



NORTHERN MICHIGAN UNIVERSITY



October 2018

FIVE-YEAR FACILITIES MASTER PLAN



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NORTHERN MICHIGAN UNIVERSITY

Section I

Mission



Mission Statement

Northern Michigan University's distinctive academic mission and career programs are nurtured by exceptional teaching and extensive opportunities for scholarship, creativity, and engagement. Our supportive, connected community empowers students, graduates, faculty, and staff to contribute to a diverse and sustainable world.

Vision Statement

Northern Michigan University promotes an active environment to foster strong minds and bodies, inspires innovation and inclusion through community engagement, and develops leaders capable of local and global impact.



CORE VALUES

COMMUNITY

Northern has a distinctive sense of place – some refer to it as the upper hand. We are a warm, friendly, caring, and helpful university. We are collaborative, on campus and off, valuing partnerships and service to each other, the community and the region. Our focus is always on students.

DISTINCTLY NORTHERN
— CORE VALUES —



OPPORTUNITY

Like Lake Superior's vastness, there is depth and breadth to Northern's wide range of academic, research and scholarship, international travel and student service programs. We are affordable and accessible. We use our many resources to achieve deep personal and professional growth in ourselves and provide it for others.

RIGOR

A Northern education is like the black rocks that protect *Gichigami's* shores – a solid foundation that will endure the waves of time and change. We achieve academic excellence through top-caliber teaching, learning, research and service. Our work ethic and integrity are powered by discipline, courage, pride, *sisu* (determination), perseverance and the desire to help others succeed, in and out of the classroom.

ENVIRONMENT

The unparalleled rugged beauty of the physical environment at Northern's campus doorstep is something we admire, study, learn from, strive to protect and enjoy year-round. And like the Anishinaabe, we see a responsibility to plan for sustainability seven generations into the future.

INCLUSION

Northern is a safe and welcoming place. We aspire to learn from and encourage each other as global citizens, neighbors, colleagues and family. We desire to be a role model in embracing all types of diversity and diverse points of view, engaging in civil society and governance, protecting human rights and promoting social justice.

CONNECTIONS

At Northern, we make connections in dynamic ways, creatively using resources and technology to link people, ideas and projects. We nurture strong ties to the environment, community, disciplines, and our rich history and traditions. Like the Northern Lights (*Aurora Borealis*), these connections are often luminous and inspiring.

INNOVATION

Michigan's Upper Peninsula has always been home to bold, creative risk-takers and problem-solvers. Here, we excel at being inquisitive in looking beyond what is to what could be. We believe exploration unleashes and builds strength of mind and character. We endeavor to be entrepreneurs, discoverers and the best within our chosen fields.



Section II

Instructional Programming



Strategic Direction: Investing in Innovation

NMU has built an outstanding reputation on providing high-quality academic programs in a high-tech learning environment while never losing sight of its hallmark for personalized attention. Since 2014 and the beginning of Dr. Fritz Erickson's presidency, a dynamic strategic plan and strategic implementation process have been developed highlighting these characteristics.

Northern's first strategic planning step was to identify its core values upon which a new strategic plan would be built. Seven core values have been identified by NMU stakeholders as defining Northern Michigan University: community, opportunity, rigor, environment, inclusion, connection, and innovation.

The core values set the foundation for Northern's new strategic plan titled, "Investing in Innovation: The vision and courage to lead transformational change," which was approved by the NMU Board of Trustees in December 2015. Northern's stakeholders – students, faculty, staff, alumni, parents, community members, and legislators – contributed months of discussion as to where the NMU's new strategic plan should take the university. From these discussions, four focus areas and four strategic outcomes were developed. The focus areas are: academic excellence, student success, domestic and global outreach and engagement, and investment in innovation.

The NMU community believes taking the identified focus areas to the next level of excellence will achieve four strategic and desired outcomes:

- **Enhancing prestige and distinction** – in ways that ensure Northern is known for its teaching, experiential learning, scholarship, mentoring, and service.
- **Establishing new and responsive approaches** – for programs, services, technology, and ways of operating.
- **Expanded partnerships** – with alumni, friends, communities, businesses, government agencies, schools, colleges and universities, in and across academic disciplines, and with people here and around the world.
- **Growing enrollment** – strengthening NMU's on-campus student body while increasing efforts regarding new student populations such as online, off-campus, underrepresented, international, and nontraditional.

In the 2016-17 academic year, Northern's strategic planning efforts continued with three components: individual unit strategic plans that tie directly to the university's "Investing in Innovation" plan, a strategic enrollment implementation plan, and initiatives that addressed the 21 strategic core value efforts.



Strategic Direction: Investing in Innovation

In developing their individual unit strategic plans, all of Northern's divisions, colleges, schools, departments, centers, and offices are being asked how their area can help lead transformational change for Northern as a university within their programs, services and as role models for higher education during this period of massive change in educational delivery.

Academic departments are undergoing a comprehensive review of programs to evaluate where investments will have the most impact, where updates and changes are needed to meet the needs of today's students, and what, if any, major changes in structure, including merging and elimination, are required. As part of NMU's strategic plan, the university created the Programs Incentive Fund (PIF), which is \$1 million in funding to research and begin implementation of innovative investments on proposals made to transform and improve academic programs and student services.

The strategic enrollment implementation plan identified targets for enrollment by student type and gives the university a road map to new student recruitment populations that have not historically been focus areas for Northern. This includes online students, adult students, minority students and international students. With the decreasing demographics of the traditional-aged high school graduates internationally and nationally, it has become immensely important to recognize what potential new student populations have for the university. Recruiting and serving these new student populations is driving many of Northern's recently developed strategic initiatives such as the development of the Educational Access Network. This includes Northern's online global campus and Education for Life program (non-degree personal and professional development courses) over the new state-of-the-art LTE educational broadband network with its uniquely FCC-approved expansion across the Upper Peninsula.

In 2017-18, Northern undertook a Strategic Resource Allocation (SRA) project as another step in its comprehensive and ongoing strategic planning process. The SRA consisted of data-driven review of every academic program and academic support program. Two faculty-staff task forces reviewed each program and created a set of recommendations as to whether a program should receive additional university resources, keep its current level, lower resources, be transformed to operate in a new manner, or be considered for phase out or elimination. Throughout 2018-19, the recommendations are being discussed and an implementation plan is being developed. Implementation of the accepted recommendations would begin with the start of Fiscal Year 2020.

The goal of all of the strategic planning efforts is transformational change – ideas that will honor the historical hallmarks that have made NMU a strong and effective institution of higher education for 117 years while completely rethinking what's possible in educational delivery for a university this size, geographical location, and mission.



Academic Programs

Baccalaureate Degree Programs

Major

Accounting
Accounting/Corporate Finance
Accounting/Information Systems
Anthropology Major
Applied Workplace Leadership Major
Art and Design
Concentrations
Ceramics
Computer Art
Digital Cinema
Drawing/Painting
Graphic Design
Human-centered Design
Illustration
Metalsmithing/Sculpture
Photography
Woodworking/Furniture Design
Art and Design/Secondary Education
Concentrations
Ceramics
Computer Art
Digital Cinema
Drawing/Painting
Graphic Design
Human-centered Design
Illustration
Metalsmithing/Sculpture
Photography
Woodworking/Furniture Design

Biology
Concentrations
Botany
Ecology
General Biology
Microbiology
Physiology
Zoology
Chemistry (ACS Certified)
Clinical Health Science
Concentrations
Radiography
Respiratory Therapy
Surgical Technology
Clinical Laboratory Science
Concentrations
Anatomic Pathology
Clinical Systems Analysts
Diagnostic Genetics
Laboratory Medicine
Microbiology
Science Technologist
Communication Studies
Community Health Education
Computer Science
Construction Management
Criminal Justice



Academic Programs

Baccalaureate Degree Programs

(continued)

Major

Earth Science
Economics
Electronics Engineering Technology
Elementary Education (2 minors)
Elementary Education Integrated Science Major
Elementary Education Language Arts Major
Elementary Education Mathematics Major
Elementary Education Social Studies Major
Elementary Education Special Education Major
Embedded Systems
English
English/Graduate Bound
English/Writing
Entrepreneurship
Environmental Science

Concentrations

Natural Resources
Pollution Control and Remediation
Renewable Energy Technologies
Water Resources
Environmental Studies and Sustainability
Finance and Risk Management

Concentrations

Corporate Finance and Investment
Risk Management and Insurance
Fisheries and Wildlife Management

Concentrations

Fisheries
Wildlife
Forensic Biochemistry
French
Geomatics
German Studies

History
Hospitality and Tourism Management
Individually Created Programs
(ICP)/Individualized Studies
Industrial Technology
Information Assurance/Cyber Defense
Information Systems
Integrated Science Major with Biology Minor
(Option I)
Integrated Science Major with Chemistry Minor
(Option II)
Integrated Science Major with Earth Science
Minor (Option III)
Integrated Science Major with Physics Minor
(Option IV)

International Studies

Concentrations

Africa
Asian
Europe
Global
Latin America
Middle East
Liberal Arts and Sciences (currently not accepting
students)
Loss Prevention Management
Management
Management of Health and Fitness
Marketing
Mathematics
Concentrations
Actuarial Sciences
General Mathematics



Academic Programs

Baccalaureate Degree Programs (continued)

Major

Mechanical Engineering Technology

Concentrations

Alternative Energies

Computer Numerical Control Technology

Manufacturing Engineering Technology

Mechanical Engineering Design

Mechatronics

Medicinal Plant Chemistry

Mobile and Web Application Development

Multi-media Journalism

Multi-media Production

Music

Concentrations

Choral

Instrumental

Native American Studies Major

Neuroscience

Concentrations

Cellular and Molecular

Behavioral and Cognitive

Nursing

Outdoor Recreation Leadership & Management

Paralegal

Philosophy

Physical Education Coaching

Physics

Political Science

Concentrations

General Political Science

International

Pre-law

Public Administration

Pre-Chiropractic

Pre-Clinical Psychology Program

Pre-Dental

Pre-Engineering

Pre-Law

Pre-Medical

Pre-Optometry

Pre-Pharmacy

Pre-Physical Therapy

Pre-Physician Assistant

Pre-Veterinary

Psychology

Psychology/Behavior Analysis

Public Relations

RN to Baccalaureate Nursing Major

Secondary Education Biology Major

Secondary Education Chemistry Major

Secondary Education Earth Science Major

Secondary Education English Major

Secondary Education French Major

Secondary Education Geography Major

Secondary Education History Major

Secondary Education Industrial Technology Major

Secondary Education Integrated Science Major

Secondary Education Mathematics Major

Secondary Education Music Major

Secondary Education Physical Education Major

Secondary Education Physics Major

Secondary Education Political Science Major

Secondary Education Social Studies Major

Secondary Education Spanish Major

Secondary Education Special Education Major

Ski Area Business Management

Social Work

Sociology

Spanish

Speech, Language and Hearing Sciences

Sports Science

Theatre and Entertainment Arts

Concentrations

Design and Technology

Performance



Academic Programs

Associate Degree Programs

Major

Art and Design	Electronic Journalism
Automotive Service Technology	Electronics
Aviation Maintenance Technology	Emergency Medical Services
Building Technology	Engineering Design
Climate Control Technology	English
Clinical Laboratory Technology	Environmental Studies
<u>Concentrations</u>	Film Studies
Clinical Laboratory Technician	Gender and Sexuality Studies
Science Technician	Geomatics
Computer Numerical Control Technology	Health and Nutrition
Criminal Justice	History
Electrical Technology	Hospitality Service Management
<u>Concentrations</u>	Human Behavior
Electrical Power Technician	Human Biology
General Electronics Technology	HVACR
Industrial Electrical Technology	Industrial Electrical Technology
General Business	Industrial Maintenance
General University Studies	International Studies
<u>Concentrations</u>	Journalism
Alternative Energies	Loss Prevention Management
Anthropology	Mathematics
Applied Ethics	Media Production and New Technology
Art and Design	Media Studies
Art History	Music
Automotive Service Technology	Native American Studies
Biology	Outdoor Recreation
Chemistry	Philosophy
Clinical Laboratory Techniques	Physical Education – Coaching Emphasis
Communication Studies	Physics
Computer Numerical Control	Political Science
Computer Science	Pre-Law
Construction Systems	Psychology
Contracted	Public Administration
Criminal Justice	Public Relations
Dance	Religious Studies
Earth Science	Social Service
Economics	



Academic Programs

Associate Degree Programs

Major

Sociology
Speech, Language & Hearing Science
Sustainability
Theatre and Entertainment Arts
Welding
Wildland Firefighting
Wildlife Conservation Law & Policing
Writing
Health Information Processing (currently not accepting students)
Concentrations
Associate Degree Core
Health Information Core
Hospitality Management
Industrial Maintenance
Information Systems
Insurance
Law Enforcement
Liberal Arts/Sciences (currently not accepting students)
Native American Community Services
Office Information Assistant (currently not accepting students)
Paralegal
Radiography
Surgical Technology

Certificate Programs

Advanced Law Enforcement Certificate
Assistant Behavior Analyst Certificate
Automotive Maintenance Certificate
Automotive Service Technology
Aviation Maintenance Technology

Clinical Assistant
Computer Numerical Control Technician
Cosmetology
Cosmetology Instructor
Deaf Studies
Electrical Line Technician
Esthetics
Geographic Information Systems
Heating, Air Conditioning/Refrigeration
Industrial Maintenance
Local Corrections
Manicure
Manufacturing Production Technician
Office Services (currently not accepting students)
Post-Baccalaureate Paralegal
Practical Nursing
Welding
Wildland Firefighting (currently not accepting students)

Certifications

Certification in American Indian Education
French Certification
German Certification
Spanish Certification
Teaching English to Speakers of Other Languages (TESOL) Certification



Academic Programs

Graduate Programs

Certificates

- Facilitating Training (currently suspended)
- Health Informatics
- Performance Improvement (currently suspended)
- Teaching English to Speakers of Other Languages (TESOL)

Doctorate

- Nursing Practices
 - Post-Baccalaureate Track
 - Post-Master's Track

Education Specialist

- Educational Administration/Supervision

Education Certification (Non-degree)

- Professional Certificate – Elementary Education
- Professional Certificate – Secondary Education
- Professional/Personal Development Education Administration

Post-Baccalaureate (Non-degree)

Education Certification

- Elementary Provisional Certificate
- Paralegal
- Secondary Provisional Certificate

Masters

- Applied Behavior Analysis
- Arts and Sciences
- Athletic Training
- Biology
- Business Administration
- Clinical Molecular Genetics - Track 1: Clinical Molecular Genetics
- Clinical Molecular Genetics - Track 2: Clinical Molecular Laboratory Education Track
- Criminal Justice (currently suspended)
- Creative Writing
- Early Childhood Education
- Educational Administration
 - Administration/Supervision
 - American Indian Education
- English
 - American Indian Education
 - English/Literature
 - English/Pedagogy
 - English/Writing
 - Theatre and Entertainment Arts
- Educational Instruction
- Exercise Science
- Higher Education and Student Affairs
- Integrated Biosciences
- Learning Disabilities
- Post-Secondary Biology Education
- Psychological Science
- Psychology- Training and Performance Improvement (currently suspended)
- Public Administration
- Reading K-8
- Reading Specialist K-12



Academic Programs

Elementary Education Minors

Early Childhood Minor
French
German
Integrated Science
Language Arts
Mathematics
Reading
Spanish

Secondary Education Minors

Biology
Chemistry
Earth Science
Economics
English
French
Geography
German
Health Education
History
Journalism
Mathematics
Physical Education
Physics
Political Science
Spanish

Non-Education Minors

Accounting
Actuarial Sciences
Alternative Energies
Anthropology
Applied Ethics
Applied Workplace Leadership
Art and Design
Art History
Automotive Service Technology
Biology
Business Administration
Chemistry
Citizenship Studies
Clinical Laboratory Techniques
CNC Technology
Communication Studies
Computer Science
Construction Systems
Contracted Minor (Engineering Technology)
Criminal Justice
Dance
Deaf Studies
Earth Science
Earth, Environmental, and Geographical
Sciences Cluster
Economics
Electronic Journalism
Electronics
Emergency Medical Services
Engineering Design
English
Entrepreneurship
Environmental Studies
Film Studies
Finance
French
Gender and Sexuality Studies



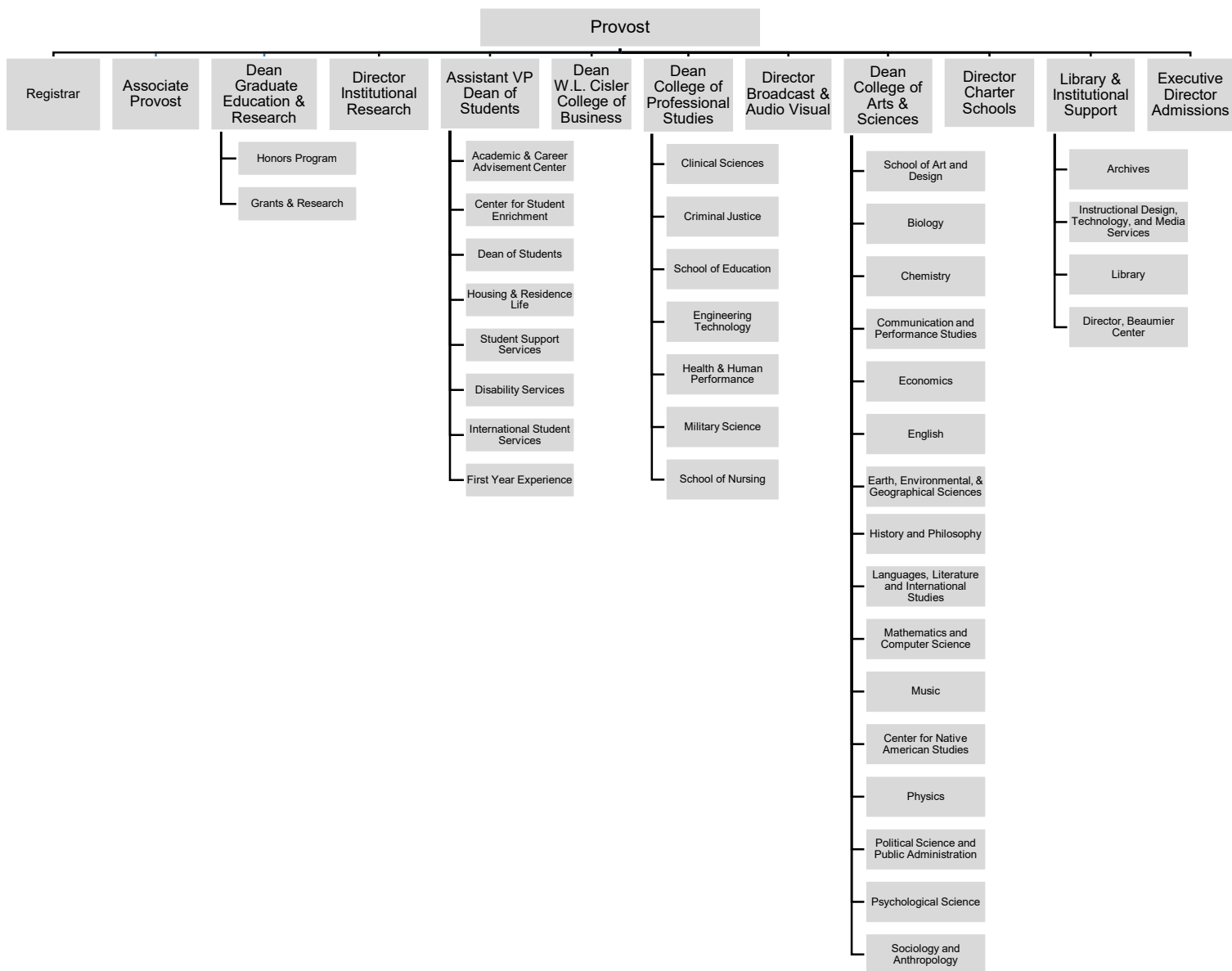
Academic Programs

Non-Education Minors (*continued*)

Geomatics	Native American Community Services (NACS)
German	Native American Studies
Gerontology (currently not accepting students)	Office Services (currently not accepting students)
Group Science	Outdoor Leadership
Health and Nutrition	Outdoor Recreation
Health Education Cluster	Outdoor Recreation Leadership Management Cluster
Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR)	Philosophy
History	Physical Education - Coaching
Hospitality Service Management	Physics
Human Behavior Cluster	Political Science
Human Biology	Pre-Law
Human Services	Pre-Professional Science
Industrial Electrical Technology	Psychology
Industrial Maintenance	Public Administration
Information Assurance/Cyber Defense	Public History
Information Systems	Public Relations
Integrative Science	Religious Studies
International Studies	Research Analyst
Interpretation and Outdoor Education	Social Service
Journalism	Sociology
Latin American Studies	Spanish
Loss Prevention Management	Speech, Language, and Hearing Sciences
Management	Sports Science Cluster
Marketing	Sustainability
Mathematical Statistics	Teaching English to Speakers of Other Languages (TESOL)
Mathematics	Theatre and Entertainment Arts
Media Production and New Technology	Welding
Media Studies	Wildland Firefighting (currently not accepting students)
Military Science	Wildlife Conservation Law and Policing
Music	Writing



Academic Affairs Division Organizational Chart





Instructional Programming

Existing Academic Programs and Projected Programming Changes

Northern Michigan University (NMU) continually strives to be the comprehensive university of choice in the Midwest where students receive individualized attention in a high tech learning environment. NMU competes by pursuing programs and initiatives aimed at continuous quality improvement. We focus on integrating student learning outcomes into curricular processes, including co-curricular development, contemporary general education, continuous academic program review, and the student learning outcomes assessment. The Center for Teaching and Learning (CTL) was established to provide classroom and instructional support with educator-scholar expertise. The CLT reaches out to serve the institution with advanced technology in extensive and convenient hours. Also, in conjunction with the Division of Extended Learning and Community Engagement, the CTL offers the Online Teaching Fellows Program, a two program faculty development series based on Quality Matters standards and designed to advance faculty expertise in the design, development, and delivery of online courses. The university's General Education Council, a standing Academic Senate Committee comprised of elected faculty representatives and administrators, lead a campus-wide involvement to re-innovate our general education programs which begins in Fall 2017.

Academic programs, student achievement, and learning outcomes assessment have been the university's top priority. Evidence-based decision-making guides our planning activities for ultimate student success. Outcomes assessment continues to be part of the contractual agreement with our largest faculty union, the AAUP. This underscores the commitment of our faculty to continue to excel at teaching and learning. Additionally, as part of the university's accreditation process, primarily the Academic Quality Improvement Program (AQIP), an Action Project on campus-wide assessment of student learning was completed. This has produced outstanding opportunities for NMU faculty and staff to identify and measure student learning outcomes for all students on campus. Through the Division of Extended Learning and Community Engagement, we continue to offer new online training and certification for both students and faculty to ensure continued top-quality instruction and student readiness for online learning. We continue to invest in our distance education by being active members of SARA. Of recent note, the Higher Learning Commission notified us that AQIP is phasing out and our institution will move to the Open Pathways system of institutional effectiveness and continuous improvement.

We recently began utilizing Tableau software to create Academic Affairs dashboards as a mechanism to make data-driven decisions. The dashboards highlight program sustainability and vitality, student success and outcomes, and financial effectiveness. Additional analytic capabilities are being added to our system allowing analysts to take deeper looks into student segments which helps with enrollment planning, retention programming, and other key performance targets.



Instructional Programming

Existing Academic Programs and Projected Programming Changes *(continued)*

We are actively involved in national initiatives for student learning and outcomes assessment such as Liberal Education and America's Promise (LEAP), Voluntary System of Accountability, and the Student Achievement Measure (SAM), which is the collaborative efforts of six leading higher education associations to enhance transparency on student progress and completions.

We continue to find success in our retention initiatives, requiring all students to participate in our first year experience program and centralized advising for all new students.

We have five new programs starting or recently approved this year, including one bachelor, one associate, and three master's degree programs. Three programs were eliminated; Criminal Justice Masters, Nursing Masters, and Respiratory Therapy Associate.

Highlights include a new Social Work Master's (MSW) and a Master of Athletic Training. Both programs will receive their first cohort in fall of 2019, but extensive work for accreditation, programming, and recruiting began this fall. The new programs resulted from close collaboration between faculty and administration and reflect our commitment to innovative high-quality programs.

Strategic Focus Areas:

Domestic and Global Outreach and Engagement

- Integrate global engagement and diversity learning experiences throughout the academic curriculum.
- Continue to explore and act upon opportunities to expand programs in nursing and clinical sciences to meet the growing demand for professionals in health care and related fields.
- Work with faculty to explore and act upon graduate programming (certificate, master's, doctoral) in areas of recognized strengths, needs, and opportunities.
- Develop new applied programs in computing and IT-related majors.
- Continue to develop new Career and Technical Education (CTE) programs.



Instructional Programming

Existing Academic Programs and Projected Programming Changes *(continued)*

Student Success and Academic Excellence

The personal, social, and intellectual maturity of NMU students is the ultimate benchmark of the achievement of the university's mission. A high-quality university education creates lifelong learners, contributing citizens, and thoughtful neighbors. NMU will continue to develop programs and employ practices that maximize the opportunity for students to succeed in their university experience and lead a productive, meaningful life.

Acknowledgement and use of the rich learning environment outside the campus energizes the faculty-student relationship and creates an essential bridge from theory to practice. According to the Carnegie Foundation for the Advancement of Teaching, a community-engaged campus collaborates with its larger communities (local, state, regional, national, and global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity. Students who attend a community-engaged institution learn the broad context in which they live, work, play, and grow.

- Utilize corporate partners to promote additional international opportunities.
- Work with strategic technology and telecommunication partners to enhance the teaching, learning and working environment.
- Utilize corporate partners to increase internship opportunities for students.
- Utilize alternative energy plans to seed academic and research programs in energy and energy management.
- Continue to support Superior Edge and academic service learning programs.
- Emphasize academic service learning courses in the curriculum.
- Implement strategies to assist students to more effectively communicate the skills and competencies developed through their achievements in community engagement.
- Continue to enhance our retention persistence efforts by utilizing the full capability of our centralized advising program and retention software (STARFISH).



Instructional Programming

Existing Academic Programs and Projected Programming Changes (continued)

Investment and Innovation

Enhance the portfolio of academic programs, research, and other activities that leverage the university's location in the Upper Peninsula of Michigan.

The attractiveness of the NMU campus in the beautiful natural environment of the Upper Peninsula of Michigan is a unique asset that should play a prominent role in our portfolio of academic programs, our research agenda and the efficiency with which the campus operates. While the campus itself represents NMU's physical assets, academic programs, and other campus operations represent the human capital of the university community. Both are instrumental in sustaining the university's collective efforts to maintain a standard of excellent practice, manage costs, and achieve the institutional mission.

- Continue creating an enhanced infrastructure (Educational Access Network) that will continually expand the availability and variety of new technological tools and services for NMU students, faculty and staff
- Develop and refine our "virtual" campus that provides reliable, convenient access to online courses and other essential student services
- Use the new Jamrich academic building as a model to examine existing classrooms and other learning spaces to create the highest quality learning environments, and to advance the application of new pedagogies and technologies
- Plan and begin renovation to help create a state-of-the art library that provides facilities, collections, technology, and personnel to meet current and emerging instructional and research needs, emphasizing collaboration, creative and critical thinking, experiential learning, and flexibility for the future



Instructional Programming

Existing Academic Programs and Projected Programming Changes (continued)

Outreach and Engagement

Increase collaboration with local communities, schools, governments, development groups and other partners to enhance community and economic development in the Upper Peninsula.

- Continue to increase and promote a culture of openness and access through regularly scheduled community/campus forums, high-quality publications and the effective use of communication technologies, like the Educational Access Network.
- Through monthly meetings of the Center for Rural Community and Economic Development, assist community members so they may more easily build initiatives for economic development and community outreach; enhance awareness of university and community resources that are available for collective use; and support study and enhance living in Michigan's Upper Peninsula.
- Explore the feasibility of collaborating with existing community development organizations, units of government and the private sector to establish a high-tech economic development center on the NMU campus.
- Explore the feasibility of collaborating with the state, U.P. universities and private alternative energy companies to make the Upper Peninsula a nationally recognized alternative energy and technology corridor.
- Continue to be an integral part and provide administrative support to the Climate Adaptation Task Force (CATF), a local group consisting of government and community leaders who act as a resource to public entities faced with climate change challenges.
- Develop and implement a "front door" approach to community engagement in which economic development, internships and job placement, university events, community-based initiatives, and business engagement are coordinated in a central hub. The goal of this structure is to document and organize community engagement activities on campus, provide more visibility and access to the community, more fully connect the community with NMU faculty, staff, and students, and facilitate community and economic development.



Initiatives / Academic Program Needs with Impact on Facilities

Instructional Programming

A major part of NMU's success is its high-tech learning environment. The campus is a connected learning community with over 7,010 notebook computers distributed, 882 to faculty and staff, and 6,128 distributed to students as part of the students' tuition and fees (the second most affordable tuition and fees in the state, including the notebook computer). These notebook computers have built-in wired and wireless, WLAN (Wi-Fi) and WWAN (LTE) networking capabilities. Wireless Wi-Fi technology throughout campus provides improved student access in and out of the classroom for coursework, research, and provides greater efficiency in delivery of instruction and student services via the internet.

In 2015, NMU migrated its existing WiMAX network to LTE, providing NMU students, faculty and staff with true mobile and fixed broadband connectivity. As word of NMU's LTE service spread, requests from other educational institutions resulted in NMU's commitment to construct wireless broadband in surrounding Upper Peninsula communities. Today, NMU operates the nation's largest, self-deployed, educational LTE network covering significant portions of the 12,764 square miles of rugged terrain in Michigan's rural Upper Peninsula. NMU offers its educational broadband service throughout Michigan's Upper Peninsula over an eight-GSA region, primarily in areas where commercial broadband is unavailable.

The growth of NMU's LTE network has opened new opportunities for NMU to address educational broadband access concerns throughout its multiple-GSA region. In 2016, NMU launched its Educational Access Network ("EAN") as a means of extending learning opportunities to K-12 students needing Internet access and non-degree students of all ages who seek help with basic life or career / technical skills. The EAN offers families with school-aged children a Child Internet Protection Act ("CIPA") compliant, filtered service that delivers, to the home, an Internet connection identical to the one used in their children's public school. The EAN also provides individuals interested in non-credit education with Internet access and learning modules covering a wide range of self-help and workforce development topics as part of their access. Accessed through a web portal, the EAN on-line link takes students directly to degree and non-degree programs, offering them a "one stop shop" for on-line learning. Since launching the EAN, NMU has registered over 2,658 non-degree seeking students on its LTE network and is adding approximately 180 students each month as service areas continue to expand. In addition to serving a number of small townships and municipalities, NMU has also established LTE transmitter sites that serve several Native American tribal communities.



Initiatives / Academic Program Needs with Impact on Facilities

Instructional Programming: (continued)

Northern is a leader in the development and utilization of web-based or web-enhanced courses. The university has more than 1,237 course sections developed utilizing Web-based software, and more than 94 percent of our students are enrolled in at least one or more web-based or web-enhanced courses. NMU is a recognized leader in using technology in higher education, and our graduates enhance the economy of Michigan by being part of a work force that is among the nation's most technologically advanced and leadership oriented.

The university continues to focus on renovation and transformation of existing facilities to a state-of-the-art environmentally efficient campus. A connected learning environment requires that we continue to improve our support systems, technology infrastructure, and facilities.

The university's public radio and television stations have completed their digital transition, including a switch to Internet Protocol (IP)-based studio-to-transmitter (STL) links. WNMU is currently preparing for its FCC-mandated channel migration from VHF-13 to VHF-8. Coincidental to this change, WNMU will be installing the infrastructure allowing the station to migrate to American Television Standards Committee (ATSC) 3.0 broadcasts in approximately five years. This digital conversion initiatives directly impact the station's ability to offer instructional course content to university students, area residents and K-12 schools. Specifically, WNMU-TV's switch to ATSC 3.0 will allow WNMU to offer unlimited internet-protocol (IP) program streams. These new capabilities will directly support customized instruction and afford viewers a more efficient means of streaming course content. NMU is aggressively working to coordinate these new broadcast capabilities with its EAN service to appropriately leverage the strengths of LTE transmissions (one-to-one communications and ATSC 3.0 broadcasts (one-to-many broadcasts). Efficient use of wireless spectrum is a national priority and NMU is uniquely positioned to use these and other technologies in connecting its students with the educational content they need to be successful.

The initiatives noted above, and the projected programming changes identified in NMU's strategic plan, will have an impact on our facilities as they are implemented. We will continue to evaluate and plan for necessary changes in our capital infrastructure to meet the needs of proposed curriculum changes.

In 2018, NMU took advantage of its restructured campus audio-visual administrative and instructional services to plan and implement a renovation of all classroom AV technologies. Phased over a 3-year period, this renovation replaces existing analog projector, sound and control technologies with digital components that feature laser projection, enhanced room audio, and more reliable equipment control in each classroom. This project also adds remote management support that will provide improve repair and maintenance services handled by the AV staff. When complete, classroom AV systems will feature document cameras, wireless laptop display support and the ability incorporate legacy audio and video content as well as streaming media from the web.



Community Presence

Intercollegiate Athletics and Recreational Sports Facilities

Northern Michigan University athletic and recreational facilities serve as a regional events center for the entire Upper Peninsula. A number of recreational programs are offered within the facilities for the community and include walking programs, recreational programming for children, adults, and youth sports camps. Youth programs in hockey, basketball, volleyball, swimming and diving, soccer, lacrosse, track and field, and others meet in our facilities throughout the year. Exercise and aquatic programs for senior citizens are held as well. These facilities have also become a tourist destination for visitors in our area.

The Superior Dome is home to NMU football, men's and women's soccer, lacrosse, cross country, track and field, and hosts high school football regular season games, as well as many MHSAA football playoff games. Approximately 300,000 people pass through the Superior Dome annually. The U.S. Olympic Training Site weightlifting and Greco-Roman wrestling programs also operate from the Superior Dome. The Noquemanon Ski Marathon, high school track and field meets, youth soccer and softball tournaments, local non-profit fundraising events, Michigan Special Olympics, Pump Up the Dome, and K-8 school field day programs are several examples of other activities taking place in the Superior Dome each year. The Superior Dome also serves the needs of regional business and industry by providing a venue for various trade shows and conferences. The Michigan Municipal League, Michigan Association of Counties, the Boat, Sport and Recreational Vehicle Show, and the U.P. Builders Show are examples of trade shows and conferences hosted there. NMU commencement ceremonies are held in the Superior Dome each December and May.

The Berry Events Center is home to NMU hockey, and men's and women's basketball. Over 100,000 people pass through its doors annually. The facility hosts many junior hockey tournaments, NMU men's and women's club hockey games, adult hockey leagues, as well as figure skating programs. The Berry Events Center also plays host to concerts, lectures, and conferences. NMU faculty and students use the facility's academic classrooms for instruction and coursework.

The Physical Education Instructional Facility (PEIF) is home to the NMU School of Health and Human Performance, as well as NMU's volleyball and men's and women's swimming and diving teams. The facility hosts numerous community events, youth sports tournaments, youth sports camps, Native American Pow Wows, concerts, and lectures. NMU students, faculty, staff, and Marquette area community members utilize recreation venues in the PEIF through recreation memberships year-round. The PEIF is a comprehensive, indoor recreation facility that contains instructional activity venues and classrooms for NMU students.



Community Presence Activities



Intercollegiate Athletics

Northern Michigan University offers seventeen (17) intercollegiate men's and women's sports. Approximately 420 student-athletes compete in varsity intercollegiate athletics annually. An average of 120 visiting athletic teams visit the Marquette area annually to compete in events held at NMU. Events held at NMU regularly attract fans from throughout the Upper Peninsula, as well as Northern Wisconsin and Lower Michigan. Fans representing opposing teams from Ohio, Wisconsin, Illinois, Minnesota, Indiana, Alaska, and Canada annually attend events at NMU. Virtually all groups spend multiple days on each visit to Marquette.

Northern Michigan University U.S. Olympic Training Site

NMU is home to a U.S. Olympic Training Site (OTS) which provides Olympic-aspiring student-athletes the opportunity to continue their education while training to represent the USA at the Olympic Games and other international events. Since 1985, more than 22,000 athletes from 43 countries have trained at the site. More than 400 of these student-athletes have made Olympic teams earning 61 Olympic medals. Currently, there are over 80 Greco-Roman wrestling and weightlifting athletes training at the OTS, most also being NMU students.



**U.S. OLYMPIC
TRAINING SITE**
NORTHERN MICHIGAN UNIVERSITY





Community Presence Activities



NORTHERN INITIATIVES

Prosperity. That's Our Business

Northern Michigan University annually invests in the work of Northern Initiatives (NI), a Community Development Financial Institution. NI began as an on-campus initiative in 1985, and evolved into a non-profit corporation in 1992. For most of its 26 years, NI has been on campus, currently residing at the Jacobetti Complex.

NI began to support the building of a more diverse and resilient Upper Peninsula economy. NI has made 747 loans that total \$42M in the U.P. and of that total 300 loans were made in Marquette County totaling \$17M.

In 2008, they expanded from 15 counties to 51 including the five border counties of Wisconsin and 31 lower Michigan counties. During 2017, they did a second expansion and now covers 73 Michigan counties.

NI works to fill market gaps with one third of its 1,085 loans made supporting start-up businesses and currently 35% addressing the borrowing needs of diverse customers; minorities, women, LGBT, and veterans. NI business customers have used \$63M in loans to create 2,000 jobs and retain another 3,000. NI is ranked nationally in the top 15 of the Small Business Administration's (SBA), Micro-lenders, and Community Advantage lenders.

NMU students are a key piece of Northern Initiatives' work with small businesses. Typically, six or more NMU students work at NI supporting lenders with credit analysis and business coaches by designing websites, doing social media campaigns or market research for small business customers. NI coaches and the students cover this large and diverse customer base through the practice of blended learning, using the NI customer portal, *Initiate*. The *Initiate* portal is the creation of 4 NMU (11 in total) alums who work for NI. It has been licensed to 6 Community Development Financial Institutions who are using it to apply knowledge- building to customers in 23 states.

The standard for NI's work has been to work with borrowers on "money and know how" needs to support their launch or growth. Another element of the knowledge building work is its affiliation with the Michigan Manufacturing Technology Center to provide top and bottom line services (web sites, cyber-security support, lean, quality and process improvement) in support of UP manufacturers.



Community Presence Activities

Community College and Meeting Needs of Business and Industry

NMU serves the community college role for the citizens of Marquette and Alger Counties. NMU's community college programs offer students an array of associate degrees, certificate programs, diploma programs, and certifications in 50 areas of study.

Northern maintains extensive partnerships with K-12 schools through outreach activities, student teaching positions, and professional development for teachers and administrators. NMU serves this role as the fiscal agent and leader for the Upper Peninsula Center for Educational Development, a collaborative effort of all seven Intermediate School Districts, three public universities and three community colleges in the Upper Peninsula. Nearly every school district in the Upper Peninsula has recently hosted NMU student teachers. These partnerships with schools provide experience with all class-levels in public, private, and charter educational settings. To further the value of these experiences, NMU has extended its wireless signal to student teachers in K-12 schools.

NMU's Centers for Educational Development and Economic Education and the Seaborg Center for Math and Science Education provide a wide variety of professional development opportunities for teachers and administrators across the Upper Peninsula. NMU also serves as the fiscal agent for Region 15 of the MiSTEM Network which supports partnership building and the coordination of opportunities and resources for STEM teaching and learning across 7 counties in the U.P. These efforts play an important role in connecting the K-16 education and business sectors. NMU also works with a number of schools in Michigan's Lower Peninsula, Northern Wisconsin, and Chicago. Additionally, NMU works with seven public school academies (charter schools) in Michigan.

Distance Education and Instructional Support

In order to provide greater access to higher education for the citizens of the Upper Peninsula, NMU has created numerous opportunities for people who cannot travel to campus to learn. This means offering educational experiences off-campus as well as online and other electronic formats. NMU's off-campus initiatives include the Northern Promise, which contains programs for high school students to complete NMU coursework in their own high schools, online, or on campus. In most cases, the coursework is offered at no cost to students and partner high schools receive a substantial discount on the cost of tuition.

With regard to online education, a focal point of the Educational Access Network is NMU's newly created Global Campus, which is a virtual campus that provides educational opportunities and support services tailored to online learner, many of whom are working adults. The Global Campus has focused on expanding online course and academic program offerings to be able to provide educational experiences that UP residents want in a format that provides them maximum access.



Community Presence Activities

Community College and Meeting Needs of Business and Industry

Distance Education and Instructional Support *(continued)*

Learning and Community Engagement division has partnered with the Center for Teaching and Learning to develop and implement the Online Teaching Fellows program that trains faculty in best practices in online course design and delivery. The most recent developments in distance education and instructional support include the creation of online media production studio with light board technology and investment in virtual and augmented reality technology.

Access to Global Campus academic programs and online personal and professional development offerings have increased significantly by the rapid development of NMU's unique wireless LTE network. The University migrated from its WiMAX wireless network to a carrier-grade LTE network that encompasses a seven-city area surrounding NMU. WiMAX technology was retired in 2016 and has been replaced with faster, more robust, LTE service that serves more than 30 U.P. communities. More than 6,300 NMU students and thousands of additional K-12 and personal/professional development students use the LTE network to manage education-related activities and research, including bandwidth intensive applications such as streaming media, video conferencing, and large data file transfers. NMU's success with LTE in the Marquette County area has spread throughout Michigan's Upper Peninsula and Northeastern Wisconsin as the University continues construction of LTE broadband sites across a geographic service area roughly the size of four New England states. Licensed by the Federal Communications Commission (FCC) to serve 6 General Service Areas (GSAs), NMU has received financial assistance from the Michigan Economic Development Corporation (MEDC) and partners with area K-12 schools, colleges and universities to deliver educational broadband to rural communities in an effort to engage learners of all ages in credit and non-credit educational experiences. When completed, this LTE network will consist of 64 transmitter facilities and provide broadband to over 100 rural communities. As a result, learners of all ages will be able to successfully earn high school and college credentials, receive continuing education needed in workforce development programs across the region, and engage in online personal enrichment learning modules.

To provide even greater access to education for the citizens of the region, NMU continues its use of instructional, career pathway and "virtual field trip" experiences to K-12 schools in response to new high school graduation requirements and shrinking school budgets. Programs are conducted using internet-based interactive TV (ITV) technology along with streaming media. Content experts from within the University and surrounding areas provide "real world" information to students interested in career pathway information. In addition, NMU offers continuing education for teacher re-certification and enrichment using interactive TV and works with local Regional Educational Services Agencies (RESA) to support the technology needs of area schools.



Community Presence Activities

Public Broadcasting

NMU's public radio and television stations have completed their transition to digital broadcasting and are currently working to integrate "next generation" broadcasting into their program offerings and student experiential learning opportunities.

WNMU-TV has completed its migration to "open-platform" server technology and now fully supports three digital channels. As part of the FCC spectrum auction of 2016, WNMU will be changing its frequency assignment from channel 13 to channel 8 in 2020. This migration, funded entirely by spectrum auction proceeds, will permit WNMU to not only comply with the FCC mandated channel swap, but also position itself to implement new broadcasting technologies afforded by the latest American Television Standards Committee (ATSC) 3.0 broadcasting standard. This digital upgrade treats all broadcast content as data and permit new web and internet datacasting which will be advantageous to NMU's instructional mission. The change will also allow WNMU to implement new emergency messaging capabilities for public safety enhancement.

NMU uses its digital television and radio transmissions to offer Michigan's Upper Peninsula residents high-definition broadcasts, plus additional standard-definition program streams that contain classroom and course content especially designed for higher education and K-12 instruction. WNMU's technical infrastructure is also heavily used to support the university's emerging LTE operations. Carrier grade tower facilities, standby power, and IP links to the main university campus assist in providing a robust technical infrastructure that avoids costly facility duplication. Additionally, as WNMU begins its 5-year migration to ATSC 3.0, the station is exploring how its regional broadcasts work in conjunction with NMU LTE services to make the delivery of on-line course content more efficient. WNMU and WNMU-FM have been designated as the primary emergency alert facility for the Central Upper Peninsula Region and provide emergency messaging services to area broadcasters as needed. Both stations continue to provide service learning opportunities for NMU students with hands-on production, graphics, and electronic engineering opportunities. Over the last several years, WNMU has joined NMU in retooling its experiential learning opportunities to give students stronger skill sets that make them more valuable to employers following graduation. Along with its new DTV production capabilities, WNMU-TV and FM will continue to provide students with hands-on learning opportunities that allows participants to gain industry standard credentials on selected production systems that can be used to help secure employment upon graduation.



Economic Impact / Partnerships With Business and Industry

Economic Impact

NMU plays a major role in the region's economy. NMU is among the largest employers in the Upper Peninsula, employing approximately 1,150 faculty and staff. In fiscal year 2017-18, NMU's annual payroll was \$96M and the university purchased \$36M in supplies and services including \$7M in utilities, most of which was purchased locally. Additionally, \$49M was spent on university construction projects in fiscal year 2017-18 from the combined efforts of NMU, the State of Michigan, and private developers for on-campus projects.

Invent@NMU

Another way in which the university adds to the local economy is through Invent@NMU. Invent@NMU is an innovation and entrepreneurial program designed to engage undergraduate and graduate students at NMU in the hands-on development of physical products from concept to market with the guidance of expert mentors as a service for innovators, start-ups and existing companies. While the focus of Invent@NMU is on student experiences, there is also an opportunity to positively impact the regional economy in a meaningful way.

Students participate in both paid positions assisting entrepreneurs or as entrepreneurial clients. Student participation parallels their academic pursuits in design, engineering, business and manufacturing, offering key knowledge of the product development process that can be leveraged upon graduation. They work closely with faculty and industry mentors, collaborating with innovators and entrepreneurs whose products and ideas will benefit from such support. The program provides a wide range of experiential opportunities for students and augments their educational concentrations with real-world experiences. Student hiring is aligned with their educational pursuits and they work with mentors, both faculty and industry experts, to gain additional insight and experiences complementing their academic studies.

Invent@NMU focus is on low investment and quick-to-market, practical, smartly designed manufactured products. The program assists the inventor/entrepreneur control the organizational expenses that in many cases pose a difficult barrier and may prevent the inventor from getting a product to market. By partnering with the university, innovators inexperienced in the process of market validation, commercialization, production and marketing can overcome those seemingly insurmountable odds to reach a successful product launch. NMU has received a \$1.15 million grant from the Michigan Economic Development Corporation (MEDC) to implement a collaborative operating agreement involving Invent@NMU and the Innovate Marquette SmartZone. Both entities have developed distinct approaches toward the common goal of promoting regional economic development. The new grant-funded partnership enables them to continue that work collectively and more efficiently from one location, enhancing the services provided to inventors, innovators, and entrepreneurs.



Economic Impact / Partnerships With Business and Industry

Center for Rural Community and Economic Development

The Center for Rural Community and Economic Development at Northern Michigan University combines research, public service, education, and training to enhance economic development and improve the quality of life in the Upper Peninsula and surrounding region. The center is the university's portal, where community, industry, or government can go with a question or need that would benefit from expertise or assistance from within the university. The center is a clearinghouse for information on rural issues, coordinates rural research, and works with state agencies, local governments, business, and industry on issues of importance to rural communities.

The center continues to work with several local committees in support of the Governor's Project Empire initiative designed to assist the communities of Negaunee and Ishpeming after the idling of the Empire Mine. The Center is also collaborating with Continuing Education and Workforce Development in support of the Defense Industry Growth Initiative, a grant to identify and assist with capacity building of regional companies interested in entering certain industry sectors by providing goods and services to Defense and Homeland Security. The \$125,000 per year grant was recently extended for a second year.

Partnerships with Business and Industry

The College of Technology and Occupational Sciences (CTOS) includes many of the one and two-year career-technical programs that naturally lend themselves to industry partnerships to meet the needs of existing businesses, emerging industries as well as working adults and the public schools. The college was established to reaffirm the university's commitment to regional business and industry needs in the critical occupations of in-demand skilled trades.

Some of the CTOS partnerships include the Industrial Maintenance and Welding program partnerships with Cliffs Natural Resources and Lundin's Eagle Mine; Aviation Maintenance partnerships with Envoy Airlines Sawyer Maintenance Facility and Enstrom Helicopter; and the Electrical Line Technician Program which is a joint venture between the university, the Lake Superior Community Partnership Foundation and numerous electrical companies, both utility and contractor, developed to help fill an employment void within the regional electrical power distribution industry. Most of the CTOS programs have active advisory groups made up of leaders and experts within their respective industries.



Economic Impact / Partnerships With Business and Industry

Partnerships with Business and Industry (continued)

In addition to the CTOS, the Engineering Technology department houses mechanical and electrical engineering programs that play a critical role in the workforce development needs of regional industry. Their industry partners include a diverse list of companies such as RTI Surgical, Cliffs Natural Resources, Argonics Engineered Polyurethane, and Team Tech Motor Sports.

Northern has a variety of partnerships to meet the needs of existing businesses, emerging industries, the public schools, and working adults. Among our current corporate partners with on-site or specially designed education programs are Cliffs Natural Resources, Inc., Lundin Eagle Mine, Potlatch, Graymont, RTI Surgical, and WE Energies.

Additionally, the programs in CTOS and Engineering Technology support the efforts of Invent@NMU and the Innovate Marquette Smart Zone in assisting entrepreneurs, especially with product prototyping and manufacturing support.

Internships for NMU students with business, industry, and service providers are critical to quality employment preparations. NMU's most well-known internship sponsors are American Express Financial Advisors, General Motors, Hudson's Corporation, Dendreon, Mayo Clinic, UP Health Systems, Marshfield Clinic, Michigan State Police, Michigan DNR, Northwestern Mutual Life, Disney Professional Internships, Six Flags Great America, State Farm Insurance, the U.S. Marshall Service, and Wal-Mart. Additionally, internships are also sponsored by major construction firms across the nation such as Whiting-Turner, Mortenson, Michels Corporation, and Power Construction.



Economic Impact / Partnerships With Business and Industry

Partnership with UP Health System – Marquette

The School of Clinical Sciences collaborates with UP Health System – Marquette for specialized training of our students in the clinical science programs. NMU offers majors in Radiography, Surgical Technology, Clinical Laboratory Sciences to include Cytogenetics and Laboratory Medicine, Clinical Assisting, and Speech, Language and Hearing Sciences. Students are selected and placed in the clinical portion of their degree programs with approximately 50 students in training at UP Health System – Marquette throughout the year. Many of these students are actively recruited by UP Health System – Marquette and its regional partners. In addition, due to an increased reliance on genetic-based testing in health care, several laboratory employees of UP Health System have completed advanced training through the NMU Clinical Molecular Genetics graduate program.

The School of Nursing places approximately 20 Doctor of Nursing Practice (DNP) students, 200 Bachelor of Science in Nursing (BSN) students, and 40 Practical Nursing (PN) students in a variety of clinical settings throughout the year. The majority of these clinical placements are at UP Health System – Marquette. NMU's partnership with UP Health System – Marquette helps to meet the need for nurses, both regionally and globally. HRSA and the Bureau of Labor Statistics report an increased need in numbers of nurses through 2025, largely due to the increased health care needs of the aging Baby Boomer generation, the large number of retiring baby boomer-aged nurses, and increased access to health care services for millions of people because of the Affordable Care Act.

Cliffs Natural Resources, Inc.

A number of departments and programs within the College of Technology and Occupational Sciences, as well as Engineering Technology, work closely with Cliffs Natural Resources, Inc. (Cliffs) to prepare entry-level technical employees for the Tilden mining/processing operations. Associate degree programs in Electrical Technology and Industrial Maintenance, along with baccalaureate degree programs in Mechanical Engineering Technology, Industrial Technologies, and Electrical Engineering Technology, prepare graduates for employment with this local company. Management at Cliffs views the technical programs at NMU as virtually a sole source provider of entry-level technical talent to their mining/ processing operations. Additionally, Continuing Education and Workforce Development has provided many hours of non-credit customized training and craft testing for Cliffs employees for many years.



Economic Impact / Partnerships With Business and Industry

Potlatch Corporation

Continuing Education and Workforce Development has delivered many different trainings to Potlatch employees including hydraulics, rigging and hoisting and welding. Potlatch remains a solid partner with Continuing Education and Workforce Development when it comes to the belief that training builds internal value.

U.P. Paper Company

Continuing Education and Workforce Development has been a training resource to this paper company through each transition. During operations at Manistique Paper, FutureMark and U.P. Paper Company, crucial trainings have been provided including welding, belt drives and rigging and hoisting. Employee trainings have proven to create a team momentum.

Lundin Eagle Mine

NMU Continuing Education and Workforce Development has delivered over 400 hours of training to Eagle's employees. Eagle has reached out with needs for new millwrights, MSHA new miner training, including defensive driving and welding, as well as many soft skills training such as ethics and harassment and communications. Eagle International has donated equipment specific to their operations that will not only enhance training for their personnel, but will add to the student experiences for baccalaureate and associate degree programs in NMU's Industrial Maintenance and Industrial Technology programs. Continuing Education and Workforce Development as well as CTOS are working with Eagle's training staff to begin to prepare their workforce for ultimately transitioning their skill sets into other regional in-demand jobs over the next 3-5 years.

Envoy Airlines (formerly American Eagle Airlines)

An excellent working relationship exists between the NMU Technology and Occupational Sciences Department and the Envoy Airlines Sawyer Maintenance facility. The long-term partnership has resulted in 10-20% of the students graduating in the NMU Aviation Maintenance program being hired by the local facility.

Enstrom Helicopter Corporation

A strong working relationship has been established over the years with Enstrom Helicopter Corporation based at Menominee-Marquette Twin County Airport in Michigan. This corporation commonly hires 20% of NMU's graduates from the Aviation Technology program.



Economic Impact / Partnerships With Business and Industry

Food Service Industry

In response to changes in Michigan's food safety laws, NMU conducts mandatory food safety certification courses. All food service industry businesses, including those closely linked with the critical regional tourism industry, are able to have local access to regulatory training.

TeamTech Motor Sports

TeamTech was founded by NMU Engineering Technology graduate Curt Tucker. He is a leading supporter of the SAE Baja racing team housed in the department, and his company has been instrumental in several intern and job placements for graduates, and partnered NMU with NASA to do some support research for their restraint systems.

RTI Surgical

Engineering Technology has had a strong partnership with RTI Surgical for over 10 years. RTI's support originated in its support of a one year certificate program for CNC machine operators. RTI provides equipment and instructors in support of the program and hires many of the graduates for their manufacturing floor. However the partnership has grown over the years with RTI now employing several current Mechanical Engineering Technology students as interns and hiring many of the program graduates. RTI supports Engineering Technology with technical expertise, materials, and various other support while we provide them with engineering support, interns, and permanent employees.

Electrical Line Partnership

A joint venture between NMU, Lake Superior Community Partnership, and numerous electrical companies (both utilities and contractors) developed the Electrical Line Technician Program to help fill an employment void within the electrical power distribution industry. The curriculum received all equipment through donations and is located at Sawyer Airport.



Economic Impact / Partnerships With Business and Industry

Argonics Engineered Polyurethane

Argonics has been associated on various levels with the Engineering Technology Department since its founding in 1993. From consultation on multiple projects, internships and permanent employees, the interaction has been beneficial for both parties.

Northern Initiatives (NI) and Marquette Food Co-Op

NI and Marquette Food Co-Op collaborated with NMU to build a demonstration hoop house. The project involves the production of fruits and vegetables in an environmentally controlled green structure. This project provides local families and growers a sophisticated demonstration site that will assist local farmers in expanding and refining crop selection and methods associated with agriculture in the U.P.

Continuing Education and Workforce Development

In addition to the CTOS, Continuing Education and Workforce Development offers non-credit workforce development training for individuals and organizations.

- Training designed to meet the current and future needs of regional employers.
- A wide variety of skilled and professional training courses as well as customized programs to meet specific needs.
- Roughly 80 Upper Peninsula companies trained through Continuing Education and Workforce Development each year.
- Hard and soft skill trainings available.

Workforce Training

NMU provides a variety of non-credit training opportunities and customized training for business and industry. While Cliffs Natural Resources, Michigan Operations, has historically been our primary customer, the university has increasingly concentrated on developing new industry relationships. Continuing Education and Workforce Development works with other regional companies such as Envoy Airlines, WE Energy, Potlatch, and Lundin Eagle Mine to assist with their training needs.



Economic Impact / Partnerships With Business and Industry

Professional Education

NMU is committed to the provision of high-quality professional development programs in its service region through both the creation of such activities within its academic departments and through collaboration with outside providers who meet University approval standards. Recognizing the need and value of continuing professional development in order to keep abreast of constantly changing demands and possibilities in the workplace, and in order to encourage practicing professionals to participate in various activities directly related to their job, NMU-Continuing Education (CE) provides the following:

Educators – The 900-level program offers credit earning educational opportunities to over 400 teachers each year. Teachers use these courses towards their teacher licensure recertification or upgrade. In addition, NMU CE also offers non-credit State Continuing Educational Clock Hours (SCECH) that teachers use towards these same purposes. Many teachers use a combination of both 900-level courses and SCECHs during their teacher recertification.

Social Workers – NMU CE is a course sponsor for the National Association of Social Workers and partners with numerous local entities to provide social workers with educational opportunities. These opportunities are used by social workers to maintain their Social Work State License.

Bus Drivers – NMU is the state-approved Pupil Transportation Bus Driver Training Agency for the central and western Upper Peninsula. The purpose of school bus safety instruction is to promote safe, efficient pupil transportation programs using Michigan Department of Education approved curriculum.

Real Estate Appraisal Education – NMU offers a full range of residential and non-residential continuing education appraisal courses to thousands of appraisers each year at sites located throughout Michigan and via webinar. These courses are used by appraisers to retain their individual appraiser licenses.

Off-campus, individualized programs, seminars, and training – NMU CE recognizes that adult students require programs that deliver results specific to their professional needs with course schedules and delivery methods that allow participation outside the traditional semester format. The goal is to provide these vitally important lifelong learning opportunities to individuals and groups in the Upper Peninsula and beyond.



Economic Impact / Partnerships With Business and Industry

Personal Enrichment

Northern Center for Lifelong Learning (NCLL) is an organization that plans and offers informal educational programs and activities to enrich the daily lives of its members through mini courses, regular programs, outdoor activities, and social events. Member-directed, self-supporting, and nonprofit, it is affiliated with NMU and the Elderhostel Institute Network. With the Elderhostel Institute Network (Road Scholar), NMU provides one of the more than 8,000 learning adventures in all 50 states and more than 90 countries abroad. Road Scholar offers in-depth and behind-the-scenes learning experiences for almost every interest and ability: history, culture, nature, music, outdoor activities such as walking and biking, individual skills, crafts, study cruises. The NMU Road Scholar program is being redesigned and will focus on photographing the stunning landscapes and special treasures hidden in the Upper Peninsula of Michigan. The history and work of George Shiras III, one of the first wildlife photographers, will be highlighted.

Motorcycle Safety Training

NMU is one of 14 state-sponsored regional training agencies providing motorcycle safety training funded through a grant from the Michigan Department of State. Both experienced riders, as well as those with little or no experience, seeking a license endorsement enroll in these courses. If successful, new riders receive a completion waiver that is good for one year for the riding skills portion of the state motorcycle endorsement test.

Commercial Driver's License (CDL) Truck Driving Program

NMU's Continuing Education and Workforce Development recently began to offer a five week, non-credit training program for Certified Truck Driver Education. The program is offered four times per year and fully prepares participants for the state required CDL. A driving test was developed specifically to address regional employer and nationwide truck driver shortages.



Section III

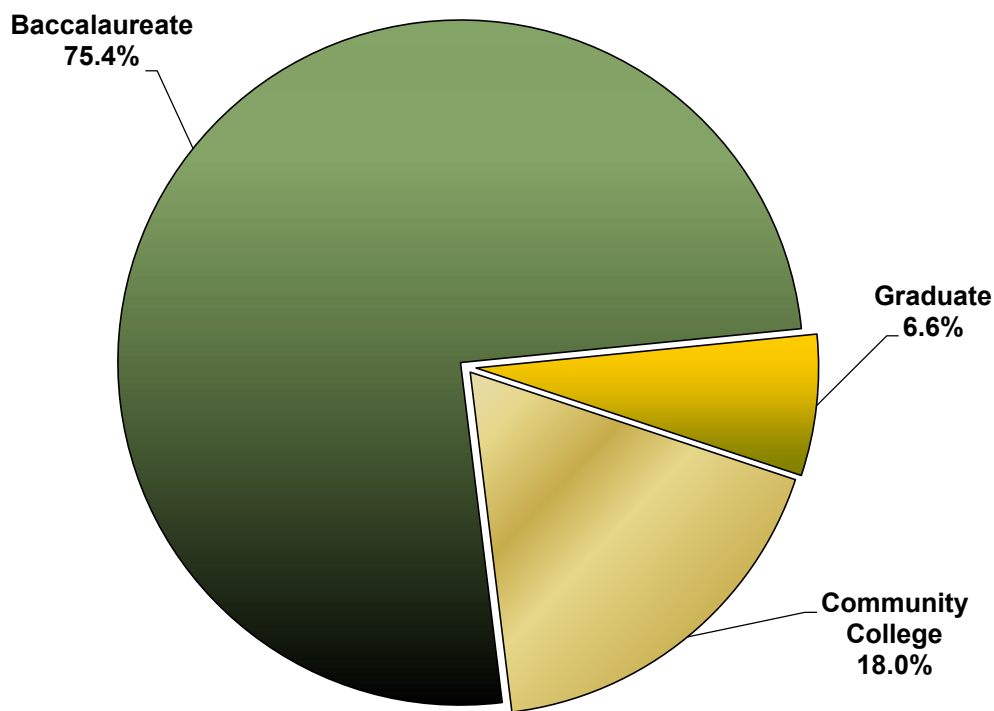
Enrollment and Staffing



Enrollment

Headcount

Fall 2018 (n = 7,595 – 10th Day of Class)



Average age

- Undergraduates: 22.5
- Graduates: 35.8
- Overall: 23.3

Other student statistics

- At least one student from:
 - 82 of 83 Michigan counties
 - 47 different states
 - 36 different countries

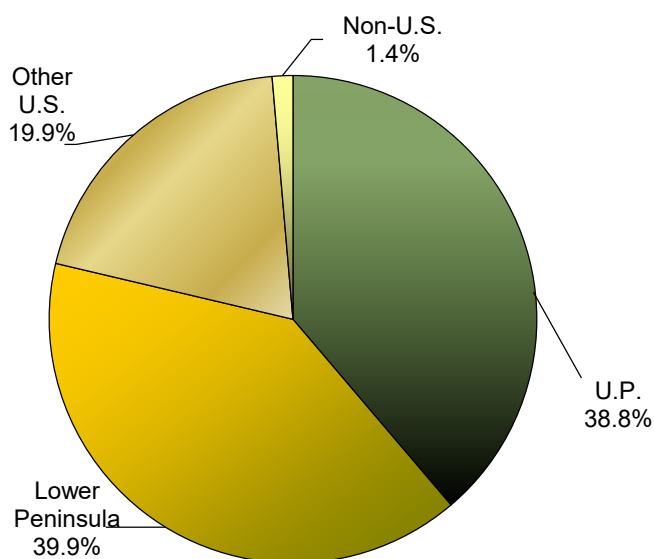


Enrollment

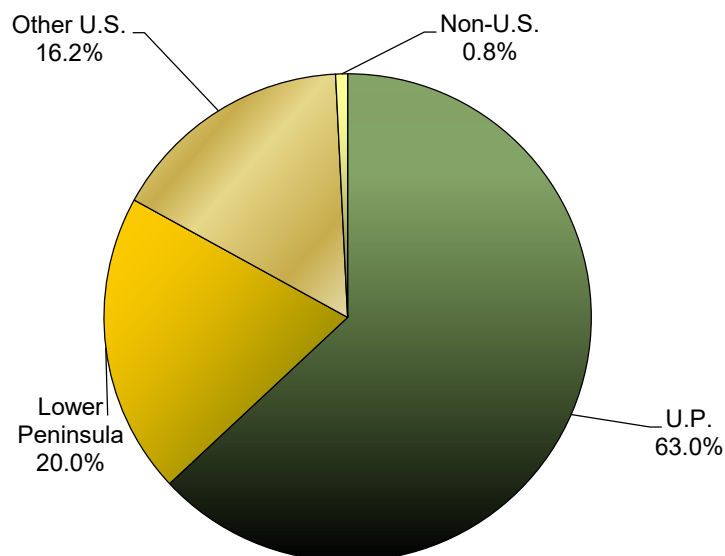
Recruiting Region

Fall 2018 (n = 7,595 – 10th Day of Class)

Undergraduate (n = 7,089)



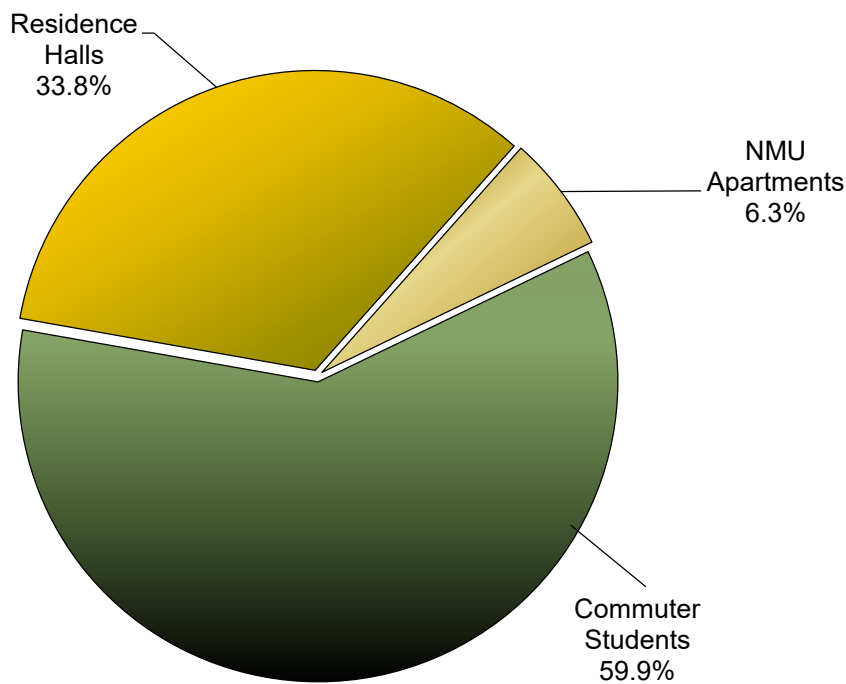
Graduate (n = 506)





Enrollment

Where NMU Students Live Fall 2018 (n = 7,595 – 10th Day of Class)

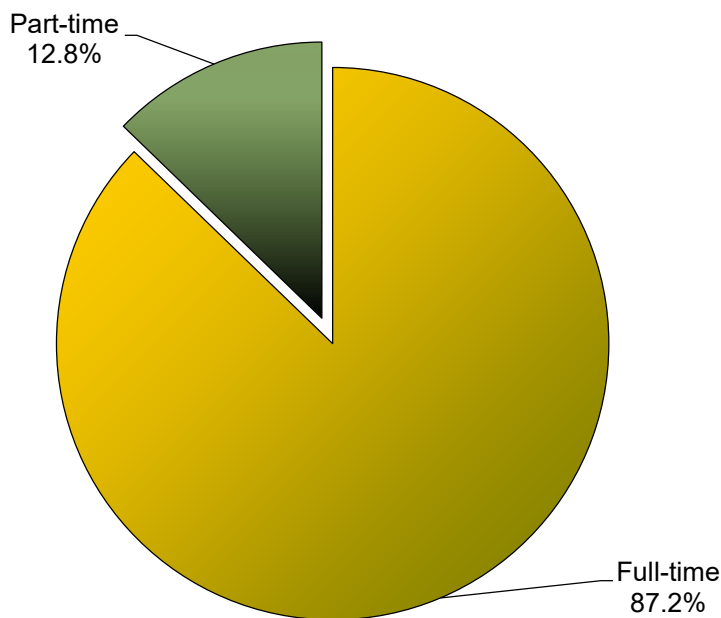




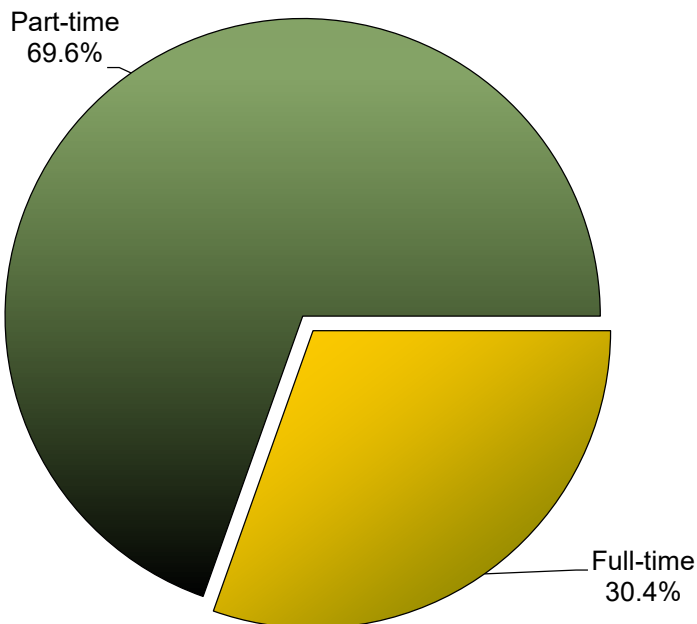
Enrollment

Full-time/Part-time Status Fall 2018 (n = 7,595 – 10th Day of Class)

Undergraduate (n = 7,089)



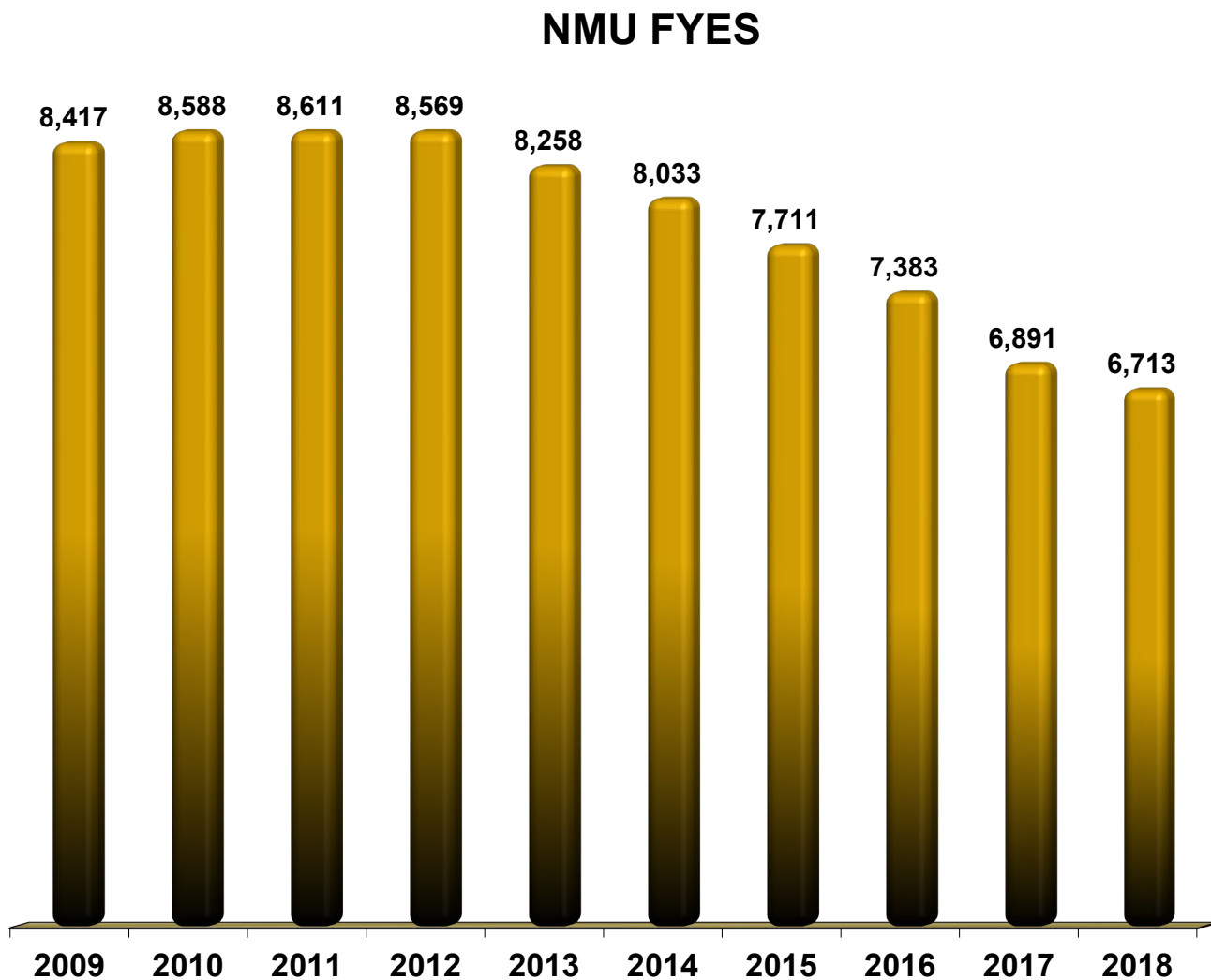
Graduate (n = 506)





Enrollment

Full Year Equated Student Change

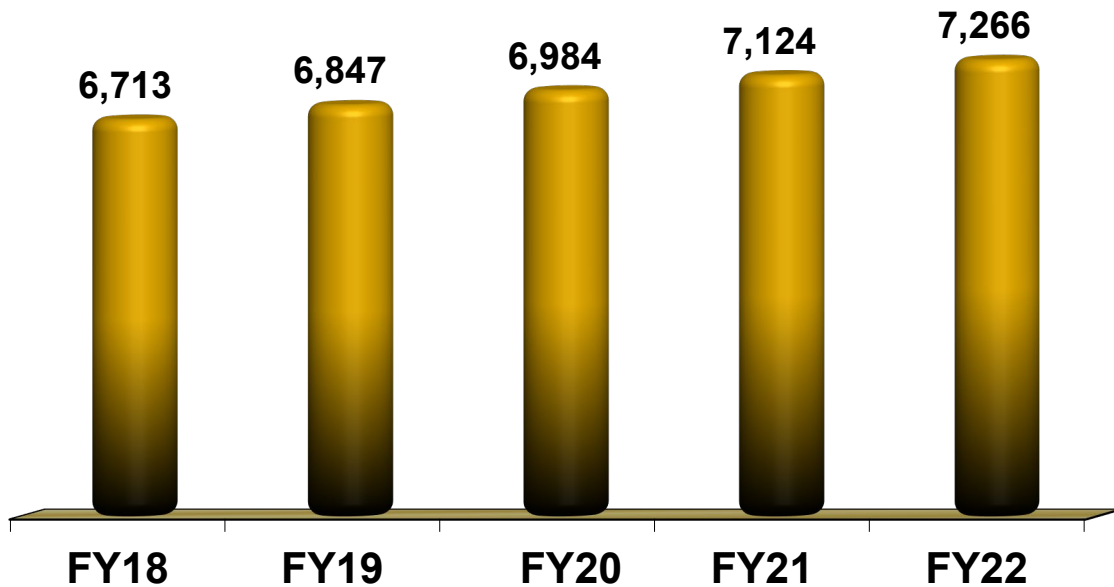




Enrollment

Full Year Equated Student Change (FYES)

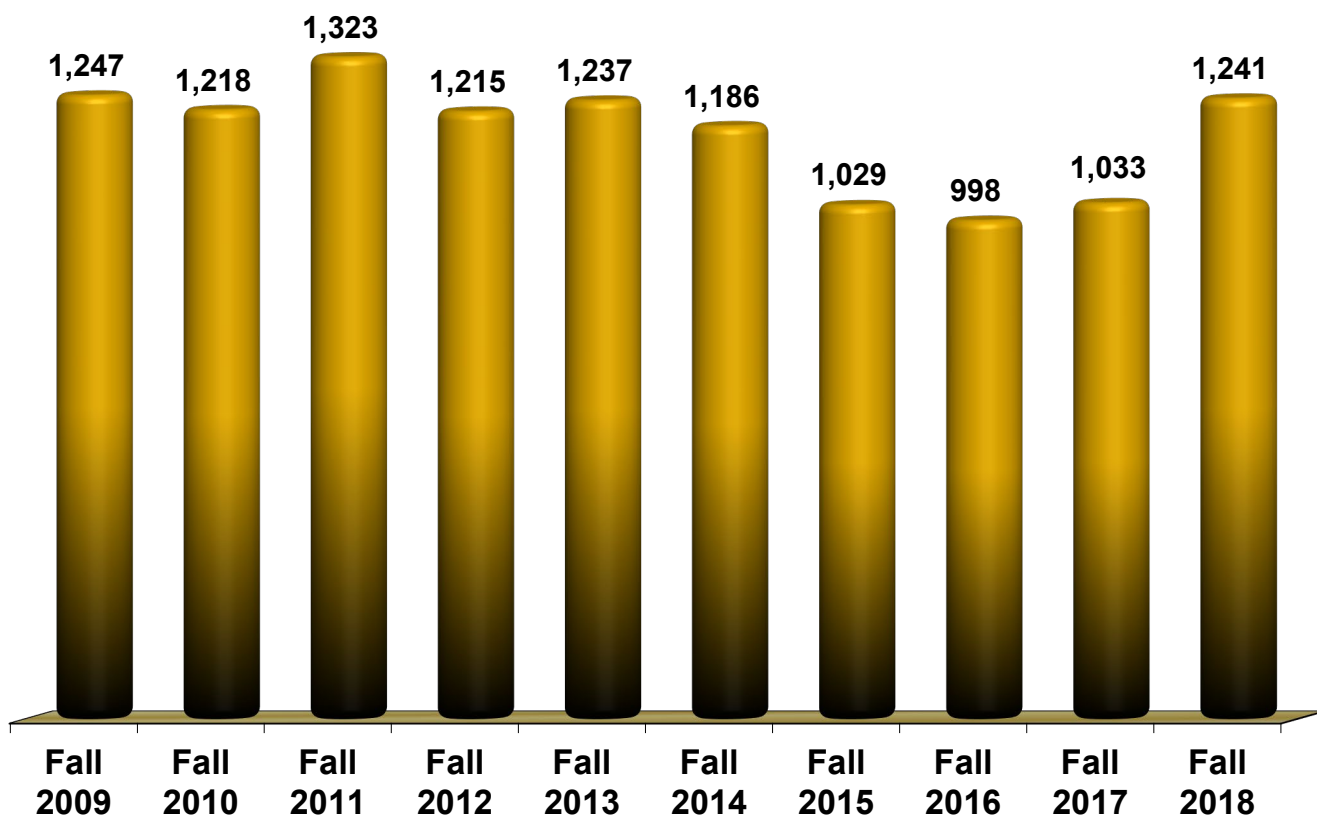
5 Year Projection





Enrollment

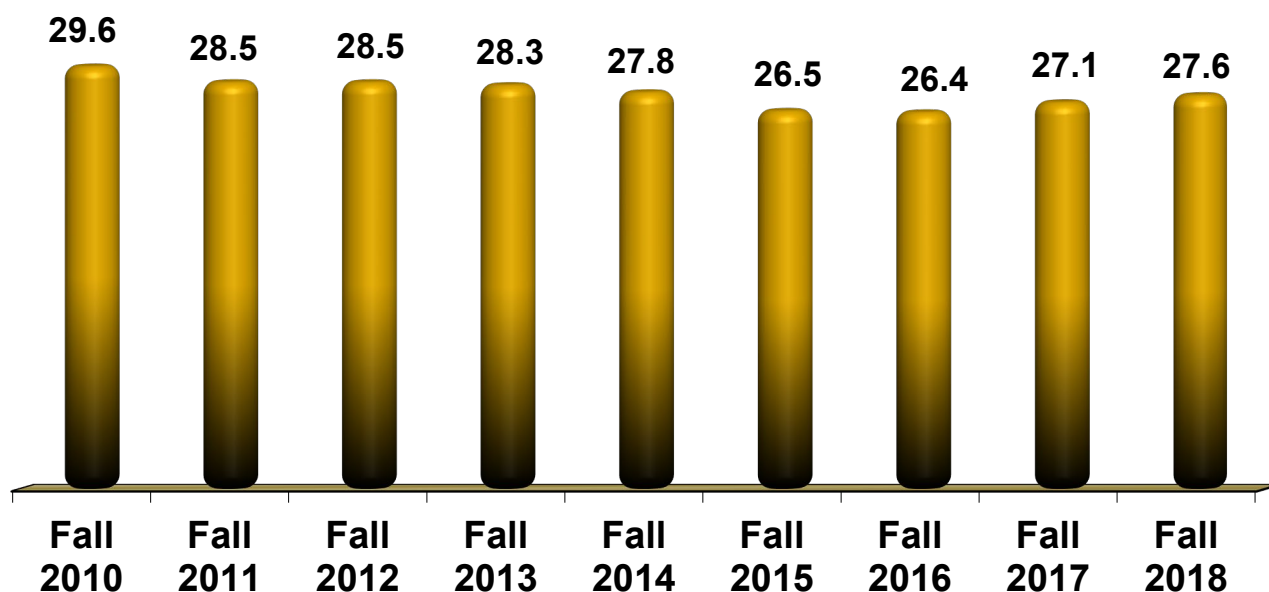
Baccalaureate First-Time, Full-Time New Freshmen





Enrollment

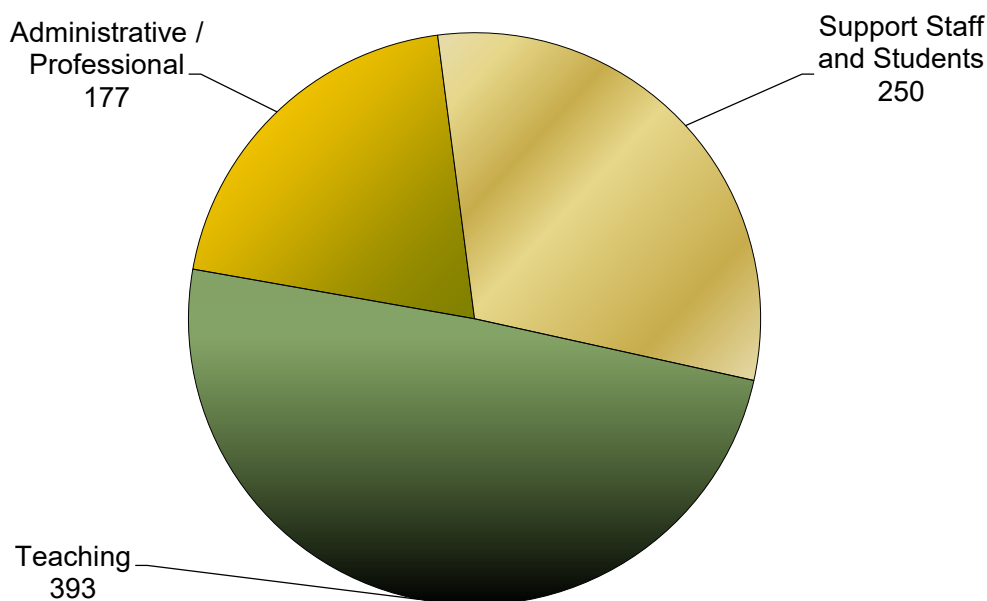
Average Lecture Class Size and Projected Average Class Size





Staffing

2017-2018 Full-Time Equivalent By Employee Category



Staff FTE

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Instructional Staff	428	438	433	435	411	392	393	393	395	401	408
Administrative/Professional Staff	172	166	177	173	174	172	177	177	177	178	178
Support Staff	258	262	268	272	262	256	250	250	250	251	252

Student (FYES) - to – Staff Ratios

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Instructional Staff	20.02	18.85	18.55	17.73	17.96	17.58	17.08	17.42	17.68	17.77	17.81
Administrative/Professional Staff	49.81	49.75	45.37	44.57	42.43	40.06	37.93	38.68	39.46	40.02	40.82
Support Staff and Students	33.21	31.52	29.97	28.35	28.18	26.92	26.85	27.39	27.94	28.38	28.83



Section IV

Facility Assessment



Introduction

This year the University contracted with Sightlines, Inc. to update the university's Facility Condition Assessment noting the existing condition of all campus buildings and hardscape. These reports identified maintenance needs and associated costs and divided them into categories based on priority, system type, and facility type. The Facility Condition Assessment reports are used to prioritize, budget, and plan yearly maintenance projects to be completed by both internal departments and external contractors.

The university has developed a new strategic plan that focuses on transformation through investment and innovation. As such, an Integrated Facilities Planning System (IFPS) will be developed to align with the university's strategic goals. This system will synthesize the facilities planning and maintenance information such as the Campus Master Plan, Five Year Facilities Master Plan, Facilities Condition Assessment, Space Utilization Data, etc., with the university's strategic and enrollment plans. The outcome will provide the university with a multi-criteria analytical tool to identify necessary levels of annual maintenance funding and prioritize capital investments over a 20 year period. The planning system will guide the maintenance, adaptation and use of the university facilities for all campus departments.





NMU and Sustainability

Northern Michigan University has embraced sustainability efforts to help reduce its environmental impact on the planet by reducing the use of fossil fuels, conserving resources, and reducing waste – a philosophy NMU has followed for over 30 years. Expanding efforts include: using green energy, continually improving facility management systems, following LEED® design and building practices to achieve Green Building certification and changing operational and product selection policies to improve recycling and conservation efforts. By following these philosophies, NMU has been able to achieve substantial cost reductions.

Energy

Sustainability and conservation efforts are goals of the university. To improve these efforts, the Facilities Department has produced a Sustainability website displaying recent energy and utility consumption in an effort to keep the campus community informed of utility consumption, as well as provide tips on how everyone can assist with the university's energy saving commitment.

To better understand utility usage, NMU is in the process of enhancing its utility meters to provide reliable data to improve budget development, billing accuracy, and energy saving analysis. Over the last ten years, energy consultants have been contracted to survey each campus building. Projects that would result in utility savings and have a return on investment were implemented such as the installation of variable frequency drives on mechanical equipment, steam trap replacement, boiler replacements, LED lamp installations, water conservation improvements, installation of new facility management systems, etc. The energy savings, operational savings, and cost avoidance achieved from the improvement measures were approximately \$600,000 for a return on investment over a period of 12 years or less, using a 5% interest rate. The university received energy incentive rebates on several of these projects. .

The Facilities staff continues to review building systems and determine energy saving improvements. In July 2017, 312 metal halide field light fixtures were replaced with 136 LED fixtures in the Superior Dome. The energy savings along with the utility company rebate provided for a six-year payback. Currently, the primary focus is replacing 4-foot fluorescent lamps with LED lamps in spaces that have long hours of operation such as the library, gyms, and corridors.

Facility Efficiency

The university has classified and quantified all of its existing space and compared its spatial distribution with similar institutions based on the Society of University and College Planning (SCUP) Facilities Inventory report. This effort allowed the university to benchmark its space inventory against national averages by comparing total square footage by type (classroom, laboratory, office, etc.) against total enrollment. In addition a formal evaluation of facility use (space utilization) was conducted in 2011. The evaluation illustrated NMU's utilization between 8 a.m. and 5 p.m. averaged 22 hours per week which was low compared to the national average of 28-32 hours/week. This lower-than-average utilization rate and the space inventory data is now used to continually evaluate and repurpose underutilized spaces instead of building new space; better utilizing the university's existing facilities.



NMU and Sustainability

Building Design

LEED® Green Building certification is being sought on capital projects through the specification of "green" building materials, wise management of materials during construction through reduction, reuse and recycling of construction and packaging materials, and design of efficient systems that require less energy and use natural resources. The overall goal is to reduce operating costs, provide a healthier environment for building occupants, and conserve energy. The university has achieved LEED Green Building certification for the renovations of Meyland Hall, Magers-Meyland Lobby, and the Hunt-Van Antwerp Lobby, along with LEED Green Building Silver certification on Van Antwerp Hall and Hunt Hall renovations. These coveted awards were among the first in the Midwest under the LEED certification system and speak to the university's continued commitment to sustainability. Jamrich Hall achieved a LEED Certified endorsement in 2014. As a further commitment, two NMU staff members have attained the status of LEED Accredited Professional to help guide building design efforts. The Woods, a four-story, six-building residence hall complex was completed in August 2018. This project will seek LEED Silver Certification.

Facility Operations

Building Services has made a conscious effort to improve its impact on the natural environment and provide a cleaner and healthier environment for building occupants. Several of these initiatives are listed below:

- No-Touch Cleaning systems are used in the restrooms. This is a multipurpose system that helps eliminate unnecessary equipment and prevents employees from contacting cleaning chemicals.
- Backpack vacuums are certified by the Carpet and Rug Institute's green label utilizing HEPA filters which reduce pollutants in buildings.
- Premium walk-off matting are installed at building entrances reducing pollutants being tracked into buildings.
- Window washing machines are used that employ the reverse osmosis deionizing technology. The machines produce mineral free water, which cleans windows spot free without the use of cleaning agents.
- Aqueous Ozone is used to clean all surfaces replacing 95% of the chemical cleaners previously used in buildings. This has reduced an estimated 500 gallon bottles annually from being recycled or entering the landfill, on-site chemical inventory costs, and reduces training costs for employees.
- EcoSmart paper towel – 50% post-consumer fiber and 100% recycled fiber. This product is GreenSeal and EcoLogo certified.
- Use of EcoSmart Compact Coreless toilet paper – 20% post-consumer recycled fiber. Utilizes 95% less packaging in their products.
- All hand soap is GreenSeal certified.



NMU and Sustainability

Recycling

A “single sort” recycling program has been in place since 2007 making first-line recycling efforts easier for students, faculty, and staff. Batteries, fluorescent lamps, computer components, waste oil, and antifreeze are products that are also recycled by the university. All building renovation and construction projects require participants to record tonnage of recycled metal, masonry, cardboard, and organic building materials. This information is essential to the LEED certification process. Since October 2017, 15 buildings have adopted the new trash/recycling process. This process has trash/recycling “pods” placed in strategic locations throughout the building where occupants can empty their recycled materials. The intent of this is to make occupants more conscious of what is being recycled.

Grounds Maintenance

Northern Michigan University adopted a “No Mow” program. Under this program, the campus grounds are routinely evaluated to determine areas where the use of mechanical mowing can be eliminated. These areas are signed to explain the project and left to natural regeneration. The program has been well received and will continue.

Community Awareness

Sustainability and conservation efforts are a university goal. In Fall 2016, a university Sustainability Advisory Council was formed to help guide the campus community into becoming a greener place to work and live. The Council accomplished much their first year including hosting their first annual Zero Waste Challenge during the NMU vs. MTU men’s and women’s basketball game in January 2017. Also, the council completed the Association for the Advancement of Sustainability in Higher Education’s intensive Sustainability Tracking Assessment and Rating System inventory – or the STARS inventory – which garnered Northern provisional bronze status. Finally, the Council developed a Sustainability Master Plan with goals in following five main categories. The Council’s accomplishments last year in each area are listed below.

1. Institutionalize Sustainability

- Developed a proposal to create a Center for Sustainability.

2. Cultivate Sustainability Leadership

Initiated the Student EcoReps Program and worked with them to coordinate several campus sustainability events including:

- Zero Waste Hockey game vs. MTU diverting 90% waste from the landfill.
- Conducted eight educational workshops to teach hands-on sustainability skills.
- Held Sustainability Week: April 19-23, 2018 which included several events on campus.
- Held Green Fund ballot (76% of voters supported a \$5 opt-out green fee).
- Created an EcoReps application process and accepted 31 students for Fall 2018.



NMU and Sustainability

3. Invest in Energy Innovations

- Launched the “Turn Down the Lights Campaign.” Saved approximately 5,600 kilowatt hours (\$700) over five days. If implemented year round, savings would equate to approximately \$36,000/year.

4. Promote Sustainable Transportation

- Worked with the City of Marquette Planning Commission on an Active Transportation Plan that would provide safer cycling corridors between campus and downtown.
- Helped plan a campus trailhead near The Woods.

5. Purchase Local Foods. Support Local Farms.

- Increased our local purchasing with Superior Angus, BSB Farms and The North Farm.
- Partnered with the newly created Food Recovery Network student group to recover and locally donate 1,042 pounds of food between November 30, 2017, and April 13, 2018. This food was donated to Room at the Inn.
- Conducted a food waste audit in the dining halls.
- Expanded the small plate concept to both dining halls in Fall 2018. This practice reduced food waste amounts in both locations.
- Added a local partnership with Superior Culture Kombucha.

The group's outstanding work supports the university's core value of protecting the environment and being a university of sustainability.



Facilities Assessment

◆ NMU Physical Plant Overview

- 63 Buildings
 - 3.58 million Gross Square Feet
- 867 acres
 - ▼ 356 acres on main campus
 - ▼ 142 acres – English Property
 - ▼ 160 acres - Longyear Forest
 - ▼ 206 acres – South Marquette
 - ▼ 3 acres – FROST Property
- 3.6 miles of roadway
- 13.95 miles of sidewalk





Facilities Condition Cost Analysis by Priority Class For all State Buildings

Building	1 - 3 Years	4 - 7 Years	8 - 10 Years	Grand Total
Ada B. Vielmetti Health Center	\$ 84,000	\$ 140,000	\$ 147,000	\$ 371,000
Art & Design	\$ 313,000	\$ 552,000	\$ 362,000	\$ 1,227,000
Berry Events Center	\$ 6,537,000	\$ 1,151,000	\$ 419,000	\$ 8,107,000
Butler Building	\$ 26,200	\$ 50,000		\$ 76,200
C.B. Hedgcock	\$ 5,000		\$ 868,000	\$ 873,000
Campus Wide	\$ 3,438,000	\$ 2,736,000	\$ 2,278,000	\$ 8,452,000
D. J. Jacobetti Complex	\$ 3,838,000	\$ 3,385,000	\$ 740,000	\$ 7,963,000
Dome/PEIF Link	\$ 50,000		\$ 24,000	\$ 74,000
Edgar L. Harden Learning Resources	\$ 5,390,000	\$ 5,668,000	\$ 7,599,000	\$ 18,657,000
Forest A. Roberts Theatre	\$ 1,436,000	\$ 2,234,000	\$ 151,000	\$ 3,821,000
Harry D. Lee Hall	\$ 4,515,000			\$ 4,515,000
Jacobetti Storage	\$ 26,400	\$ 5,200	\$ 69,000	\$ 100,600
John X. Jamrich Hall			\$ 398,000	\$ 398,000
Kaye House		\$ 47,600	\$ 2,500	\$ 50,100
LRC/West Science Link	\$ 10,000	\$ 17,000		\$ 27,000
Luther S. West Science Building	\$ 35,000	\$ 384,000	\$ 1,232,000	\$ 1,651,000
New Science Facility	\$ 86,000	\$ 345,000	\$ 1,383,000	\$ 1,814,000
PEIF/Berry Events Center Link	\$ 88,000		\$ 50,000	\$ 138,000
Physical Education Instructional Facility	\$ 7,626,000	\$ 6,359,000	\$ 492,000	\$ 14,477,000
Ripley Heating Plant		\$ 40,000	\$ 393,000	\$ 433,000
Russell Thomas Fine Arts	\$ 575,000	\$ 1,574,000	\$ 951,000	\$ 3,100,000
Sam M. Cohodas Hall	\$ 1,903,000	\$ 3,987,000	\$ 6,479,000	\$ 12,369,000
Services Building	\$ 1,055,000	\$ 171,000	\$ 1,507,000	\$ 2,733,000
Superior Dome	\$ 148,000	\$ 4,869,000	\$ 4,542,000	\$ 9,559,000
UC/Gries Link			\$ 62,000	\$ 62,000
Walter F. Gries Hall	\$ 897,000	\$ 1,895,000	\$ 3,502,000	\$ 6,294,000
Wayne B. McClintock Building	\$ 662,000	\$ 846,000	\$ 1,551,000	\$ 3,059,000
Whitman Hall		\$ 92,000	\$ 1,353,000	\$ 1,445,000
Grand Total	\$ 38,691,000	\$ 36,445,000	\$ 36,483,000	\$ 111,845,900



Facilities Condition Cost Analysis by Priority Class For all Auxiliary Buildings

Building	1 - 3 Years	4 - 7 Years	8 - 10 Years	Grand Total
Center Apartments	\$ 1,253,000	\$ 671,000	\$ 1,270,000	\$ 3,194,000
Charles C. Spooner Hall	\$ 4,404,000	\$ 1,231,000	\$ 1,425,000	\$ 7,060,000
Don H. Bottum University Center	\$ 4,298,000	\$ 3,815,000	\$ 2,312,000	\$10,425,000
G.A. Spalding Residence Hall	\$ 9,997,000		\$ 112,000	\$10,109,000
Gunther C. Meyland Hall	\$ 324,000	\$ 563,000	\$ 782,000	\$ 1,669,000
Lincoln Apartments	\$ 1,134,000	\$ 2,237,000	\$ 4,235,000	\$ 7,606,000
Lincoln Street Laundry Building	\$ 1,000	\$ 2,000	\$ 53,000	\$ 56,000
Lucian F. Hunt Residence Hall	\$ 141,000	\$ 423,000	\$ 880,000	\$ 1,444,000
Maude L. Van Antwerp Residence Hall	\$ 131,000	\$ 481,000	\$ 788,000	\$ 1,400,000
Mildred K. Magers Hall	\$ 231,000	\$ 463,000	\$ 944,000	\$ 1,638,000
Norwood Apartments	\$ 1,672,000	\$ 1,944,000	\$ 663,000	\$ 4,279,000
Quad I Common Area	\$ 107,000	\$ 865,000	\$ 486,000	\$ 1,458,000
Quad II Common Area	\$ 4,197,000	\$ 2,041,000	\$ 487,000	\$ 6,725,000
W.D. West Residence Hall	\$ 10,021,000			\$10,021,000
Wilkinson		\$ 185,700		\$ 185,700
Woodland Park Apartments	\$ 385,000	\$ 1,300,000	\$ 413,000	\$ 2,098,000
Grand Total	\$ 38,296,000	\$16,036,000	\$14,850,000	\$69,367,700



Facility Assessment Summary

Building	Service Area	2018-2019 Replacement Cost	Year Constructed	Construction Type	Gross Square Footage	Net Square Footage	Use Code	Standards
1020 Wright Street - Fab Shop	Academic/Admin	\$456,847			4,000	4,000	ST	1
1020 Wright Street - Forensic Anthropology	Academic/Admin	\$545,000			3,400		AD	1
1020 Wright Street - Storage	Academic/Admin	\$365,478			3,200	2,900	ST	1
1400 Presque Isle	Academic/Admin	\$430,890			4,762			1
1422 Presque Isle	University Center	\$1,245,948	1972		6,000	4,256	RS	1
1500 Wilkinson Avenue	Housing	\$959,380	1952	F	4,623	2,742	RS	1
1716 Presque Isle Building	University Center	\$1,308,245	1960	FR	6,300	6,300	RS	1
1804 Tracy Avenue	University Center	\$115,184	1954	FR	2,230	2,230	RS	1
Art & Design North	Academic/Admin	\$26,759,691	1996	FR	101,428	83,550	CL	1
Berry Events Center	Intercollegiate Athletics/Rec.	\$35,105,144	1999	FR	133,060	75,740	CG	1
Bus Garage - 1901 Enterprise	Academic/Admin	\$283,246		ST	2,480	2,437	ST	1
Butler Building	Academic/Admin	\$728,671	1950	FR	6,380	6,411	ST	1
C.B. Hedgcock	Academic/Admin	\$30,800,767	1958 / 2005	M	116,748	99,210	AD	1
C.C. Spooner Hall	Housing	\$12,594,372	1957	FR	55,136	38,637	RS	1
Center Street Apartments	Housing	\$8,839,999	1967	M	38,700		RS	1
D. J. Jacobetti Vocational Skill Center	Academic/Admin	\$55,187,576	1980	FR	209,179	193,817	CL	1
Dome Storgae	Intercollegiate Athletics/Rec.	\$479,690	1998		2,800	2,592	ST	1
Dome/PEIF Link	Intercollegiate Athletics/Rec.	\$726,033	1991	NC	2,760	2,466	BC	1
Don H. Bottum University Center	University Center	\$39,227,743	1959 / 1996	NC	148,686	133,362	AD,SU,FS	1
Dow Storage	Intercollegiate Athletics/Rec.	\$296,037	2002		1,728	1,728	ST	1
E.L. Harden Learning Resource Center	Academic/Admin	\$52,444,277	1969	FR	198,781	175,246	CL,LB,SU	1
Forest A. Roberts Theatre	Academic/Admin	\$8,100,618	1964	FR	30,704	22,510	TH	1
G.C. Meyland Residence Hall	Housing	\$14,549,907	1966 / 2006	FR	63,697	58,849	RS	1
G.A. Spalding Residence Hall	Housing	\$12,780,080	1964	FR	55,929	48,078	RS	1
Harry D. Lee Hall	Academic/Admin	\$11,214,596	1949	M	42,507	36,395	AD	1
Hedgcock/TFA Link	Academic/Admin	\$829,744	2004		3,145	2,977	BC	1
Jacobetti Storage	Academic/Admin	\$1,602,764	1988	ST	6,075	5,820	ST	1
John X. Jamrich Hall	Academic/Admin	\$31,210,990	2014	FR	133,000	117,574	CH	1
Kaye House-Official Residence	Academic/Admin	\$2,333,634	1980	FR	8,173	6,599	RS	1
L.F. Hunt Residence Hall	Housing	\$14,517,472	1967 / 2008	FR	63,555	50,349	RS	1
L.S. West Science Building	Academic/Admin	\$51,858,947	1966	FR	159,319	138,241	CL	1,4
Lincoln Street Apartments	Housing	\$19,023,133	1980	F	84,336	65,122	RS	1
LRC/West Science Link	Academic/Admin	\$1,789,818	1996	NC	6,784	5,376	BC	1
M.K. Magers Residence Hall	Housing	\$14,294,529	1966 / 2005	FR	62,579	50,794	AD	1
M.L. Vanantwerp Residence Hall	Housing	\$14,534,146	1967 / 2007	FR	63,628	53,481	RS	1
Microwave Link (St) Morgan Mead	Academic/Admin	\$171,316	1972	FR	1,000	1,000	PP	1
New Science Facility	Academic/Admin	\$40,557,779	2000	FR	124,600	109,538	CL,CH	1,3
Norwood Street Apartments	Housing	\$8,025,440	1967	M	35,134	33,324	RS	1
PEIF/Berry Events Center Link	Intercollegiate Athletics/Rec.	\$2,662,566	1999	NC	10,092	8,936	BC	1
Phys. Ed. Instruction Facility	Intercollegiate Athletics/Rec.	\$47,390,889	1976	FR	179,627	161,298	CG	1
Quad I Common Area	Housing	\$19,715,181	1964	FR	74,727	72,473	FS	1
Quad II Common Area	Housing	\$21,356,201	1966	FR	80,947	70,156	RS	1
R. Thomas Fine Arts Building	Academic/Admin	\$23,767,602	1964	FR	90,087	64,217	CH	1
Ripley Heating Plant	Academic/Admin	\$31,711,636	1965 / 2013	FR	35,190	27,634	PP	1
Salt Barn	Academic/Admin	\$508,928	1996	F	4,456	4,115	ST	1
Sam M. Cohodas Hall	Academic/Admin	\$27,704,465	1975	FR	105,009	92,376	AD	1
Services Building	Academic/Admin	\$24,807,354	1996	M	94,028	91,225	PP	1
Storage Building	Academic/Admin	\$49,681	1998	ST	3,760	3,760	ST	1
Superior Dome	Intercollegiate Athletics/Rec.	\$66,336,216	1991	F	251,436	213,296	CG	1
Transmitter Site-Ely Township	Academic/Admin	\$342,122	1972	FR	1,997		PP	1
UC/Gries Link	Academic/Admin	\$804,416	1995	NC	3,049	2,740	BC	1
Vielmetti Health Center	Academic/Admin	Included with Gries Hall	1961 / 2001		7,838	7,038	AD	
W. B. McClintock Building	Academic/Admin	\$8,858,074	1964	M	33,575	32,382	CH	1
W.D. West Residence Hall	Housing	\$13,259,542	1960	FR	58,048	49,594	RS	1
W.F. Gries Hall	Academic/Admin	\$15,361,733	1961	FR	58,226	48,564	AD	1,2
Whitman Hall	Academic/Admin	\$9,471,476	1953 / 2003		35,900	31,000	CH,AD	1
Woodland Park Apartments	Housing	\$23,984,493	2006		105,000	94,757	RS	1
The Woods - Birch East	Housing	\$14,397,199	2017		64,734		RS	1
The Woods - Birch West	Housing	\$14,372,512	2018		60,623		RS	1
The Woods - Cedar East	Housing	\$13,007,387	2018		58,485		RS	1
The Woods - Cedar West	Housing	\$12,337,946	2017		55,475		RS	1
The Woods - Maple East	Housing	\$12,627,518	2018		56,777		RS	1
The Woods - Maple West	Housing	\$12,593,935	2018		56,636		RS	1
Campus Security								
Hardscape								
Utility Infrastructure								

Deferred Maintenance total has been updated based on comprehensive Facilities Condition Assessment completed summer 2018.

AD Administrative
AT Athletics
BC Building Connector
CG Classroom/Gym
CH Classroom/Lecture
CL Classroom Laboratory
FS Food Service
LB Library
PP Physical Plant
RS Residential
ST Storage
SU Student Union
TH Theater

Required Standards:
1. Typical Building/ Construction Codes
2. Animal Welfare Act
3. Nuclear Regulatory Commission
4. Accreditation Standards
American Speech, Language, Hearing Association



Facility Assessment Summary (Continued)

Building	Cooling	Electrical	Exterior Shell	Grounds	Heating	HVAC	Interior Shell	Mechanical	New Construction	Plumbing	Safety/Code	Grand Total
Ada B. Velmetti Health Center		\$ 45,000		\$ 4,000		\$ 43,000	\$ 125,000	\$ 23,000		\$ 88,000	\$ 43,000	\$ 371,000
Art & Design	\$ 33,000		\$ 410,000	\$ 29,000	\$ 115,000	\$ 222,000	\$ 339,000	\$ 75,000		\$ 4,000		\$ 1,227,000
Berry Events Center	\$ 6,355,000	\$ 70,000	\$ 648,000			\$ 150,000	\$ 739,000	\$ 70,000		\$ 75,000		\$ 8,107,000
Butler Building	\$ 30,000	\$ 11,000	\$ 2,200								\$ 63,000	\$ 76,200
C.B. Hedcock							\$ 837,000			\$ 6,000		\$ 873,000
Campus Wide		\$ 1,000,000	\$ 1,000,000	\$ 3,614,000			\$ 1,000,000			\$ 1,838,000		\$ 8,452,000
Center Apartments	\$ 6,000	\$ 592,000	\$ 404,000	\$ 4,000	\$ 646,000		\$ 342,000			\$ 1,065,000	\$ 135,000	\$ 3,194,000
Charles C. Spooner Hall	\$ 26,000	\$ 303,000	\$ 642,000	\$ 16,000	\$ 660,000	\$ 2,218,000	\$ 1,220,000	\$ 15,000		\$ 1,705,000	\$ 255,000	\$ 7,060,000
D. J. Jacobetti Complex		\$ 718,000	\$ 135,000	\$ 5,000	\$ 590,000	\$ 2,084,000	\$ 1,904,000	\$ 64,000		\$ 2,350,000	\$ 113,000	\$ 7,963,000
Dome/PEIF Link		\$ 14,000	\$ 53,000		\$ 7,000							\$ 74,000
Don H. Bottom University Center	\$ 50,000	\$ 2,640,000	\$ 2,017,000		\$ 57,000	\$ 311,000	\$ 804,000	\$ 235,000		\$ 3,553,000	\$ 758,000	\$ 10,425,000
Edgar L. Harden Learning Resources	\$ 185,000	\$ 3,037,000	\$ 322,000	\$ 3,000	\$ 2,132,000	\$ 4,934,000	\$ 1,809,000	\$ 210,000		\$ 3,800,000	\$ 2,225,000	\$ 18,657,000
Forest A. Roberts Theatre		\$ 339,000	\$ 113,000	\$ 18,000	\$ 34,000	\$ 1,265,000	\$ 847,000			\$ 585,000	\$ 620,000	\$ 3,821,000
G.A. Spalding Residence Hall		\$ 70,000					\$ 9,839,000			\$ 56,000	\$ 200,000	\$ 10,109,000
Gunther C. Meyland Hall	\$ 63,000	\$ 330,000			\$ 299,000	\$ 80,000	\$ 611,000				\$ 230,000	\$ 1,669,000
Harry D. Lee Hall							\$ 4,515,000				\$ 27,200	\$ 4,515,000
Jacobetti Storage			\$ 14,200	\$ 29,200			\$ 30,000			\$ 5,000		\$ 100,600
John X. Jamrich Hall							\$ 393,000					\$ 398,000
Kaye House		\$ 11,200	\$ 1,000			\$ 1,500	\$ 36,400					\$ 50,100
Lincoln Apartments		\$ 2,074,000	\$ 1,410,000		\$ 886,000	\$ 380,000	\$ 467,000			\$ 1,701,000	\$ 688,000	\$ 7,606,000
Lincoln Street Laundry Building		\$ 25,000	\$ 10,000							\$ 21,000		\$ 56,000
LRC/West Science Link		\$ 17,000					\$ 10,000					\$ 27,000
Lucian F. Hunt Residence Hall	\$ 63,000	\$ 234,000			\$ 10,000	\$ 85,000	\$ 611,000			\$ 274,000	\$ 167,000	\$ 1,444,000
Luther S. West Science Building			\$ 483,000			\$ 35,000	\$ 979,000	\$ 38,000		\$ 116,000		\$ 1,651,000
Maude L. Van Antwerp Residence Hall	\$ 63,000	\$ 235,000			\$ 120,000	\$ 85,000	\$ 611,000			\$ 56,000	\$ 230,000	\$ 1,400,000
Mildred K. Magers Hall	\$ 63,000	\$ 230,000			\$ 104,000	\$ 85,000	\$ 610,000			\$ 318,000	\$ 228,000	\$ 1,638,000
New Science Facility	\$ 35,000		\$ 420,000			\$ 515,000	\$ 741,000			\$ 103,000		\$ 1,814,000
Norwood Apartments		\$ 1,344,000	\$ 803,000	\$ 12,000	\$ 609,000		\$ 405,000			\$ 964,000	\$ 142,000	\$ 4,279,000
PEIF/Berry Events Center Link			\$ 20,000				\$ 50,000	\$ 62,000			\$ 6,000	\$ 138,000
Physical Education Instructional Facility	\$ 165,000	\$ 402,000	\$ 1,331,000			\$ 821,000	\$ 1,577,000	\$ 162,000	\$ 4,000,000	\$ 5,991,000	\$ 28,000	\$ 14,477,000
Quad I Common Area	\$ 80,000	\$ 217,000	\$ 506,000		\$ 79,000	\$ 62,000	\$ 345,000	\$ 8,000		\$ 66,000	\$ 95,000	\$ 1,458,000
Quad II Common Area	\$ 75,000	\$ 1,331,000	\$ 354,000		\$ 75,000	\$ 3,061,000	\$ 437,000	\$ 45,000		\$ 1,247,000	\$ 100,000	\$ 6,725,000
Ripley Heating Plant	\$ 15,000		\$ 378,000		\$ 11,000	\$ 15,000				\$ 14,000		\$ 433,000
Russell Thomas Fine Arts		\$ 70,000	\$ 221,000	\$ 3,000	\$ 535,000	\$ 196,000	\$ 450,000	\$ 67,000		\$ 983,000	\$ 575,000	\$ 3,100,000
Sam M. Cohodas Hall	\$ 139,000	\$ 1,750,000	\$ 1,734,000	\$ 18,000	\$ 45,000	\$ 4,771,000	\$ 1,352,000	\$ 76,000		\$ 1,877,000	\$ 607,000	\$ 12,369,000
Services Building	\$ 66,000		\$ 1,395,000	\$ 24,000	\$ 120,000	\$ 515,000	\$ 571,000	\$ 42,000				\$ 2,733,000
Superior Dome	\$ 40,000	\$ 1,354,000	\$ 419,000	\$ 2,000,000		\$ 2,600,000	\$ 1,567,000	\$ 84,000		\$ 1,166,000	\$ 329,000	\$ 9,559,000
UC/Gries Link			\$ 25,000				\$ 31,000				\$ 6,000	\$ 62,000
W.D. West Residence Hall							\$ 9,941,000				\$ 80,000	\$ 10,021,000
Walter F. Gries Hall	\$ 137,000	\$ 1,819,000	\$ 800,000	\$ 12,000	\$ 56,000	\$ 240,000	\$ 740,000	\$ 108,000		\$ 1,534,000	\$ 848,000	\$ 6,294,000
Wayne B. McClintock Building		\$ 432,000	\$ 914,000		\$ 353,000	\$ 750,000	\$ 399,000	\$ 2,000		\$ 622,000	\$ 30,000	\$ 3,059,000
Whitman Hall	\$ 50,000		\$ 471,000		\$ 90,000	\$ 92,000	\$ 260,000			\$ 39,000		\$ 1,445,000
Wilkinson		\$ 68,000	\$ 37,200	\$ 42,000		\$ 2,400	\$ 26,500			\$ 9,600		\$ 185,700
Woodland Park Apartments	\$ 53,000	\$ 446,000	\$ 52,000		\$ 256,000	\$ 236,000	\$ 450,000			\$ 140,000	\$ 465,000	\$ 2,098,000
Grand Total	\$ 7,792,000	\$ 21,138,000	\$ 17,490,000	\$ 5,762,000	\$ 7,889,000	\$ 25,851,000	\$ 47,928,000	\$ 1,386,000	\$ 4,000,000	\$ 32,362,000	\$ 9,203,000	\$ 181,213,600

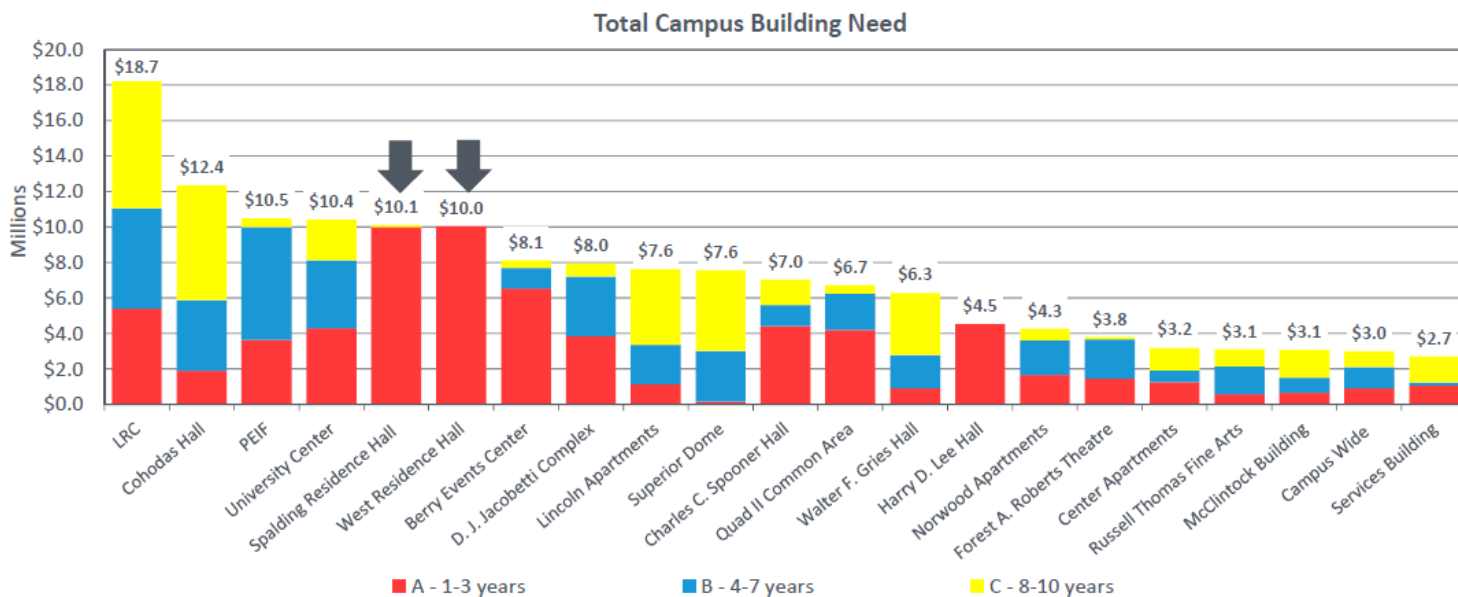


Facility Assessment Summary (Continued)

A Look at Building Needs Over 10 Years



All building needs within 10 years across campus



*Buildings with planned demolitions designated with an arrow
Project list as of September 10, 2018

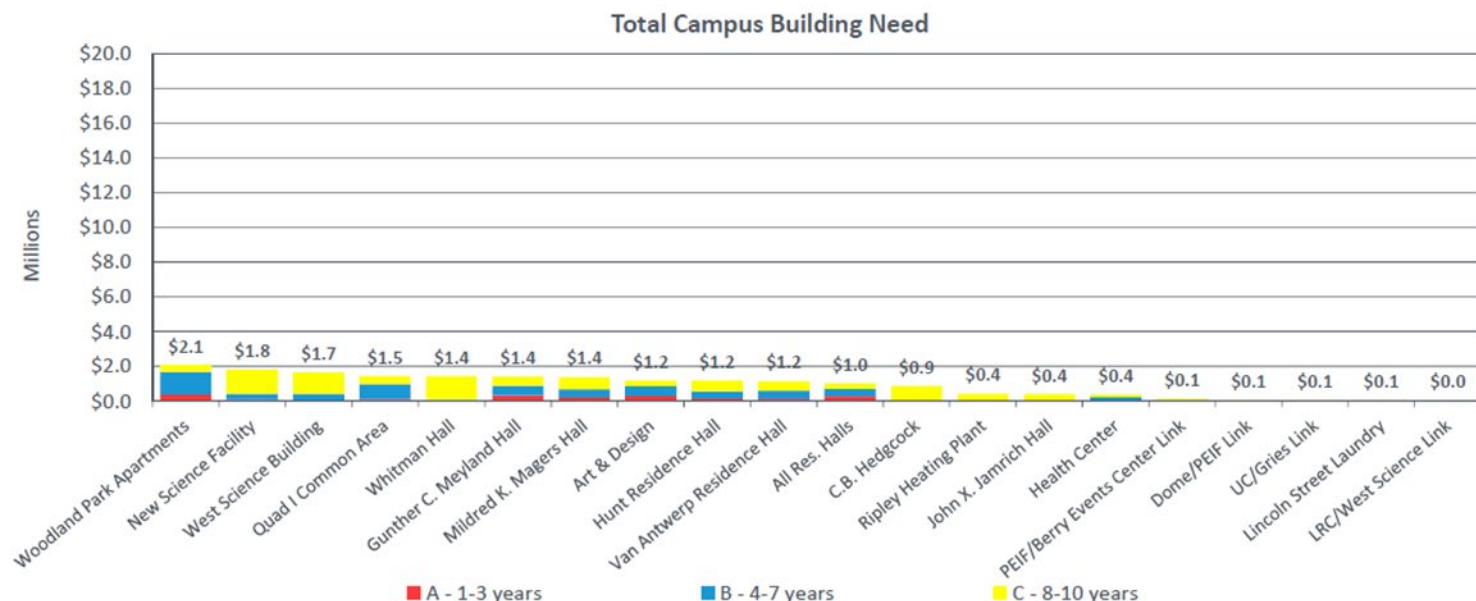
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A Look at Building Needs Over 10 Years - Continued



All building needs within 10 years across campus





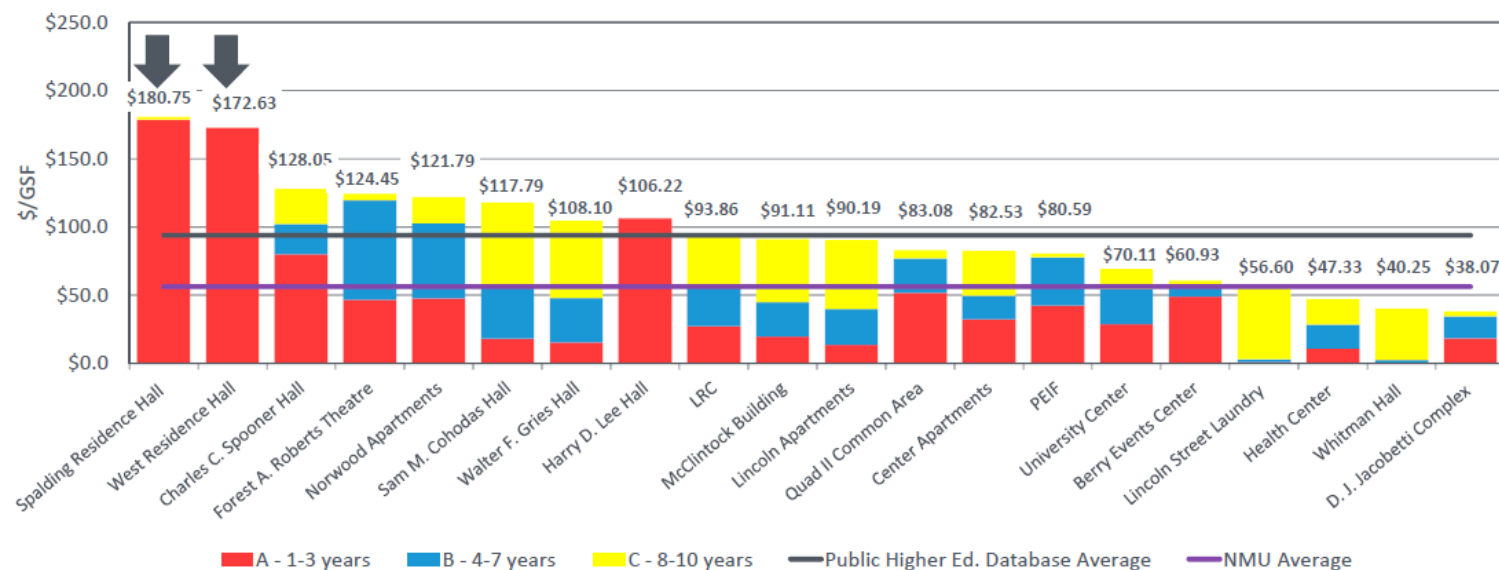
Facility Assessment Summary (Continued)

A Look at Building Needs (\$/GSF)



Total Campus \$/GSF Need is \$57.26; Public Higher Ed. Database average is \$94.00/GSF

Identified Needs by Building



*Buildings with planned demolitions designated with an arrow

Project list as of September 10, 2018

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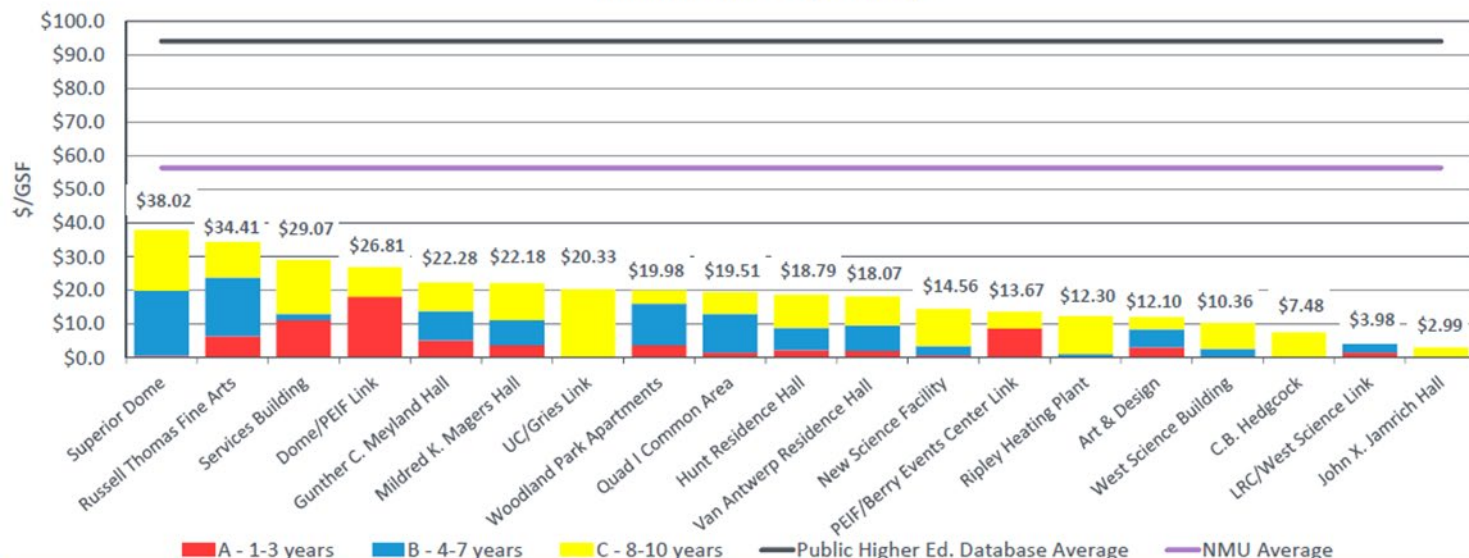
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A Look at Building Needs (\$/GSF) - Continued



Total Campus \$/GSF Need is \$57.26; Public Higher Ed. Database average is \$94.00/GSF

Identified Needs by Building





Facility Assessment Summary (Continued)

NMU Campus Map



Under \$30/GSF
\$30 - \$80/GSF
\$80 - \$150/GSF
Above \$150/GSF

\$/GSF by Building



Capital Upkeep		Repair/Maintain		Systemic Renovation		Transitional/ Gut Renovation	
Building Name	\$/GSF	Building Name	\$/GSF	Building Name	\$/GSF	Building Name	\$/GSF
John X. Jamrich Hall	\$2.99	Russell Thomas Fine Arts	\$34.41	Physical Education Instructional Facility	\$80.59	W.D. West Residence Hall	\$172.63
LRC/West Science Link	\$3.98	Superior Dome	\$38.02	Center Apartments	\$82.53	G.A. Spalding Residence Hall	\$180.75
C.B. Hedcock	\$7.48	D. J. Jacobetti Complex	\$38.07	Quad II Common Area	\$83.08		
Luther S. West Science Building	\$10.36	Whitman Hall	\$40.25	Lincoln Apartments	\$90.19		
Art & Design	\$12.10	Ada B. Vielmetti Health Center	\$47.33	Wayne B. McClintock Building	\$91.11		
Ripley Heating Plant	\$12.30	Lincoln Street Laundry Building	\$56.60	Edgar L. Harden Learning Resources	\$93.86		
PEIF/Berry Events Center Link	\$13.67	Berry Events Center	\$60.93	Harry D. Lee Hall	\$106.22		
New Science Facility	\$14.56	Don H. Bottum University Center	\$70.11	Walter F. Gries Hall	\$108.10		
Maude L. Van Antwerp Residence Hall	\$18.07			Sam M. Cohodas Hall	\$117.79		
Lucian F. Hunt Residence Hall	\$18.79			Norwood Apartments	\$121.79		
Quad I Common Area	\$19.51			Forest A. Roberts Theatre	\$124.45		
Woodland Park Apartments	\$19.98			Charles C. Spooner Hall	\$128.05		
UC/Gries Link	\$20.33						
Mildred K. Magers Hall	\$22.18						
Gunther C. Meyland Hall	\$22.28						
Dome/PEIF Link	\$26.81						
Services Building	\$29.07						



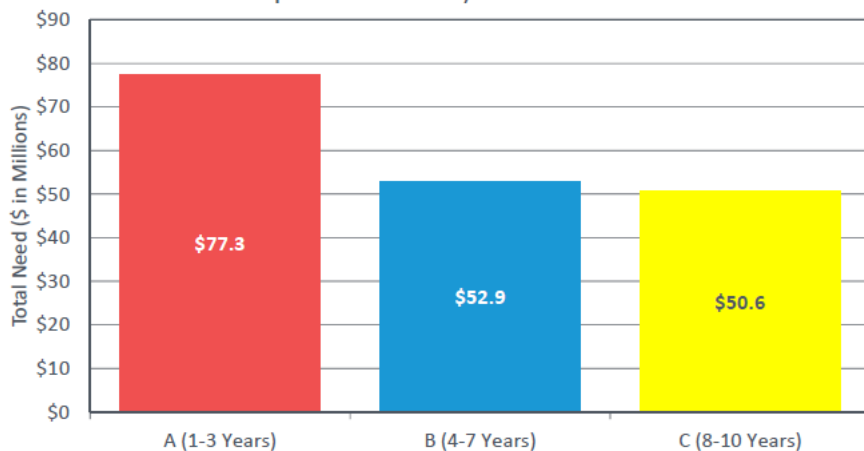
Facility Assessment Summary (Continued)



10-Year Need by Timeframe

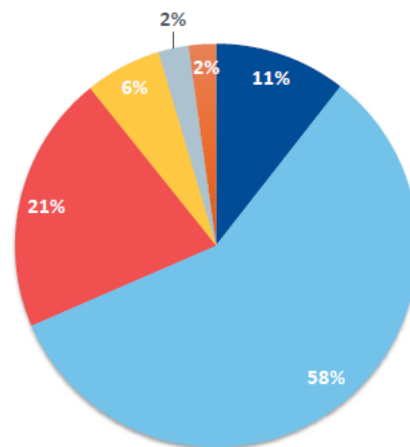
\$180,801,000 identified need coming due in the next 10 years

Updated Needs by Timeframe



# of projects	225	300	276
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10 Year Projection of BPS Identified Need



■ Building Envelope ■ Building Systems ■ Space Improvement
■ Safety/Code ■ Infrastructure ■ New Construction

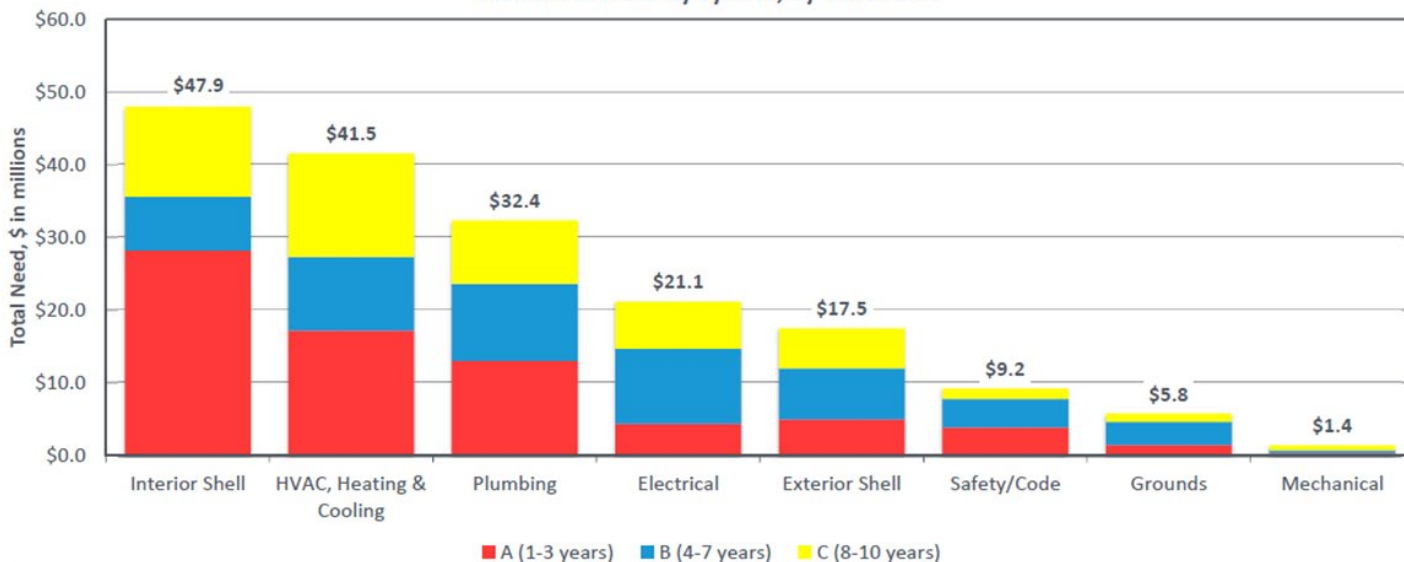
The total need noted above does not include some of the residential and storage buildings included on page 60

Identified Needs by System



Timeframes A, B, & C only – excluding new construction

Identified Needs by System, by Timeframe



*Includes Building, Infrastructure, and Grounds Needs



Facility Assessment

Long-Term Maintenance

Since September 2017, Northern has addressed long-term maintenance needs of \$6.47 million pertaining to state buildings, auxiliary buildings, utility infrastructure, security, and hardscape. Examples of some of this past year's projects include, but are not limited to, the following:

- *Academic Mall Landscaping*
- *Center & Summit St. Apartments Demolition*
- *Cohodas Office Renovations*
- *DeVos Museum Wall Improvements*
- *Exterior Door Replacement in Multiple Buildings*
- *Fine Arts Complex Energy Management System Replacement*
- *Fire Alarm System Replacement in Multiple Buildings*
- *Forensic Research Laboratory Renovation*
- *Gant Hall Demolition*
- *Housing Building Services Renovation-Quad II*
- *Invent@NMU Renovation*
- *Jacobetti Complex Office Renovations*
- *Learning Resources Center Media Production Room*
- *Library Entrance Doors Replacement*
- *New Science Facility Phoenix Controls Upgrades*
- *The Lights Dining Renovation*
- *NMU Cancer and Exercise Research/Rehabilitation Center in UP Rehab Legacy Building*
- *Outdoor Learning Area Improvements*
- *Parking Lot 11 Reconfiguration*
- *Parking Lot 14 Expansion and Resurfacing*
- *PEIF Classroom and Restroom Renovation*
- *PEIF Satellite Recreation Center –Fit Zone*
- *Security System Cameras*
- *South Campus Irrigation and Irrigation Main Extension around The Woods*
- *Superior Dome Football Office, Locker Room, and Academic Area Renovations*
- *University Center Renovation*
- *Wayfinding/Building Sign Replacement*
- *West Science Nursing Simulation Lab Renovation*
- *West Science Radiography and Seaborg Storage Renovation*
- *West Science Air Handling Unit Heating Coil Replacement*
- *Water System Improvements in Learning Resources Center, PEIF, and Thomas Fine Arts*

When buildings are renovated, long-term maintenance projects are incorporated whenever possible.



Facility Assessment

Space Utilization Initiatives

NMU uses a number of policies and tools to optimize course scheduling and evaluate/improve both room and building utilization. These policies include a formal set of scheduling guidelines that every academic department is required to follow. These guidelines are designed to ensure classroom utilization is optimized throughout the day/week.

Space Report

To improve NMU's reporting capability and better manage its space, the University implemented a new schedule software system during Winter Semester 2016 enabling all campus facility uses to be tracked for all academic and conference spaces across campus.

Below is a summary of *General Use Classroom Utilization* by building for Fall 2018 (Monday/Friday – 10 a.m. - 3 p.m.)

Building	# of General Use Classrooms	Average Room Utilization %	Average Seat Utilization %
Edgar L. Harden Learning Resources	4	60%	80%
John X. Jamrich Hall	24	82%	68%
Luther S. West Science Building	15	68%	67%
New Science Facility	2	69%	97%
Russell Thomas Fine Arts	6	69%	70%
The Woods	1	80%	72%
Wayne B. McClintock Building	7	67%	68%
Whitman Hall	2	60%	51%
Total	61	73%	68.5%

Utilization rates represent only credit classes formally scheduled by the Registrar's Office. It does not reflect events or activities scheduled by other departments or student organizations.

Space Distribution

NMU is currently conducting a comprehensive Campus Master Plan Update. This includes an evaluation of all existing space assignments and utilization. This evaluation is being done for both academic and administrative functions with the intent of identifying both opportunities to improve space utilization through potential redistribution. This update, including space recommendations, will be completed December 2018.



Assessment of Campus Utilities System

Water

NMU has approximately 78,000 linear feet of water lines on campus and tries to update aging water mains during new construction, as able. Seven City master water meters are installed around the university to simplify reading the university's usage. Sub-meters are installed on university buildings to monitor individual building use, verify the City's billing statements and help detect water loss. During the summer of 2012, 800 feet of new 10-inch water main was installed to serve both the Jamrich Hall Replacement Project and the Learning Resource Center. During the summer of 2014, 335 feet of new water main was installed around the McClintock building to replace an old municipal main that ran under the building's foundation. During Summer 2016, 1,900 feet of water main was replaced and relocated as part of NMU's new residence hall project. Also, approximately 2,000 feet of 3-inch water main has been abandoned with the demolition of 801/821 Center and the Summit Street Apartments.

Steam

Campus buildings are supplied steam from the Ripley Heating Plant. The underground steam distribution system has approximately 14,000 feet of insulated steam and condensate lines. The majority of the lines are over 20 years old. The Ripley Plant has two 70,000 lbs/hr gas boilers installed in 2006 and a combined heat and power plant constructed in 2013. The CHP plant has a 42,000 lb/hr wood fired boiler along with a 750 kW steam turbine generator. The generator can meet about 17% of the campus electrical load. A gas burner was added to the CHP boiler this summer to increase fuel options.





Assessment of Campus Utilities System

Electric

The majority of campus is supplied power from the Marquette Board of Light and Power through distribution in the Ripley Heating Plant. Over 61,000 feet of high voltage cable distributes power underground from the plant to campus buildings. The majority of the underground feeders are 15 years old. The main electrical distribution in the plant was installed in 2006.

With over 600 exterior light poles on campus, a phased approach to replacing the metal halide light fixtures with new LED fixtures has begun. Almost 90 fixtures have been replaced to date.

Gas

All gas mains on campus are owned by the SEMCO gas company. NMU is responsible for all laterals. There is a total of 48,943 linear feet of gas line on campus. In 2017, a new primary service was installed to serve The Woods residence hall complex. The new service feeds five high-efficiency boilers providing both heating and domestic hot water.

Phone

The existing Avaya MCC1 phone system cabinets, installed in 1997, were replaced by NMU in 2017 with the more efficient Avaya G450. The DC plants and battery strings for MCC1 cabinets were also eliminated. All of the new G450 Gateways use AC power and are connected to emergency generators for continued operation during emergency situations. The core of the phone system, basically the central processing point of the phone switch, was upgraded in 2018. With the completion of this last upgrade project, both the core and cabinet components of the phone system are considered to be in very good condition.

Existing campus phone lines (19,629 feet) were installed in 1985 by ATT Technologies. The buried lines are fiber optic and 24-gauge copper twisted pair. The existing fiber optic ring provides a redundant path between the main server rooms on campus. The wiring plant of the phone system, both copper and fiber, is also in very good condition with a few noted exceptions. The copper wire that serves the UC was damaged when its conduit was crushed during a reconfiguration/repaving of the UC parking lot. The situation is being address by adding a fiber path from Hedgcock and with the installation of G450 in the building to provide any and all necessary phone services. The copper line serving the apartments west of Lincoln Avenue has been damaged and spliced nearly a dozen times over the last 20 years by various construction projects and snow plows. Fiber has been installed along with category 6 wire to each apartment to serve their network and phone needs. With the demolition of the Summit apartments, the wire has been abandoned in place from the first pedestal on the east side of Tracy Avenue.



Assessment of Campus Utilities System

Storm

On campus, there is approximately 55,300 linear feet of storm sewer, with the majority of the university's storm run-off being directed to the city's system. A portion of the city's storm water is directed through university storm pipes entering campus from the southwest and exiting to the northeast. Design for all new construction tries to address storm water run-off with the use of retention ponds and ground infiltration.

In 2008, as part of the Hunt Hall renovation project, as with the 2007 Van Antwerp Project, the university reduced the amount of the rain water run-off entering the city storm water system by adding hipped roofs to the facility and shedding rain water onto a grassed, landscaped area. This reduced the water entering the city storm system by approximately 400,000 gallons annually.

Sanitary

There are 43,332 feet of sanitary sewer lines on campus. Aging sanitary sewer lines are updated with new construction, as permitted. During the summer of 2015, approximately 210 feet of original sanitary sewer piping was replaced serving the Forest Roberts Theatre. During the summer of 2016, 4,900 lineal feet of storm sewer was relocated and replaced as part of NMU's new residence hall project.

<i>Utility System</i>	<i>Need Year</i>	<i>Estimated Cost</i>
Water System	4	\$ 192,275
Steam Distribution	3	\$ 2,562,465
Storm Drain Mains	5	\$ 73,900
Sanitary Sewer Mains	2	\$ 192,275
Utility System Total		<u>\$ 3,020,915</u>



Assessment of Campus Infrastructure

Roadways (3.6 miles)

Improvements:

During the summer of 2015, approximately 3,200 feet of roadway around the Jacobetti Complex was reconstructed. This reconstruction was funded, in part, by the Michigan Institutional Roadway (MIR) program administered through the Michigan Department of Transportation. During the fall of 2015, a new 200-foot access drive was constructed to the Sports and Recreation Complex to improve vehicle ingress and egress to the site. During the summer of 2017, 1,300 feet of on-campus roads were reconstructed at the Sports and Athletics Campus and in the Academic Core of campus.

Conditions:

Because of the northern proximity of NMU and the harsh winter climate, the campus roadway structures endure severe exposure and subsequent deterioration and damage as a result of the operation of snow-clearing equipment. It can be anticipated that significant amounts of asphalt resurfacing will be required in order to maintain the roadways.

Areas Requiring Maintenance:

It is expected that additional sections of the campus' asphalt road network will have to be replaced as a result of normal wear and the harsh winter environment. At least one-half of all campus roadways will need to be repaired and resurfaced within the next 10 years. Along with the replacement of the road surface, a significant amount of roadside concrete curb and gutter will also have to be replaced and/or repaired. In 2011, the university maintenance staff evaluated all campus roadways using the State of Michigan Phaser system to prioritize all roadway repairs. Based on this survey, a long-term repair schedule with cost estimates as been developed for roadway rehabilitation.

Parking (6,700 spaces total)

Improvements:

Current parking lot conditions vary on campus and construction type ranges from paved parking with curb and gutter to unimproved gravel lots. Because of the northern climate, significant amounts of snowfall occur on campus each year. The campus hardscape structures endure more severe exposure and subsequent deterioration and damage as a result of the operation of snow-clearing equipment. To prioritize maintenance, university staff evaluates all campus parking lots annually to prioritize complete reconstruction and routine maintenance.

During the summer of 2018, major reconstruction was completed to residential parking lots 6, 10, 11, and 14 serving both residence hall students and faculty/staff/commuters.



Assessment of Campus Infrastructure

Sidewalk

There are approximately 13.95 miles of sidewalk on campus. All new sidewalks are reinforced concrete, and designed 10 feet wide to accommodate service vehicles and snow removal traffic. There are still a number of walks that do not meet the existing campus standard or are badly deteriorated and in need of replacement. Some sidewalks on campus do not meet current ADA or MBFD guidelines. There are also several areas that currently are not paved, which require a finished surface in order for the maintenance crews to be able to keep those walks clear of snow in the winter.

Several sections of the concrete sidewalk around the campus have cracked, resulting in heaving or sunken sidewalk sections, causing uneven settlement at the joints or crack lines. These areas are beginning to become minor trip hazards and are showing signs of deterioration associated with snow plowing, freeze/thaw cycling, and water infiltration.

The campus standard for sidewalks is a 10-foot wide concrete walk. The concrete surface is preferred over asphalt for the durability when scraping snow and ice in the winter months. Within the next two to five years, existing asphalt sidewalks on campus will need to be reconstructed with the campus-standard width geometry and materials so the snow plows can access these walks for clearing and maintaining. The existing walk from Lee Hall east to Waldo Street for accessing the Berry Events Center/Physical Education Instructional Facility/Superior Dome area is planned for replacement with concrete. During this summer, approximately 2,700 square feet of sidewalk was replaced at The Woods and Northern Lights Dining.

Over the next six to ten years, it is expected that additional sections of the campus' concrete sidewalk network will have cracked resulting in heaving or sunken sidewalk sections causing uneven settlement at the joints. These areas will become trip hazards as a result of the deterioration associated with snow plowing, freeze/thaw cycling, and water infiltration. It is expected that at least one-half of all sidewalks on campus will need to be replaced over the next decade.



Assessment of Campus Infrastructure

Network

Over the next six to ten years, as new buildings are added, existing buildings are remodeled, or if there is a need for increased networking performance, data, fiber strands, wiring cable, and wireless access points will be replaced. Continued upgrade has increased the amount of single mode available to each building to between 12 and 48 strands, although some legacy buildings still have only 4 strands of single mode. Those legacy buildings will continue to be addressed. The original multimode fiber between buildings, while still installed, is used very seldom for fire control and network, but its use and future is limited. No further upgrades will include multimode fiber. Each individual building is wired internally with Cat 5, Cat 5e, Cat 6, or Cat 6a cable, depending on when the cable was installed; and each individual building now has either 802.11ac or 802.11ac wave 2 WiFi throughout the building.

For all new construction, remodeling, or networking redesign, data, fiber, wiring cable, and wireless access points will be installed as follows: Buildings will be connected with an increased number of strands of single-mode fiber to facilitate 10 Gigabit Ethernet (no less than 12 strands and up to 48 strands) data wiring cable will be Cat 6 or better quality, and wireless access points will be 802.11ac wave2 with Category 6a wire.

The network core was recently upgraded and major routing points are now connected at 40gbps. By summer 2019, our Internet connection with Merit will also be a 40gbps connection. Its expected that an upgrade to 100gbps will be necessary during the summer of 2020.

In addition to the campus network, NMU LTE broadband wireless covers the City of Marquette, and surrounding cities where many faculty, staff, and students live. LTE network coverage is also being expanded across the Upper Peninsula with the addition of 64 new sites to meet the needs of the entire educational community. Any university, community college, or K-12 student that lives in the Upper Peninsula and resides in an area covered by NMU LTE network can purchase service to access the educational services provided by their educational institution. This expansion will be complete by the end of 2019.



Building Bonds

All bonds issued by the University are General Revenue Bonds. The interest on Revenue Bonds are primarily payable from General University Revenue. Total General Revenue Bonds payable are summarized as follows:

Fiscal Year	Principal	Interest	Total
2019	\$ 4,740,000	\$ 3,887,038	\$ 8,627,038
2020	5,270,000	3,697,557	8,967,557
2021	5,430,000	3,457,456	8,887,456
2022	4,820,000	3,223,881	8,043,881
2023	4,945,000	3,004,225	7,949,225
Total Five Years	25,205,000	17,270,157	42,475,157
Thereafter			
2024-2028	25,070,000	11,589,489	36,659,489
2029-2033	22,720,000	5,976,934	28,696,934
2034-2038	10,510,000	2,035,738	12,545,738
2039-2043	3,995,000	660,260	4,655,260
2044	895,000	20,138	915,138
Deferred charge on refunding, net	(2,212,892)		
Deferred re-offering premium	7,413,564		
Total	\$ 93,595,672		

Buildings currently obligated to the State Building Authority and lease terms are as follows:

Glen T. Seaborg Science Complex Renovation and Addition

Phase 1 100% obligated Expires 35 years from March 1, 2001, unless earlier terminated
Phase 2 100% obligated Expires 35 years from November 1, 2001, unless earlier terminated

Fine and Practical Arts Project – Art and Design and Russell Thomas Fine Arts

100% Obligated Expires 35 years from November 1, 2005, unless earlier terminated

Student Services Building Project

100% Obligated Expires 35 years from November 1, 2005, unless earlier terminated

John X. Jamrich Hall

100% Obligated Expires 35 years August 31, 2015, unless earlier terminated

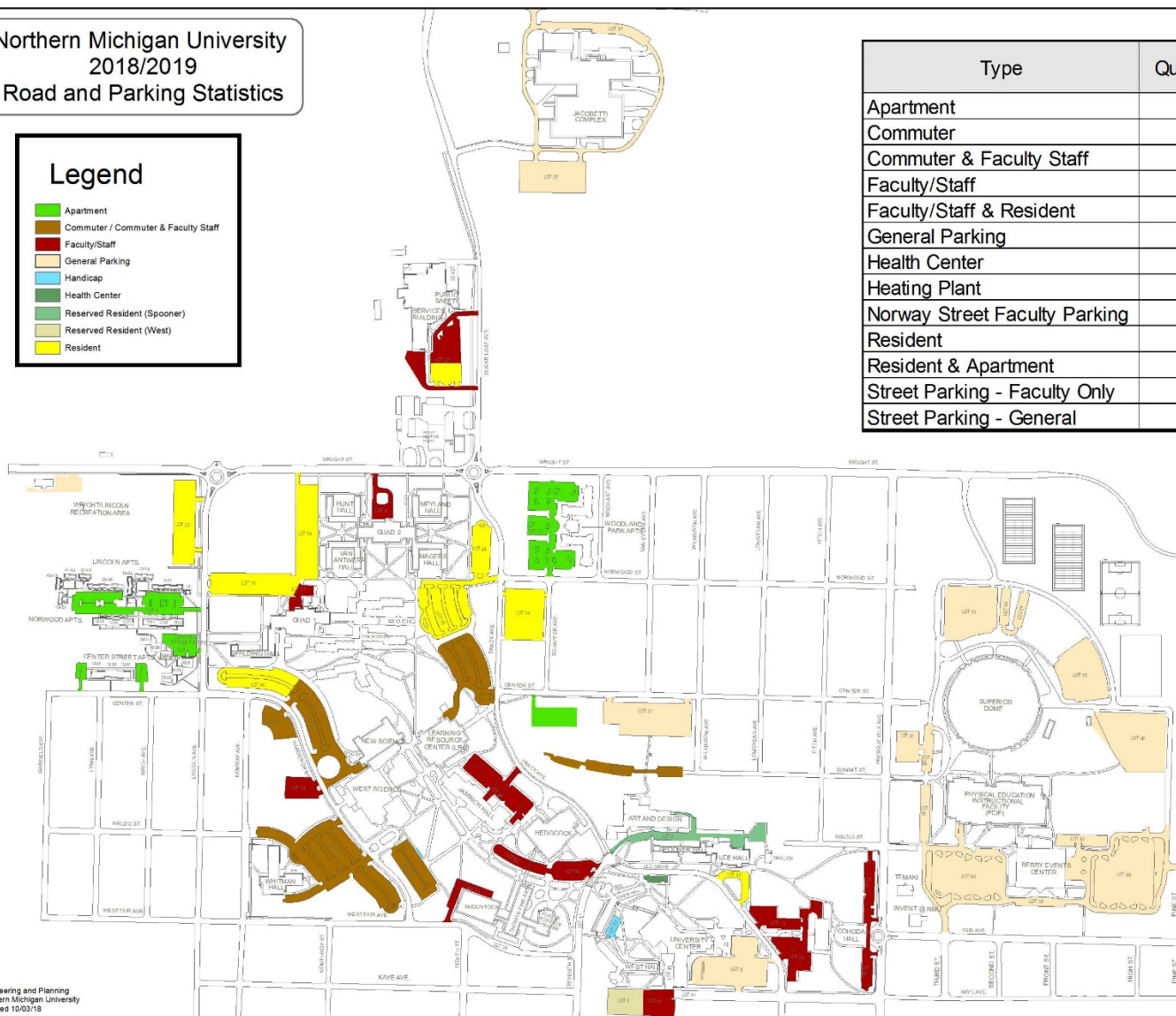


Northern Michigan University 2018/2019 Road and Parking Statistics

Legend

- Apartment
- Commuter / Commuter & Faculty Staff
- Faculty/Staff
- General Parking
- Handicap
- Health Center
- Reserved Resident (Spooners)
- Reserved Resident (West)
- Resident

Type	Quantity
Apartment	270
Commuter	451
Commuter & Faculty Staff	510
Faculty/Staff	457
Faculty/Staff & Resident	243
General Parking	3,257
Health Center	9
Heating Plant	5
Norway Street Faculty Parking	43
Resident	1,140
Resident & Apartment	206
Street Parking - Faculty Only	46
Street Parking - General	35



Engineering and Planning
Northern Michigan University
Updated 10/03/18





NORTHERN MICHIGAN UNIVERSITY

ASSESSMENT OF UNIVERSITY LAND



University Land

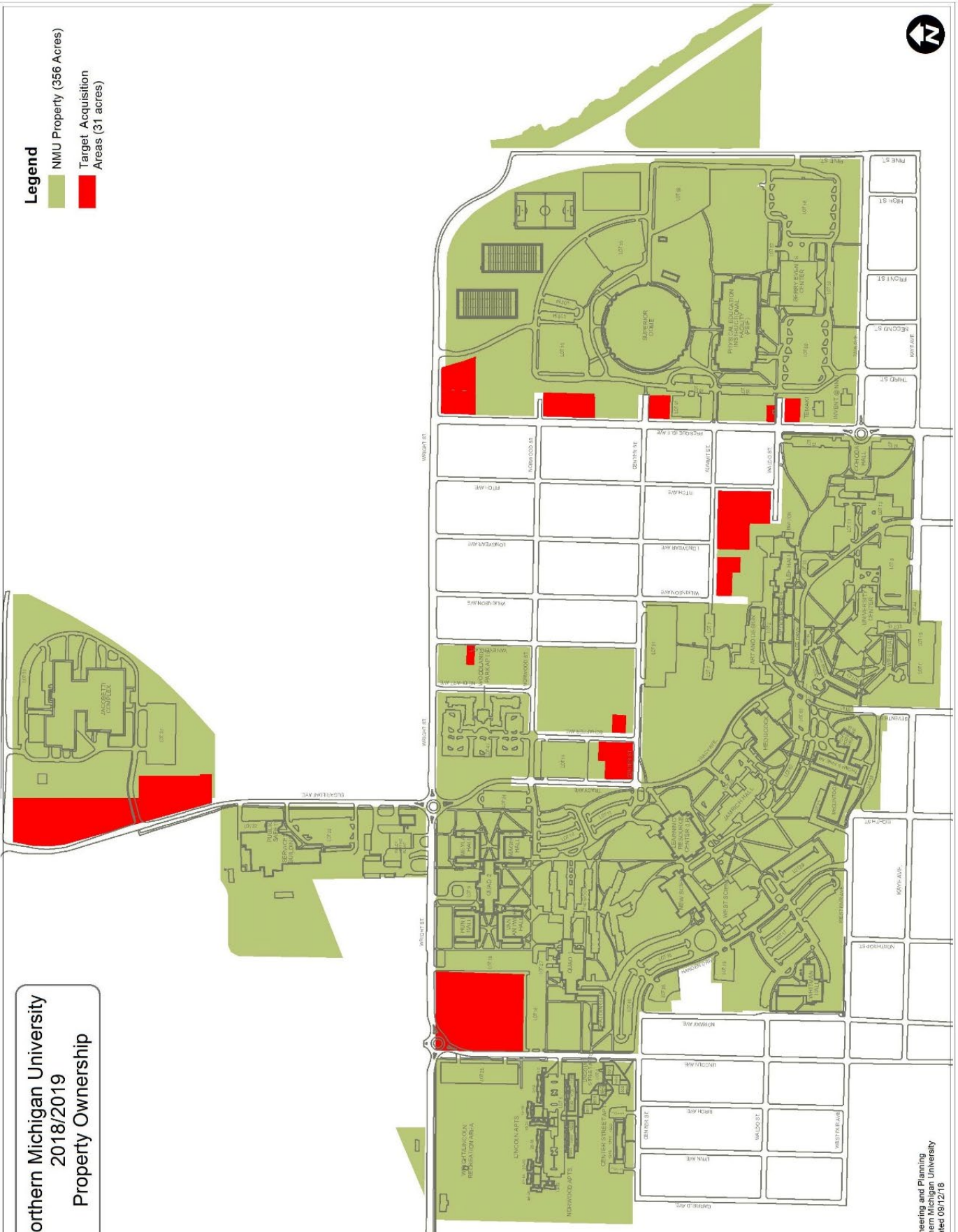
The University owns 867 acres comprised of 356 acres on the main campus, 160 acres known as the Longyear Forest in Marquette Township, 206 acres near Mount Marquette in south Marquette, 142 acres in Chocolay Township known as the English property and three acres of FROST property. The accompanying map illustrates the property owned (main campus) by NMU, as well as property within the NMU boundaries that the university will need to acquire to fulfill future expansion plans. These properties are currently under private ownership as either commercial or residential use.





Legend

- NMU Property (356 Acres)
- Target Acquisition Areas (31 acres)



Northern Michigan University
2018/2019
Property Ownership



Section V

Facilities Implementation Plan



Introduction

The foundation of any facilities implementation plan is a well developed, comprehensive Master Plan. NMU recognizes this and is currently in the process of updating its plan. This update was kicked off in July 2018 with completion anticipated in December 2018. The planning process includes a comprehensive evaluation of all university facilities many of which were built in the 1960s and 1970s. The plan will determine whether the best solution is to modernize or demolish each facility creating a state-of-the-art learning environment that accommodates current and future programmatic needs. Other criteria that determines the capital project priority ranking are the condition of building and grounds operational systems; the appearance of the physical plant as it affects recruitment; compliance with safety, building, and accessibility codes; opportunities for energy savings; comfort of building occupants; and opportunities provided through donors, government funding, grants, and joint ventures with other nonprofits or private sector entities.





Fiscal Year 2020 Capital Outlay Project Priorities

Career Tech and Engineering Technology Facility

The university has developed a new strategic plan that is focused on transforming the university through innovation and investment and the Career Tech and Engineering Technology Facility is key in support of that effort. However, the facility and its instructional technology are outdated and must be modernized to support NMU's nationally recognized faculty and academic programs critical to the state's economic growth. This facility and its labs will be designed and equipped to provide students in STEM and technical programs the required tools to be successful in industrial, engineering and service related fields that are critical to support the economic growth of the region and state. Through this capital outlay request, Northern Michigan University (NMU) will revitalize classrooms, laboratories and underutilized public areas into a vibrant, modern high-tech teaching spaces for future engineers and technical career professionals. Based on the university's expertise in collaborative learning design and incorporating technology into instruction, NMU will deliver a facility that will not only be considered "cutting edge" by today's standards, helping to produce highly skilled and employable graduates, it will also deliver a facility adaptable to change with future technologies. One example of the cutting edge technology would be the ability to deliver "virtual reality" (VR) instruction for introductory course work in programs such as welding. VR instruction opportunities may further be expanded by combining new building technologies with NMU's Educational Access Network (EAN) providing NMU the ability to deliver select instruction to rural areas. This project will also facilitate the creation of a "manufacturing design center" to support collaboration between Michigan entrepreneurs with the talents of our students and the tools of the facility to help design and develop new products to support industry. When complete, this facility will educate Michigan's up-and-coming workforce, maintain the talent of our existing workers, address regional and state workforce needs, and develop new and innovative products all helping to drive Michigan's economic growth.

Academic Teaching and Business Innovation Center

The new Academic Teaching and Business Innovation Center will breathe new life into an old academic building (McClintock) and create an economic development center that can create products, jobs, businesses and perhaps even industries for the Upper Peninsula of Michigan. The Center will not only provide a state-of-the-art home for the NMU College of Business, but also provide space to better coordinate activities with Invent@NMU, Northern Initiatives, the Innovate Marquette Smartzone, and the Center for Rural Community and Economic Development. The Academic Teaching and Business Innovation Center will be a one-stop location for entrepreneurs, investors, inventors, students, and faculty. This center will provide economic opportunities for the Upper Peninsula and beyond and an educational experience for students unlike any other university.



Summary

Fiscal Year 2020 Capital Outlay Project Priorities

<i>Career</i>	<i>Total Project Cost (in thousands)</i>
Career Tech and Engineering Technology Facility	\$28,564
Academic Teaching and Business Innovation Center	\$12,500



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Institution Name: Northern Michigan University

Project Title: Career Tech and Engineering Technology Facility

Project Focus: ☒Academic ☐Research ☒Administrative/Support

Type of Project: ☒Renovation ☐Addition ☐New Construction

Program Focus of Occupants: STEM programs and Vocational-Technical Programs

Approximate Square Footage: 113,000

Total Estimated Cost: \$28,564,000

Estimated Duration of Project: 30 months

Is the Five-Year Plan posted on the institution's public internet site? Yes ☒ No ☐

Is the requested project included in the Five-Year Capital Outlay Plan? Yes ☒ No ☐

Is the requested project focused on a single, stand-alone facility? Yes ☒ No ☐

Describe the project purpose:

The three primary goals of the project are:

- Enhance the Northern student career-technical learning experience while growing the Upper Peninsula's high-demand Career Tech and Engineering Technology Facility workforce of tomorrow.
- Work toward the State of Michigan's goal to increase career-technical education for growth in CTE-skilled workers to meet state workforce demand.
- To put cutting-edge CTE training tools and technology in the hands of Northern students and local career-technical professionals so that they can serve as the leaders in their professional fields.

The university has developed a new strategic plan that is focused on transforming the university through innovation and investment and the Career Tech and Engineering Technology Facility is key in support of that effort. However, the facility and its instructional technology are outdated and must be modernized to support NMU's nationally recognized faculty and academic programs critical to the state's economic growth. This facility and its labs will be designed and equipped to provide students in STEM and technical programs the required tools to be successful in industrial, engineering, and service related fields that are critical to support the economic growth of the region and state. Through this capital outlay request, Northern Michigan University (NMU) will revitalize classrooms, laboratories, and underutilized public areas into vibrant, modern, high-tech teaching spaces for future engineers and technical career professionals.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Based on the university's expertise in collaborative learning design and incorporating technology into instruction NMU will deliver a facility not only considered "cutting edge" by today's standards, helping to produce highly skilled and employable graduates, it will also deliver a facility adaptable to change with future technologies. One example of cutting edge technology would be the ability to deliver "virtual reality" (VR) instruction for introductory course work in programs such as welding. VR instruction opportunities may further be expanded by combining new building technologies with NMU's Educational Access Network (EAN) providing the ability to deliver select instruction to rural areas. This project will also facilitate the creation of a "manufacturing design center" to support collaboration between Michigan entrepreneurs with the talents of our students and the tools of the facility to help design and develop new products to support industry. When complete, this facility will educate Michigan's up-and-coming workforce, maintain the talent of our existing workers, address regional and state workforce needs, and develop new and innovative products all helping to drive Michigan's economic growth.

This \$28.6 million building renewal project will build on NMU's success in the use of technology and provide graduates and those being retrained with greater opportunities for success through a collaborative learning environment. The project is specifically intended to target programs in the technology, industrial, and service-related fields currently taught in labs designed in the late 1970's. The vision for this project will not only modernize the current teaching spaces for these programs with fresh, high-tech facilities, it will also allow for future program diversification and the ability to quickly configure the labs. It will also transform the building into a working laboratory. The building's infrastructure – its mechanical and electrical systems – will become part of the teaching environment. By creating "windows" into the building's HVAC and electrical systems, this facility will encourage students to pose questions, construct and interpret ideas, and elaborate on thoughts of others both in and outside traditional classrooms and laboratories greatly enhancing the impact this project will have on our future workforce.

NMU plays an integral role in economic development in the region by offering the widest variety of degrees possible. Programs taught within the Career Tech and Engineering Technology Facility include career-technical education and STEM programs. Programs within this facility can result in a diploma, certificate, associate or baccalaureate degree depending on students' aptitude and desire. Many of the programs allow students to build upon their success and advance from diploma to baccalaureate degree, if they are so inclined. Since the 1980s, these programs have provided the region with trained, ready-to-work employees in occupations such as industrial maintenance technicians, mechanical and electrical applied engineers and technicians, HVAC installers, food service and hospitality managers, millwrights, CNC programmers, construction planners and supervisors, and aircraft airframe and power plant mechanics in regional and statewide industries such as mining operations, aircraft repair facilities, construction, manufacturing, hospitality, and paper and pulp production.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Also located within the facility is the NMU Public Safety Institute (PSI). The PSI offers law enforcement training, a police academy, [Michigan Commission on Law Enforcement Standards](#) (MCOLES) testing, local corrections academy and local corrections testing. Additionally, the structure houses Continuing Education and Workforce Development (CEWD), a financially self-sustaining university department that provides professional development, personal development, and workforce training for individuals as well as local and regional companies. Last year, CEWD provided training to over 80 companies that involved 640 individuals participating in 818 hours of training. The number of people trained in 2017-2018 through customized, motorcycle, real estate appraisal, social work, CDL, bus driver, off campus and summer camps totals 2,358.

NMU has always been an innovator with implementing technology and is one of the select few universities in the nation to own, build, operate, and maintain an LTE network. This network, when complete, will provide broadband access and educational resources for the Upper Peninsula, all of rural Michigan, and the nation helping people receive a first-class education, advance their careers, and fulfill personal development goals. This project will build on our success in technology implementation and provide graduates with a greater understanding of subject matter through a collaborative, high-tech learning environment for on-campus instruction. When the subject matter permits, our LTE network will provide NMU the ability to deliver education and training from this newly renovated facility to the rural areas of Michigan providing a broader range of skills adding value to the local, regional, and state economy.

Finally, as part of the renovations, we plan to create a manufacturing center in support of NMU's highly successful Invent@NMU project which assists entrepreneurs to take their ideas for products from concept to market. This project will help create manufacturing workspace with a state-of-the-art mechanical design studio. This new space will allow students in engineering and industrial programs, along with those from the Art and Design program, to collaborate and help develop physical prototypes.

NMU is an important part of the Marquette and the Upper Peninsula economy. The renovation project will assist the university in continuing to attract talented students to learn and eventually work in the region. The project will also create jobs and enhance the local and regional economy during the construction phase of the project.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Describe the Scope of The Project:

The modernization of NMU's Career Tech and Engineering Technology Facility will include renovation to existing classrooms, industrial and service career laboratories, informal learning areas and new educational manufacturing design center. Renovation of targeted spaces achieves the following goals:

- Provides modern, high-tech classrooms and labs that provide highly collaborative instructional space for students and faculty.
- Improves opportunity for faculty-to-student collaboration by co-locating some classrooms within labs.
- Creates a living laboratory by utilizing the building's infrastructure in creative ways that expose the building's HVAC, electrical, and building controls systems for students to see and study.
- Improves the building environmental comfort by upgrading the building's thermal envelope, HVAC, air handling, and lighting.
- Provides space highly flexible and adaptable to changing innovations in teaching pedagogies and information technologies.
- Creates a manufacturing center with a workflow that parallels Invent@NMU adding a short - run capability and improving the experience of students engaged with Invent@NMU and those in manufacturing-related classes.
- Supports active learning pedagogies and changing industry technology requirements.
- Better use of space by adapting underutilized circulation and lounge space for quiet study, student break-out, and common conference space.
- Improves information technologies critical to the success of NMU's academic goals.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

It enhances Michigan's talent enhancement and job creation in the following ways:

- Training workers for high-demand career-technical professions, especially those in high state and regional demand fields.
- Sharing resources and expertise with area professionals for next-technology, methods, and tools training and retraining.
- The flexibility of the facility renovation will allow for continued change as new CTE programs of study, training tools and technologies become available over time.

The Career Tech and Engineering Technology Facility and its instructional technology are outdated and must be modernized to support NMU's nationally recognized faculty and academic programs critical to the state's economic growth. This facility and its labs will be positioned in its design and instructional technology to adapt quickly to future instructional needs as the state's workforce and industry demands evolve. Programs within the Career Tech and Engineering Technology Facility include the STEM program as well as career-technical programs, those economic "drivers" that support the state's economic and workforce strategies. They are the programs that lead to jobs that support the economic growth of the region and state. Programs such as Engineering Technology that provide trained workers for manufacturing and service industries are critical to sustaining growth. Technical education programs such as welding, building technology, and industrial maintenance provide the work-based learning experiences that are part of the state's strategy for youth and adult learners. All of these programs are important to workforce development, are demand-driven, and support state and regional manufacturing and service industries such as those contained in the State of Michigan Workforce Innovation and Opportunity Act (WIOA) Unified State Plan (July 1, 2016 through June 30, 2020).

The unique structure of the new College of Technology and Occupational Sciences provides an academic environment with more flexibility and adaptability to meet the local, regional and statewide workforce needs. Leadership staff within the college actively participate in the Regional Prosperity Initiative, Regional Workforce Advisory Board, and the U.P. Collaborative Development Council. Renovations to the facility will help accommodate the rapid response necessary for new program development and new industry technologies to meet their needs regionally and across the state.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

Ten of Michigan's Top 25 Emerging/Future In-Demand Occupations are associated with programs located in the building that will benefit from renovations as part of this project. Occupations such as CNC machine programmers, HVAC mechanics and installers, First-Line supervisors of construction workers, Mechanical Engineering technicians and Industrial Machinery mechanics are expecting 10-year changes between 14.8% and 37.9%. The renovations will provide the classroom and lab changes necessary to accommodate any increases in enrollment, new technologies being utilized by the various industries as well as enable us to employ highly effective pedagogical approaches.

CNC Machine Programmers, Metal & Plastic	37.9% growth
Industrial Machinery Mechanics	25.3% growth
First-Line Supervisors of Construction Workers	17.3% growth
HVAC Mechanics and Installers	17.2% growth
Millwrights	16.4% growth
Mechanical Engineering Technicians	14.8% growth

(Source: DTMB, Bureau of Labor Market Information and Strategic Initiatives, Occupational Employment Statistics and Projections)

As the region struggles with job loss due to reductions within the mining and anticipated losses in the energy industry, programs within the Career Tech and Engineering Technology Facility are supporting economic diversification and helping to retrain those in need of new careers.

Adding a small-scale manufacturing center will allow the various programs to better respond to the needs of entrepreneurs coming into NMU's Invent@NMU and potentially increase the number of negatively impacted employees transition into their own small manufacturing businesses. Additionally, it will allow existing programs to continue the NMU tradition of applied, hands-on student experiences utilizing the newest manufacturing technologies.

The career-technical and the STEM programs in the Career Tech and Engineering Technology Facility are important to the economy of the region and the state. Regional and national studies, such as the Milken Institute's "A Matter of Degrees: The Effect of Educational Attainment on Regional Prosperity," indicate that for every year of post-secondary education attained, real GDP per capita increases by 17.4% and it results in increases in the real wages per worker by 17.8%. The return on this renovation will include not only the increases in the regional economy due to the additional number of students obtaining a post-secondary education, but will help reduce the cost of college to families for those whose high school children attend NMU as dual enrolled or middle college students.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

This project supports the core academic mission in many ways, but three vital ways are:

- Hands-on learning with state-of-the-art tools and technology;
- Integration of the traditional classroom with the laboratory setting for increased synergy of learning;
- The opportunity to be exposed to and involved in professional-level work prior to graduation.

The proposed project is integral to the core academic mission and vision of NMU. It will enrich the quality of academic programs taught within the facility, enhance individualized attention, provide a high-tech learning environment, and provide flexible and adaptable laboratories and classrooms to position the university for the future. Additionally, it directly supports the university's core values: Community, Opportunity, Rigor, Environment, Inclusion, Connections, and Innovation.

All programs taught in the building through NMU's College of Technology and Occupational Sciences and the Department of Engineering Technology are hands-on, applied instruction focused on students engaged in the development of critical skill degrees in vocational, technical, or STEM subjects. The student base is primarily regional, supplying the Upper Peninsula industry with necessary workers who, as graduates, have acquired critical skill sets defined and articulated by regional employers to help grow their companies and improve the region economically. The programs' applied nature differs from the more theoretical focus of most traditional four-year institutions which do not usually include the same real-world application, using industry-skilled tradespeople to teach the programs.

Other core values this project will address are Rigor; Opportunity; and Innovation. Flexible labs and collaborative classrooms will provide better experiential and interdisciplinary learning environments. The renovated open spaces and interactive classrooms and labs will provide for increased student engagement and cross-disciplinary collaboration. Changes in industry will be addressed through technology improvements and active learning environments. Co-locating classrooms in labs will improve the opportunity for faculty-to-student collaborations and communications. The new flexible labs and classrooms will be capable of adapting to innovations in teaching and technological advancements to include virtual reality and 3D simulation. The intent is to leap ahead, not catch up with, current instructional technologies.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

The renovations will help create flexible, movable, interactive classrooms and labs that will also be available for community outreach and programming. In addition to use by students in credit-bearing programs, the renovated spaces will aid NMU's Continuing Education and Workforce Development's charge of assisting local and regional companies with customized training needs and providing continuing professional education for individuals within a plethora of industries and occupations. The manufacturing workflow improvements will benefit students and community members participating in entrepreneurial activities through Invent@NMU.

Invent@NMU is a unique, highly creative and energetic contract design and commercialization house. The intent is to provide NMU students will real-world experience as they bring physical products from concept to market for people who possess innovative products ideas, but lack the experience and/or the resources to execute those ideas. These improvements will also assist students benefiting from the experience of working within the entrepreneurial process at Invent@NMU. Additionally, the spaces to be renovated include areas currently used for educational collaborations with the local K-12 system for dual enrollment classes and middle college, as well afterschool activities such as 1st Robotics team meetings and workspaces.

Lastly, NMU is a two-time Carnegie-classified Community Engaged campus and the programs within the building epitomize the reasons for this designation. The Carnegie Classification on Community Engagement is under the stewardship of the New England Resource Center for Higher Education, and according to the center, the purpose of community engagement is the partnership of college and university knowledge and resources with those of the public and private sectors to enrich scholarship, research, and creative activity; enhance curriculum, teaching and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good.

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

This project is a direct investment into an aging, early 1980's industrial arts teaching facility. This re-purposing will utilize the existing structure, but modernize the building's support systems and transform its classroom and laboratories to the meet the current academic and training needs of the industry. This new facility will greatly expand the original spirit of the building and adapt it to meet modern technological needs.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

Yes, a primary focus of this capital outlay project is to address all health/safety issues identified in the current facility assessment. This project will upgrade systems original to the building that are no longer code compliant such as door hardware, emergency lighting and upgrades to stairs and handrail systems. The project will include replacing all plumbing lines that have lead solder.

5. 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 the current utilization support the need for additional space and infrastructure?

Utilization Measurement

NMU has taken a very aggressive approach to evaluating and improving space utilization. Through formal university adopted guidelines, the university has been able to meet new programmatic space needs within its existing campus footprint. This has been accomplished through the implementation of space scheduling and optimization software allowing NMU to continually track space utilization. These reports identify opportunities for scheduling improvement by academic departments and are provided and reviewed by all academic deans and department heads. Current average classroom utilization Monday through Friday is 73%, which aligns with the national standard. Utilization increases substantially to 84% for the same time period Monday through Thursday.

Proposed Project

The existing building was designed in the late 1970's and included instructional space for programs that are no longer offered nor the skills originally taught in the space required of today's work force. New uses have adapted to these spaces with minor updates. While this approach has met program needs, it is less than ideal and has created inefficiencies and program fragmentation. Additionally, there is a substantial amount of space that due to design, location, or size is not programmable for instructional purposes. This renovation will correct these inefficiencies and return this facility to a highly utilized and functional space. For example, programs such as welding, industrial maintenance, and manufacturing technology will be co-located so they can share both laboratory and classroom space. This reorganization combined with creating shared instructional spaces will allow the university to adapt existing space for new programs such as the manufacturing design studio requiring no additional square footage. The circulation space is excessive and includes outdated aesthetic features that would be converted to student study and collaboration spaces to better support student academic success.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

NMU's Utilization Benchmark and Standards:

In 2008, as part of the Campus Master Plan update, the university classified all of its existing space and then compared its spatial distribution with similar institutions based on the Society of University and College Planning (SCUP) Facilities Inventory report. This effort allowed the university to benchmark its space inventory against national averages by comparing total square footage by type (classroom, laboratory, office, etc.) against total enrollment. In addition to space distribution, the University continually evaluates space utilization. Since 2011, the University has established a target utilization rate for all classroom space between 62% to 72% based on 45 available hours. Space utilization targets are continually evaluated during every new space request to help identify opportunities to re-purpose underutilized space in lieu of building new. Since the adoption of these standards, NMU has been able to increase instructional space utilization, in some buildings in excess of 80%, while accommodating new program needs through the adaptive reuse of existing space.

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

Consistent with the University's strategic plan and core values, sustainable design will be applied through all aspects of the building renovation. LEED certification will be sought through the specification of "green" building materials, thoughtful management of materials during construction through reduction, reuse, and recycling of construction and packaging materials, and design of efficient systems that require less energy and use of natural resources. A LEED score equating to "Silver" will be sought. Utilizing the facility as a learning lab, building systems will be modified to demonstrate sustainable features within the electrical and plumbing infrastructure. These system modifications will include photovoltaic solar installation and grey water recirculation to plumbing fixtures to allow visual and applied student experience. Aligning with the university's sustainability and conversation goals, the project will reduce operating costs, provide a healthier environment for building occupants, and conserve energy.

7. Are matching 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.

Yes, capital reserves, NMU Foundation, and industry contributions.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

8. If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects and 50% of the total cost for community college projects. Does the institution intend to commit additional resources that would reduce the state share from the amounts indicated? If so, by what amount?

Yes, the university will match an additional five percent (5%) which will reduce the State's share to seventy percent (70%) or \$19,995,000.

9. Will the completed project increase operating costs to the institution? If yes, please indicate an estimate 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 will reduce operating costs for the university. The overall footprint of the facility will remain the same. However, the goal is for the facility improvement measures to decrease electricity, gas, and water consumption by ten percent (10%) annually resulting in a five-year savings of \$180,000 and help to better control utility costs. LED lighting will replace the existing fluorescent and HID fixtures resulting in up to thirty percent (30%) electric savings and greatly improve learning environment and safety. The walk-in coolers and freezers will be replaced with air-cooled units resulting in a savings of 440,000 gallons (30%) of water annually. Maintenance costs will also be reduced with the installation of new, more serviceable equipment and systems.

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

The project will have no impact on tuition.

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

If State funding is not authorized for this project, a phased approach will need to be utilized to address the current maintenance issues in this building over a period of ten years or more with a greater amount of the project cost being paid by students in their tuition. If this project is not authorized and advanced, students in these critical skilled trades programs risk falling behind their peers both regionally and nationally, simply due to obsolete and deficient facilities, infrastructure and equipment. The substandard facility support will impede recruitment of students and lead to shortages in technical trades workers failing to meet regional workforce needs. Utility and maintenance cost savings will not be captured as quickly. A phased approach will significantly delay providing the space and resources that support the creativity, critical thinking, and collaboration needed for our students and community to compete in a global economy.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Career Tech and Engineering Technology Facility *(continued)*

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

The existing facility is structurally sound but fails to meet the special needs of the academic programs taught within this building. The planned renovations intend to utilize majority of the existing structure in its current configuration. An analysis of the construction of a replacement facility of the same size indicated that it would be substantially higher in cost.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

<i>Institution Name:</i>	Northern Michigan University		
<i>Project Title:</i>	Academic Teaching and Business Innovation Center		
<i>Project Focus:</i>	<input checked="" type="checkbox"/> Academic	<input type="checkbox"/> Research	<input checked="" type="checkbox"/> Administrative/Support
<i>Type of Project:</i>	<input checked="" type="checkbox"/> Renovation	<input checked="" type="checkbox"/> Addition	<input type="checkbox"/> New Construction
<i>Program Focus of Occupants:</i>	General Classrooms, Laboratories and Academic Office Space		
<i>Approximate Square Footage:</i>	60,350		
<i>Total Estimated Cost:</i>	\$12,500,000		
<i>Estimated Duration of Project:</i>	24 Months		
<i>Is the Five-Year Plan posted on the institution's public internet site?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<i>Is the requested project included in the Five-Year Capital Outlay Plan?</i>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
<i>Is the requested project focused on a single, stand-alone facility?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Describe the project purpose:

The Wayne B. McClintock Building was open for class in 1963 as an Industrial Arts Facility. Following the relocation of these programs in 1980, the building has been occupied by various academic departments. Currently, the building is used as a general use classroom facility and, although room utilization meets the university's standard, the classrooms lack the ability to support collaborative learning and do not encourage faculty/student interaction outside of the classrooms.

The new Academic and Teaching Business Innovation Center will correct the building's deficiencies and transform the facility into a state-of-the-art teaching and business creation and innovation facility. The project will include an addition for the College of Business, enabling the university to relocate the department to the core of campus. The opportunity to combine faculty offices in close proximity to classrooms greatly increases faculty/student interaction and enhances the opportunities for collaborative learning. Relocating the College of Business in close proximity to other academic departments also increases opportunities for multidisciplinary collaboration that will strengthen programs and student learning. Placing high-tech programs such as Cyber Security (College of Business) in close proximity to the Computer Science and Criminal Justice programs will enhance the opportunity for students and faculty to learn and benefit from the strengths of the other. Finally, the vision for the Business Innovation Center is to create a facility that will provide space for Northern Initiatives, Invent@NMU, the Innovate Marquette Smartzone, and the Center for Rural Community and Economic Development to encourage and support local business leaders and entrepreneurs. The center will allow for collaboration between faculty, students, and the entrepreneur community, and enhance and stimulate research in business administration, entrepreneurship, and marketing. This facility will be enhanced with dedicated space for the NMU's highly successful Invent@NMU project, which assists entrepreneurs to take their ideas for products from concept to market, and Northern Initiatives, a local non-profit providing the financial resources to assist small business owners and entrepreneurs. The inclusion of Innovate Marquette, the new Smartzone, will further enhance the synergies of this project.



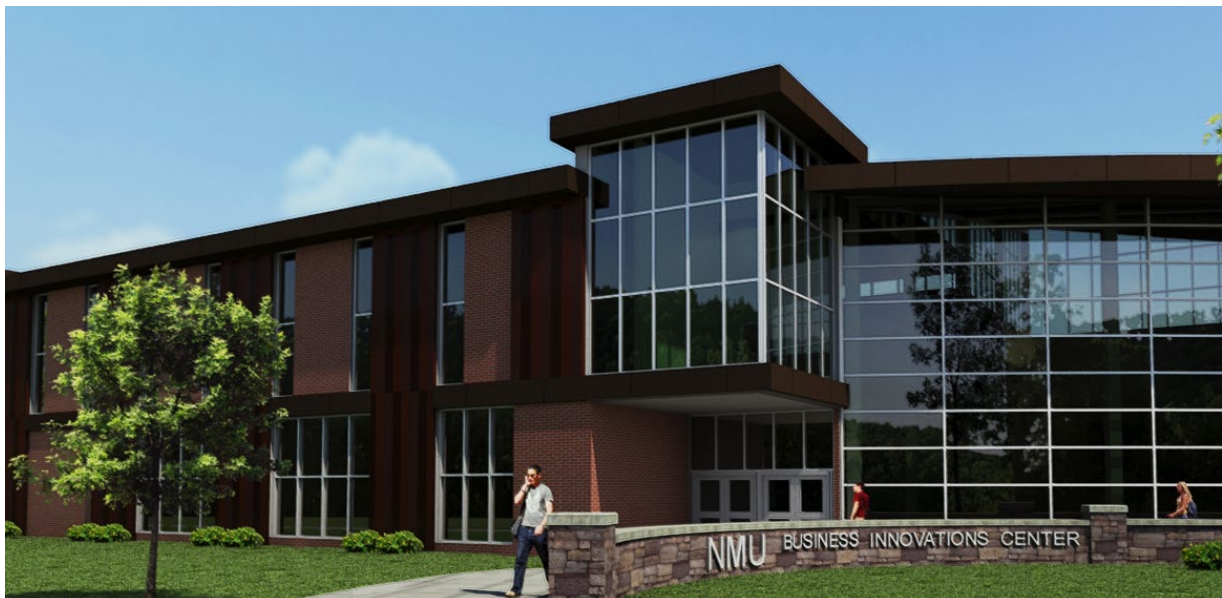
FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (continued)

Describe the scope of the project:

The transformation of the Wayne B. McClintock Building will include renovations to the existing classrooms, laboratories, and construction of an addition enabling the College of Business to relocate to the core of campus. Specific project goals include:

- Adaption of existing lecture style teaching spaces to high-tech collaborative classrooms.
- New state-of-the-art “idea” or “maker” spaces providing students with tools to create digital media (audio, video, and other) in support of their academic course work.
- New technology-enhanced study areas that allow students to collaborate on assignments, service learning projects, and interact with faculty and community business leaders.
- New high-tech laboratories to support Cyber Security preparing students to detect, prevent, and mitigate cyber-attacks in a real-world setting, a “Trading Laboratory” providing students with the ability to buy and sell stocks and commodities on the open market, and other laboratory type spaces supporting department specific programs.
- New administrative office space for the College of Business.
- Develop a Business Innovation Annex to include space for Invent@NMU, Northern Initiatives and the Innovate Marquette Smartzone making the Academic and Business Innovation Center the epicenter for business and entrepreneurial creation in the Upper Peninsula.



Concept Drawing



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

Transforming the Academic Teaching and Business Innovation Center includes modifications that vary from technology upgrades to relocation and expansion necessary to accommodate the College of Business. The facility has been maintained well and its basic structure and building facade remain in good condition. However, the existing building support systems are outdated and in poor condition. With this renovation, the opportunity will allow the HVAC, plumbing, electrical, and information technology systems to be upgraded to today's codes and standards.

Sustainability and energy efficiency will be primary concerns. LEED® Green Building certification will be sought through the specification of "green" building materials, efficient material management during construction through reduction, reuse, and recycling of construction and packaging materials, and design of efficient systems that require less energy and use of natural resources. The overall goal will be to reduce operating costs, provide a healthier environment for building occupants, and conserve energy.

The design will address barrier-free regulations and the Americans with Disabilities Act by including renovations in the areas of accessibility and support facilities. Door hardware, access ways, signage, etc. also do not meet the current program requirements.

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

The proposed capital outlay project will enhance Michigan's three initiatives by providing state residents and local businesses with access to advanced educational opportunities in an improved learning environment. Graduates will be better prepared to make effective use of technology to enhance employability and energize the economy of the state and nation.

Over the approximate two-year construction period, the project is estimated to employ a total of 130 to 160 trades people and result in over 51,000 labor hours for local trades workers.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

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

The adaptive reuse and addition for the new Academic Teaching and Business Innovation Center provides direct improvements to academic delivery for all NMU students and those in the College of Business programs. The modernizations of existing classrooms, new laboratories, improvements to the building's technology infrastructure, as well as enhancements to the temperature control, air delivery, and lighting system will support both current instruction needs as well as providing an adaptable platform for changing pedagogies.

The inclusion of existing organizations such as Northern Initiatives, Invent@NMU, and the Innovate Marquette Smartzone will create multiple opportunities for students and faculty to engage with business professionals with current educational experiences.

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

This project will transform the existing facility. The existing space is being modernized with new technologies, fixtures, and finishes. More importantly, the transformation will give the facility new focus and greater synergy with campus and the local business community. Functions are being relocated and new uses incorporated to better align with complimentary spaces that will create greater collaboration, greater interaction with business leaders, and modern learning.

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

Yes, a primary focus of this capital outlay project is to address all health/safety issues identified in the current facility assessment including improved fire suppression, exit and emergency lighting etc. The project will address over 60% of deferred maintenance.

5. *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 the current utilization support the need for additional space and infrastructure?*



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

A. Utilization Measurement:

Northern Michigan University recognizes that our buildings are our largest physical asset and the efficient utilization of these spaces is essential to the success of the university. As such NMU has taken a very aggressive approach to evaluating and improving space utilization. Through formal adopted guidelines the university has been able to meet new programmatic space needs within its existing campus foot print. This has been accomplished through continual utilization reporting conducted throughout each academic year. These reports identify opportunities for scheduling improvement by academic departments and are provided and reviewed by all academic deans and department heads. These tools allow the university to optimize space efficiency and evaluate/improve both room and building utilization.

B. Comparative Utilization Data:

In 2008, as part of the Campus Master Plan update, the university classified its existing space and then compared its spatial distribution with similar institutions based on the Society of University and College Planning (SCUP) Facilities Inventory report. This effort allowed the university to benchmark its space inventory against national averages by comparing total square footage by type (classroom, laboratory, office, etc.) against total enrollment. In addition to space distribution, the University continually evaluates space utilization. Since 2011, the University has established a target utilization rate for all classroom space between 62% to 72% based on 45 available hours. Space utilization targets are continually evaluated during every new space request to help identify opportunities to re-purpose underutilized space in lieu of building new. Since the adoption of these standards, NMU has been able to increase instructional space utilization, in some buildings in excess of 80%, while accommodating new program needs through the adaptive reuse of existing space.

C. Project Improvement on Space/Infrastructure Utilization:

The modernization of the Wayne B. McClintock Building will directly enhance instructional delivery for faculty and students occupying this facility, and will compliment the new John X. Jamrich Hall. Although many of the instructional spaces within the facility have utilization rates nearing 100%, most are much lower. This is, in part, due to the need to enhance outdated classroom technology to support modern, active learning pedagogies. Once updated, these rooms will meet the increasing demand for high-tech active learning classroom and increase their overall utilization.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

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

Sustainability and conservation efforts are goals of the University. LEED® Green Building certification will be sought through the specification of "green" building materials, thoughtful management of materials during construction through reduction, reuse, and recycling of construction and packaging materials, and design of efficient systems that require less energy and use of natural resources. At a minimum, a LEED score equating to "Silver" will be sought for the addition. The overall goal will be to reduce operating costs, provide a healthier environment for building occupants, and conserve energy.

7. ***Are matching 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?***

Yes, NMU Foundation, Industry Contributions, and Capital Bonding.

8. ***If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects and 50% of the total cost for community college projects. Does the institution intend to commit additional resources that would reduce the state share from the amounts indicated? If so, by what amount?***

Yes.

9. ***Will the completed project increase operating costs to the institution? If yes, please indicate an estimate 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 will reduce operating costs for the university. The facility improvement measures will decrease electricity, gas, and water consumption and help to better control utility costs. Maintenance costs will also be reduced with the installation of new, more serviceable equipment and systems.



FISCAL YEAR 2020 CAPITAL OUTLAY PROJECT REQUEST

Academic Teaching and Business Innovation Center (*continued*)

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

The project will have no impact on tuition.

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

If State funding is not authorized for this project, a phased approach will need to be utilized to address the current maintenance issues in this building over a period of 10 years or more with a greater amount of the project cost being bore by students in their tuition. Utility and maintenance cost savings will not be captured as quickly. A phased approach will significantly delay providing the space and resources that support the creativity, critical thinking, and collaboration needed for our students and community to compete in a global economy.

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

The construction of a new facility was considered; however, cost/benefit analysis illustrated the adaption of the existing space with an addition would be a more prudent use of resources.





Northern Michigan University
FY 2019-20 Capital Outlay Projects
Locations

#1
Career Tech
and
Engineering Technology
Facility

#2
Academic Teaching and
Business Innovation Center





Status of “In-Progress” State Building Authority Projects

NMU does not currently have any State Building Authority Projects.



University Projects Completed – November 1, 2017 to November 1, 2018 With a Total Cost between \$500,000 – \$1,000,000

Gant Hall Demolition

Demolition of a 50-year-old residence hall, Gant Hall, was completed as planned due to the opening of its replacement, The Woods, a new residence hall complex. Demolition was completed in August, 2018, for a project budget of \$680,000 that was funded by capital reserves.

Forensic Anthropology Research Laboratory

Project included creating an on-campus research lab for forensic study to support the outdoor research plot for studying body decomposition. An underutilized storage building was renovated to include a research lab, office space, conference room, locker rooms and garage. Construction was completed in July, 2018, for a project budget of \$545,000 that was funded by capital reserves.

Superior Dome Wildcat Football Center

Renovation created a football center with a reception area to display NMU's football history, a student athletes' academic study room/football team meeting/video room, coaches' office suite, conference room and retail store. Construction was completed in September, 2018, for a project budget of \$700,000; \$500,000 from private donations and \$200,000 funded by capital reserves.



University Projects Projects Planned November 1, 2018 to November 1, 2019 With a Total Cost Over \$1,000,000

New Student Housing

The construction of a new six-building, four-story, 1,229 bed residence hall complex has been completed. This complex was built to replace the four existing Quad I residence halls; three of the halls have been demolished. The fourth hall is scheduled to be demolished next summer; however, occupancy projections continue to be evaluated to determine the need for another hall connected to the north end of the new complex.

University Center Conference Center Upgrades

Renovate facility to provide modern venue with ability to host larger events for up to 1,000 guests, new signature exterior façade, adequate pre-function/networking space, renovated break-out and meeting spaces, and greater visibility for Student Enrichment offices and student organizations. Address outstanding long-term maintenance and incorporate new venue(s) to attract students and community members. With the new design, the revitalized facility will meet university, community and regional needs. Estimated project budget is \$22.325 million with construction being phased over two years.



Maintenance Projects 2020 to 2024 With a Total Cost Over \$1,000,000

As a result of the Facility Condition Analysis, the following projects have been identified:

	2020	2021	2022	2023	2024	Total
Fire Alarm Mass Notification - Housing	\$ 1,058,000					\$ 1,058,000
Berry Event Center Ice Making System				\$6,100,000		\$6,100,000
Superior Dome Turf					\$2,000,000	\$2,000,000

Total	<u>\$ 1,058,000</u>			<u>\$6,100,000</u>	<u>\$2,000,000</u>	<u>\$ 9,158,000</u>
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Maintenance Projects 2020 to 2024 With a Total Cost Over \$1,000,000

Project Descriptions

- 1) Fire Alarm/Mass Notification-Housing Facilities. The existing Simplex fire alarm systems installed in the Housing facilities are in need of replacement to meet the new university standard that includes mass notification. The Edwards fire alarm system is the new standard on campus. The new system incorporates the NFPA Part 12 recommendations for mass notification within campus facilities. This replacement project will replace the Simplex system in the four Quad II residence halls, Spooner Hall, and Woodland Park apartments for \$1.058 million. The existing system will be removed in Spalding and West residence halls when each hall is demolished. All of the new Edwards fire alarm and detection systems tie back to Public Safety Dispatch and have mass notification incorporated.
- 2) Berry Event Center Ice Making System Replacement. The existing ice making system is over 35 years old and contains R22 refrigerant that is being phased out of production. The new system will be either ammonia or CO2. A new equipment room will be constructed to house the new system and the existing room will provide additional storage space.
- 3) Superior Dome Turf Replacement. The existing turf was installed in 2008 and will need to be replaced in the next four to five years due to wear and tear.



Long-Term Infrastructure Maintenance Projects 2019 With a Total Cost Less than \$1,000,000

As a result of the Facility Condition Analysis, the following projects have been identified:

Long-Term Infrastructure Maintenance for 2019

Each year the university provides base budget and auxiliary funds to address long-term infrastructure maintenance projects. These specific projects are selected based on the condition of building and grounds operational systems; the appearance of the physical plant as it affects recruitment; compliance with safety, building, and accessibility codes; opportunities for energy savings; comfort of building occupants; and opportunities provided through donors, government funding, grants, and joint ventures with other nonprofits or private sector entities. The projects for 2019 are indicated on the following page.



Long-Term Infrastructure Maintenance Projects – 2019 With a Total Cost Less than \$1,000,000

2019 Long Term Maintenance List	General Fund Budget	Auxiliary Fund Budget	Total Project Budget
Academic, Administrative and Recreation Buildings			
<i>(Art & Design, Berry Events Center, Cohodas Hall, Learning Resources Center, New Science, PEIF, Superior Dome, West Science, Whitman Hall, other campus buildings)</i>			
<u>Interior Finishes Upgrades</u>			
Toilet Partition Replacement	\$50,000		
Flooring Replacement	\$50,000		
Roof Replacement	\$650,000		
Miscellaneous	\$100,000		
Interior Finishes Subtotal	\$850,000		
<u>Mechanical/Plumbing System Upgrades</u>			
Air Handling Unit/Coil Replacement	\$245,000		
Chiller Replacement	\$120,000		
Water Heater Replacement	\$95,000		
Miscellaneous	\$79,500		
Mechanical/Plumbing System Upgrades Subtotal	\$539,500		
<u>Electrical System Upgrades</u>			
120/208 Volt Main Transformer Replacement	\$75,000		
Interior & Exterior LED Lighting Replacement	\$170,000		
Miscellaneous	\$50,000		
Electrical System Upgrades Subtotal	\$295,000		
Building Envelope Upgrades			
Exterior Door Replacement	\$50,000		
Window Replacement	\$300,000		
Miscellaneous	\$100,000		
Building Envelope Upgrades Subtotal	\$450,000		
Hardscape Infrastructure			
(Concrete, Asphalt, Irrigation, Landscaping, etc.)	\$75,000		
Utility Infrastructure			
(Water, Sanitary, Storm, Steam, Electric, Gas, Telecom, etc.)	\$100,000		
Total General Fund Projects	\$2,309,500		\$2,309,500
Auxiliary Services Buildings			
<i>(University Center/Dining Services/Northern Lights Dining)</i>			
Furnishings/Equipment Replacement		\$125,000	
Roof Replacement		\$280,000	
Infrastructure Maintenance/Replacement		\$300,000	
Total Auxiliary Services Projects		\$705,000	\$705,000
Residence Life/Housing Buildings			
<i>(Lincoln/Center/Norwood/Woodland Park)</i>			
Apartment Upgrades		\$1,100,000	
Infrastructure Maintenance/Replacement		\$600,000	
Total Residence Life/Housing Projects		\$1,700,000	\$1,700,000
Total Budget	\$2,309,500	\$2,405,000	\$4,714,500



Future University Projects

The 2008 Campus Master Plan for Northern Michigan University (NMU) identifies growth opportunities, spatial efficiencies, land utilization, and community/business partnerships. Below is a brief description of various initiatives that are either included in the plan specifically or support the theme of the plan.

Edgar L. Harden Learning Resources Center-Lydia M. Olson Library Interior Update

Project will reflect the Library's recent strategic plan with the goals of making the library more welcoming, attractive, and user friendly; creating quiet study and group work spaces through select furnishings and shelving; improving access to electrical outlets; improving wayfinding and improving accessibility for people with disabilities. The cost of the facility improvement measures are estimated to be \$10 million.

Northern Lights Dining Facility Phase II

The project will complete the build out of the café in the east lobby and create a private dining room and upgrade finishes in the west lobby to improve the dining experience.

Medicinal Plant Chemistry Renovations

Teaching lab space needs to be provided for the new Medicinal Plant Chemistry program. Space has been identified in West Science that will be repurposed for a growing, extraction and instrumentation lab.

North Campus Irrigation

The project will complete the irrigation system around The Woods. Transmission main was installed summer 2018.

Cohodas Hall Renovation

A complete building renovation would transform the facility into a rural technology and business center to support the EAN operation and upgrade the building infrastructure. The lobby will be renovated to create a more welcoming atmosphere.

Jacobetti Complex Renovation

The Capital Outlay Request would renovate 113,000 square feet or approximately 60% of the Jacobetti Complex. The balance of the facility would be renovated to meet the future needs of the remaining academic programs and upgrade the infrastructure in those spaces.



Future University Projects

Future Student Housing Projects

With the completion of The Woods and renovation of the Quad II residence halls, the University is reviewing other housing complexes. Both condition and capacity of the existing residence halls and apartments will be considered to meet the future needs of undergraduate and graduate students. Possibilities include renovating or replacing some or all of the remaining residence halls and the aging apartment complexes. A connector is planned from The Woods to Quad II that includes a lodge type space on the north side and a resident student micro health clinic.

Student Union

A need expressed by students and staff during the 2008 Campus Master Plan update was a centrally located student union. This need was also noted as a space deficiency when the university's net assignable square footage was compared with peer institutions. Possibilities regarding location and potential services/occupants for this facility are being discussed with student organizations and staff.

Gries Hall Demolition

The Health Center located in the lowest level of Gries Hall will be included in a new Health and Wellness Center and be co-located with the Counseling Center, a minute clinic and BEAR Center. This change will enable the east wing of Gries Hall to be demolished increasing space efficiency and reducing facility operation costs. Another possibility is to build an addition onto the McClintock Building to accommodate all the academic departments in Gries Hall. This addition would permit Gries Hall to be completely demolished.

McClintock Renovation

The Capital Outlay Request would renovate 20,000 square feet or approximately 60% of the McClintock Building. The balance of the facility would be renovated to meet the future needs of the remaining academic programs and upgrade the infrastructure in those spaces. A 10,000 square foot addition would be constructed to accommodate the academic programs relocated from Gries Hall.

Lee Hall Undergraduate and Graduate Research Institute

Renovation of the oldest campus facility would create a vibrant, interdisciplinary research institute providing undergraduate and graduate students opportunities to perform research in a facility devoted to scientific study for the health sciences. Support services such as Grants, Honors, Student Fellows, and Institutional Research may also be located within the facility.



Future University Projects

Life Sciences Research Center

Lab space is in short supply in the New Science Facility and West Science Building. Recruitment of new faculty is difficult due to the lack of research lab space. Expanded scheduling is required to accommodate all the biology and chemistry classes in the teaching labs. This project would construct an addition onto the Science Complex to increase the number of wet labs for both teaching and faculty research.

NMU Golf Course Clubhouse

In conjunction with the NMU Construction Management (C/M) Program, programming and facility needs assessment have produced preliminary plans for construction of a clubhouse. The facility would be LEED Certified and be a working laboratory for students in the C/M program during the remaining phases of design and construction. The NMU Foundation is exploring opportunities for funding this \$850,000 project.

Forest Roberts Theatre Upgrades

To upgrade the building systems and enhance the aesthetics, Phase I of the renovations has been completed, which included the replacement of house lighting, air handling unit, theatrical lighting controls, roof, and interior lobby finishes. The fixed seating and acoustic panels in the theatre will be replaced in the second phase along with providing a fresh coat of paint on the floor and ceiling. With the new seats, the concrete floor in the theatre will be re-sloped and accessible seating will be provided in several viewing locations for patrons.

Edgar L. Harden Learning Resources Center Renovation

An entire building renovation would create more vibrant space for faculty, staff and students. The library would include more collaboration space, quiet study space and incorporate more technology. Improvements to the radio and TV studios and their support space would be included with the incorporation of classroom space to allow academic programs close access to live labs. All building infrastructure would be upgraded for improved reliability and energy efficiency.

Sports and Recreation Complex Renovations

This multi-year project would create a community recreation destination by renovating the Superior Dome, Physical Education Instructional Facility and Berry Event Center. The PEIF renovation would include a new pool, basketball venue and indoor tennis courts and an addition for the cross country ski team locker rooms. A hockey observation deck would be built on the east side of the Berry Event Center and the ice making system would be replaced. Facility upgrades would be included for the Superior Dome along with the construction of an exterior ice climbing wall. Site improvements would also be made to athletics fields and surrounding parking lots.



Future University Projects

Campus Mobility Improvements

The project would create a more pedestrian and bike friendly campus by reconfiguring the roadways and parking lots on the south side of campus. This would include closing 7th Street, and connecting Kaye Avenue to Fair Street. Parking lot improvements would include removing parking on the interior of campus and relocating to the perimeter. Bike and pedestrian trails would be constructed from the perimeter lots to the academic mall.

University Center Completion

This project would renovate the balance of the facility not included in the current project specifically the west wing. The Wildcat Den and first floor office area would be upgraded to better meet the needs of students. Also the building infrastructure serving those spaces would be replaced.

Wayfinding

One of the initiatives identified in the 2008 Campus Master Plan is to develop and implement a comprehensive wayfinding and signage system. This project is intended to provide a design for a comprehensive wayfinding system that clearly identifies existing campus entries and orients/directs both vehicular traffic and pedestrians (students, faculty/staff, and visitors) to facilities and amenities at Northern Michigan University.

Between 2009 and 2015, NMU installed new campus trail blazers directing visitors to the University, new ground mount gateway signs at the primary entry points to campus, boundary makers clearly identifying the perimeter of campus, two digital marquee signs and five new building identifier signs.

During 2016 and 2018, the remainder of the NMU's building identifier signs and pedestrian kiosk signs, along the primary walking route throughout campus, were replaced and/or installed. The remaining phase of this project includes parking lot designator signs, vehicle guide signs and additional campus entry signs associated with roadway work being undertaken by the City of Marquette.



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