the historic property is primarily constructed with concrete, the embodied energy of its construction has already significantly impacted the environment. Its potential demolition and replacement would only add to that impact. DAHP has guided many successful adaptive re-use or rehabilitation projects for historic buildings very similar to this historic property and would be happy to discuss the potential for such activities here as opposed to demolition. We strongly believe there is a mutually beneficial alternative that retains this historic property while achieving the programmatic needs of the University.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer (SHPO) in conformance with 21-02. Also, we appreciate receiving copies of any correspondence or comments from concerned tribes and other parties that you receive as you consult under the requirements of 21-02. Should additional information become available, our assessment may be revised.

Thank you for the opportunity to review and comment. Please ensure that the DAHP Project Number (a.k.a. Project Tracking Code) is shared with any hired cultural resource consultants and is attached to any communications or submitted reports. If you have any questions, please feel free to contact me.

Sincerely,

Holly Borth
Preservation Design Reviewer
(360) 890-0174
Holly.Borth@dahp.wa.gov

Chairman Delano Saluskin
Yakama Nation Tribal Council
PO Box 151
Toppenish WA, 98948

DATE: June 17, 2022

TO: Chairman Delano Saluskin - Yakama Nation Tribal Council

FROM: Delano Palmer, Director of Planning and Projects - Central Washington University

RE: Behavioral and Mental Health Building (Psychology Replacement Project)

Chairman Delano Saluskin,

Central Washington University (CWU) is initiating consultation with the Confederated Tribes and Bands of the Yakama Nation pursuant to Executive Order 21-02 which requires that Tribal consultation occur early in the planning process prior to the expenditure of State funds. The proposed project is located at Township 18 North, Range 18 East, Sections 35 & 36. CWU is currently planning demolition and replacement of one, possibly two, building/s located on the CWU campus. The Psychology building is being prepared for demolition and replacement, with the possibility of enhancements and/or demolition/replacement of the Student Medical and Counseling Center (See attached maps). Both buildings are 50 years or older and meet the minimum threshold for National Register of Historic Places (NRHP) eligibility. Eligibility determinations will be conducted in a different phase of this proposed project. Prior to analysis of the two buildings, CWU would like to know if the Confederated Tribes and Bands of the Yakama Nation have any concerns or comments early in the planning process prior to the expenditure of state funds?

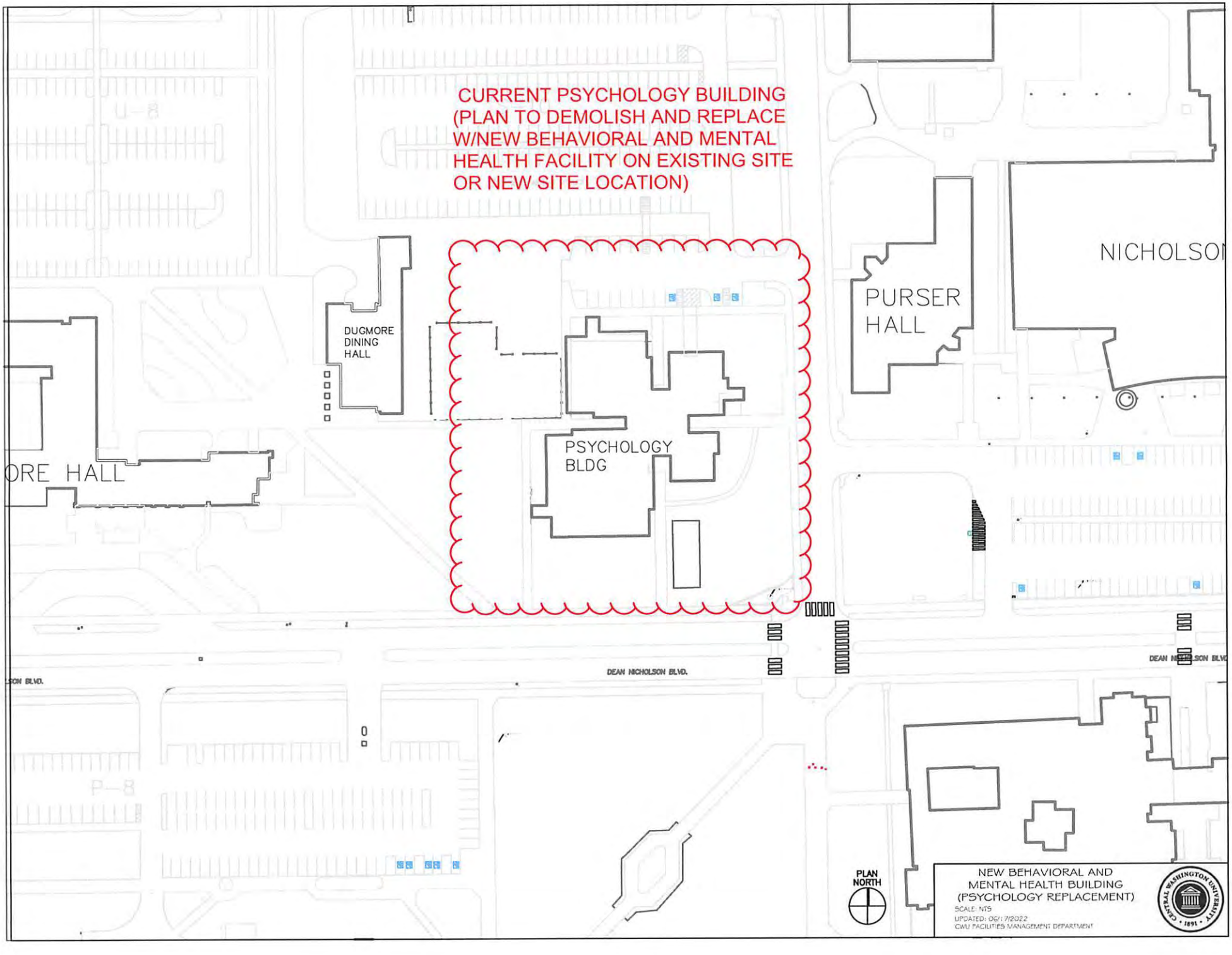
All comments and concerns regarding this project are welcome. Please contact Delano Palmer at (509) 963-2906 or by email at Delano.Palmer@cwu.edu to discuss concerns and/or comments. We look forward to hearing from you.

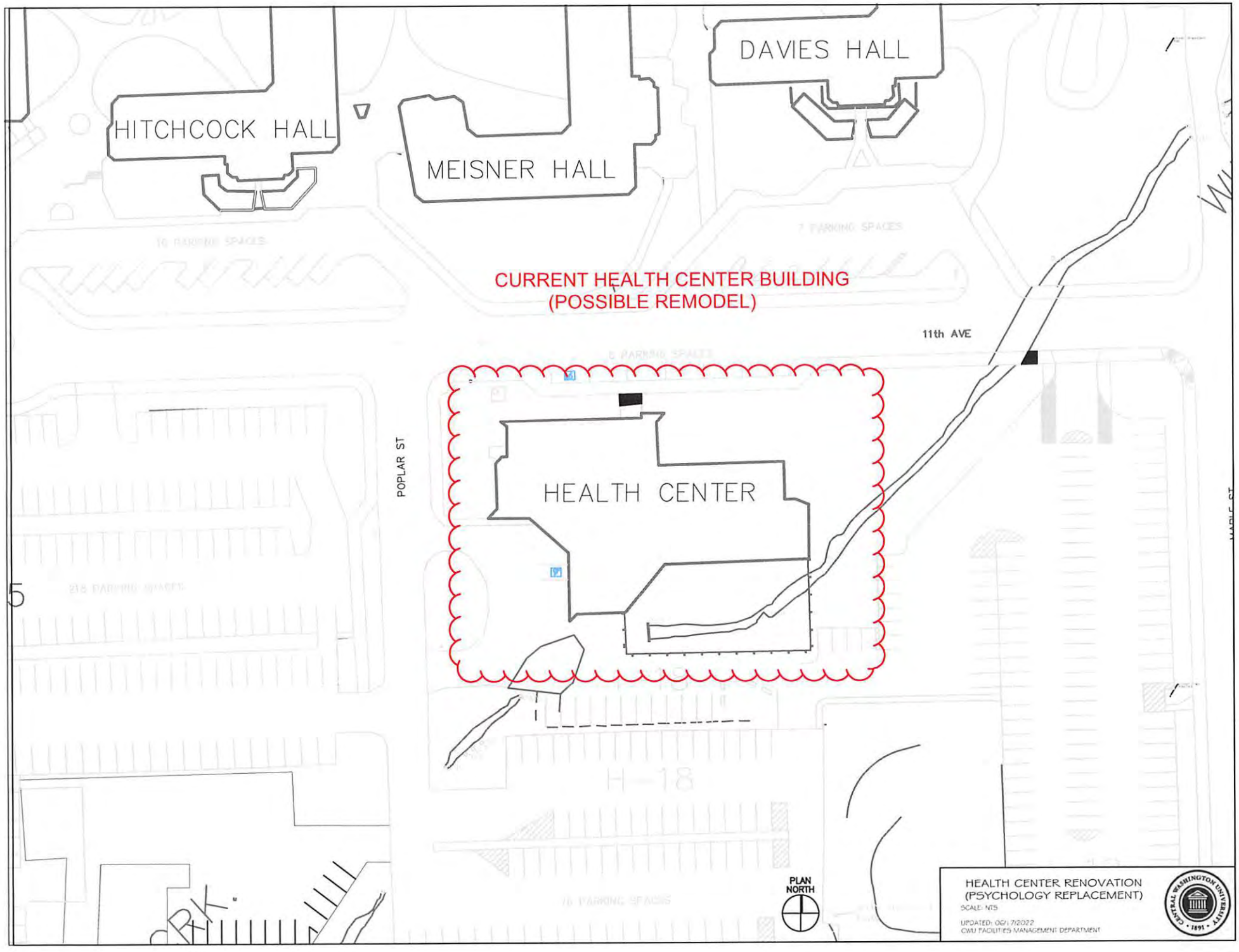
Thank you,

Delano Palmer

Cc: Dr. Patrick Lubinski
Dr. Steven Hackenberger
Jon Shellenbergr
Casey Barney, YN Cultural Program Manager
Jeremiah Eilers

Drafted by J.S. & J.E.


CURRENT PSYCHOLOGY BUILDING
(PLAN TO DEMOLISH AND REPLACE
W/NEW BEHAVIORAL AND MENTAL
HEALTH FACILITY ON EXISTING SITE
OR NEW SITE LOCATION)
DUGMORE
DINING
HALL
PSYCHOLOGY
BLDG
PURSER
HALL
NICHOLSON
ORE HALL
DEAN NICHOLSON BLVD.
P-8
PLAN
NORTH
NEW BEHAVIORAL AND
MENTAL HEALTH BUILDING
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 05/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT


HITCHCOCK HALL
MEISNER HALL
DAVIES HALL
CURRENT HEALTH CENTER BUILDING
(POSSIBLE REMODEL)
11th AVE
POPLAR ST
HEALTH CENTER
H-18
PARK
PLAN NORTH
HEALTH CENTER RENOVATION
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 06/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT

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Feedback

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Chairwoman M. Kathryn Brigham
CTUIR Board of Trustees
46411 Ti'míne Way
Pendleton, OR, 97801-0638

DATE: June 17, 2022

TO: Chairwoman M. Kathryn Brigham - CTUIR Board of Trustees

FROM: Delano Palmer, Director of Planning and Projects - Central Washington University

RE: Behavioral and Mental Health Building (Psychology Replacement Project)

Chairwoman M. Kathryn Brigham,

Central Washington University (CWU) is initiating consultation with the Confederated Tribes of the Umatilla Indian Reservation pursuant to Executive Order 21-02 which requires that Tribal consultation occur early in the planning process prior to the expenditure of State funds. The proposed project is located at Township 18 North, Range 18 East, Sections 35 & 36. CWU is currently planning demolition and replacement of one, possibly two, building/s located on the CWU campus. The Psychology building is being prepared for demolition and replacement, with the possibility of enhancements and/or demolition/replacement of the Student Medical and Counseling Center (See attached maps). Both buildings are 50 years or older and meet the minimum threshold for National Register of Historic Places (NRHP) eligibility. Eligibility determinations will be conducted in a different phase of this proposed project.
Prior to analysis of the two buildings, CWU would like to know if the Confederated Tribes of the Umatilla Indian Reservation have any concerns or comments early in the planning process prior to the expenditure of state funds?

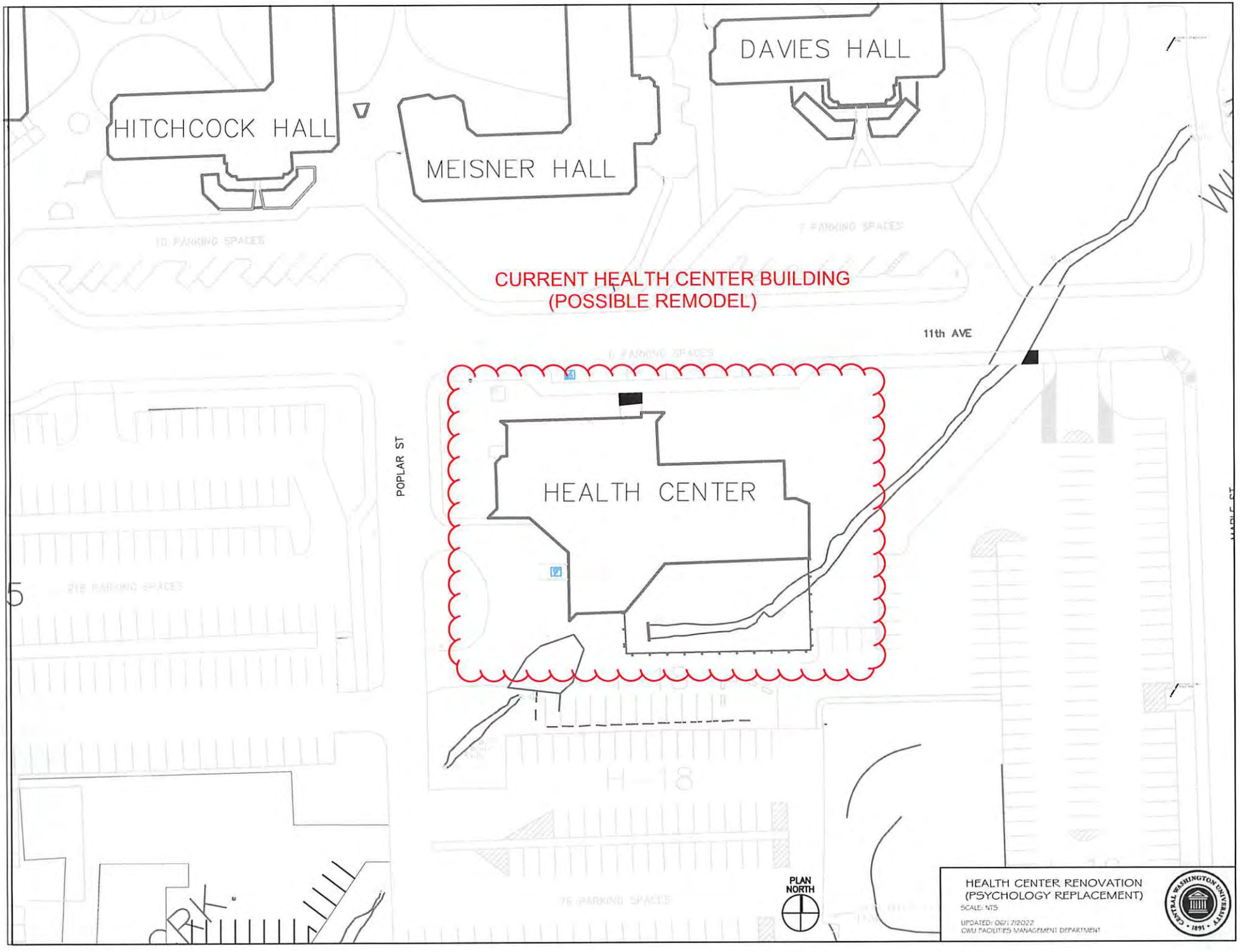
All comments and concerns regarding this project are welcome. Please contact Delano Palmer at (509) 963-2906 or by email at Delano.Palmer@cwu.edu to discuss concerns and/or comments. We look forward to hearing from you.

Thank you,

Delano Palmer

Cc: Dr. Patrick Lubinski
Dr. Steven Hackenberger
Jon Shellenbergr
Teara Farrow, CTUIR Cultural Resources Protection Program Manager
Jeremiah Eilers

Drafted by J.S. & J.E.


HITCHCOCK HALL
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CURRENT HEALTH CENTER BUILDING
(POSSIBLE REMODEL)
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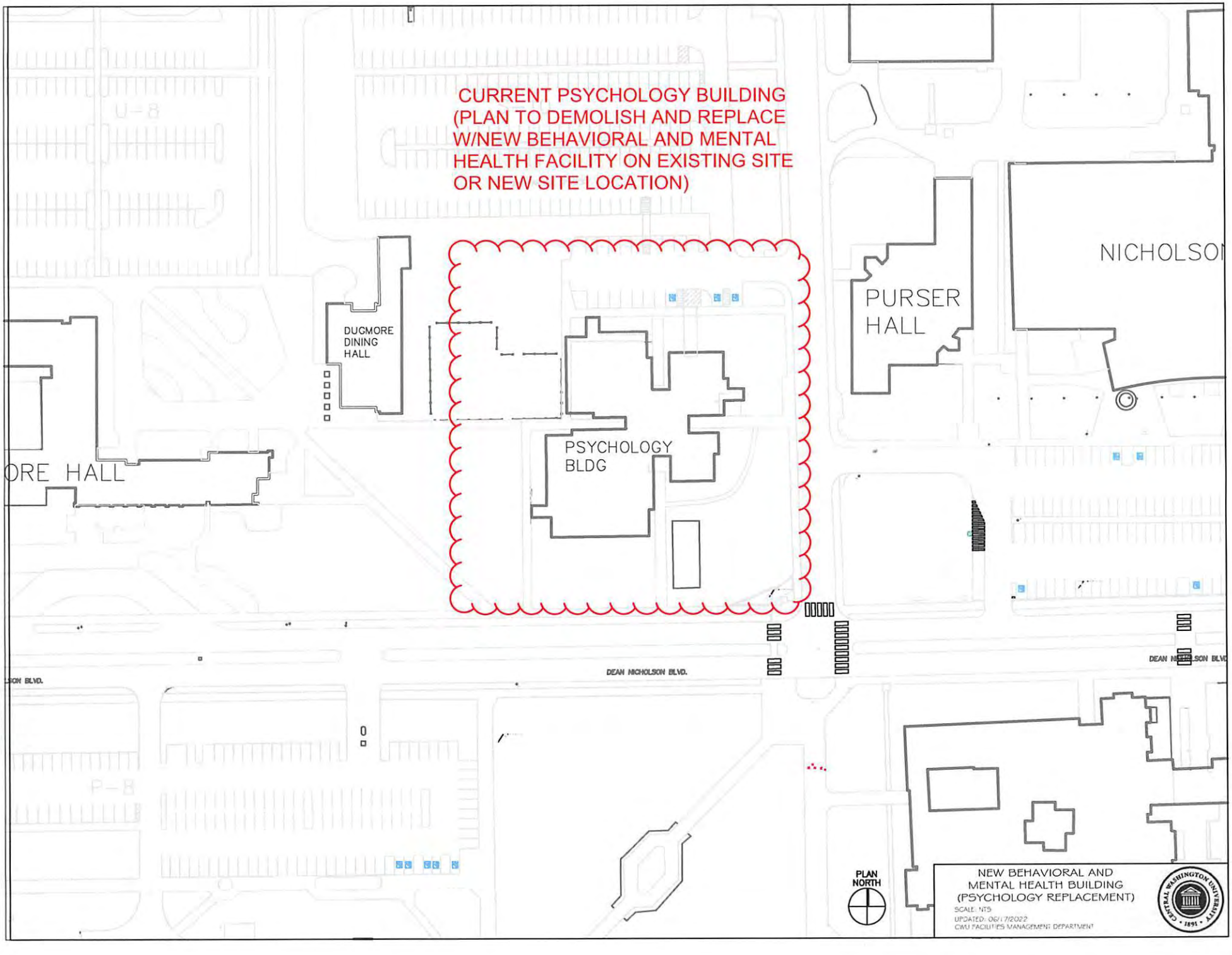
SCALE: NTS
UPDATED: 06/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT


CURRENT PSYCHOLOGY BUILDING
(PLAN TO DEMOLISH AND REPLACE
W/NEW BEHAVIORAL AND MENTAL
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DUGMORE
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HALL
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ORE HALL
DEAN NICHOLSON BLVD.
U-8
P-8
PLAN
NORTH
NEW BEHAVIORAL AND
MENTAL HEALTH BUILDING
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 06/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT

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Feedback

Chairman Robert de los Angeles
Snoqualmie Tribal Council
9571 Ethan Wade Way SE
Snoqualmie, WA 98065

DATE: June 17, 2022

TO: Chairman Robert de los Angeles – Snoqualmie Tribal Council

FROM: Delano Palmer, Director of Planning and Projects - Central Washington University

RE: Behavioral and Mental Health Building (Psychology Replacement Project)

Chairman Robert de los Angeles,

Central Washington University (CWU) is initiating consultation with the Snoqualmie Tribe pursuant to Executive Order 21-02 which requires that Tribal consultation occur early in the planning process prior to the expenditure of State funds. The proposed project is located at Township 18 North, Range 18 East, Sections 35 & 36. CWU is currently planning demolition and replacement of one, possibly two, building/s located on the CWU campus. The Psychology building is being prepared for demolition and replacement, with the possibility of enhancements and/or demolition/replacement of the Student Medical and Counseling Center (See attached maps). Both buildings are 50 years or older and meet the minimum threshold for National Register of Historic Places (NRHP) eligibility. Eligibility determinations will be conducted in a different phase of this proposed project. Prior to analysis of the two buildings, CWU would like to know if the Snoqualmie Tribe have any concerns or comments early in the planning process prior to the expenditure of state funds?

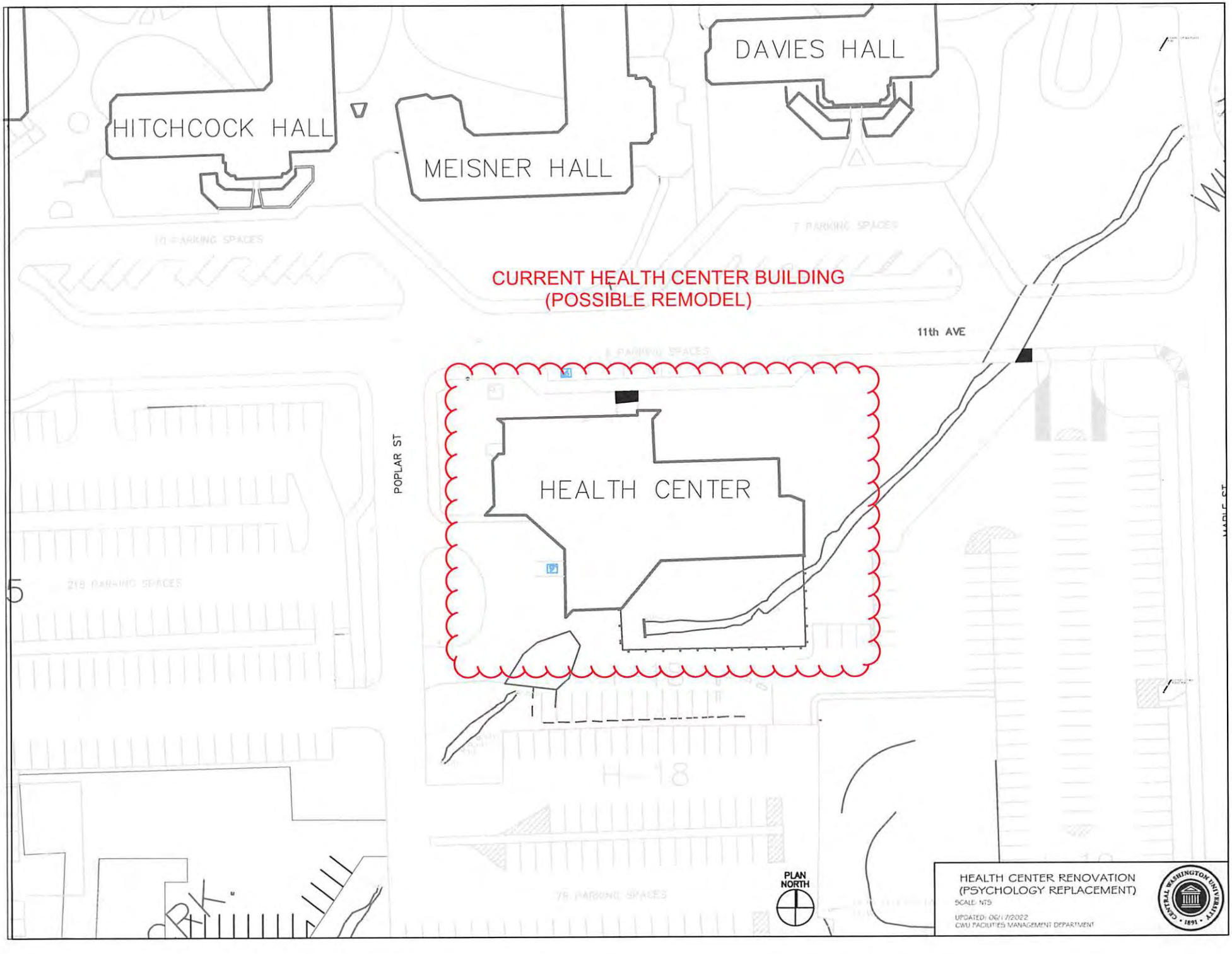
All comments and concerns regarding this project are welcome. Please contact Delano Palmer at (509) 963-2906 or by email at Delano.Palmer@cwu.edu to discuss concerns and/or comments. We look forward to hearing from you.

Thank you,

Delano Palmer

Cc: Dr. Patrick Lubinski
Dr. Steven Hackenberger
Jon Shellenbergr
Steven Mullen Moses, Department of Archaeology and Historic Preservation
Jeremiah Eilers

Drafted by J.S. & J.E.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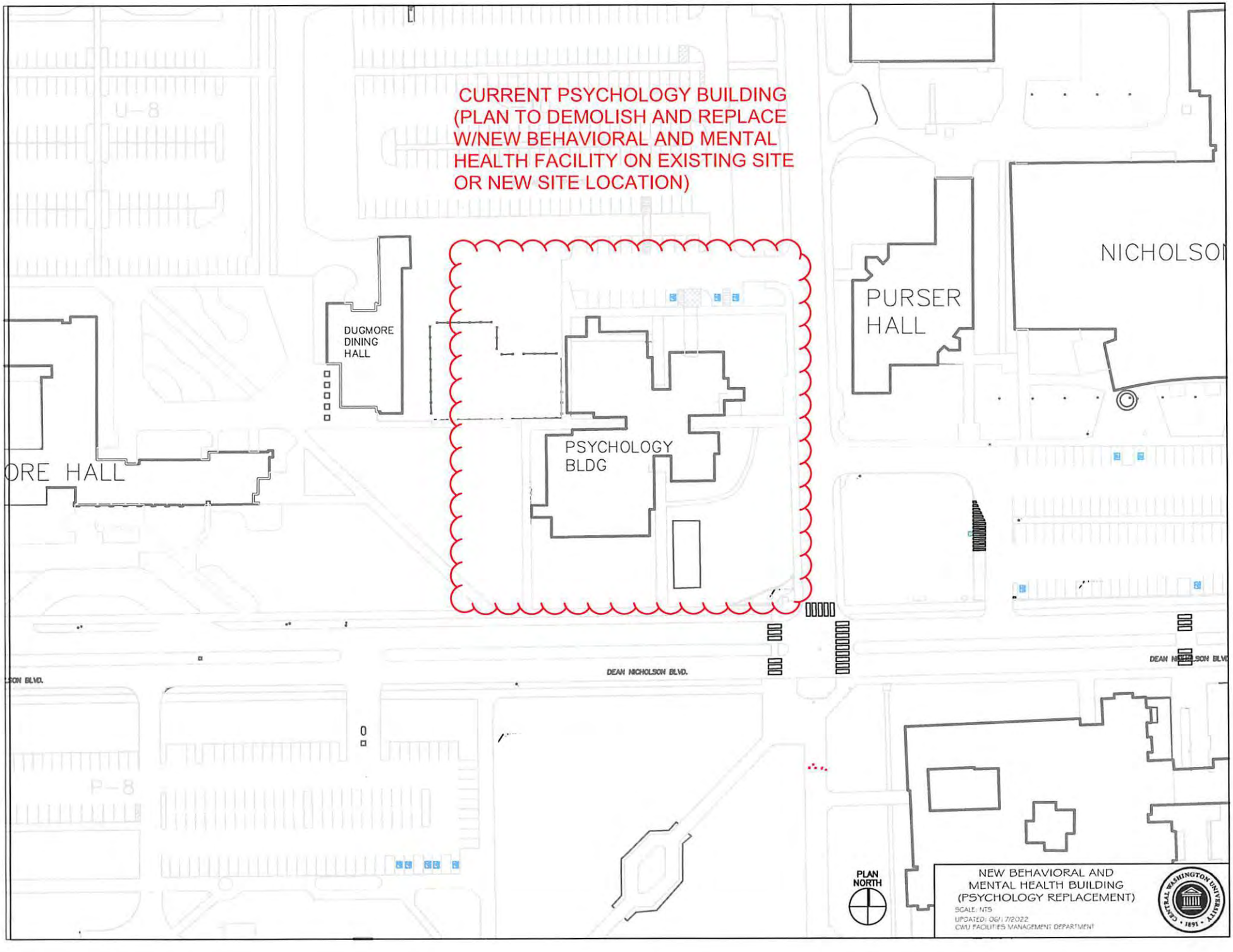
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 06/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT


CURRENT PSYCHOLOGY BUILDING
(PLAN TO DEMOLISH AND REPLACE
W/NEW BEHAVIORAL AND MENTAL
HEALTH FACILITY ON EXISTING SITE
OR NEW SITE LOCATION)
U-8
DUGMORE
DINING
HALL
PSYCHOLOGY
BLDG
PURSER
HALL
NICHOLSON
ORE HALL
DEAN NICHOLSON BLVD.
P-8
PLAN
NORTH
NEW BEHAVIORAL AND
MENTAL HEALTH BUILDING
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 06/17/2022
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Chairman Andrew Joseph, Jr.
Colville Tribal Business Council
21 Colville Street
Nespelem, WA, 99155

LEARN. DO. LIVE.

DATE: June 17, 2022

TO: Chairman Andrew Joseph, Jr. - Colville Tribal Business Council

FROM: Delano Palmer, Director of Planning and Projects - Central Washington University

RE: Behavioral and Mental Health Building (Psychology Replacement Project)

Chairman Andrew Joseph, Jr.,

Central Washington University (CWU) is initiating consultation with the Confederated Tribes of the Colville Reservation pursuant to Executive Order 21-02 which requires that Tribal consultation occur early in the planning process prior to the expenditure of State funds. The proposed project is located at Township 18 North, Range 18 East, Sections 35 & 36. CWU is currently planning demolition and replacement of one, possibly two, building/s located on the CWU campus. The Psychology building is being prepared for demolition and replacement, with the possibility of enhancements and/or demolition/replacement of the Student Medical and Counseling Center (See attached maps). Both buildings are 50 years or older and meet the minimum threshold for National Register of Historic Places (NRHP) eligibility. Eligibility determinations will be conducted in a different phase of this proposed project.
Prior to analysis of the two buildings, CWU would like to know if the Confederated Tribes of the Colville Reservation have any concerns or comments early in the planning process prior to the expenditure of state funds?

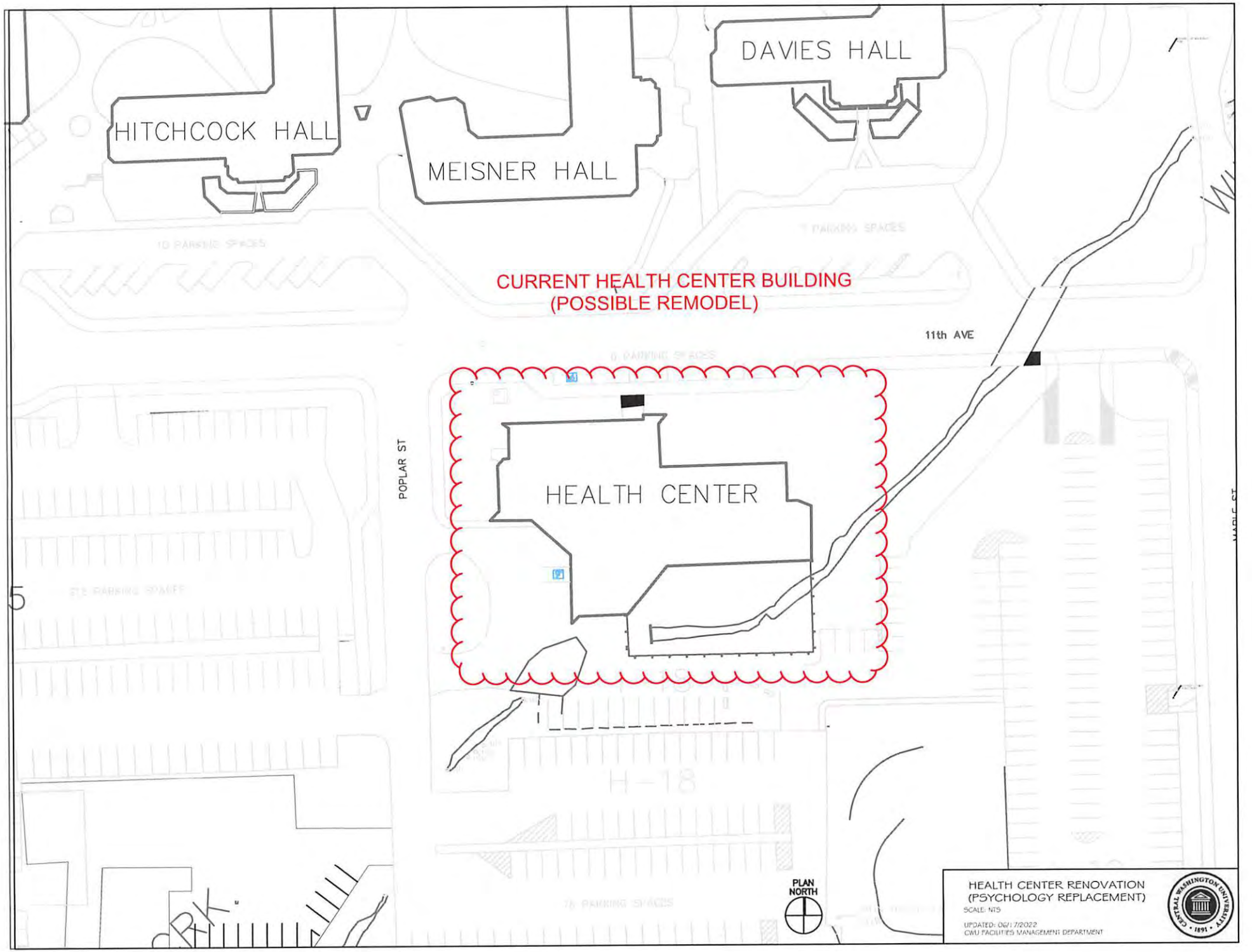
All comments and concerns regarding this project are welcome. Please contact Delano Palmer at (509) 963-2906 or by email at Delano.Palmer@cwu.edu to discuss concerns and/or comments. We look forward to hearing from you.

Thank you,

Delano Palmer

Cc: Dr. Patrick Lubinski
Dr. Steven Hackenberger
Jon Shellenbergr
Guy Moura, CCT THPO
Jeremiah Eilers

Drafted by J.S. & J.E.


HITCHCOCK HALL
MEISNER HALL
DAVIES HALL
CURRENT HEALTH CENTER BUILDING
(POSSIBLE REMODEL)
11th AVE
POPLAR ST
HEALTH CENTER
H-18
PARK
PLAN NORTH
HEALTH CENTER RENOVATION
(PSYCHOLOGY REPLACEMENT)
SCALE: NTS
UPDATED: 06/17/2022
CWU FACILITIES MANAGEMENT DEPARTMENT
CENTRAL WASHINGTON UNIVERSITY
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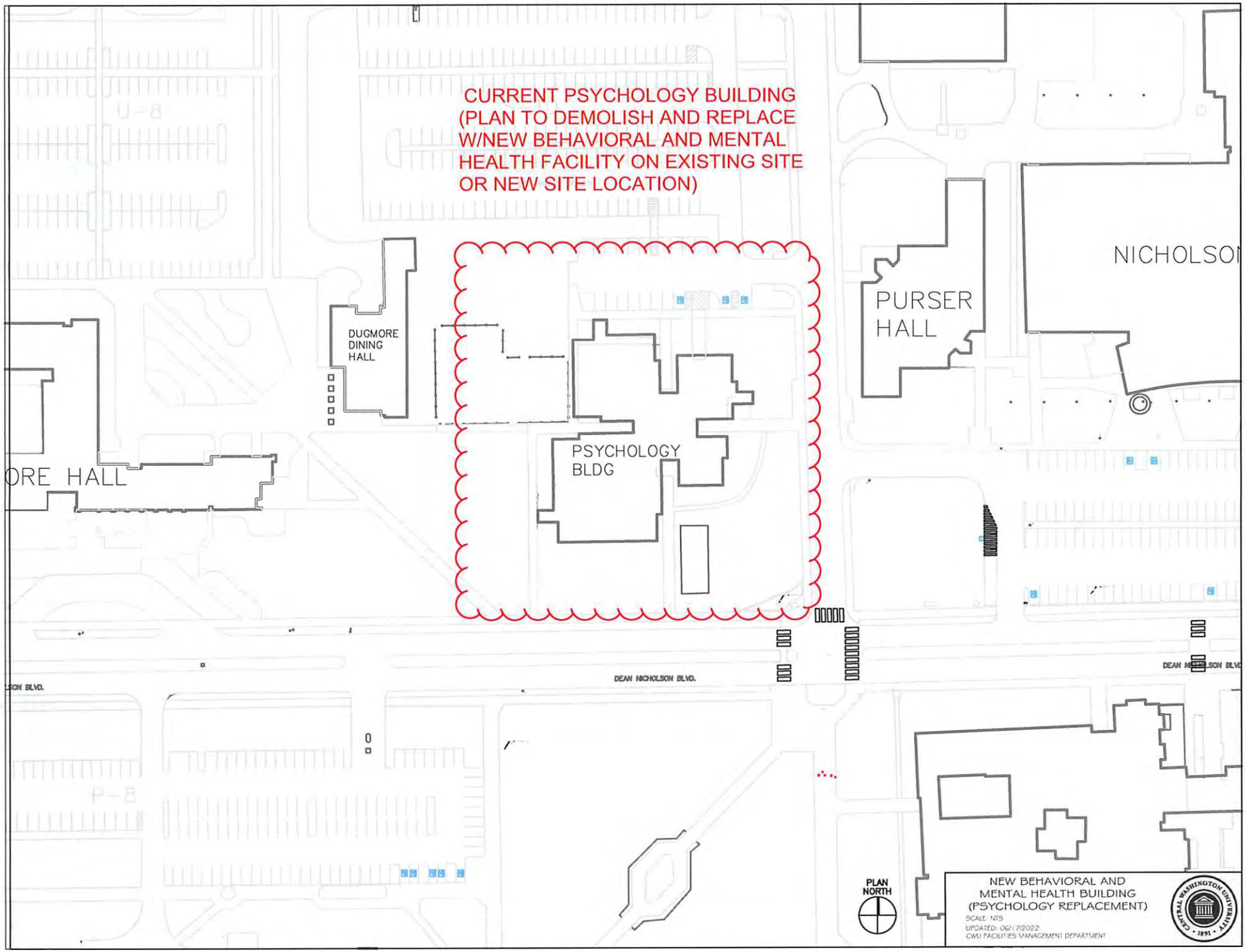
CURRENT PSYCHOLOGY BUILDING
(PLAN TO DEMOLISH AND REPLACE
W/NEW BEHAVIORAL AND MENTAL
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section 6.5 - LEED checklist

LEED v4/v4.1 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: CWU Behavioral and Mental Health Building
Date: Jun-22

Y	?	N			
1			Credit	Integrative Process	1

12	4	16		Location and Transportation	16
2		14	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1	1		Credit	High Priority Site	2
3		2	Credit	Surrounding Density and Diverse Uses	5
3	2		Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

4	3	2		Sustainable Sites	10
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
		2	Credit	Site Development - Protect or Restore Habitat	2
	1		Credit	Open Space	1
2	1		Credit	Rainwater Management	3
	1		Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1

5	3	3		Water Efficiency	11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
2	2	2	Credit	Indoor Water Use Reduction	6
	1	1	Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

16	12	7		Energy and Atmosphere	33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
3	2	1	Credit	Enhanced Commissioning	6
11	4	3	Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
	1	1	Credit	Demand Response	2
1	4		Credit	Renewable Energy Production	3
	1		Credit	Enhanced Refrigerant Management	1
		2	Credit	Green Power and Carbon Offsets	2

7	2	2		Materials and Resources	13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
2	1		Credit	Building Life-Cycle Impact Reduction	5
2			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
		2	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
2			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1	1		Credit	Construction and Demolition Waste Management	2

12	3	1		Indoor Environmental Quality	16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
1	1		Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1	1		Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
1		1	Credit	Interior Lighting	2
2	1		Credit	Daylight	3
1			Credit	Quality Views	1
1			Credit	Acoustic Performance	1

3	3	0		Innovation	6
2	3		Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

0	0	0		Regional Priority	4
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1

60	30	31	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

section 6.6 - CWU master plan

Facilities Priorities: Teaching and Learning

Health Sciences. The state provided $23 million for the first phase of this facility in the 2017-2019 capital budget. . During the 2019 session the legislature, appropriated $32 million for the completion of this facility, which is scheduled to open in January 2022, and will serve allied health programs.

Health Education/Nicholson Pavilion renovation. CWU received $5 million in the 2019-2021 state capital budget for the predesign and design to renovate and expand Nicholson Pavilion. This state-funded facility was constructed in 1959 as the Health and Physical Education Building. In 1959, the facility served fewer than 1,900 students; now CWU enrolls 12,000 students and Nicholson cannot accommodate academic programming demands, from course enrollment to university-wide landmark events like commencement and convocation. The nearly 60-year-old facility has never been renovated and all systems have long-since outlived their expected life span.

Humanities & Social Science Complex. CWU will request funding in the 2021-2023 capital budget for the design phase of a major capital project at Brooks Library to house CWU's Humanities and Social Science programs. In order for this proposed major capital project to qualify for design funding consideration in the 2021-2023 biennium, CWU submitted a self-funded predesign study to OFM for review and approval in July of 2020. The Humanities & Social Sciences project has been a part of CWU's long-term planning and is a key element in helping the university to better serve the growing student body in the Humanities, Social Science and Services fields. The strategically-planned proximity of the proposed new facility in the northwest corner of the Central Campus will promote interdisciplinary education, enhance collaboration among students and faculty, foster curriculum, and avoid duplication of services and programs.

Capital Planning Infrastructure. As noted in Chapter 3, Infrastructure is the support line of Capital Planning by ensuring capacity and redundancy that make all our campus buildings operational. As part of its evaluation of evolving campus needs, CWU has identified the addition of a new 1200 Ton Chiller and replacement of heating plant boilers as primary objectives to ensure the reliability of the campus' cooling and heating capacity respectively.

Medical & Mental Health Center. The existing Student Health Center has not had a major renovation since it was built in 1971. This project will add ~7,000 square feet to address CWU's growing student enrollment and increased need for mental health services. The renovation will replace the aging infrastructure in the building, bringing the facility into compliance with state and federal laws regarding accessibility, energy efficiency, and state of the art medical services.

Behavioral and Mental Health facility. This project will replace the existing Psychology Building that has reached the end of its life cycle in several critical areas. The new Behavior and Mental Health facility will be designed to place Psychology Program, Counseling Center, Wellness Center, Case Management Department and Basic Needs Center all in one building. This alignment will allow for enhanced collaboration between real-life practice and academia. Additionally, collaboration and patient management will be centralized allowing for confidential, comfortable, easy to access spaces for patient care and essential resources.

Sammamish Instructional Site. CWU-Sammamish opened September 20, 2017, after having transformed a facility that once served as a large church. CWU leases this to provide general education undergraduate classes, which are open to the public. CWU's three-year lease includes the option to purchase the facility. Revenue streams and demand for programs strongly support the purchase option. CWU is requesting funding in the 2021-23 budget cycle to acquire this facility.

Mitchell Hall Renovation. Mitchell Hall houses critical administrative services that support every unit within the university but the structure has not had any significant renovations or updating since it was built in 1969. This renovation is intended to replace failing mechanical and electrical systems throughout the building, which will greatly improve indoor air quality and energy efficiency.

Arts Education Complex. This facility would accommodate a critical need for classrooms, specialized labs and studios, and performance space for CWU's robust programs in the arts. The new building would expand arts capacity and perhaps house a School of the Arts: Art and Design, Theatre, and Music.

section 6.7 - CWU green house gas emissions

State Agency Greenhouse Gas Emissions Reduction Strategy
2021 Reporting Year

Background

In 2020, the Legislature and Governor updated the State Agency Climate Leadership Act codified in RCW RCW 70A.45.050. The Act directs state agencies, including universities, colleges, and community and technical colleges to lead by example in reducing their greenhouse gas (GHG) emissions to:

- 15% below 2005 level by 2020
- 45% below 2005 by 2030
- 75% below 2005 by 2040
- 95% below 2005 by 2050, and achieve net zero

To track state agencies' progress toward meeting these limits, each covered agency must meet the following reporting requirements:

1. Each year, estimate emissions using an emissions calculator provided by the Department of Ecology, and;
2. Every even-numbered year, report on the following to the State Efficiency and Environmental Performance Office (SEEP) at the Department of Commerce:
    a. Actions taken over the last biennium to meet these emission reduction targets
    b. Actions planned for the next two biennia to meet emission limits;
    c. Long-term strategy for meeting the emission limits.

This document is the template for reporting your agency's GHG emission reduction strategies to SEEP and is due by May 20th, 2022. It may be submitted to SEEP via Ecology's SAGE portal, along with your agency's GHG Emissions Calculator and any supplemental documents you would like to submit. Instructions for completing and uploading all reporting documents may be found on Ecology's website for State Agency GHG Emissions Reporting.

Instructions:

- Using this document, enter your responses to the questions and topics in the boxes below. Use as much space as needed.
- Save your document using the following name convention:

    "2021_[agency acronym]_Plan.doc" *(example: 2021_ECY_Plan.doc)*

- Upload your answers to Ecology's SAGE portal. Detailed instructions are in the **GHG Reporting Instructions** document on Ecology's State Agency Emissions Reporting website.

For questions regarding this Emissions Reduction Strategy Template, please contact:
Hanna Waterstrat, Director, State Efficiency and Environmental Performance Office, Energy Division, Washington State Department of Commerce, hanna.waterstrat@commerce.wa.gov, cell: 360-764-0015

Ian Kinder-Pyle, SEEP Analyst, Energy Division, Washington State Department of Commerce, ian.kinder-pyle@commerce.wa.gov, cell: 360-764-3555

For questions related to the GHG Emissions Calculator or uploading documents to SAGE, contact:
Stacey Waterman-Hoey, Greenhouse Gas Emissions Analyst, Air Quality Program, Washington Department of Ecology, swat461@ecy.wa.gov, cell: 360-764-6178

Greenhouse Gas Emissions Reduction Strategy Report

Agency Name: Central Washington University

Name of Reporting Contact: Jeremiah Eilers, PM, Capital Planning and Projects

Email address for Reporting Contact: Jeremiah.Eilers@cwu.edu

Name of Agency Approver: Shane Scott, AVP of Facilities Management

Date completed: May 12, 2022

1. **What actions did your agency take to reduce GHG emissions during the 2020 and 2021 calendar years?**

   2020-2021 Actions:

   1. Randall/Michaelson Heat Exchanger Replacement: the result of this project was a much more energy efficient heat exchanger for Heating Water.
   2. Lind AC Installation of multiple zone split system with very high efficiency rating- This project reduces the load on the central chilled water system in areas of this building where air was not properly distributed.
   3. Replacement of 3 main air handling units at the WA State Archives Building. Increased the efficiency of the cooling units from 1995 standards. Allows for much tighter control of building temperature and scheduling.

4. CWU Campus Electrical Metering Upgrades- This project will allow for us to easily track building level electricity usage. This is very beneficial with upcoming legislative goals. This is a phased project.
5. Boiler #3 Front Wall Rebuild- This project was completed on one of our large central plant water tube steam boilers. The rebuilding of this front wall includes adding all new firebrick and insulation to the front of the boiler increasing the efficiency of the boiler by allowing less heat to escape though the front shell of the boiler.
6. Exterior Lighting Upgrades- Work toward replacing all existing conventional outdoor lighting fixtures with low light polluting LED Fixtures.
7. Repaired large, chilled water leak on campus that was costing a substantial amount of electricity to cool make-up water. Also a eliminating a huge amount of wasted water.
8. New Heating Water Heat Exchangers at Anderson and Moore. Both were leaking thus wasting valuable return condensate that should have returned to the central plant.

2021-2023 Actions:

1. SURC Lighting Fixtures and Controls- Upgrade Lighting Fixtures to LED and add lighting controls to take advantage of daylight harvesting and scheduling.
2. Black Hall- Variable Speed Heating and Cooling Pump Control Replacement- Pumps are currently running at a consistent speed in manual mode due to failed controls. Replacement will allow for variably speed of energy intense pump packages.
3. Science 1- Variable Speed Heating and Cooling Pump Control Replacement- Pumps are currently running at a consistent speed in manual mode due to failed controls. Replacement will allow for variably speed of energy intense pump packages.
4. Clean Building Energy Project- This project was to help get a baseline of energy usage in 5 of our buildings over 50Ksqft to check against parameters of HB1257.
5. Building Automation Server Upgrade- Allow for more reliable modification of HVAC Schedules and Energy Monitoring. Allow for more disk drive space so we can trend more points moving forward to monitor energy for upcoming legislative requirements.
6. Geothermal Study- The results of this study will give a feasibility analysis associated with adding Geothermal to part or all our buildings. The intent would be to request funds from OFM to complete a recommended geothermal project.
7. Bouillon Hall HVAC Upgrade- Removal of old inefficient fan in buildings main air handling unit and replace with a fan wall that is fully controlled by variable frequency drives.
8. Correct Heat Recovery Units on Samuelson Hall. The units are currently configured with the Thermal Heat Wheel in a position that does not recover energy on the outgoing exhaust as it was intended to do.
9. Installation of a new 1200 Ton Chiller at the central plant. This chiller will be much more efficient than running the much older chillers from the 1980s and 90s.
10. Science Fume Hood Control Upgrade- This project will significantly decrease the amount of energy used by our building with the highest EUI on campus. The current exhaust control system is ran by pneumatics and has leaks throughout the system which leads to much more exhaust leaving the building than what the original design called for. This digital control upgrade will allow for the correction of this issue while also allowing for much tighter control to conserve energy.

11. The replacement of the Hertz Hall Building with a much more energy efficient Health Science Building that is heated mostly by waste heat from the flue stacks of the heating plant main boilers.
12. The renovation of our Nicholson Pavilion which will result in new much more efficient HVAC Equipment and Control Systems.

2. **What are the priority actions your agency is planning to take during the 2023-25 and 2025-27 biennia to reduce GHG emissions?** Please describe your agency's near-term strategies and priorities for GHG emissions reductions. If possible, provide details on specific projects your agency plans to pursue funding for and complete in order to meet the limits established for 2030.

2023-25 Biennium:

1. Pending Office of Financial Management Funding- The demolition of two very old inefficient buildings (Language and Literature / Farrell Hall) and replacing with one much more efficient building (North Academic Complex).
2. Pending Office of Financial Management Funding- Installation of all new LED Lighting Fixtures at our State Archives Facility.
3. Complete a project to install or configure all metering of heating and cooling to all buildings over 50,000sqft. This will allow for more accurate reporting to bring buildings into compliance with HB 1257.
4. Update Campus Master Plan to reflect de-carbonization strategy.
5. Establish and fill Energy Manager/Engineer to oversee the development of de-carbonization strategy.
6. Establish enterprise Energy Management Program.
7. Launch Green Revolving Fund to support campus energy efficiency projects with define payback period.
8. Develop CWU Climate Action Plan and Sustainability Plan to direct and guide campus efforts.
9. Continue to work with Department of Ecology to set utility-specific emissions factors to properly account for GHG emissions tied to purchased electricity.
10. Integrating sustainability into the new mission statement of Central Washington University to help create an ethos of sustainability action that permeates decision making at the institution.
11. Apply for construction funding for a net-zero North Academic Complex building as one of the options for OFM to fund.
12. Apply for design funding for a net-zero Psychology building as one of the options for OFM to fund.
13. Seek out funding to revamp Hogue Hall solar array to increase production.

2025-27 Biennium:

1. Integrating funding for a geothermal system at the North Academic Complex and Psychology building into the capital request. (Assuming net-zero is not approved by OFM for original building construction funding)
2. Apply for construction funding for a net-zero Psychology replacement building.
3. Research suitability of existing campus buildings for PV arrays.

We plan to request funds for the above projects by justification of energy savings and preservation. We then will utilize the WA State DES ESCO project process for many of the projects. This process ensures to check progress in energy savings against the projects original design parameters.

3. Describe your agency's long-term strategy for meeting the emissions limits established in RCW 70A.45.050 for 2030, 2040, and 2050.

Overarching strategies that will be used to meet emissions limits (detailed plans in sections that follow):

45% below 2005 by 2030

- Retro commissioning of buildings
- Investment in geothermal system for new construction in north neighborhood
- Building envelope and mechanical upgrades
- No new fossil fuel hook-ups in new or existing buildings

75% below 2005 by 2040

- Fully move district heating and cooling system to renewable energy source, reducing emissions by over 65%.
- Move to 100% electric fleet vehicles
- Purchase offsets for aviation fuel
- Creating capacity for energy storage

95% below 2005 by 2050

- Rely on carbon offsets to account for any lingering emissions.

4. Executive Summary

Please summarize your agency's long-term emissions reduction strategy in 200 words or less, using highlights from the more detailed information provided below. We suggest doing this last!

CWU has worked hard to collaborate with individuals throughout CWU and OFM to look at our systems that are at end-of-life as a way to reduce our emissions by replacing the systems with new energy efficient systems. These projects can help our institution meet our GHG Reduction Goals. CWU Operations plans to continue to push sustainability and energy savings to help advocate for funding, spread awareness and ensure all stakeholders are headed in the same direction. As of May 1, 2022 our Sustainability Coordinator separated from the University. While working at CWU

she was extremely influential to the campus community and Capital Construction Team. We hope to fill her positon quickly so we can continue to improve plans toward reducing our GHG Emissions.

We are currently undergoing a study associated with the WA Clean Building House Bill, (HB1257). This project applies to 5 buildings over 50,000 SqFt. Some of the deliverables of this project are: an audit of existing sub-metering, energy efficiency measure options and modeling associated with some of those EEM's. We believe that these deliverables will play a vital role in ensuring we stay focused on the projects with the largest impact in reducing CWU's GHG Emissions.

5. Transportation

If applicable, please refer to the fleet electrification targets and strategies in Executive Order 21-04 Key strategies for reducing GHG emissions from transportation. Include:

- Replacing internal combustion engine (ICE) vehicles with battery electric vehicles (BEVs)
- Electrifying vessels and equipment where possible

Complimentary strategies for incrementally reducing GHG emissions from transportation include:

- Limiting trips in state vehicles by replacing in-person meetings with remote options
- Utilizing biofuels or other alternative strategies to lower emissions where BEVs are not feasible

CWU has 219 fleet vehicles: 198 are ICE, 12 are hybrid and 9 are electric. Transitioning these vehicles to BEVs will be a critical step in reducing the emissions from our consumption of 29,907 gallons of gasoline, 6,188 gallons of diesel, and 375 gallons of propane (2021 consumption levels).

Strategies to reduce emissions from fleet and mobile equipment:

- Dissolve Motor Pool program and move program to commercial vendor (e.g. Enterprise) that has the resources to electrify their fleet more quickly than the university.
- Transition fleet to EV vehicles
    - Transition sedans and small passenger vehicles to BEVs.
- Develop CWU policy for vehicle replacement that prioritizes BEVs and hybrid vehicles over ICE vehicles.
- Follow EV technological developments for passenger vans and trucks.
- Transition to battery-powered leaf blowers, mowers, and snow blowers.
- Purchase carbon offsets to cover emissions from CWU Aviation Program. This program is predicted to grow in scope and scale, given the demand for airline and commercial pilots. Emissions will be difficult to reduce, given lack of viable alternative fuel sources at this time. Funding source: unknown.
- Implement new sustainable transportation projects to drive down transportation emissions
- Create opt-in program for departments to offset carbon emissions from Motor Pool rentals.
- Right-sizing fleet size and vehicle size

6. Facilities

Where applicable, include information related to performance standards in the Clean Buildings law and address strategies related to other existing requirements, including facility benchmarking and Zero Energy building standards (for agencies named in EO 20-01).

Key strategies for reducing GHG emissions from agency facilities:

- Electrifying building space heating, hot water and cooking
- Ensuring major renovations are all-electric, zero energy (ZE) or zero energy capable (ZEC), and very low embodied carbon emissions
- Avoiding new construction in favor of lower embodied emissions alternatives such as renovating existing space and using less building space.

Complimentary strategies for incrementally reducing GHG emissions from facilities:

- Improving building energy performance and energy efficiency using DES Energy Savings Performance Contracting or other proven building efficiency delivery methods
- Tracking building energy use by metering and benchmarking each building over 10,000 square feet.

Operational or organizational changes:

- Hiring a resource conservation manager (RCM), buy efficient IT equipment and appliances, consider organizational or service delivery changes that use less building space or energy, and encourage occupant behavior that reduces energy consumption
- Leveraging new leases and lease renewals to electrify heating and reduce energy use
- Changing space use allocations to reduce occupied square footage

Strategies to avoid adding more agency GHG emissions:

- Ensuring any new building is zero energy (ZE) or zero energy capable (ZEC), and very low embodied carbon emissions
- Ensure any new leased square footage is all-electric and energy efficient

Strategies to reduce emissions from conditioned spaces:

- Hire an energy manager to oversee campus decarbonization efforts and EUI reductions in campus buildings.
- Develop ENERGY STAR purchasing policy for all computers.
- **Improve existing building efficiency**: increase building efficiency by investing in Investment Grade Audits and implementing energy conservation measures and retrocommissioning.
- **Leverage capital funding** to improve energy efficiency in existing buildings.
- **Leverage capital funding** to replace buildings.
- **Decarbonize new major capital projects**. Build net-zero new construction: North Academic Complex, Psychology, Mitchell, and Randall Halls.
- Design all new building and renovation projects to be compatible with renewable energy-driven heating and cooling systems.
- **Launch occupant engagement programs** to drive down carbon emissions in buildings and residence halls, including energy savings competitions in residence halls and a Green Office program.
- **Decarbonize district energy system**: move to all-electric system or geothermal based system

- Conduct Scope-3 GHG inventory on leased CWU Centers spaces to understand the GHG emissions tied to this part of the university's operations.
- Optimize space utilization in existing buildings and new construction designs by developing space-use policies that support emissions reductions.
- Right-size new construction to meet the academic needs of the building. Reduce conference room space, right-size classrooms, and reduce storage space and duplicative work rooms.
- Utilize ENERGY STAR to benchmark all buildings to track impact of energy conservation measure on building energy performance.
- Implement fume hood energy use savings measures.

7. Clean and Renewable Electricity

- On-site renewable energy generation
- Power purchase agreements (PPAs) for renewable energy purchases (examples include PSE Green Direct and Avista Solar Select)

Strategies to reduce emissions from purchased electricity:

- **Purchase carbon offsets:** 2% of electricity that is 'mixed source'
- **Accurate Emissions Factors**: Accurately account for electricity emissions by using an emissions factor specific to the City of Ellensburg utility. This will reduce emissions from purchased electricity by 98%. .
- **Expand on-site renewable energy**: install solar PV arrays on all new capital construction and install on existing buildings using the Solar Energy Grant.
- **Purchase off-site renewable energy**: purchase additional solar energy from City of Ellensburg utility program to support renewable energy generation in the Kittitas Valley and low-carbon electricity if hydroelectric power generation is reduced or distributed elsewhere.
- Lighting upgrades
- Efficient electric appliances
- Sustainable Labs program to reduce energy use in labs: Shut the Sash Program
- Computer power management, server consolidation and server virtualization

8. Equity and Environmental Justice

- How is your agency using equity and environmental justice considerations to help prioritize your GHG emissions reduction work and target improvements and beneficial outcomes in overburdened communities?
- Use EPA's EJ Screen tool to understand the environmental justice concerns in our region.
- As our campus electrifies, consider the implications of our continued and increased reliance on hydroelectric energy and the impact dams have had on Washington State tribes, salmon populations, and the livelihoods of indigenous people.
- Partner with the Diversity & Inclusivity Office and the Student Diversity and Equity Center to develop environmental justice trainings and outreach programs that engage our campus in these topics.

- Reduced reliance on natural gas will reduce emissions in our region and reduce the demand for natural gas to be transported to our community. This can reduce air pollution for high-risk populations and reduce the risk of disasters and negative health risks caused by pipelines and transporting fossil fuels.
- Invest in sustainable transportation programs that increase access to campus with commuter buses, provide electric vehicle charging, and provide safe routes to walk and bike.
- Transition to electric vehicles and maintenance equipment to reduce localized air pollution and increase air quality for CWU students.

9. Planning and Budget Development

- Facility or campus master plans
- Deferred maintenance and equipment replacement schedules
- Sustainability action plans
- Funding GHG emissions reduction priorities
- For SEEP agencies: Carbon Reduction Investment Budget (CRIB) priorities
- Revise CWU Capital Master Plan, which will include strategies for decarbonizing campus
- Integrate energy efficiency strategies into the Design and Construction Standards
- Co-create CWU Climate Action Plan with campus stakeholders
- Continue to implement deferred maintenance list
- Fund Minor Works energy efficiency projects

10. Agency-specific or Other Strategies

- Utilize the skills of in-house personnel and outside vendors to continue to update our construction standards and Capital Master Plan and look outside the box for CWU specific energy systems.

11. Challenges and Barriers

- Capital funding for net-zero building construction
- Continued reliance on a Washington-State averaged emissions factor that doesn't adequately represent the emissions of our utility.
- District heating and cooling system will require significant investments to move to a renewable energy driven system.
- The City of Ellensburg utility is small. Electrifying campus will have a significant impact on the electric grid and we haven't investigated or worked through the impacts.

12. Please list any supplemental plans or documents here.

Save your supplementary documents using the following file name convention:

"2021_[agency acronym]_[brief descriptive title]"

(Example: "2021_COM_FleetPlan" or "2021_DES_SustainabilityPlan")

CWU Capital Master Plan

When complete, all documents should be uploaded via Ecology's SAGE portal. Detailed instructions are in the GHG Reporting Instructions document on Ecology's State Agency Emissions Reporting website.

section 6.8 - psychology structural assessment

integrus ARCHITECTURE

May 25, 2022

Mr. Delano Palmer
Central Washington University
Jongeward Plant Services Building
Ellensburg, WA 98926

RE: Psychology Building Structural Assessment
Integrus Project No.22224.01

117 S. Main St., Suite 100
Seattle, WA 98104
206.628.3137 | office
206.628.3138 | fax

10 S. Cedar Street
Spokane, WA 99201
PO Box 1482 (99210)
509.838.8681 | office
509.838.2194 | fax

Dear Mr. Palmer:

Integrus' structural team has reviewed the existing drawings provided by Central Washington University (CWU) and toured the facility on May 11, 2022. The purpose of the review/tour was to gather information necessary to prepare a structural assessment of the building's general condition and a perform a seismic evaluation of the existing structure. In the structural engineering community, a common evaluation procedure is found in ASCE 41-17 Seismic Evaluation and Retrofit of Existing Buildings. This standard provides three tiered procedures for seismic evaluation and two tiered procedures for seismic retrofit of existing buildings appropriate for use in areas of any Level of Seismicity.

For purposes of this pre-design study, an ASCE 41-17 Tier One screening is appropriate. A Tier One screening provides insight into the building's potential behavior in a seismic event and identifies potential deficiencies.

Existing Building

The CWU Psychology Building was constructed in 1972 and designed under the 1967 Uniform Building Code. It is a 4-story cast-in-place concrete structure with a mechanical penthouse on the roof. There is also a small mechanical basement located under the southeast portion of the building. Most of the cast-in-place concrete walls are exposed on one or both faces, and extensive portions of the exposed concrete has a 1-1/2" deep fluted, possibly acid-etched, surface. There are exterior concrete stair shafts located on the east, west and north sides of the building which extend from the ground level up to the roof. The building has a unique plan configuration (see Figure 1) and upper floor plates overhang lower floor plates in some areas (see Figure 2). The building has many protruding concrete bay windows which according to the existing drawings were constructed with precast concrete elements.

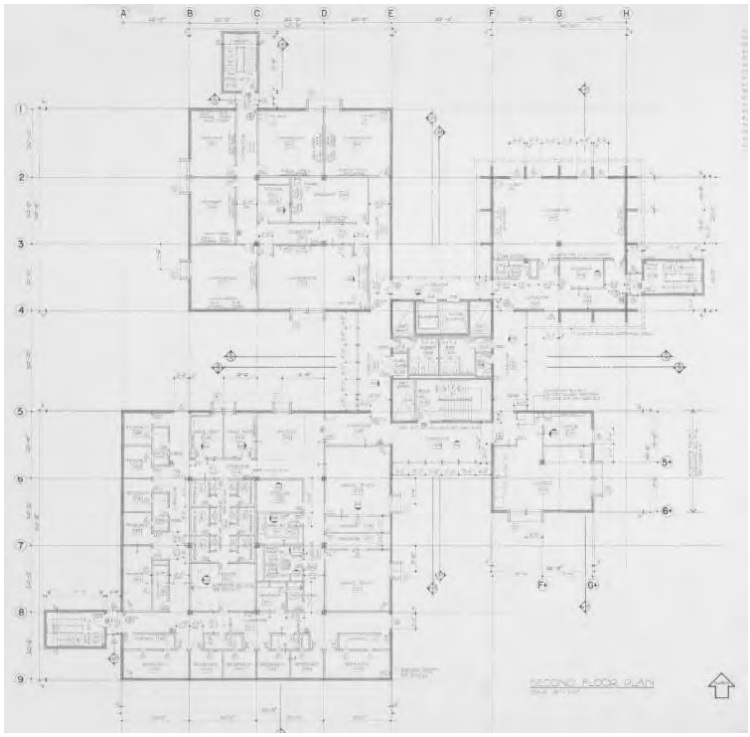

Figure 1 – Second Floor Plan

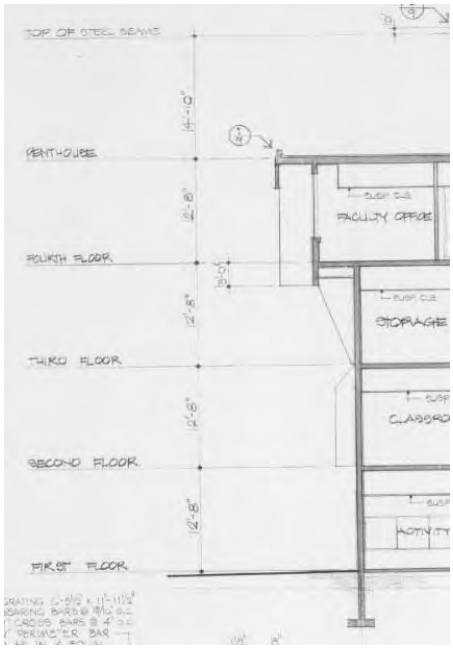

Figure 2 – Representative Wall Section

Gravity loads in the building are supported by two-way flat slabs, supported by interior concrete columns with drop panels and/or concrete walls. The concrete walls are generally located around the perimeter of the floors, at exterior stair shafts, and around the central elevator/stair/bathroom core. A rooftop mechanical penthouse is comprised of metal roof deck over bar joists, supported on wide-flange beams, supported in turn on interior steel columns and exterior concrete walls. All walls and columns are supported on spread footings which bear on a gravel/cobble stratum.

Rigid concrete diaphragms at each level transfer lateral forces (wind and earthquake) to concrete shear walls. The shear walls collect this lateral load from the diaphragms in proportion to their relative stiffnesses (i.e. – longer, stiffer walls collect more load than narrower, more flexible walls). The walls carry the loads to the ground where footings distribute the loads to the supporting soil.

Observations

The observed concrete was in good condition with only minor cracks observed (See attached Photo 1-4 for representative crack photos). Most of the cracks in the exterior wall were primarily vertical and ranged from hairline to 1 millimeter in width. Many of the cracks appear to be concrete shrinkage related and likely developed as the concrete cured soon after construction. A few exterior cracks (as shown in Photo 3) were diagonal and may be related to thermal expansion/contraction and restraint from the foundation below. We observed no signs of unusual settlement.

There was minor staining on the upper-level walls due to water dripping down the face of the wall and perhaps some coping corrosion stains (Photo 5). A few soffits at the overhanging floors were water damaged (Photo 6).

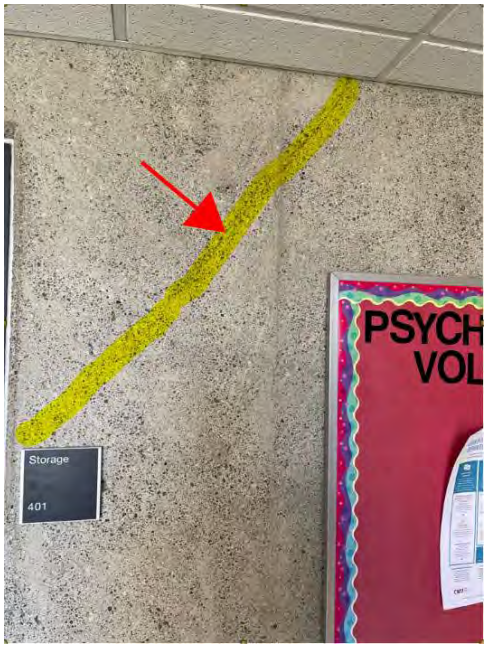

Photo 1

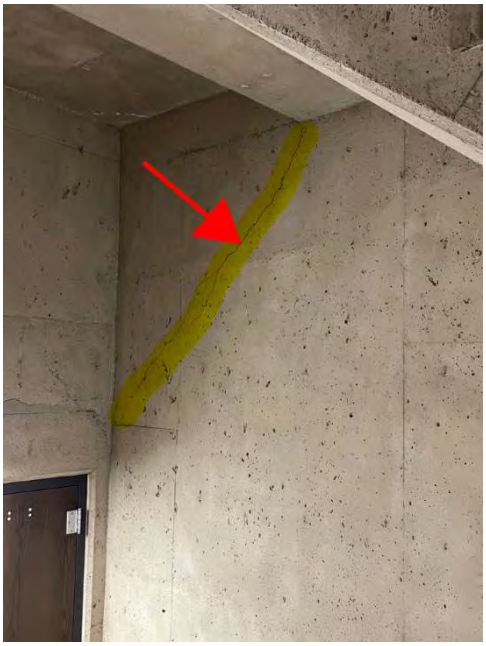

Photo 2

Photo 3

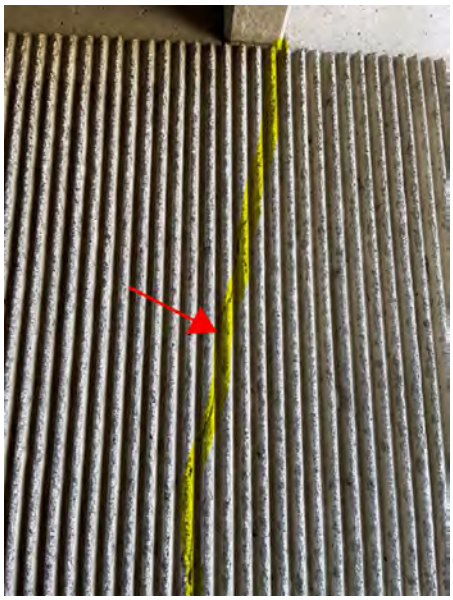

Photo 4

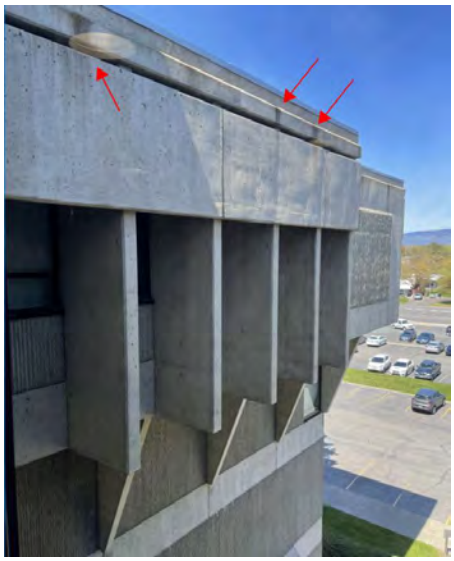

Photo 5

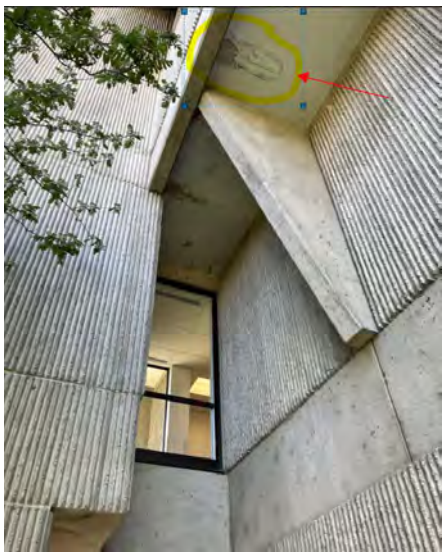

Photo 6

Seismic Assessment

Our understanding of seismicity and its effect on buildings has grown significantly in the 50 years since this building was constructed. Buildings today are generally designed for higher seismic forces with greater emphasis placed on structural detailing to encourage ductile, predictable behavior. For reference, a comparison of seismic base shear forces in the current design code (2018 International Building Code) are roughly 76% higher than those tabulated from the 1967 Uniform Building Code. Similarly, reinforcing requirements for walls and floor diaphragms is much more robust under the current Code.

As mentioned previously, the use of ASCE 41-17 Seismic Evaluation and Retrofit of Existing Buildings is a common tool in assessing a building's seismic "health". An ASCE 41-17 Tier 1 screening would classify the CWU Psychology Building as a Building Type C2 with concrete shear walls with stiff diaphragms. The screening includes a series of checklists identifying key building configurations and construction details to be reviewed and evaluated as compliant (C), noncompliant (NC), not applicable (N/A) or unknown (U). Items identified as noncompliant (NC) have historically resulted in damage or partial collapse of structures subject to seismic loading. A Tier 1 screening of this building resulted in the following noncompliant issues:

1. Ideally a lateral element such as a shear wall should stack vertically from the roof to the ground. The exterior shear walls at level 4 do not align with any walls below because the floor plate steps back from level 4 to level 3. A similar irregularity exists at the northeast corner of the building between levels 3 and level 2. Instead, these walls are supported on small wing walls projecting from the perimeter of the level below. This results in a vertical irregularity noncompliance.
2. The concrete walls do not have the recommended percentage of horizontal steel (the ratio of reinforcing steel area to gross concrete area) resulting in a reinforcing steel noncompliance.
3. The penthouse concrete walls are not adequately anchored to the roof deck resulting in a wall anchorage at flexible diaphragm noncompliance.
4. The penthouse concrete walls are not adequately attached to the roof diaphragm to directly transfer roof shears resulting in a transfer to shear walls noncompliance.
5. The existing drawings indicate that the dowels between the footings and foundation walls are straight bars that are not fully developed in footing resulting in a foundation dowel noncompliance.
6. The penthouse concrete walls are not adequately anchored to the flexible roof diaphragm with cross-ties resulting in a cross-tie noncompliance.
7. While not specifically mentioned in the checklist, the building's unusual configuration results in numerous re-entrant corners in the floor and roof diaphragms. No special slab reinforcement details were found in the existing drawings for these locations. A significant seismic event will likely result in damage to the floor at these locations in what we will call a re-entrant corner noncompliance.

Conclusions

In general, the observed structure is in good condition. Only minor concrete cracking was observed. However, the structure has multiple seismic noncompliant issues which will limit the building's ability to absorb seismic energy in a ductile, predictable manner. These issues if not addressed make the building more susceptible to serious damage in a seismic event.

We recommend that these noncompliant conditions be further studied, and that a seismic rehabilitation plan be developed and implemented. These repairs may be intrusive and require added shear walls or bracing at level 4, added diaphragm struts and collectors, and augmentation of shear wall reinforcing.

Should CWU wish to proceed with developing a seismic rehabilitation plan, we stand ready to assist. As this plan is more fully developed, we can provide cost estimates for their implementation.

Thank you for the opportunity to provide you with a Structural Assessment of the CWU Psychology Building. Let me know if you have any questions.

Sincerely,

INTEGRUS ARCHITECTURE, P.S.

Robert W. Graper, P.E., S.E.
Associate Principal

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pc: B. Barnhart – IA

section 6.9 - C100

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated June 2022

Agency	Central Washington University
Project Name	Behavior and Mental Health Farrell Site W/ Childcare
OFM Project Number	TBD

Contact Information	
Name	Delano Palmer
Phone Number	(509) 963-2906
Email	Delano.Palmer@cwu.edu

Statistics			
Gross Square Feet	89,000	MACC per Gross Square Foot	$729
Usable Square Feet	62,300	Escalated MACC per Gross Square Foot	$882
Alt Gross Unit of Measure			
Space Efficiency	70.0%	A/E Fee Class	B
Construction Type	College classroom facilit	A/E Fee Percentage	5.82%
Remodel	No	Projected Life of Asset (Years)	50
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	Yes
Inflation Rate	4.90%	Higher Ed Institution	Yes
Sales Tax Rate %	8.40%	Location Used for Tax Rate	Ellensburg
Contingency Rate	5%		
Base Month (Estimate Date)	June-22	OFM UFI# (from FPMT, if available)	A05142
Project Administered By	Agency		

Schedule			
Predesign Start	March-22	Predesign End	June-22
Design Start	January-24	Design End	May-25
Construction Start	August-25	Construction End	June-27
Construction Duration	22 Months		

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Project Cost Estimate

Total Project	**$89,478,127**	Total Project Escalated	**$107,662,809**
		Rounded Escalated Total	**$107,663,000**

Cost Estimate Summary

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

Consultant Services			
Predesign Services	$0		
Design Phase Services	$2,999,089		
Extra Services	$3,145,447		
Other Services	$1,459,779		
Design Services Contingency	$754,291		
Consultant Services Subtotal	**$8,358,606**	**Consultant Services Subtotal Escalated**	**$9,535,259**

Construction			
Maximum Allowable Construction Cost (MACC)	$64,841,240	Maximum Allowable Construction Cost (MACC) Escalated	$78,492,452
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$3,242,062		$3,942,024
Non-Taxable Items	$0		$0
Sales Tax	$5,718,997	Sales Tax Escalated	$6,924,496
Construction Subtotal	**$73,802,300**	**Construction Subtotal Escalated**	**$89,358,972**

Equipment			
Equipment	$4,035,068		
Sales Tax	$338,946		
Non-Taxable Items	$0		
Equipment Subtotal	**$4,374,014**	**Equipment Subtotal Escalated**	**$5,318,365**

Artwork			
Artwork Subtotal	**$535,636**	**Artwork Subtotal Escalated**	**$535,636**

Agency Project Administration			
Agency Project Administration Subtotal	$2,162,571		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$2,162,571**	**Project Administration Subtotal Escalated**	**$2,629,470**

Other Costs			
Other Costs Subtotal	**$245,000**	**Other Costs Subtotal Escalated**	**$285,107**

Project Cost Estimate			
Total Project	**$89,478,127**	Total Project Escalated	**$107,662,809**
		Rounded Escalated Total	**$107,663,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	New Approp Request 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0				**$0**
Consultant Services					
Consultant Services Subtotal	$9,535,259		$7,760,314	$1,774,945	**$0**
Construction					
Construction Subtotal	$89,358,972			$89,358,972	**$0**
Equipment					
Equipment Subtotal	$5,318,365			$5,318,365	**$0**
Artwork					
Artwork Subtotal	$535,636		$535,636		**$0**
Agency Project Administration					
Project Administration Subtotal	$2,629,470		$2,629,470		**$0**
Other Costs					
Other Costs Subtotal	$285,107		$285,107		**$0**
Project Cost Estimate					
Total Project	**$107,662,809**	**$0**	**$11,210,527**	**$96,452,282**	**$0**
	$107,663,000	**$0**	**$11,211,000**	**$96,452,000**	**$0**
	Percentage requested as a new appropriation		**10%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)
AE Basic Design Services through Construction Documentation, Extra Services and Contingency
Artwork, Project Management and Other Costs

What has been completed or is underway with a previous appropriation?
Predesign services were self-funded and were completed in June 2022
Insert Row Here

What is planned with a future appropriation?
AE Basic Design Services for Bidding through Close Out
Construction Contracts, Equipment/Furniture

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				
Environmental Analysis				
Predesign Study				
Other				Predesign Self-Funded $200K
Insert Row Here				
Sub TOTAL	**$0**	**1.0788**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$2,734,089			69% of A/E Basic Services
Space Specialist-Multi Use Building	$265,000			
Insert Row Here				
Sub TOTAL	**$2,999,089**	**1.1137**	**$3,340,086**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)	$354,000			
Geotechnical Investigation	$150,000			
Commissioning	$124,000			
Site Survey	$154,000			
Testing	$66,172			
LEED Services	$155,219			
Voice/Data Consultant	$174,900			
Value Engineering	$42,084			
Constructability Review	$115,000			
Environmental Mitigation (EIS)	$25,000			
Landscape Consultant	$180,851			
Childcare Consultant	$20,000			
Electronic Security	$73,935			
AV Consulting	$135,548			
Lighting Consultant	$77,509			
Laboratory / Health Care consultant	$449,771			
Acoustical	$53,590			
Interior Design	$97,619			
Elevator	$27,233			
Solar	$42,400			
Hardware	$277,256			
SEPA	$23,320			
DAHP Compliance/Historical Architect/Archaeology	$110,000			
Mass Notification Consultant	$111,300			
Hazmat Consultant	$43,129			
Demolition Consultant	$61,613			

Insert Row Here				
Sub TOTAL	**$3,145,447**	**1.1137**	**$3,503,085**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$1,228,359			31% of A/E Basic Services
HVAC Balancing	$29,000			
Staffing				
Record Drawings	$47,271			
Models & Renderings	$37,408			
Ongoing Cost Consulting	$16,459			
Site Logistics Plan	$21,200			
Psychology Demolation Utility Planning	$11,851			
Traffic Impact Consultant	$38,200			
Enhanced Commissioning	$30,031			
Insert Row Here				
Sub TOTAL	**$1,459,779**	**1.2159**	**$1,774,945**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$380,216			
Design Reconcillation	$374,075			
Insert Row Here				
Sub TOTAL	**$754,291**	**1.2159**	**$917,143**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$8,358,606**		**$9,535,259**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$749,779			
G20 - Site Improvements	$1,995,831			
G30 - Site Mechanical Utilities	$811,719			
G40 - Site Electrical Utilities	$568,204			
G60 - Other Site Construction				
General Conditions Site Work	$280,145			
Early Site - Bldg Dem	$588,944			Demo Existing Psychology
Abatement	$227,277			
General Conditions Demo and Abatement	$56,036			
Insert Row Here				
Sub TOTAL	**$5,277,934**	**1.1637**	**$6,141,933**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation	$275,600			
Parking Mitigation	$823,800			
Stormwater Retention/Detention	$183,605			
Low Temp Heating Water	$106,000			
Insert Row Here				
Sub TOTAL	**$1,389,005**	**1.1637**	**$1,616,386**	

3) Facility Construction				
A10 - Foundations	$1,979,112			
A20 - Basement Construction				
B10 - Superstructure	$10,392,654			
B20 - Exterior Closure	$10,425,459			
B30 - Roofing	$2,176,357			
C10 - Interior Construction	$4,418,065			
C20 - Stairs	$490,778			
C30 - Interior Finishes	$4,069,898			
D10 - Conveying	$584,438			
D20 - Plumbing Systems	$2,056,148			
D30 - HVAC Systems	$7,502,160			
D40 - Fire Protection Systems	$766,317			
D50 - Electrical Systems	$7,562,593			
F10 - Special Construction	$0			
F20 - Selective Demolition	$0			
General Conditions	$3,699,149			
Other Direct Cost				
PV Solar (450KW Solar)+Infrustructure				Included in D50
Equipment (built in)	$615,658			
Furnishings (built in)	$1,435,516			
Insert Row Here				
Sub TOTAL	**$58,174,301**	**1.2159**	**$70,734,133**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$64,841,240**		**$78,492,452**	
	$729		*$882 per GSF*	

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7) Owner Construction Contingency				
Allowance for Change Orders	$3,242,062			
Other				
Insert Row Here				
Sub TOTAL	**$3,242,062**	**1.2159**	**$3,942,024**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2159**	**$0**	
9) Sales Tax				
Sub TOTAL	**$5,718,997**		**$6,924,496**	
CONSTRUCTION CONTRACTS TOTAL	**$73,802,300**		**$89,358,972**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment					
E20 - Furnishings	$1,735,068				
F10 - Special Construction					
Equipment and Special Construction for Special Program	$2,300,000				
Insert Row Here					
Sub TOTAL	**$4,035,068**		**1.2159**	**$4,906,240**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.2159**	**$0**	
3) Sales Tax					
Sub TOTAL	**$338,946**			**$412,125**	
EQUIPMENT TOTAL	**$4,374,014**			**$5,318,365**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$535,636				0.5% of total project cost for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$535,636**		**NA**	**$535,636**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$2,162,571				
Additional Services					
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$2,162,571**		**1.2159**	**$2,629,470**	

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Cost Estimate Details

Other Costs				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs				
Hazardous Material Remediation/Removal				
Historic and Archeological Mitigation	$30,000			
Traffic Mitigation/Impact Fees	$215,000			
Insert Row Here				
OTHER COSTS TOTAL	**$245,000**	**1.1637**	**$285,107**	

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C-100(2022)
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

section 6.10 - student medical center FCI

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
HEALTH CENTER Facility
HEALTH CENTER — **Building ID** A02261

Building Size - Gross	11,527	**Building Size- Assignable**	6,537
Year Of Original Construction	1971	**Year Of Last Renovation**	
Building Use Type	Student Services		
Construction Type	Light		

Survey Date	08/11/20	**Survey By**	FMD

Building Condition Summary

Condition Index	**0.28**
Relative Condition Score	**4**
Weighted Avg Condition Score	**3.1**

Building Components

Systems	Scores	Comments
A Substructure:	**2.4**	
Foundations		
Standard Foundations	2	
Slab on Grade	3	
B Shell:	**2.6**	
Superstructure		
Floor Construction	2	
Roof Construction	2	
Exterior Closure		
Exterior Walls	3	
Exterior Windows	4	
Exterior Doors	4	
Roofing		
Roof Coverings	3	Reviewed with Shane Stragga
Roof Opening	3	Reviewed with Shane Stragga
Projections		DOES NOT EXIST
C Interiors:	**2.7**	

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
HEALTH CENTER Facility
HEALTH CENTER — **Building ID** A02261

Interior Construction		
Fixed and Moveable Partitions	2	
Interior Doors	3	
Specialties	3	
Staircases		
Stair Construction		DOES NOT EXIST
Stair Finishes		DOES NOT EXIST
Interior Finishes		
Wall Finishes	3	
Floor Finishes	3	
Ceiling Finishes	3	
D Services:	**3.6**	
Vertical Transportation		
Elevators and Lifts		DOES NOT EXIST
Plumbing		
Plumbing Fixtures	3	
Domestic Water Distribution	2	
Sanitary Waste	2	
Rain Water Drainage	2	
Special Plumbing Systems		DOES NOT EXIST
HVAC		
Energy Supply	4	Reviewed with Dave K.
Heat Generating Systems	4	Reviewed with Dave K.
Cooling Generating Systems	4	Reviewed with Dave K.
Distribution Systems	4	Reviewed with Dave K.
Terminal and Package Units	4	Reviewed with Dave K.
Controls and Instrumentation	3	Reviewed with Dave K.
Special HVAC Systems and Equipment		DOES NOT EXIST
Fire Protection		
Fire Protection Sprinkler Systems		DOES NOT EXIST
Stand-Pipe and Hose Systems		DOES NOT EXIST
Fire Protection Specialties		DOES NOT EXIST
Special Fire Protection Systems		DOES NOT EXIST
Electrical		
Electrical Service and Distribution	4	
Lighting and Branch Wiring	4	
Communication and Security Systems	3	Reviewed with Jeremiah Eilers
Special Electrical Systems	4	
E Equipment and Furnishings:	**2.0**	

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
HEALTH CENTER Facility
HEALTH CENTER — **Building ID** A02261

Equipment and Furnishings		
Fixed Furnishings and Equipment	2	
Moveable Furnishings (Capital Funded Onl	2	
E Special Construction:	**5.0**	
Special Construction		
Integrated Constr. & Special Constr. Syste	5	INCINERATOR
Special Controls and Instrumentation		DOES NOT EXIST

section 6.11 - psychology FCI

Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Building Size - Gross	75,064	**Building Size- Assignable**	35,758
Year Of Original Construction	1973	**Year Of Last Renovation**	
Building Use Type	Research		
Construction Type	Heavy		

Survey Date	04/15/22	**Survey By**	FMD

Building Condition Summary

Condition Index	**0.27**
Relative Condition Score	**4**
Weighted Avg Condition Score	**3.3**

Building Components

Systems	Scores	Comments
A Substructure:	**2.4**	
Foundations		
Standard Foundations	2	
Slab on Grade	3	
B Shell:	**3.1**	
Superstructure		
Floor Construction	3	
Roof Construction	3	
Exterior Closure		
Exterior Walls	3	
Exterior Windows	3	
Exterior Doors	4	
Roofing		
Roof Coverings	4	
Roof Opening	4	
Projections	4	
C Interiors:	**3.1**	

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Interior Construction		
Fixed and Moveable Partitions	3	
Interior Doors	2	
Specialties	3	
Staircases		
Stair Construction	2	
Stair Finishes	3	
Interior Finishes		
Wall Finishes	3	
Floor Finishes	5	
Ceiling Finishes	2	
D Services:	**3.7**	
Vertical Transportation		
Elevators and Lifts	5	Out of Service Regularly
Plumbing		
Plumbing Fixtures	3	
Domestic Water Distribution	3	
Sanitary Waste	3	
Rain Water Drainage	3	
Special Plumbing Systems	2	
HVAC		
Energy Supply	4	
Heat Generating Systems		DOES NOT EXIST
Cooling Generating Systems		DOES NOT EXIST
Distribution Systems	4	
Terminal and Package Units	4	
Controls and Instrumentation	4	
Special HVAC Systems and Equipment	3	
Fire Protection		
Fire Protection Sprinkler Systems	4	1st Floor Only
Stand-Pipe and Hose Systems	4	N.E. Stairwell
Fire Protection Specialties		DOES NOT EXIST
Special Fire Protection Systems		DOES NOT EXIST
Electrical		
Electrical Service and Distribution	4	
Lighting and Branch Wiring	4	
Communication and Security Systems	4	
Special Electrical Systems	4	
E Equipment and Furnishings:	**2.7**	

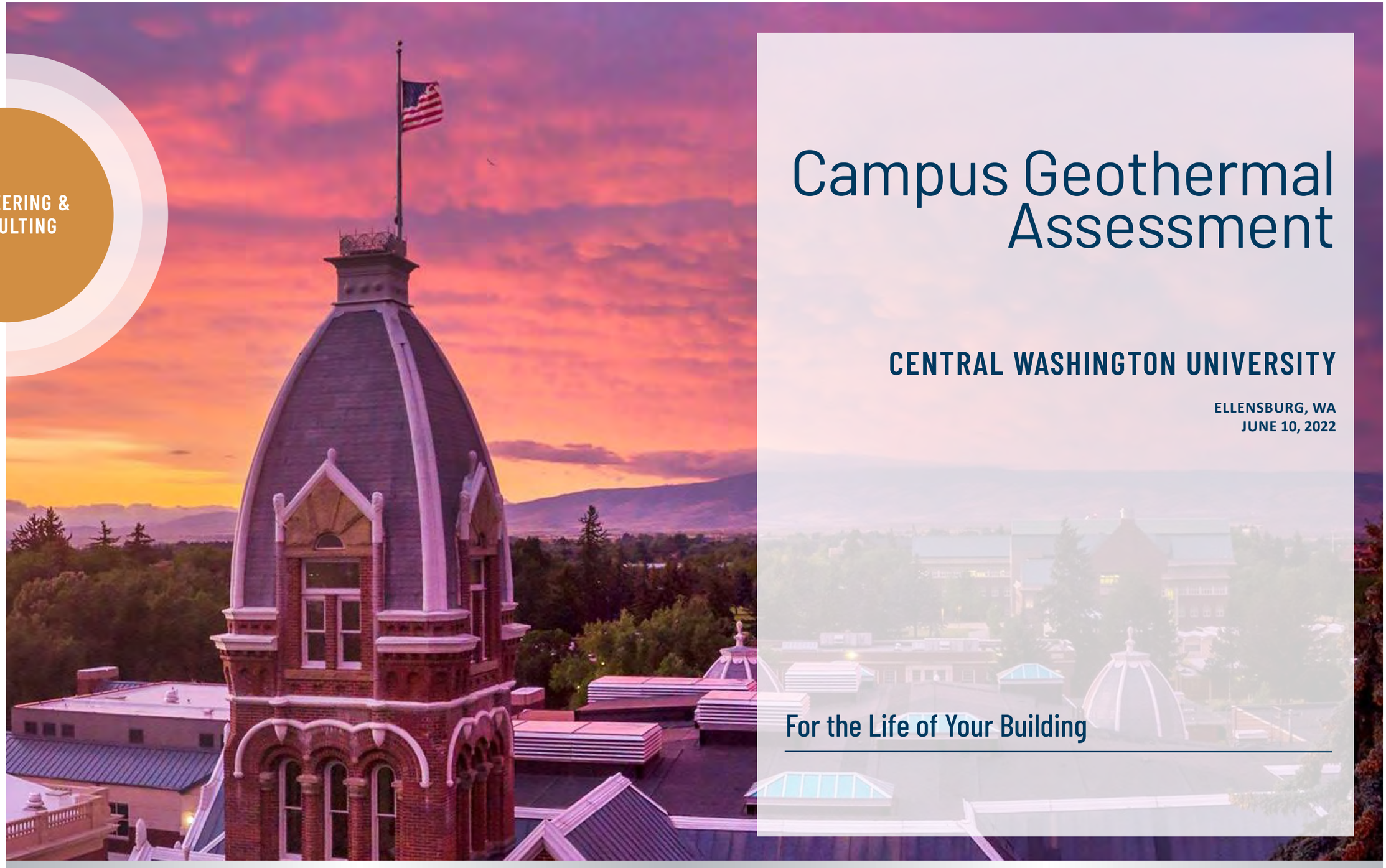
Building Detail

Central Washington University — **Institution ID** 375
CENTRAL WASHINGTON UNIVERSITY — **Site ID** 375
PSYCHOLOGY BUILDING Facility
PSYCHOLOGY BUILDING — **Building ID** A05142

Equipment and Furnishings		
Fixed Furnishings and Equipment	3	
Moveable Furnishings (Capital Funded Onl	2	
E Special Construction:	**4.0**	
Special Construction		
Integrated Constr. & Special Constr. Syste	4	ANIMAL QUARTERS
Special Controls and Instrumentation		DOES NOT EXIST

section 6.12 - open loop geothermal report

ENGINEERING &
CONSULTING



Campus Geothermal Assessment

CENTRAL WASHINGTON UNIVERSITY

ELLENSBURG, WA
JUNE 10, 2022

For the Life of Your Building

McKinstry
For The Life Of Your Building

Background | Process and Content

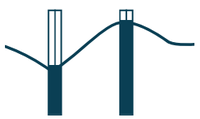
PURPOSE

This report summarizes the **findings** and provides **recommendations** from exploring the feasibility options of an open-loop Ground Source Heat Pump system for the CWU Ellensburg campus.

The goal is to provide key information to CWU on how to reduce fossil fuel use at the central utility plant and ultimately achieve an **Energy Efficient Zero-Carbo**n campus.

REPORT CONTENT

BACKGROUND	2
STUDY OPTIONS	3
WELL CONDITIONS	4
RESULTS SUMMARY	5
APPENDIX	6



WHY STUDY A GEOTHERMAL SYSTEM?

Geothermal systems eliminate the combustion of fossil fuels on site and dramatically lower the need to generate power by using the ground as a heat source and sink. They can significantly reduce the emission of greenhouse gases and the environmental damage associated with nonrenewable resource extraction.

WHY NOT CLOSED LOOP GEOTHERMAL WELLS?

Closed loop systems circulate water through buried piping to exchange heat with the ground versus an open loop system which pumps water directly in/out of the ground and through a heat exchanger. Closed loop systems require significantly more bore holes to have a similar capacity to that of an open loop, which can meet large capacities with only a few wells.

HIGH-LEVEL FINDINGS

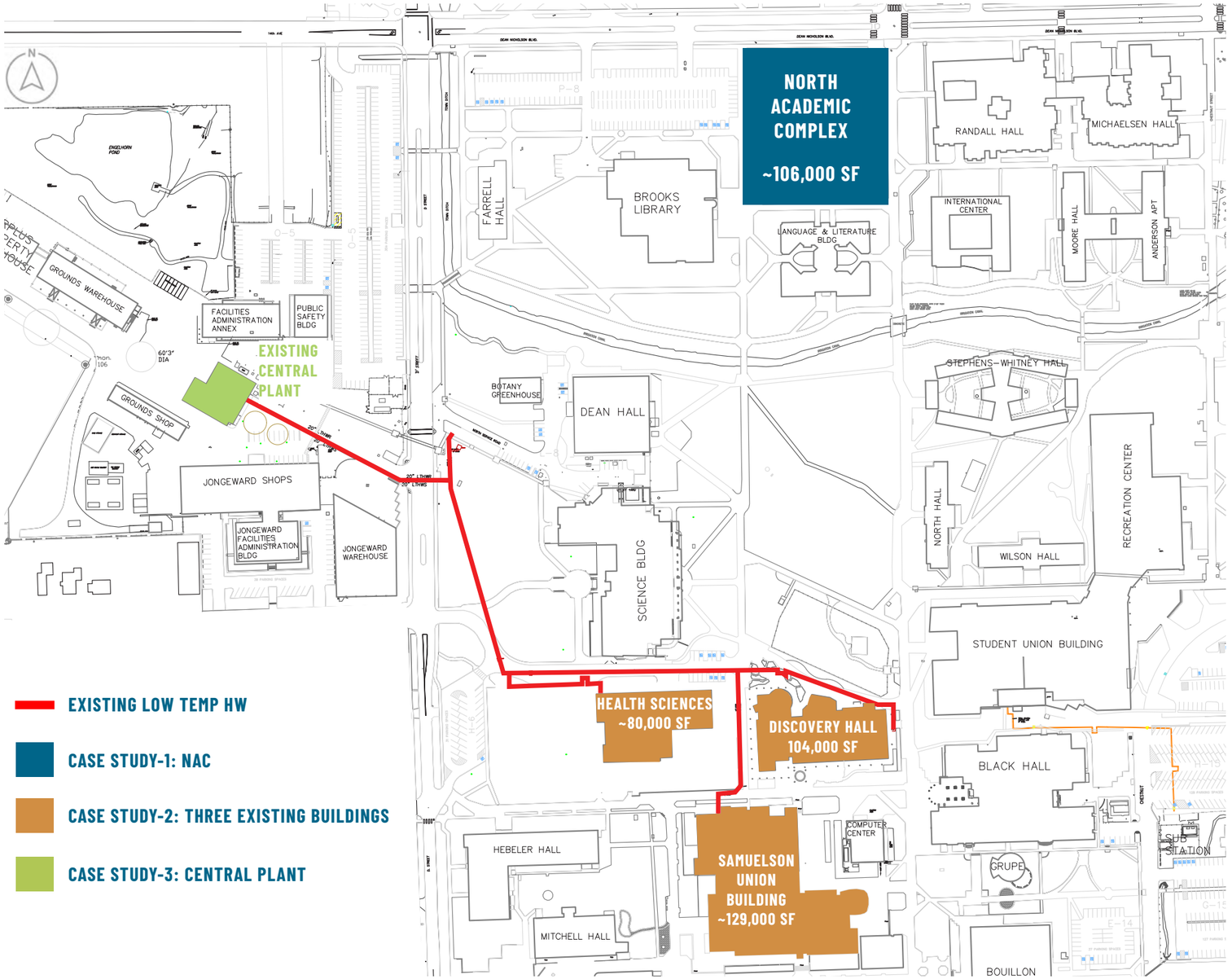
- The Ellensburg Aquifer is productive and can support several buildings for heating and cooling demands
- With appropriate infrastructure, the aquifer could support most of the campus
- Cost is high for individual wells, so grouping buildings and sharing heat will improve economics
- Carbon and energy savings are significant compared to the existing steam heating system
- Many buildings on campus utilize steam and will need to be retrofitted to utilize heat pump systems in the future with implications of Washington Clean Building Performance Standard.

RECOMMENDED NEXT STEPS

CWU is sitting on a unique resource in the Kittitas Valley and has the special opportunity to consider **de-carbonization** unlike other universities. With proper long term planning the geothermal heat exchange can be maximized and leveraged to help CWU stand out as a public university in Washington State.

CAMPUS PHASED APPROACH	Create a playbook to achieve a zero carbon campus, leveraging geothermal
TEST WELL	Proceed with test well as part of the NAC building construction
MEP CONTRACT	New contract per the phased project approach

CAMPUS SITE PLAN | EXISTING HYDRONIC LINES



Site Selection Case Studies | CRITERIA

Three discreet project options were chosen as case studies for this initial feasibility study that varied in size from one building, to campus wide. The options were chosen based on the ease of application for geothermal and the relative benefit to the buildings and systems. We utilized information about existing heating and cooling infrastructure on campus for almost 200 buildings over 4.6 million square feet. Buildings that required high temperature (>140F) water or steam were ruled out. Current heat pump technology favors heating water temperatures around 120F and retrofits of existing steam buildings to accept cooler water would likely be costly.

CASE STUDY - 1: NORTH ACADEMIC COMPLEX (NAC)

The easiest application of a geothermal system is to new construction before site work has been complete and HVAC systems are installed. The NAC is currently in design so it is an opportune time to assess the feasibility of a ground source system for this single new construction building. Additionally, based on communicated development plans, the infrastructure to support the building could possibly extend to future adjacent buildings.

CASE STUDY - 2: THREE EXISTING BUILDINGS

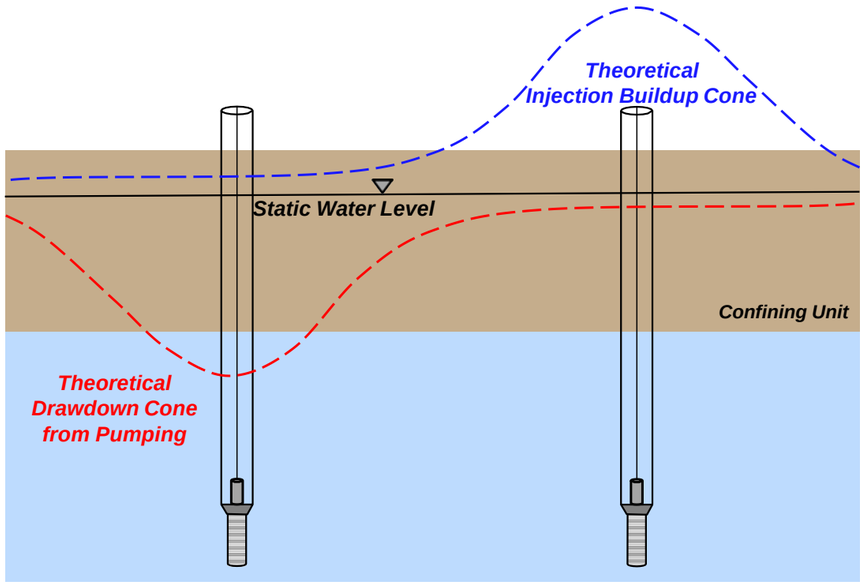
Health Sciences, Discovery Hall and Samuelson Union building are currently served by a single low temp HW loop from the central plant. In conversations with CWU, this 3-building cluster was selected as it provides the possibility for an easier connection between the required wells with a new heat exchanger to the existing HW piping network. Additionally, this site location also has several adjacent open green fields for proposed well locations.

CASE STUDY - 3: EXISTING CENTRAL PLANT

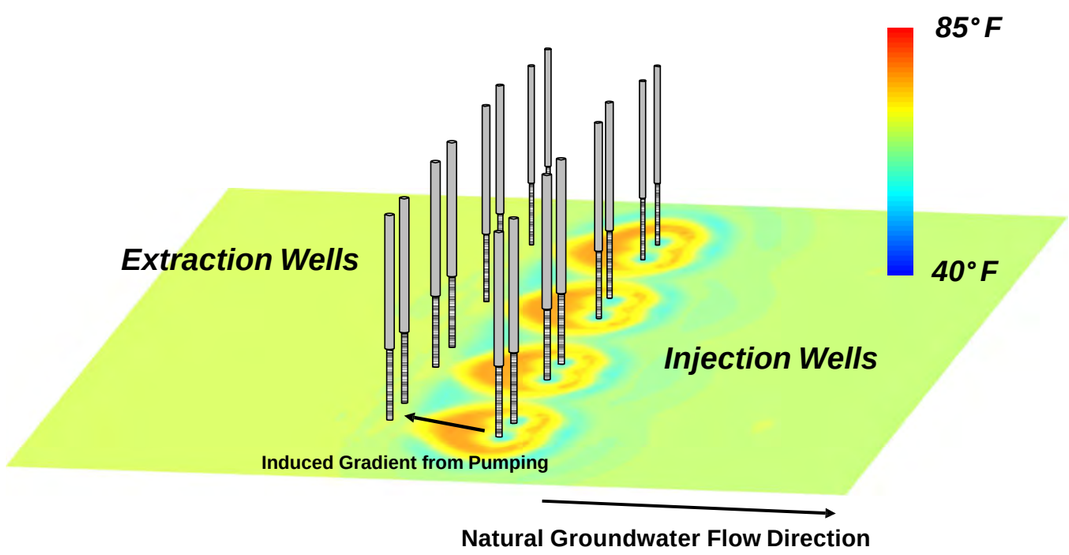
The existing central plant consists of 3-water cooled chillers and 4-steam-HW boilers. This option was selected as an upper boundary for the study, to provide an initial analysis on the number of wells required to meet the system capacity currently served by the central heating & cooling plant.

Hydro-geological Conditions | Ellensburg Aquifer

HYDRAULIC MODELING | THEORETICAL PUMPING IMPACTS



THERMAL MODELING | AQUIFER CONDITIONS



ELLENSBURG AQUIFER | EXISTING CONDITIONS

Based on the information available from the city of Ellensburg, following are the existing conditions for the aquifer:

- Regional groundwater flow direction follows Yakima river (North West to South East)
- It is the primary source for city of Ellensburg wells
- Shallow well completion zone (Unit A) - 300 to 600 ft deep (transmissivity 2,000 to 2,5000 SF/day)
- Deep well completion zone (Unit C) - 900 to 1,200 ft deep (transmissivity 3,000 to 4,5000 SF/day)
- Confined aquifer - no impact to surface water

MODELING RESULTS | DESIGN CONSIDERATIONS

Based on the early model analysis conducted by Aspect, following are the takeaways at this stage:

- Aquifer can supply more water than each of the scenarios require
- Case Studies-1 & 2 can be supported by 1-extraction well (paired with 1-injection well), completed in the shallow completion zone
- Case Study-3 can be supported by 8-extraction wells (paired with 8-injection wells), completed in the deeper completion zone
- Simulated well-field operation yielded no thermal breakthrough for Case Studies-1 & 2 and minor thermal breakthrough for Case Study-3
- Further modeling will take place during the design phase to optimize well spacing

Results Summary | Geothermal Case Studies

RECOMMENDATION

	CASE STUDY - 1 ONE NEW BUILDING (NAC)	CASE STUDY - 2 THREE EXISTING BUILDINGS	CASE STUDY - 3 EXISTING CENTRAL PLANT
EXISTING CENTRAL PLANT Heating by Natural Gas to Steam Boilers (85% eff) & Cooling by WC-Chillers (COP - 7) Heat rejection via Cooling Towers	Stand-alone open-loop GSHP system for heating (COP - 4) and cooling (COP - 6.5)	Open-loop GSHP system for heating (COP - 4) & supplemental cooling provided to existing WC Chillers (COP - 7) Heat rejection via Cooling Towers	Open-loop GSHP system for heating (COP - 4) & supplemental cooling provided to existing WC Chillers (COP - 7) Heat rejection via Cooling Towers
ROM Mechanical First Costs* [$]	$3.7M	$7.0M	TBD
Utility Cost Savings [$/yr]	~$8,000/yr (26%)	~20,000/yr (27%)	~640,000/yr (30%)
Heating EUI Reduction [Kbtu/SF/yr]	~25	~20	~66
GHG Reduction [lbs of CO2e]	170 Tons/yr = 34 gas cars	400 Tons/yr = 80 gas cars	11,200 Tons/yr = 2,195 gas cars
Zero Carbon Heating and Cooling	✓	✓	✓
Water Savings [gal/yr]	~40,000	~120,000	~>5,000,000
No. of Wells Required	One - 10" Extraction | One - 10" Injection	One - 14" Extraction | One - 14" Injection	Eight - 16" Extraction | Eight - 16" Injection
Building Area Served (SF)	106,000 SF	313,500 SF	2,576,000 SF
Well Depth (ft)	500'	500'	1000'
Target System Capacity (tons /gpm)	100 tons / 250 gpm	300 tons / 750 gpm	3,320 tons / 8,300 gpm
Pros & Cons	👍 Easier design application for a new building 👎 Well sized for a single building limits the opportunity to expand	👍 Well sized for multiple buildings provides better ROI 👎 Difficult to add a new htg/clg system to an existing building	👍 Provides an opportunity for a zero carbon & energy efficient campus 👎 Complex design to retrofit an entire campus with a longer project duration

Next Steps

Based on the preliminary analysis of the three case studies, it is recommended to follow the design approach of case study-2 and apply this methodology for a cluster of new buildings.

Given the North Academic Complex is under the design process, the test well should be located on the proposed site under case study-1 and sized to meet the loads of future building additions.

*Costs provided are conceptual in nature and to used for directional decision making only. Building modification and other major GC scope has not been included. Prices are in today's dollars without escalation

Appendix

Case Study Details

Hydro-geology Analysis Memo

Existing Design | Central Plant

DESIGN DESCRIPTION | Existing Central Plant Diagram

EXISTING EQUIPMENT LIST

GAS TO STEAM BOILERS WITH STACK RECOVERY (CONDEX SYSTEM)

3-units (60 Klb/HR Steam)
1-unit (30 Klb/HR Steam)
Assumed Efficiency - 85%

WATER COOLED CHILLERS

3-units (1,200 tons each)
Assumed Efficiency
2015 WSEC - 0.5 kW/Ton

COOLING TOWERS

3-units

2021 UTILITY RATES

Electricity

Consumption Rate - $0.047/KWh
Demand Rate - $5.30/KW
Customer Charge - $3.78/day

Natural Gas

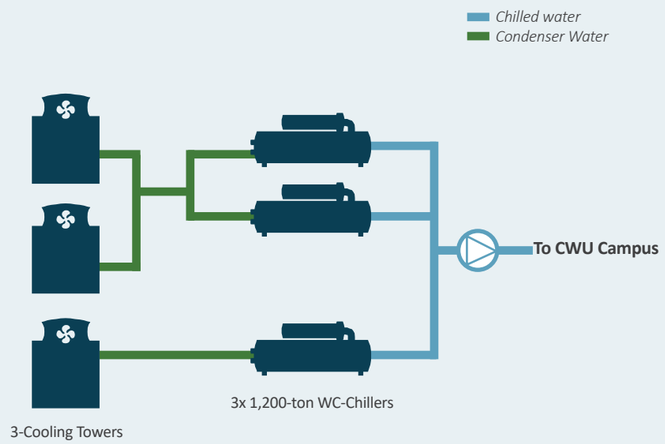
Consumption Rate - $0.67/Therm
Fixed Charge - $71/day

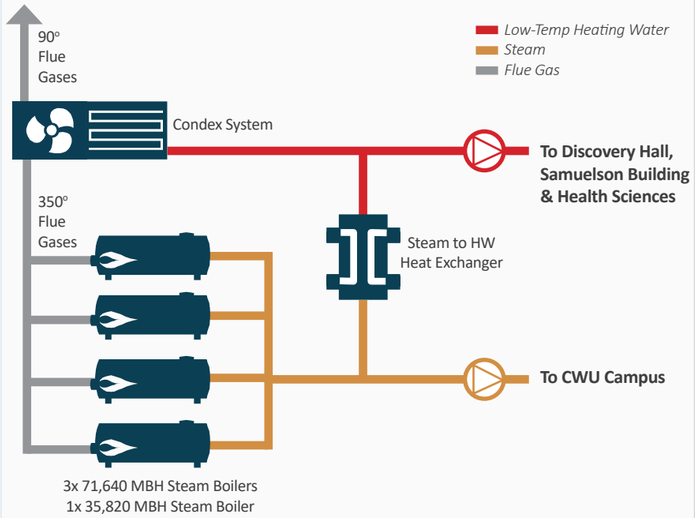
E-GRID WA STATE CO_2E FACTORS

Electricity CO_2e = 0.212 lb/KWh
Natural Gas CO_2e = 11.7 lb/Therm

CENTRAL PLANT AREA SERVED

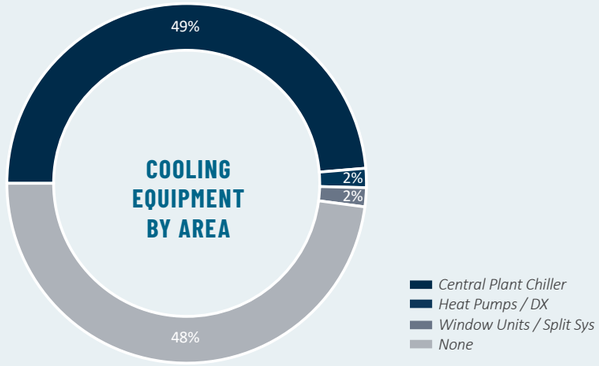
Heating - 2,576,156 SF
Cooling - 2,239,717 SF





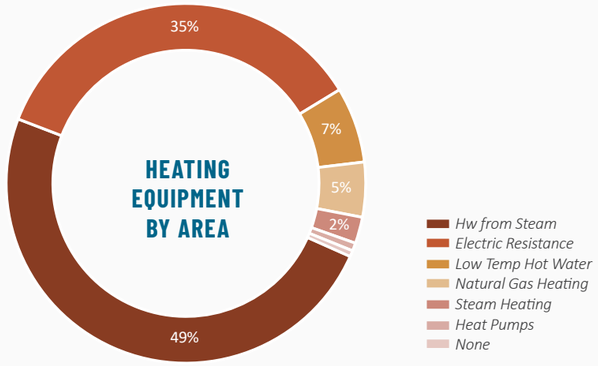
CAMPUS COOLING

About half of the occupied square footage is cooled by water cooled chillers with cooling towers. An additional chiller is planned to be added soon, to increase the capacity of the existing chiller water system. A 1-million gallon thermal storage tank provides additional peak shaving and efficiency gains. There are a small number of buildings that have their own cooling systems, but about 50% of the campus does not have mechanical cooling of any kind.

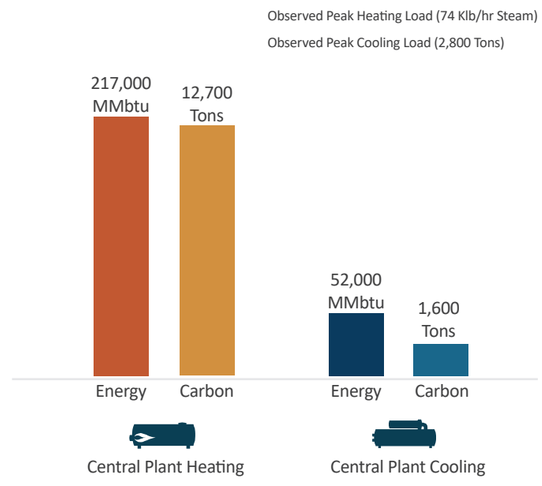


CAMPUS HEATING

Heating and Cooling for the CWU campus is provided by both central and distributed systems. About half of the occupied square footage is heated with steam produced from natural gas-powered boilers at the central plant. The remaining buildings are heated with non-centralized systems (electric resistance, heat pumps, gas boilers). Additionally, three buildings are served by a low temperature hot water loop, that is in part generated with recovered boiler stack heat (CONDEX System).



ENERGY & CARBON ANALYSIS



TARGET CARBON REDUCTIONS

Given the cold winter months of Ellensburg and the inefficient gas powered steam boilers, 72% of the total energy and 88% of carbon emissions from the central plant are from heating. This study focuses on reducing the heating energy while providing options to reduce the carbon impacts of the central plant equipment.

EXISTING CENTRAL PLANT METRICS

Htg EUI - 84 kBtu/sf/yr
Clg EUI - 23 kBtu/sf/yr

Natural Gas - $1,282,762/yr
Electricity - $886,208/yr

Natural Gas - 2,470 gas cars/yr
Electricity - 320 gas cars/yr

Case Study - 1 | North Academic Complex

DESIGN DESCRIPTION | Proposed System Diagram

NEW EQUIPMENT LIST

PLATE & FRAME HEAT EXCHANGER
1 unit (2,800 MBH, 450 gpm)

6-PIPE HEAT RECOVERY CHILLERS
2 units (1,400 MBH, 4x30 ton module)

2-GROUND WELLS
760 ft of 6" PVC piping to/from wells

PUMPS
Heating/Chilled water distribution,
Condenser Water Pumps,
Well pumps

GROUND WELL CHARACTERISTICS

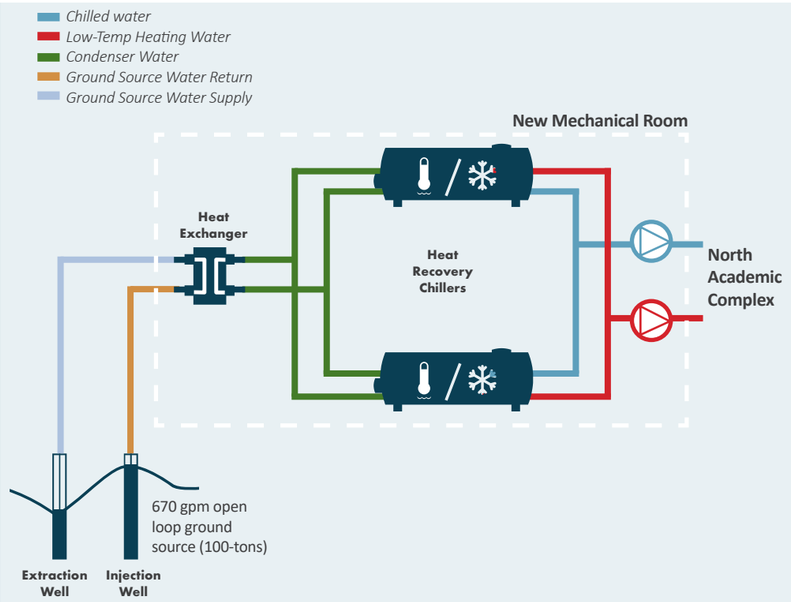
Target system capacity
100 tons

Ground water exchange flow
250 gpm

Spacing b/w extraction & injection well
670 ft

Total well depth
500 ft

Average injection pressure
5.5 PSI



SYSTEM DESIGN

The North Academic Complex (NAC) is a future 106,000 SF building that is currently in design. The baseline heating and cooling systems for the NAC are a steam to hot water heat exchange system and the utilization of campus chilled water.

The proposed ground exchange system will extract water from a well to the north of the building. The groundwater will be pumped through a heat exchanger before being injected back into the ground to the south of the building. Heat pumps will extract or reject energy through the heat exchanger to heat or cool the building as needed. Heat pumps utilize electricity and have an efficiency of 400% compared to gas boilers with an efficiency of only 85%.

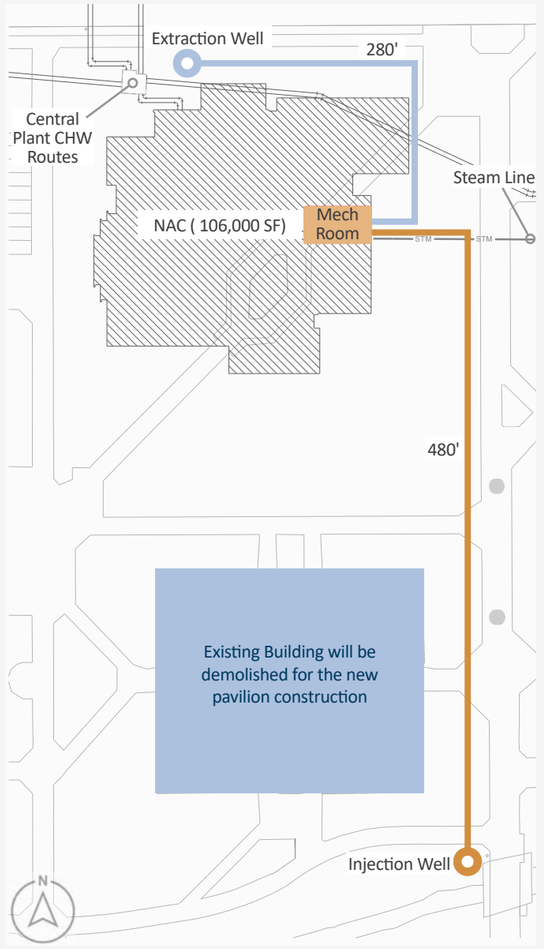
FIRST COST CONSIDERATIONS

Compared to the baseline steam heat exchanger system, the open loop ground source system will have significantly more first cost, because it requires new central infrastructure. The system requires more pumps, a heat pump, and a separate domestic hot water heating system. The costs given in the summary to not include the deduction of the baseline steam system from the NAC scope, or any operational savings to the central plant.

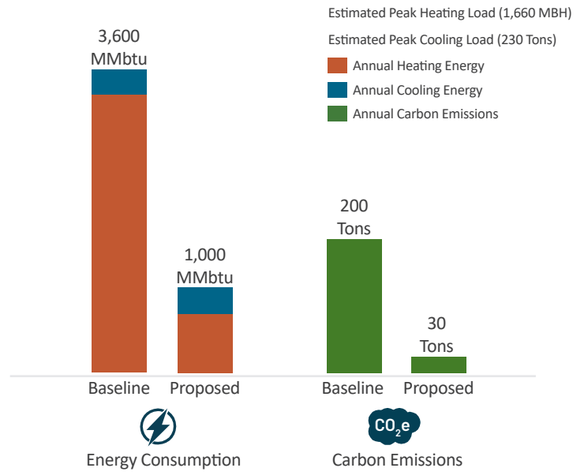
PROPOSED GROUND WELLS & PIPING LOCATION

The diagram below shows the proposed extraction and injection well locations with piping length and the entry to the NAC mechanical room.

The currently designed chilled water and steam lines from the central plant have been noted as well.



ENERGY & CARBON ANALYSIS



RESULTS SUMMARY

The open loop ground source system reduces the heating energy by 80% compared to the existing design. Cooling energy remains about the same. Additionally, it reduces the steam and chilled water loads imposed on the central system, thereby freeing up that capacity for other uses.

SAVINGS FROM EXISTING BASELINE DESIGN

Htg EUI - 25/sf/yr

Utility Cost- $8,000/yr

Carbon Emissions - 170 Tons/yr
(34 gas cars off the road)

Case Study - 2 | Three Existing Buildings

DESIGN DESCRIPTION | Proposed System Diagram

NEW EQUIPMENT LIST

PLATE & FRAME HEAT EXCHANGER
1 unit (4,000 MBH, 665 gpm)

6-PIPE HEAT RECOVERY CHILLERS
2 units (8,400 MBH, 5x70 ton module)

2-GROUND WELLS
800 ft/8" PVC piping to/fro wells

PUMPS
Heating/Chilled water distribution
Condenser Water Pumps
Well pumps

WELL CHARACTERISTICS

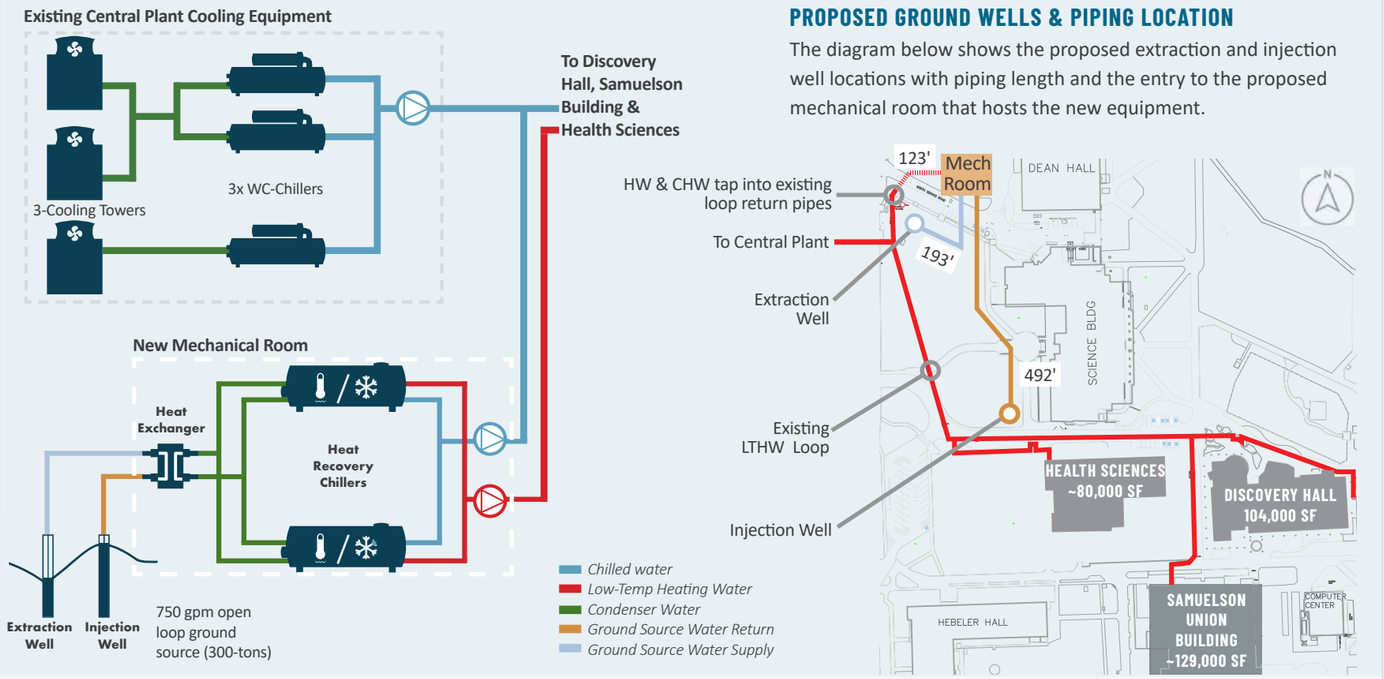
Target system capacity
300 tons

Ground water exchange flow
750 gpm

Spacing b/w extraction & injection well ***715 ft***

Total well depth
500 ft

Average injection pressure
32 PSI



PROPOSED GROUND WELLS & PIPING LOCATION

The diagram below shows the proposed extraction and injection well locations with piping length and the entry to the proposed mechanical room that hosts the new equipment.

SYSTEM DESIGN

Heath Sciences, Discovery Hall & Samuelson Union building are currently served by a single low temperature hot water (LTHW) loop from the central plant. Heat for this loop is provided by a combination of stack heat recovery and steam to HW heat exchangers. The proposed ground exchange system will extract water from a well to the north of this building cluster. The ground water will be pumped through a heat exchanger before being injected back into the ground near the Health Sciences building. Heat pumps will extract heat from the heat exchanger and produce low temperature hot water to offset the steam use associated with the current LTHW.

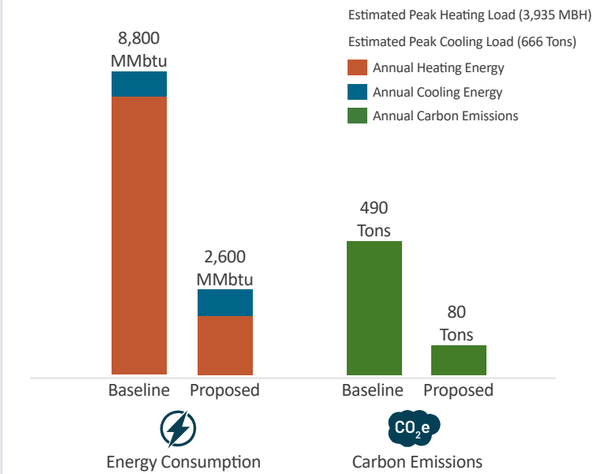
CONSIDERATIONS FOR EXISTING STACK HEAT RECOVERY

Based on the metered data it is unclear how much of the current LTHW loop's heat is provided by the heat recovery off the boiler stacks versus steam. The flue gas heat is recovered and considered "free" heat from an energy perspective, while the supplemental steam heat requires additional natural gas. We calculated savings based on zero free heat from the boilers, to show the maximum potential. The more "free" heat there is, the less benefit a ground source system will provide; assuming 30% of the load is served by the condex system the savings drop to ~$5,000/yr in energy cost and ~12 Kbtu/sf/yr in energy use.

FIRST COST CONSIDERATIONS

The economics of a ground source system improve when paired with more than one building. This option still only requires two total wells, but serves three times the square footage of case study-1.

ENERGY & CARBON ANALYSIS



RESULTS SUMMARY

The open loop ground source system reduces the heating energy by 80%. Additional energy benefit could be seen with the heat recovery modules of the heat recovery chillers depending on further analysis of the actual existing building load distribution for the next stage of this study.

SAVINGS FROM EXISTING BASELINE DESIGN

Htg EUI - 20/sf/yr

Utility Cost- $20,000/yr

Carbon Emissions - 400 Tons/yr (80 gas cars off the road)

Case Study - 3 | Existing Central Plant

DESIGN DESCRIPTION | Proposed Central Plant Diagram

NEW EQUIPMENT LIST

HEAT EXCHANGE CENTER
Size & Units - TBD

6-PIPE HEAT RECOVERY CHILLERS
Size & Units - TBD

16-GROUND WELLS
Pipe size & length - TBD

PUMPS
Heating/Chilled water distribution
Condenser Water Pumps
Well pumps

WELL CHARACTERISTICS

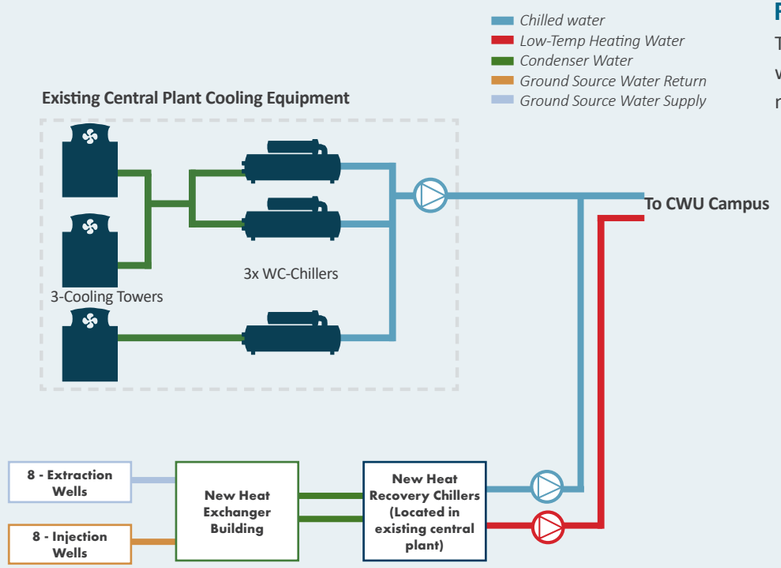
Target system capacity
3,320 tons

Ground water exchange flow
8,300 gpm

Spacing b/w extraction & injection well
700 ft

Total well depth
1000 ft

Average injection pressure
23PSI



PROPOSED GROUND WELLS & PIPING LOCATION

The diagram below shows the proposed extraction and injection well locations with piping length and the entry to the proposed mechanical room that hosts the new equipment.

SYSTEM DESIGN

This option is a full replacement of the steam system with a new central plant system that is based on open loop ground source. In reality, this will be a phased project, but we evaluated feasibility on a more simplistic large project level. The scope is not well developed as it is complex and spans over 4 million square feet of conditioned area.

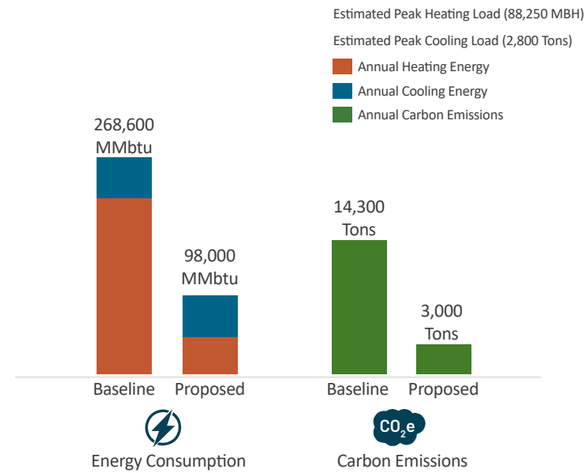
Hydro-geology has determined that 16 wells (8 injection and 8 extraction) will be able to meet the current peak demands of the campus. It may be prudent to downsize this, add thermal storage or other peaking capacity to reduce upfront cost. The scope below does not consider that. The most free open space that CWU owns is north of campus. Wells would be drilled at that location and piped to a heat exchange building that contains heat exchangers and condenser water distribution pumps.

Condenser water would be pumped from the heat exchange building north of campus to the central plant, so current piping and chilled water infrastructure can be utilized. This is a significant amount of large pipe (16,000 linear feet of ~28" pipe), with areas routing on non CWU owned property.

The current steam system will be demolished and replaced with a heat recovery system. Large heat pumps would provide low temperature hot water (it's possible to utilize large ammonia machines to generate hot water, possibly reducing the need for in building retrofits). New hot water piping across campus would need to be distributed to replace aging steam infrastructure. The current chilled water plant would be re-piped to utilize the new condenser water loop as a sink for heat, in addition to the current cooling towers. Current chilled water piping, pumping, and building level systems could all be re-used.

The existing chiller plant has a peak load of 2,800 tons, and includes redundancy. The current steam peak for heating is about 88 million Btu/h – this equates to around 7,500 "tons" of heating.

ENERGY & CARBON ANALYSIS



RESULTS SUMMARY

The open loop ground source system reduces the heating energy by 80%. Additional energy benefit could be seen with the heat recovery modules of the heat recovery chillers depending on further analysis of the actual existing building load distribution for the next stage of this study. This is a significant reduction in on-site carbon emissions only possible with a large steam conversion project.

SAVINGS FROM EXISTING BASELINE DESIGN

Htg EUI - 66/sf/yr

Utility Cost - $640,000/yr

CO2e - 11,200 Tons/yr
(2,195 gas cars off the road)

MEMORANDUM

Project No. 210270

June 10, 2022

To: Devon Powell and Tanvi Dhar, McKinstry Co.

From:

Andrew Austreng, LHG
Associate Hydrogeologist
aaustreng@aspectconsulting.com

Isabellah von Trapp, LG
Project Geologist
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Re: **Central Washington University Ground Source Heat Pump Hydrogeologic Evaluation**

This memo documents an initial hydrogeologic evaluation by Aspect Consulting, LLC (Aspect) of open-loop ground source heat pump (GSHP) wellfield alternatives for the Central Washington University (CWU) campus in Ellensburg, Washington (Site). The wellfield alternatives presented herein are based on three potential heat pump demand scenarios developed by McKinstry to represent a range of system sizes (i.e., supply to a single building, multiple buildings, or the entire campus).

The scope of this work was limited to a desktop hydrogeologic investigation of GSHP wellfield alternatives. A summary of findings is provided in the following section, with details of this work and future considerations provided throughout the remainder of this memo.

Summary of Findings

The following findings are supported by the existing aquifer characterization and modeling efforts described herein:

- The primary permitting requirements for construction and operation of the wellfield[1] include obtaining a new water right and registration of all injection (return) wells with the Department of Ecology's (Ecology) Underground Injection Control Program. No concerns were identified with obtaining either of these permits. Ecology guidance allows for priority processing of non-consumptive water right applications for GSHP systems.
    - The Site is underlain by a productive aquifer, often referred to as the upper Ellensburg Formation, which has potential to supply a high yield GSHP system. This aquifer system is expected to have 'shallow' (e.g., 300-600 feet) and 'deep' (e.g., 800-1,100 feet) production zones. The deeper production zone is expected to provide particularly

[1] City of Ellensburg building permit compliance would also be required for facility construction.

high water yields suitable for larger GSHP buildout scenarios (e.g., campus-wide), while the shallow system can likely supply a multi-building GSHP system, this is if aquifer conditions are similar to what has been encountered in the Site vicinity.

- Shallow and deep production zones of the Ellensburg Formation are confined by overlying impermeable silt/siltstone layers. These confining layers isolate the Site's productive aquifer system from nearby surface water, simplifying the permitting pathway and minimizing variability in water supply temperature. Both the deep and shallow production zones exhibit water temperatures that are considered ideal for efficient GSHP operation (i.e., 55 to 65 degrees F, depending on completion zone).
- Heating and cooling loads associated with multiple buildings (e.g., Scenario 2 described below) can likely be met by a single extraction and injection well pair completed within the shallow system (two wells total), but this will need to be confirmed as part of a future phase of work. Based on our analytical modeling (Section 4), the separation requirements between the extraction (supply) and injection (return) wells is less than 715 feet, allowing for flexibility in well placement and minimizing pipeline costs.
- Modeling suggests that a campus-wide GSHP wellfield (referred to as Scenario 3 below) would require eight paired extraction and injection wells (16 wells total) completed in the deep production zone to supply the entire heating and cooling loads.
- The costs for wellfield construction increase with well completion depth and well size (rough order-of-magnitude costs are presented in Section 5 of this memorandum). Therefore, to minimize the construction costs per ton of heating and cooling, multiple buildings should utilize a shared wellfield system, which could target the shallow completion zone. Depending on the size of the shared system and the actual geologic conditions encountered at the Site, completing fewer wells within the deep system may be necessary and cost-effective (compared to a greater number of shallow wells separated by a greater distance).

Overall, this study identified favorable conditions for a high capacity open-loop GSHP wellfield at the Site. Additional Site-specific information is needed to advance design, including well construction and pumping tests to verify aquifer yields and wellfield spacing and depth. A cost-effective solution for assessing hydrogeologic conditions and optimizing construction costs could involve drilling a deep boring (e.g., 800-1,100) that is either completed as an operational well or, depending on conditions identified, completed within the shallow production zone (e.g., 300-600 foot deep).

1 Project Background

In coordination with CWU, McKinstry identified open-loop GSHP as an alternative to supply heating and cooling to portions of the campus. At the Site, an open-loop GSHP system would pump groundwater from one or more supply wells, pass water through a heat exchanger, and return the water to the same groundwater system via a paired injection (return) well or wells.

Based on a preliminary hydrogeologic review in June 2021, Aspect found that hydrogeologic conditions on-Site may support a high yielding open-loop GSHP system but that uncertainties in associated wellfield requirements (depth, yield, and spacing) and costs exist for small to medium

scale (e.g., 1 building) systems. Given this analysis, McKinstry sought to consider wellfield requirements over a range of system sizes, as this Site is likely to benefit from the economy of scale under certain buildout scenarios.

McKinstry provided Aspect with three scenarios representing a range of system sizes and loading profiles to evaluate a range in open-loop GSHP wellfield requirements. The analysis aimed to determine the feasibility and relative cost of installing each demand scenario so CWU may be well informed about possibilities and limitations of a GSHP system ahead of investments. Each McKinstry-provided GSHP scenario is described below and shown conceptually on Figure 1 and includes the following facility sizes considered for supply:

- **Scenario 1:** A new building at the North Academic Complex (NAC). This option would support one building.
- **Scenario 2:** A three building cluster comprising the Health Sciences, Science II, and Samuelson Buildings.
- **Scenario 3:** The entire campus, centered around the Central Plant.

2 Permitting Considerations

Based on recent experience with similar projects and an initial desktop evaluation of hydrogeologic, geologic, and surrounding site conditions, Aspect conducted a preliminary permitting assessment to evaluate 1) permitting requirements, 2) the permitting process, and 3) the anticipated outcomes of permitting efforts. Further details related to applying for a water right and registration with Ecology's Underground Injection Control (UIC) program are described below.

2.1 Water Right Permitting

Open-loop GSHP systems require a water right under RCW 90.44.050. An open-loop GSHP system is a beneficial use of groundwater that meets the definition of "non-consumptive" use, as defined by Ecology policy POL-1020, as it will not diminish water availability, is water budget neutral, and meets the criterion for expedited review under Washington Administrative Code (WAC) 173-152-050(2)(c) and Ecology policy POL-2020. These policies would allow the Washington State Department of Ecology (Ecology) to issue a water right to CWU, even though it is within an area where new consumptive water rights cannot be obtained without mitigation.

The main consideration for water right processing of open-loop systems is temperature impact considerations, which Ecology would evaluate after a water right application is submitted. The indirect temperature effect on surface water bodies in hydraulic continuity with groundwater underlying the Site is regulated under WAC 173-201A, which does not allow thermal discharges to any temperature-impaired surface water body. The closest temperature regulated surface water to the Site is a reach of Wilson Creek (located about 1.3 miles southwest of Scenario 2 in Figure 1), which is listed as a Category 2 impaired water.[2] This allows Ecology more flexibility in issuing a water right in consideration of Wilson Creek temperature impacts.

[2] The Category 2 water is characterized as "having some evidence" for temperature impairment but "does not show persistent impairment" to categorize the water as impaired under the listing policy [Ecology 2022]).

While our hydrogeologic assessment (Section 3) indicates a hydraulic gradient that directs groundwater generally from the northwest to the southeast to the south (toward the impaired reach of Wilson Creek), the creek flows as perched water on top of impermeable silt/siltstone layers of the Ellensburg Formation, which vertically isolates the creek from any potential thermal impacts. Furthermore, our preliminary thermal modeling (Section 4) suggests that thermal impacts on groundwater from GSHP operation do not migrate far from the Site and would dissipate before reaching the impacted reach of Wilson Creek even if the perched condition did not occur. This fact pattern is expected to provide relatively straightforward permit approval.

Although not a typical water rights permitting consideration, no groundwater temperature impairment is expected to occur to other groundwater users, including the City of Ellensburg.

2.2 UIC Registration

All injection wells (e.g., "return" wells for open-loop GSHP systems) in Washington State must be registered with Ecology's Underground Injection Control (UIC) program. The UIC registration process is relatively simple and is typically initiated after well construction. If open-loop construction and implementation is advanced, any injection well will need to be registered in the State's program.

Registration involves an application process separate from the Water Right Permit. The UIC registration, among other criteria, requires the applicant to identify any nearby groundwater cleanup actions from public records if the HAC (heating and cooling) system is within one mile of surface water and uses 5,000 gallons per day or greater. The purpose of this requirement is to evaluate if an extraction or injection well could either "pull" or "push" a nearby groundwater contaminant plume into an extraction well or mobilize a contaminant plume through injection. Our preliminary review of active contaminated sites indicates that they are too distant from the campus and/or would be vertically isolated by several hundred feet of confining material to negatively impact UIC permitting.

3 Hydrogeologic Assessment

The details provided in the following sections document Aspect's desktop assessment of hydrogeologic conditions at the Site, with the overall findings incorporated into the preceding sections of this memo.

3.1 Geologic Setting

The Site is located within the Kittitas Valley, a geologically complex area that is structurally and topographically bound by the Taneum Monocline to the west, the Wenatchee Mountains to the north, the Naneum-Hog Ranch anticline to the east, and the Manastash Ridge to the south. Valley infill includes mid-Miocene aged Columbia River Basalts that are overlayed and interfingered with sedimentary units of the Ellensburg Formation. The Ellensburg Formation is typically blanketed by a thin layer (less than 50 feet) of Quaternary-aged alluvial sediments associated with deposition of the Yakima River (GeoEngineers, 1999).

3.2 Hydrogeologic Units

The Ellensburg Formation includes fluvial sand and gravel deposits, sandstone, and volcaniclastic sedimentary rocks that are up to thousands of feet thick near the center of Ellensburg (GeoEngineers, 1999). The formation is divided into the upper and lower Ellensburg Formations

(Owens, 1995). The lower is comprised of finer-grained, non-marine, clastic sediments that interfinger the Columbia River Basalts, while the upper is characterized by mudflow debris, much of which was reworked by streams with significant sand and gravel lenses.

The upper Ellensburg Formation contains multiple water-bearing zones that are heterogenous in texture (e.g., sand and gravel content) across the Ellensburg area. In many areas, it can be generally grouped into units corresponding to 'shallow' (e.g., 300-600 feet below ground surface [bgs]) and 'deep' (800-1,100 feet bgs) production zones. With the exception of its Ranney collector well completed in the shallow alluvial aquifer, all City of Ellensburg production wells are completed within the upper Ellensburg Formation, the aquifer central to this investigation. The generalized shallow and deep production zones within the upper Ellensburg are "confined" by overlying low-permeability sediments and are described in greater detail below.

- **Shallow Zone:** Wells completed within the shallow completion zone of the upper Ellensburg Formation are generally on the order of 300-600 feet deep. Aquifer material in this zone is generally composed of sand/sandstone and gravel/conglomerate interbedded with lenses of silt/siltstone. The City's Memorial Well (PW-3) is completed in this zone approximately 1,500 feet southeast of Scenario 2 shown in Figure 1. A safe yield of approximately 420 gallons per minute (gpm) was identified during well construction (Robinson & Noble, 1986).

- **Deep Zone:** The shallow and deep water-bearing zones have been identified in local well logs and past studies as being separated by an impermeable layer of silt/siltstone that ranges from 50 to 150 feet thick. Below this confining layer, several water-bearing zones exist comprising the 'deeper' completion zone of the upper Ellensburg Formation. Similar to the shallow zone, the deep completion zone is composed of sand/sandstone and gravel/conglomerate interbedded with lenses of silt/siltstone. Wells completed in this zone are generally 800-1,100 feet deep and include nine City water supply wells. The closest of these wells are the Kiwanis Well (located approximately 950 feet northwest of Scenario 3 shown in Figure 1, upgradient to the Site) and the Rodeo Well (located approximately 2,000 feet southeast of Scenario 2 shown in Figure 1). Robinson & Noble (1986) reported a safe yield of 1,000 gpm for the Kiwanis Well and 800 gpm for the Rodeo Well.

Groundwater contour maps created by GeoEngineers (1999) show groundwater in the shallow and deep completion zones, and show groundwater flow paralleling local Yakima River flow from the north/northwest to the south/southeast.

3.3 Aquifer Hydraulic Parameters

Well testing and hydrogeologic reports were reviewed to estimate hydraulic parameters for the shallow and deep completion zones of the upper Ellensburg Formation and are described in Table 1. A discussion on each parameter is included below the table.

Table 1. Hydraulic Parameters

Model Parameter	Shallow	Deep
Aquifer Transmissivity (ft^2/day)	2,000	3,000
Aquifer Storativity (unitless)	0.005	0.0004
Static Water Level (ft bgs)	18	50
Assumed Well Efficiency (%)	85	

3.3.1 Aquifer Transmissivity

- Aquifer transmissivity (T) is the ability of an aquifer to transmit groundwater throughout its entire saturated thickness. It is the product of hydraulic conductivity (soil permeability) multiplied by the saturated aquifer thickness (Transmissivity [T] = Hydraulic Conductivity [k] x Aquifer Thickness [b]). It can also be estimated through evaluation of pumping test data using conventional analytical techniques (e.g., Theis, 1935; Cooper and Jacob, 1946).

- Transmissivity was estimated through evaluation of existing pumping test analysis for the City. Robinson and Noble (1986) estimated an aquifer transmissivity value of 2,400 ft^2/day for the shallow production zone, based on analysis of pumping test data from the Memorial Well. For conservatism, the estimate was reduced by approximately 15 percent, and a value of **2,000 ft^2/day** was selected for modeling purposes.

- In the deeper production zone, Robinson and Noble (1986) reported transmissivity values ranging from 2,200-3,200 ft^2/day from analysis of pumping tests at the Mt. Stuart, Kiwanis, and Whitney wells, while Coho (2020) reported an aquifer transmissivity value of 4,000 ft^2/day based on analysis of the Illinois Well pumping test. We expect the large range in transmissivity estimates to be related to the number of water-bearing zones (e.g., saturated aquifer thickness depth) encountered by each well, which is related to the depth of the well. The Illinois Well, for example, is at least 100 feet deeper than the other three listed and appears to have encountered a greater number of water-bearing zones within the deeper production zone. For conservatism, a value of **3,000 ft^2/day** was selected for modeling purposes, but a well completed at least 1,100 feet deep at the Site could encounter a higher transmissivity.

3.3.2 Aquifer Storativity

- Aquifer storativity (S) is a unitless value, defined as the volume of water released from storage per unit surface area of the aquifer or aquitard per unit decline in hydraulic head for a confined aquifer. It can also be estimated through analysis of pumping test data if water level drawdown is measured in both a pumping and observation well.

- A storativity value of 0.005 was selected for the shallow production zone by averaging the values provided by GeoEngineers (1999). A value of 0.0004 was selected for the

deep production zone based on analysis by Coho (2020) of the Illinois Well pumping test data.

3.3.3 Static Water Level

- The static water level is expected to experience limited seasonal variation. Static water levels of 18 and 50 feet bgs were selected for the shallow and deep production zones, respectively, based on static water levels of City wells.

3.3.4 Well Efficiency

- Well efficiency accounts for the turbulent head losses in an injection or extraction well that includes effects from imperfect well completion (e.g., screen design/placement and well development). A well efficiency of 85 percent was assumed in the model, although in practice, thoroughly developed wells that are properly constructed in sands and gravels often exceed 90 percent efficiency at their designed flow rate.

4 Modeling

Open-loop GSHP potential of the Ellensburg aquifer (i.e., extraction and reinjection of groundwater) was analyzed by creating a hydraulic model[3] from estimated aquifer parameters. The analytical hydraulic model provides an evaluation of well drawdown and pressure buildup in extraction and injection wells, respectively. This part of the analysis provides an estimate of maximum wellfield yields under different well separation arrangements corresponding to Scenarios 1-3 at the Site. The results of the hydraulic model were then considered iteratively within a preliminary two-dimensional thermal model. The thermal model[4] considers the well spacing from the hydraulic model to determine if "thermal breakthrough" or if thermal conditioning would occur within the wellfield. Thermal breakthrough indicates that some fraction of heated or cooled groundwater from the injection wells has migrated to the extraction well (thermal breakthrough could reduce GSHP performance if the system isn't adjusted accordingly).

Hydraulic and thermal modeling were conducted within the Site footprint for each scenario to provide a preliminary estimate of total wellfield yield to supply a GSHP. Results of these analyses are described in greater detail in the following sections.

4.1 Hydraulic Modeling

Based on well yields and hydraulic parameters estimated from evaluation of hydrogeologic reports, well logs, cross-sections, and pumping tests, a hydraulic model was created to simulate changes in well water levels resulting from groundwater extraction and injection (water supply and return). The capacity of an open-loop wellfield is ultimately determined by:

- Availability of a sufficient water column in the extraction well during pumping (water column corresponds to the pump submergence below the water level in the aquifer, where the pump can typically be set only as low as the top of the well screen)
- Groundwater injection pressures (water level buildup) at the injection wells

[3] The hydraulic model is based on conventional analytical methods for a confined aquifer by Cooper-Jacob (1946).
[4] VS2DI Version 1.3, USGS (2018)

If the water level draws down too close to the pump in the extraction well, the risk for well pump cavitation increases (a pump submergence of 10 feet or more during pumping is typically targeted for safe operation). This can cause decreased pump performance and/or premature pump wear, so pumping rates are limited to those that maintain adequate pump submergence.

In confined aquifers, as is found at the Site, injection pressures (backpressure at the injection wellhead) in excess of 20 pounds per square inch (or more, depending on the size of installed pump) may be considered prohibitive due to added pumping lift and elevated pressure buildup in the aquifer. Pressures can be mitigated by dividing injection water among multiple injection wells or with the addition of a booster pump to overcome injection pressure buildup. To the extent practical, the system should be designed to avoid excess backpressures.

The Site's hydraulic model is based on conventional analytical methods by Cooper-Jacob (1946) simulating the effects from combined extraction and injection on the water level in the wells and aquifer. The model predicts water level drawdown in extraction wells and injection wells located a distance away from the pumping well. Drawdown in extraction wells is then offset by the return of groundwater through the injection wells, which has the opposite effect on the water level than pumping (i.e., water is replenished to the aquifer and water level rises). The available water column in extraction wells and injection pressures in the injection wells are ultimately determined by well spacing, extraction/injection rates, and aquifer parameters.

Aspect ran the model for an array of wellfield configurations to determine appropriate combinations of pumping rate, number of wells, and well spacing for each scenario outlined by McKinstry. Aspect based this model on the wellfield's ability to support the maximum flow rate identified for each option based on McKinstry's average loading profiles[5]. Along with loading profiles, McKinstry provided Aspect with site maps that delineated "drillable areas" for each option to assist with spacing and identify potential locations for future production wells. Hydraulic modeling results are summarized in Table 2. Modeled wellfield configurations are shown in Figures 2-4.

[5] McKinstry provided Aspect with daily load curves representing an average day across each month for Scenarios 1-3. The hydraulic model was built to accommodate the maximum hourly flow rate identified for each option. Scenarios 1, 2 and 3 correspond to maximum wellfield flowrates of approximately 250 gpm, 750 gpm, and 8,300 gpm, respectively.

Table 2. Hydraulic Model Results

	Scenario 1	Scenario 2	Scenario 3
No. of Extraction Wells **(No. of Injection Wells)**	1 **(1)**	1 **(1)**	8 **(8)**
Well Completion Zone	Shallow	Shallow	Deep
Well Spacing Between Extraction and Injection Well (ft)	670	715	700
Average Water Column in Extraction Well Above Pump (ft)[1]	200[2]	140[2]	240[3]
Average Injection Pressure (PSI)[4]	6[5]	30[5,6]	20[6,7]
Estimated Heating and Cooling Capacity (tons)[8]	100	300	3,320

Notes:
[1] The combined result of water level drawdown from extraction and water level buildup in the extraction well from injection.
[2] Assumes the pump is set at 350 feet bgs.
[3] Assumes the pump is set at 390 feet bgs based on the screened intervals in the Illinois Well.
[4] The combined result of water level drawdown in the injection well from extraction and pressure buildup in the injection well.
[5] Assumes a static water level of 18 ft bgs, based on the City's Memorial Park Well.
[6] This value could be mitigated by the addition of a second injection well to attenuate the pressure buildup throughout the aquifer or with the addition of a booster pump to overcome injection pressures.
[7] Assumes a static water level of 50 feet bgs.
[8] Assumes 2.5 gpm/ton. This value is dependent on the selected heat exchanger and other mechanical components and should be verified by a mechanical engineer.

Within the drillable areas of the Site footprint identified by McKinstry, one extraction well (paired with one injection well) was found to be the number of wells needed to achieve the target yield within the drillable footprint for Scenarios 1 and 2. Eight extraction wells (paired with 8 injection wells) were found to be the number of wells needed to achieve maximum wellfield yield within the drillable footprint for Scenario 3.

Due to the large flow rates needed to meet the loading profiles associated with Scenario 3, wells completed in the deeper production zone are expected. Aquifer transmissivity is likely greater in the deeper production zone, allowing the wells to be pumped at higher flow rates. Deeper wells also allow for more "available water column" which would also allow the wells to be pumped at higher rates.

Importantly, **the well spacing described in Table 2 does not represent the minimum well spacing required to accommodate the flow rates** associated with each scenario. Rather, spacing was based on placing wells in areas determined by McKinstry as "potential well locations." Actual well spacing and placement would be refined in a later design phase. Preliminary well spacing and mapped locations are intended to support planning level cost considerations and a conceptual system design.

4.2 Thermal Modeling

A numerical two-dimensional groundwater heat flow model was created in VS2DHI (Version 1.3) to simulate flow and heat energy transport associated with GSHP wellfield operation. Model inputs were based on McKinstry's anticipated energy modeling results for average monthly loading profiles, provided to Aspect in April 2022 for each scenario.

Thermal modeling considered average loading scenarios as presented in the following sections.

4.2.1 Model Assumptions

The model was designed to represent the monthly average system load profile across the year through the following assumptions:

- The daily load curve (flow rates) for each month was averaged over a 24-hour period and kept constant across the month (the model operates on a daily time step).
- Background groundwater temperature was kept constant throughout the year at 66 °F, based on the temperature of water encountered during testing of the City's Illinois Well.
- Injection (return water) temperatures are based on a 12°F ΔT when the system is in cooling mode (i.e., cooling the building/heating the ground; assumes a 78-degree reinjection temperature) and an 8°F ΔT when the system is in heating mode (i.e., heating the building/cooling the ground; assumes a reinjection temperature of 58 degrees).
- The model assumes the system is in heating mode from October through April and in cooling mode from May through September.
- All energy from reinjection wells is directly transferred to groundwater.[6]
- The model considered the same wellfield configuration depicted in Figures 2-4. Open-loop operation was simulated for three years based on the average loading profile for each option provided by McKinstry.

Modeling results are summarized and shown conceptually in Attachment 1. The model predicts no thermal breakthrough after three years of operation for Scenarios 1 and 2 and a minor to moderate degree of thermal breakthrough (e.g., ±6°F) after three years of operation for Scenario 3. The degree of thermal breakthrough could be lessened by increasing the spacing between injection and extraction wells, however, injection pressures would increase as a result. Thermal breakthrough or high injection pressures could be managed during the design phase through the selection of heat exchangers that can support a range of entering temperatures, additional injection wells, or addition of booster pumps to overcome head pressures.

4.3 Sensitivity Analysis

Sensitivity analyses of estimated hydraulic parameters were also completed to assess dependence of the thermal model results on estimated aquifer properties. Aquifer transmissivity and groundwater gradient were individually varied by plus or minus 25 percent from the initial input values and

[6] During actual system operation, some energy is lost to conveyance piping and well casing.

resulting changes in temperatures of extraction water were assessed. To observe the effects of sensitivity analysis, this assessment was only conducted for the Scenario 3 (deep production zone), because it was the only simulation to show any thermal breakthrough. The result of varying each parameter is described below.

Aquifer transmissivity. The transmissivity estimate used in the model (3,000 ft^2/) is a critical factor in determining aquifer productivity and is based on permeability, soil type, and aquifer thickness. The estimates are within the typical range for the upper Ellensburg Formation aquifer, but transmissivity can vary locally depending on the amount of silt, clay, and the saturated aquifer thickness, and is expected to show some variation across the Site. Transmissivity values 25 percent less and greater than the initial estimate were modeled to assess the effect on thermal impairment. This analysis showed no discernable impact on thermal breakthrough.

Groundwater flow gradient. The groundwater flow gradient influences the rate in which ambient groundwater can "wash away" a thermal plume when the system is not operating. The higher the gradient, the greater the aquifer's ability to recover from thermal impairment. This analysis also showed that altering the groundwater gradient had no discernable impact on thermal impairment.

Because the flow rates associated with Scenario 3 are so large relative to the Site footprint, altering the transmissivity and groundwater gradient by small margins did not have a discernable impact on thermal impairment. The model is most sensitive to flow rate in this case.

5 Cost Considerations

Aspect solicited bids from drillers between the Spring of 2021 and 2022 to assist with rough order of magnitude (ROM) well construction costs. These bids were reviewed and adjusted based on estimated well depths. Costs of wellfield construction[7] for Scenarios 1-3 were compared to anticipated system yields. This analysis is summarized in Table 3 and discussed below.

Table 3. Cost Comparison Summary

	Scenario 1	Scenario 2	Scenario 3
Well Depth	Shallow (assumed 500 ft bgs)		Deep (assumed 1,000 ft bgs)
Well Production Casing Depth (ft) / Diameter (inches)	300 / 10	300 / 14	400 / 16
Screen Length (ft) / Diameter (inches)	200 / 8	200 / 10	200[1] / 12
System Capacity, gpm **(tons)**	250 **(100)**	750 **(300)**	8,300 **(3,320)**
ROM Well and Pump Cost	$550,000	$800,000	$20 million
Approx. ROM Well Cost Per Ton	5,500	2,700	6,000

Notes: [1] Additional solid casing of the same diameter as the screen will be included in the screen assembly (the balance of the difference between, assumed to be 400 feet in length for the example shown). Does not include wellhouse.

[7] These estimates only consider the costs associated with well drilling and testing. The estimate does not include costs associated with trenching/piping, mechanical equipment, well appurtenances, or maintenance.

6 Summary and Recommendations

The hydrogeologic system anticipated at the Site is well-suited to support a high yield open-loop GSHP system. Aspect's analysis of the Site and surrounding geologic and hydrogeologic information indicates that the upper Ellensburg Formation aquifer is present beneath this Site with significant extent and could support a range of system sizes, including the entire campus.

Based on this desktop evaluation, a mid-range system supplying multiple campus buildings is expected to be high performing, permittable, and cost efficient. Site explorations are needed to advance design and can be tailored to also provide operational GSHP infrastructure (a "usable" well). Well construction and pumping tests should be considered to verify aquifer yields and wellfield spacing and depth. A cost-effective solution to assessing hydrogeologic conditions and optimizing construction costs could involve drilling a deep boring (e.g., 800-1,100) that is either completed as an operational well or, depending on conditions identified, completed within the shallow production zone (e.g., 300-600 foot deep).

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8 Limitations

Work for this project was performed for McKinstry (Client), and this memorandum was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

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Attachments: Figure 1 – Site Map
Figure 2 – Option 1
Figure 3 – Option 2
Figure 4 – Option 3
Attachment A – Thermal Modeling Results

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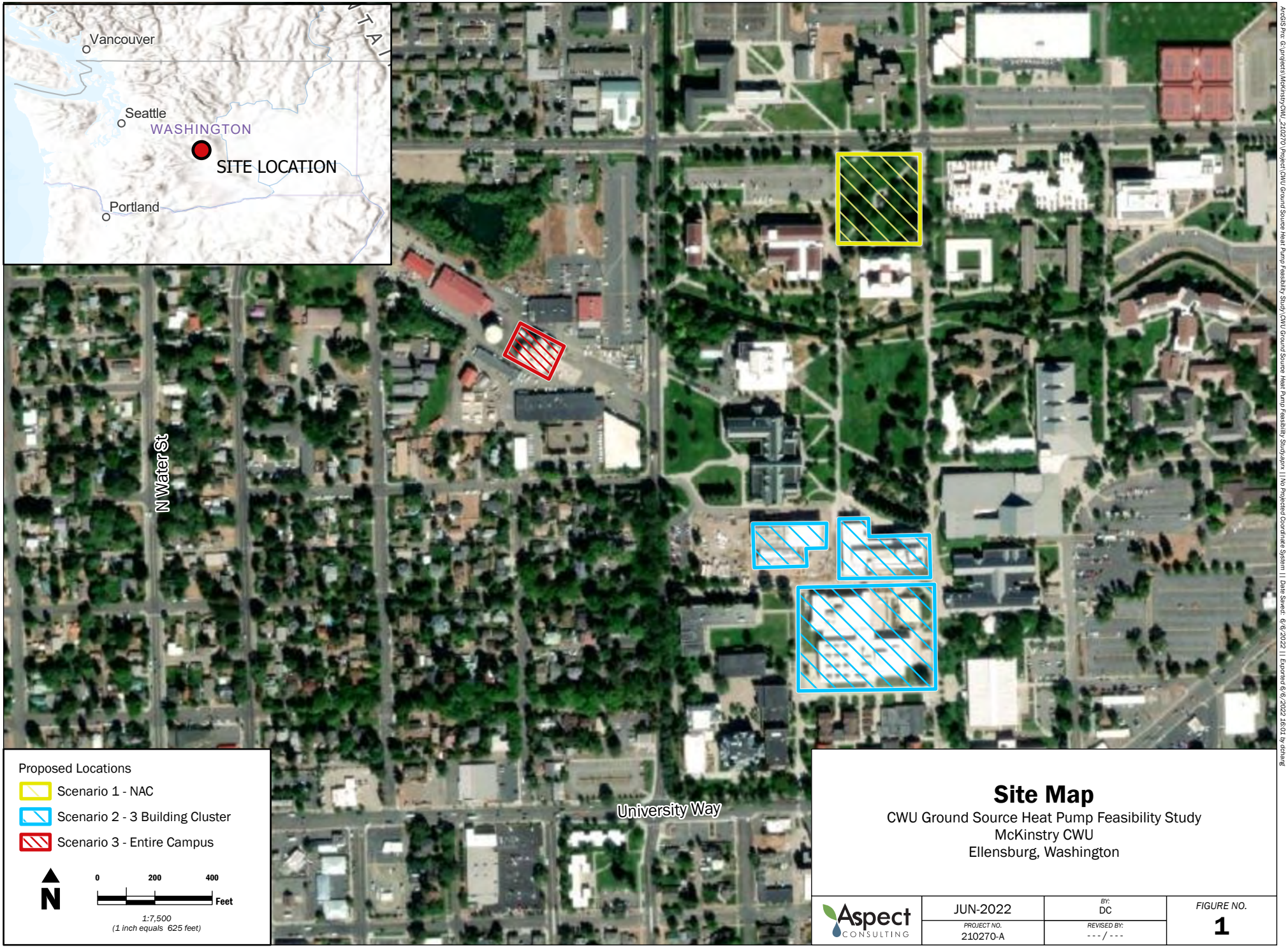
FIGURES

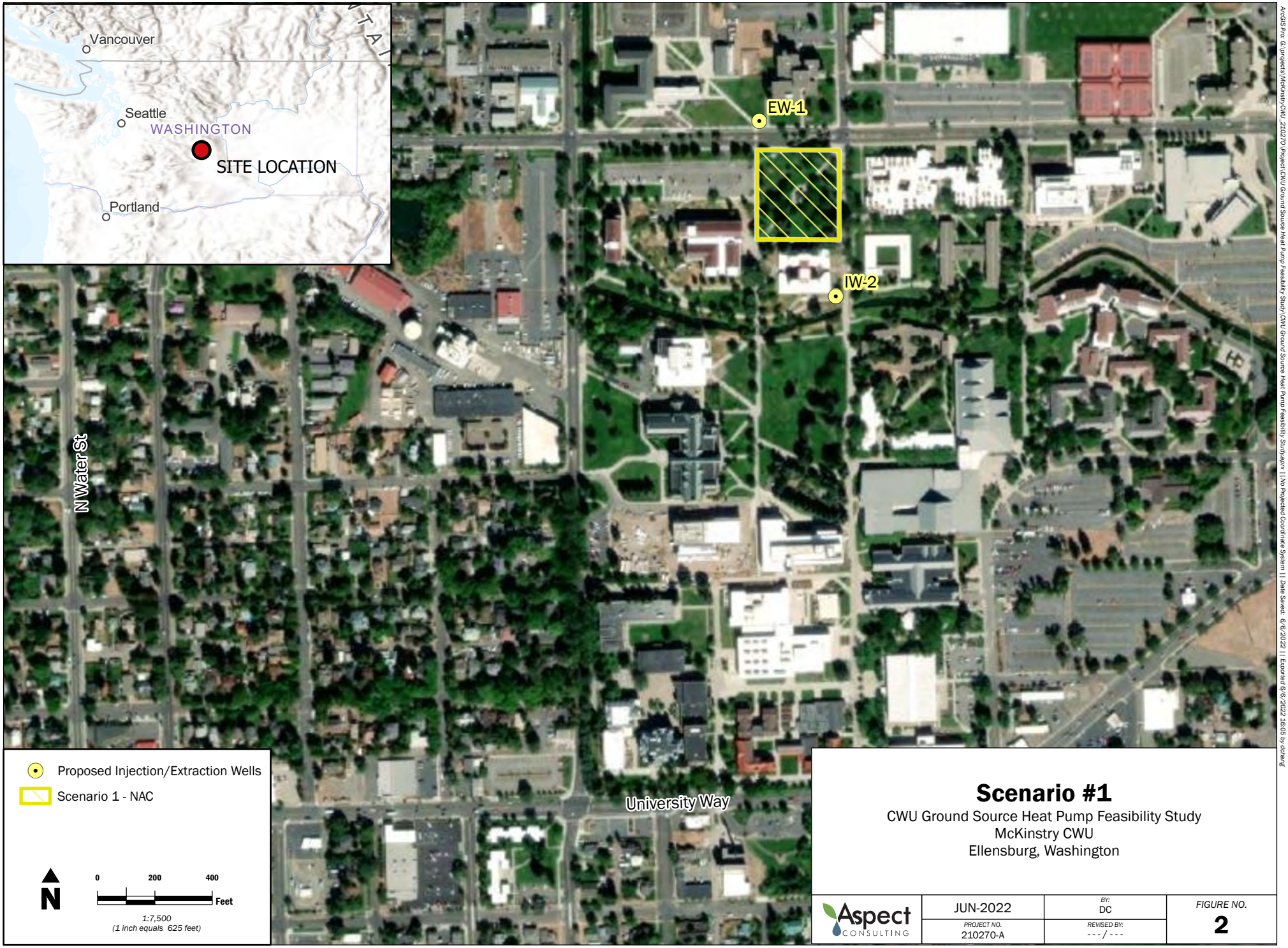


Site Map

CWU Ground Source Heat Pump Feasibility Study
McKinstry CWU
Ellensburg, Washington

Aspect Consulting	JUN-2022	BY: DC	FIGURE NO. 1
	PROJECT NO. 210270-A	REVISED BY: ---/---	

Data source credits: None || Basemap Service Layer Credits: Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, Esri, USGS, Maxar

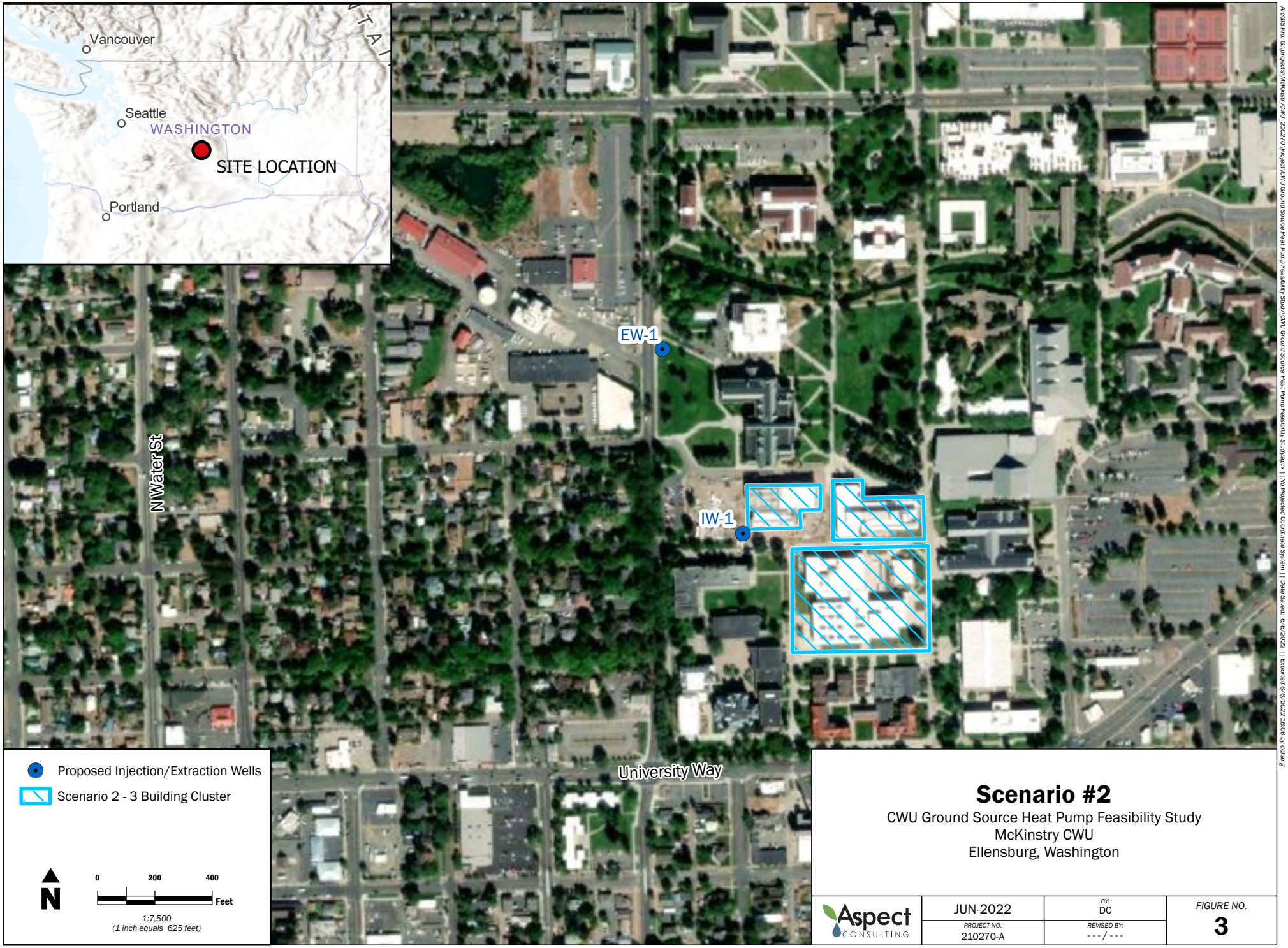


Scenario #1

CWU Ground Source Heat Pump Feasibility Study
McKinstry CWU
Ellensburg, Washington

Aspect CONSULTING	JUN-2022	BY: DC	FIGURE NO. 2
	PROJECT NO. 210270-A	REVISED BY: ---/---	

Data source credits: None || Basemap Service Layer Credits: Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, Esri, USGS, Maxar



Scenario #2

CWU Ground Source Heat Pump Feasibility Study
McKinstry CWU
Ellensburg, Washington

Aspect Consulting	JUN-2022	BY: DC	FIGURE NO. 3
	PROJECT NO. 210270-A	REVISED BY: ---/---	

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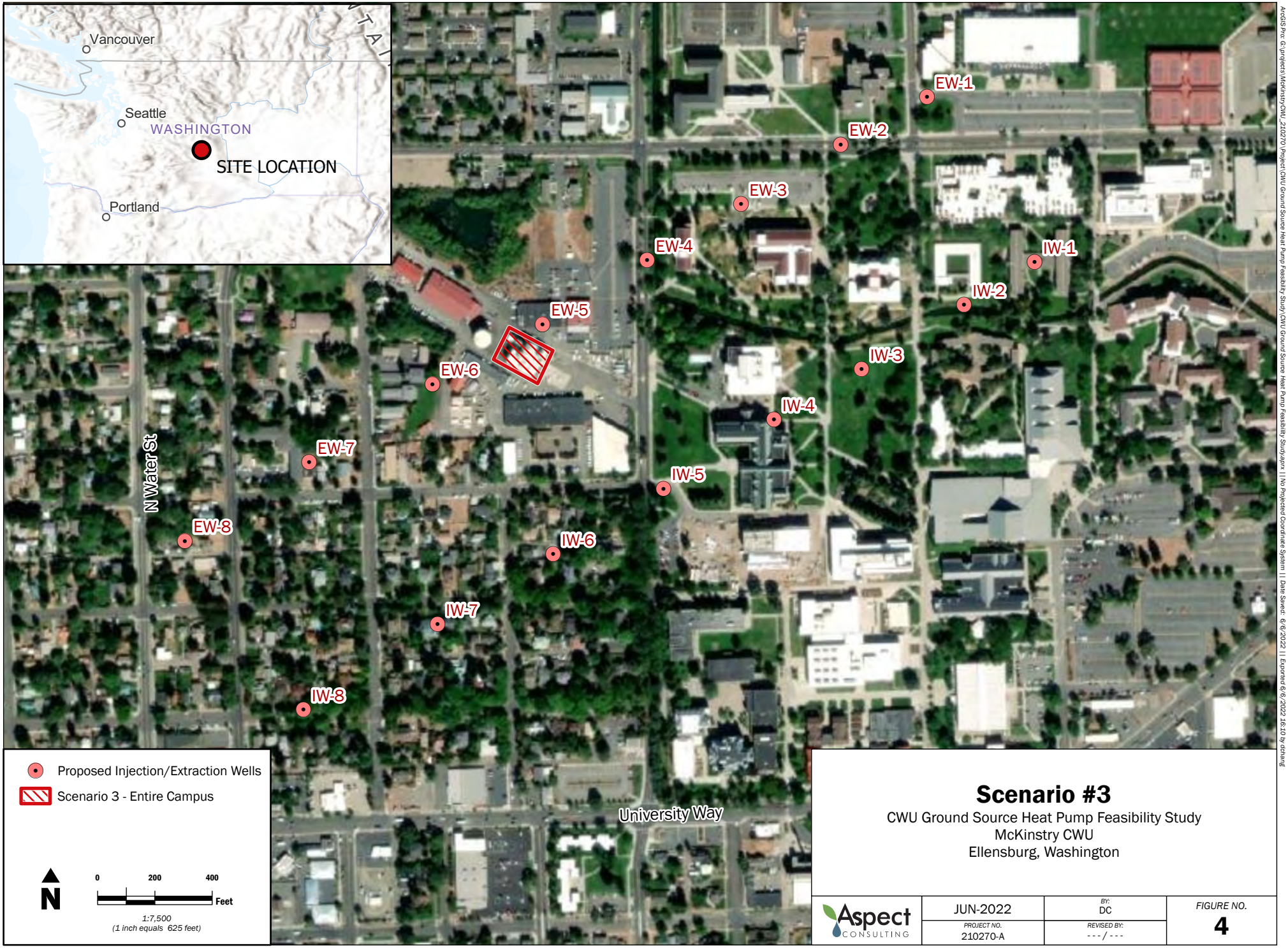

Scenario #3

CWU Ground Source Heat Pump Feasibility Study
McKinstry CWU
Ellensburg, Washington

Aspect CONSULTING	JUN-2022	BY: DC	FIGURE NO. 4
	PROJECT NO. 210270-A	REVISED BY: ---/---	

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ATTACHMENT A

Thermal Modeling Results

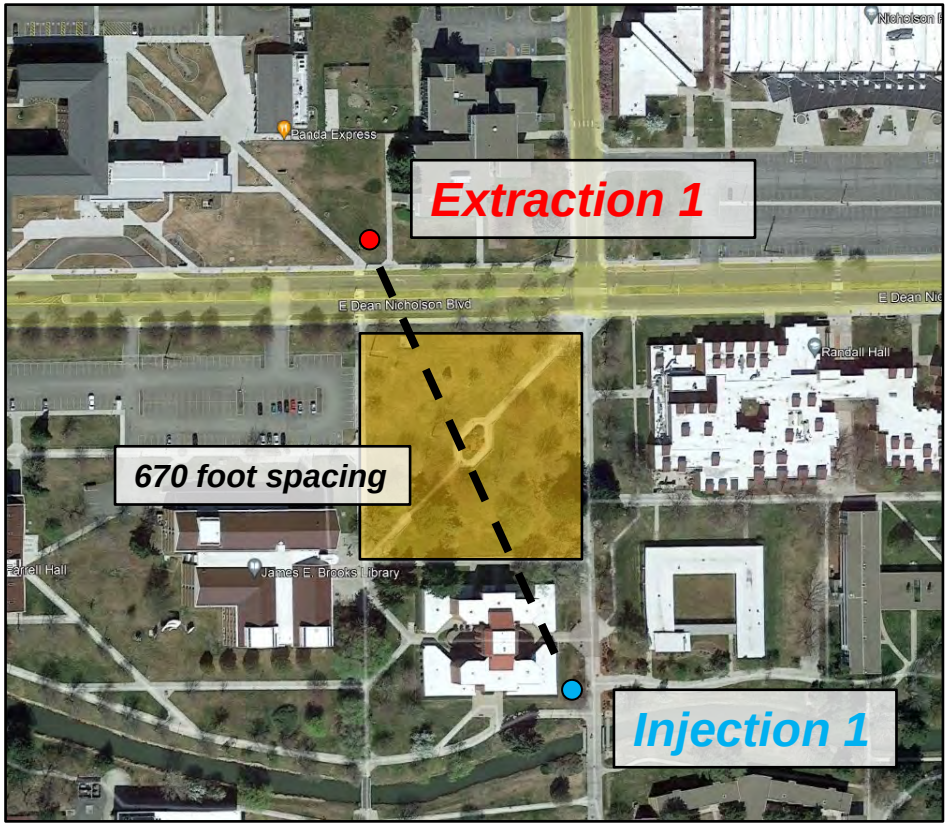
Attachment A

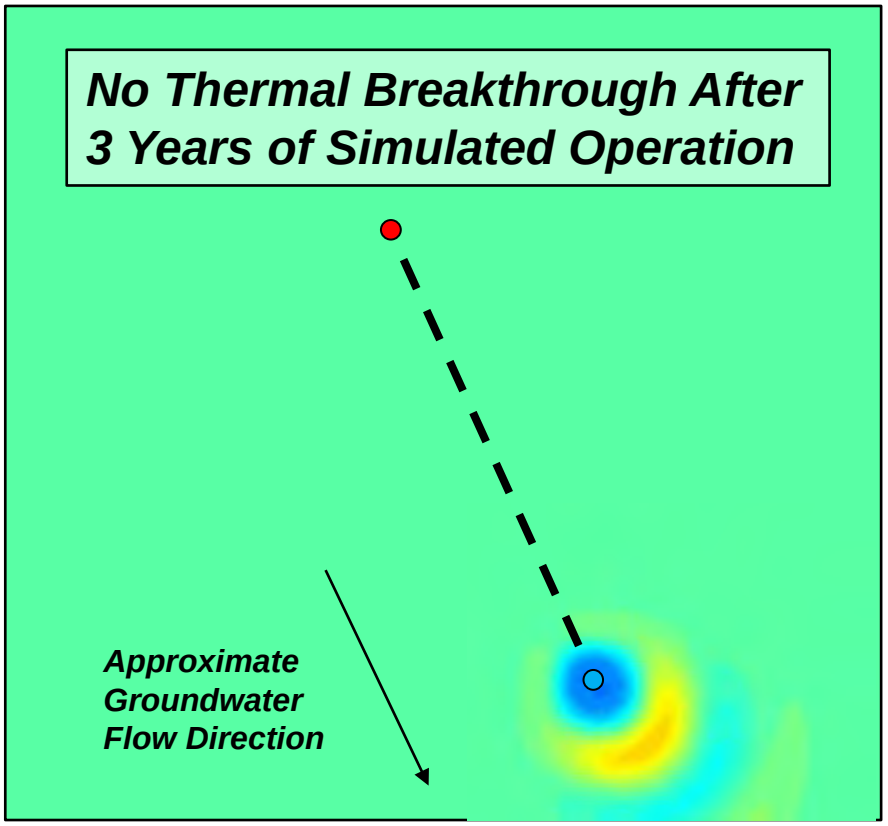
Project No. 210270, Ellensburg, Washington

Year	Month	Avg. Extraction Well Temp (degrees F)		
		Option 1	*Option 2*	*Option 3* [1]
1	January	66	66	66
	February	66	66	66
	March	66	66	65
	April	66	66	64
	May	66	66	63
	June	66	66	62
	July	66	66	62
	August	66	66	63
	September	66	66	66
	October	66	66	69
	November	66	66	72
	December	66	66	69
2	January	66	66	64
	February	66	66	62
	March	66	66	62
	April	66	66	62
	May	66	66	62
	June	66	66	61
	July	66	66	62
	August	66	66	63
	September	66	66	65
	October	66	66	69
	November	66	66	72
	December	66	66	69
3	January	66	66	64
	February	66	66	62
	March	66	66	62
	April	66	66	62
	May	66	66	62
	June	66	66	61
	July	66	66	62
	August	66	66	63
	September	66	66	65
	October	66	66	69
	November	66	66	71
	December	66	66	69

Note: [1] Temperatures were averaged across the 8 extraction wells for each time step. Extraction wells in the center generally experience a greater degree of thermal impairment as the capture zone for those wells pulls less ambient (66°F) groundwater than those on the edges.

Option 1: NAC





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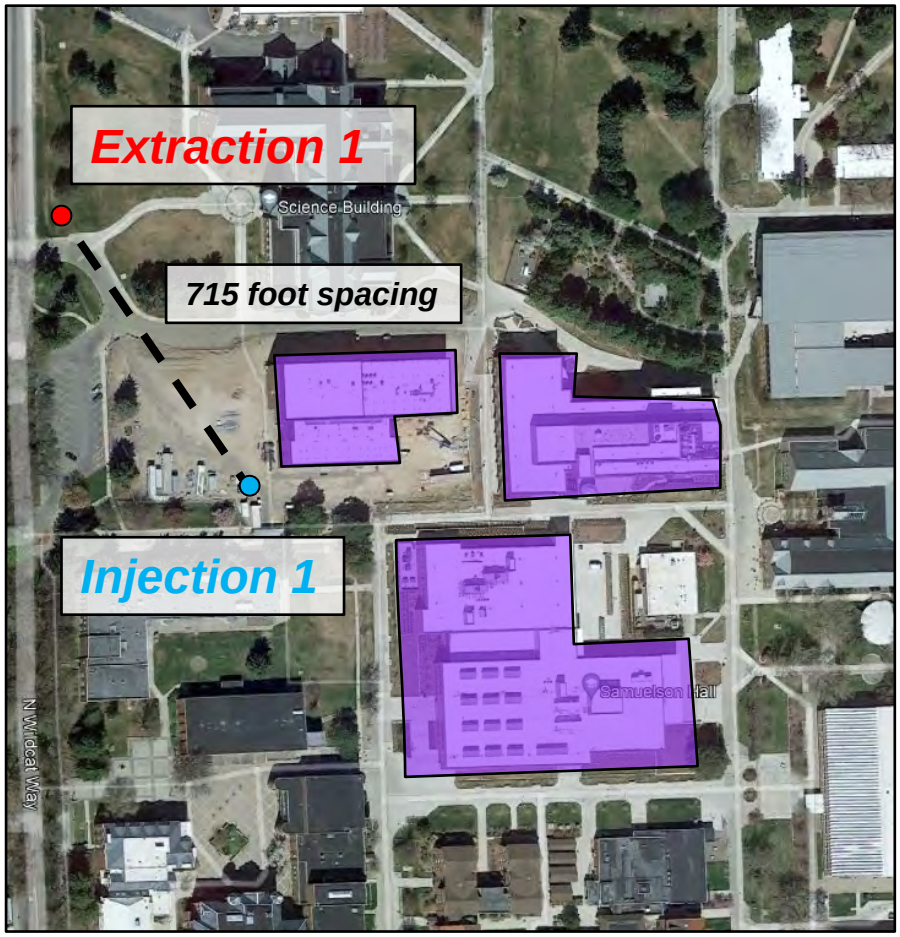
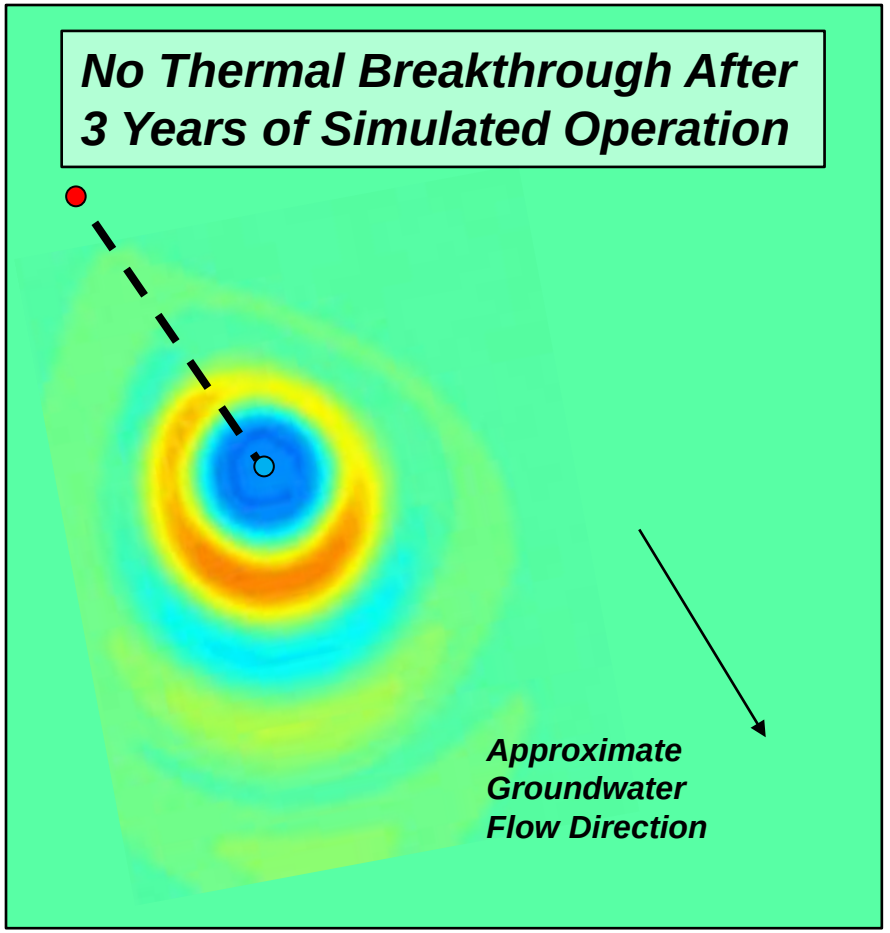
Option 2: 3 Building Cluster

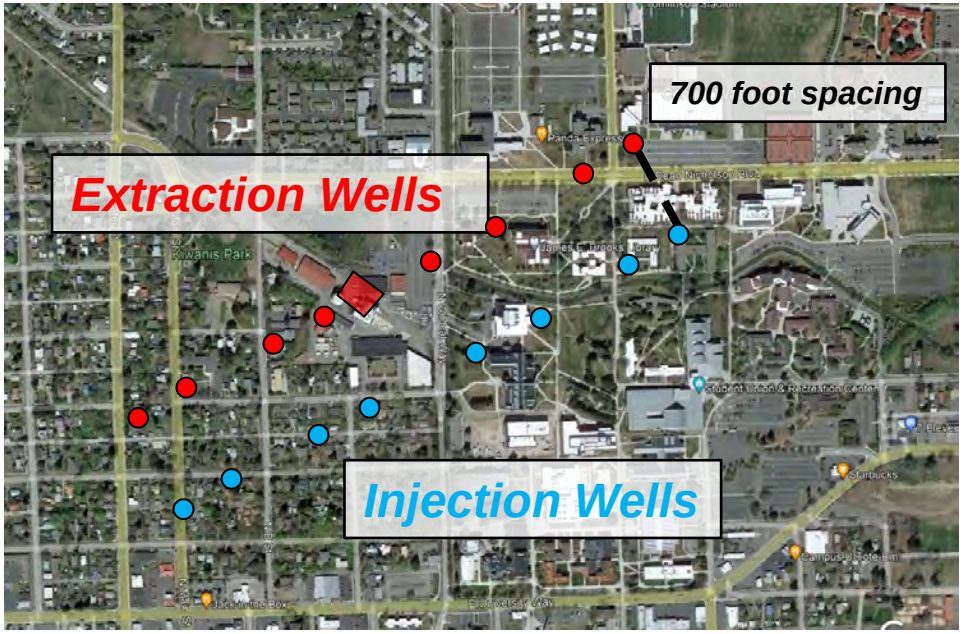




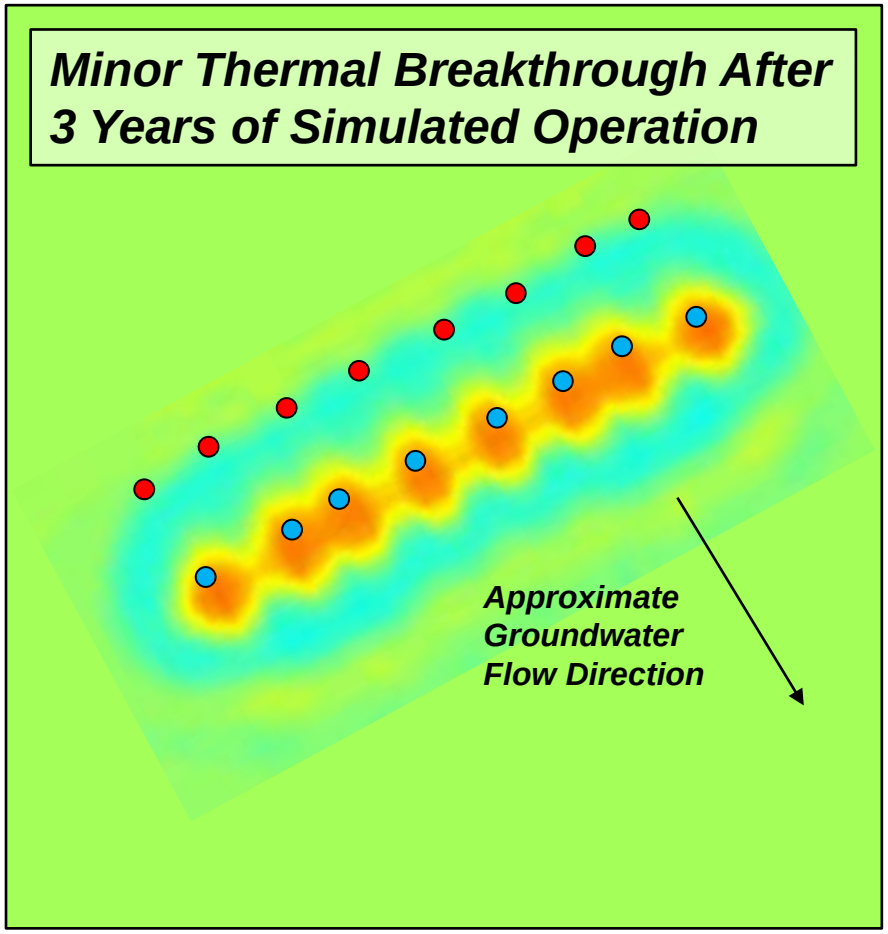
N

55° F 80° F

Option 3: Entire Campus



NOTE: *Due to scale, wellfield design does not consider current or planned buildings or utilities. Design was developed with regard to well spacing and groundwater flow direction.*



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