

The background of the entire page is a photograph of a modern university building with a brick and metal facade, set against a blue sky with white clouds. The building has a prominent overhang and large glass windows. In the foreground, there is a paved walkway and some greenery. The overall color palette is dominated by the yellow of the text and the blue of the sky.

**M** UNIVERSITY OF MICHIGAN-FLINT

**COLLEGE OF  
INNOVATION AND TECHNOLOGY**

**CAPITAL OUTLAY  
MAJOR PROJECT REQUEST  
FY 2024**

---

**FISCAL YEAR 2024  
CAPITAL OUTLAY MAJOR PROJECT REQUEST**

Institution Name:	<u>University of Michigan - Flint</u>
Capital Outlay Code:	
Project Title:	<u>Innovation and Technology Complex (ITCx)</u>
Request Code:	
Project Focus:	<u>Academic, Research, Administrative/Support</u>
Type of Project:	<u>New Construction</u>
Approximate Square Footage:	50,000 gross square feet
Total Estimated Cost:	\$40 million
Estimated Duration of Project:	3-year duration

**Is the Five-Year Plan posted on the department's public Internet site?** Yes  
**Is the requested project included in the Five-Year Capital Outlay Plan?** Yes

**Project Purpose:**

The University of Michigan-Flint (UM-Flint) aims to become an undisputed engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan. The newly established College of Innovation & Technology (CIT) signaled a bold step toward this realization by providing degree programs in high-demand fields with outstanding career opportunities, such as Cybersecurity, Automation & Robotics, Clean Energy & Sustainability, Healthcare Technologies, and others that play an increasingly crucial role in Michigan's technology-driven future. These programs prepare students, as well as those already in the workforce, for occupations that are essential to the new economy. Job opportunities in these fields are projected to grow at nearly double the rate of the overall job market over the next five years and will come to comprise one out of every six jobs in the U.S. by 2026 (1). The list below describes the growth engines of the new economy, and the job opportunities aligned with the skills and knowledge that students will learn through the new degree programs offered by U of M-Flint's CIT.

**Readiness Economy –** Readiness against threats is becoming a standard part of strategic planning. Careers in cybersecurity will lead the way as an increasing amount of work has moved online. There will be a growing demand for experts in cybersecurity and software engineering, especially in areas of social resilience, such as health care.

**Logistics Economy –** Creating resilient supply chains is a highly sophisticated endeavor. There will be demand for software developers who understand the Internet of Things technology that fuels cloud services, mobile computing, and analytics. Experts in advanced manufacturing will also be in high demand.

**Green Economy** – Although the fossil fuel infrastructure is deeply embedded in our economy, the economy has been trending green as the amount of power generated from renewables continues to increase. Experts in clean energy and renewable resources will be in great demand to develop new innovations in these areas.

**Remote Economy** – The pandemic mandated a massive adoption of remote technology that forever changed the way work is conducted. Organizations invested vast resources securing computer systems that became unsecure as the workforce migrated to work remotely. As a result, there will be continual demand for cybersecurity experts with knowledge of cloud computing and networks.

**Automated Economy** – Automation and artificial intelligence were well on the way to reshaping the world even prior to the pandemic. In the near term, experts with knowledge of automation and robotics systems will be in great demand across many sectors, such as health care, manufacturing, and finance.

CIT was launched during the pandemic and incubated using existing campus resources and the increased enrollment associated with the demand for these new economy occupations has already realized. This growth, however, combined with anticipated future growth, will quickly constrain our ability to meet programmatic needs, attend to the increasing interest from prospective students, and to provide employers with the trained workforce they require. To address this challenge and meet the needs of students and the industries that will employ them, we are requesting a capital outlay to create a state-of-the-art Innovation and Technology Complex (ITCx) at UM-Flint that will provide the infrastructure to educate and train students for well-paying careers within technology-related fields. This investment will create learning environments that employ hands-on experiences to produce highly qualified graduates prepared to enter a dynamic workforce. It will also dramatically expand degree completion opportunities for the million plus individuals in the Michigan workforce who have some college credits, but are not credentialed. In addition, the ITCx will provide essential space for research and innovation, enhancing the ability of the faculty to work with students, research novel solutions, and engage with new industry partners across Michigan.

The overarching purpose of this project is to create the physical spaces, resources, and academic opportunities that:

- chart a future for the UM-Flint campus focused on high-growth areas in the new economy occupations focused on technology, energy, and healthcare
- provide the environments needed to enhance academic excellence, student success, and industry partnerships
- create a path for UM-Flint to become the vanguard for workforce development, upskilling opportunities, and degree completion that will benefit the entire state
- drive post-pandemic economic recovery and growth for Flint, the Genesee County region, and the State of Michigan

Incubating CIT using existing campus resources has always been understood to be a short-term solution. Since its inception, UM-Flint leadership has recognized that the immense potential of CIT can only be accomplished through investment in infrastructure for the campus. The initial phase of this infrastructure investment, the Innovation and Technology Center (ITC), is currently in design with construction to begin in early 2023. Funding for the ITC has been provided by \$3.8 million from the US Department of Commerce, matched with \$4.9 million in local funds (2). Building upon the initial phase of investment in the ITC, the proposed project encompasses the next phase and will create a facility with new labs and infrastructure that will complete the Innovation and Technology Complex, creating a paragon of technology for the region on the UM-Flint campus. The completed complex will become the home of CIT and be a vital component in bolstering Michigan's economy by providing the needed infrastructure to graduate the skilled workforce needed in core industries. The complex will provide an accessible, affordable, and outstanding education to Michigan residents that will lead to employment with good salaries and the potential for significant economic growth. UM-Flint's CIT will be the common partner and key linkage between these growing industries and those seeking an educational path to a rewarding career. The enormous potential of CIT, however, can only be fully realized if the investments already made to establish the ITC are fully leveraged through creating the additional facility which, together, will complete the Innovation and Technology Complex.

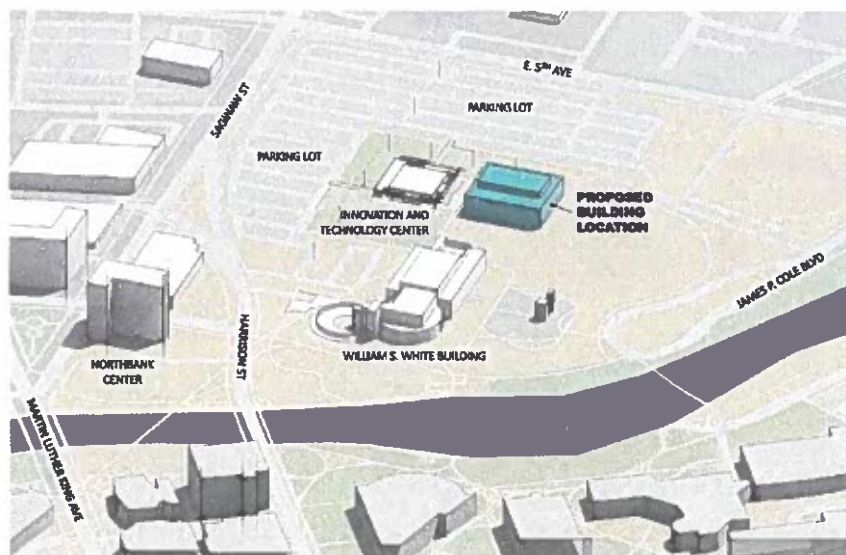
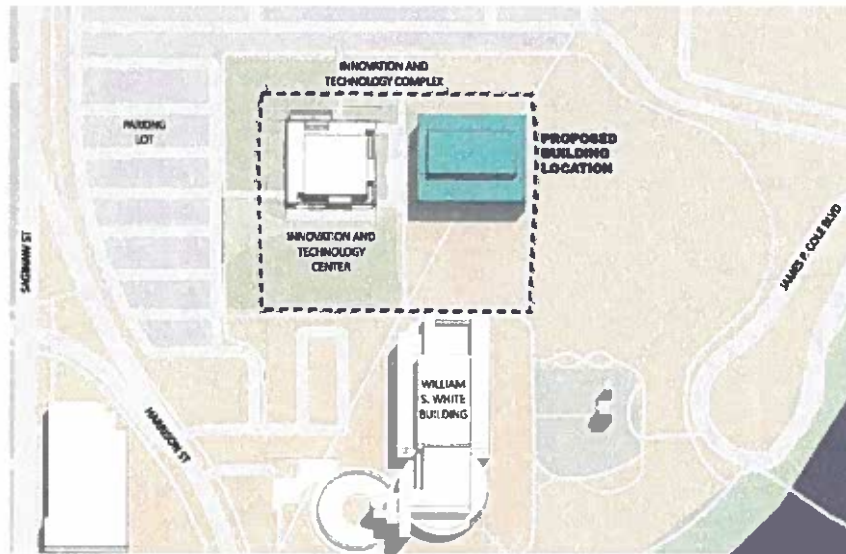
During the 1960s, Flint was the envy of the nation, a gem of an industrial city, and a flourishing model of community schools ("lighted schoolhouses") that was first created here. Eventually, however, deindustrialization led to radical downsizing and the city became defined by whatever crisis it was enduring at the time—be it unemployment, rising crime, civil unrest, or water. UM-Flint has been an anchor institution and mainstay of the community since 1956 and is an eager partner in creating new days of glory for the region. With the talent, experience, strategies, intellectual capacity, network of industry partners, and strategic alignment with Michigan's economic priorities, UM-Flint has the components to make this a reality. The ITCx will provide the necessary infrastructure to bring all these pieces together.

(1) *After the Storm: The Jobs and Skills that will Drive the Post-Pandemic Recovery*, Burning Glass Technologies, 2021.

(2) <https://eda.gov/news/press-releases/2021/09/30/flint-mi.htm>

## Project Scope

This project will add approximately 50,000 square feet of academic space adjacent to the ITC (14,340 sq. ft.). The proposed location, near the existing William S. White (WSW) building that houses the health sciences and nursing programs, will leverage infrastructure already existing (from the adjacency of the WSW building) or currently underway (from the development of the ITC). The ITCx will feature state-of-the-art instructional laboratories and research spaces that are critical for new academic programming, as well as ample student, supportive, and administrative space that will be fully utilized in producing the highly qualified workforce for Michigan's growing new economy occupations.



### ***Bioprinting Lab***

Bioprinting is a fabrication technique that involves 3D printing of living cells and materials for tissue engineering applications. This cutting-edge technique allows for the development of complex tissues with precise control over geometry and cell and material placement. These 3D-printed tissues with cells obtained from patients can be used as promising disease models for screening therapeutic drugs for individual patients, thereby potentially revolutionizing regenerative medicine, oncology, and drug discovery. Artificial intelligence (AI) and machine learning (ML) algorithms can be used to optimize these technologies by using computer vision to detect defects during bioprinting.

### ***AI and Machine Learning Lab***

AI adoption is expanding as an integral part of products, services, and solutions. AI automation refocuses the role of humans, resulting in more accurate predictions, decisions, and faster time frames in reaching expected benefits. For example, generative AI is an emerging technology that the pharmaceutical industry is using to help reduce costs and time in new drug discovery, and it is predicted that by 2025 more than 30% of new drugs and materials will be systematically discovered using generative AI techniques. Generative AI will not only augment and accelerate design in many fields, it also has the potential to “invent” novel designs that humans may otherwise miss.

### ***Additive Manufacturing Lab***

Additive Manufacturing (AM) is what is commonly called 3D printing, and it is a key component in advanced manufacturing and supply chain logistics. Students, faculty, and the public will be able to use an array of 3D printing services within this lab and learn how to design, optimize, and print their own creations. There are many technologies in AM, all of which add material, layer-by-layer, to create a custom part composed of polymers, carbon fiber, and even metal.

### ***Emerging Mobility Lab***

This lab explores applications of emerging transportation technology for today’s unique accessibility needs. Students and faculty will work together to develop end-to-end mobility solutions by applying a wide variety of technological solutions. This work will extend the benefits of increased mobility, independence, and quality of life not only for those who are limited by current transportation options, but for all users.

### ***Clean Energy Lab***

This living lab will represent a real-world environment, providing students with hands-on experiences in clean energy technologies such as solar-tracking photovoltaic systems that convert thermal energy into electricity, horizontal and vertical wind turbines, clean energy storage batteries, hydrogen fuel cells, and biogas produced from the decomposition of organic

waste. For example, the lab will allow users to monitor energy generation, capture its use through data-loggers, apply machine learning (ML) and optimization to the collected data, and then use control algorithms to reduce energy consumption in how we use everyday items such as tinted window films, blinds, home lighting, etc. Emerging methods in energy generation, storage, and monitoring will also be supported.

### ***Immersive Experience Lab***

This lab will build upon the Augmented Reality Lab in the ITC by exploring new immersive digital experiences and modes of user engagement. Immersive concepts and technology such as the metaverse, non-fungible tokens (NFTs), super apps, Web3, and digital twins will add a digital layer atop everyday reality, thereby impacting how people interact with everything from medicine to entertainment. Growth of the remote economy will require immersive experiences which this lab will be outfitted to provide.

### ***Data Visualization Lab***

This lab will serve as the hub of data analysis and visualization in a collaborative, interdisciplinary environment helping researchers gain keen insight into complex data sets by equipping them with tools and resources to visualize the expected and discover the unexpected in their data. The lab will host a suite of visualization resources including high-end 3D graphics processing and display hardware, virtual reality and haptic display systems, support for interactive supercomputing, and custom remote visualization tools for in-situ visualization of data.

### ***Biotechnology Labs***

Specialized biotechnology labs in biofluids, microdevices, optics, and materials will interface with existing labs in the WSW building. These labs will expand the capabilities of students and faculty to research innovative solutions that can improve the quality of human life. For example, the biofluids lab will include a particle image velocimetry system that can lead to strategies to mitigate the risks of a range of diseases. The optics lab will contain vibration-isolated optical benches, numerous types of lasers and other light sources, state-of-the-art optoelectronic equipment, optical components, and computers for data collection, analysis, and simulation. The microdevices lab is a multi-disciplinary environment that studies fully injectable, wirelessly powered devices. This technology may lead to remote control of drug delivery and other innovations in communicating with internal systems in the human body.

### ***Controlled Environment Room***

Additive manufacturing, especially bioprinting and advanced manufacturing of semiconductor materials, will require a clean room to ensure an acceptable environment for the processes to occur. Likewise, battery research requires a low-humidity environment. The controlled environment room will be located adjacent to the labs that have these requirements.

### ***Smart Learning Laboratory***

The Smart Learning Lab will be relocated from its temporary location within the Harrison Street Annex to its new home within the ITCx. The Smart Learning Lab focuses on the design and implementation of advanced manufacturing practices in which machines, technology, and people converge. These learning spaces will enable the development of cyber-physical systems where human workers interact with automated systems connected by Industry 4.0 networks that must handle everything from data management to cybersecurity.

### ***Classroom, Administrative, and Support Space***

In addition to the specialized spaces listed above, the configuration of the offices, classrooms, and collaborative areas will be designed to foster innovation. For example, faculty members will have their offices a few steps away from the labs where they teach, encouraging interaction and collaboration between faculty and students. Wall surfaces will provide for spontaneous ideation and on-the-spot collaborative opportunities. Areas will be developed that support a range of collaborative group sizes, from small, two- or three-person groups to groups of up to a dozen people. These collaborative areas will be reconfigurable to allow for industry fairs and other large gatherings.



## **Program Focus of Occupants**

The completed Innovation and Technology Complex will support existing and planned programs within the College of Innovation and Technology in high-demand fields with outstanding career opportunities that are aligned with the core industries of the State of Michigan, such as Cybersecurity, Automation & Robotics, Clean Energy & Sustainability, Healthcare Technologies, and others that play an increasingly crucial role in Michigan's technology-driven future. The instructional environments will employ project-based group learning, which increases student engagement, leading to enhanced retention and ultimately increased graduation rates. These new laboratories and classrooms are a critical piece in the overall mission to recruit, retain, and improve graduation rates, especially for underrepresented groups. The completion of this project will enable CIT to become an engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan.

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

The ITCx will enhance the overall economic vision for Flint, the Genesee County region, and the State of Michigan by meeting the needs of employers for a trained workforce that can fulfill the demand for the wide range of occupations sparked by the new economy and advancing technologies. UM-Flint cultivates a talent pipeline of four-year degree holders who seek to launch or further their careers within their home state. In the 2021-22 academic year, 97% of all UM-Flint students were Michigan residents, hailing from 25 different counties across the state. Admissions data indicate 13% of these students were the first members of their family to attend college, and 40% were eligible for PELL grants. More than 77% of UM-Flint graduates stay in Michigan to pursue their careers and, of the graduates who stay in Michigan, 58% stay in our surrounding region, particularly Genesee County.

The tendency for UM-Flint graduates to remain in Michigan means that employers will not have to recruit across the country to find qualified candidates to fill technology-related positions; nor will they have to go far afield to find or develop specialized training to "up-skill" their current employees. According to Michigan's Career Outlook Through 2030 produced by the Michigan Bureau of Labor Market Information and Strategic Initiatives(1), there are ongoing needs for highly qualified graduates in areas with extremely high growth projections, such as Software Development & Information Assurance, Industrial Operations, and Medical & Health Services. These fields are all in close alignment with CIT programs in Cybersecurity, Automation & Robotics, and Healthcare Technologies. The ITCx will provide the infrastructure needed to create the hands-on experiences to produce graduates who can fulfill these needs, benefiting industry, individuals, and families in Michigan. A concentration of graduates in Genesee County is an additional benefit to Flint and the county, as both have higher rates of poverty and unemployment and lower per capita income than the State of Michigan. For example, the individual poverty rate in Michigan is 12.6%, which rises to 18.3% in Genesee County and 37.3% in Flint (2). Similarly, the per capita income in Michigan is \$32,854, which falls to \$28,696 in Genesee County and \$17,638 in Flint. The ITCx will enhance the employability of UM-Flint

students and provide a positive economic impact across the state, graduating skilled workforce members who have firm roots in Michigan and are therefore more likely to establish careers and raise families here.

The Michigan Economic Development Corporation (3), whose mission is to achieve long-term economic prosperity for Michigan residents, promotes the following core industries for the State of Michigan: 1) Advanced Manufacturing, 2) Medical Device Technology, 3) Mobility and Automotive Manufacturing, 4) Professional & Corporate Services, 5) Technology, 6) Engineering, Design and Development, and 7) Semiconductor. These core industries align well with CIT's current programs (Cybersecurity, Automation & Robotics, Information Technology, Clean Energy & Sustainability, Mechanical Engineering, Computer Science), as well as ones soon to be offered (Software Engineering, Healthcare Technologies, Financial Tech, Data Science), further substantiating that graduates from CIT will be well-positioned to contribute to these state-wide economic growth initiatives. The programming that will be supported by ITCx aligns with Michigan's economic goals on a local, regional, and state-wide basis, creating symbiotic relationships with industry by providing lucrative incentives for businesses and families to remain rooted in Michigan. Businesses are relocating or being established in Michigan, and businesses are expanding their operations here because of a business-friendly environment that ranks among the best in the nation. It is imperative, therefore, that the talent needed to make these businesses successful be available and CIT is positioned to make that happen.

There are a number of economic initiatives in Michigan that support workforce training, "upskilling" the labor force, and helping fulfill the talent needs of Michigan businesses. The ITCx will enhance the work of all these groups, as they share a common objective with UM-Flint: to ignite Michigan's economy to benefit individuals, families, and industry. Some of these groups include: (1) Flint-Genesee Economic Alliance, (2) GST Michigan Works!, (3) Jobs Ready Michigan, (4) Going PROTalent Fund, and (5) MI New Economy. By providing the infrastructure needed to create the learning environments for technology, energy, and healthcare industries, the ITCx will significantly expand degree completion opportunities for the million plus individuals within the Michigan workforce who have earned credits but no credentials.

(1) <https://milmi.org/index>

(2) 2021 US Census Data

(3) <https://www.michiganbusiness.org/industries/>

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

### UM-Flint Mission

***“University of Michigan-Flint is a comprehensive urban university of diverse learners and scholars committed to advancing our local and global communities. In the University of Michigan tradition, we value excellence in teaching, learning, and scholarship; student centeredness; and engaged citizenship. Through personal attention and dedicated faculty and staff, our students become leaders and best in their fields, professions, and communities.”***

The path for UM-Flint to become an engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan is through the high-demand degree programs offered by CIT which feature highly specialized labs and the latest technology. The hands-on learning experiences enabled by the new laboratories and classrooms in the ITCx will create flexible, interactive, and engaged learning spaces. In these new spaces, students will collaborate in teams, think critically, and solve problems while simultaneously expanding their content knowledge. Project-based group learning, which is widely employed in CIT, also increases student engagement, leading to enhanced retention and ultimately increased graduation rates. These new laboratories and classrooms are a critical piece in the overall mission to recruit, retain, and improve graduation rates, especially for underrepresented groups.

The ITCx will enhance UM-Flint’s educational mission as it will offer multiple options for students to embark on career pathways in technology that augment the competitiveness and success of Michigan’s core industries. Our mission also calls us to foster leadership in our students so they are the “best in their fields.” It is this commitment to excellence that will position UM-Flint as the leader in the region for developing the workforce needed by industry, meeting the educational needs of students at all stages of their careers and learning, and helping to ignite and sustain a more robust economy that is key to the technology-driven new economy occupations. The ITCx embodies the dramatic changes in technology that have redefined the workplace and, at the same time, will be a testament to the history, work ethic, pride, and tenacity of Flint and the Genesee County region that will once again be synonymous with American innovation and know-how.

The ITCx will have an enormous impact on the research mission of the University. The design of the proposed building for collaborative work, the state-of-the-art laboratories, and UM-Flint’s transformative vision for the campus will allow us to attract distinguished faculty members at the top of their fields who can compete for federal funding from the National Science Foundation, the National Institutes of Health, or other prestigious federal funding agencies. Recruiting diverse and talented researchers requires the appropriate laboratory spaces to support their programs. The lack of such facilities can prevent faculty from being competitive in federal funding programs. Modern facilities that cater to multi- and cross-disciplinary, team-based research are critical for enhancing the ability of the faculty to be competitive for federal

dollars. Funded research brings revenue to the University, raises its profile in national rankings, and attracts more student applications. By enhancing our mission, the ITCx will reposition UM-Flint to an elevated level of academic excellence that will launch our graduates into successful careers and provide opportunities for faculty to conduct groundbreaking research.

A priority of CIT is preparing the workforce for the next generation of industries which drives economic growth. Not only will these new classrooms and labs attract talented faculty, they will also provide students the direct, hands-on experience with the same state-of-the-art equipment that is found within the workplace. To be a prepared and successful part of the workforce, students must be trained and learn on equipment that is representative of what is found within industry, not equipment that is several generations old and out of date. Exposure to and learning from modern equipment enables graduates to be immediate contributors to the workforce, minimizing the investments industry must make when recruiting and onboarding.

### **3. Is the requested project focused on a single, stand-alone facility?**

This is a stand-alone facility, but it builds upon the initial phase investment of the ITC. This phase, with new labs and infrastructure will complete the ITCx, creating a paragon of technology for the region on the UM-Flint campus. The ITCx and will become the home of CIT and will provide an accessible, affordable, and outstanding education to Michigan residents that will lead to employment with good salaries and the potential for significant economic growth. The enormous potential of CIT, however, can only be fully realized if the investments already made for the ITC are fully leveraged through creating the additional phase which will then complete the ITCx.

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

#### ***Improved use of existing facilities***

While the ITCx is not an adaptive re-purposing project per se, its creation will support investment of existing campus facilities by allowing for growth in program areas that would otherwise be limited due to lack of space, and by improving the use of existing infrastructure better suited for those programs. UM-Flint's strategic plan for growth and increased enrollment cannot move forward if programs are competing for space. Incubating CIT within space designed for engineering, a current necessity, impacts the ability of the engineering programs to grow. Relocating and introducing CIT classes to the ITCx, thereby freeing space in the MSB for engineering, will allow full allocation of space within the MSB to engineering as planned. Specialized spaces developed in MSB will be fully available to the engineering programs they were designed to support, thereby providing those programs with the best environment for growth. Relocation of existing CIT labs, classrooms, and office/administrative space from numerous floors within the MSB and the Harrison Annex to a single campus

location within the ITCx will create an environment that enhances the ability of faculty to collaborate and form multidisciplinary teams by leveraging the proximity of these new spaces.

### ***Use of existing infrastructure***

**Utilities:** The selected site has an abundance of utilities available both above and below ground due to the AutoWorld Amusement Park that used to be situated there. The park was permanently closed and demolished prior to the University acquiring the property in 1999.

**Parking:** Ample parking already exists for the ITCx, located immediately north of the proposed site. Based on usage data for the WSW building which also uses this parking location, there are sufficient spaces available to serve both buildings.

**Repurposing:** The Harrison Street Annex and its parking structure served as the temporary home for engineering while the MSB Expansion was in progress. Currently, CIT is repurposing that space into a smart-learning lab, focused on the design and implementation of advanced manufacturing practices. This smart-learning lab will be relocated within the ITCx once it is completed. Although the Harrison Street Annex space is inadequate as a long-term solution, developing the space now allows for new courses to begin until the permanent space is ready. The permanent space within the ITCx will also be able to accommodate future growth. The Harrison Street Annex space will be repurposed for related academic programming following relocation of the smart-learning lab.

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

This project will address a safety issue related to an existing pathway near the site where the new building will be constructed. Currently, this area is rather isolated and therefore does not get a lot of foot traffic. Establishing the ITCx in this location will include connecting this pathway with other pathways around ITC and the WSW building. This newly connected pathway will be enhanced with increased safety lighting, signage, and clear sight lines. These factors, in addition to the increased foot traffic due to students and faculty accessing all three buildings, will be a deterrent to crime. The new building will also have multiple entry points, video surveillance, and enhanced video surveillance in the parking lot to account for the significant increase in cars parking at this location once the ITCx is complete.

**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?**

Academic space utilization is a product of the course scheduling process overseen by the Office of the Registrar. Utilization data was clearly impacted by the pandemic, which presents challenges in developing a consistent interpretation. However, the impact of utilization data is greatest in the spaces shared with engineering, where CIT is currently being incubated. The time and space utilization percentages average near 50%, compared to benchmarks of 70% and 65%, respectively (1). However, the context of these values is critically important in the analysis. Currently, students in CIT are freshmen and sophomores and are enrolling in one, or at most two courses per semester in their programs, as their remaining courses are introductory courses in math or science, along with general education courses. As these students matriculate to juniors and seniors, they will enroll in three and sometimes four courses per semester within their program. When this happens, clearly the time and space utilization percentages will surpass the benchmark values. Additionally, the hands-on learning experiences enabled by the new laboratories and classrooms in the ITCx will increase student engagement, leading to enhanced retention and ultimately increased graduation rates. These new laboratories and classrooms are a critical piece in the overall mission of UM-Flint to recruit, retain, and improve graduation rates, especially for underrepresented groups.

In addition, the new spaces housed within the ITCx will allow UM-Flint to provide a broad range of non-credit, continuing education and customized courses to the community which will increase utilization at extended operating hours while dramatically expanding degree completion opportunities for the million plus individuals in the Michigan workforce who have earned some college credits, but no credential. At the same time, approximately 13,000 square feet of space in the MSB will be more fully aligned with its design intent, as CIT returns the space to engineering, allowing full allocation of space to engineering as planned. Specialized spaces developed in MSB will be fully available to the engineering programs they were designed to support, thereby providing those programs with the best environment for growth.

(1) Time utilization=total hours scheduled/total hours available and space utilization=average percent seat occupancy when in use.

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

Sustainable design seeks to reduce negative impacts on the environment, increase the health and comfort of building occupants, and improve overall energy performance. The basic objectives of our sustainability approach are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. UM-Flint is committed to achieving net-zero greenhouse gas emissions university-wide. These time-bound goals to reach carbon neutrality are:

- By 2025 — reduce emissions from purchased power to net-zero.
- By 2025 — establish goals for a wide range of indirect emission sources
- By 2040 — eliminate direct, on-campus greenhouse gas emissions

To date, the University is exceeding its goals and currently on track to reduce direct, on-campus greenhouse gas emissions and reduce emissions from purchased power by 50 percent. This exceeds the recommendations issued by the United Nations' Intergovernmental Panel on Climate Change (IPCC) to reduce emissions 45 percent by 2030.

These goals are tied to an ongoing university-wide shift in campus culture, which places sustainability and environmental justice as priorities that are embraced by students, faculty, and staff alike. Additional steps planned to ensure the ITCx has a minimal environmental impact include:

- The overall building form and site orientation will account for the key determinants of energy efficiency, such as the volumetric aspect ratio (building surface area which determines passive heating and cooling efficiency).
- The glazing system will be designed to minimize heat loss on northern facing windows and control solar gain from the south.
- Selected mechanical systems will limit or eliminate the use of natural gas.
- Daylight will be directly delivered to occupied spaces for increased safety from improved visibility and allowing electric lighting to remain off during most of the daylight hours.
- Windows from occupied spaces will be shaded to provide clear views of the surrounding nature.
- Stormwater runoff will be controlled with native vegetation and bioswales (water runoff conveyance systems) to decrease watershed into the adjacent Flint River.
- Restrooms will be equipped with low-flow, high-efficiency fixtures to conserve water.
- Building materials will be highly durable, easily maintained, and cost-effective with recyclable content and no unhealthy additives.
- HVAC systems will exceed the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) standard of 90.1-2007 by at least 30%.

- Other measures being considered are occupancy sensors, LED lighting, exterior smart-lighting, zoned heating and cooling, harvested ground water for re-use, and a building management system (BMS) to monitor air quality.

This is not an exhaustive list, but a starting point to demonstrate our commitment to ensuring every aspect of the project is evaluated in terms of environmental impact and value to the project. This strategy is currently being implemented in the project design of the ITC currently underway.

UM-Flint leadership has deemed a LEED Silver certification from the U.S. Green Building Council (USGBC) as the standard for all new UM-Flint projects of similar scope. Gold certification may also be sought depending upon the building design and available funding.

**8. Are matching resources currently available for the project? If yes, what is the source of the match resources? If not, identify the intended source and the estimated timeline for securing said resources.**

Matching funds will be available upon approval of the project through a combination of UM-Flint reserves, secured donor gifts, capital campaign efforts, and debt (if needed).

**9. If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects. Does the institution intend to commit additional resources?**

UM-Flint is planning to provide 25% of the total cost of the project. If capital campaign contributions exceed expectations, additional funding may be allocated.

**10. Will the completed project increase operating costs to the institution? If yes, 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.**

Operating costs may increase upon completion of this project, however that increase is likely to be partially or significantly offset by increased energy efficiency and increased tuition revenue from the new degree programs and new workforce training programs. We estimate that operational costs will increase by approximately \$404,000, or about \$2 million over five (5) years, as detailed below.

Building Maintenance - \$2.75/gross square foot = \$138,000  
 Custodial - \$1.57/gross square foot = \$78,000  
 Grounds - \$0.13/gross square foot = \$7,000  
 Utilities - \$2.70/gross square foot = \$135,000  
 Security - \$0.42/gross square foot = \$21,000  
 Insurance - \$0.14/gross square foot = \$7,000  
 Service Contracts - \$0.35/gross square foot = \$18,000



Annual total approximately \$404,000

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

This project will not cause an increase in tuition.

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

The tremendous potential of CIT to become an engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan can only be realized by creating the ITCx. Establishing CIT was part of a university-wide strategic shift towards taking a leadership role in bolstering the region's economy by providing high demand degree programs that lead to outstanding career opportunities in technology, energy, and healthcare fields. The ITC marked only the first step towards creating a complete CIT. The ITCx has been an integral part of the vision of CIT since first conceived and it is only through the creation of the ITCx, which leverages the investments already made for the ITC, that CIT can reach its full potential in leading Flint, the Genesee County region, and the State of Michigan towards a prosperous future.

The opportunity gap in the United States is a persistent reality, with children born into low-income families having a much slimmer chance of reaching the middle class in their adult years. Obtaining a four-year degree is one way to significantly level the playing field and give young people from disadvantaged backgrounds an opportunity to flourish. If this request is authorized, UM-Flint will take a leading role in making that happen. UM-Flint has been a beacon of education in Flint since 1956 and is a longstanding member of the community. If CIT is not fully realized through the development of the ITCx, the impact on students would be devastating, as there would be no ability to provide the learning environments for these high demand, high growth programs that lead to economic growth and social mobility.

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

There are no viable alternatives to this project. The success and full potential of CIT requires creating the ITCx with adjacency to WSW building. The path for UM-Flint to become an engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan is through the high-demand degree programs offered by CIT which feature highly specialized labs and the latest technology. Programmatic connections and physical proximity of the ITCx and the WSW building are also key aspects in creating an environment that enhances the ability of faculty to collaborate and form multidisciplinary teams across technology, energy, and healthcare. By providing the high-demand degree programs with outstanding career opportunities that play an increasingly important role in Michigan's technology-driven future, CIT will become an engine of economic growth and social mobility for Flint, the Genesee County region, and the State of Michigan – but this is only possible through the completion of the ITCx.





**Sheldon A. Neeley**  
**Mayor**

April 25, 2023

Dear Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee,

On behalf of the city of Flint, I am writing to express our enthusiastic support for the University of Michigan Flint's capital outlay request for the College of Innovation and Technology.

As a city that has faced more than its fair share of economic and social challenges, we understand firsthand the importance of investing in initiatives that promote growth, innovation, and community development. The University of Michigan Flint's project aligns perfectly with our vision for the future of Flint, and we believe that it has the potential to generate significant positive impacts for our city and its residents.

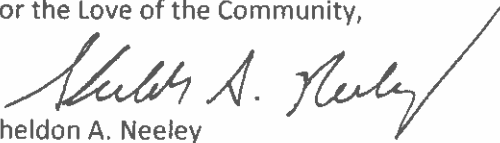
One of the primary strengths of this project is its focus on talent development. We firmly believe that investing in our workforce is key to unlocking long-term economic growth and prosperity in Flint. By supporting initiatives that help residents develop new skills, learn new trades, and access new career pathways, we can help build a more vibrant and resilient local economy. Also, UM-Flint programs are helping adults in the workplace complete their degrees. This is very important for the city and our ability to attract new businesses.

In addition to talent development, we are also excited about the project's emphasis on placemaking. As a city that is rich in history and culture, we believe that leveraging our unique assets and character can help us create more vibrant and engaging public spaces. By working together with the University of Michigan Flint to identify new opportunities for placemaking, we can help make Flint a more attractive destination for businesses, tourists, and residents alike.

We believe that the University of Michigan Flint's project has the potential to serve as a model for other communities across the state and beyond. We are excited to collaborate with the university and its partners to bring this project to fruition, and we are committed to doing everything we can to ensure its success.

Thank you for your time and consideration. We look forward to the opportunity to work with you on this important initiative.

For the Love of the Community,

  
Sheldon A. Neeley  
Mayor







April 19, 2023

Dr. Debashish Dutta, Chancellor  
University of Michigan–Flint  
221 University Pavilion  
303 E. Kearsley St.  
Flint, MI 48502

Subject: Letter of support for funding opportunity for University of Michigan-Flint's College of Innovation and Technology, phase II

Dear Dr. Dutta:

On behalf of the Charles Stewart Mott Foundation, I am writing in support of the College of Innovation and Technology project for which the University of Michigan-Flint is requesting funding from the state of Michigan. I understand the funding will be used to expand the existing CIT as the university plans for phase II of the project in Flint.

UM-Flint's CIT is an important part of the education ecosystem in Flint and the surrounding region. Since 2020, the Foundation has provided \$10 million for CIT programmatic development and implementation, and \$2.2 million for construction of the CIT facility. Phase II of this project will expand on the success already demonstrated to date. It will help prepare students for in-demand careers and better position the city of Flint, the region and the state to compete in next-generation industries.

The Mott Foundation is committed to the vitality and success of Flint and its residents, and we strongly believe that expanded educational opportunities are one of the primary pathways by which that happens. Support from this funding effort will go a long way toward ensuring that the UM-Flint CIT can realize the full potential of the expansion opportunity in the city of Flint. You are authorized to include a copy of this letter with your application to the Michigan Joint Capital Outlay Committee.

Best regards,

A handwritten signature in black ink that reads 'Ridgway White'.

Ridgway White  
President and CEO

RHW:lm





**FLINT OFFICE**

711 N. SAGINAW STREET, SUITE 300  
FLINT, MI 48503

P 810.233.5974

F 810.233.8652

**MARLETTE OFFICE**

3270 WILSON STREET  
MARLETTE, MI 48453

P 989.635.3561

F 989.635.2230

---

April 6, 2023

Dear Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee,

On behalf of GST Michigan Works!, I am writing in support of University of Michigan-Flint's Capital Outlay request to create a state-of-the-art Innovation and Technology Complex (ITCx) at UM-Flint. We look forward to working together with UM-Flint as they continue to create employer-identified and informed technology focused workforce development programs for UM-Flint students, community members, and employees that will lead to high-paying jobs.

GST Michigan Works! serves as the state and federally recognized workforce development system in the six counties of Genesee, Huron, Lapeer, Sanilac, Shiawassee, and Tuscola. We connect and provide industry and talent with the assets they need to work together in building a prosperous region. As such, we have an ongoing interest in quality workforce development services and programming in our region.

The objectives of the proposed program are aligned with our organization's mission to assist employers in finding skilled workers and job seekers in preparing for, finding, and retaining employment. The initiatives and workforce development programs that UM-Flint is proposing will help to provide career pathways for workers and the development of a skilled workforce that will fill talent gaps in the region. To foster a job-ready talent pipeline and the development of high-growth industries in our region, I enthusiastically support their request.

Sincerely,

A handwritten signature in black ink, appearing to read "Jody Kerbyson".

Jody Kerbyson  
Chief Executive Officer





XALT Energy LLC  
2700 S. Saginaw Road, Midland, MI 48640, USA

April 21, 2023

Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee

**RE: The University of Michigan Flint's College of Innovation and Technology Capital Outlay Major Project Request**

To Whom It May Concern,

On behalf of XALT Energy & Freudenberg Battery Power Systems, I am writing to in support of the need for state-of-the-art learning facilities to support the workforce of the 21st century for the College of Innovation and Technology at the University of Michigan-Flint. As a member of the business community, we understand and support the need to provide cutting-edge education and training centers in order to create a robust workforce. The labs described in the capital outlay project align with our business needs and those of our workforce needs now and in the future.

XALT Energy / FBPS develops and produces lithium-ion battery cells and fully integrated battery packs for the commercial vehicle and maritime industries. Under the Freudenberg family of companies, XALT continues to solidify its position as the leader in high tech, heavy industry energy storage solutions in marine, commercial transportation, and specialty applications. Freudenberg has a long-term strategy of investing in electro mobility applications, focusing on battery and fuel cell technology.

XALT Energy / FBPS supports the University of Michigan-Flint and the College of Innovation and Technology in the submission of the Capital Outlay Project and looks forward to continuing to work with the CIT on future workforce needs.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Michalski".

Jeff Michalski  
President SBU Battery Systems  
XALT Energy

XALT Energy LLC

Company Headquarters:  
2700 S. Saginaw Rd. / Midland, MI 48640 / USA

[www.xaltenergy.com](http://www.xaltenergy.com)



April 19, 2023

Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee

RE: The University of Michigan Flint's College of Innovation and Technology Capital Outlay Major Project Request

To Whom It May Concern:

On behalf of Webasto Roof Systems Inc., I am writing in support of the need for state-of-the-art learning facilities to support the workforce of the 21<sup>st</sup> century for the College of Innovation and Technology at the University of Michigan-Flint. As a member of the business community, we understand and support the need to provide cutting-edge education and training centers to create a robust workforce. The labs described in the capital outlay project align with our business needs and those of our workforce needs now and in the future.

The Webasto Group is a global innovative systems partner to the mobility industry and one of the 100 largest suppliers to the automotive sector worldwide. The company's offering includes in-house developed roof, heating, and cooling systems for various types of vehicles, batteries and charging solutions for hybrid and electric vehicles, and additional services related to thermal management and electromobility.

Webasto Roof Systems Inc. supports the University of Michigan-Flint and the College of Innovation and Technology in the submission of the Capital Outlay Project and looks forward to continuing to work with the CIT on future workforce needs.

Sincerely,



Corey Stowell  
VP HR  
Webasto Roof Systems Inc





**Miller  
Industries, LLC**

3070 W. Thompson Road  
Fenton, MI 48430

Office: 810.373.0322  
www.millc.com

April 18, 2023

Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee

Reference: The University of Michigan Flint's College of Innovation and Technology Capital Outlay Major Project Request

To Whom It May Concern:

On behalf of Miller Industries, LLC, I am writing to you in support of the need for state-of-the-art learning facilities to support the workforce of the 21<sup>st</sup> century for the College of Innovation and Technology at the University of Michigan-Flint. As a long standing member of the business community, we understand and support the need to provide cutting-edge education and training centers dedicated to creating a robust worldclass workforce. The labs described in the capital outlay project align with our business needs and those of our workforce needs.

Miller Industries is a custom equipment manufacturer that has been supplying customer specific industrial and commercial equipment for some of the largest and most well-known companies in the world. We have earned our niche as an integrator of components and associated controls designed to satisfy our customers' specialized needs.

Miller Industries, LLC supports the University of Michigan-Flint and the College of Innovation and Technology in the submission of the Capital Outlay Project and looks forward to continuing to work with the CIT on future workforce needs.

Sincerely,

Chad Miller  
Managing Member  
Miller Industries, LLC





April 18, 2023

Michigan Executive and Legislative Leadership and the Joint Capital Outlay Committee

RE: The University of Michigan Flint's College of Innovation and Technology Capital Outlay Major Project Request

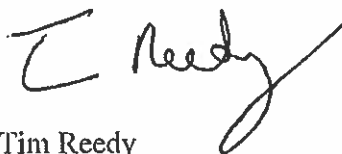
To Whom It May Concern:

On behalf of Lear Corporation, I am writing to in support of the need for state-of-the-art learning facilities to support the workforce of the 21<sup>st</sup> century for the College of Innovation and Technology at the University of Michigan-Flint. As a member of the business community, we understand and support the need to provide cutting-edge education and training centers in order to create a robust workforce. The labs described in the capital outlay project align with our business needs and those of our workforce needs now and in the future.

Lear Corporation (NYSE: LEA) is a Michigan based company, and a global automotive technology leader in seating and electrical and electronic systems serving every major automaker in the world. While our footprint is Global, we are strongly committed to Flint, and the communities where we do business. We are always striving for top talent, and the local Universities have been invaluable partners for our workforce development through providing the technical skills we need to compete at the highest levels, this Capital Outlay Project will only ensure a bright future for us all.

Lear supports the University of Michigan-Flint and the College of Innovation and Technology in the submission of the Capital Outlay Project and looks forward to continuing to work with the CIT on future workforce needs.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Reedy". The signature is written in a cursive style with a large, sweeping initial "T".

Tim Reedy  
Plant Manager  
Lear Corporation

