FISCAL YEAR 2020
CAPITAL OUTLAY PROJECT REQUEST

Institution Name: **CENTRAL MICHIGAN UNIVERSITY**
Project Title: **BROOKS HALL RENOVATION**

Project Focus: ✔Academic ✔Research ✔Administrative/Support

Type of Project: ✔Renovation ☐ Addition ☐ New Construction

Program Focus of Occupants: **The renovation of Brooks Hall will provide modern spaces that foster greater collaboration among students, faculty, staff and community partners as well as enhance (1) support for students and high-demand academic programs in the sciences, (2) safety and energy efficiency of the building, and (3) research facilities for health and medical research.**

Approximate Square Footage: **128,000**

Total Estimated Cost: **$28,500,000**

Estimated Start/Completion Dates: **Planning has commenced on this project with construction to follow. Since this is a renovation, completion will be an estimated 36-42 months after the start of construction, with work occurring only during the summer months so learning is not disrupted during the academic year.**

Is the Five-Year Plan posted on the institution's public internet site?	✔Yes	No ☐
Is the requested project the top priority in the Five-Year Capital Outlay Plan?	✔Yes	No ☐
Is the requested project focused on a single, stand-alone facility?	✔Yes	No ☐

Please provide detailed, yet appropriately concise responses to the following questions that will enhance our understanding of the requested project:

Describe the project purpose.

The proposed project will convert an outdated building into a modern, safe, energy-efficient facility that supports effective teaching, learning, and research in high-demand fields of science and engineering.

Brooks Hall was constructed in 1964, and its outdated design does not meet today's requirements for teaching, learning, research or laboratory safety in the sciences. Construction of the new Biosciences Building alleviated some of the needs, but CMU's recent space utilization study demonstrated that laboratory space for the sciences is still insufficient. The proposed renovation of Brooks Hall will improve safety for building users, enhance energy efficiency, increase the amount of high-quality research space and provide a centralized location for the College of Science and Engineering's Student Success Center.

Portions of Brooks Hall that were vacated following construction of CMU's Biosciences Building have been allocated to other programs. When renovated, Brooks Hall will house:

- Space for the Office of Laboratory and Field Safety, including a dedicated area for safe handling of chemical wastes.
- Academic programs in astronomy, environmental engineering, environmental science, fermentation science, geology, meteorology and neuroscience, as well as biology courses taken by students pursuing degrees in health professions and students completing general education requirements.
- A centralized Science and Engineering Student Success Center, which will offer services including academic advising, tutoring, success coaching and career services.

- Modernized instructional classrooms, research laboratories and support spaces including a new vivarium with bioexclusion zones to advance important research in biochemistry, neuroscience, health and medicine, support interdisciplinary programs, grants and contract work.

The project also will include heating, ventilation and air conditioning (HVAC) improvements, as well as modernization to enhance air quality and energy efficiency. These changes in air handling and exhaust will significantly improve safety for students, faculty and staff working in the laboratories.

Describe the scope of the project.

This project will involve renovation of 128,000 square feet at an estimated cost of $28.5 million. Initial program planning has commenced and completion is estimated at 36-42 months after the start of construction, with work occurring primarily during the summer so learning is not disrupted during the academic year.

Spaces that will be updated and enhanced by the renovation include instructional classrooms, instructional laboratories, research laboratories, administrative support space for several academic and research programs, and facilities that will enhance laboratory safety including chemical waste handling. The HVAC system will concurrently be enhanced to improve safety and energy efficiency of the building. New spaces to be created by the renovation are the vivarium and the Science and Engineering Student Success Center.

1. **How does the project enhance Michigan's job creation, talent enhancement and economic growth initiatives on a local, regional and/or statewide basis?**

   Science was cited as a primary area of interest by thirty-nine percent of the CMU new freshman class, and most of those students will take classes in Brooks Hall. The renovated spaces will keep students excited about science, increasing retention and enrollment in science, technology and engineering programs. The improved research facilities will allow more students to participate in hands-on research, which provides rich experiential learning and helps students develop skills for success in scientific and technical careers. CMU predicts this project will grow enrollment in the sciences by 5 percent.

   Many careers on Michigan's Hot 50 jobs list from the Bureau of Labor Market Information and Strategic Initiatives are related to health care. CMU science programs are popular among students choosing to pursue "Hot 50" jobs such as:

   - Physician Assistants, with 37.8 percent anticipated growth in Michigan jobs (2016-2026);
   - Occupational Therapists, with 22.9 percent growth;
   - Physical Therapists, with 27.4 percent growth;
   - Registered Nurses, with 13.5 percent growth;
   - Physicians and Surgeons, with 9.8 percent growth;
   - Nurse Practitioners, with 34.3 percent growth; and
   - Health Specialties post-secondary Teachers, with 25.4 percent growth.

   Undergraduate major programs in biology and biomedical sciences are in high demand among students who plan to pursue careers in medicine and other health professions, and these students will all benefit from the proposed renovations. Other programs housed in Brooks Hall include astronomy, environmental engineering, environmental science, geology, meteorology and fermentation science. CMU is the only Michigan university offering an undergraduate meteorology major.

A renovated Brooks Hall also will be home to the College of Science and Engineering's Student Success Center. This center will be a high-profile space dedicated to undergraduate student success and achievement. Services provided include academic advising, career services, internship placements and tutoring. Time spent with advisors is proven to increase retention and persistence, and gives students a focused plan for timely degree completion.

Additionally, new collaborative workspace for students will be included in the project. Research clearly shows that engaged students are more likely to succeed in their studies. This modernized and upgraded space will maximize student engagement with faculty and peers, expand active teaching and learning, and promote collaborative work. This activity is essential to preparing students for the professional world, while increasing performance outcomes such as retention and graduation.
CMU prides itself on serving the students, parents and taxpayers of the state of Michigan. Nearly 90 percent of on-campus CMU students come from Michigan, sharing a natural and deep interest in serving the state's communities and residents. In fact, about 70 percent of CMU alumni—more than 135,000 — chose to live and work in the state, improving lives, the economy and communities.

CMU has a robust Career Development Center that has built extensive relationships with employers across the state and that supports the employment efforts of recent graduates as well as alumni. More than 16,000 employers hire CMU graduates each year.

2. How does the project enhance the core academic and/or research mission of CMU?

This project request focuses on enhancing the core academic and research mission of CMU. The Brooks Hall renovation will provide a modern facility for students in many fields of science. The enhanced and modernized classrooms and laboratories will foster innovative teaching and learning and will expand opportunities for students to conduct research with faculty members.

CMU is a major national university, among only 5 percent of U.S. institutions of higher education in the highest two Carnegie research classifications. Unlike many research universities, CMU is committed to providing opportunities for undergraduate students to engage in original research with faculty mentors. In 2017-18, for instance, over 400 science and engineering undergraduate students participated in faculty-led research projects and more than 30 of those students were co-authors on published scientific papers.

The proposed facility will foster greater collaboration among faculty, staff, students, community partners and the following CMU colleges:

- College of Liberal Arts and Social Sciences;
- College of Science and Engineering;
- The Herbert H. and Grace A. Dow College of Health Professions; and
- College of Medicine

These collaborations will improve the training of students for many high-demand occupations in Michigan such as the health-related jobs listed above, as well as fostering interdisciplinary research in important fields such as neuroscience and environmental sciences and engineering.

3. **How does the project support investment in or adaptive re-purposing of existing facilities and infrastructure?**

   This project will revitalize a structurally sound 54-year-old building that is significantly outdated in its design and contents, expanding its useful life by decades. The renovation will enhance laboratory safety, including chemical waste handling. The HVAC system will concurrently be enhanced to improve safety and energy efficiency of the building. The overall goal is to enhance the space to meet the needs of students and researchers today and in the future. The skills students attain in Brooks Hall are the foundation of their academic knowledge in the fields of science. Their time spent in Brooks plays a critical role in helping them grow personally and intellectually as they decide on a career path, often in science, medicine and other health professions.

   The renovation will far better utilize the space. Master planning efforts identified efficiencies to be gained in this building, while also allowing for better laboratory space with cutting-edge technology critical for scientific research, as well as support space for students, researchers and academic programs. This renovated facility also will allow for a centralized bioexclusion zone vivarium for research in medicine and neuroscience.

4. **Does the project address or mitigate any current health/safety deficiencies relative to existing facilities? If yes, please explain.**

   Yes. The current building was constructed in 1964 and the laboratory space was not built to meet today's standards of laboratory safety. While it has served CMU students and faculty for more than five decades, its fume hoods are dated and need to be replaced in order to mitigate air quality issues. The design process for the hoods will also look for inefficiencies in the HVAC system and identify optimal improvements. The new space will meet increasingly stringent regulations, including those for expanded ADA compliance.

   A renovated Brooks Hall will also house a bioexclusion zone vivarium. This type of vivarium provides greater efficiency in research and mitigates the possibility of exposing animals to other contaminants during research studies. Research performed in current facilities is limited because CMU does not have such a vivarium. The vivarium will allow growth in research activities in neuroscience, biomedical science, health professions and medicine.

   Brooks Hall also needs additional space to safely process chemical and hazardous waste for disposal. Such activity is currently carried out in the chemistry stockroom, which has a very small hood and limited bench space. A suitable dedicated room for waste processing will move this activity away from the current preparation/storage areas and foot traffic.

5. **How does the institution measure utilization of its existing facilities, and how does it compare relative to established benchmarks for educational facilities? How does the project help to improve the utilization of existing space and infrastructure, or conversely how does current utilization support the need for additional space and infrastructure?**

   CMU has completed an exhaustive campus master planning process. A major part of this process was the completion of a space utilization study. The study utilized national standards as prescribed by the Postsecondary Education Facilities Inventory and Classification Manual as well as the Space Utilization Guidelines of the State of Michigan Major Project Design Manual. These standards place an emphasis on safety and share best practices related to facilities. The analysis found that CMU is operating at capacity in many buildings, including in Brooks Hall. Laboratory utilization in Brooks is near the highest on campus.

The planned renovation will convert poor-quality, outdated and unsafe laboratories into modern research space with cutting-edge technology. This renovation will allow for high-level research that requires additional hood space and air handling, and will create flexibility in scheduling laboratory space across campus.

The teaching laboratories in Brooks Hall are heavily scheduled throughout the week and it is important to note that this laboratory space is necessary for the delivery of our programs. In the fall 2017 semester alone, 102 course sections requiring labs were held in Brooks Hall. All were at or near capacity. The classes taught in Brooks Hall cannot be accommodated elsewhere on campus. The renovation will improve the utility of these facilities by allowing a wider variety of experiments and observations to be conducted safely by science and engineering students.

6. How does the institution intend to integrate sustainable design principles to enhance the efficiency and operations of the facility?

The project will be built utilizing the Central Michigan University design standards which incorporate sustainable technology and practices ensuring that proven energy and environmental improvements will be implemented across all aspects of the design and construction of this project.

Primary components of sustainable design for the Brooks Hall project include:

- Energy recovery will be implemented resulting in significant energy savings over the existing hoods, which currently operate on individualized fans with 100 percent outside air.
- A control upgrade resulting in improved operations, occupant comfort, the ability to schedule spaces and improved energy control.
- Upgraded lighting controls throughout the facility, including areas such as classrooms and offices. In addition, new lighting controls for common spaces such as hallways.
- The addition of LED lighting in key locations throughout the building
- Installation of high-performance glass on external windows. The current windows are single pane glass.
- Enhanced commissioning is a standard practice for CMU.
- Sustainable design principles will be used in the design and construction of the project. The project will be reported and measured using the LEED Green Building Rating System, in accordance with the DTMB Capital Outlay Design Manual.

CMU consistently proves its commitment to sustainable design, as certified under the U.S. Green Building Council's LEED system. CMU's new Biosciences Building has applied for LEED Silver certification and its Graduate Student Housing was the first multifamily Platinum LEED building in the Midwest.

7. Are match resources currently available for the project? If yes, what is the source of the match resources? If no, identify the intended source and the estimated timeline for securing said resources?

Yes, CMU plans to use currently available university construction reserves for this project. We are also working to secure additional private/foundation gifts and industry partners to offset the construction costs of the renovation, which is one of the university's master plan priorities. CMU is committed to this project and looks forward to working with the state to provide our students with modernized facilities to enhance their opportunities for success in high demand fields of science and engineering, while also fulfilling employer needs across the state.

8. **If authorized for construction, the state typically provides a maximum of 75 percent of the total cost for university projects and 50 percent of the total cost for community college projects. Does the institution intend to commit additional resources that would reduce the state share from the amounts indicated? If so, by what amount?**

   CMU intends to fund the project at the required 25 percent match, with the maximum 75 percent requested from the state. CMU is committed to making additional investments in adjacent spaces not currently included in the project scope.

9. **Will the completed project increase operating costs to the institution? If yes, please provide an estimated cost (annually, and over a five-year period) and indicate whether the institution has identified available funds to support the additional cost.**

   No, the project goal is that CMU will be able to lower operating costs for the building through sustainable design, LEED practices, and good engineering principles such as energy recovery and control improvements.

10. **What impact, if any, will the project have on tuition costs?**

    This project will not impact tuition rates. CMU maintains its commitment to low annual tuition increases. CMU has had the lowest cumulative undergraduate tuition increase of any Michigan public university over the past nine years. Our average undergraduate tuition rate is the lowest among Carnegie classified research intensive public universities in the state of Michigan.

11. **If this project is not authorized, what are the impacts to the institution and its students?**

    This project is essential to the continued success of CMU students, faculty and staff who utilize the facility. The current, outdated spaces of this facility are heavily utilized, but faculty and student research is limited by the capabilities of the current facility. This project is critically important to enhance the space to meet the needs of students today and in the future. Without this renovation, research and laboratory space (including vivarium space) will continue to be limited, minimizing student and faculty research.

    At CMU, we largely serve Michigan students. By having renovated, modern facilities, we keep students from choosing out-of-state options in search of better facilities. By keeping students in the state for their education, they are more likely to stay in Michigan, serving our communities and the employers who so desperately need their expertise.

12. **What alternatives to this project were considered? Why is the requested project preferable to those alternatives?**

    CMU's Board of Trustees approved a 10-year campus master plan and capital projects list following an extensive, campus wide review of options and alternatives. The 10-year list was developed by a cross-campus team of faculty and staff based on input from thousands of on-campus and community stakeholders.

    The Brooks Hall Renovation is as a top priority on that list, based on safety needs, student demand, laboratory usage, scholarly research opportunities and state needs. Thirty-nine percent of CMU new freshmen cite science as a primary area of interest. This project was chosen due to student demand and the extensive need to update the facility to meet the space requirements of students today and in the future.

One other project was considered at this time. This was a renovation to Pearce Hall, which opened in 1967. Pearce Hall serves many students in their first two years of coursework and is the home of programs such as mathematics, computer science, and world languages and cultures. While both facilities need substantial renovations, Brooks Hall was chosen due to growing demand in the sciences, significant research opportunities and the job demands of employers. As such, this proposed capital outlay project will further Michigan's leadership in the sciences.