

MICHIGAN STATE UNIVERSITY

APPROVED

JUNE 21, 2019

**BOARD OF TRUSTEES
MICHIGAN STATE UNIVERSITY**

June 21, 2019

MEMORANDUM

To: Committee on Budget and Finance

From: Daniel J. Bollman *Daniel J. Bollman*
Vice President for Strategic Infrastructure Planning and Facilities

Subject: **Project Approval - Authorization to Proceed**
STEM Teaching and Learning Facility and Shaw Lane Power Plant
Adaptive Re-use (*budget adjustment*)

RECOMMENDATION

The Trustee Committee on Budget and Finance recommends that the Board of Trustees authorize the Administration to increase the budget for the Science, Technology, Engineering, and Mathematics (STEM) Teaching and Learning Facility to formally recognize the inclusion of two large classrooms and the increased costs primarily associated with more extensive abatement and demolition at the Shaw Lane Power Plant. In addition, the construction market reflects increasing competition for labor and materials.

RESOLUTION

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to increase the budget for the project entitled "STEM Teaching and Learning Facility and Shaw Lane Power Plant Adaptive Re-use," to \$106,700,000 and \$3,400,000 project contingency, for a total budget of no more than \$110,100,000.

BACKGROUND

The Board authorized this project in June 2018, with a budget of \$97,500,000, which included a project contingency of \$5,500,000. The project is comprised of approximately 117,000 gross square feet of space (STEM), and renovations to the existing approximate 40,000 square foot Shaw Lane Power Plant. The combined facility will house undergraduate teaching and project laboratories, breakout space, commons, gallery and studio space, the HUB for Innovation in Learning and Technology, the Biological Sciences program, and the Undergraduate Research office.



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Budget Adjustment:

In December 2018, the Administration, in consultation with the Board, opted to proceed with the addition of two large classrooms of approximately 15,000 square feet, with a budget of \$6,500,000, which included \$600,000 of project contingency, increasing the project total to \$104,000,000. This change was less than 10% of the originally approved budget thereby not requiring a formal Board action.

As construction has progressed, it has become clear that the abatement of the Shaw Lane Power Plant is more extensive than anticipated. Despite early remediation of known asbestos in the building, more material has been exposed during the demolition and removal of remaining equipment and fixtures. In addition, the construction market reflects increasing competition for labor and materials. After review, the Administration proposes to increase the existing project by \$2,700,000 to \$106,700,000 for the facility.

Finally, the Administration proposes authorization of an additional \$3,400,000 to partially restore the project contingency. Contingency funds will only be expended upon approval by the Executive Vice President for Administration. In sum, the revised budget for the project is authorized at no more than \$110,100,000.

The Construction Manager is Granger Construction Company. The Architect/Engineer is Integrated Design Solutions.

Communication Feedback:

Members of the campus community had opportunities to provide feedback during the planning phase. Any concerns they expressed have been addressed in the project design.

IPF will continue to share the construction schedule and progress with the campus community.

Project Cost and Timetable:

The STEM facility will be funded by a combination of State of Michigan Capital Outlay funding and debt financing with debt repayment from the general fund. The former Shaw Lane Power Plant renovations including the classroom addition will be funded by the general fund including classroom improvements reserve, teaching and learning environment reserve; utility reserve, the Jenison Trust and/or debt financing with debt repayment from the above sources.

Construction is expected to achieve substantial completion in September 2020.

cc: Board of Trustees, S. Udpa, J. Youatt, N. Barr, K. Wilbur, M. Zeig,
B. Quinn, V. Gore, M. Haas, J. Gaboury, B. Kranz, M. McCabe,
J. Mumma, J. Rayis, L. Adams, K. Oosterhoff, C. Carter, L. Senecal

Project Approval - Authorization to Proceed

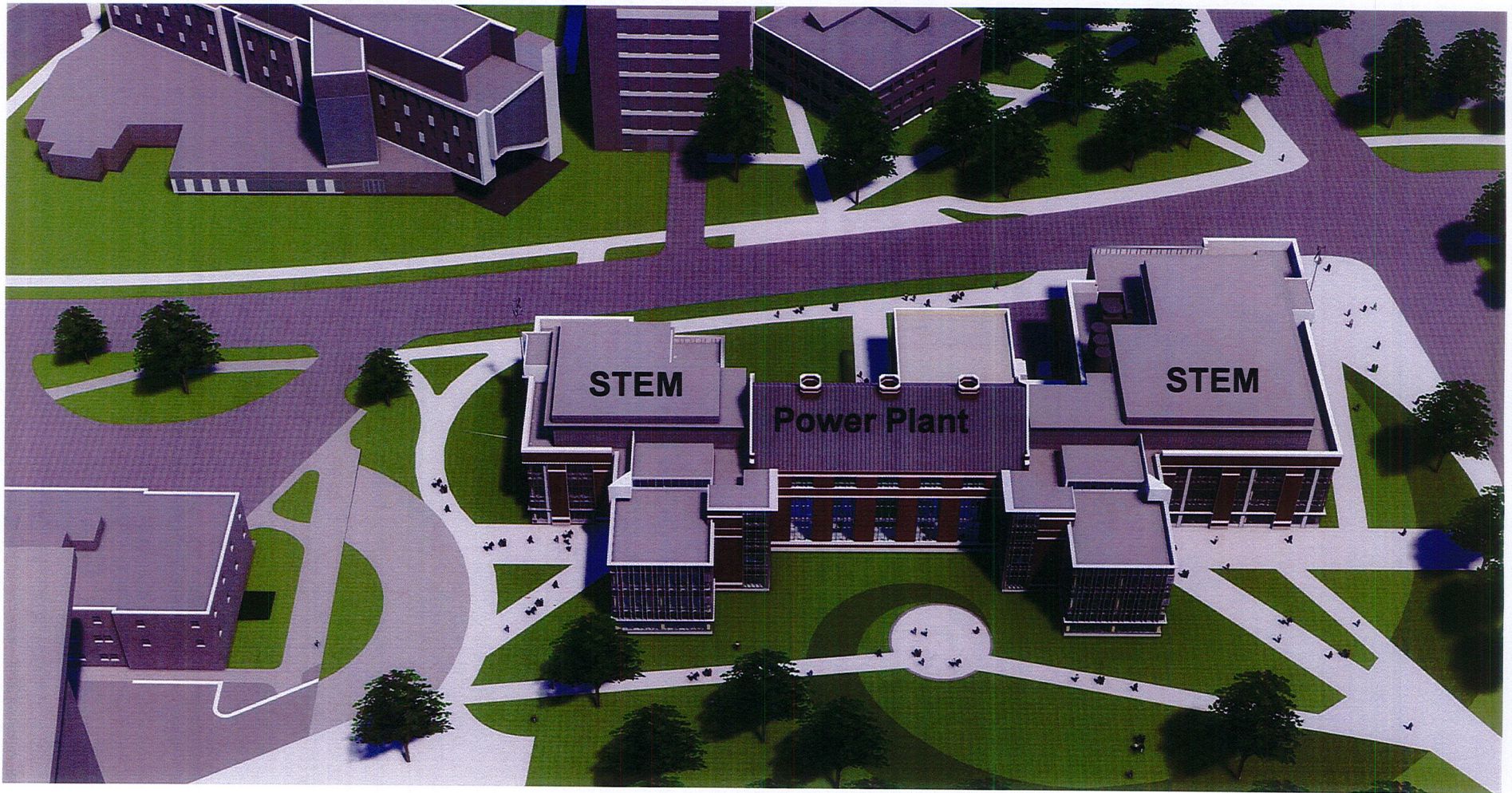
STEM Teaching and Learning Facility and Shaw Lane Power Plant Adaptive Re-use *(budget adjustment)*

MICHIGAN STATE
UNIVERSITY

Project Site

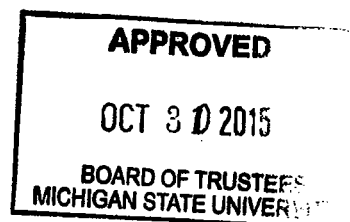


Aerial View from West



**MICHIGAN STATE
UNIVERSITY**

October 19, 2015



MEMORANDUM

To: Trustee Finance Committee

From: June Pierce Youatt *June Pierce Youatt*
Provost and Executive Vice President for Academic Affairs

Subject: **Authorization to Plan**
Strategic Academic Development Initiative - STEM Teaching and Learning and Interdisciplinary Research Facilities

RECOMMENDATION

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to plan for additional space to accommodate significant growth in science, technology, engineering, and mathematics (STEM) enrollments and related research.

RESOLUTION

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to plan for the project entitled "Strategic Academic Development Initiative - STEM Teaching and Learning and Interdisciplinary Research Facilities".



**OFFICE OF THE
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BACKGROUND
Program Need:

It is anticipated that MSU academic units will continue to experience significant growth in STEM-related teaching and research. To address these trends, significant capital investment is required.

More than a third of the University's teaching and research laboratories are housed in facilities that are over 40 years old. Modern design strategies that support best practices in teaching and research, reflecting shifts in instructional methods, code compliance, and the collaborative nature of research, are difficult to achieve programmatically and cost effectively in many of our older facilities.

In addition, over the past ten years, enrolled credit hours in STEM and STEM-related courses have increased by 38%. Construction of a new laboratory instructional space supporting STEM disciplines is necessary to accommodate this programmatic direction, address the obsolescence of existing facilities, and

increase operational efficiency. Such a facility would also align with the priority placed by the State and federal governments on educating more students in these disciplines. A new STEM teaching and learning facility would include modern wet bench teaching laboratories that incorporate active learning principles, foster cross-disciplinary teaching and learning, and support developing and evolving changes in curriculum and its delivery. The facility would consolidate a number of teaching laboratories that are currently dispersed across campus to create a central hub for STEM teaching and learning. Such a facility would address internal needs as well as State Capital Outlay criteria. Spaces made available as a result of consolidating teaching labs would be renovated and repurposed to accommodate additional research space needs in currently active research buildings.

At the same time, focusing on faculty research capability will enhance MSU's ability to attract acclaimed scientists and position Michigan as a center for STEM and related programs. MSU external awards have increased 54 percent over the last ten years. Further, the Board recently approved the Global Impact Initiative (GII), which is expected to bring 65-100 new research faculty hires to MSU over the next five years. The strategic vision of GII is to solidify MSU's place among the world's premier research and teaching institutions. New interdisciplinary science research laboratory capacity is key to this endeavor.

To successfully prepare for this future, it is necessary to plan simultaneously for additional research and teaching laboratory facilities through a strategic combination of new construction, renovation, and improved utilization of existing space.

General Description of Project:

The planning for the Strategic Academic Development Initiative will be comprehensive and will involve several construction projects, principally new STEM teaching and learning lab space and new interdisciplinary research facilities. Locations for these projects are likely to include the Central Academic District generally adjacent to the Biomedical and Physical Sciences Building, and the South Academic District at Service Road generally between Bogue Street and Hagadorn Road, generally adjacent to the Clinical Center.

The planning will evaluate programmatic emphases in STEM, in both teaching and research, such as the biological sciences, chemistry, engineering and neuroscience; consider programmatic and core facility adjacencies to facilitate interdisciplinary research and collaborations and to leverage operational efficiencies; be flexible and responsive to developing and emerging instructional methods and the evolving research enterprise; and employ site evaluation methods that account for infrastructure requirements. The projects may be

configured in various ways depending on these factors, and the elements of each project will also depend on their locations and sources of funding.

It is anticipated that the components of this Initiative will be brought to the Board for authorization to proceed based on urgency of programmatic need, State Capital Outlay status, and development of internal funding strategies.

Communication Plan:

Input will be solicited from the campus community during the planning phase.

Preliminary Project Cost Information:

The planning for this Initiative will incur costs for consultants, designers, and architects. The Administration will update the Board on project cost estimates during the latter stages of the planning phase. It is anticipated that funding for the overall Initiative will be a combination of general fund cash, long-term debt financing, and State Capital Outlay funding.

cc: Trustee Policy Committee, L. Simon, S. Udpa, B. Beekman, R. Noto,
D. Bollman, V. Gore, M. Haas, J. Kacos, G. Klein, M. McCabe, J. Mumma,
J. Samuels, B. Kranz

MICHIGAN STATE UNIVERSITY

June 8, 2018



MEMORANDUM

To: Trustee Finance Committee

From: Daniel J. Bollman *Daniel J. Bollman*
Associate Vice President for Strategic Infrastructure Planning
and Facilities

Subject: **Project Approval - Authorization to Proceed**
STEM Teaching and Learning Facility and Shaw Lane Power
Plant Adaptive Re-use
*(Strategic Academic Development - STEM Teaching and
Learning and Interdisciplinary Research Facilities)*

RECOMMENDATION

The Trustee Finance Committee recommends that the Board of Trustees authorize the Administration to proceed with construction of a new building and renovation of an existing building to accommodate significant growth in Science, Technology, Engineering, and Mathematics (STEM) enrollments and to improve and enhance the undergraduate learning experience across the sciences, arts, and humanities.

RESOLUTION

BE IT RESOLVED, that the Board of Trustees of Michigan State University hereby authorizes the Administration to proceed with the projects entitled "STEM Teaching and Learning Facility" with a budget of \$72,500,000 and "Shaw Lane Power Plant Adaptive Re-use" with a budget of \$25,000,000 for a combined total project budget of \$97,500,000. This action is contingent on approval of a Capital Outlay appropriation by the State of Michigan for planning and construction of the STEM Teaching and Learning Facility.

BACKGROUND

In October 2015 the Board authorized planning for the Strategic Academic Development Initiative - STEM Teaching and Learning and Interdisciplinary Research Facilities. This combined project would be the second major piece of the initiative. The first project was the Interdisciplinary Science and Technology Building, focused on research, which is scheduled to open in summer 2019. The University is actively planning for future phases, including



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the repurposing of existing instructional and research laboratories on campus that will be made available as a result of this initiative.

Capital Outlay:

Michigan Public Act 107 of 2017 provided capital outlay authorization to plan for the "STEM Teaching and Learning Facility." The State of Michigan Department of Technology, Management and Budget has recommended to the Joint Capital Outlay Subcommittee approval for planning and construction for the STEM Facility. It is expected that the Legislature will approve the appropriation the week of June 11. Approval by the Governor is anticipated to follow. The State share of the STEM Facility project is \$29,870,000. This facility is the highest priority project for MSU. The renovations of the former Shaw Lane Power Plant will be funded entirely by the University.

Program Need:

It is anticipated that MSU academic units will continue to experience significant growth in STEM-related teaching. More than a third of the University's teaching laboratories are housed in facilities that are over 40 years old. Modern design strategies that support best practices in teaching and research and reflect shifts in instructional methods, use of technology, code compliance, and emphasis on team-based and self-guided learning are difficult to achieve programmatically and are not cost effective in many of our older facilities.

In addition, over the past ten years, enrolled credit hours in STEM and STEM-related courses have increased by 38%. Construction of a new laboratory instructional space supporting STEM disciplines is necessary to accommodate this programmatic direction, address the obsolescence of existing facilities, and increase operational efficiency. Such a facility would also align with the priority placed by the State and federal governments on educating more students in these disciplines.

A modern STEM teaching and learning facility is a key, competitive argument for why students should come to MSU to study. The facility will not only leverage the research being conducted at MSU on STEM teaching and learning, but will facilitate scientific interactions at the undergraduate student level and improve the University's ability to successfully compete for and retain talented students in STEM disciplines. There is untapped training potential that can be developed with the establishment of a facility that places instructors together based on the ability to create and investigate emerging pedagogies. These new pedagogies will help to ensure student success and better prepare students for graduation and professional careers in the fields of scientific discovery, health, and engineering. It will allow the University to create an environment that encourages innovation and entrepreneurship.

The STEM Facility will include modern wet bench teaching laboratories that incorporate active learning principles, foster cross-disciplinary teaching and learning, and support developing and evolving changes in curriculum and its delivery. The pairing of the STEM Facility with the renovation of the former Shaw Lane Power Plant is intended to support and promote interdisciplinary and collaborative opportunities for a range of student experiences both curricular and co-curricular, provide opportunities for research on teaching and learning, support the evolution of teaching and learning methods, and create a campus hub for teaching and learning across the sciences, arts and humanities.

Description of Project:

The project is located north of Shaw Lane and west of Red Cedar Road in the central academic district. The STEM Facility will include new construction of approximately 117,000 gross square feet that comprises an addition on the north and south sides of the former Shaw Lane Power Plant. The existing approximate 40,000 gross square foot at the former Shaw Lane Power Plant will be renovated to provide adaptive re-use of an existing facility. The pairing of these two projects affords a unique opportunity for the university community to create a campus hub for teaching and learning.

The STEM Facility will house undergraduate teaching laboratories, project laboratories, and breakout space that will support gateway courses for biological sciences, chemistry, computer science, physics, and engineering in a central campus location. The former Shaw Lane Power Plant will house a vibrant and active student commons and gallery that seamlessly connects the STEM Facility addition and gallery. It will also include student studio space, an idea accelerator for faculty and students, the HUB for Innovation in Learning and Technology, student help center, the Biological Sciences Program offices, and the Undergraduate Research office. Collectively, this campus hub leverages programming, space utilization, and sharing of physical infrastructure and operational resources.

The new construction and resulting pedestrian circulation, necessitate closing lot 79E, losing approximately 75 parking spaces. There is available parking in lot 79 to accommodate the lost parking.

The Construction Manager is Granger Construction Company. The Architect/Engineer is Integrated Design Solutions.

Communication Feedback:

Members of the campus community had opportunities to provide feedback during the planning phase. Any concerns they expressed have been addressed in the project design.

The IPF Planning, Design, and Construction office has reviewed this project and found it to be consistent with the Campus Land Use Master Plan. The

Campus Infrastructure Planning Work Group supports the recommendation to proceed with the project.

As construction proceeds, the schedule will be shared with the campus community.

Project Cost and Timetable:

The budget for this Construction Management project is \$97,500,000 (\$72.5M STEM + \$25.0M Shaw Lane Power Plant Adaptive Re-use), including a combined \$5,500,000 contingency. The STEM Facility will be funded by a combination of State of Michigan Capital Outlay funding, the general fund or debt financing with debt repayment from the general fund. The Shaw Lane Power Plant Adaptive Re-use will be funded by the general fund or debt financing with debt repayment from the general fund.

The Board was previously advised of the need for abatement of hazardous materials and replacement of asbestos shingles at the Shaw Lane Power Plant, and that work is scheduled to begin in June 2018. Construction of the new STEM Facility and renovations to the Shaw Lane Power Plant is anticipated to begin August 2018 with the facility ready for occupancy in September 2020, pending State of Michigan Capital Outlay authorization.

cc: Trustee Policy Committee, J. Engler, J. Youatt, S. Udpa, B. Beekman, R. Young, V. Gore, M. Haas, J. Gaboury, B. Kranz, M. McCabe, J. Mumma, J. Rayis, K. Watson, C. Sisk, L. Kempel, R. Hendrick, J. Grabill, J. Prush