

## FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Institution Name: **Mid Michigan College (Mid)**

Project Title: **Tech and Skilled Trades Expansion: Morey Technical Education Center, Mid in Mt. Pleasant**

Project Focus:  Academic \_\_\_\_\_ Research \_\_\_\_\_ Administrative/Support

Type of Project:  Renovation \_\_\_\_\_  Addition \_\_\_\_\_ New Construction

Program Focus of Occupants: Skilled trades credit and workforce development programs in Advanced Integrated Manufacturing

Approximate Square Footage: **19,000 sq. ft.**

Total Estimated Cost: **\$9,20,000**

Estimated Start/Completion Dates: **construction design would start immediately after notification of award with an estimated completion of 2 years**

Is the Five-Year Plan posted on the institution's public internet site? **Yes**

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:

### **1. Describe the project purpose.**

Mid Michigan College seeks state funding through the capital outlay process to expand its training programs in skilled trades at its Morey Technical Education Center at Mid's Mt. Pleasant location. Completed in 2014, this training facility currently houses welding and CADD skills labs, in addition to flexible office and classroom spaces available for a range of rapid training programs in skilled-trade and associated technical areas. The building is also headquarters for the Central Michigan Manufacturers Association (CMMA) and the Small Business Development Center (SBDC) which serves as a regional resource for current aspiring entrepreneurs.

The proposed project expands the Morey Technical Center to allow for academic and workforce hands-on training spaces in the nine dimensions of Mid's Advanced Integrated Manufacturing (AIM) program. These include training labs in Power Transmission,

Manufacturing Technologies, Machining/CNC, Plastics, Welding Technologies, Design, Quality and Process, Automation and Robotics, and Labor and Management

The proposed project takes advantage of the College's significant success in Mt. Pleasant and follows its 5-year Capital Outlay Plan. The College is prepared to undertake the matching financial obligations.

## **2. Describe the scope of the project.**

Industry 4.0 (commonly known as I4), refers to the concept that the world is entering the fourth industrial revolution, one that is driven by the integration of cyber systems and physical systems. Successful workers in I4 must have an understanding of systems thinking including:

- Interconnection – of people and machines through the Internet of Things or the Internet of People. That is why it is important for this generation of skilled-trades workers to have a space in which to learn how to work across platforms. Students must learn the entire production cycle in order to be successful in an I4 world. Mid seeks to build space in which students work together to solve problems and, through this problem-solving, gain a deep understanding of the role of each component of the industrial process.
- Information transparency – through which vast amounts of information can be processed. Students training for I4 must gather and analyze data from all points of the manufacturing process. In this way, areas in need of innovation and improvement can be identified and addressed.
- Technical assistance – utilizing machines to accomplish tasks that are unsafe, unpleasant, or tedious for human workers. Mid's project will incorporate the use of robotics and automated systems.
- Decentralized decisions – in a cyber-physical system allow for decisions to be made at the first instance and lowest possible level. A facility that allows students to work together in teams supports their ability to develop interdependence and confidence in their decision-making skills.

Mid's vision for the Morey Tech Center is to create a space in which:

- Entering students get a general exposure to manufacturing roles, achieve OSHA 10 training, and develop basic skills in milling, pipe threading, soldering, welding, design, and service.
- Entering students choose an Advanced Integrated Manufacturing pathway. The available pathways will be:
  - To Manufacturing Technologies through power transmissions, industrial hydraulics, industrial pneumatics, industrial electrical, process management, material science and labor relations.
  - To Welding Technologies through machining, CNC Mill Master Cam, CNC Lathe Master Cam, injection molding, thermal forming, arc welding, MIG, and TIG welding.
  - To Automation and Robotics through metrology, SPC SixSigma, drafting, CAD, project development, Programmable Logic Controls (PLC), robotics, and manufacturing automation.
- The contiguous parking lot will be deepened and prepared to allow for the College's commercial trucking program (CDL). Thus, students will learn in an environment that incorporates concept, design, production, and distribution.

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

This project seeks to train people for the professional trades endorsed by the State of Michigan's Go Pro initiative. These occupations will account for more than 500,000 jobs in Michigan's economy. Over 140,000 new jobs in manufacturing have been created in Michigan since 2009 and that growth is expected to continue. New openings in these careers are estimated at 15,000 per year between today and 2024. The median wage for these positions is \$51,000 – 45% higher than other occupations. In 2015 the average annual compensation in the manufacturing sector was \$77,277. Michigan jobs in the transportation manufacturing sector accounted for 11.1% of the nation's total employment in this sector. The Gross State Product (GSP) in manufacturing was 19.2% of total GSP in Michigan during 2016. (Source: [Michigan's Go Pro](#))

The project also seeks to address issues of persistent poverty in the central Michigan region. At a time when the national poverty rate is 14%, these are poverty rates in the four counties surrounding Mid:

Location	Poverty Rate	Average Annual Household Income
National	14%	\$59,039
Gratiot County	19%	\$42,145
Gladwin County	20.3%	\$39,629
Clare County	24.2%	\$34,911
Isabella County	28.8%	\$40,706

The income inequality ratio, at .5, is also above the average in these four counties. Salaries for women in the region are also lower than the national average. For these reasons, creating a path to jobs in manufacturing (in which machinists are showing 19% job growth and an average hourly wage of \$15-\$24 or in HVAC which shows a 15.6% predicted job growth and an average hourly wage of \$17-\$27) is also a path to better life and more secure future.

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

Mid Michigan College seeks to empower learners and transform our communities. Teaching our students skills that will lead to rewarding careers in a growing sector of the economy will empower them. Students who are trained at the new Morey Tech Center will be able to use their skills locally and throughout the state. High-skill, high-wage employment will enable these students to break from generational poverty. The concepts taught in the systems-based Industry 4.0 courses will also foster problem-solving and innovation in ways that could bring new business and industry to the heart of Michigan. The College seeks to transform its communities by empowering a spirit of lifelong productive learning.

This expansion will allow the College to address the growing skills gap within the service region to the south within Isabella and Gratiot Counties. Furthermore, this expansion will allow Mid's programming to further align with the CMMA, and Mid's SBTDC as those two entities are currently

housed out of Morey Tech. The expansion will also foster more competency based and problem-based learning projects that could be done in consultation with the College's manufacturing partners. Expansion of the space also enables possibly business incubation space for CMMA and SBDC.

**5. Is the requested project focused on a single, stand-alone facility? If no, please explain.**

The project is focused on one building – the Morey Technical Center – at the College's Mt. Pleasant location. However, the design of the new interior in Mt. Pleasant will help the College consider improvements to the internal arrangement of its technical facility in Harrison.

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

The Morey Tech Center was built with expansion in mind. Existing spaces, including its welding and CADD labs, will be incorporated into the new expansion.

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

No. The Morey Tech Center was opened in 2014 and is in good condition. The expansion project will enable us to address a few minor issues with the mechanical system but these have not risen to the level of safety concerns.

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

The College uses Ad Astra software to measure its space utilization. The tool provides national benchmarks for classroom utilization. This has been helpful in looking at the classroom utilization for the College's Harrison classroom building.

For this project, the Morey Tech Center simply does not have the space nor the equipment to create the skilled-trades training programs needed in central Michigan. Enrollment in traditional and in trades classes at the Mt. Pleasant location is sufficient to warrant an expansion of program offerings to ensure that all Mid students have the same access to programs as those in Harrison.

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

Mid's operating philosophy encourages engineering all renovation and new construction projects to the highest appropriate level of energy efficiency with emphasis placed on LEED requirements. Examples specific to this proposed project include high-efficiency window

glazing and building envelope design.

As shown on the 5-Year Campus Master Plan, the College has already committed itself to maintain its facilities using high standards for energy efficiency.

**10. 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?**

College match resources exist within the Building & Site fund balance. Such funds are designated and allocated for future college needs by the Board of Trustees on an annual basis as excess operating funds are identified. If needed, the College is adequately positioned to match capital outlay funds through a self-funded bond.

The College also receives guidance and support for its manufacturing based equipment through its partnership with the Central Michigan Manufacturers Association (CMMMA) and the National Coalition of Certification Centers (NC3). These are not intended as financial matches for this project but do indicate long-term and broad support for the Advanced Integrated Manufacturing program.

**11. 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?**

No. The College has made a significant investment in its Harrison campus and has ambitious but achievable goals for the future of each of its campuses. It believes that a 50% match is appropriate for this project.

**12. 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.**

We do anticipate an increase in operating costs, especially in energy and maintenance costs for new square footage, power costs for the equipment, and new instructional costs to implement the vision of this program. However, we anticipate that enrollment growth and additional workforce development training revenues will offset any additional costs.

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

The project will not have any impact on tuition costs. However, it will open up new CTE and dual enrollment opportunities for high school students in Isabella and Gratiot Counties, thus enhancing the value of the state's investment in education.

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

If the project is not authorized, we will continue to serve our students. However, we will not be able to meet the needs of area employers at the level needed to grow our local economy.

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

The College has considered and explored leasing spaces in the area and holding courses, usually in the evenings. Such spaces would include Central Michigan University, Mt. Pleasant High School, and local manufacturers. However, dispersing training in this way would countermand the goals of Industry 4.0 – to teach an integrated systems approach to manufacturing. In addition, access to student support services and to lab/practice time would be limited. Access for incumbent worker training would also be limited as local employers are reluctant to open their workplaces to competing industries. Online learning will be a part of these skilled-trades offerings but it cannot replace the need for practice on the actual equipment.

The Morey Tech expansion will provide space that is effectively designed for learning a skilled trade. It adds to an optimal location that is conveniently located near area employers such as Morbark, Bandit Industries, and American Mitsuba. As such, it can be used for credit-based and incumbent worker training.