

BOARD OF REGENTS
EASTERN MICHIGAN UNIVERSITY

SECTION: 23

DATE:
October 20, 2017

RECOMMENDATION
FISCAL YEAR 2019 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 Sill Hall as the University's top project request for state cost participation for Fiscal Year 2019.

STAFF SUMMARY

The State Budget Office issued its Fiscal Year 2019 Capital Outlay Budget memorandum to University Presidents on August 23, 2017. 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.

Sill Hall is home to Eastern's College of Technology and houses the School of Engineering Technology. Built in 1965, Sill Hall has not received any significant improvements or renovation since its construction. The project reflects a major renovation of the 92,635 gross square foot structure including, modernizing classroom and labs, lecture halls, student commons areas, and faculty offices, as well as, creating flexible use spaces for both research and instruction and replacement of architectural, structural, mechanical, and electrical systems. Additionally, the project includes an expansion of 16,000 gross square feet at Sill Hall to support lab space for the engineering program. The project demonstrates the University's commitment to the development of the University's Engineering programs.

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, 2017.

FISCAL IMPLICATIONS

The approved cost to renovate Sill Hall 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

October 20, 2017
Date



IMPLEMENTATION PLAN

COLLEGE of TECHNOLOGY

ENGINEERING PROGRAM GROWTH and EXPANSION

Sill Hall / Jones and Goddard Halls

EASTERN MICHIGAN UNIVERSITY

Building Maintenance Projects > \$1M

(Final 9/28/17)

COLLEGE of TECHNOLOGY ENGINEERING PROGRAM GROWTH and EXPANSION

<i>Is the Project a renovation or new construction?</i>	Ren (X)	New (X - Addition)
<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 ()

Introduction

Michigan has seen a considerable transformation in both demographic reality and business and industrial needs. Businesses and industries are coping with a deficiency of qualified engineers. Furthermore, students coming from high schools 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. Based on this observation, and the investments made and committed in our laboratories, classrooms and faculty, the Eastern Michigan University (EMU) College of Technology is expand its engineering program to meet the current and future needs of the market.

Eastern Michigan University'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 COT goals. With expansions of and additions to existing programs, such as Mechanical, Electrical and Computer, Civil, and other Engineering programs, the College 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. Nearly 90% of EMU students are from Michigan, and demographic studies have indicated approximately 75% of EMU students stay in Michigan for their careers.

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. The University has developed a two-pronged plan to (1) “right-size” the College for the current student population, and (2) 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, Jones and Goddard Halls.

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 2016. This discipline accepted Freshman, Sophomore and Junior level students beginning with the Fall Semester 2017. All student levels are expected to be represented in the Fall Semester 2018. It is planned to offer Graduate level programs beginning in the Fall Semester 2021 pending Regent approval.

Pending Regent approval, **Electrical and Computer Engineering** will start with Freshman 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 Freshman 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, EMU has created a two-pronged approach to modernize and expand Sill Hall, and repurpose, renovate and expand Jones-Goddard Halls.

Sill Hall Renovation and Addition – State Capital Outlay Request

The modernization and expansion of Sill Hall has been identified as the first priority of meeting the Engineering Program needs and represents our FY19 capital outlay request.

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 plus supporting spaces comprise a total of 92,635 gsf.

The 30,205 gsf 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
- Plastics Lab
- Casting/Welding Lab
- Robotics Lab

The high-bay structure does not provide enough area for the Mechanical Engineering program needs. The existing infrastructure and building systems do not meet the program's 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 43,822 gsf structure would also be reconfigured and renovated to create general teaching labs, classrooms and student collaboration areas for Mechanical and Electrical/Computer Engineering.

The third 11,176 gsf area containing the Lecture Halls. 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.

Finally, approximately 16,000 gsf of additional square footage will be created to provide dedicated engineering laboratory, classroom and student collaboration areas. This addition will enhance ADA access, provide for student interdisciplinary interaction, and set the direction for future expansions and connections to other COT facilities.

Currently Sill Hall has nearly \$16M in deferred maintenance and asset preservation needs.

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

Condition Assessments have identified Sill Hall as among the top four university buildings in greatest need for renovation. 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 \$40M.

Jones Hall Renovation and Addition –Future Funding

The renovation of Sill Hall, although important to the Engineering Program, will not provide the additional area need to meet the programs growth. Immediately between the two major COT 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 utilize large portions of Jones and Goddard Halls, combined with selective demolition and a corresponding advanced-technology addition to provide not only the additional square footage needed for the Engineering Program, but also create a “Engineering and Technology” campus within the University’s borders. This program-based campus approach will increase student interaction, provide for expansion of interdisciplinary instruction, and offer flexible learning spaces for modern and future teaching pedagogies. The additional areas also allow for future growth.

After renovating Sill Hall as part of the State Capital Outlay program, the University intends to renovate Jones Hall using local dollars. Built in 1948 and containing 70,491 gsf, Jones Hall will take the lead in repurposing these classic structures for new use for the College of Technology new Engineering Programs. Goddard Hall, built in 1955 and containing 75,856 gsf will also be involved in this effort, but it will not be fully renovated other than for primary utility services, life safety and emergency egress requirements. 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, the College of Technology, and the development, expansion and additional offerings of the Engineering Program. This project will include partial demolition of the east wings of Jones and Goddard Halls to make way for a new 46,000 sf building addition in the open courtyard of both facilities. The addition will connect to the remaining 44,000 sf of Jones Hall through a series of ramps and connecting walkways over an open multi-story atrium separating the addition from the existing buildings. The open east exposure will allow for visual and physical connections to the existing Sill Hall creating a College of Technology micro-campus.

The combined 90,000sf of additional space shall 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 and Goddard Halls have over \$43M in deferred maintenance and asset preservation needs.

- Obsolete and failed life safety systems;
- 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;
- Interior systems and finishes have failed and been damaged.

Condition Assessments have identified Jones and Goddard Halls as the top two university buildings in greatest need for renovation. While offline from use and mothballed to protect from weather damage, the condition and prime location of these buildings has 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, potentially allowing for further growth of engineering program.

The projected project costs is \$40M which will provide for selective demolition of the east wings of both Jones and Goddard Halls, renovation of 44,000 sf of Jones Hall for all college, academic and student life support spaces, and an addition of 46,000 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.

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 – Sill Hall, Jones and Goddard Halls

The renovation of Sill Hall with modern efficient building envelope and mechanical systems is anticipated to bring 25-30% energy savings while providing better building utilization due to enhanced learning environment conditions.

While currently offline, Jones and Goddard Halls still incur minimal maintenance and operating costs. Once the project is completed, the increase in overall operating costs from a fully functioning and occupied Jones Hall will be offset through gains in operating efficiencies and increased space utilization from the program growth.

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:

Sill Hall Renovation and Addition (State Capital Request)		\$40,000,000
Construction Costs	\$31,650,000	
Administrative Costs and Fees	\$ 4,100,000	
Owners Costs	\$ 4,250,000	
Jones Hall Renovation and Addition		\$40,000,000
Construction Costs	\$30,900,000	
Administrative Costs and Fees	\$ 4,200,000	
Owners Costs	\$ 4,900,000	
TOTAL ENGINEERING PROGRAM INVESTMENT :		\$80,000,000

Other Alternatives Considered

Total demolition of Jones-Goddard Halls 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-Goddard Halls, and the expectation that replacement of the usable square footage could cost up to 25% more than renovation. Additionally, the lower levels of both Jones and Goddard Halls 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 and Goddard Halls between Sill Hall and Roosevelt Hall offer the ability to create a “micro-campus” dedicated to the 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. Its location is within 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.

Eastern Michigan University is the second oldest campus 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 the Renovation and Additions to Sill Hall, coupled with the University-funded renovation and expansion of Jones Hall, will be to dramatically increase the number of engineering graduates, thus helping to address the critical shortfall facing the State of Michigan. Additionally, the project will better serve current and future students through enhanced learning spaces and technology and to help the University recruit and retain students and faculty. The state of the art facilities and micro-campus will make EMU the university of choice for Engineering and Technology students across the state of Michigan.

The Sill Hall Renovation and Addition Project 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. This continues our systematic approach to sustainable design through renovation and adaptive reuse of these aging but historic structures.

Funding Resources

EMU currently has the ability to provide the required matching funds.

BUILDING MAINTENANCE PROJECTS GREATER THAN \$1M (FY2019-2023)

<u>Project Name:</u>	<u>Amount:</u>
Co-Generation Turbine Replacement **	\$2,500,000 / \$19,600,000
Strong Hall Renovation*	\$ 9,884,000
Loop1 (Electrical) 13.2kVA Conversion**	\$3,700,000 / \$ 7,500,000
Energy Conservation Measures (ECM) Project – Phase III**	\$1,000,000 / \$ 8,500,000
Alexander Building Envelope	\$ 7,450,000
Total Building Projects Greater than \$1 Million:	\$7,200,000 / \$46,184,000

**University matching funds for State Capital Outlay Project*

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

**FISCAL YEAR 2018
CAPITAL OUTLAY PROJECT REQUEST**

Institution Name: Eastern Michigan University

Project Title: Engineering Program at Sill Hall Renovation

Project Focus: Academic Research Administrative/Support
Type of Project: Renovation Addition New Construction

Program Focus of Occupants: Students and Faculty

Approximate Square Footage: 108,635 gsf

Total Estimated Cost: \$40,000,000

Estimated Start/Completion Dates: July 2018 / January 2020

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

Describe the project purpose.

The Engineering Program project at Eastern Michigan University's Sill Hall continues the University's commitment to its developing engineering program and to the enhancement of the education experience within the science, technology, engineering and mathematics (STEM) fields. With a renovation of the existing space at Sill Hall, the investment will transform the educational space for the College of Technology and allow for further growth of the University's engineering programs. The investment in the engineering program will provide modern and state of the art facilities for professors to educate the next generation of engineering professionals in the State of Michigan.

Describe the scope of the project.

The Engineering project at Sill Hall includes the renovation of 92,635 gross square feet (gsf) and expansion of 16,000 gsf of new building space. The renovation and expansion plans to classrooms, laboratories, student collaboration/support space and faculty offices will bring these spaces to modern standards and address existing deferred maintenance on all building systems and finishes. The entire interior will be reconfigured to accommodate the educational needs of the engineering programs and to promote spatial efficiencies and accommodate flexibility with the future needs of the University's mechanical, electrical, computer and civil engineering programs.

The 30,205 gsf 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
- Plastics Lab
- Casting/Welding Lab
- Robotics Lab

The high-bay structure does not provide enough area for the Mechanical Engineering program needs. The existing infrastructure and building systems do not meet the program's 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 43,822 gsf structure would also be reconfigured and renovated to create general teaching labs, classrooms and student collaboration areas for Mechanical and Electrical/Computer Engineering.

The third 11,004 gsf area contains the Lecture Halls. 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.

Finally, approximately 16,000 gsf of additional square footage will be created to provide dedicated engineering laboratory, classroom and student collaboration areas. This addition will enhance ADA access, provide for student interdisciplinary interaction, and set the direction for future expansions and connections to other COT facilities.

The renovation will ensure that modern building system standards are maintained. The renovation of Sill Hall requires significant investment in its building systems as these currently reside in an obsolete and failing state. Deteriorated building systems within Sill Hall that will be addressed include:

- 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 accessibility
- Interior systems and finishes

Describe the Program Focus of Occupants

The engineering programs within the College of Technology

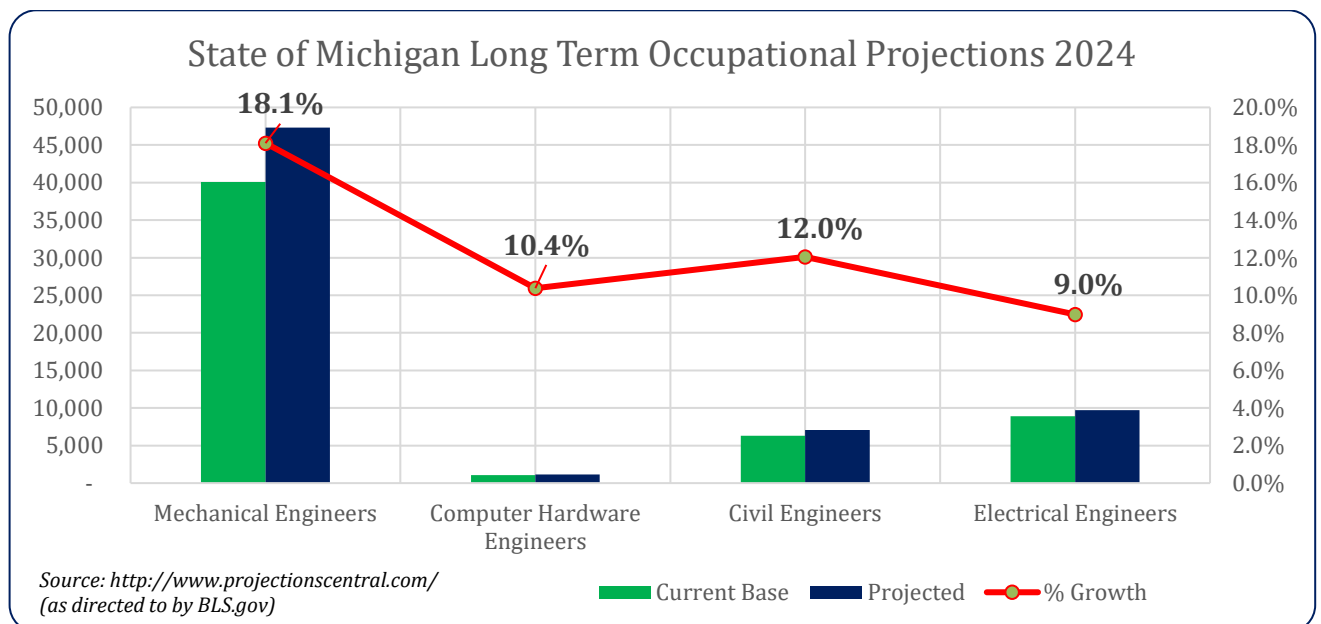
Please provide detailed, yet appropriately concise responses to the following questions that will enhance our understanding of the requested project:

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

An investment in Eastern Michigan University is an investment back into the State of Michigan as approximately 87% of our students are residents of Michigan and 71% of reachable alumni remain in Michigan. The capital investment in the University's engineering program and Sill Hall will jumpstart the anticipated growth in the engineering program. The engineering program is a growth area for the University and will bring with it more students into the STEM programs by providing a modern classroom and laboratory educational experience. The development of the College of Technology, specifically the engineering programs, is a key priority of the University. This priority continues the University's ongoing commitment to the further development of the STEM programs as evidenced by the \$90 million self-funded renovation of Mark Jefferson Hall and the joint investment with the State of Michigan in the \$40 million current renovation of Strong Hall.

Eastern Michigan University has demonstrated its commitment to the growth of women in STEM careers as evidenced by hosting the annual Digital Diva's conference which focuses on promoting the STEM fields to middle and high-school girls with a particular focus on computer engineering related breakout sessions. While only 24% of the STEM jobs are held by women, Eastern Michigan University is committed to engaging middle and high-school girls to increase this percentage while providing greater numbers of graduates entering STEM careers. Since Eastern Michigan University has held this conference, attendance has increased 500%. With the continued enhancement to Sill Hall and the Engineering departments, Eastern Michigan University anticipates increased female students in the STEM programs.

Per the Bureau of Labor Statistics and Projectionscentral.com, occupational projections through 2024 for engineers in the State of Michigan are shown below. Across all of the engineering disciplines noted, there is expected growth within the State through 2024. Investments made in these areas will support the students that will meet this future workforce demand in the market.



The Sill Hall project will provide critical updates to the classrooms, lecture halls, laboratories, and mechanical and safety systems. The reconfiguration of the building will address outdated and overcrowded spaces and provide a state of the art educational environment for students and faculty to perform research and instruction. Additionally, the fire suppression system will be updated. The HVAC, plumbing and electrical systems will be replaced creating energy efficiencies, reducing utility costs by an estimated 25-30%.

Eastern Michigan University STEM Facts

- In February 2017, Eastern Michigan University's Board of Regents approved the Mechanical Engineering Bachelor of Science program. The program emphasizes design and materials.
- Eastern Michigan University has experienced an average of 8% increase in enrollment for STEM fields of study since the completed renovation of Mark Jefferson Hall.
- In 2014, Eastern Michigan University received a federal grant awarded by the U.S. Department of Education's Title III Program to strengthen the university's efforts in educating its students in STEM disciplines, with special emphasis on bringing women and minorities into these disciplines.
- Eastern Michigan University currently offers 41 majors in STEM disciplines

In addition to the enhanced development of talented students entering the Michigan job markets, the Sill Hall renovation will also provide economic benefit and employment to the City of Ypsilanti and eastern Washtenaw County. Based on analysis of similar projects in the state, these areas could see a 95% indirect economic benefit for every dollar spent on construction. Based on the Sill Hall project estimates of \$31 million for direct construction related costs, we estimate that a total of \$60.5 million in direct and indirect economic benefit could be realized for the Ypsilanti and surrounding Washtenaw County areas.

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

Included in Eastern Michigan University's mission is to enrich the lives of its students in a supportive and intellectually dynamic community and environment. The Sill Hall renovation allows our physical building to be as supportive and dynamic in their education as the faculty and staff currently provide, by bringing the outdated and overcrowded classrooms, lecture halls and laboratories into the modern age. Renovating Sill Hall into a flexible space with up to date mechanical and electrical systems ensures that the building will be able to keep up with the needs of the ever-evolving STEM programs.

The project will create or enhance an environment for STEM education in the following ways;

- Additional instructional and research laboratories for Mechanical, Electrical and Computer Engineering programs,
- Modernized classrooms and lecture halls,
- Flexible laboratories to accommodate evolving programmatic needs and the future development of a Civil Engineering program
- Informal and collaborative learning spaces

3. Is the Project focused on a single, stand-alone facility?

Yes – the project will be focused to only Sill Hall.

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

The renovation of Sill Hall will bring modern technologies to building systems and components such as lighting control and building automation systems, wireless data systems, modern lighting devices, finishes and equipment. By utilizing and repurposing existing infrastructure elements such as stairways, corridors, and structural components, we preserve elements whose remaining life expectancy will continue to serve the university for years to come, and supplement it with new, modern elements suited to meet the needs of students and faculty today and for the foreseeable future.

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

Yes. Notable deficiencies identified at Sill Hall that will be addressed in the renovation include:

- An automatic wet-pipe fire protection system will be provided for the entire building;
- Smoke detectors will be installed in supply and return air ducts for every air handler unit;
- Fire alarms will be connected to the University Fire Alarm system;
- Emergency showers/eye wash stations;
- Chemical storage facilities will be created;
- Emergency shutoff valves for natural gas will be installed in laboratories and classrooms utilizing these systems;
- Data and communication system updates will allow for mass notifications of emergencies throughout the building;
- All renovations will be ADA compliant.

6. 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?

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. At comparable institution's College of Technology, the average is 100 gsf/student.

Eastern Michigan University completed a 2008 Space Utilization study which examined current and forecasted conditions, benchmarked against state and national educational trends and data. This information is gathered from our classroom scheduling system which is utilized for determining demand of our educational offerings. It is clear from this information that the University is lacking necessary engineering educational spaces, which are essential for a contemporary, interactive and flexible STEM education investigative setting.

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

The Sill Hall renovation is designed to meet LEED Silver certification requirements. The renovation plan provides for upgrades to energy efficient windows, lighting levels, air flow exchanges, and exhaust. The renovated infrastructure will create utility efficiencies estimated at 25-30% compared to current levels.

- 8. 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. Eastern Michigan University will utilize a blend of capital reserves, private donations and/or capital funding (Including bond financing) to match state resources.

- 9. If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects and 50% 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?**

Eastern Michigan University intends to fund the Sill Hall renovation project beyond the State's maximum funding of \$30 million. Eastern Michigan University is looking forward to partnering with the State of Michigan and is open to further discussion regarding additional funding to make this project a reality.

- 10. 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, we estimate the overall operating costs to decrease in total, driven by expected utility efficiencies, as a result of the Sill Hall renovation project.

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

None.

The Sill Hall renovation project will not increase tuition. In fact, the renovations or replacements of mechanical and electrical systems are expected to create a 25-30% decrease to current utility costs at Sill Hall and also eliminate \$15.7 million in deferred maintenance costs. Additionally, with the renovation, Eastern Michigan University anticipates an increase in enrollment once the program is completed, specifically in the engineering programs.

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

Due to limited financial resources, Eastern Michigan University would be unable to complete the Sill Hall renovation without the State's support. The existing building is outdated and overcrowded, which negatively impacts the students and faculties ability to perform research and instruction. Without the renovation of Sill Hall into a modern building configuration, challenges to the student's ability to obtain, and faculty to deliver, the full educational experience necessary to properly develop future professionals in the engineering fields will exist.

Additionally, without the renovation, Eastern Michigan University will have to continue funding temporary repairs to Sill Hall, utilizing resources that could be better used in other areas. Current assessments of Sill Hall include deferred maintenance costs of \$15.7 million that would be eliminated upon the renovation of Sill Hall.

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

Eastern Michigan University is committed to the further development of its STEM programs, specifically the mechanical, electrical, computer and future civil engineering programs. The University identifies these programs as not only important growth areas to the University, but also programs that will deliver professionals in high demand fields within the State of Michigan.

The University's alternatives to the Sill Hall project included the partial demolition and renovation of the now dormant Jones and Goddard Halls to make way for a new 46,000 gsf building addition in the open courtyard of both facilities. The addition would connect to the remaining 44,000 gsf of Jones Hall through a series of ramps and connecting walkways over an open multi-story atrium separating the addition from the existing buildings. The open east exposure would allow for visual and physical connections to the existing Sill Hall creating a College of Technology micro-campus.

The combined 90,000 gsf of additional space would also support the implementation and growth of the following programs:

- Mechanical Engineering
- Electrical and Computer Engineering
- Civil Engineering

The Jones-Goddard project would also accommodate other student services, faculty and administrative function, including:

- Student Engineering and Technology Organizations
- Student Advising Centers
- Professional business and Community Outreach
- College of Technology Dean's Office
- Expanded Faculty Offices
- Student Collaboration and Maker's Spaces

The Jones-Goddard project would also address deferred maintenance and asset preservation needs in excess of \$43 million within the facilities. The facilities has outdated layouts, as they were previously used as dormitories, and currently have largely obsolete and failed mechanical, plumbing, electrical and other building envelope systems. Additionally the interior systems and finishes have failed and incurred significant damage. The facilities also have inadequate handicap (ADA) accessibility. The project would provide for a complete renovation of all building systems and components within Jones Hall as well as setting systems in place for the future full renovation of Goddard Hall, providing the potential for future growth of the engineering program.

The University has determined that the Sill Hall Project is preferable as the facility currently houses the College of Technology and would not require the investment in demolition and building systems required in the Jones and Goddard Halls project. Additionally the Sill Hall project will provide the modern space needed for the University's engineering programs while also allowing for flexibility of Jones and Goddard halls to meet the University's future programmatic and strategic needs.