

**BOARD OF REGENTS**  
EASTERN MICHIGAN UNIVERSITY

SECTION: 20
DATE: October 25, 2018

**RECOMMENDATION**  
**FISCAL YEAR 2020 STATE CAPITAL OUTLAY PLAN**

**ACTION REQUESTED**

It is recommended that the Board of Regents approve the University's Capital Outlay Plan and delegate authority to the President to submit the renovation of Jones and Goddard Halls as Phase II of the College of Technology Engineering Program Growth and Expansion as the University's top project request for state cost participation for Fiscal Year 2020.

**STAFF SUMMARY**

The State Budget Office issued its Fiscal Year 2020 Capital Outlay Budget memorandum to University Presidents on August 23, 2018. The Management and Budget Act, Public Act 431 of 1984, as amended, requires universities to present a Five-Year Capital Outlay Plan no later than November 1 of each year. Universities may also elect to submit a capital outlay project request for state cost participation.

Jones and Goddard Halls are currently closed buildings previously used as University housing and are located adjacent to Sill Hall. Sill Hall houses the University's College of Technology and its School of Engineering Technology. The project would include selective demolition of both Jones and Goddard halls to provide the renovation of 44,000 sq. ft. within Jones Hall and a 26,000 sq. ft. addition from the existing open courtyard space between the two buildings. The remaining un-renovated Goddard Hall space will be saved for future uses by the University. The additional 70,000 sq. ft of academic space would allow the University to continue its expansion of the engineering programs beyond the Mechanical, Computer and Electrical Engineering programs currently being offered to future Civil, Chemical and Industrial Engineering programs. The project also provides space for student engineering and technology organizations, student advising centers and collaboration and maker's spaces, professional business and community outreach offices, expanded faculty offices, and a new office for the College of Technology's Dean.

The Renovation would address over \$43 million in deferred maintenance and asset preservation needs which include:

- Outdated room layouts, orientations and sizing;
- Obsolete and failed mechanical, plumbing and electrical systems;
- Energy inefficient windows and other building envelope systems;
- Inadequate handicap (ADA) accessibility;
- Failed and damaged interior systems and finishes

To comply with the statutory requirements, Eastern Michigan University will post its Five-Year Capital Outlay Plan on the institution's internet site by October 31, 2018.

**FISCAL IMPLICATIONS**

The approved cost to complete Phase II of the College of Technology Engineering Program Growth an Expansion at Jones and Goddard Halls is \$40.0 million. At a funding mix of 75% State / 25% Eastern, the University's cost share would be \$10 million.

**ADMINISTRATIVE RECOMMENDATION**

The proposed Board action has been reviewed and is recommended for Board approval.



University Executive Officer

Date

OCTOBER 25, 2018



**Jones Hall**  
(Phase 2)  
From Southeast

## **IMPLEMENTATION PLAN**

COLLEGE of TECHNOLOGY

ENGINEERING PROGRAM GROWTH AND EXPANSION

Sill Hall /Jones Hall

EASTERN MICHIGAN UNIVERSITY

Building Maintenance Projects > \$1 Million

## COLLEGE of TECHNOLOGY ENGINEERING PROGRAM GROWTH and EXPANSION

<i>Is the Project a renovation or new construction?</i>	Ren (X)	New (X)
<i>Is there a 5-Year Master Plan available?</i>	Yes (X)	No ( )
<i>Are professionally-developed Program Statements and/or Schematic Plans available now?</i>	Yes (X)	No ( )
<i>Are Match Resources currently available?</i>	Yes (X)	No ( )
<i>Has the University identified available Operating Funds</i>	Yes (X)	No ( )

### Executive Summary

Eastern Michigan University (EMU) is developing a comprehensive **Engineering and Technology Complex to accommodate its new academic programs in Mechanical Engineering, Electrical & Computer Engineering, and Civil Engineering, as well as its existing engineering technology programs.** Nearly 90% of EMU's students come from Michigan, and approximately 72% of our graduates remain in Michigan after graduation. These new high-demand technology-focused programs will therefore prepare Michigan residents for high-demand, high-wage engineering careers to continue growing Michigan's economy. The new Engineering and Technology Complex includes (1) renovation and expansion of Sill Hall, which will be fully-funded by the University, and (2) a comprehensive renovation and expansion of nearby Jones Hall, which is currently vacant. In sum, this project will create a significant new pipeline for engineering students in Michigan while also re-purposing an aging building and creating an integrated engineering technology campus with close partnerships to Michigan businesses.

### Introduction

Michigan has seen a considerable transformation in both demographics as well as business and industrial needs. Certain disciplines in technology are no longer attracting enough students to remain sustainable while businesses and industries are coping with a deficiency of qualified engineers. Furthermore, many high school graduates are demanding more career-driven disciplines that can assure reasonable career success. With the ever-changing and increasing world of technology, there is a vastly increasing need for educated and qualified engineers in Michigan and throughout the country. To respond to these realities, and to enhance the investments made and committed in EMU's laboratories, classrooms and faculty, the EMU College of Technology is committed to improving and expanding its engineering program offerings to meet the current and future needs of Michigan's economy.

EMU's College of Technology currently offers diverse academic programs including seventeen (17) baccalaureate programs and ten (10) graduate degrees and certified programs through its five Schools:

- Engineering Technology
- Information Security and Applied Computing
- Technology and Professional Services Management
- Visual and Built Environments
- Military Science and Leadership

Through planning and benchmarking, the College has reviewed the current and planned programs and facilities to develop a program and Master Plan to support long and short-term College goals. With new programs in Mechanical Engineering, Electrical and Computer Engineering, and Civil Engineering, as well as expansions of our existing engineering technology programs, the College of Technology projects growth from the current 2,300 students to approximately 3,800-4,000 students (an increase of more than 65%) in the next ten to fifteen (10-15) year period. Demographic studies have indicated approximately 72% of Eastern Michigan students stay in Michigan for their careers; these new programs will therefore support Michigan's economy.

In comparing the current College of Technology facilities to peer institutions, the College is undersized by about 25% of available gross square footage per student with an average of 74 gsf/student. EMU has developed a two-pronged plan for "right-sizing" the College for the current student population, along with a proposed plan to meet the needs of an increased class size for approved and future planned program offerings.

The Master Plan to meet the current and future needs of the College of Technology, Engineering Program Growth and Expansion involves renovations and additions to Sill Hall to right size for current offerings, and renovations and additions to Jones Hall to create room for new and future growth.

In addition to adding dedicated program space, it is essential that the right types of space are provided to support them. Beyond lab and classroom space, it is important to include areas for students to learn by doing hands on activities and student collaboration/teaming areas.

Highlights of these support spaces include;

- Maker Spaces
- Specialty Labs
- Computer/Simulation Labs
- Virtual and Augmented Reality Labs
- Research Labs
- Student Success Suites
- Student Collaboration areas
- Student Organization and Support areas

### **Engineering Program Growth Plan**

EMU's Board of Regents approved a Mechanical Engineering program in February 2017. This discipline accepted Freshmen, Sophomore and Junior level students beginning with the Fall Semester 2017. All student levels are expected to be represented in the Fall Semester 2018. The program plans to offer Graduate level programs beginning in the Fall Semester 2021 pending Regent approval.

The Board of Regents approved the Electrical and Computer Engineering program in October 2017. The University will start with Freshmen and Sophomores in the Fall Semester 2018. All student levels are expected to be represented in the Fall Semester 2020. Graduate level programs are proposed to begin in Fall Semester 2021.

Pending Regent approval, Civil Engineering will start in the Fall Semester 2019 with Freshmen and Sophomore student representation. All students are expected to be represented in the Fall Semester 2021. Graduate level programs are proposed to begin in Fall Semester 2022.

Other Engineering Program disciplines, such as Chemical Engineering and Industrial Engineering, are in the planning stages with the intent of offering classes in the Fall Semester of 2021 or 2022.

To meet these program needs, it is estimated an additional 75,000 sf of advanced program space will need to be created.

### **Renovation of Sill Hall – Local Capital Efforts**

The modernization of Sill Hall was identified as the first priority of meeting the Engineering Program needs. To that end, EMU's Board of Regents approved a \$40 million renovation and addition project for Sill Hall in December 2017. This project is currently in design development with construction scheduled to commence in January 2019 and for completion in August 2020.

Sill Hall, built in 1965, is composed of three distinct areas: a single-story, high-bay structure; a two-story classroom and administrative support structure; and a single-story lecture hall area. These three areas comprise a total of 92,635 gsf.

The high-bay structure provides large volume space for advanced laboratory utilization needs that are important to the Mechanical Engineering discipline such as:

- Manufacturing Lab
- Automotive Lab
- Thermo-Fluids Lab
- Casting/Welding Lab
- Robotics Lab
- Plastics Lab

While the space provides area for the Mechanical Engineering program needs, the existing infrastructure and building systems do not meet the engineering programs' advanced needs, and do not offer any ability for expansion and growth. The project will fully renovate the building systems, components and finishes, as well as increase systems capacity to meet the growth needs and provide for the future.

In addition to renovating the single-story, high-bay portion of Sill, the two-story structure would also be reconfigured and renovated to create general teaching labs, classrooms and student collaboration areas for Mechanical and Electrical/Computer Engineering disciplines.

The third area containing the Lecture Halls has undergone minor renovations to interior finishes, but the supporting building systems are beyond their useful life and will be replaced. Additionally, remote office spaces would be relocated, with the areas reconfigured as student "Maker's Space" and collaboration areas.

Condition Assessments have identified Sill Hall as having the greatest need for updating the building enclosure and building systems compared to all the COT buildings. Combining the programmatic improvements with new building systems, building envelope and learning environment will be the first step in meeting the Engineering Program needs.

The project will include full replacement of HVAC, plumbing, electrical and fire suppression systems, as well as use of modern, sustainable interior finish materials and systems. The project will be designed in compliance with the Americans with Disabilities Act, and will strive for LEED Silver certification. The project budget for this phase is \$40 million and is intended to be funded locally through various sources.

### **Engineering and Technology Complex - State Capital Outlay Request**

EMU is pleased to submit our State Capital Outlay Request for FY2020. While the renovation of Sill Hall is underway, it is only the first phase of the overall effort and cannot provide the additional area needed to meet the engineering programs' immediate and future growth. Sited between the two major College of Technology facilities (Sill Hall and Roosevelt Hall) stands Jones and Goddard Halls. Originally constructed as residence halls, and closed from use in 2005, the halls have only seen use as temporary swing-space storage for equipment and furnishings from other capital projects. Now in severe need of renovation and restoration, the University has developed a plan to first utilize Jones Hall, combined with selective demolition and a corresponding advanced-technology addition to provide not only the additional square footage needed for the engineering programs, but also create a "Engineering and Technology" campus within the University's borders. This program-based campus approach will increase student interaction, expand interdisciplinary instruction, and offer flexible learning spaces for modern and future teaching pedagogies.

Built in 1948 and containing 70,491 sf, Jones Hall will take the lead in repurposing these classic structures as the new Engineering and Technology Complex. The adjacent Goddard Hall is being reserved for other future uses by the College and the University.

The adaptive reuse of Jones Hall is a goal and priority of EMU and the College of Technology because it is key to expanding EMU's growing Engineering and Technology Programs. This project will include partial demolition of the east wings of Jones Hall to make way for a new 29,000 sf building addition. The addition will connect to the remaining 44,000 sf of Jones Hall through a series of connecting walkways. The two joined facilities will provide distinct services for College offices and student organization spaces (In Jones Hall) and high tech laboratories and open collaborative spaces in the new addition. The open east exposure will allow for visual and physical connections to the existing Sill Hall, thereby creating a College of Technology micro-campus.

The combined 73,000sf of additional space will support the implementation and growth of the following programs:

1. Mechanical Engineering
2. Electrical and Computer Engineering
3. Civil Engineering

Supporting these programs and others within the College, this project will also create space for:

1. Student Engineering and Technology Organizations
2. Student Advising Centers
3. Professional Business and Community Outreach
4. College of Technology Dean's Office
5. Expanded Faculty Offices
6. Student Collaboration and Maker's Spaces

Currently Jones Hall has over \$27 million in deferred maintenance and asset preservation needs, including:

- Outdated room layouts, orientations and sizing;
- Obsolete and failed mechanical systems;
- Obsolete and failed plumbing systems;
- Obsolete and failed electrical systems;
- Energy inefficient windows and other building envelope systems;
- Inadequate handicap (ADA) accessibility; and
- Interior systems and finishes have failed and been damaged.

While offline from use and mothballed to protect from weather damage, the condition and prime location of these buildings led the University to seek alternative uses and planning solutions. This project will provide for a complete renovation of all building systems and components for Jones Hall as well as setting systems in place for the future full renovation of Goddard Hall, allowing for further growth of engineering and advanced technology programs.

The project is expected to cost \$40 million which will provide for:

- Selective demolition of the east wings of Jones Hall,
- Renovation of 44,000 sf of Jones Hall for all college, academic and student life support spaces, and



- An addition of 29,000 sf to house classrooms, lecture halls, advanced laboratories, student collaboration and Maker’s Spaces.

The combined facility will feature flexible uses for both instructional and research needs, as well as provide adaptability to future trends in engineering, and expansion possibilities for future growth.

The project will include full replacement of HVAC, plumbing, electrical and fire suppression systems, as well as use of modern, sustainable interior finish materials and systems. The project will be designed in compliance with the Americans with Disabilities Act, and will strive for LEED Silver certification.

**Operating Costs – Engineering and Technology Complex**

While currently offline, Jones Hall nonetheless incurs minimal maintenance and operating costs. Once the project is completed, the increase in overall operating costs from a fully functioning and occupied facility will be offset through gains in operating efficiencies and increased space utilization from the growth of engineering programs. Over the past three years, the University has invested approximately \$30 million in various energy savings projects which include the replacement of its Co-Generation system and replacement of lighting, plumbing and controls systems. These projects have addressed financial and operational risks on both the demand and supply side of the University’s energy needs. The University can now generate over 90% of its electrical and heat needs at approximately half the cost of buying this energy from a utility provider. Additionally, by replacing inefficient lighting, plumbing and controls systems, the University has decreased its electrical needs across the campus. Typically, newly renovated buildings operate at 20-25% energy savings while providing better, more adaptable learning environments.

All operating costs are funded through the University’s General Fund.

**Overall Program “Capital Project” Costs**

The total project is estimated to cost \$80,000,000 broken down in the following components:

<b>Sill Hall Renovation (Locally Funded)</b>		<b>\$40,000,000</b>
Construction Costs	\$31,650,000	
Administrative Costs and Fees	\$ 3,900,000	
Owners Costs	\$ 4,450,000	
<b>Engineering and Technology Complex (State Capital Request)</b>		<b>\$40,000,000</b>
Construction Costs	\$31,500,000	
Administrative Costs and Fees	\$ 4,000,000	
Owners Costs	\$ 4,500,000	
<b>TOTAL ENGINEERING AND TECHNOLOGY PROGRAM INVESTMENT:</b>		<b>\$80,000,000</b>

### **Other Alternatives Considered**

Total demolition of Jones Hall combined with a renovation and expansion of Sill Hall was considered and abandoned for numerous reasons including the cost implications of replacement versus renovation of the existing Jones Hall, and the expectation that replacement of the usable square footage could cost up to 25% more than renovation. Additionally, the lower levels of Jones Hall house centralized campus systems (steam, chilled water, and fiber-optic data) that would be cost-prohibitive and disruptive to move. The central location of Jones Hall between Sill Hall and Roosevelt Hall offers the ability to create a “micro-campus” dedicated to engineering and technology studies. Finally, the University’s effort to maintain sustainable practices supports the revitalization of existing structures as opposed to building new structures. This point is emphasized with the gain in space utilization in bringing an offline building back into use.

Jones Hall is centrally located within the College of Technology’s existing facilities in the academic core of campus -- close to residence halls, other academic facilities, library, and parking. The building’s structure is in good condition and therefore warrants renovation rather than a new building. Finally, demolition of Jones Hall would leave a void within the fabric of the University that would affect the campus aesthetics as well as pedestrian flow, and potentially be utilized for uses not congruent with the College of Technology.

EMU is the second oldest public university in the State of Michigan. The state’s investment in buildings and infrastructure should be preserved when possible and financially feasible to do so. The construction costs associated with a new building were carefully studied and found not to be fiscally prudent, given the constraints on available state and institutional funds for capital projects. We believe, when possible, existing buildings that are structurally sound should be renovated and modernized as opposed to razing buildings for new structures.

### **Programmatic Benefit to State Taxpayers and Specific Clientele or Constituencies**

The programmatic benefit of this project will be to better serve current and future students through enhanced learning spaces and technology and to help the University recruit and retain students and faculty. Importantly, nearly 90% of EMU’s students come from Michigan and approximately 72% of our graduates remain in Michigan after graduation. This project will therefore provide an important infusion of highly-trained engineers to stay in Michigan and help fuel Michigan’s economy.

EMU’s Engineering and Technology Complex will provide economic benefit to the City of Ypsilanti and the eastern Washtenaw County area through the creation of critically needed new construction jobs over three years. EMU has a significant impact on the local economy. For this area of Washtenaw County, it is imperative that EMU remain a vital and vibrant institution. It should be noted upon successful completion of this project, EMU will have renovated three of our four oldest non-improved buildings on campus, thereby continuing our systematic approach to sustainable design through renovation and adaptive reuse of these aging but historic structures.

### **Funding Resources**

EMU would utilize its existing financial reserves to fund the project with the State.

**BUILDING MAINTENANCE PROJECTS GREATER THAN \$1M (FY2020-2024)**

<u>Project Name:</u>	<u>Amount:</u>
Strong Hall Renovation*	\$ 9,884,000
Rec IM Renovations	\$16,000,000
Energy Conservation Measures (ECM) Project – Phase IV**	\$1,000,000 / \$ 8,500,000
Alexander Building Envelope	\$ 7,450,000
<b>Total Building Projects Greater than \$1 Million:</b>	<b>\$7,200,000 / \$46,184,000</b>

*\*University matching funds for State Capital Outlay Project*

*\*\* Multiyear Project – Remaining Balance/Total Funding*