2022 PROJECT PROPOSAL CHECKLIST

2023-25 Biennium Four-year Higher Education Scoring Process

INSTITUTION	CAMPUS LOCATION
360 - University of Washington	Seattle Campus
PROJECT TITLE	OFM/CBS Project #
Chemical Sciences Building	40000099
PROJECT CATEGORY	FPMT UNIQUE FACILITY ID # (OR NA)
Replacement - Major	NA
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
John Wetzel	206-616-5924

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. The University will begin a predesign in Fall of 2022 (with local funds) with completion scheduled for Q2/Q3 2023.
- ☐ 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.

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

Required appendices

☒ Project cost estimate: Excel C-100 & Reasonableness of Cost Template **APPENDIX A**

☒ 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). **APPENDIX B**

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

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

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: See list below:

Appendix E 2019 Seattle Campus Master Plan (Site C17 Information)
Appendix F ISES Facility Condition Assessment for Chemistry Library (summary)
Appendix G Seattle Campus ERAC Report for Chemistry Library

2022 PROJECT PROPOSAL CHECKLIST

2023-25 Biennium Four-year Higher Education Scoring Process

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: John Wetzel Title: Director – Capital Budget

Signature:  Date: August 15, 2022

INSTITUTION	CAMPUS
University of Washington	Seattle Campus
PROJECT TITLE	
Chemical Sciences Building	

SUMMARY NARRATIVE

- Problem statement (short description of the project – the needs and the benefits)

Chemistry research is at a critical point due to the antiquated facilities in which the program is housed that no longer meet the requirements of modern science and significantly constrain the type of science allowed. Issues such as temperature and humidity control (instability), major equipment system failure, and the lack of dedicated chemical storage and safe transport pathways create hazardous conditions for faculty and students. Additionally, minimal student collaboration areas, small lab configurations, and dispersed locations where research is conducted limits opportunities for interdepartmental collaboration that drives creativity and innovation.

The construction of a replacement Chemical Sciences Building (CSB) will enable a new mode of science where curiosity-driven chemical research can transform into real-world applications in real-time. This project is envisioned as part of a larger, multi-phased plan for the replacement and renovation of existing facilities in support of fully integrating faculty members from the Chemistry, Materials Science, and Chemical Engineering departments to provide unique opportunities for education and discovery. The proposed location of the CSB adjacent to the Chemistry Building, Bagley Hall, MolES, and NanoES will create a chemical science cluster of excellence and interdisciplinary research.

The Chemical Sciences Building will be primarily a research facility housing all the Chemistry research labs currently located in Bagley Hall and Chemistry Library. The project is envisioned as a 150,000 GSF highly specialized research building with an anticipated project cost of $240M. The proposed location is identified as site C17 in the UW 2019 Seattle Campus Master Plan. The project will include the demolition of the Chemistry Library building, a low-density facility totaling 39,363 GSF. The construction of the CSB will enable the University to vacate portions of Bagley Hall, enabling the full or partial future renovation of Bagley while ensuring continuity of program operations.

- History of the project or facility

The top R1 Chemistry and Chemical Engineering departments in the world have tightly integrated research and teaching programs where new discoveries in basic chemical sciences translate into real-world solutions via engineering applications. The UW has two world-class departments in Chemistry and Chemical Engineering with vibrant research programs in basic and applied chemical sciences and engineering. Despite the broad overlap of common areas of excellence in research and pedagogy, our departments have yet to capitalize on our synergies. Our departments are currently housed in multiple physically separated, aging, and high-risk facilities

(including Bagley Hall, Benson Hall, and the Chemistry Library Building), which lack available and appropriate space needed to build on our areas of common interests and develop bold new research and education initiatives.

Project Goals:

1. ***Student/Faculty Growth and Retention**: Increase degree production through recruitment of graduate students resulting in an expansion of class offerings.*
2. ***Interdisciplinary Colocation**: Increase grant funding and new interdisciplinary discovery through a more creative and efficient colocated environment.*
3. ***Modernization/Optimization**: Optimize space by 15% through the implementation of efficiencies, modernization, and economies of scale.*
4. ***Synergy/Interdependence Between Research & Classroom**: Capitalize on synergy and interdependence between research and the classroom by creating an environment that drives innovation and research that feeds what is taught in the classroom.*
5. ***Industry Partnerships**: Grow and strengthen relationships with industry partners and subsequently create opportunities for more funding through collaboration opportunities.*

Bagley Hall, a 223,700 GSF facility built in 1937, is overwhelmed with HVAC system deficiencies and program constraints. By relocating critical chemistry research out of antiquated research space in Bagley Hall into a modern research facility, which will be far superior to the current research space, it enables a significant portion of Bagley to be repurposed for other uses such as classrooms, class labs, and office space. This, in turn, will reduce the challenging research-related HVAC demands and will contribute to a reduction in annual corrective maintenance and utility expenses associated with aging equipment and assets.

The Chemistry Library, a 39,363 GSF facility built in 1957, is overwhelmed with program constraints and occupies a development site that can accommodate over double the program capacity. By replacing the facility with the CSB, it will remove over $16M of renewal needs, equating to almost 50% of the current replacement value of the facility.

- University programs addressed or encompassed by the project

Chemistry is a core program for students in STEM fields and is the #1 grant revenue source for the College of Arts & Sciences. The new facility will enable the college to attract and retain world-class faculty and graduate students that in return, will increase the offering of quality educational opportunities for undergraduate students.

The proposed Chemical Sciences Building will build on existing common areas of research excellence. The discovery and application of advanced materials for clean energy applications is one of the most prominent examples of successful collaborations between our units. Faculty from both departments are heavily involved in the UW Molecular Engineering and Sciences Institute, the joint UW/PNNL materials institute (NW IMPACT), a newly funded DOE Energy Frontier Research Center, the NSF Materials Research Science and Engineering Center, and the Washington Clean Energy Institute. These efforts have also naturally supported growing initiatives in the materials science aspects of UW QuantumX and new quantum information technologies.

Beyond these well-known areas, other established and emerging areas of collaboration between Chemistry and Chemical Engineering include synthetic biology, basic and applied polymer science and engineering, applications of machine learning and AI across a spectrum of computational molecular science and engineering activities, and chemical catalysis and reaction engineering. More thorough integration of these joint research activities would enhance the ability of both units to attract and retain world-class faculty, conduct impactful long-term research projects, attract more interdisciplinary research funding, increase the number of joint appointees across both units and grow our capacity to collaborate with PNNL in a more integrative fashion.

The proposed Chemical Sciences Building and subsequent replacement of the Chemistry Library will provide unique educational opportunities for undergraduate and graduate students at the University of Washington. Future replacement or renovation of Benson Hall and the renovation of Bagley Hall will further build on this initiative. Like research, our units already have nascent examples of exciting collaborative teaching outcomes. ChemE (chemical engineering) and Chemistry faculty are successfully leading a 5-year, $3M National Science Foundation effort to develop a sustainable and cohesive graduate curriculum at the nexus of data science and chemical sciences and engineering. Moreover, our faculty have sought ways to expand traditional chemistry course offerings at the undergraduate level with a more applied/chemical engineering focus (e.g., "quantum mechanics for chemical engineers"). Unfortunately, our units have not had the opportunity or cause to more cohesively co-develop these course offerings, leaving missed opportunities. One example is expansion of course offerings into both departments and gaining operational efficiencies that come with developing labs and classes that are more tightly integrated. Shared physical spaces will significantly enhance our ability to build on these promising starting points.

OVERARCHING SCORING CRITERIA

1. Integral to achieving statewide policy goals

Provide degree targets, and describe how the project promotes improvement on 2020-21 degree production totals in the OFM Statewide Public Four-Year Dashboard. Include the degree totals and target template in an appendix.

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

DEGREES	SUMMER 2020	AUTUMN 2020	WINTER 2021	SPRING 2021	2020-2021 TOTAL
BA BIOCHM	22	4	19	61	**106**
BA CHEM	6	2	2	10	**20**
BS BIOCHM	17	11	27	120	**175**
BS CHEM	4	8	9	25	**46**
BS CHEM-ACS	1	1	0	4	**6**
TOTAL	**50**	**26**	**57**	**220**	**353**

Undergraduate degrees are not anticipated to change for the close of the 2023 academic year due to the limited capacity of facilities.

The department's curricular role on campus, however, goes much farther than Chemistry majors. Chemistry courses are required for students in many STEM and health sciences fields. All engineering students admitted directly to UW require at least one chemistry course (in most cases, CHEM 142 - General Chemistry) for placement into an engineering major. All students applying to the UW School of Medicine (i.e., to become an MD) require two years of lab-based Chemistry/Biochemistry. Other health sciences programs typically require at least one year of Chemistry.

The demand from across campus is reflected in enrollment in introductory courses. The core introductory chemistry sequence alone (CHEM 142/152/162) serves as a prerequisite for 57 other UW Seattle STEM courses (in addition to courses at UW Bothell and UW Tacoma).

The department enrolled more than 6,000 students in first-year courses (primarily 142/152/162) in 2021-22 (excluding summer quarter). Only a few hundred of those are Chemistry or Biochemistry majors. Maintaining capacity in Chemistry courses is essential not only for Chemistry students but for thousands of students across the campus.

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.

Data for 2020-2021 is not currently available on the Statewide Public Four-Year Dashboard. However, the total number of bachelor's degrees awarded in high-demand fields at the close of the 2019-2020 academic year was 5,379. The target for 2023 is 6,059.

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

Data for 2020-2021 is not currently available on the Statewide Public Four-Year Dashboard. However, the total number of advanced degrees awarded at the close of the 2019-2020 academic year was 6,310 of that amount 3,381 were in high-demand areas. The target for 2023 is 6,761.

Advanced degrees specific to Chemistry at the close of the 2020-21 academic year are as follows:

PhD	39
MS (Chemistry, terminal, reflects students who left the PhD program)	13
MSACST (new fee-based program)	12
TOTAL	64

Graduate degrees awarded in 2023 are anticipated to increase to a total of 87.

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 University of Washington 2019 Campus Master Plan (CMP) is shaped by the strategic goals and the academic, research, and service missions of the University, all of which guide the physical development of the campus. The University's growth allowance in the CMP is 6.0 million net new gross square feet accommodated on 86 potential development sites. This was based on the projected enrollment growth of 11% over the 2018 to 2028 period.

The CMP creates a framework designed to enable the UW's continued evolution as a 21st century public higher education research and service institution. The CMP is founded on five guiding principles, the most significant relative to this project is Guiding Principle #2: Learning-Based Academic and Research Partnerships. Embracing new modes of teaching and learning to create a flexible and dynamic framework that accommodates the need for growth in student enrollment and research demands complements the existing lexicon of higher education spaces with new settings for collaboration and multiple opportunities for innovative learning that extend beyond the classroom.

The proposed location for the Chemical Sciences is site C17 within Central Campus. Site C17 and C16 are adjacent to one another and collectively represent 295,000 GSF of potential development and 179,366 GSF net new development. The Chemical Sciences Building is envisioned as the first of two buildings that will occupy these sites, supporting the hub of learning activity and knowledge sharing that is core to the Central Campus.

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

The University of Washington 2019 Campus Master Plan (CMP) accomplishes two objectives. It establishes a bold, long-term vision and guides the development that shall occur over its planning horizon as required by the City-University Agreement.

The CMP is the primary regulatory vehicle for the University's future development, defining both the square footage to be constructed and the geographic location of such developments. It includes specific strategies and recommendations for each of the four campus sectors: Central Campus, West Campus, South Campus, and East Campus. Big moves in each sector reinforce both the guiding principles as well as the long-term vision for each campus sector, and address the public realm, connectivity, and built environment.

The CMP does not lay out a sequential implementation plan, rather, it creates a lasting and flexible planning framework to guide development in the absence of a definitive future, allowing the University to respond to changing conditions, new pedagogies, evolving technology, and increasingly scarce resources in a flexible manner.

3. Integral to institution's academic programs plan

Describe the proposed project's relationship and relative importance to the institution's most recent academic programs plan. Must the project be initiated soon in order to:

A. Meet academic certification requirements?

Not applicable.

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

The University is constrained in its ability to train students in state-of-the-art, cutting-edge lab techniques due to the lack of interdisciplinary teaching and research lab space. We do not have spaces that reflect the specialized needs to offer hands-on laboratory classes in quantum materials, machine learning, and data science. Chemistry computational problems will be a test case for quantum computing algorithms. Chemists are making quantum materials for quantum information science and next generation energy applications. These are areas where basic chemical sciences will play a key role in developing the workforce in high demand for Washington State.

Colocation of faculty will maximize efficiency and creativity, resulting in new discoveries and increased grant funding which in turn, provides greater quality educational programs and teaches students marketable skills. The construction of the Chemical Sciences Building will unleash the exponential potential to build upon the department excellence that has been operating out of substandard environments, allowing them to evolve in their ranking to be competitive with top-rated peer institutions through successful recruitment and retention of faculty and students. Without this, the University risks lower current standings and the inability to sustain the demand for chemical sciences education in high-demand fields.

C. Permit initiation of new programs?

The University would like to offer new minors/concentrations in chemical data sciences and chemical quantum information science. These will require us to have appropriate teaching and laboratory spaces that we can only create with a replacement building.

GENERAL CATEGORY SCORING CRITERIA

1. Age of building since last major remodel

Identify the number of years since the last substantial renovation of the facility or portion proposed for renovation. If only one portion of a building is to be remodeled, provide the age of that portion only. If the project involves multiple wings of a building that were constructed or renovated at different times, calculate and provide a weighted average facility age, based upon the gross square feet and age of each wing.

The Chemistry Library was constructed in 1957 and has never had a substantial renovation.

2. Condition of building

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

The Chemistry Library facility condition rating is 3. The recently completed ISES Facility Condition Assessment commissioned by the University calculated the Chemistry Library Facility Condition Needs Index (FCNI) at 0.47: Below average condition (major renovation required). The structural assessment performed in 2019 rates the facility as a Priority 2 high demand with a damage index of 262 (high damage potential) and a life safety index of 28 (moderate life safety).

3. Significant health, safety, and code issues

It is understood that all projects that obtain a building permit will have to comply with current building codes. Identify whether the project is needed to bring the facility within current life safety (including seismic and ADA) or energy code requirements. Clearly identify the applicable standard or code, and describe how the project will improve consistency with it. Provide selected supporting documentation in appendix, and reference them in the body of the proposal.

The project is proposing to replace the existing Chemistry Library Building with a new facility. The new facility will meet all building code requirements.

4. Reasonableness of cost

Provide as much detailed cost information as possible, including baseline comparison of costs per square foot (SF) with the cost data provided in Chapter 5 of the scoring process instructions and a completed OFM C-100 form. Also, describe the construction methodology that will be used for the proposed project. If applicable, provide Life Cycle Cost Analysis results demonstrating significant projected savings for selected system alternates (Uniformat Level II) over 50 years, in terms of net present savings.

A C-100 form is included in the appendix and is based on benchmark projects at the University of Washington including the Life Sciences Building, MolES, and NanoES. The project is intended to be delivered using the Progressive Design Build model. A Life-Cycle Cost Analysis has not been generated at this time but will be included as part of the Predesign anticipated to be completed in Q2/Q3 2023.

5. Availability of space/utilization on campus

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

A. The utilization of classroom space

The University completed a Classroom Renewal Study in March 2021 which prioritized renovation and updates for the over 300 general-use classrooms on the Seattle campus. These updates take into consideration the modern academic challenges, student collaboration, and faculty/student interaction to maximize efficiency and where possible, engage in hybrid learning to maximize capacity.

This project is not proposing to construct new classrooms but will enable space in other facilities (Bagley Hall, primarily) on campus to be vacated. The spaces vacated are more suitable to be renovated as general or specialized purpose classrooms and teaching labs which will accommodate greater class sizes in modern facilities that support the curriculum.

B. The utilization of class laboratory space

As stated above, the spaces vacated by the construction of this project will enable them to be renovated into class laboratories with greater capacity.

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.

The University will begin the Predesign study for this project in the fall of 2022 with anticipated completion in Q2/Q3 2023. While the new facility is intended to support research labs in an effort to vacate and renovate labs elsewhere into teaching spaces, the full program is still to be determined. However, all new spaces will conform with FEPG assignable square feet standards.

B. Identify the following on C-100 form:
   1. Usable square feet (USF) in the proposed facility – *112,500 USF*
   2. Gross square feet (GSF) – *150,000 GSF*
   3. Building efficiency (USF divided GSF) – *75%*

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.

The purpose of the Chemical Sciences building is to support the broad overlap of common areas of excellence in research and pedagogy, enabling multiple departments to capitalize on these synergies. Departments are currently housed in several physically separated, aging, and high-risk facilities (including Bagley Hall, Benson Hall, and the Chemistry Library Building), which lack available and appropriate space needed to build on their areas of common interests and develop bold new research and education initiatives.

The Project Goals as identified below will support modern educational standards by creating facilities that reflect modern-day needs and configurations.

1. ***Student/Faculty Growth and Retention**: Increase degree production through recruitment of graduate students resulting in an expansion of class offerings.*
2. ***Interdisciplinary Colocation**: Increase grant funding and new interdisciplinary discovery through a more creative and efficient colocated environment.*
3. ***Modernization/Optimization**: Optimize space by 15% through the implementation of efficiencies, modernization, and economies of scale.*
4. ***Synergy/Interdependence Between Research & Classroom**: Capitalize on synergy and interdependence between research and the classroom by creating an environment that drives innovation and research that feeds what is taught in the classroom.*

5. ***Industry Partnerships**: Grow and strengthen relationships with industry partners and subsequently create opportunities for more funding through collaboration opportunities.*

TEMPLATES REQUIRED IN APPENDIX FOR SCORING

- Degree totals and targets
- Availability of space/campus utilization
- Reasonableness of cost
- Program-related space allocation

APPENDIX A

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY
Updated June 2022

Agency	University of Washington	
Project Name	Chemical Sciences Building	
OFM Project Number	40000099	

Contact Information		
Name	Kristine Kenney	
Phone Number	206-218-9147	
Email	kkenney@uw.edu	

Statistics			
Gross Square Feet	150,000	MACC per Gross Square Foot	$763
Usable Square Feet	112,500	Escalated MACC per Gross Square Foot	$938
Alt Gross Unit of Measure			
Space Efficiency	75.0%	A/E Fee Class	A
Construction Type	Laboratories (Research)	A/E Fee Percentage	8.89%
Remodel	Yes	Projected Life of Asset (Years)	
Additional Project Details			
Procurement Approach	DB-Progressive	Art Requirement Applies	Yes
Inflation Rate	4.90%	Higher Ed Institution	Yes
Sales Tax Rate %	10.25%	Location Used for Tax Rate	Seattle
Contingency Rate	5%		
Base Month (Estimate Date)	August-22	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule			
Predesign Start	September-22	Predesign End	January-24
Design Start	January-24	Design End	January-26
Construction Start	January-26	Construction End	January-28
Construction Duration	24 Months		

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Project Cost Estimate

Total Project	**$196,611,422**	Total Project Escalated	**$239,999,675**
		Rounded Escalated Total	**$240,000,000**

Cost Estimate Summary

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

Consultant Services			
Predesign Services	$140,161		
Design Phase Services	$12,735,043		
Extra Services	$4,125,000		
Other Services	$3,704,875		
Design Services Contingency	$1,035,254		
Consultant Services Subtotal	**$21,740,333**	**Consultant Services Subtotal Escalated**	**$24,937,361**

Construction			
Maximum Allowable Construction Cost (MACC)	$114,400,000	Maximum Allowable Construction Cost (MACC) Escalated	$140,746,790
DB-Progressive Risk Contingencies	$0		$0
DB-Progressive Management	$11,000,000		$13,591,600
Owner Construction Contingency	$18,220,000		$22,512,632
Non-Taxable Items	$0		$0
Sales Tax	$14,721,050	Sales Tax Escalated	$18,127,230
Construction Subtotal	**$158,341,050**	**Construction Subtotal Escalated**	**$194,978,252**

Equipment			
Equipment	$5,750,000		
Sales Tax	$589,375		
Non-Taxable Items	$0		
Equipment Subtotal	**$6,339,375**	**Equipment Subtotal Escalated**	**$7,832,932**

Artwork			
Artwork Subtotal	**$1,194,028**	**Artwork Subtotal Escalated**	**$1,194,028**

Agency Project Administration			
Agency Project Administration Subtotal	$4,490,636		
DES Additional Services Subtotal	$2,321,000		
Other Project Admin Costs	$1,160,000		
Project Administration Subtotal	**$7,971,636**	**Project Administration Subtotal Escalated**	**$9,849,754**

Other Costs			
Other Costs Subtotal	**$1,025,000**	**Other Costs Subtotal Escalated**	**$1,207,348**

Project Cost Estimate			
Total Project	**$196,611,422**	Total Project Escalated	**$239,999,675**
		Rounded Escalated Total	**$240,000,000**

Funding Summary

FUNDING SOURCES:
$200M FROM STATE 057 BOND ACCOUNT
$40M FROM LOCAL UW SOURCES

	Project Cost (Escalated)	Funded in Prior Biennia	New Approp Request 2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0		$0	$0	**$0**
Consultant Services					
Consultant Services Subtotal	$24,937,361	$150,000	$3,000,000	$11,176,916	**$10,610,445**
Construction					
Construction Subtotal	$194,978,252		$1,500,000	$99,254,343	**$94,223,909**
Equipment					
Equipment Subtotal	$7,832,932		$0	$4,018,294	**$3,814,638**
Artwork					
Artwork Subtotal	$1,194,028		$0	$612,536	**$581,492**
Agency Project Administration					
Project Administration Subtotal	$9,849,754	$50,000	$250,000	$4,899,024	**$4,650,730**
Other Costs					
Other Costs Subtotal	$1,207,348	$50,000	$250,000	$465,470	**$441,878**
Project Cost Estimate					
Total Project	**$239,999,675**	**$250,000**	**$5,000,000**	**$120,426,583**	**$114,323,092**
	$240,000,000	**$250,000**	**$5,000,000**	**$120,427,000**	**$114,323,000**
	Percentage requested as a new appropriation		**2%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)

Design and construction.

Insert Row Here

What has been completed or is underway with a previous appropriation?

Predesign (local funds).

Insert Row Here

What is planned with a future appropriation?

Construction.

Insert Row Here

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	$140,161			
Other				
Insert Row Here				
Sub TOTAL	**$140,161**	**1.0702**	**$150,000**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$8,135,043			69% of A/E Basic Services
Other	$500,000			
Structural/Mechanical/Electrical	$4,100,000			
Sub TOTAL	**$12,735,043**	**1.1228**	**$14,298,907**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)	$315,000			
Geotechnical Investigation	$220,000			
Commissioning	$500,000			training + transition service
Site Survey	$150,000			
Testing	$650,000			hazmat + testing
LEED Services	$90,000			
Voice/Data Consultant				
Value Engineering				
Constructability Review	$1,000,000			construction support
Environmental Mitigation (EIS)	$100,000			
Landscape Consultant	$500,000			
Interiors + Specialty + Acoustic + Graphics	$600,000			
Insert Row Here				
Sub TOTAL	**$4,125,000**	**1.1228**	**$4,631,550**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$3,654,875			31% of A/E Basic Services
HVAC Balancing				
Staffing				
As-Builts	$50,000			
Insert Row Here				
Sub TOTAL	**$3,704,875**	**1.2356**	**$4,577,744**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$1,035,254			
Other				
Insert Row Here				
Sub TOTAL	**$1,035,254**	**1.2356**	**$1,279,160**	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	**$21,740,333**		**$24,937,361**	

Green cells must be filled in by user

Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation	$10,000,000			
G20 - Site Improvements				
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Temporary Facilities	$500,000			
Insert Row Here				
Sub TOTAL	**$10,500,000**	**1.1779**	**$12,367,950**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.1779**	**$0**	
3) Facility Construction				
A10 - Foundations	$15,000,000			
A20 - Basement Construction				
B10 - Superstructure				
B20 - Exterior Closure	$20,400,000			
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes	$15,000,000			
D10 - Conveying	$3,000,000			
D20 - Plumbing Systems	$5,000,000			
D30 - HVAC Systems	$15,000,000			
D40 - Fire Protection Systems	$2,000,000			
D50 - Electrical Systems	$17,000,000			
F10 - Special Construction	$1,500,000			
F20 - Selective Demolition	$500,000			
General Conditions	$5,000,000			
Other Direct Cost	$4,000,000			
Security	$500,000			
Sub TOTAL	**$103,900,000**	**1.2356**	**$128,378,840**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$114,400,000**		**$140,746,790**	
	$763		*$938 per GSF*	

5) GCCM Risk Contingency				
GCCM Risk Contingency				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2356**	**$0**	
6) GCCM or Design Build Costs				
GCCM Fee				
Bid General Conditions				
GCCM Preconstruction Services				
DB Fees	$11,000,000			
Insert Row Here				
Sub TOTAL	**$11,000,000**	**1.2356**	**$13,591,600**	
7) Owner Construction Contingency				
Allowance for Change Orders	$5,720,000			
Incentive Compensation	$3,500,000			
DB Project Contingency	$9,000,000			
Sub TOTAL	**$18,220,000**	**1.2356**	**$22,512,632**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.2356**	**$0**	
9) Sales Tax				
Sub TOTAL	**$14,721,050**		**$18,127,230**	
CONSTRUCTION CONTRACTS TOTAL	**$158,341,050**		**$194,978,252**	

Green cells must be filled in by user

Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment	$2,000,000				
E20 - Furnishings	$3,000,000				
F10 - Special Construction					
UW IT Connectivity and Subs	$750,000				
Insert Row Here					
Sub TOTAL	**$5,750,000**		**1.2356**	**$7,104,700**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.2356**	**$0**	
3) Sales Tax					
Sub TOTAL	**$589,375**			**$728,232**	
EQUIPMENT TOTAL	**$6,339,375**			**$7,832,932**	

Green cells must be filled in by user

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	$1,194,028				0.5% of total project cost for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$1,194,028**		**NA**	**$1,194,028**	

Green cells must be filled in by user

Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$4,490,636				
Additional Services	$2,321,000				Make-up per Population Health Estimate
Legal + DRB	$160,000				
EHS + In-Plant Services	$1,000,000				
Subtotal of Other	*$1,160,000*				
PROJECT MANAGEMENT TOTAL	**$7,971,636**		**1.2356**	**$9,849,754**	

Green cells must be filled in by user

Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs	$125,000				
Hazardous Material Remediation/Removal	$300,000				
Historic and Archeological Mitigation					
Permit Expediter 20K + Two Moves	$250,000				
Permit Fees	$350,000				
OTHER COSTS TOTAL	**$1,025,000**		**1.1779**	**$1,207,348**	

Green cells must be filled in by user

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

Reasonableness of Cost Template

Project name:	Chemical Sciences Building	CBS/OFM Project #:	40000099
Institution:	University of WA	Scoring category:	Replacement - Major
Campus/Location:	Seattle Campus		

	Construction Begin	Construction End	Construction mid-point	Escalation Multiplier
Construction mid-point:	January-26	January-28	January-27	1.4669

MACC from C-100: $140,746,790

	Expected MACC/GSF in 2019	Expected MACC/GSF	GSF by type	Expected MACC
Classrooms	$405	$594	-	$0
Instructional labs	$397	$582	-	$0
Research labs	$545	$799	60,000	$47,967,929
Administration	$406	$596	21,333	$12,705,389
Libraries	$340	$499	30,000	$14,962,473
Athletic	$385	$565	-	$0
Assembly, exhibit and meeting rooms	$428	$628	38,667	$24,276,368
			150,000	$99,912,160

C-100 to expected MACC variance: 141%

Score: 2

APPENDIX B

Overarching Criteria: Degree Totals and Targets Template

Project name:	Chemical Sciences Building	CBS/OFM Project #:	40000099
Institution:	University of WA	Scoring category:	Replacement - Major
Campus/Location:	Seattle Campus		

		Bachelor degrees	Bachelor degree's in high-demand fields	Advanced degrees
2020-21 Public Four-Year Dashboard		11,105	5,379	6,310
Additional degrees generated by project		-	-	23
Projected degrees with building project	a	11,105	5,379	6,333
Projected growth above 2020-21 actual degrees		0.0%	0.0%	0.4%
Number of degrees targeted in 2023	b	11,934	6,059	6,761
Projected degrees as % of 2023 target	b/a =	107.5%	112.6%	106.8%
	Score:	**0**	**0**	**0**

Comments:

Data used above is from the Statewide Public Four-Year Dashboard for 2019-20 (2020-21 data is NOT available). 2023 Degree Targets from UW Insititutional Data & Analysis.

APPENDIX C

Availability of Space/Campus Utilization Template

Project name:	Chemical Sciences Building	CBS/OFM Project #:	40000099
Institution:	University of WA	Scoring category:	Replacement - Major
Campus/Location:	Seattle Campus		

Enrollment

2021 fall on-campus student FTE:	44,157	Expected 2022 fall on-campus student FTE:	44,939
		% increase budgeted:	1.77%

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	
Fall 2021 Weekly Contact Hours	516,214
Multiply by % FTE Increase Budgeted	1.77%
Expected Fall 2022 Contact Hours	525,356
Expected Fall 2022 Classroom Seats	21,788
Expected Hours per Week Utilization	**24.1**
HECB utilization standard (hours/GUC seat)	22.0
Difference in utilization standard	9.6%

(b) General University Lab Utilization	
Fall 2021 Weekly Contact Hours	92,814
Multiply by % FTE Increase Budgeted	1.77%
Expected Fall 2022 Contact Hours	94,458
Expected Fall 2022 Class Lab Seats	5,228
Expected Hours per Week Utilization	**18.1**
HECB utilization standard (hour/GUL seat)	16.0
Difference in utilization standard	12.9%

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.

N/A

APPENDIX D

Program Related Space Allocation Template

Project name: Chemical Sciences Building

CBS/OFM Project #: 40000099

Institution: University of WA

Scoring category: Replacement - Major

Campus/Location: Seattle Campus

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	-	0.00	0.00
Research space	2	45,000	40.00	0.80
Office space	4	16,000	14.22	0.57
Library and study collaborative space	10	22,500	20.00	2.00
Other non-residential space	8	9,000	8.00	0.64
Support and physical plant space	6	20,000	17.78	1.07
Total:		**112,500**	**100.0**	**5.08**

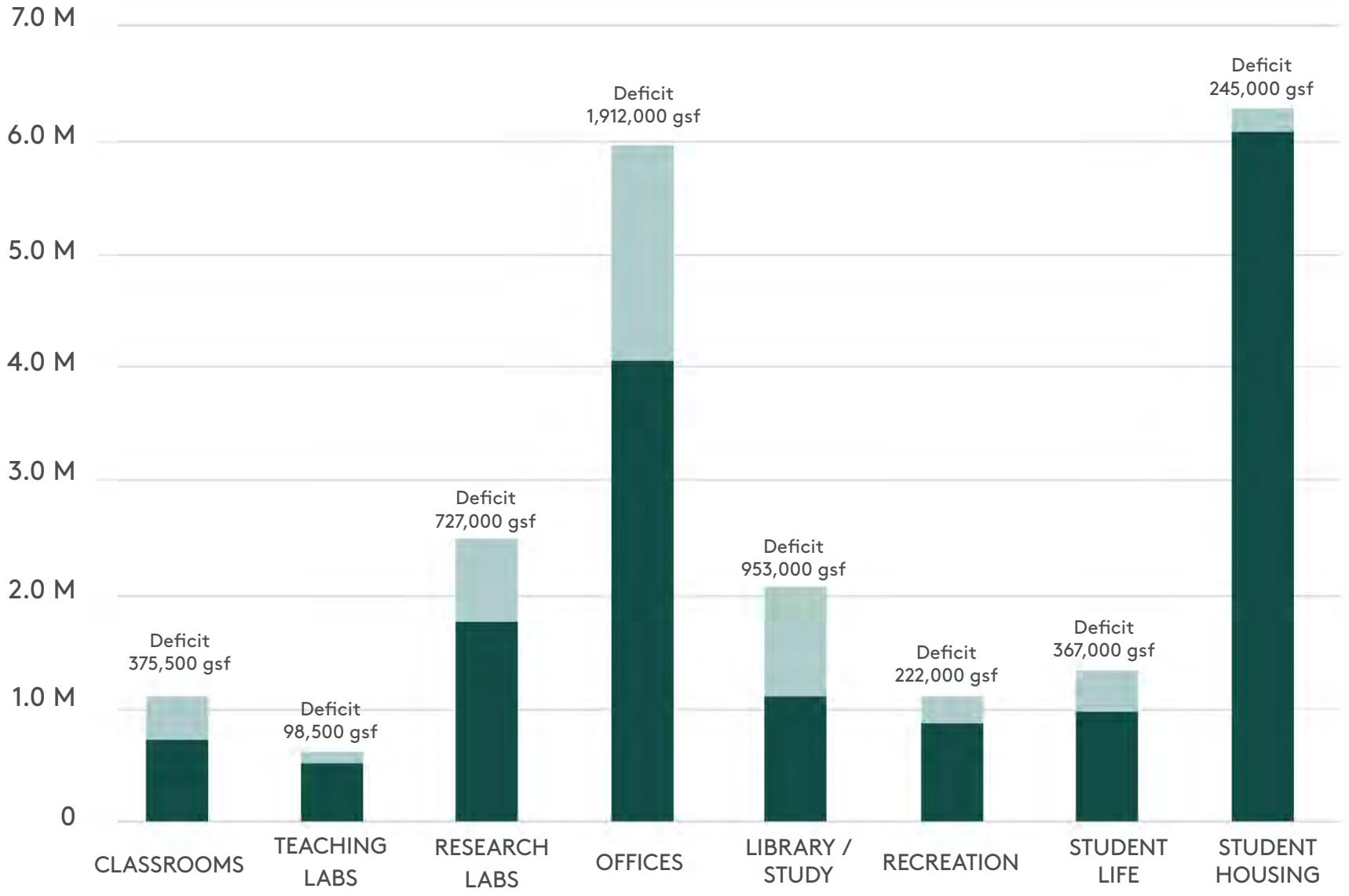
APPENDIX E

UNIVERSITY OF WASHINGTON

2019 SEATTLE CAMPUS MASTER PLAN

February 2019 Compiled Plan

Table 3. 2028 Space Needs Determined by the Space Needs Model by Category (gross square feet*)



*Assumes 61.5% Net to Gross Square Feet

Deficit includes existing and projected deficit

Deficits provide an indication of a specific space needs and are based on existing FTE and projected FTE figures

GUIDING PRINCIPLE #2
LEARNING-BASED ACADEMIC AND RESEARCH PARTNERSHIPS

Support and catalyze academic and teaching research partnerships with allied industries, contribute to a highly livable innovation district, and stimulate job growth and economic development.

The CMP embraces new modes of teaching and learning to create a flexible and dynamic framework that accommodates the need for growth in student enrollment and research demands. It complements the existing lexicon of higher education spaces with new settings for collaboration and multiple opportunities for innovative learning that extend beyond the classroom. The University is part of a growing network of industries in Seattle and beyond that support the local, regional and state economies. The CMP creates a structure to catalyze academic and research partnerships within UW and allied external entities, stimulate job growth, and economic development in the larger University District, and transform UW into a global hub for cutting edge thinking and entrepreneurship.

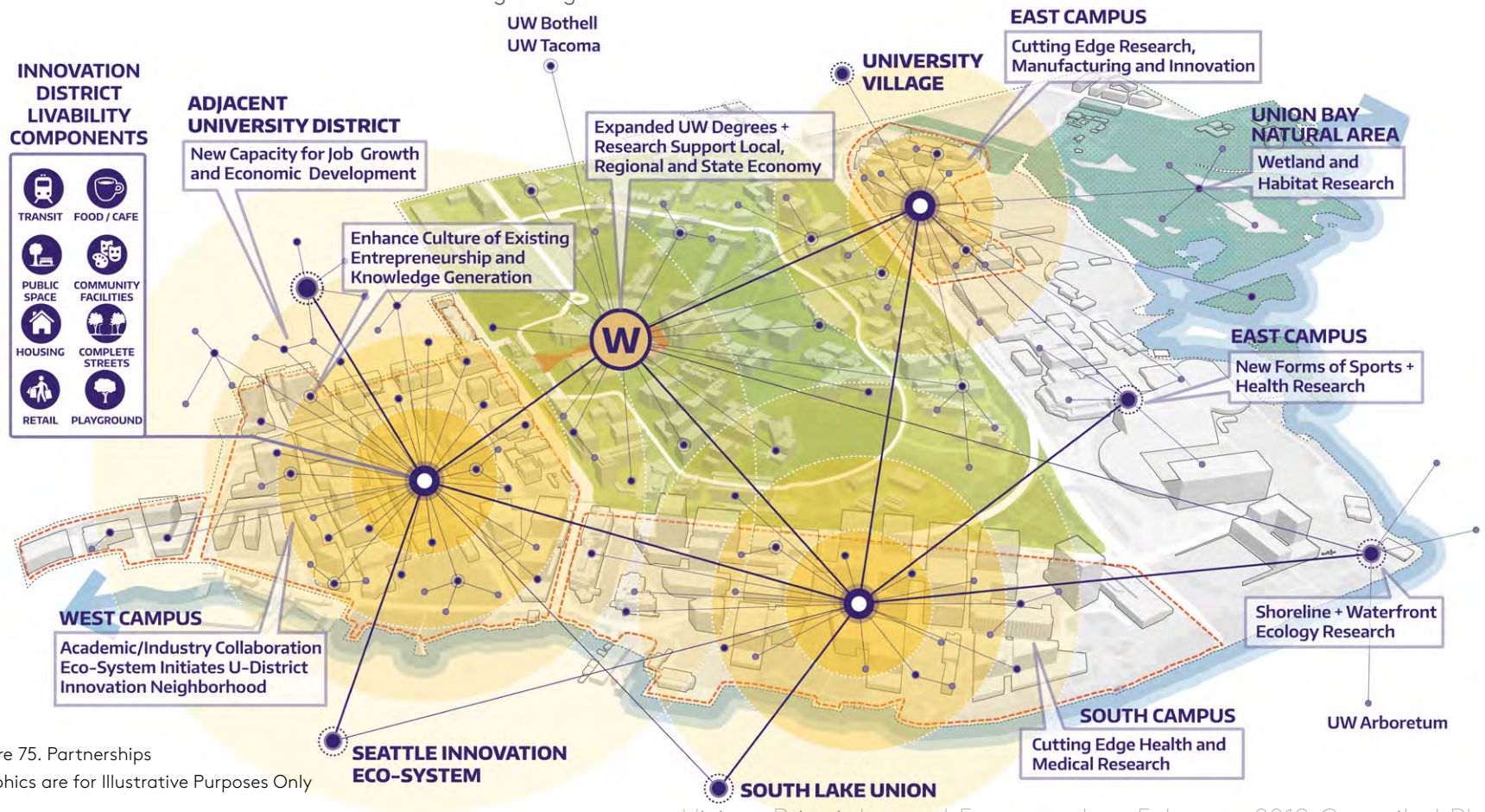


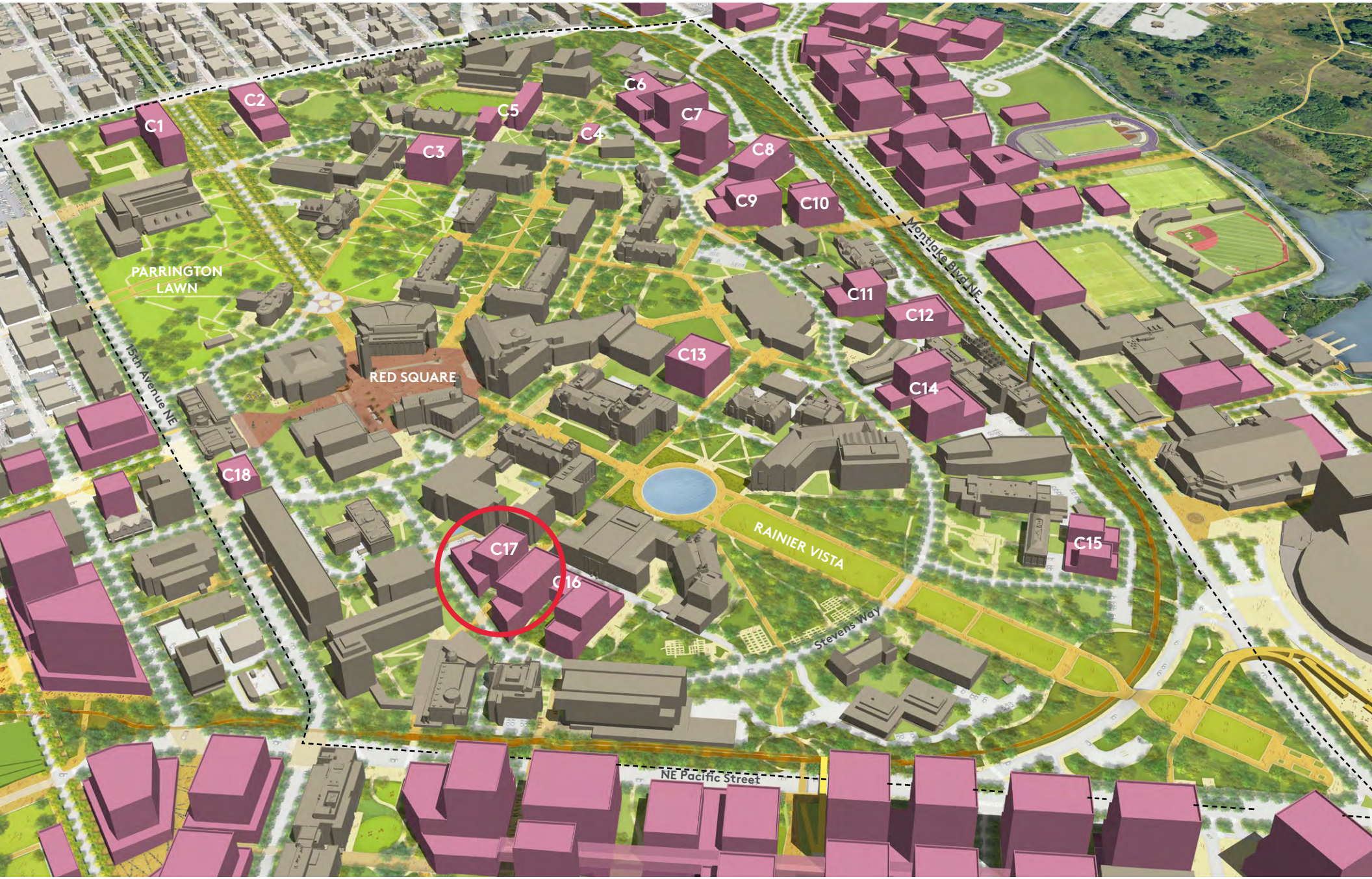
Figure 75. Partnerships
Graphics are for Illustrative Purposes Only

Illustrative Plan Long-Term Vision

Figure 112. Graphics are for Illustrative Purposes Only

Central Campus Long-Term Vision

Figure 124. Graphics are for Illustrative Purposes Only



Existing Building

Potential Building

Central Campus Boundary

* Parking spaces evenly split among the development sites
** Gross square feet are accounted for within the 2003 Campus Master Plan
*** Total incorporates gross square feet that are already accounted for under the 2003 CMP related to sites C5 and C6
****Please reference Appendix for specific names of buildings and year constructed associated with demolished area
***** Growth Allowance refers to Net New Gross Square Feet column

Table 9. Central Campus Development Sites Spreadsheet

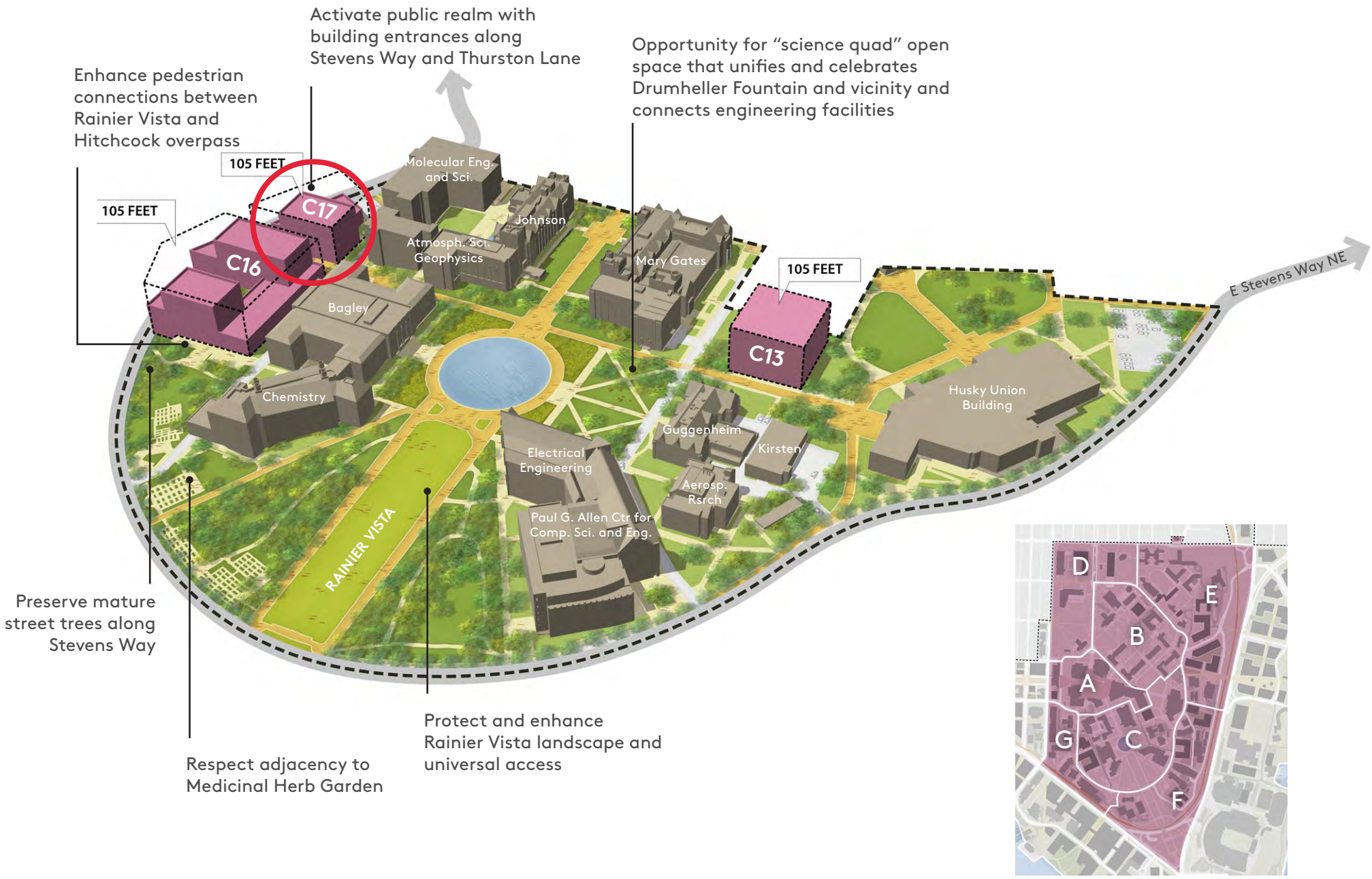
SITE ID	SITE NAME	TOTAL ENVELOPE GROSS SQUARE FEET	TOTAL MAXIMUM GROSS SQUARE FEET	PERCENT OF ENVELOPE	DEMO GROSS SQUARE FEET****	NET NEW GROSS SQUARE FEET*****	APPROX# OF FLOORS	MAXIMUM BLDG HT LIMIT	CONDITIONED DOWN BUILDING HEIGHTS	EXISTING PARKING SPACES	ACADEMIC USES
C1	West of Memorial Way / N1 Parking Lot	290,000	200,000	69%	68,916	131,084	7	105		213	A/MU/T
C2	East of Memorial Way / N5 Parking Lot	265,000	135,000	51%		135,000	5	105	70	170	A/MU/T
C3	Mackenzie Replacement / N3 Parking Lot	165,000	145,000	88%	43,099	101,901	7	105		9	A/MU
C4	Intellectual House Phase 2	40,000	5,000	13%		5,000	1	105			A/MU
C5	North Campus Housing 1 (Building A)**/***	170,000	110,000	65%		110,000	5	105			A/H
C6	North Campus Housing 2 (Building E) / Haggett Hall Site / N9, 10, 11 Parking Lots **/***	535,000	290,000	54%	206,114	83,886	6	160		77	A/H
C7	McMahon Hall Site / N13, 14, 15 Parking Lots	600,000	400,000	67%	288,352	111,648	11	160		177	A/MU/H/T
C8	Padelford Garage North Site / N16, 18, 20, 21*	315,000	245,000	78%	138,555	106,445	8	105		217*	A/MU/T
C9	Padelford Hall South Site*	185,000	155,000	84%		155,000	8	105		217*	A/MU/T
C10	Padelford Garage South Site*	230,000	145,000	63%		145,000	7	105		218*	A/MU/T
C11	Facility Services Admin Bldg / University Facilities Bldg and Annex 1	120,000	85,000	71%	20,125	64,875	7	105			A/MU/T
C12	Plant Op Annexes 2-6 / University Facilities Annex 2 / C23 Parking Lot	230,000	115,000	50%	18,860	96,140	6	105		1	A/MU/T
C13	Sieg Hall Replacement	145,000	130,000	90%	57,180	72,820	7	105			A/MU
C14	Mechanical Eng / Eng Annex / C15 Parking Lot	300,000	215,000	72%	125,896	89,104	8	105		23	A/MU
C15	Wilcox / Wilson Ceramics Lab Site / Wilson Annex	90,000	60,000	67%	50,328	9,672	4	65		56	A/MU
C16	Benson Hall / C7 Parking Lot	320,000	210,000	66%	76,271	133,729	7	105		11	A/MU
C17	Chem Library Site	130,000	85,000	65%	39,363	45,637	7	105			A/MU
C18	South of Henry Art Gallery	70,000	35,000	50%		35,000	4	105			A/MU
	TOTAL - CENTRAL***	4,200,000	2,765,000	64%	1,133,059	1,631,941				1,389	

Academic General Uses: A - Academic; H - Housing; MU - Mixed Use; T - Transportation; OS - Open Space; IP - Industry Partnership/Manufacturing; ACC - Academic Conference Center

"Maximum Building Height Limit" refers to the height limit allowed under the MIO zoning height.

DEVELOPMENT ZONE C

Figure 132. Graphics are for Illustrative Purposes Only



APPENDIX F

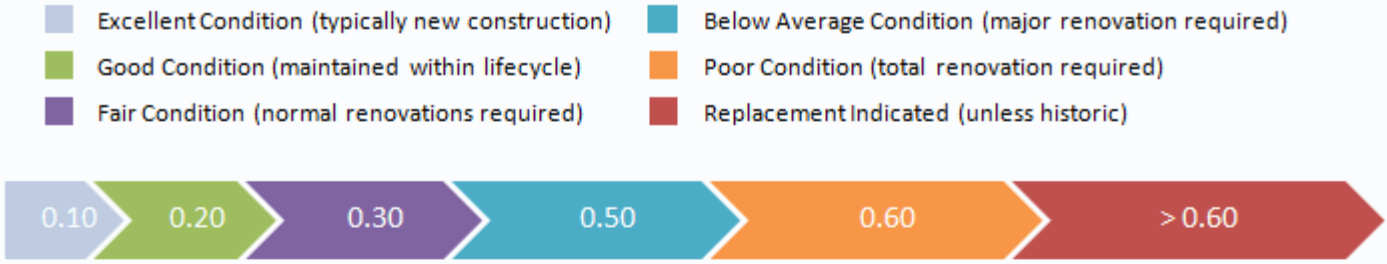
ASSET EXECUTIVE SUMMARY

All costs shown as Present Value

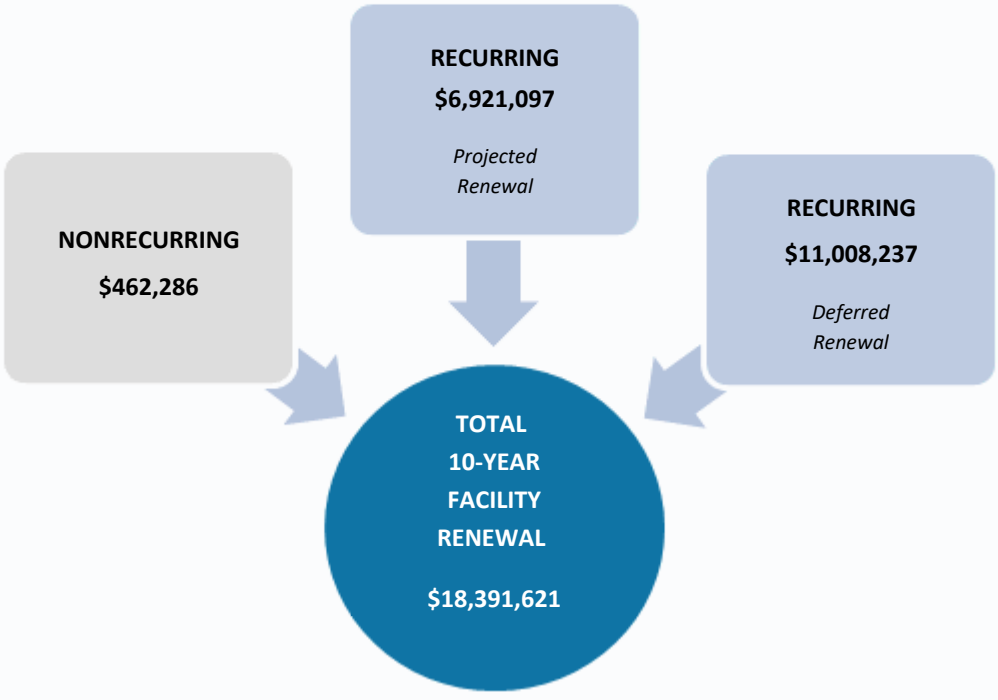
ASSET CODE	1279		
ASSET NAME	CHEMISTRY LIBRARY BUILDING		
ASSET USE	Laboratory		
YEAR BUILT	1957		
GSF	39,363		
INSPECTION DATE	01/27/2021		
		CURRENT REPLACEMENT VALUE	$39,210,090
		FACILITY CONDITION NEEDS INDEX	0.47
		FACILITY CONDITION INDEX	0.28
		10-YEAR $/SF	467.23

FCNI Scale

The FCNI for this asset is **0.47**



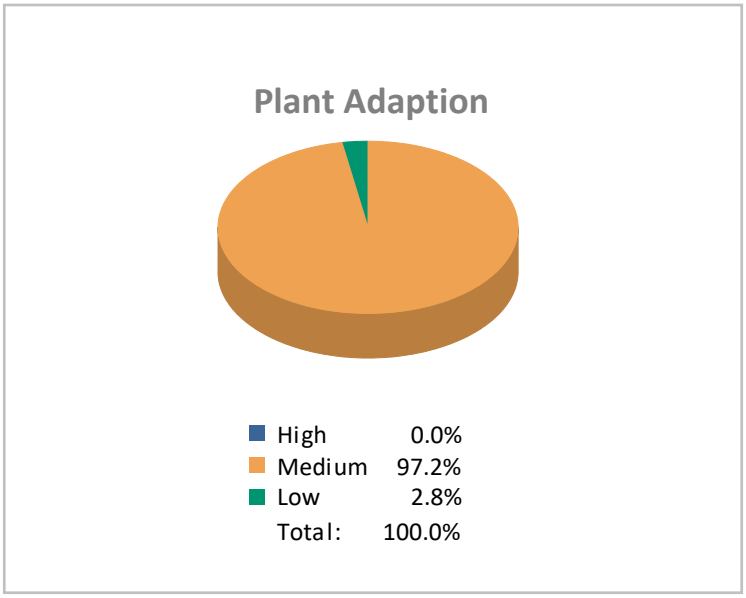
Total Facility Renewal Costs



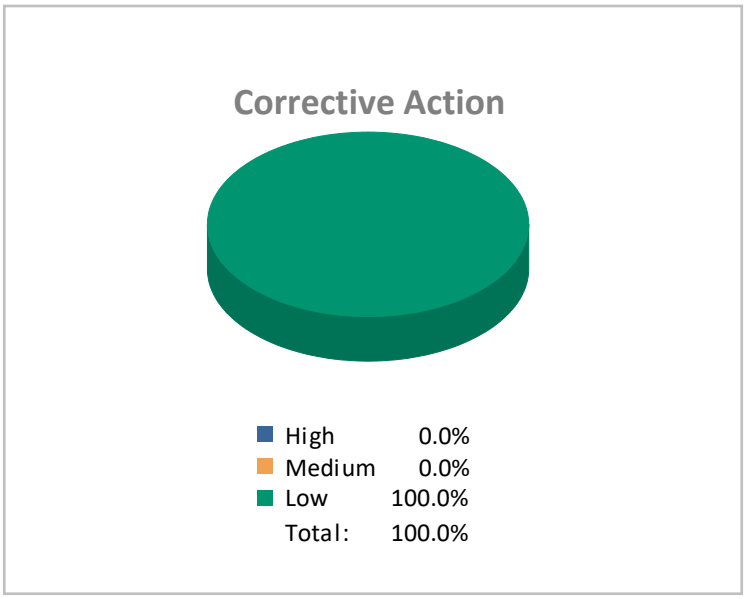
Nonrecurring Costs

Project Cost by Priority

PLANT ADAPTION	
1 - High	**$0**
2 - Medium	**$337,740**
3 - Low	**$9,895**

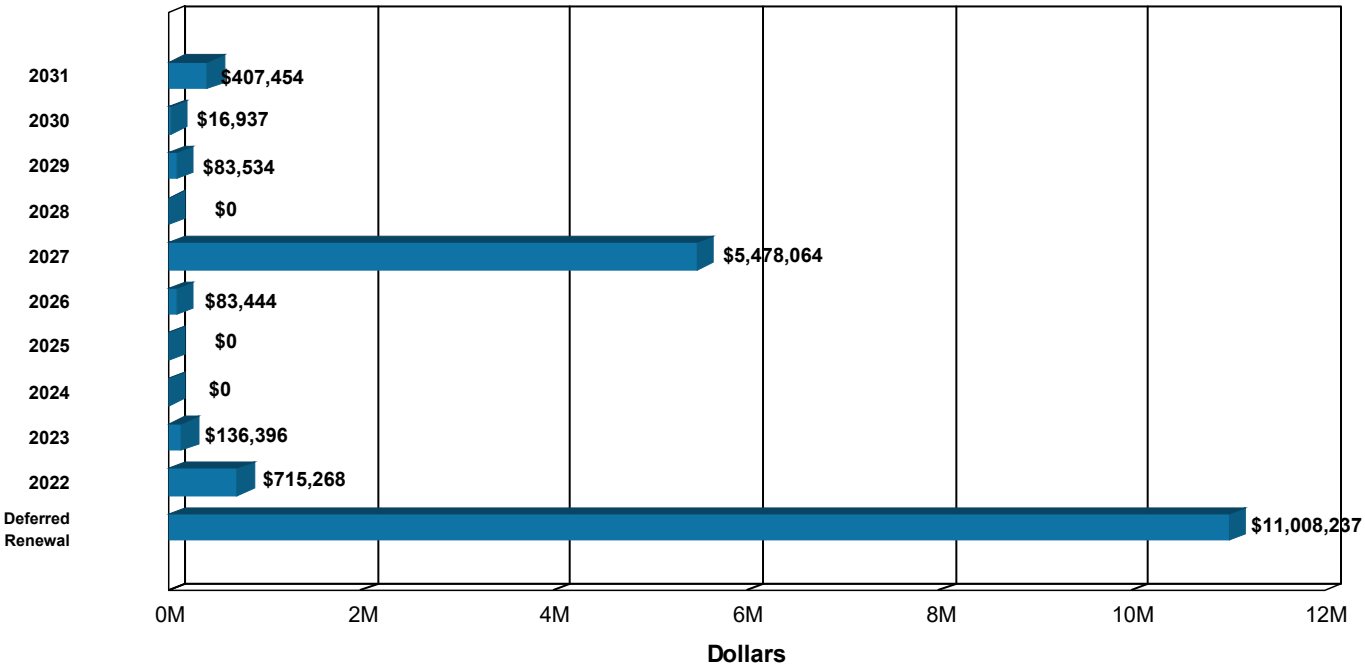


CORRECTIVE ACTION	
1 - High	**$0**
2 - Medium	**$0**
3 - Low	**$114,651**

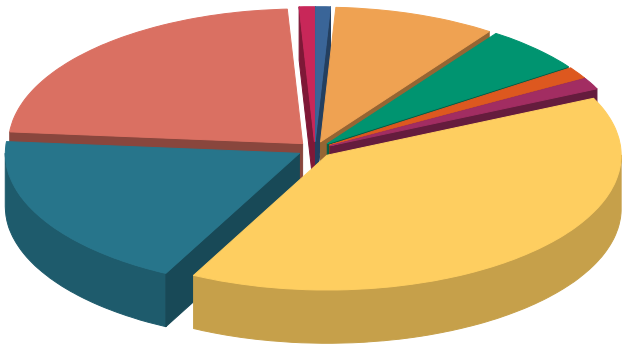


Recurring Costs

Component Replacement Cost by Year



Facilities Renewal Cost by System



Accessibility	$137,975	1%
Electrical	$1,667,384	9%
Exterior	$1,001,356	5%
Fire/Life Safety	$245,712	1%
Health	$244,691	1%
HVAC	$7,276,447	40%
Interiors	$3,481,808	19%
Plumbing	$4,206,105	23%
Site	$0	0%
Vert. Trans.	$130,143	1%
TOTAL	**$18,391,621**	

APPENDIX G

Seismic Status for UW Seattle Campus and Surrounding U-District and U-Village Facilities

LEGEND:

Cat = Category - High Damage Potential Buildings organized into Categories 1, 2 or 3 based upon their relative Life Safety Hazard and Moderate Damage Potential Buildings with High Life Safety Hazard (Category 4) per ERAC Report (lower value indicates higher priority).
DI = Damage Potential Index per ERAC Report (higher value indicates highest risk).
LSI = Life Safety Hazard Index per ERAC Report (higher value indicates highest risk).
Status = Status of seismic upgrade
Scheduled = Scheduled for seismic upgrade
Complete = Building that has seismic upgrade completed (Note typically these buildings are not totally upgraded, there are non-structural elements such as portions of exterior masonry that were not seismically stabilized due to budget constraints)
Recent Code = Building that has been designed to a code that is generally considered to provide acceptable life-safety protection

Updated 10/1/2019

The following data is from the original ERAC Report.

Damage Index (DI)	Life Safety Index (LSI)
High Damage Potential (DI > 230)	High Life Safety Hazard (LSI > 70)
Moderate Damage Potential (150 ≤ DI ≤ 230)	Moderate Life Safety Hazard (20 ≤ LSI ≤ 70)
Low Damage Potential (DI < 150)	Low Life Safety Hazard (LSI < 20)
Damage Potential (DI) Not Evaluated	Life Safety Hazard (LSI) Not Evaluated

FacNum	Building Name	Original Priority Category	DI	LSI	Status	Remarks
1187	Canoe House	III	782	2		To be done with upcoming remodel
1302	Hutchinson Hall	II	414	49		On Hold, was in Restore the Core
1201	Gowen Hall	I	331	75		
1199	Plant Operations Building	III	328	6		
1299	Music Building	II	327	42		Corrected, was Cat 1 in ERAC, should have been Cat 2.
1349	Observatory	III	298	4	Scheduled	Bolts Plus scheduled for Project 205729
1182	Engineering Annex		281	6		
1351	Anderson Hall	II	279	36		On Hold, was in Restore the Core
1196	Edmundson Pavilion Pool	II	279	44		
1144	University of Washington Club (Faculty Center)	III	276	2		
1279	Chemistry Library Building	II	262	28		
1260	UWMC Wing SE	II	259	51		Corrected, was Cat 4 in ERAC, should have been Cat 2.
1261	UWMC Wing SS	II	259	51		Corrected, was Cat 4 in ERAC, should have been Cat 2.
1262	UWMC Wing SW	II	259	51		Corrected, was Cat 4 in ERAC, should have been Cat 2.