State of Michigan

Fiscal Year 2026

Capital Outlay Project Request

University of Michigan-Dearborn

Computer and Information Science Building Renovation

October 24, 2024

Fiscal Year 2026
Capital Outlay Project Request

Institution Name:	University of Michigan-Dearborn
Project Title:	Computer and Information Science Building Renovation
Project Focus:	Academic, Research, and Administrative/Support
Type of Project:	Renovation and Expansion
Approximate Square Footage:	35-40,000 gsf
Total Estimated Cost:	$40 million
Estimated Start/Completion Dates:	Fall 2025/Fall 2027

Project Purpose:

University of Michigan-Dearborn seeks $30 million in state support to renovate the Computer and Information Science (CIS) Building. With the total cost of this project estimated at $40 million, the university and its campus-specific donors lack the financial capacity to solely fund this project.

The CIS building houses one of the fastest-growing and most important disciplines to our region's and nation's prosperity and security. The department is home to four bachelor of science degree programs, including Cybersecurity and Information Assurance, Computer and Information Science, Data Science, and Software Engineering. The department also offers three undergraduate minors in Computer and Information Science, Artificial Intelligence, and Game Design.

Further, the department offers five master of science degrees in Artificial Intelligence, Computer and Information Science, Cybersecurity and Information Assurance, Data Science, and Software Engineering. The department also offers a Ph.D. degree in Computer and Information Science sanctioned by the University of Michigan Rackham School of Graduate Studies in Ann Arbor. Currently, UM-Dearborn has the second largest master's and doctoral-level engineering and computer science enrollment among universities in Michigan, second only to UM-Ann Arbor.

As one of the original buildings on campus (built in 1959), the CIS Building has never been renovated or modernized. Consequently, the teaching and research environment provided by the CIS Building is below any reasonable standard for a modern university and certainly below the standard for delivering modern computer and information science education that helps Michigan compete in the global economy. The building is home to the fastest-growing department in the College of Engineering and Computer Science (CECS) with a total enrollment in Fall 2024 exceeding 1,300 students, with 865 students pursuing undergraduate degrees, 448 students pursuing master's degrees, and 21 students pursuing doctoral degrees. CIS represents 16% of the university's overall enrollment. CIS is a field that is critical to our region's ability to be competitive and sustain economic prosperity over the coming decades. Not surprisingly, the Bureau of Labor Statistics has shown that these degrees lead to high-paying jobs.

UM-Dearborn is rich in opportunities for creative collaborative research, practice-based learning, and direct engagement with local communities and businesses. As an institution, we are always learning, and we strive to be responsive to the changing needs of our diverse students, the world in which they live and work, the communities we serve, new technologies, and an increasingly complex economy. The university helps the state of Michigan compete and has been selected as one of 92 engineering colleges and schools across the world by the National Academy of Engineering (NAE) to implement a program to inspire practical projects for their students through an educational supplement called the Grand Challenges Scholars Program (GCSP). This program provides students the educational experiences, inside and outside the classroom, necessary to develop the five competencies needed to address global challenges that will impact their generation.

Universities across the United States are experiencing unprecedented growth in computer science enrollment. This growth is fueled by demands from industry due to the pervasiveness of computing in society. At the same time, however, the number of computer science graduates has not kept pace with market demand for such professionals. According to a letter signed by executives of major computing organizations in the United States, the number of computing graduates from universities in the U.S. is about 80,000 while the market has a demand for 700,000 professionals annually, almost a ten-fold difference! Further, according to the Bureau of Labor Statistics, *"Overall employment in computer and information technology occupations is projected to grow much faster than the average for all occupations from 2023 to 2033. About 356,700 openings are projected each year, on average, in these occupations due to employment growth and the need to replace workers who leave the occupations permanently."* This demand, combined with the education offered at universities like UM-Dearborn, creates a great opportunity for the state of Michigan.

The UM-Dearborn Department of Computer and Information Science has also experienced significant enrollment growth over the past ten years, with enrollment increasing nearly 180% during this period. Additionally, computer science continues to play an important role for education and research in other disciplines, such as the liberal arts, engineering, medicine, education, and business, because those disciplines rely more on computational systems and algorithms than ever before. In particular, the growth in Artificial Intelligence (AI) and Data Science is poised to impact nearly every aspect of society.

Like UM-Dearborn, other universities across the country have reported an accelerating student interest in CIS, and much of that interest is fueled by the vast potential associated with studying AI. UM-Dearborn's competitiveness, and jointly the state's, would be significantly enhanced if the number of AI faculty is significantly increased to complement current strengths in software engineering, big data analytics, and cybersecurity. Upgrading our CIS building will help UM-Dearborn meet the increasing demand for these types of degrees by providing desperately needed state-of-the-art facilities for teaching and research, which helps to recruit the world's top talent in this field.

Although the University has addressed this enrollment growth by increasing the size of its CIS faculty, the CIS Building has been a major challenge for the department. The CIS Building does not meet the current pedagogical needs and dramatically hinders the future evolution and development of the department. Our faculty is extraordinarily talented: five members of our College of Engineering and Computer Sciences faculty have been awarded the National Science Foundation (NSF) CAREER Awards, rivaling some of the top programs on a per capita basis. Over the past three years, the university has received 39 NSF awards. In order to retain and grow this talented human capital, we will need better resources. Many UM-Dearborn graduates have gone on to important leadership positions in CIS corporations. For example, Judith Tolland, VP for Meta (formerly Facebook); Brett Bilbrey, Senior Manager, Technology Advancement, Apple; Mark Sunday, CIO, Oracle Corporation and many others.

The CIS Building currently suffers numerous problems, including an aging plumbing system, old windows with poor thermal efficiency, limited electrical wiring that is unsuitable for high-end computing systems, outdated AC and heating systems causing temperature issues for our computer labs, an inadequate fire alarm system, and inherent ADA compliance/accessibility problems.

The present CIS Building does not meet the education and research needs to deliver modern computer science education. For example, we require large labs for research areas like data analytics for autonomous vehicles and intelligent software engineering. We also need hands-on computer labs to offer training workshops on the latest computing technologies to trainees from industry and outreach to K-12 students in the region. We need active learning classrooms to deliver effective education. Our laboratories should be able to house modern equipment for cybersecurity, game design, and artificial intelligence, to name a few.

Our community also needs space to host interdisciplinary research for data science, cybersecurity, edge computing, and AI and large gathering spaces where students can work together on solving complex engineering and computing problems. Accordingly, the renovation of the CIS Building has become the top capital priority and an urgent need at our university.

Despite our aging building, UM-Dearborn has been a major provider of computer scientists for southeast Michigan, with over 90 percent of the university's graduates remaining in southeast Michigan. Further, more than 70% of the graduates of the Computer and Information Science department secure a job within 3 months after graduation, thus supporting the region's economy with STEM expertise and providing a solid return on the state's investment into the building. The University of Michigan-Dearborn seeks support for a state-of-the-art facility to accommodate its ongoing enrollment and programmatic growth, which would enable increased opportunities for 21st-century instruction while facilitating entrepreneurial, multidisciplinary problem-solving, complementing the more development-oriented laboratories of our industry partners, and implementing K-12 outreach programs.

Scope of the Project:

The 24,314 GSF Computer Information Science (CIS) Building is one of the original four buildings of the University of Michigan-Dearborn campus. Built in 1959, this building is overdue for modernization and code updates. The CIS Building requires an updated design and infrastructure to adequately serve as the primary teaching/research laboratory facility for the disciplines taught by the Computer and Information Science Department. This project includes a ~9,000-12,000 GSF addition to support current pedagogies and the increasing enrollment in this discipline. The estimated cost of this renovation project is $40 million.

The College of Engineering and Computer Science plays a significant role in the regional economy by providing skilled graduates in computer and information science-related disciplines. The CIS Building evolved to meet the needs of industry and has become the home of the Computer and Information Science Department, which offers the following degrees:

Bachelor of Science (BS)

- BS in Cybersecurity and Information Assurance
- BS in Computer and Information Science with concentrations in Artificial Intelligence, Computer Science, Game Design, and Information Systems
- BS in Data Science
- BS in Software Engineering

Master of Science (MS)

- MS in Artificial Intelligence
- MS in Cybersecurity and Information Assurance
- MS in Computer and Information Science
- MS in Data Science
- MS in Software Engineering

Doctor of Philosophy (PhD)

- PhD (Computer and Information Science)

The CIS department also partners with the Department of Industrial and Manufacturing Systems Engineering in delivering the MS degree in Information Systems and Technology.

Program Focus of Occupants:

A new CIS Building will enable opportunities for more Michigan students to gain a competitive, 21st-century education in a fast-growing field. UM-Dearborn provides this by developing cutting-edge learning approaches, such as practice-based learning (PBL) in lab/studio settings and spaces for informal student collaboration. Teaching laboratories would be designed to facilitate entrepreneurial, multidisciplinary, and complex problem-solving and to complement the more software development-oriented laboratories of industry partners.

The facility would exemplify a model of higher education that recognizes the centrality of

integrative learning among computing disciplines and across complementary programs in the College of Arts, Sciences, and Letters (CASL), College of Business (COB) and College of Education, Health, and Human Services (CEHHS). Designed to encourage multidisciplinary collaboration in the context of 21st-century engineering, a renovated CIS Building will offer academic pathways to exceptional careers in Michigan for decades to come.

This renewed facility will require infrastructure improvements to accommodate additional labs and enhance new initiatives that support both the global needs of computing and the regional economy.

General Improvements:

- State-of-the-art fire suppression and safety systems
- ADA-compliant/barrier-free access to all teaching and research space
- Compartmentalized power controls for safety
- Sustainable, energy-efficient construction
- Teaching laboratories that accommodate current pedagogies
- Wi-Fi suitable for laboratory and classroom instruction
- Access to power outlets in all formal and informal learning spaces
- Telepresence conference room (increasingly expected by industry and government sponsors and invaluable for student-team collaboration)
- Support spaces and adequate storage spaces
- Desirable gathering and student collaboration spaces
- Showcase for a CIS education
- Welcoming aesthetics
- Improved facade and landscaping

Additional Laboratories:

- Edge Computing
- Digital Forensics
- Software Engineering
- Operating System and Networking
- AISE-CPS Lab (AI and Software Engineering for Cyber-Physical Systems)
- Trustworthy AIoT (TAI Lab)
- Machine Intelligence and Statistical Computing
- Security and Forensics Research
- Data Driven Security and Privacy
- Game Development and Usability
- Learning and Uncertainty in Intelligent Systems
- LI, ANG Research
- Research Laboratory for Sustainable Systems
- Elenbogen Computer Project
- Srijita Das Computational
- Probability Reasoning and Uncertain Data Management
- Security and Systems

- Database and Multimedia Systems
- Data Science/Management Research
- Service and Cloud Computing Research
- Vehicular Networking Systems Research
- Virtual Engineering
- Software Evolution and Maintenance
- Pervasive Computing
- Systems Research
- Affective Computing and Multimodal Systems

Information Technology

- Fiber
    - Relocate fiber that is currently terminated in the basement to a network closet on the first floor
- Wired network
    - Provide a network closet on the second floor
    - Upgrade network from Cat 5 to Cat 6 or Cat 6A (10G to the jack)
- Wireless
    - Improve wireless signal penetration. The existing building is cinder block which makes signal penetration difficult
    - Existing APs are in the hallways. Provide improved AP spread throughout the building
- Data center room
    - Evaluate the most energy-efficient/cost-effective approach for housing servers/clusters for the CIS building. Assess alternatives to a specialized data center in the CIS building such as open space in adjacent buildings

Space Design Philosophy

- Collaborative, flexible labs to accommodate project-based learning, senior design projects, student-team projects, and course projects
- Shared laboratories used across computing disciplines to maximize space utilization efficiency
- Flexible multi-use labs: accommodate both teaching and translational research with immediate implications for industry
- Formal and informal spaces used for small- and medium-sized project work and information sharing among students, faculty, and industry partners

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

The upgrading of the CIS Building will help UM-Dearborn increase the number of college graduates by attracting more students into STEM fields by aligning enhanced facilities with strategic recruitment strategies. Aggressive university goals to increase enrollment are expected to double the number of CECS graduates by 2030. Of the university's 8,100 students, nearly

3,400 are enrolled in the college. A 41 percent growth in enrollment in CECS since the Fall of 2014 supports the validity of the projections.

The renovated CIS building will be instrumental in enhancing first- and second-year retention rates in the department. The newly developed labs, classrooms, and collaborative spaces will provide the ideal environment to integrate project-based and active learning pedagogies in gateway courses across all programs in the department. The upgrading of the CIS Building will also pave the way to enabling an entrepreneurial and innovation hub for students in the department and college. All capstone projects in the department (two-semester-long senior year team projects) are currently conducted in collaboration with local community organizations and agencies (e.g., Dearborn Police) and industries to solve real-world complex engineering problems. We envision spaces in the renovated building to provide opportunities where students, faculty, and community/industry partners work closely together to ensure that the next innovative, out-of-the-box software products and tools are created in Michigan.

More than 90 percent of UM-Dearborn students remain in Michigan after graduation, which provides a strategic impact not only for the university but also for the state. Engineering graduates also report an average starting salary close to $100,000/year. Changes to the CIS Building come amid an increased national emphasis on Student Project Centers, STEM careers, women and minorities in engineering, and K-12 engineering education. These factors offer compelling arguments that UM-Dearborn has the necessary growth potential that can assist with the state's enrollment goals.

UM-Dearborn will continue to measure its success, in part, by the ongoing achievements of CIS students. Today’s students compete in a global workplace where their ability to collaborate across diverse boundaries is essential. UM-Dearborn’s inclusive campus environment includes 32 percent of students of color, a number we know is higher when counting our large MENA population. This rich diversity ensures that CIS students will function effectively in an inclusive workplace.

Nearly half of UM-Dearborn’s undergraduate students are the first members of their family to attend college, while half of the students are eligible for PELL grants. A Center for Education and the Workforce study has shown annual earnings by bachelor’s degree holders versus those with a high school diploma varies between $10,000 and $45,000 more, every year, over the course of one’s working life. Studies have shown that every percentage increase in the number of residents with four-year degrees has the potential to generate $3 billion for the regional economy. Starting salaries of CECS graduates have been reported to average nearly $100,000/year.

The value and relevance of the programs to students and industry is reflected in a 11 percent CIS enrollment growth over the past year and 41 percent growth in the past 3 years. CIS, in its current configuration, will soon impact the college’s ongoing enrollment growth plans, as very soon some programs will be forced to limit enrollment. While CIS programs have evolved to

meet the changing needs of students and industry, the facility is in need of replacement to reflect and accommodate these programmatic changes.

CIS Fast Facts:

- 402 B.S., M.S., and Ph.D. degrees awarded in 2023/2024 – 1,302 degrees awarded over the last five years (731 B.S., 560 M.S., and 11 Ph.D.)
- More than 70% of the graduates of the Computer and Information Science department secure a job within 3 months after graduation
- $4.28 million in CIS research expenditures in the past 5 years
- Undergraduate Game Design education ranked 38th in the Nation by Princeton Review among 150 universities
- Renovating the CIS Building will alleviate 7.1% percent, $5.3 million, of the university's total deferred maintenance backlog
- The College of Engineering and Computer Science was ranked as the fifth-best ABET-accredited undergraduate engineering program in Michigan. Our computer science undergraduate degree was also named a top program

How does the project enhance the core academic, development of critical skill degrees, and/or research mission of the institution?

This project is central to our core vision and mission as a caring, inclusive, student-focused institution committed to excellence in teaching, learning, research, and scholarship, as well as access, affordability, and community impact. As part of our vision, UM-Dearborn defines itself as providing the academic excellence of the University of Michigan, as a regional, practiced-based university serving southeast Michigan. With this important project, we are focused on increasing the number of engineering college graduates, as well as preparing students for Michigan's 21st-century economy.

UM-Dearborn began with a strong focus on engineering and business. The CECS and COB were created as a result of a partnership between the University of Michigan and Ford Motor Co.
Today, CECS offers 38 bachelor's, master's, and doctoral degree programs to more than 3,350 students – a 113 percent growth in enrollment since 2010.

For nearly 20 consecutive years, CECS has been rated among the top ABET-accredited undergraduate engineering programs in the country. The mission of CECS is to provide excellent undergraduate and graduate engineering programs in an environment where engineering fundamentals are integrated with engineering practice, applied research, continuing professional education, and sensitivity to the evolving needs of industry. The proposed facility improvements will support the university mission as well as the future of Southeast Michigan.

Describe how the project will address, incorporate, or enhance any equity efforts, policies, or goals for the academic programs within the scope of the project or as a component of your institution and campus at large?

This project will address the following equity and accessibility issues:

Accessibility

- The elevator control systems lack accessible feature
- Most of the interior doors are equipped with knob hardware
- The second-floor restrooms are not fully ADA-compliant
- The stairs are deficient in handrail and guardrail design relative to current standards

Health

- The 9-inch vinyl tile and 12-inch vinyl tile mastic reportedly contain asbestos
- HVAC and plumbing systems may also contain asbestos

UM-Dearborn prides itself as an institution of access. We provide opportunities for students of various means to earn a Michigan degree on a campus that is diverse, inclusive and welcoming. Half of our student population is Pell eligible, over 40% are first generation students to attend college and more than 30% of students identify as students of color. UM-Dearborn is reflective of the community we serve in southeast Michigan. The university has forged strong partnerships with area school districts like the Detroit Public Schools Community District, where students are taking college courses on campus on weekends and the Dearborn Public School district where students have a pathway to earn an associate's degree at nearby Henry Ford College and are simultaneously enrolled at UM-Dearborn to complete the bachelor's degree with the Learn4ward program. Programs such as these allow the university to showcase the academic offerings at UM-Dearborn and create seamless pathways to allow students to achieve their goals and realize their dreams.

Needed renovations and enhancements to the CIS Building will allow UM-Dearborn to better showcase career opportunities in computer science and other related high-demand STEM careers to students not only in these diverse school districts, but to all potential students in the state's most populated area.

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

Yes, this is a single, stand-alone facility.

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

At the current assessment stage of this project, the university believes that renovation of the existing space with an addition to the existing building is the preferred approach for this project.

Factors such as historic value, exceptional structure, or architectural excellence that could support a case for adaptive re-purposing at a greater cost than replacement are not present. The existing CIS Building possesses no significant historic value; it is a standard 1959 classroom and laboratory building. The university does not have another use for this building. It is adjacent to the other buildings in the engineering complex and occupies space that is ideal for a renovated and expanded computer information science building.

This project does support our investment in existing facilities and infrastructure by continuing to develop a state-of-technology engineering complex for our students. The proposed building is adjacent to both the newly renovated Engineering Laboratory Building and the Institute for Advanced Vehicle Systems, built in 2006. This strategic location bolsters the strength of the total engineering complex, offering a more integrated experience for our students.

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

The 2024 Facilities Condition Assessment (FCA) of the CIS building lists the building condition as poor with a Facilities Condition Needs Index (FCNI = 10-Yr Infrastructure Needs/Total Replacement Cost) of 0.47. This building carries a $5.3 million deferred maintenance backlog and a 10-year renewal cost of $6.6 million. The full deferred maintenance backlog will be addressed and eliminated with this renovation.

Items in the current deferred maintenance and capital renewal backlog include:

Accessibility

- The elevator control systems lack accessible feature
- Most of the interior doors are equipped with knob hardware
- The second-floor restrooms are not fully ADA-compliant
- The stairs are deficient in handrail and guardrail design relative to current standards

Health

- The 9-inch vinyl tile and 12-inch vinyl tile mastic reportedly contain asbestos
- HVAC and plumbing systems may also contain asbestos

Fire and Life Safety

- Roof has low parapet walls and no fall protection
- The antiquated fire detection and signaling system includes fire/smoke detection devices, manual pull stations, and horn signalers
- This system is monitored and controlled by an original electromechanical panel in the basement
- There is no fire suppression system

HVAC

- Distribution system, control system instrumentation, and field panels are out of date and require replacement
- Air handler and return fan are degraded and past their useful life
- Rooftop unit is due for replacement

Electrical

- The electrical distribution network consists of copper conductors sheathed in plastic and routed through metal conduits. It is original, outdated, and past due for replacement
- There is no emergency power supply and distribution system for the building

Plumbing

- Piping is past its lifespan and due for replacement
- Filter pumps and hot water pumps are past their useful service life

Elevator

- The elevator is at end of life and due for replacement or refurbishment

The proposed CIS renovation and expansion project will correct all of these deficiencies. Standardizing controls for building operations and computer science-based teaching and research facilities within a failing infrastructure is labor-intensive and provides exposure to potential threats and injuries. As a new facility, the design will comply with requirements of the current codes. Operationally, a new building will provide the infrastructure and technology critical to current educational pedagogies in computer information science.

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 university is in the process of updating its Comprehensive Campus Plan (formerly Campus Master Plan). As part of this process, we completed both a classroom utilization study and an educational adequacy assessment of each of our classrooms. As one of the four original buildings on our campus, the CIS scored particularly low in educational adequacy for current teaching pedagogies and the university's practice-based learning focus. In its current configuration, the CIS building has insufficient and inadequate classrooms, teaching labs, and research space to support the current and increasing student population and research needs.

This building's classroom labs are underutilized as teaching space relative to national benchmarks for two reasons. First, the configuration does not meet the needs of current teaching pedagogies which support our students best with active learning spaces that encourage team-based, collaborative interactions. Second, because the building has insufficient student computational lab spaces, these classrooms are used outside of formally scheduled

classes, making them unavailable for benchmark-level scheduling. This program continues to experience growing enrollment and the current building cannot accommodate the increasing student population. This renovation will address all of these issues, creating classrooms and teaching labs designed to accommodate practice-based learning and active classroom environments, and they will meet national utilization benchmarks in the most current teaching and learning environments.

The university also has a need for additional research space to support the computer and information sciences. According to NSF 2021 research space data, UM-Dearborn ranks at the 73 percentile among 583 institutions nationally and next to last among public institutions in Michigan. As these data indicate, the university has very limited additional space capacity to support research growth in computer science and software engineering-including artificial intelligence, coding and cybersecurity.

Additionally, 46% of the NASF (net assignable square footage) in the CIS building is currently committed to faculty offices, built to 1959 standards to accommodate a full on-campus presence, in-person meetings, and storage for extensive hard-copy archives. The university has completed a post-COVID Future of Work assessment that informs our new standards for smaller offices. The renovated CIS building will be built to these standards, limiting space allocated to offices and assuring that more space can be committed to our students' practice-based learning and our research activities. Laboratories will be designed as multi-purpose, adaptive-use spaces, assuring optimized use and flexibility for future needs.

In 2024, CECS enrolled nearly 3,400 students, representing a nearly 60 percent increase over the past decade. With the sustained growth that the college continues to experience, CECS is not able to adequately accommodate students in the CIS building in its current state. A fully renovated building, with the increased capacity detailed throughout this document, will allow the university and CECS to not only continue enrollment growth but also provide the necessary technology the college and its students need to thrive.

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

The University of Michigan is committed to achieving net-zero greenhouse gas emissions across the enterprise. This commitment includes the following goals:

- Reduce emissions from purchased power (scope 2) to net zero by 2025.
- Eliminate direct, on-campus greenhouse gas emissions (scope 1) by 2040.
- Establish goals for a wide range of indirect emission sources (scope 3) by 2025.
- Foster a university-wide culture of sustainability, with justice as a core principle.

In support of these goals, the university updated its design guidelines this year to include:

- Codifying procedures for project teams to track and verify project-specific carbon targets.
- Requiring embodied carbon analyses to inform design decisions.

- Requiring new construction projects to exceed energy code standards by 20%; and major renovation projects to exceed standards by 15%.
- Requiring that carbon reduction, energy savings, and water conservation goals are established early and evaluated throughout the design process.
- Requiring that hot water used for heating systems be compatible with low/medium-temperature hot water, in preparation for future heating technologies.
- Developing new plumbing specifications that include lower-flow fixtures to reduce potable water use.

Specifically, the design guidelines require the following for all projects:

- Prior to beginning schematic design, clarify the design objectives with respect to sustainable design. It is the university's expectation that sustainability be a consideration for all projects.
- U-M Master Specification 015719 - Construction Air Quality shall be included in the contract documents and edited to be project-specific. This specification provides requirements for construction air quality including requirements for biodiesel fuel and exhaust after-treatment devices on construction equipment.
- Master Specification 017420 - Construction and Demolition Waste Tracking shall be included in the contract documents. This specification documents the disposal of waste through the use of the U-M Waste Tracking Report.
- Document all sustainability design concepts in the project OPR/BOD (Owner’s Project Requirements/Basis of Design) document. 2.1.
- Upon completion of the Construction Documents phase, use the EPA website to determine if the project is eligible for Designed to Earn ENERGY STAR. A/E to process all required paperwork should the project be eligible.

In addition, the design guidelines require that all projects greater than $10 million include an Integrative Design Process that includes the following:

- Investigate the potential of the project site as it relates to the preservation of existing habitats, occupant views, renewable energy production and stormwater management.
- Consider the impact that building height, massing, and orientation may have on energy use and occupant comfort.
- Use energy modeling to identify heating and cooling load demands, energy conservation measures, and energy consumption of end uses (such as space heating, space cooling, ventilation, process loads, lighting, domestic hot water, etc.).
- Identify opportunities for reductions in indoor and outdoor potable water use.
- Consider the impact fenestration may have on energy use, systems sizing, and occupant comfort. Investigate the impact of window and door locations and types, the overall window-to-wall ratio, and potential window treatments.
- Develop building envelope design and systems.
- Optimize and size building mechanical and electrical systems
- Determine and evaluate sustainability goals including carbon emissions targets, energy cost savings over an ASHRAE 90.1 baseline, Energy Use Intensity (EUI) benchmarking

by building type, water savings, LEED certification, and other certifications and/or green building programs as determined by the project team.

UM-Dearborn is committed to environmental stewardship in its approach to building projects. All new construction projects, as well as major renovations, are required to meet the American Association of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 90.1-2007. Projects with a construction budget of $10 million or more have a goal of exceeding these requirements by 30 percent. In addition, all projects with a construction budget that exceeds $5 million are subject to an environmental review process to help guide the design from a sustainable practices standpoint. U-M has adopted the criteria of Leadership in Energy and Environmental Design (LEED) silver certification as a mandatory minimum for all new buildings and additions (new construction) with a construction budget greater than $10 million and supports design protocols that are consistent with our drive towards carbon neutrality.

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.

The university's $10 million cost share for the project will be obtained through future debt financing once the project is authorized for construction.

If authorized for construction, the state typically provides a maximum of 75% of the total cost for the 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?

The university does not intend to provide additional resources to reduce the state's share of construction costs. The university has limited financial resources and limited debt capacity that needs to be used towards critical maintenance projects throughout our campus. The university will provide funding towards costs that are necessary and related to the CIS renovation project such as temporary office relocation during the construction process.

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. The completed project is not expected to increase annual operating costs to the institution. In its current configuration, this building lacks modern energy efficiency standards. We anticipate that the fully renovated building, including the addition, will operate with greater energy efficiency, offsetting the energy expenditures of the additional square footage. Similarly, we anticipate that the ongoing repair and maintenance costs of the fully renovated and expanded building will match the previous repair and maintenance costs of the aged and failing infrastructure.

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

The University will not raise tuition as a direct result of building renovation. The project will require debt financing resulting in additional debt service that must be paid as part of our annual budget. Investment in our Computer Information Science facilities will help attract more students to our information science programs and help grow research in these disciplines. Enrollment increases in these programs would help offset the debt service. Further, realization of this project will remove several million of long-term deferred maintenance costs, reducing the deferred maintenance liability.

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

The university has limited financial resources and limited debt capacity. Historically, fundraising has not supported significant capital investments. Therefore, if the project is not authorized, the university would defer this project for the foreseeable future. The university has significant deferred maintenance and our limited resources need to be devoted to addressing our most critical needs.

Without investment in our CIS building, the university and the state of Michigan may miss a vital opportunity to improve on the instructional and research environments for our information science disciplines. The university would lack the necessary physical resources needed to attract and retain talented faculty in these disciplines who, in turn, teach and attract STEM students for the state of Michigan. Our teaching and research mission that best supports immersive and project-centered learning would also be inhibited.

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

We considered renovations to our library and university center as well. The CIS Building project is highly preferable due to its relative age, being one of the original buildings to our campus, and its expected effect on a growing STEM field for both faculty teaching and research. We have supported this building through minor modifications and infrastructure support to keep it operating in the best possible manner, but as the structure continues to age, these efforts become increasingly less cost-effective.