

University of Missouri – Columbia  
Fiscal Years 2023 – 2028 Capital Plan

University of Missouri - Columbia: Fiscal Years 2023 - 2028 Capital Plan included in Finance Plan

MU	2023*	2024	2025	2026	2027	2028
	Current Year	Year 1	Year 2	Year 3	Year 4	Year 5
<b>New Construction</b>	<b>\$261,500,000</b>	<b>\$35,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Engineering and Applied Sciences Building	\$150,000,000					
NextGen MURR Phase I	\$36,000,000					
Radioisotope Facility at Discovery Ridge		\$35,000,000				
Thompson Center – New Facility	\$55,000,000					
National Swine Resource and Research Center – Addition	\$8,000,000					
South Farm – Swine Research and Education Facility Addition	\$5,000,000					
Middlebush Farm - NextGen Center for Influenza Research - Phase II Addition	\$7,500,000					
<b>Renovation/Infrastructure</b>	<b>\$134,000,000</b>	<b>\$10,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Ellis Library – MU Student Experience Center	\$15,000,000					
Pickard Hall – Decommissioning and Mitigation		\$10,000,000				
Medical Science Building – Renovation	\$51,000,000					
Mizzou North – Demolition	\$10,000,000					
Electrical Interconnection and Substation	\$42,000,000					
Virginia Avenue Parking Structure Repairs	\$16,000,000					
<b>Total Project Cost</b>	<b>\$395,500,000</b>	<b>\$45,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

\* Projects listed under 2023 are projects approved or will request approval during FY23

University of Missouri – Columbia: Fiscal Years 2023 – 2028 Capital Plan included in Finance Plan Funding

Project					Funding Strategy					
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Engineering and Applied Sciences Building	NC	NA	NA	\$150,000,000	\$0	\$50,000,000	\$0	\$0	\$100,000,000
2	NextGen MURR Phase One	NC	NA	NA	\$36,000,000	\$0	\$0	\$0	\$20,000,000	\$16,000,000
3	Ellis Library – MU Student Experience Center	RE	\$34.0M	0.39	\$15,000,000	\$0	\$0	\$15,000,000	\$0	\$0
4	Radioisotope Facility at Discovery Ridge	NC	NA	NA	\$35,000,000	\$0	\$0	\$0	\$35,000,000	\$0
5	Pickard Hall – Decommissioning and Mitigation	Demo	\$6.5M	0.47	\$10,000,000	\$0	\$0	\$10,000,000	\$0	\$0
<b>Projects with Previous Board of Curators Action in FY23</b>										
1	Medical Science Building – Renovation	RE	\$42.0M	0.37	\$51,000,000	\$0	\$0	\$0	\$51,000,000	\$0
2	Thompson Center – New Facility	NC	NA	NA	\$55,000,000	\$0	\$15,000,000	\$12,500,000		\$27,500,000
3	National Swine Resource and Research Center – Addition	NC	NA	NA	\$8,000,000	\$0	\$0	\$0	\$7,969,580	\$30,420
4	South Farm – Swine Research and Education Facility Addition	NC	NA	NA	\$5,000,000	\$0	\$0	\$0	\$5,000,000	\$0
5	Middlebush Farm - NextGen Center for Influenza Research - Phase II Addition	NC	NA	NA	\$7,500,000	\$0	\$0	\$0	\$5,000,000	\$2,500,000
6	Mizzou North – Demolition	Demo	\$61.2M	0.55	\$10,000,000	\$0	\$0	\$10,000,000	\$0	\$0
7	Electrical Interconnection and Substation	INFR	NA	NA	\$42,000,000	\$0	\$0	\$22,000,000	\$0	\$20,000,000
8	Virginia Avenue Parking Structure Repairs	RE	NA	NA	\$16,000,000	\$14,000,000	\$0	\$2,000,000	\$0	\$0
<b>Total</b>					<b>\$440,500,000</b>	<b>\$14,000,000</b>	<b>\$65,000,000</b>	<b>\$71,500,000</b>	<b>\$123,969,580</b>	<b>\$166,030,420</b>

## **1. Engineering and Applied Sciences Building, MU**

The Engineering and Applied Sciences facility will consist of approximately 125,000 to 150,000 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.

In support of the Mizzou Forward initiatives in New Frontiers in Science, Engineering, and Technology, over the next 5 years the College of Engineering and the College of Arts and Science expects to recruit up to 100 new faculty and attract a cohort of new undergraduates, graduate students, and post doctorates to support its research and education mission. To support that initiative, additional state-of-the-art, interdisciplinary research space is needed to facilitate and support collaborative research initiatives with the overarching mission of creating a more efficient and prosperous world through innovations in energy, computing, and communication.

A programming study in progress is developing a detailed program that encourages and supports collaborative, interdisciplinary research in engineering, and the applied sciences of math, computer science, statistics, physics, and chemistry.

Funding for the \$150,000,000 project is provided by a \$100,000,000 state appropriation and \$50,000,000 in gifts.

## **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.

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.

Funding for the \$36,000,000 project will be from a \$20,000,000 federal appropriation and \$16,000,000 in State funds.

### **3. Ellis Library –MU Student Experience Center, MU**

The project will renovate spaces within Ellis Library to develop a Student Experience Center to support student engagement & success. Renovation of approximately 30,000 gross square feet will realign library spaces to consolidate student centric services on the main floor of the library. Life Safety and infrastructure improvements will be included in the renovation.

Ellis Library is centrally located on campus and plays a crucial role in the academic life of students and faculty. This project will bring into the library building the resources, programs that help Tigers thrive academically and support personal success. This will allow for librarians and other staff professionals to provide a seamless experience for students to navigate available resources.

The following units will be integrated into the space when renovated; MU Connect, Learning Center, Writing Center, Discovery Center, Transfer Center, Center for Academic Success & Excellence, and TRiO Student Support Services.

Funding for the \$15,000,000 will be from internal funds.

### **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 partnership with DOE continues to develop, and if accepted, DOE will fund the project. Details of the real estate agreement will be negotiated as the DOE considers and evaluates the MU proposal.

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-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).

The project budget of \$35,000,000 is to be funded by the Federal Department of Energy (DOE).

## **5. 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 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.

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.

## **Board of Curators Actions thus far in Fiscal Year 2023**

### **1. Medical Science Building- Renovation, MU**

#### ***Project Reapproval November 2022***

This project will be the first phase of a master-planned multiphase renovation as identified in the recently completed Medical Science Building master plan study. This phase one project will focus on renovating select areas of floors which have some of the highest and most imminent facility needs, creating approximately 62,000 square feet of modern, flexible, collaborative research space. The renovated areas in phase one will accommodate approximately 24 research teams. The masterplan when fully implemented in future phases would support approximately 74 research teams using similar metrics.

The Medical Science Building is a key space resource for research laboratories related to the Health Sciences, particularly the School of Medicine. The building has an FCNI of 0.46 with facility needs of \$47 million. The significant size (258,000 gross square feet) and location, connected to the University Hospital, make it imperative to improve the condition before it reaches a critical state. The renovations will allow for the facility to continue to be used as a laboratory resource well into the future. Updated laboratories will accommodate new faculty hires through the School of Medicine (SOM), which is a key component to the implementation of Mizzou Forward.

The project will renovate laboratories for School of Medicine researchers which have not been improved in more than 20 years. Various areas of the building have previously undergone laboratory renovations to successfully create modern modular laboratory areas and collaborative environments. A visioning, programming, and facility needs whole-

building master plan study has been recently completed to determine the scale of the renovations needed, and to identify the required infrastructure improvements.

This project will eliminate \$8.15 million in facilities needs and will increase annual operating cost by \$650,422.

Funding for the \$51,000,000 project is provided by a federal HRSA grant.

**2. South Farm – Swine Research and Education Facility Addition, MU**

***Project Approval February 2023***

The project will construct an expansion of approximately 12,000 gross square feet to the South Farm Swine Research Facility. The expansion will allow the South Farm facility to nearly double animal housing capacity. The project scope was established in a study developed to submit with the HRSA grant proposal in December 2022.

The existing 14,000 gross square feet South Farm Swine Research Facility was completed in Spring 2022 and is comprised primarily of animal holding space. This facility provides critical animal space to accommodate the research programs of new faculty in large animal genetic engineering and will support the National Swine Resource and Research Center, and the Center for Somatic Cell Gene Editing. Increasingly, pigs are being used as models for human disease, and pig models are predicted to make a major contribution to the FDA Critical Path and NIH National Center for Advancing Translational Sciences initiatives directed toward increasing the efficacy of identifying new therapeutic agents and facilitating their more rapid entry into clinical practice.

Funding for the \$5,000,000 project is provided by a federal HRSA grant.

**3. Middlebush Farm - NextGen Center for Influenza Research - Phase II Addition, MU**

***Project Approval February 2023***

The current building provides specialized laboratory space for innovative research inquiry related to replicating a variety of climates. The facility contains two holding rooms and associated procedure rooms with temperature and humidity control to produce extreme conditions. This type of space was not previously available at Mizzou and is rare in the country, making it a unique attribute when competing for grants. The Phase II addition of 8,300 gross square feet is intended to enhance the BSL-2 animal capacity and increase throughput of research studies in influenza and emerging infectious diseases. The Phase II addition will include adaptable animal holding rooms that can transition between animal models, procedure rooms, support spaces, and a connectivity plan for a future Phase III.

The mission of the Middlebush Farm NextGen Center for Influenza Research is to develop and apply systems of biology-based translational approaches to counteract influenza and emerging infectious diseases. The center includes a facility to study infectious disease transmission and vaccinology using various animal models, primarily swine. The Center for Influenza and Emerging Infectious Disease has garnered over \$15 million in NIH and CDC funding during the past two years. Continued investment in this program area is a component of Mizzou Forward.

Funding for the \$7,500,000 project is provided by \$5,000,000 federal HRSA grant and \$2,500,000 state appropriation.

**4. National Swine Resource and Research Center – Addition, MU**

***Project Approval February 2023***

The project will construct an expansion of 12,220 gross square feet to the National Swine Resource and Research Center (NSRRC). The expansion will allow the NSRRC to double animal housing capacity, expand swine lines through breeding under specific pathogen free conditions, supply swine models at various ages, establish novel swine models for new research areas, and supply swine models free of certain viruses for xenotransplantation and gene therapy. The project scope was established in a study developed to submit with the NIH CO6 grant proposal in March 2022.

The National Swine Resource and Research Center is the only National Institute of Health (NIH) funded swine resource center to develop and supply swine models to biomedicine fields. Over the past 19 years, the NSRRC has developed the infrastructure needed to assist swine-based research across multiple disciplines. Increasingly, pigs are being used as models for human disease, and pig models are predicted to make a major contribution to the FDA Critical Path and NIH National Center for Advancing Translational Sciences initiatives directed toward increasing the efficacy of identifying new therapeutic agents and facilitating their more rapid entry into clinical practice. With a sequenced pig genome, major advances have been made in developing swine-specific reagents and creating germline modifications for making genetically engineered swine models. With these tools in place, swine models are making unprecedented contributions toward unraveling the molecular basis of human disease and developing new therapeutic strategies.

Funding for the \$8,000,000 project is provided by \$7,969,580 NIH CO6 federal grant and \$30,420 from state appropriation.

**5. Thompson Center – New Facility, MU**

***Project Approval February 2023***

The new facility will provide approximately 74,000 square feet of space to comprehensively house all aspects of the Thompson Center under one roof including clinical diagnostic and intervention services, translational research, and training initiatives. The new facility will expand access to appointments with additional clinic space to accommodate more clinicians, development of new types of spaces for observation to enhance research opportunities and provide integrated training space in the facility that will serve both internal providers and others involved in the specialties of serving individuals, families, and communities.

The Thompson Center for Autism and Neurodevelopment at the University of Missouri was inaugurated in 2005 and has been leading the field of autism and neurodevelopment as a model of collaborative best practices in evidence-based care, translational research, and training excellence.

Based on the medical home model, Thompson Center diagnostic, assessment, and treatment services emphasize family-centered care that is comprehensive, coordinated, compassionate, culturally sensitive, and accessible for all. The mission of the Thompson Center is to improve



the lives of individuals and families affected by autism spectrum disorder and neurodevelopmental disorders through world class programs that integrate research, clinical service delivery, education, and public policy.

Over years of growth in services and programs, the Thompson Center has outgrown its original Portland Avenue location and expansion into an adjacent building on the same property is underway. The two buildings are located on a sloped site, not physically connected, with space on two stories in each building, making it challenging to provide an easy to navigate environment for the individuals and families receiving care through the Thompson Center.

Funding for the \$55,000,000 project is from \$27,500,000 state appropriation, 15,000,000 in gifts and \$12,500,000 from internal funds.

**6. Mizzou North - Demolition, MU**

***Project Approval September 2022***

This project will demolish Mizzou North and the adjacent single story block garage. The project will abate hazardous materials from the building and disconnect all utilities prior to demolition. The site will be graded, site lighting reconnected, and parking lot restored to pre-demolition condition. The project Construction Waste Management Plan has a target goal of at least 50% of non-hazardous demolition and construction debris generated by the project be diverted through recycling or salvage.

The Strategic Space Reduction plan identified Mizzou North as a building with extremely high facility needs and low occupancy. The 223,000 gross square feet building is estimated to need more than \$61.2 million in facility needs and has a FCNI of 0.65. The building is currently unoccupied.

Funding for the \$10,000,000 project is by campus funding.

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

***Architect/Engineer Hire February 2023***

This project will either expand or relocate the Stadium Road Electrical Substation located on the southeast corner of Monk Drive and Hospital Drive 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 primary source of electrical power for the campus is provided by the MU Power Plant. A secondary source was provided in 1995 with the installation of a 69kV interconnection to the City of Columbia's transmission grid through a single 40 MVA transformer. This connection provides critical back up power for the campus in the event the power plant has issues or shuts down for any reason.

Current peak electric demand on the MU campus is 15% higher than the intertie capacity and continues to grow as new facilities are completed. Campus planned growth is forecasted to exceed the power plant's 54 MW capacity within the next five years. Once this occurs, the campus will be at an increased risk of power outages since it will be dependent on electric supply from both sources. Failure of any major system component, such as the main tie breaker, tie transformer, or a plant generator would require procurement of long lead equipment which would result in a shortage of power for an extended period.

A study was completed in late 2021 that looked at options to provide reliable, cost-effective electrical power to the campus. The study recommended a second 40 MVA transformer as well as a second utility interconnection with the city transmission grid as the most resilient and cost-effective solution to facilitate future growth on campus without compromising the reliability of the power distribution infrastructure.

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

#### **8. Virginia Avenue Parking Structure Repairs, MU**

##### ***Project Approval September 2022***

This project will provide repairs needed to stabilize the parking structure. A model of the garage is being created to determine the required repairs.

The Virginia Avenue Parking Structure was constructed as a design/build project in 2002. The 577,631 gross square feet structure is located between Hitt Street and Virginia Avenue, north of the University Physicians Medical Building and provides over 1850 parking spaces and over 23,000 gross square feet of finished space for MU Police Department and Landscaping. In the fall of 2021, a joint separation was identified at the southwest corner of parking structure. Structural Engineers were engaged to evaluate the garage and additional locations were identified. These locations have been stabilized and are monitored regularly.

Additional connections are expected to continue to fail if the garage experiences ongoing movement. The Structural Engineers have closely monitored the parking structure since the first report of joint separation, and continues to ensure MU PD&C and P&T that the garage is safe to park in. However, persistent movement will compromise additional joints and could compromise the safety of the parking structure if not addressed. While there are currently no signs of impending collapse, future movement resulting in additional connection failures will likely lead to the necessity of closing the garage from occupancy and closing parking lots and streets around the perimeter of the garage.

Funding for the \$16,000,000 project will be \$14,000,000 in debt and \$2,000,000 in parking reserves.

University of Missouri - Columbia  
Strategic Projects Development Plan

FY 2024 - University of Missouri – Columbia: Strategic Projects Development Plan

Project					Funding Strategy					
#	Title	Type	Facility Needs	FCNI	Total Cost	Debt	Gifts	Internal	Federal	State
1	Animal Resource Center - Vivarium Facility Expansion	NC	NA	NA	\$8,000,000	\$0	\$0	\$8,000,000	\$0	\$0
2	Bond Life Sciences Center - Phase II	NC	NA	NA	\$80,000,000	\$0	\$0	\$80,000,000	\$0	\$0
3	Medical Science Building - Renovation Phase III	RE	\$42.0M	0.37	\$20,000,000	\$0	\$0	\$5,000,000	\$0	\$15,000,000
4	Jesse Hall Exterior Masonry/Metal Repairs & Window Replacement	RE	\$15.2M	0.27	\$15,000,000	\$0	\$0	\$15,000,000	\$0	\$0
5	Laboratory for Infectious Disease Research – Regional Biocontainment Lab Addition	NC	NA	NA	\$52,000,000	\$0	\$0	\$0	\$52,000,000	\$0
<b>Total</b>					<b>\$175,000,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$108,000,000</b>	<b>\$52,000,000</b>	<b>\$15,000,000</b>

### **1. Animal Resource Center – Vivarium Facility Expansion, MU**

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 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. Given future plans to recruit new faculty across campus as part of Mizzou Forward, 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.

Funding for the \$8,000,000 project is internal funds.

### **2. Bond Sciences Life Center – Phase II, MU**

When the Bond Life Sciences Center was originally designed, the building was sited to accommodate future expansion to the east. This project would revisit that concept to develop laboratories for future research initiatives.

MU was among the first institutions to commit to interdisciplinary research. The Life Sciences Center was completed in 2004 and includes state-of-the-art laboratories, shared meeting areas, and public spaces that provide unmatched opportunities for interdisciplinary research as a component of the Mizzou Forward initiative.

Funding for the \$80,000,000 project is from internal funds.

### **3. Medical Sciences Building –Renovations Phase III, MU**

The Medical Science Building is a key space resource for research laboratories related to the Health Sciences, particularly the School of Medicine. The building has a FCNI of 0.37 with facility needs of \$42 million. The significant size (258,000 gross square feet) and location, connected to the University Hospital, make it imperative to improve the building condition before it reaches a critical state. The renovations will allow for the facility to continue to be used as a laboratory resource well into the future.

This project continues the work started with the renovations funded in 2023 which focuses select areas of multiple floors which have some of the highest and most imminent facility needs,

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creating approximately 62,000 net square feet of modern, flexible, collaborative research space. The renovated areas in phase one will accommodate approximately 24 research teams. The continuation of the masterplan when fully implemented in future phases would support approximately 74 research teams using similar metrics.

The revised project will renovate laboratories for School of Medicine researchers which have not been improved in more than 20 years. Various areas of the building have previously undergone laboratory renovations to successfully create modern modular laboratory areas and collaborative environments. A building master plan study has been recently completed to determine the scale of the additional renovations needed, and to identify the associated infrastructure improvements.

Funding for the \$20,000,000 project will be from a state request of \$15,000,000 and \$5,000,000 from internal funds.

#### **4. Jesse Hall Exterior Masonry/Metal Repairs and Window Replacement, MU**

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 0.27 with facility needs over \$15 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.

Funding for the \$15,000,000 project is from internal funds.

#### **5. Laboratory for Infectious Disease Research – Regional Biocontainment Lab Addition, MU**

The project will consist of new construction additions and minor interior renovations to the Laboratory for Infectious Disease Research (LIDR). The building has capacity for expansion to the east and west of approximately 30,000 – 50,000 gross square feet. The proposed expansion involves the creation of Arthropod Containment Level (ACL) 1, 2, 3 laboratory facilities, ABSL3 animal housing, and a hub for computational biology to accommodate collaborative interdisciplinary research on arthropod-microbe-vertebrate/plant interactions. This project could include specialized growth chambers, micromanipulators, high resolution imaging, and state-of-the-art bioprinting technologies as well as computational infrastructure for predictive modeling and data management that together create unique capabilities that position MU and the nation to be a global leader in arthropod-microbe interactions.

The University of Missouri Laboratory for Infectious Disease Research (LIDR) is a Regional Biocontainment Laboratory opened in 2010 funded by a competitive grant from the National Institute of Allergy and Infectious Diseases (NIAID), a division of the National Institutes of Health (NIH). LIDR is a critical resource for University of Missouri faculty and collaborating

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scientists who perform research on infectious diseases and is part of our nation's effort to protect public health. Built to the highest state and federal safety standards, this building aids researchers in the discovery and development of new ways to fight bacterial and viral infections.

The new space will continue LIDR's mission as an interdisciplinary workplace fostering communication and collaboration among a diverse group of scientists of all areas in STEM, who study various aspects of arthropod-microbe interactions that involve a wide range of arthropod hosts and microbial flora. This work will further "Rules of Life" research because these facilities will enable (1) development of relevant experimental and mathematical models to forecast complex biotic and abiotic interactions that impact animal and plant populations in the US and globally; and (2) arthropod genome manipulation through CRISPR-based approaches to study the interface between hosts and microbes, including the molecular interactions between the microbe and the invertebrate immune systems.

Funding for the \$52,000,000 project is a federal competitive grant submission.

