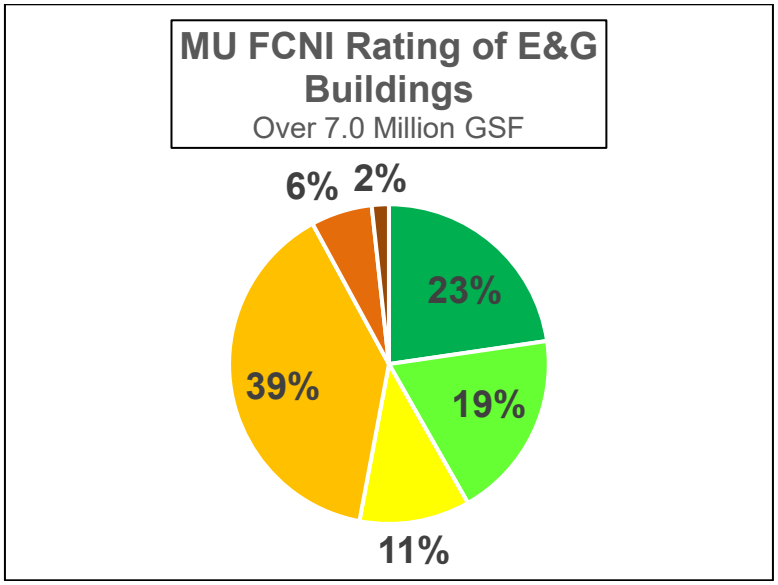
University of Missouri – Columbia
Fiscal Year 2024 - 2029 Capital Plan

April 18, 2024

University of Missouri - Columbia Facilities Stewardship

CRR 110.015 was established to maintain the facilities of the University of Missouri System in adequate condition to meet the needs of the University's education and research missions. A Facilities Condition Needs Index (FCNI) of 0.30 or lower was established as the goal for the Education and General (E&G) facility portfolio. CRR 110.015 also requires each campus to annually establish its facilities needs funding (target spend) by calculating the investment required to achieve and maintain the campus FCNI goal of 0.30 or lower for its E&G facilities over the next ten years.

MU currently has a FCNI of 0.26 and a backlog of $941.8 million of facilities needs. Forty-seven percent (47%) of the E&G space on the campus fall in the category of Below Average Condition, Poor condition, or Replacement is recommended. Ten facilities (over 411,000 gsf) were demolished in FY2023 and eliminated over $111 million of facilities critical needs. This demolition and prioritization helped bring MU's FCNI back above the target level.



E&G Facilities *(Dollars shown in Millions)*	2019	2020	2021	2022	2023
Target Spend	$55.9	$59.0	$60.2	$60.9	$68.4
Actual Spend	$21.6	$28.5	$13.9	$23.9	$17.5
Recurring	$16.3	$12.7	$8.1	$6.4	$11.9
One-Time	$5.3	$15.8	$5.8	$17.5	$5.6
Difference in Target and Actual	($34.3)	($30.5)	($46.3)	($37.0)	($50.9)
FCN Backlog	$840.9	$867.8	$881.6	$958.4	$941.8
Deferred Maintenance	$442.0	$443.4	$446.8	$502.2	$498.9
Plant Adaption	$115.0	$118.3	$120.5	$129.3	$117.3
Capital Renewal	$283.9	$306.1	$314.3	$326.9	$325.6
Recommended Target for next year	$59.0	$60.2	$61.0	$68.4	$52.2
Campus FCNI	**0.31**	**0.31**	**0.30**	**0.31**	**0.26**

Facility Condition Needs Index
Excellent Condition, typically new construction (0.000 - 0.100)
Good Condition, renovations occur on schedule (0.101 - 0.200)
Fair Condition, in need of normal renovation (0.201 - 0.300)
Below Average Condition, major renovation required (0.301 - 0.500)
Poor Condition, total renovation indicated (0.501 - 0.600)
Replacement Recommended (0.600 and Higher)

University of Missouri - Columbia: Fiscal Years 2024 – 2029 Capital Plan included in Finance Plan

Projects	**2024***	**2025**	**2026**	**2027**	**2028**	**2029**
	Current Year	Year 1	Year 2	Year 3	Year 4	Year 5
New Construction	**$70,000,000**	**$241,000,000**	**$0**	**$0**	**$0**	
Center for Energy Innovation (A/E Hire April 2023)		$160,000,000				
NextGen MURR Phase I	$36,000,000					
MU Research Reactor Lab Expansion (A/E Hire Feb 2024)	$34,000,000					
Radioisotope Facility at Discovery Ridge		$39,000,000				
Electrical Interconnection and Substation (A/E Hire Feb 2023)		$42,000,000				
Renovation/Infrastructure	**$0**	**$10,000,000**	**$0**	**$0**	**$0**	
Pickard Hall – Decommissioning and Mitigation		$10,000,000				
Total Project Cost	**$70,000,000**	**$251,000,000**	**$0**	**$0**	**$0**	

* Projects listed under 2024 are projects approved or will request approval during FY24

University of Missouri – Columbia: Fiscal Years 2024 – 2029 Capital Plan included in Finance Plan Funding

Project						Funding Strategy			
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Center for Energy Innovation	NC	$0	0	$160,000,000	$0	$50,000,000	$80,000,000	$0	$30,000,000
2	NextGen MURR Phase One	NC	$0	0	$36,000,000	$0	$0	$6,000,000	$20,000,000	$10,000,000
3	MU Research Reactor Lab Expansion	NC	$0	0	$34,000,000	$0	$0	$34,000,000	$0	$0
4	Radioisotope Facility at Discovery Ridge	NC	$0	0	$39,000,000	$0	$0	$0	$20,000,000	$19,000,000
5	Electrical Interconnection and Substation	INFR	N/A	N/A	$42,000,000	$0	$0	$22,000,000	$0	$20,000,000
6	Pickard Hall – Decommissioning and Mitigation	Demo	$6.5M	0.47	$10,000,000	$0	$0	$10,000,000	$0	$0
	Total				**$321,000,000**	**$0**	**$50,000,000**	**$152,000,000**	**$40,000,000**	**$79,000,000**

1. **Center for Energy Innovation, MU**

Enabling Utilities Project February 2024
Architect/Engineer Hire April 2023
Informational Report November 2023

The Center for Energy Innovation (CEI) will consist of approximately 180,000 gross square feet of wet and dry laboratory research space, support functions and services, office, and collaboration spaces. The facility will be sited North of Lafferre Hall on Sixth Street. This is the former site of Parker Hall, Noyes Hall, and Old Student Health Building, three buildings in poor condition recently demolished as part of MU's Strategic Space Reduction initiative.

Through the Center for Energy Innovation, MU is committed to tackling challenges presented through rising energy concerns and rapid growth in artificial intelligence and how the two work together to optimize energy production, transmission and grid security. This facility will bring together engineers, agronomists, physicists, chemist, and public policy experts to provide sustainable solutions for the future and strengthen domestic energy supply. Levels of CEI will be dedicated to nuclear energy and nuclear-engineered materials; hydrogen and renewables; energy storage; and grid security, resilience and innovation alongside public policy. CEI joins a growing tradition at Mizzou of bringing experts in different disciplines together for collaborative innovation.

Given uncertainty in availability of internal funding and giving for the project, full project approval is not being sought at the April Board meeting as previously planned. Once a formal plan of finance has been firmed up with committed sources, the University will proceed with board approval, likely in 2025, but possibly later if budgets become challenged.

Funding for the $160,000,000 project is provided by $30,000,000 state, $80,000,000 internal, and $50,000,000 in gift funds.

2. NextGen MURR - Phase One, MU

This project will construct a new, larger research reactor to expand critical cancer-fighting research and medical isotope production at MU. The University will solicit interest from qualified parties to provide preliminary designs, industry partnerships, and support preparation of regulatory requirements for potential construction at Discovery Ridge in Columbia.

The new NextGen MURR, will build on the internationally recognized excellence of the MU Research Reactor (MURR), the highest-powered university research reactor and the only producer in the United States of the critical medical isotopes yttrium-90, used for the treatment of liver cancer; molybdenum-99, for analysis of heart functions; iodine-131, used for treatment of thyroid cancer; and lutetium-177, used for treatment of pancreatic and prostate cancers.

Funding for the $36,000,000 project will be from a $20,000,000 federal appropriation and $10,000,000 in state funds and $6,000,000 in internal funds.

3. **MU Research Reactor Lab Expansion, MU**

Archictect/Engineer Hire February 2024

This MURR Lab Expansion project will consist of an approximately 8,000 square foot facility addition to the West side of the MURR Reactor Building, a renovation of adjacent space within the Reactor Building, and a renovation of existing space within the Main Industrial Building. The first floor of the addition and renovation spaces will house new hot cell lines for increased production. The addition will include a second floor for hot cell maintenance access, a penthouse for mechanical equipment, and supplies storage.

MURR's innovative design and operating cycle — operating year-round, 24 hours a day, 6.5 days a week, 52 weeks a year — enables MURR to produce the active ingredients in multiple FDA-approved drugs. More than 1.6 million patients a year are diagnosed or treated using the radioisotopes that MURR produces. Because of MURR's unique capabilities, it is a vital resource for patients, health care providers, researchers and industrial partners across the globe.

For more than 50 years, the faculty and staff of the MURR have promoted groundbreaking research and developed life-saving radiopharmaceuticals. MURR has executed multiple production contracts with pharmaceutical companies, and this project enables the line expansion necessary to deliver upon those contracts. $29.5M of construction cost will be funded directly by these committed contracts. The $4.5M cost of the backup line will be financed by MURR reserves generated from MURR earnings.

This project will occur while the current MURR West Addition, approved by the board in June 2022, is still under construction.

Funding for the $34,000,000 project is from University funding. The majority of the cost will be funded by a contract with a pharmaceutical company.

4. **Radioisotope Facility at Discovery Ridge, MU**

This project will construct a new, 33,000 gross square feet (gsf), single story radioisotope processing facility at Discovery Ridge. The types of spaces include processing and research spaces, laboratories, storage space for waste, shipping and receiving space, conference rooms, classrooms, and office space for Missouri University Research Reactor (MURR) and the Department of Energy (DOE).

The DOE Isotope Program (DOE IP) has collaborated with the University of Missouri Research Reactor (MURR) for decades. More recently that collaboration has grown such that MURR was one of the first to join DOE IP's University Network. This new partnering approach allows for economical supply of R&D grade Se-75 and Lu-177 by combining unique strengths. Building on the proven partnering abilities and taking a fresh look at core strengths of each organization has led to the concept of establishing a DOE Isotope Processing Center (DOE IPC) at the University of Missouri in Columbia. The proposed Center would leverage MURR's competency and experience in the weekly processing and supply of short-lived isotopes as active pharmaceutical ingredients (APIs).

Funding for the $39,000,000 project is from anticipated $20,000,000 federal Department of Energy (DOE) funds and $19,000,000 state funds.

5. **Electrical Interconnection and Substation, MU**

Archictect/Engineer Hire February 2023

This project will relocate the Stadium Road Electrical Substation currently located on the southeast corner of Monk Drive and Hospital Drive to a new location on the south side of Virginia Avenue to accommodate new redundant transformers, medium voltage breakers, switchgear, and other electrical equipment. Two new overhead 69kV transmission lines, one from the Hinkson Creek Substation and the other from the Grindstone Substation will be constructed from the south of campus to a new 69kV switch station located south of the General Services Building. An underground electrical duct bank will be constructed between the new switch station and the Stadium Road Substation. The interconnection project will ensure the campus has a redundant power supply and additional capacity to meet demand on peak consumption days.

Funding for the $42,000,000 project is anticipated $20,000,000 in state funds and $22,000,000 in internal funds.

6. **Pickard Hall - Decommissioning and Mitigation, MU**

Pickard Hall is located on the east side of Francis Quadrangle. Currently, the building sits idle due to regulatory complications surrounding the nearly century old contamination from early research in radium extraction. This project will complete the decommissioning process required by the Nuclear Regulatory Commission (NRC). The only way to fully eliminate the long-term liability for MU is to completely remove the building and prepare the site for a future facility. The current building is small but sits on a site that can support more functions in the heart of campus than the current building allows. The site will be prepared for a new signature building, one which respects history yet provides options for the future. The unknown extent of the radium contamination complicates the potential for rehabilitating the building, both in scale and cost. Remediating the contamination necessitates the removal of the basement slab to remove capped piping, removing unknown quantities of brick from the masonry bearing walls, and removing unknown quantities of the wood structural system. These unknowns put the institution at risk for significant cost and time. Complete removal of the building will assure the elimination of the contamination and any regulatory obligations requiring significant staff oversight and unknown future costs. There is, however, no reason to believe that putting off the decision to remove the building will do anything other than allow potential future costs to increase.

Pickard Hall, and the Francis Quadrangle context in which it sits, is important to the physical and emotional fabric of the campus. The intent for future building development is to maintain consistency with the architectural characteristics of the surrounding historic district. Providing a redevelopment site in the core of the historic campus allows the opportunity for a flexible and adaptable building that supports the future goals of the University.

Funding for the $10,000,000 project is from internal funds.

Removed from Capital Plan:

Ellis Library – MU Student Experience Center ($15,000,000): The project planned to move student success units into the library from a nearby building. Upon further investigation through a programmatic study, the financial investment was greater than originally estimated. The scale of the financial investment necessitated removal from the capital plan.

University of Missouri - Columbia
Strategic Projects Development Plan

April 18, 2024

OPEN – FIN – 1-18

FY 25 – University of Missouri – Columbia: Strategic Projects Development Plan

Project						Funding Strategy				
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Memorial Stadium Improvements	NC	NA	NA	$250,000,000	$75,000,000	$125,000,000	$50,000,000	$0	$0
2	Animal Resource Center - Vivarium Facility Expansion	NC	NA	NA	$8,000,000	$0	$0	$0	$8,000,000	$0
3	Roy Blunt NextGen Precision Health Building - 4th Floor Innovation Tower Fit-out	NC	NA	NA	$8,400,000	$0	$0	$8,400,000	$0	$0
4	New Swine Research Facility	RE	N/A	N/A	$10,000,000	$0	$0	$10,000,000	$0	$0
5	Jesse Hall Exterior Masonry/Metal Repairs & Window Replacement	RE	$15.2M	0.27	$15,000,000	$0	$0	$0	$0	$15,000,000
	Total				$291,400,000	$75,000,000	$125,000,000	$68,400,000	$8,000,000	$15,000,000

1. **Memorial Stadium Improvements, MU**

Consultant Selection: Programming Study, December 2023

The Memorial Stadium Improvements project initiates an effort to create an open-air mixed-use development, in the North Concourse area of Memorial Stadium. Such a project embraces the entrepreneurial spirit that has become common and led to profitable ventures in professional sports. The project design must strive to maintain stadium views and engagement to the primary MU Campus north of Memorial Stadium. Primary program elements are envisioned to include: Premium Seating component, variety of improved & modernized concessions, new restroom facilities, new stadium gateway and gate system, multiple open-air observation decks, improved wayfinding and graphics, retail outlets, team recruiting room, engagement between Memorial Stadium and MU campus, integration of new North Endzone scoreboard, preservation and memorialization of the north end zone "M" constructed of rocks.

Funding for the $250,000,000 project is provided by $125,000,000 in gifts funds, $50,000,000 internal funds and $75,000,000 in debt.

2. <u>Animal Resource Center – Vivarium Facility Expansion</u>

Animal Resource Center is a 20,000 gross square foot (gsf) building, designed for future expansion, constructed with American Recovery and Reinvestment Act (ARRA) federal funds following the 2008 recession. Since the facility's opening in 2013, it has served faculty across the campus in areas of cardiovascular, orthopedic, neural regeneration, and muscular dystrophy. The facility is planned to increase capacity to serve current faculty and future recruitment by creating an addition of approximately 10,000 - 12,000 gross square feet which can operate efficiently through the Division of Research, Innovation, Impact – Office of Animal Resources.

The use of animal models is a significant need in the type of research going forward given investments in faculty hiring in the School of Medicine, College of Veterinary Medicine, College of Engineering, and College of Health Sciences. The investment in the Medical Science Building vivarium completed in 2019 has been successful in meeting current and near-term faculty needs for small animals. Currently, other animal models are located at the Animal Resource Center (ARC) and NextGen Precision Health Building. The addition to the ARC will provide opportunities for additional grant projects by providing an adaptable and separated facility which can be used by a variety of research projects across the campus.

The $8,000,000 project is a potential federal grant submission or consideration for internal funding.

3. **Roy Blunt NextGen Precision Health Building – 4th Floor Innovation Tower Fit-Out**

The 4th Floor of the NextGen Precision Health Facility was shelled for future fit-out of areas specifically for bench lab research and a component of the floor that is focused on research team office space or office space for partner businesses. A project to fit out the majority of the 4th floor for bench labs and associated office space is complete.

This project would fit-out the final 10,000 square feet of shell space area by upgrading the originally conceptualized partner office space to instead provide another component of wet lab research space. By upgrading the building systems, the space is capable of housing 85 lab workstations, 10 fume hoods, 7 small accessory labs and an office suite for the research teams.

The fit-out of the laboratories will support additional growth in research grants and contracts.

The $8,400,000 project is under consideration for internal funding.

4. **New Swine Research Facility, MU**

This project will build a new swine research facility at a site to be determined. A study is underway to determine size and location best suited to meet the budget and facilitate the program space to house pigs with surgery and procedure rooms as well as a common lab and office space. This project will expand swine as a biomedical research model program to support a new Institute for Innovative Animal Research. This project supports MU's market leading research on swine models.

The $10,000,000 project is under consideration for internal funding.

5. <u>Jesse Hall Exterior Masonry/Metal Repairs and Window Replacement, MU</u>

The project will repair the exterior deteriorating brick and stone masonry, and ornamental and structural painted metal, and replace the original wood windows.

Jesse Hall has stood as the heart of the iconic campus fabric for more than a century. The building has an FCNI of 0.33 with facility needs over $30.8 million. The building exterior is a combination of brick and stone masonry with ornamental and structural painted metal with original wood windows which are in various stages of deterioration and rotting. The large size (127,000 gsf) and historic significance of the building make it a potential candidate for investments to improve the condition for the future Tigers to come.

The $15,000,000 project is under consideration for state funding.

Removed from Strategic Plan:

Memorial Union – Masonry and Exterior Envelope Repairs Phase II ($11,400,000). The sources of capital are currently under review for exterior repairs on this building and others.

Medical Science Building – Renovation Phase III ($20,000,000). Research space priorities are reflected in the remaining projects in the strategic capital plan. The "three phase" analysis was a conceptual construct to develop budget planning based on what was current at the time related to potential federal sources. At the early stages of the effort, phase 1 was on the capital plan and then phase 2 & 3 were on the strategic plan due to variability in what was anticipated to be available from federal sources. HRSA funds were only sufficient for phases 1 & 2. Phase 3 will remain tabled as a concept until more funding is identified on the horizon. It is not expected that federal sources will continue at current levels, and remaining effort will be focused on CEI.

Laboratory for Infectious Disease Research (LIDR)– Regional biocontainment facility ($52,000,000). This project was listed as a potential competition for federal funds based on the Dec 2022 Omnibus bill, that is the only reason it was included on the strategic development plan for the FY24 submission. There has not been any contact from the federal agency, and the federal budgets are becoming more constrained on research priorities. The University will continue to manage the LIDR within federal guidelines and seek funding when available. It is not expected that significant investment will be available in the five year horizon given investments already made.

Bond Life Sciences Center – Phase II ($80,000,000). Research space priorities are reflected in the remaining projects in the strategic capital plan. The Center for Energy Innovation is the key research related space priority. The animal vivarium, precision health fit out, and swine facility represent more pressing priorities in the strategic listing. The concept will be tabled and could move back onto the strategic plan if a need arises.