

Research Infrastructure Needs, including Risk Management Report

BACKGROUND

The Executive & Audit Committee annually reviews with university leadership top risks that may impact Oregon State University's ability to meet its mission and objectives. Each of the identified top risks are assigned to the various Board committees based on alignment with each committee's charter and workload. Through this process, the university identified research infrastructure needs as a top risk for the university. The Finance & Administration Committee provides oversight of the university's action plan for mitigating this risk.

STATUS UPDATE

Properly supporting and sustaining strategic, long-term, multidisciplinary and complex research projects taking place in key research facilities—especially work that requires advanced equipment and instrumentation—remains challenging and requires deliberate attention in terms of process, funding and prioritization, and coordinating many different administrative offices at the university to ensure their success. Aging research infrastructure threatens innovation nationally; and investing in current and new facilities and improving research facilities has been a key strategy nationally to recruit and retain researchers and students that make up universities' research enterprise. Furthermore, to enhance and care for the research infrastructure, institutions aim to align equipment purchases and facility improvements while providing more flexibility for supporting researchers and decreasing administrative burden. As such, the university has identified research infrastructure needs as a top risk for the university.

To address and mitigate this risk, the university has been working to provide an effective space-planning process that maximizes necessary resources, including long-term capital construction and renewal plans incorporating research needs. At the same time, there has been a focus on establishing effective processes and adequate funding for research equipment to support and sustain strategic, long term multidisciplinary research in priority-identified research facilities. Attachment 1 provides a summary of activities over the past year to address and mitigate this risk.

One of the primary strategies for addressing this risk is the prioritized investment of state funds, Education & General Funds, and other sources to improve and expand research infrastructure. These priorities are captured in the Ten-Year Capital Forecast approved by the Board. The development of the Ten-Year Capital Forecast is guided by the Infrastructure Working Group (IWG), which assists in prioritizing major capital and capital improvement projects. Facilities condition assessments and interviews with unit leaders across campus provide context during the IWG prioritization process, which helps inform IWG recommendations for the annual forecast update to executive leadership.

In alignment with the objectives of SP4.0, the IWG criteria prioritize the improvement of existing research infrastructure such as the replacement of roofs, mechanical systems, and building controls. Research-intensive buildings, such as Cordley, Gilbert and Withycombe Halls, are also prioritized for renewal and major renovation.

In addition to these efforts, there are many other actions to help manage and improve research space in support of our research and innovation mission:

Recently Completed:

- The build-out of the Advanced Technology and Manufacturing Institute (ATAMI) has been completed at HP Building 11. *The space is a prime example of a successful relationship between industry and university partners, where OSU provides incubator space and research facilities for microsystems fabrication, materials characterization, and new materials development.*
- The remediation of Burt Hall II after a fire caused extensive smoke damage to nearly the entire building, has been completed. *The remediation afforded a much-needed modernization and reorganization of the building's vital research infrastructure.*
- The acquisition and renovation of the Research Way Laboratory building has been completed, currently supporting the Cordley Hall renovation. *The space is providing surge space to reduce the impact on biological and chemical research programs during renovations.*
- The ongoing renewal of several ventilation, building controls, and electrical systems serving research spaces has been accomplished through the Capital Improvements and Renewal (CIR) program *enhancing the functionality, safety and reliability of our research infrastructure.*

Under Way:

- The renovation of the west side of Cordley Hall is well underway and is expected to be complete in the late spring of 2022. The east half will be started in the summer of 2022 and completed in in 2024. *This is a comprehensive and transformative renovation that will create a modern research and teaching building.*
- The Graf Hall renovation is starting construction. *This project will provide a modern level of capabilities and accessibility to the College of Engineering's robotics research enterprise and will also enhance safety.*
- The Research Animal Isolation Lab (RAIL) renovation is under construction. The project will restore the building to BSL-3 (Bio Safety Level) functionality. *This will be OSU's only functional BSL-3 facility, and although limited in capacity, is key to conducting research on infectious diseases.*

In Planning:

- The ninety-year-old East Green House is being retired for eventual replacement. *Research functions will be moved to new and improved facilities in the west greenhouse range and the Oak Creek complex to minimize interruption to researchers.*
- Design has started for the Withycombe Hall renovation. *This renovation will improve and enhance OSU's food science and agricultural research as well as consolidate like research elements from other buildings destined to be removed or restored.*
- The renewal of the Hatfield Marine Science Center Research Seawater System is under design. *This invaluable resource enables OSU marine research and is instrumental to our partnerships with other agencies including National Oceanic and Atmospheric Administration National Science Foundation, US Department of Agriculture, Oregon Department of Fish and Wildlife, and Environmental Protection Agenda.*

- The Ship Operations Dock renewal is starting planning to not only replace and renew the fifty-year-old dock but to also modernize the operational functionality of OSU's research ship operations. *The renewal will prepare the university ship operations to conduct world-class ocean-going research, in time for the arrival of the new regional class research vessel, RV Taani.*
- Planning continues for the Collaborative Innovation Complex (CIC), a new research building and a series of research building renovations and demolitions and infrastructure improvements that are both enabled by and required to fulfill the concept of the new CIC within a renewed and reimagined synergistic research district. *The CIC and accompanying projects will make the university more dynamic for research and more financially and operationally sustainable.*

The Research Office, in close partnership with University Facilities, Infrastructure & Operations (UFIO), is continuing to strategically align the university space needs and will partner with the colleges and the Division of Finance and Administration. Some projects include but are not limited to:

- Evaluating the future of BSL-3 based research at OSU. OSU will have one small (animal-oriented) BSL-3 facility with the completion of the RAIL renewal. This effort seeks to evaluate the capital and operational cost of creating a BSL-3 facility as well as the potential benefits that include research funding for infectious diseases from National Institutes of Health and increased impact and prestige as a result. The method that we use to evaluate a capital enterprise in advance of actual demand will be used for other similar propositions.
- Evaluating building (renovations or new buildings) research and innovation-focused hubs that integrate industry, academic research, and start-ups. An example of this could be to evaluate the conversion of the Research Way Laboratory Building, once finished as a surge space, into a bio-science research and innovation hub similar to the ATAMI B11 research and innovation hub.
- Developing a list of federal funding opportunities to renovate research facilities. An example is a \$6M proposal recently submitted to the National Institutes of Health to renovate the Sinnhuber Aquatic Research Laboratory (SARL). Completion of this project will provide modern, sustainable, specific pathogen-free zebrafish housing space, specialty research space, and efficient fish life support and husbandry systems.

The Research Office will also continue to partner with campus leadership and researchers to evaluate emerging opportunities for improved research facilities and equipment.

NEXT STEPS

At the May 20, 2021 meeting, the committee will review the risk management report with staff and may identify additional follow-up, as needed.

**Oregon State University
Enterprise Risk Management
2021 Priorities
Research Infrastructure Needs**

Risk Topic Oversight Summary						
Board Oversight Committee	Risk Topic	University Goal	Type(s) of Risks to be Prevented	Risk Owner(s)	Primary Risk Mitigation Strategy(ies)¹	Risk Mitigation Team
Finance & Administration Committee	Research Infrastructure Needs	Demonstrated leadership in research supported by state-of-the-art research facilities that meet short- and long-term research enterprise needs.	Operational, Compliance, Financial, Reputational	VP for Research and Provost	Accept, Reduce	Associate VP for Research; Infrastructure Working Group; Provost’s Council of Deans; Associate VP for University Facilities, Infrastructure and Operations

¹ Definitions of mitigation strategies:

Avoid: Discontinue the activities that present unacceptable risk
 Share/Insure: Transfer the risk through insurance programs or 3rd party

Reduce: Implement controls, practices, programs to lessen the risk
 Accept: Proceed with the activity because the benefit outweighs the risk

Mitigation Plan	
OBJECTIVE 1: Provide an effective space-planning process that maximizes necessary resources, including long-term capital construction and renewal plans incorporating research needs	
Actions to Satisfy Objective	Status Report
<ul style="list-style-type: none"> a. Complete university-wide research space and condition assessment. b. Institute the Infrastructure Working Group (IWG) made up of Provost’s Council of Deans members, Research Office (RO), University IT (UIT), University Housing and Dining Services (UHDS), and Athletics, and establish protocols to determine priority investments, capital improvements and renewal project recommendations. c. Link IWG activities to biennial and decadal capital requests. d. Leverage relationships with federal agencies and industry. e. Develop alternative models for space allocation (e.g., incentives for relinquishing dead space, fee-based allocation, etc.). f. Develop short- and long-term plans for space maximization including existing and newly proposed space and space made available when defunct structures are demolished. 	<ul style="list-style-type: none"> a. The comprehensive space inventory is updated annually. University Facilities, Infrastructure & Operations (UFIO) recently acquired space tracking software called InVision, which is in configuration phase for turnover to OSU Space Management in July for training and implementation. b. The IWG reviewed and supported the prioritization of capital projects and plans. Over 90% of the \$15M FY2021 E&G CIR funds supports the improvement of research infrastructure. c. The Ten-Year Capital Forecast is updated and reviewed by the IWG and recommended to executive leadership annually. The Board of Trustees approved the last update in January 2021. The capital forecast outlines OSU’s plans for new and renovated research facilities. New research buildings and renovations will implement laboratory allocation standards and modern practices. Buildings are being designed and constructed and renovated for greater efficiency, greater flexibility and resilience, and space optimization. d. The university has been successful in leveraging federal and industry relationships in a number of areas and will continue to seek new opportunities. Examples are funding received from the Department of Energy to build the PacWave facility and funding requested from the National Institutes of Health to renovate the zebrafish facility of Sinnhuber Aquatic Research Laboratory (SARL). e. RO and Division of Finance and Administration (DFA) are analyzing operations and maintenance (O&M) costs, researching cost estimating models for buildings, and assessing relationships to university budgets and allocation models. This will allow the

	<p>university to evaluate ways to incent optimization of space in future fiscal years. New space management software will coordinate data tied to space, providing a more accurate picture of utilization and efficiency.</p> <p>f. The InVision space management software will be able to measure space efficiency and have real time space needs analysis.</p>
<p>OBJECTIVE 2: Establish effective processes and adequate funding for research equipment to support and sustain strategic, long term multidisciplinary research in priority-identified research facilities</p>	
<p>Actions to Satisfy Objective</p>	<p>Status Report</p>
<p>a. Assess equipment needs for the most modern equipment that will keep OSU’s research facilities at the leading edge of research.</p> <p>b. Identify/create opportunities for funding to plan for the acquisition of the equipment.</p> <p>c. Work with the colleges to recruit transformative faculty who will ensure that we will utilize facilities toward completing research that advances the state-of-the-art in instrumentation and the scientific discovery that results from advanced instrumentation.</p> <p>d. Work with the colleges and OSU Foundation to develop an endowment that supports costs of operation (including staffing, maintenance, and equipment upgrades) as well as pilot research studies to initiate new investigations.</p>	<p>a. The InVision software will include an equipment database and identify available equipment to optimize instrument usage.</p> <p>b. RO has a program to provide cost match on equipment purchases from federal awards (e.g., NSF) and private foundations (e.g., Murdock Trust Foundation.) The RO is reviewing this program to target strategic acquisitions that meet the goal of advancing state-of-the-art experimental research.</p> <p>c. The university has begun conversations around cluster hiring of transformative faculty in multidisciplinary areas of research addressing local, national, and global challenges, which will include an assessment of the needed research facilities equipment to ensure their success.</p> <p>d. Not started yet.</p>

Performance Metrics		
METRIC 1: Space Utilization		
Goal	Results	Comments
The goal for this metric is under development and will be established in the upcoming year. The university will be establishing baseline cost/square foot (SF) for various research laboratory spaces across the OSU inventory.	Not available	Capital Planning/Space Management completed a study to review baseline metrics for research space and is developing new space standards for review and implementation.
METRIC 2: Quality of Space Metric		
Goal	Results	Comments
The goal for this metric is under development and will be established in the upcoming year. The goal will be based on an assessment of quality of research space across OSU inventory.	Not available	UFIO recently acquired space tracking software called InVision, which is in configuration phase for turnover to OSU Space Management in July for training and implementation. Our transition to InVision provides a robust and current database related to our use of space that will enable information input from campus partners, allow for utilization assessment and help drive our mission for efficient use of space. Additional uses include physical asset and equipment tracking, integration with Banner data, and space survey data informing research rates (F&A rate).

METRIC 3: User Space Satisfaction		
Goal	Results	Comments
The goal for this metric is under development and will be established in the upcoming year. The goal will be based on an assessment of user satisfaction of research space in the OSU inventory.	Not available	User satisfaction surveys of research space in the OSU inventory can be tied to other space information in the dashboard of the InVision software.
METRIC 4: Research Equipment Needs Assessment		
Goal	Results	Comments
The goal for this metric is to establish and determine priorities of Research Equipment needs, in alignment with SP4.0. This will be based on identifying equipment, status of the equipment, a survey of future equipment needs.	Not available	<p>To fully assess the status of our research equipment on campus we would need to:</p> <ol style="list-style-type: none"> 1. Determine what equipment we have on campus, their location and condition; and then, 2. Assess what is missing and what our needs are. <p>A Lab Management Equipment software database will need to be in place to begin assessing what we should be investing in and replacing given overall use and condition of the equipment.</p>