

**Lake Michigan College**  
**FY 2014 Capital Outlay Project Request**  
**Renovation of Classroom and Student Spaces**  
**Priority # 1**  
**Project Total Cost**  
**\$16,626,818.**

Is The Project A Renovation or New Construction?

Ren  New

Is There a 5-Year Master Plan Available?

Yes  No

*(Projects will not be approved without a current 5-year plan on file with the State Budget Office)*

Are Professionally Developed Program Statement and/or Schematic Plans Available? Yes  No

Are Match Resources Currently Available?

Yes  No

Has the University Identified Available Operating Funds?

Yes  No

**A. Project Description Narrative**

*Please include a general description of the project purpose. Also include the following items: New Construction; Renovation and/or Addition; Gross Sq. Ft; Estimated Total Cost of Project and Estimate for Each Component or "Phase" where Applicable; Estimated Start and Completion Dates for Construction; and Estimated Annual Operating Cost. Utilize as many pages as necessary, with an emphasis on conciseness.*

The proposed grant is grounded in two fundamental needs:

- **Support 21<sup>st</sup> Century Teaching and Learning and Advance Student Success**
- **Achieve Significant Energy Savings**

**21<sup>st</sup> Century Teaching and Learning and Advancing Student Success**

**The College proposes renovating 50 classrooms and 2 lecture halls in its 44+ year classroom facility along with several areas for student engagement and learning including its learning resources center and supporting infrastructure.**

Learning occurs everywhere, in many forms, and is interdisciplinary. Compared to what learning meant, it is now increasingly rigorous in keeping with the demands of "21<sup>st</sup> century literacies." Most importantly, it is increasingly occurring in "technology-rich environments." As a means to acquire new skills, opportunities for social interaction are a must-have norm. Learning is increasingly flexible, forward-thinking, and challenges existing approaches to student engagement.

In 2011, Lake Michigan College completed a 3-year, \$7.3M renovation of our Napier Avenue science laboratories in support of our Science, Technology, Engineering and Math (STEM) initiative. Included in our five year capital plan is a \$4.25M replacement of our primary HVAC plant which we expect to result in more than \$277,400 in energy savings annually. In conjunction with the College's efforts, we seek funding support to close the loop on our initiative to use our physical plant as a learning laboratory and improve student outcomes by providing teaching spaces that support the incorporation of the current technologies and teaching methods into the College.

**Learning Today:** Gone are the days when students would accept muted, inflexible settings where individual work was the core approach to the acquisition of knowledge. Today's students thrive on interdisciplinary, collaborative and engaging approaches to learning; a distinct movement away from lecture-based mediums. The most successful students learn from multiple interactions with their physical environment and social exchanges. With recent activities at the College focused on the advancement of STEM learning opportunities, evidence suggests remarkable advances in student engagement through campus redesign efforts. Today's students demonstrate a strong preference for renovated spaces, and expect to see innovative learning tools at the College. Roughly 70% of Fall 2010 students who utilized resource center advancements "were retained in Winter 2011, compared to only 35% of students who did not use the resource center. Student learning is greatly enhanced by the provision of multiple, flexible tools for skill acquisition, like those provided through the College's STEM-focused efforts. Within a new science resource center students had a 13% higher chance of being successful in a science course after utilizing the redesigned resource center versus those who did not use the resource center (Hanover Research, Fairbanks Science Student Resource Room, Lake Michigan College). Clearly, renovated spaces coupled with student engagement are essential for learning advancements.

**Classroom Technology:** Use of advanced technologies in College environments is a requirement for today's learning landscape. When employed with a focus on up-and-coming technology trends, student satisfaction and engagement with learning tools increase, as was the case "with use of SmartBoards jumping by more than two thirds" at Ryerson University of Toronto. Students no longer learn well through the use of "old-school" chalkboards, but instead, thrive when multiple forms of media are incorporated into the learning environment.

**Classroom Design:** Students' satisfaction levels with learning activities are increased, and learning itself is positively impacted by sustainable implementations of acoustics, sightlines, access to power outlets and internet, white boards, air quality, ventilation and temperature instrumentation accessibility, movability, and comfort of furniture partnered with tech-based features. Advanced learning and use of space for small group work increased by 80% in one semester at Ryerson University in Toronto. The way students learn today is largely influenced by multidisciplinary and collaborative technology approaches, needs assessments, networking, research and evaluation efforts, resulting in more fully engaged teachers and learners.

**Students' perceptions of their current learning environment have been found to "be a stronger predictor of learning outcomes . . . than prior achievement at school!"**

**Flexible Learning Spaces:** "Studies released by Cornell University showed direct connections between educational architecture and high performing students (Cunningham, 2002)." For generations wanting flexible, digital learning versus being "lectured-at," smaller, team-based interactive rooms (University of Alberta), with few furniture barriers and teaching pods with views are increasingly popular as a means to enhance skills acquisition.

**"Learning is optimized when physical environments are treated in the same focused way that curricular material and teacher presentations are created (Graetz, Goliber, 2002)."**

**Physical Space, the Physical Plant and Learning:** Clearly, student learning is greatly influenced by the physical environment. The College took intentional and distinct actionable steps in designing the 11 new science classrooms/labs to incorporate the physical plant as a learning tool; but further

implementation is needed in the remaining 50 classrooms and 2 lecture halls to provide an internal environment that parallels that understanding. Integrated redesign would allow for much-needed new technologies across the remaining College classrooms. In addition, several areas of the academic building would be renovated for student engagement and learning and faculty training including its learning resources center and supporting infrastructure.

### **Energy Savings**

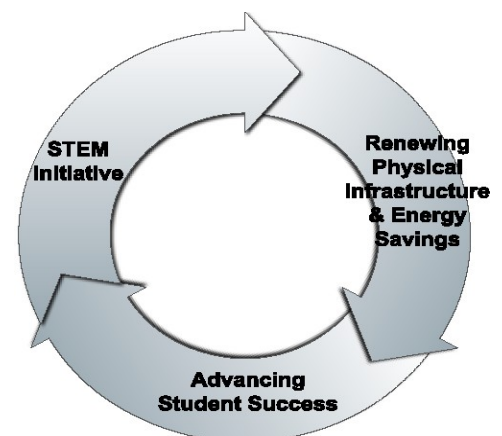
The Lake Michigan College (LMC) Academic Building is a three-story structure, with the largest floor being the first floor, which is partially underground. The underground portion of the structure connects the second and third floor wings. Open for fall classes in 1969, the building serves as the primary instructional facility for the College, with 303,147 square feet.

- **Lake Michigan College proposes to replace our aging mechanical infrastructure and support systems with new sustainable, energy efficient mechanical and support systems, including heating, cooling, air distribution, building control systems, supporting electrical and ceiling systems, restroom upgrades, fire alarm system, and security systems.**

The HVAC and Support Systems currently being utilized at Lake Michigan College are now beyond their recommended service life with antiquated controls and obsolete technologies. While the College was originally constructed with sustainable energy features such as a green roof and a cooling system utilizing the College's lake, the majority of the equipment was installed with the original building construction, thus most of the equipment is in excess of forty-four years old. In the past forty-four years, technology has changed and advanced in Mechanical and Support Systems. The proposed renovation will build on the College's legacy of providing an educational environment with the latest in sustainable, energy efficient technologies. We expect implementing this renovation will save the College approximately **\$277,400 in energy costs on an annual basis.**

### **Conclusion**

This grant intentionally helps the College complete the process of sustainable campus redesign by providing interdisciplinary learning not just in our science curriculum, but across the College. Most importantly, it adds necessary value to the College's investment of general funds in replacing the heating and cooling plant, in-turn enabling data used in that project to be incorporated into the classroom. Energy simulation modeling through campus redesign will allow for buildings to serve as teaching tools, technology, operations and maintenance tools, and educational and policy outcomes learning tools.



This grant will allow the College to link the investment of general funds on the plant upgrades, in a full-circle systems approach, to interdisciplinary, co-curricular student outcomes environments. The campus infrastructure, through this grant, will be allowed to enhance the campus architecture, classroom surroundings, teaching methods and highly-focused available technologies for unique, advanced skills.

## **B. Other Alternatives Considered**

*What alternative methods of addressing this capital project request were considered: i.e., long distance learning, renovation of other buildings on campus, re-evaluation of need for program, leasing of space, etc. Why were these alternatives not chosen? What are the programmatic implications should this project not be funded?*

The Napier Academic Building is the primary instructional facility and the largest for the College. We have reviewed a variety of new construction and lease options; however, with a strong building envelope and a current replacement value of \$87,870,700 (not including equipment and furnishings), it would be financially irresponsible to not invest in updating this facility rather than investing in new or leased space.

In summary, the College has identified, with its partners, curricula improvements that are directly tied to the growth of the Michigan economy and job opportunities. This project is an effective, cost-efficient, environmentally responsible and unique strategy that will allow Lake Michigan College to provide contemporary curricula; provide focused community-based job opportunity training; and revive an aging physical plant infrastructure.

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

*What is the benefit to state taxpayers for investing their tax dollars in this project?*

*What is the benefit to students or other clientele or constituencies?*

*What is the potential return on investment for this project?*

By primarily renovating existing space, we are adding new life to an existing taxpayer supported structure without incurring the cost of a new facility. The College's facility assessment demonstrates that our facilities structurally are in sound condition and have been well maintained. The mechanical systems in the facility are now simply well beyond their expected service life.

The proposed renovation will provide space for preparing the State's workforce for today's business demands. Emerging, rapidly developing technologies are among the high-paying, knowledge-based industries that are fueling the post-manufacturing economic revival.

The estimated rate of return on energy infrastructure renovations can be significant. Estimates range up to a seventy-five percent (75%) reduction in energy expenditures for the facility. In one case, an educational institution making similar improvements experienced a fifty percent (50%) reduction in natural gas costs alone. Pay back periods of seven (7) years are attainable.

## **D. Funding Resources**

*(Please provide as much information as possible including: fund source(s) identified for this capital outlay project – federal, state, private; and time frame for availability). Those willing to exceed minimum matching requirements will receive more consideration.*

The College has assessed its debt capacity up to \$9.3M. The College will fund its match with operating funds and bond financing.

## E-Building Program Area

### Napier Building

### Owners Occupancy

HVAC Equipment Upgrades (Entire Building)	0
Air Handling Units	
Boilers	
Chillers	
Academic Classroom Renewal	100
Fixtures	
Furnishings	
Equipment	
Academic Restroom Renovations	0
Fire Protection	
Lighting	
Plumbing	
Finishes	
Fixtures	
Faculty Service Center Renovation	50
Lighting	
HVAC	
Finishes	
Furnishing	
Equipment	
Classroom Improvements	1190
Lighting	
HVAC	
Finishes	
Lecture Hall Wing Renovation	683
Layout Reconfiguration	
Lighting	
HVAC	
Finishes	
Furnishings	
Equipment	
Learning Resource Center Renovation	466
Layout Reconfiguration	
Lighting	
HVAC	
Finishes	
Furnishings	
Equipment	

**2,489**

## F – Project/Program Cost

State File No.:  
 State of Michigan Department of Management and Budget  
 Office of Design and Construction  
 Lake Michigan College  
 Location: Benton Harbor, MI  
 Existing Facility  
 Napier Avenue Campus

**Estimated Cost of:**

1. The structure (General, mechanical, electrical, fixed equipment, and contingencies)	\$14,036,318.00
1.a. Telecommunications	\$65,000.00
2. Services from five feet outside of the structure (Sewers, water supply, etc.)	\$10,500.00
3. Site improvements (Roads, walks, grading, etc.)	\$325,000.00
4. Architectural/Engineering fees, surveys, site investigations, state supervision, etc.	\$1,850,000.00
<b>Design and Construction cost per gross sq. ft.</b>	<b>\$53.73</b>
5. Furnishings (Furniture, movable equipment, etc., not considered a part of the structure nor requiring fixed mechanical and/or electrical services)	\$275,000.00
6. Other ( i.e., asbestos abatement)	\$65,000.00
7. Total estimated project cost, bid October, 2014	\$16,626,818.00
<b>Total project cost per gross sq. ft.</b>	<b>\$54.85</b>

Total net square feet	Renovations 303,147
Total gross square feet	303,147
Building design efficiency (ratio of net/gross)	Will meet and exceed State of Michigan Standards
Building occupant design capacity	No Change
Ratio of occupant/parking space	No Change

## **G – Design and Construction Schedule**

Review and Joint Capital Outlay Subcommittee/ Department of Management and Budget Approval	October 2013
Concept/Schematic Design	November – December 2013
Review and Department of Management And Budget Approval	January 2014
Design Development	February – April 2014
Construction Documents	May 2014 - September 2014
Bid	October 2014
Award	November 2014
Construction	Jan 2015 – August 2016
Completion	August 2016

## H – Annual Operating Costs

Lake Michigan College, based on 303,147 Sq. Ft.)

Current

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1. Staff Salaries (incl. Benefits)	\$1,321,910
2. Snow Removal	19,000
3. Trash Removal	7,600
4. Security Services	77,300
5. Pest Control	3,600
6. Maintenance & Repair	
6.1. Equipment	142,000
6.2. Buildings and Grounds	26,600
7. Buildings Supplies	42,300
8. Utilities and Insurance	
8.1. Electricity	426,280
8.2. Natural Gas	112,230
8.3. Water and Sewage	39,287
8.4. Insurance	<u>117,500</u>
Total	\$2,335,607